PUBLIC REVIEW DRAFT

DIXON RANCH RESIDENTIAL PROJECT ENVIRONMENTAL IMPACT REPORT

TECHNICAL APPENDICES-VOLUME TWO:

APPENDICES C - G

STATE CLEARINGHOUSE # 2012062023

LSA

November 2014

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STATE CLEARINGHOUSE # 2012062023

Submitted to:

County of El Dorado
Community Development Agency
Planning Services Division
2850 Fairlane Court
Placerville, California 95667

Prepared by:

LSA Associates, Inc.
2215 Fifth Street
Berkeley, California 94710
510.540.7331

LSA

November 2014

APPENDIX C

AIR QUALITY AND
GLOBAL CLIMATE CHANGE MODELING DATA

Dixon Ranch

El Dorado County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	605.00	Dwelling Unit	196.43	1,089,000.00	1730

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.7 **Precipitation Freq (Days)** 70

Climate Zone 2 **Operational Year** 2018

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Water Mitigation -

Waste Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Year	tons/yr										MT/yr					
2014	0.6451	4.7589	3.9172	4.4400e-003	1.1185	0.2654	1.3839	0.6057	0.2486	0.8542	0.0000	411.4346	411.4346	0.0814	0.0000	413.1432
2015	1.4215	12.5056	9.2447	0.0117	1.3619	0.6529	2.0148	0.7318	0.6094	1.3412	0.0000	1,085.0311	1,085.0311	0.2451	0.0000	1,090.1790
2016	1.3692	12.0693	9.0422	0.0124	0.2792	0.6212	0.9004	0.1363	0.5802	0.7165	0.0000	1,137.8020	1,137.8020	0.2580	0.0000	1,143.2196
2017	8.9655	8.2425	6.9247	0.0101	0.2859	0.4424	0.7283	0.1381	0.4146	0.5528	0.0000	899.8068	899.8068	0.1868	0.0000	903.7293
2018	9.3069	1.3791	1.4170	2.1500e-003	0.0188	0.0786	0.0973	5.3200e-003	0.0750	0.0804	0.0000	187.1494	187.1494	0.0284	0.0000	187.7450
Total	**21.7082**	**38.9554**	**30.5458**	**0.0408**	**3.0642**	**2.0605**	**5.1247**	**1.6172**	**1.9278**	**3.5451**	**0.0000**	**3,721.2239**	**3,721.2239**	**0.7996**	**0.0000**	**3,738.0161**

<u>Mitigated Construction</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.6445	4.7540	3.9139	4.4400e-003	1.1185	0.2651	1.3836	0.6057	0.2483	0.8539	0.0000	411.0736	411.0736	0.0813	0.0000	412.7802
2015	1.4201	12.4919	9.2358	0.0117	1.3619	0.6522	2.0141	0.7318	0.6087	1.3405	0.0000	1,083.9610	1,083.9610	0.2449	0.0000	1,089.1029
2016	1.3679	12.0560	9.0335	0.0124	0.2792	0.6205	0.8996	0.1363	0.5795	0.7158	0.0000	1,136.6688	1,136.6688	0.2577	0.0000	1,142.0799
2017	8.9646	8.2336	6.9183	0.0101	0.2859	0.4419	0.7278	0.1381	0.4142	0.5523	0.0000	898.9602	898.9602	0.1866	0.0000	902.8781
2018	9.3068	1.3777	1.4159	2.1500e-003	0.0188	0.0785	0.0972	5.3200e-003	0.0750	0.0803	0.0000	186.9902	186.9902	0.0283	0.0000	187.5852
Total	**21.7039**	**38.9133**	**30.5174**	**0.0407**	**3.0642**	**2.0581**	**5.1223**	**1.6172**	**1.9256**	**3.5428**	**0.0000**	**3,717.6539**	**3,717.6539**	**0.7987**	**0.0000**	**3,734.4263**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.0199**	**0.1083**	**0.0930**	**0.0981**	**0.0000**	**0.1160**	**0.0464**	**0.0000**	**0.1152**	**0.0629**	**0.0000**	**0.0959**	**0.0959**	**0.1188**	**0.0000**	**0.0960**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	42.3540	0.5675	51.2884	0.0185		6.5948	6.5948		6.5946	6.5946	624.9394	269.4284	894.3678	0.5840	0.0492	921.8700
Energy	0.1049	0.8963	0.3814	5.7200e-003		0.0725	0.0725		0.0725	0.0725	0.0000	2,346.9987	2,346.9987	0.0791	0.0313	2,358.3551
Mobile	10.3544	7.3227	34.5181	0.0745	5.2087	0.0923	5.3010	1.3952	0.0850	1.4803	0.0000	5,475.9982	5,475.9982	0.2426	0.0000	5,481.0918
Waste						0.0000	0.0000		0.0000	0.0000	87.7936	0.0000	87.7936	5.1885	0.0000	196.7511
Water						0.0000	0.0000		0.0000	0.0000	12.5056	87.3517	99.8572	1.2884	0.0312	136.5686
Total	**52.8133**	**8.7866**	**86.1879**	**0.0987**	**5.2087**	**6.7596**	**11.9683**	**1.3952**	**6.7521**	**8.1474**	**725.2386**	**8,179.7770**	**8,905.0156**	**7.3825**	**0.1116**	**9,094.6366**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.4227	0.0503	4.3080	2.2000e-004		0.0534	0.0534		0.0530	0.0530	0.0000	435.7726	435.7726	0.0148	7.8600e-003	438.5207
Energy	0.0963	0.8232	0.3503	5.2500e-003		0.0666	0.0666		0.0666	0.0666	0.0000	1,967.6327	1,967.6327	0.0641	0.0270	1,977.3394
Mobile	9.4577	6.6921	32.0089	0.0674	4.7009	0.0840	4.7849	1.2592	0.0774	1.3366	0.0000	4,955.9461	4,955.9461	0.2216	0.0000	4,960.5999
Waste						0.0000	0.0000		0.0000	0.0000	70.2349	0.0000	70.2349	4.1508	0.0000	157.4009
Water						0.0000	0.0000		0.0000	0.0000	11.3801	81.7673	93.1473	1.1723	0.0283	126.5453
Total	**13.9767**	**7.5656**	**36.6671**	**0.0729**	**4.7009**	**0.2039**	**4.9048**	**1.2592**	**0.1970**	**1.4562**	**81.6149**	**7,441.1186**	**7,522.7336**	**5.6236**	**0.0632**	**7,660.4061**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	73.5356	13.8958	57.4567	26.1574	9.7502	96.9830	59.0183	9.7503	97.0823	82.1266	88.7465	9.0303	15.5225	23.8246	43.4089	15.7701

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2014	2/28/2014	5	43	
2	Building Construction	Building Construction	6/1/2014	4/18/2018	5	1013	
3	Site Preparation	Site Preparation	10/8/2014	3/24/2015	5	120	
4	Grading	Grading	3/25/2015	5/31/2017	5	571	
5	Architectural Coating	Architectural Coating	2/21/2017	12/25/2018	5	481	
6	Paving	Paving	4/19/2017	2/20/2018	5	220	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Excavators	3	8.00	162	0.38
Grading	Excavators	2	8.00	162	0.38
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	174	0.41
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	7	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	5	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	9	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	0.00	65.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.0594	0.5947	0.4112	6.0000e-004		0.0360	0.0360		0.0339	0.0339	0.0000	56.3858	56.3858	0.0146	0.0000	56.6926
Total	**0.0594**	**0.5947**	**0.4112**	**6.0000e-004**		**0.0360**	**0.0360**		**0.0339**	**0.0339**	**0.0000**	**56.3858**	**56.3858**	**0.0146**	**0.0000**	**56.6926**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7200e-003	1.3600e-003	0.0151	2.0000e-005	1.6900e-003	2.0000e-005	1.7100e-003	4.5000e-004	2.0000e-005	4.7000e-004	0.0000	1.6675	1.6675	1.1000e-004	0.0000	1.6698
Total	**4.7200e-003**	**1.3600e-003**	**0.0151**	**2.0000e-005**	**1.6900e-003**	**2.0000e-005**	**1.7100e-003**	**4.5000e-004**	**2.0000e-005**	**4.7000e-004**	**0.0000**	**1.6675**	**1.6675**	**1.1000e-004**	**0.0000**	**1.6698**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0593	0.5940	0.4108	6.0000e-004		0.0360	0.0360		0.0339	0.0339	0.0000	56.3187	56.3187	0.0146	0.0000	56.6251
Total	**0.0593**	**0.5940**	**0.4108**	**6.0000e-004**		**0.0360**	**0.0360**		**0.0339**	**0.0339**	**0.0000**	**56.3187**	**56.3187**	**0.0146**	**0.0000**	**56.6251**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7200e-003	1.3600e-003	0.0151	2.0000e-005	1.6900e-003	2.0000e-005	1.7100e-003	4.5000e-004	2.0000e-005	4.7000e-004	0.0000	1.6675	1.6675	1.1000e-004	0.0000	1.6698
Total	**4.7200e-003**	**1.3600e-003**	**0.0151**	**2.0000e-005**	**1.6900e-003**	**2.0000e-005**	**1.7100e-003**	**4.5000e-004**	**2.0000e-005**	**4.7000e-004**	**0.0000**	**1.6675**	**1.6675**	**1.1000e-004**	**0.0000**	**1.6698**

3.3 Building Construction - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2278	1.7147	1.0949	1.5700e-003		0.1246	0.1246		0.1182	0.1182	0.0000	141.2187	141.2187	0.0340	0.0000	141.9322
Total	**0.2278**	**1.7147**	**1.0949**	**1.5700e-003**		**0.1246**	**0.1246**		**0.1182**	**0.1182**	**0.0000**	**141.2187**	**141.2187**	**0.0340**	**0.0000**	**141.9322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1897	0.6791	1.1450	1.1400e-003	0.0316	0.0158	0.0474	9.0400e-003	0.0145	0.0235	0.0000	105.0950	105.0950	1.3000e-003	0.0000	105.1222
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1897**	**0.6791**	**1.1450**	**1.1400e-003**	**0.0316**	**0.0158**	**0.0474**	**9.0400e-003**	**0.0145**	**0.0235**	**0.0000**	**105.0950**	**105.0950**	**1.3000e-003**	**0.0000**	**105.1222**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2275	1.7126	1.0936	1.5600e-003		0.1244	0.1244		0.1181	0.1181	0.0000	141.0507	141.0507	0.0339	0.0000	141.7634
Total	**0.2275**	**1.7126**	**1.0936**	**1.5600e-003**		**0.1244**	**0.1244**		**0.1181**	**0.1181**	**0.0000**	**141.0507**	**141.0507**	**0.0339**	**0.0000**	**141.7634**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1897	0.6791	1.1450	1.1400e-003	0.0316	0.0158	0.0474	9.0400e-003	0.0145	0.0235	0.0000	105.0950	105.0950	1.3000e-003	0.0000	105.1222
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	0.1897	0.6791	1.1450	1.1400e-003	0.0316	0.0158	0.0474	9.0400e-003	0.0145	0.0235	0.0000	105.0950	105.0950	1.3000e-003	0.0000	105.1222

3.3 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3646	2.8022	1.8485	2.6700e-003		0.2006	0.2006		0.1901	0.1901	0.0000	239.4052	239.4052	0.0563	0.0000	240.5875
Total	**0.3646**	**2.8022**	**1.8485**	**2.6700e-003**		**0.2006**	**0.2006**		**0.1901**	**0.1901**	**0.0000**	**239.4052**	**239.4052**	**0.0563**	**0.0000**	**240.5875**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2538	0.9585	1.7088	1.9400e-003	0.0539	0.0166	0.0705	0.0154	0.0153	0.0307	0.0000	176.9067	176.9067	1.6300e-003	0.0000	176.9411
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2538**	**0.9585**	**1.7088**	**1.9400e-003**	**0.0539**	**0.0166**	**0.0705**	**0.0154**	**0.0153**	**0.0307**	**0.0000**	**176.9067**	**176.9067**	**1.6300e-003**	**0.0000**	**176.9411**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3641	2.7989	1.8463	2.6700e-003		0.2003	0.2003		0.1899	0.1899	0.0000	239.1204	239.1204	0.0562	0.0000	240.3013
Total	**0.3641**	**2.7989**	**1.8463**	**2.6700e-003**		**0.2003**	**0.2003**		**0.1899**	**0.1899**	**0.0000**	**239.1204**	**239.1204**	**0.0562**	**0.0000**	**240.3013**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2538	0.9585	1.7088	1.9400e-003	0.0539	0.0166	0.0705	0.0154	0.0153	0.0307	0.0000	176.9067	176.9067	1.6300e-003	0.0000	176.9411
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2538**	**0.9585**	**1.7088**	**1.9400e-003**	**0.0539**	**0.0166**	**0.0705**	**0.0154**	**0.0153**	**0.0307**	**0.0000**	**176.9067**	**176.9067**	**1.6300e-003**	**0.0000**	**176.9411**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3371	2.6547	1.8250	2.6700e-003		0.1854	0.1854		0.1756	0.1756	0.0000	237.8487	237.8487	0.0548	0.0000	238.9995
Total	**0.3371**	**2.6547**	**1.8250**	**2.6700e-003**		**0.1854**	**0.1854**		**0.1756**	**0.1756**	**0.0000**	**237.8487**	**237.8487**	**0.0548**	**0.0000**	**238.9995**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2424	0.8381	1.5967	1.9500e-003	0.0540	0.0127	0.0667	0.0155	0.0117	0.0272	0.0000	175.7501	175.7501	1.4100e-003	0.0000	175.7797
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2424**	**0.8381**	**1.5967**	**1.9500e-003**	**0.0540**	**0.0127**	**0.0667**	**0.0155**	**0.0117**	**0.0272**	**0.0000**	**175.7501**	**175.7501**	**1.4100e-003**	**0.0000**	**175.7797**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3367	2.6516	1.8229	2.6700e-003		0.1852	0.1852		0.1754	0.1754	0.0000	237.5657	237.5657	0.0547	0.0000	238.7151
Total	**0.3367**	**2.6516**	**1.8229**	**2.6700e-003**		**0.1852**	**0.1852**		**0.1754**	**0.1754**	**0.0000**	**237.5657**	**237.5657**	**0.0547**	**0.0000**	**238.7151**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2424	0.8381	1.5967	1.9500e-003	0.0540	0.0127	0.0667	0.0155	0.0117	0.0272	0.0000	175.7501	175.7501	1.4100e-003	0.0000	175.7797
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2424**	**0.8381**	**1.5967**	**1.9500e-003**	**0.0540**	**0.0127**	**0.0667**	**0.0155**	**0.0117**	**0.0272**	**0.0000**	**175.7501**	**175.7501**	**1.4100e-003**	**0.0000**	**175.7797**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3049	2.4542	1.7843	2.6600e-003		0.1669	0.1669		0.1580	0.1580	0.0000	234.6938	234.6938	0.0531	0.0000	235.8098
Total	**0.3049**	**2.4542**	**1.7843**	**2.6600e-003**		**0.1669**	**0.1669**		**0.1580**	**0.1580**	**0.0000**	**234.6938**	**234.6938**	**0.0531**	**0.0000**	**235.8098**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2117	0.7630	1.5056	1.9400e-003	0.0538	0.0110	0.0648	0.0154	0.0101	0.0255	0.0000	173.0198	173.0198	1.3200e-003	0.0000	173.0475

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2117**	**0.7630**	**1.5056**	**1.9400e-003**	**0.0538**	**0.0110**	**0.0648**	**0.0154**	**0.0101**	**0.0255**	**0.0000**	**173.0198**	**173.0198**	**1.3200e-003**	**0.0000**	**173.0475**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3045	2.4513	1.7822	2.6600e-003		0.1667	0.1667		0.1578	0.1578	0.0000	234.4146	234.4146	0.0531	0.0000	235.5293
Total	**0.3045**	**2.4513**	**1.7822**	**2.6600e-003**		**0.1667**	**0.1667**		**0.1578**	**0.1578**	**0.0000**	**234.4146**	**234.4146**	**0.0531**	**0.0000**	**235.5293**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2117	0.7630	1.5056	1.9400e-003	0.0538	0.0110	0.0648	0.0154	0.0101	0.0255	0.0000	173.0198	173.0198	1.3200e-003	0.0000	173.0475
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2117**	**0.7630**	**1.5056**	**1.9400e-003**	**0.0538**	**0.0110**	**0.0648**	**0.0154**	**0.0101**	**0.0255**	**0.0000**	**173.0198**	**173.0198**	**1.3200e-003**	**0.0000**	**173.0475**

3.3 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0790	0.6534	0.5199	8.0000e-004		0.0422	0.0422		0.0400	0.0400	0.0000	69.7259	69.7259	0.0156	0.0000	70.0526
Total	**0.0790**	**0.6534**	**0.5199**	**8.0000e-004**		**0.0422**	**0.0422**		**0.0400**	**0.0400**	**0.0000**	**69.7259**	**69.7259**	**0.0156**	**0.0000**	**70.0526**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0571	0.2103	0.4209	5.8000e-004	0.0162	2.9300e-003	0.0191	4.6300e-003	2.7000e-003	7.3200e-003	0.0000	51.1507	51.1507	3.8000e-004	0.0000	51.1586
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0571**	**0.2103**	**0.4209**	**5.8000e-004**	**0.0162**	**2.9300e-003**	**0.0191**	**4.6300e-003**	**2.7000e-003**	**7.3200e-003**	**0.0000**	**51.1507**	**51.1507**	**3.8000e-004**	**0.0000**	**51.1586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0789	0.6526	0.5193	8.0000e-004		0.0421	0.0421		0.0399	0.0399	0.0000	69.6430	69.6430	0.0155	0.0000	69.9693

Total	**0.0789**	**0.6526**	**0.5193**	**8.0000e-004**		**0.0421**	**0.0421**		**0.0399**	**0.0399**	**0.0000**	**69.6430**	**69.6430**	**0.0155**	**0.0000**	**69.9693**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0571	0.2103	0.4209	5.8000e-004	0.0162	2.9300e-003	0.0191	4.6300e-003	2.7000e-003	7.3200e-003	0.0000	51.1507	51.1507	3.8000e-004	0.0000	51.1586
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0571**	**0.2103**	**0.4209**	**5.8000e-004**	**0.0162**	**2.9300e-003**	**0.0191**	**4.6300e-003**	**2.7000e-003**	**7.3200e-003**	**0.0000**	**51.1507**	**51.1507**	**3.8000e-004**	**0.0000**	**51.1586**

3.4 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1602	1.7681	1.2403	1.1000e-003		0.0891	0.0891		0.0819	0.0819	0.0000	105.8850	105.8850	0.0313	0.0000	106.5421
Total	**0.1602**	**1.7681**	**1.2403**	**1.1000e-003**	**1.0840**	**0.0891**	**1.1730**	**0.5958**	**0.0819**	**0.6778**	**0.0000**	**105.8850**	**105.8850**	**0.0313**	**0.0000**	**106.5421**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	9.6000e-004	0.0107	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1827	1.1827	8.0000e-005	0.0000	1.1844
Total	**3.3500e-003**	**9.6000e-004**	**0.0107**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1827**	**1.1827**	**8.0000e-005**	**0.0000**	**1.1844**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1600	1.7660	1.2388	1.1000e-003		0.0889	0.0889		0.0818	0.0818	0.0000	105.7591	105.7591	0.0313	0.0000	106.4154
Total	**0.1600**	**1.7660**	**1.2388**	**1.1000e-003**	**1.0840**	**0.0889**	**1.1729**	**0.5958**	**0.0818**	**0.6777**	**0.0000**	**105.7591**	**105.7591**	**0.0313**	**0.0000**	**106.4154**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	9.6000e-004	0.0107	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1827	1.1827	8.0000e-005	0.0000	1.1844
Total	**3.3500e-003**	**9.6000e-004**	**0.0107**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1827**	**1.1827**	**8.0000e-005**	**0.0000**	**1.1844**

3.4 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1546	1.6951	1.1899	1.0600e-003		0.0854	0.0854		0.0785	0.0785	0.0000	101.3301	101.3301	0.0303	0.0000	101.9653
Total	**0.1546**	**1.6951**	**1.1899**	**1.0600e-003**	**1.0840**	**0.0854**	**1.1693**	**0.5958**	**0.0785**	**0.6744**	**0.0000**	**101.3301**	**101.3301**	**0.0303**	**0.0000**	**101.9653**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9300e-003	8.2000e-004	9.0500e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1700e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.1033	1.1033	7.0000e-005	0.0000	1.1047
Total	**2.9300e-003**	**8.2000e-004**	**9.0500e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1033**	**1.1033**	**7.0000e-005**	**0.0000**	**1.1047**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1544	1.6931	1.1885	1.0600e-003		0.0853	0.0853		0.0784	0.0784	0.0000	101.2095	101.2095	0.0302	0.0000	101.8440
Total	**0.1544**	**1.6931**	**1.1885**	**1.0600e-003**	**1.0840**	**0.0853**	**1.1692**	**0.5958**	**0.0784**	**0.6743**	**0.0000**	**101.2095**	**101.2095**	**0.0302**	**0.0000**	**101.8440**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9300e-003	8.2000e-004	9.0500e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1700e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.1033	1.1033	7.0000e-005	0.0000	1.1047
Total	**2.9300e-003**	**8.2000e-004**	**9.0500e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1033**	**1.1033**	**7.0000e-005**	**0.0000**	**1.1047**

3.5 Grading - 2015

Unmitigated Construction On-Site

Acres of Paving: 0

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Fugitive Dust					0.2149	0.0000	0.2149	0.1181	0.0000	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6255	7.0434	4.4264	5.9300e-003		0.3503	0.3503		0.3254	0.3254	0.0000	558.7310	558.7310	0.1564	0.0000	562.0159
Total	**0.6255**	**7.0434**	**4.4264**	**5.9300e-003**	**0.2149**	**0.3503**	**0.5652**	**0.1181**	**0.3254**	**0.4436**	**0.0000**	**558.7310**	**558.7310**	**0.1564**	**0.0000**	**562.0159**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0200	5.6300e-003	0.0620	1.0000e-004	7.9500e-003	8.0000e-005	8.0300e-003	2.1200e-003	7.0000e-005	2.1800e-003	0.0000	7.5548	7.5548	4.6000e-004	0.0000	7.5645
Total	**0.0200**	**5.6300e-003**	**0.0620**	**1.0000e-004**	**7.9500e-003**	**8.0000e-005**	**8.0300e-003**	**2.1200e-003**	**7.0000e-005**	**2.1800e-003**	**0.0000**	**7.5548**	**7.5548**	**4.6000e-004**	**0.0000**	**7.5645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2149	0.0000	0.2149	0.1181	0.0000	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6248	7.0350	4.4212	5.9200e-003		0.3499	0.3499		0.3250	0.3250	0.0000	558.0663	558.0663	0.1562	0.0000	561.3473
Total	**0.6248**	**7.0350**	**4.4212**	**5.9200e-003**	**0.2149**	**0.3499**	**0.5648**	**0.1181**	**0.3250**	**0.4432**	**0.0000**	**558.0663**	**558.0663**	**0.1562**	**0.0000**	**561.3473**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0200	5.6300e-003	0.0620	1.0000e-004	7.9500e-003	8.0000e-005	8.0300e-003	2.1200e-003	7.0000e-005	2.1800e-003	0.0000	7.5548	7.5548	4.6000e-004	0.0000	7.5645
Total	**0.0200**	**5.6300e-003**	**0.0620**	**1.0000e-004**	**7.9500e-003**	**8.0000e-005**	**8.0300e-003**	**2.1200e-003**	**7.0000e-005**	**2.1800e-003**	**0.0000**	**7.5548**	**7.5548**	**4.6000e-004**	**0.0000**	**7.5645**

3.5 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2149	0.0000	0.2149	0.1181	0.0000	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.7663	8.5701	5.5504	7.6500e-003		0.4230	0.4230		0.3928	0.3928	0.0000	714.8013	714.8013	0.2012	0.0000	719.0272
Total	**0.7663**	**8.5701**	**5.5504**	**7.6500e-003**	**0.2149**	**0.4230**	**0.6379**	**0.1181**	**0.3928**	**0.5109**	**0.0000**	**714.8013**	**714.8013**	**0.2012**	**0.0000**	**719.0272**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0235	6.4500e-003	0.0701	1.3000e-004	0.0103	9.0000e-005	0.0104	2.7300e-003	8.0000e-005	2.8200e-003	0.0000	9.4020	9.4020	5.4000e-004	0.0000	9.4133
Total	**0.0235**	**6.4500e-003**	**0.0701**	**1.3000e-004**	**0.0103**	**9.0000e-005**	**0.0104**	**2.7300e-003**	**8.0000e-005**	**2.8200e-003**	**0.0000**	**9.4020**	**9.4020**	**5.4000e-004**	**0.0000**	**9.4133**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2149	0.0000	0.2149	0.1181	0.0000	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.7654	8.5599	5.5438	7.6400e-003		0.4225	0.4225		0.3923	0.3923	0.0000	713.9509	713.9509	0.2010	0.0000	718.1719
Total	**0.7654**	**8.5599**	**5.5438**	**7.6400e-003**	**0.2149**	**0.4225**	**0.6374**	**0.1181**	**0.3923**	**0.5105**	**0.0000**	**713.9509**	**713.9509**	**0.2010**	**0.0000**	**718.1719**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0235	6.4500e-003	0.0701	1.3000e-004	0.0103	9.0000e-005	0.0104	2.7300e-003	8.0000e-005	2.8200e-003	0.0000	9.4020	9.4020	5.4000e-004	0.0000	9.4133

Total	0.0235	6.4500e-003	0.0701	1.3000e-004	0.0103	9.0000e-005	0.0104	2.7300e-003	8.0000e-005	2.8200e-003	0.0000	9.4020	9.4020	5.4000e-004	0.0000	9.4133

3.5 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2149	0.0000	0.2149	0.1181	0.0000	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2959	3.2825	2.1956	3.1700e-003		0.1606	0.1606		0.1490	0.1490	0.0000	291.5100	291.5100	0.0830	0.0000	293.2525
Total	**0.2959**	**3.2825**	**2.1956**	**3.1700e-003**	**0.2149**	**0.1606**	**0.3755**	**0.1181**	**0.1490**	**0.2672**	**0.0000**	**291.5100**	**291.5100**	**0.0830**	**0.0000**	**293.2525**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7900e-003	2.3700e-003	0.0254	5.0000e-005	4.2500e-003	4.0000e-005	4.2900e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.7365	3.7365	2.0000e-004	0.0000	3.7407
Total	**8.7900e-003**	**2.3700e-003**	**0.0254**	**5.0000e-005**	**4.2500e-003**	**4.0000e-005**	**4.2900e-003**	**1.1300e-003**	**3.0000e-005**	**1.1600e-003**	**0.0000**	**3.7365**	**3.7365**	**2.0000e-004**	**0.0000**	**3.7407**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2149	0.0000	0.2149	0.1181	0.0000	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2956	3.2786	2.1930	3.1600e-003		0.1604	0.1604		0.1489	0.1489	0.0000	291.1632	291.1632	0.0829	0.0000	292.9036
Total	**0.2956**	**3.2786**	**2.1930**	**3.1600e-003**	**0.2149**	**0.1604**	**0.3753**	**0.1181**	**0.1489**	**0.2670**	**0.0000**	**291.1632**	**291.1632**	**0.0829**	**0.0000**	**292.9036**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7900e-003	2.3700e-003	0.0254	5.0000e-005	4.2500e-003	4.0000e-005	4.2900e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.7365	3.7365	2.0000e-004	0.0000	3.7407
Total	**8.7900e-003**	**2.3700e-003**	**0.0254**	**5.0000e-005**	**4.2500e-003**	**4.0000e-005**	**4.2900e-003**	**1.1300e-003**	**3.0000e-005**	**1.1600e-003**	**0.0000**	**3.7365**	**3.7365**	**2.0000e-004**	**0.0000**	**3.7407**

3.6 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	7.9333					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0372	0.2447	0.2092	3.3000e-004		0.0194	0.0194		0.0194	0.0194	0.0000	28.5964	28.5964	3.0200e-003	0.0000	28.6598

Total	7.9705	0.2447	0.2092	3.3000e-004		0.0194	0.0194		0.0194	0.0194	0.0000	28.5964	28.5964	3.0200e-003	0.0000	28.6598

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	7.9333					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0372	0.2444	0.2090	3.3000e-004		0.0194	0.0194		0.0194	0.0194	0.0000	28.5624	28.5624	3.0200e-003	0.0000	28.6258
Total	**7.9705**	**0.2444**	**0.2090**	**3.3000e-004**		**0.0194**	**0.0194**		**0.0194**	**0.0194**	**0.0000**	**28.5624**	**28.5624**	**3.0200e-003**	**0.0000**	**28.6258**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.1021					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0384	0.2577	0.2383	3.8000e-004		0.0194	0.0194		0.0194	0.0194	0.0000	32.8094	32.8094	3.1200e-003	0.0000	32.8748
Total	**9.1404**	**0.2577**	**0.2383**	**3.8000e-004**		**0.0194**	**0.0194**		**0.0194**	**0.0194**	**0.0000**	**32.8094**	**32.8094**	**3.1200e-003**	**0.0000**	**32.8748**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.1021					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0383	0.2574	0.2380	3.8000e-004		0.0193	0.0193		0.0193	0.0193	0.0000	32.7703	32.7703	3.1100e-003	0.0000	32.8357
Total	**9.1404**	**0.2574**	**0.2380**	**3.8000e-004**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**32.7703**	**32.7703**	**3.1100e-003**	**0.0000**	**32.8357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Paving - 2017

Unmitigated Construction On-Site

Residential Indoor: 2,205,225; Residential Outdoor: 735,075; Non-Residential Indoor: 0; Non-Residential Outdoor: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1469	1.4884	1.1270	1.7500e-003		0.0845	0.0845		0.0780	0.0780	0.0000	156.8540	156.8540	0.0455	0.0000	157.8098
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1469**	**1.4884**	**1.1270**	**1.7500e-003**		**0.0845**	**0.0845**		**0.0780**	**0.0780**	**0.0000**	**156.8540**	**156.8540**	**0.0455**	**0.0000**	**157.8098**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0268	7.2300e-003	0.0775	1.6000e-004	0.0130	1.1000e-004	0.0131	3.4500e-003	1.0000e-004	3.5500e-003	0.0000	11.3962	11.3962	6.1000e-004	0.0000	11.4091
Total	**0.0268**	**7.2300e-003**	**0.0775**	**1.6000e-004**	**0.0130**	**1.1000e-004**	**0.0131**	**3.4500e-003**	**1.0000e-004**	**3.5500e-003**	**0.0000**	**11.3962**	**11.3962**	**6.1000e-004**	**0.0000**	**11.4091**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1468	1.4866	1.1256	1.7500e-003		0.0844	0.0844		0.0779	0.0779	0.0000	156.6675	156.6675	0.0455	0.0000	157.6221

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1468**	**1.4866**	**1.1256**	**1.7500e-003**		**0.0844**	**0.0844**		**0.0779**	**0.0779**	**0.0000**	**156.6675**	**156.6675**	**0.0455**	**0.0000**	**157.6221**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0268	7.2300e-003	0.0775	1.6000e-004	0.0130	1.1000e-004	0.0131	3.4500e-003	1.0000e-004	3.5500e-003	0.0000	11.3962	11.3962	6.1000e-004	0.0000	11.4091
Total	**0.0268**	**7.2300e-003**	**0.0775**	**1.6000e-004**	**0.0130**	**1.1000e-004**	**0.0131**	**3.4500e-003**	**1.0000e-004**	**3.5500e-003**	**0.0000**	**11.3962**	**11.3962**	**6.1000e-004**	**0.0000**	**11.4091**

3.7 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0255	0.2564	0.2242	3.5000e-004		0.0141	0.0141		0.0130	0.0130	0.0000	31.2464	31.2464	9.2000e-003	0.0000	31.4396
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0255**	**0.2564**	**0.2242**	**3.5000e-004**		**0.0141**	**0.0141**		**0.0130**	**0.0130**	**0.0000**	**31.2464**	**31.2464**	**9.2000e-003**	**0.0000**	**31.4396**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9100e-003	1.3100e-003	0.0138	3.0000e-005	2.6200e-003	2.0000e-005	2.6400e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.2170	2.2170	1.1000e-004	0.0000	2.2193
Total	**4.9100e-003**	**1.3100e-003**	**0.0138**	**3.0000e-005**	**2.6200e-003**	**2.0000e-005**	**2.6400e-003**	**7.0000e-004**	**2.0000e-005**	**7.2000e-004**	**0.0000**	**2.2170**	**2.2170**	**1.1000e-004**	**0.0000**	**2.2193**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0255	0.2561	0.2240	3.5000e-004		0.0141	0.0141		0.0130	0.0130	0.0000	31.2093	31.2093	9.1900e-003	0.0000	31.4022
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0255**	**0.2561**	**0.2240**	**3.5000e-004**		**0.0141**	**0.0141**		**0.0130**	**0.0130**	**0.0000**	**31.2093**	**31.2093**	**9.1900e-003**	**0.0000**	**31.4022**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9100e-003	1.3100e-003	0.0138	3.0000e-005	2.6200e-003	2.0000e-005	2.6400e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.2170	2.2170	1.1000e-004	0.0000	2.2193
Total	**4.9100e-003**	**1.3100e-003**	**0.0138**	**3.0000e-005**	**2.6200e-003**	**2.0000e-005**	**2.6400e-003**	**7.0000e-004**	**2.0000e-005**	**7.2000e-004**	**0.0000**	**2.2170**	**2.2170**	**1.1000e-004**	**0.0000**	**2.2193**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Improve Walkability Design

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.4577	6.6921	32.0089	0.0674	4.7009	0.0840	4.7849	1.2592	0.0774	1.3366	0.0000	4,955.9461	4,955.9461	0.2216	0.0000	4,960.5999
Unmitigated	10.3544	7.3227	34.5181	0.0745	5.2087	0.0923	5.3010	1.3952	0.0850	1.4803	0.0000	5,475.9982	5,475.9982	0.2426	0.0000	5,481.0918

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	4,930.75	4,930.75	4930.75	14,124,343	12,747,220
Total	4,930.75	4,930.75	4,930.75	14,124,343	12,747,220

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	42.60	21.00	36.40	86	11	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.439084	0.081385	0.198016	0.166013	0.073680	0.010085	0.011104	0.003993	0.001600	0.000945	0.008492	0.000766	0.004837

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,014.2546	1,014.2546	0.0459	9.4900e-003	1,018.1592
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,308.9755	1,308.9755	0.0592	0.0123	1,314.0146
NaturalGas Mitigated	0.0963	0.8232	0.3503	5.2500e-003		0.0666	0.0666		0.0666	0.0666	0.0000	953.3781	953.3781	0.0183	0.0175	959.1802
NaturalGas Unmitigated	0.1049	0.8963	0.3814	5.7200e-003		0.0725	0.0725		0.0725	0.0725	0.0000	1,038.0232	1,038.0232	0.0199	0.0190	1,044.3405

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.94518e+007	0.1049	0.8963	0.3814	5.7200e-003		0.0725	0.0725		0.0725	0.0725	0.0000	1,038.0232	1,038.0232	0.0199	0.0190	1,044.3405
Total		**0.1049**	**0.8963**	**0.3814**	**5.7200e-003**		**0.0725**	**0.0725**		**0.0725**	**0.0725**	**0.0000**	**1,038.0232**	**1,038.0232**	**0.0199**	**0.0190**	**1,044.3405**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.78656e+007	0.0963	0.8232	0.3503	5.2500e-003		0.0666	0.0666		0.0666	0.0666	0.0000	953.3781	953.3781	0.0183	0.0175	959.1802
Total		**0.0963**	**0.8232**	**0.3503**	**5.2500e-003**		**0.0666**	**0.0666**		**0.0666**	**0.0666**	**0.0000**	**953.3781**	**953.3781**	**0.0183**	**0.0175**	**959.1802**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	4.49957e+006	1,308.9755	0.0592	0.0123	1,314.0146
Total		**1,308.9755**	**0.0592**	**0.0123**	**1,314.0146**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	3.48647e+006	1,014.2546	0.0459	9.4900e-003	1,018.1592
Total		**1,014.2546**	**0.0459**	**9.4900e-003**	**1,018.1592**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.4227	0.0503	4.3080	2.2000e-004		0.0534	0.0534		0.0530	0.0530	0.0000	435.7726	435.7726	0.0148	7.8600e-003	438.5207
Unmitigated	42.3540	0.5675	51.2884	0.0185		6.5948	6.5948		6.5946	6.5946	624.9394	269.4284	894.3678	0.5840	0.0492	921.8700

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2531					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	37.9615	0.5150	46.7644	0.0183		6.5701	6.5701		6.5699	6.5699	624.9394	262.0905	887.0299	0.5767	0.0492	914.3793
Landscaping	0.1395	0.0525	4.5240	2.4000e-004		0.0247	0.0247		0.0247	0.0247	0.0000	7.3379	7.3379	7.2700e-003	0.0000	7.4906
Total	**42.3540**	**0.5676**	**51.2884**	**0.0185**		**6.5948**	**6.5948**		**6.5946**	**6.5946**	**624.9394**	**269.4284**	**894.3678**	**0.5840**	**0.0492**	**921.8700**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2531					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0433	0.0000	2.3600e-003	0.0000		0.0299	0.0299		0.0296	0.0296	0.0000	428.8753	428.8753	8.2200e-003	7.8600e-003	431.4854
Landscaping	0.1262	0.0503	4.3056	2.2000e-004		0.0234	0.0234		0.0234	0.0234	0.0000	6.8973	6.8973	6.5700e-003	0.0000	7.0353
Total	**4.4227**	**0.0503**	**4.3080**	**2.2000e-004**		**0.0534**	**0.0534**		**0.0531**	**0.0531**	**0.0000**	**435.7726**	**435.7726**	**0.0148**	**7.8600e-003**	**438.5207**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	93.1473	1.1723	0.0283	126.5453
Unmitigated	99.8572	1.2884	0.0312	136.5686

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	39.4182 / 24.8506	99.8572	1.2884	0.0312	136.5686
Total		**99.8572**	**1.2884**	**0.0312**	**136.5686**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Single Family Housing	35.8705 / 24.8506	93.1473	1.1723	0.0283	126.5453
Total		**93.1473**	**1.1723**	**0.0283**	**126.5453**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO_2	CH_4	N_2O	CO_2e
	MT/yr			
Mitigated	70.2349	4.1508	0.0000	157.4009
Unmitigated	87.7936	5.1885	0.0000	196.7511

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO_2	CH_4	N_2O	CO_2e
Land Use	tons	MT/yr			
Single Family Housing	432.5	87.7936	5.1885	0.0000	196.7511
Total		**87.7936**	**5.1885**	**0.0000**	**196.7511**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	346	70.2349	4.1508	0.0000	157.4009
Total		**70.2349**	**4.1508**	**0.0000**	**157.4009**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Dixon Ranch

El Dorado County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	605.00	Dwelling Unit	196.43	1,089,000.00	1730

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	2			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on anticipated project phasing

Vehicle Trips - Trip Generatino based on Kimley-Horn TIA for the project 8.15 trips per day per unit average

Area Mitigation -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	16.5521	98.7464	90.2693	0.1056	20.4329	5.5896	26.0225	10.5668	5.1896	15.7564	0.0000	10,563.2291	10,563.2291	2.0679	0.0000	10,606.6555
2015	16.8855	117.3329	94.1777	0.1283	20.4330	6.0630	25.7820	10.5668	5.6207	15.5306	0.0000	12,794.7074	12,794.7074	2.7447	0.0000	12,852.3452
2016	15.8271	110.5538	89.7117	0.1283	9.8451	5.6653	15.5104	4.1063	5.2504	9.3567	0.0000	12,615.6052	12,615.6052	2.7167	0.0000	12,672.6559
2017	88.5524	125.2935	104.3914	0.1597	10.3302	6.5138	16.8441	4.2350	6.0408	10.2758	0.0000	15,435.1979	15,435.1979	3.4458	0.0000	15,507.5587
2018	80.8022	48.5942	53.4632	0.0959	2.7047	2.6762	5.3808	0.7259	2.5042	3.2301	0.0000	8,783.7869	8,783.7869	1.4787	0.0000	8,814.8386
Total	**218.6193**	**500.5207**	**432.0132**	**0.6178**	**63.7459**	**26.5079**	**89.5397**	**30.2008**	**24.6057**	**54.1495**	**0.0000**	**60,192.5265**	**60,192.5265**	**12.4537**	**0.0000**	**60,454.0539**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	16.5437	98.6649	90.2125	0.1055	20.4329	5.5847	26.0176	10.5668	5.1850	15.7518	0.0000	10,556.9307	10,556.9307	2.0662	0.0000	10,600.3202
2015	16.8759	117.2328	94.1138	0.1282	20.4330	6.0576	25.7772	10.5668	5.6157	15.5262	0.0000	12,786.2891	12,786.2891	2.7423	0.0000	12,843.8766
2016	15.8180	110.4590	89.6496	0.1282	9.8451	5.6602	15.5053	4.1063	5.2457	9.3520	0.0000	12,607.2708	12,607.2708	2.7143	0.0000	12,664.2715
2017	88.5419	125.1848	104.3166	0.1596	10.3302	6.5079	16.8382	4.2350	6.0353	10.2703	0.0000	15,424.6329	15,424.6329	3.4427	0.0000	15,496.9299
2018	80.7980	48.5553	53.4321	0.0959	2.7047	2.6738	5.3785	0.7259	2.5020	3.2278	0.0000	8,779.0743	8,779.0743	1.4774	0.0000	8,810.0997
Total	**218.5775**	**500.0967**	**431.7247**	**0.6174**	**63.7459**	**26.4842**	**89.5167**	**30.2008**	**24.5837**	**54.1281**	**0.0000**	**60,154.1978**	**60,154.1978**	**12.4429**	**0.0000**	**60,415.4979**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.0191**	**0.0847**	**0.0668**	**0.0631**	**0.0000**	**0.0894**	**0.0257**	**0.0000**	**0.0895**	**0.0395**	**0.0000**	**0.0637**	**0.0637**	**0.0870**	**0.0000**	**0.0638**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	960.0775	13.1453	1,190.8620	0.4482		160.5211	160.5211		160.5164	160.5164	16,801.8971	7,136.3447	23,938.2418	15.5944	1.3216	24,675.4196
Energy	0.5747	4.9113	2.0899	0.0314		0.3971	0.3971		0.3971	0.3971		6,269.7247	6,269.7247	0.1202	0.1149	6,307.8812
Mobile	56.4463	37.0447	189.2232	0.4366	29.8492	0.5073	30.3565	7.9680	0.4674	8.4354		35,290.0439	35,290.0439	1.4707		35,320.9277
Total	**1,017.0985**	**55.1013**	**1,382.1751**	**0.9161**	**29.8492**	**161.4255**	**191.2747**	**7.9680**	**161.3809**	**169.3489**	**16,801.8971**	**48,696.1133**	**65,498.0104**	**17.1853**	**1.4365**	**66,304.2285**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	35.0986	0.5585	47.8975	2.4500e-003		0.9905	0.9905		0.9828	0.9828	0.0000	11,615.0655	11,615.0655	0.3015	0.2114	11,686.9291
Energy	0.5279	4.5108	1.9195	0.0288		0.3647	0.3647		0.3647	0.3647		5,758.4629	5,758.4629	0.1104	0.1056	5,793.5080
Mobile	51.7119	33.8601	173.9206	0.3951	26.9389	0.4617	27.4006	7.1911	0.4254	7.6165		31,933.9263	31,933.9263	1.3437		31,962.1437
Total	**87.3384**	**38.9294**	**223.7376**	**0.4263**	**26.9389**	**1.8169**	**28.7558**	**7.1911**	**1.7728**	**8.9640**	**0.0000**	**49,307.4547**	**49,307.4547**	**1.7556**	**0.3170**	**49,442.5808**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	91.4130	29.3494	83.8126	53.4615	9.7500	98.8745	84.9662	9.7500	98.9015	94.7068	100.0000	-1.2554	24.7192	89.7845	77.9359	25.4307

Dixon Ranch

El Dorado County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	605.00	Dwelling Unit	196.43	1,089,000.00	1730

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	2			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on anticipated project phasing

Vehicle Trips - Trip Generatino based on Kimley-Horn TIA for the project 8.15 trips per day per unit average

Area Mitigation -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	481.00

tblConstructionPhase	NumDays	3,100.00	1,013.00
tblConstructionPhase	NumDays	200.00	43.00
tblConstructionPhase	NumDays	310.00	571.00
tblConstructionPhase	PhaseEndDate	4/4/2019	12/25/2018
tblConstructionPhase	PhaseEndDate	1/17/2018	4/18/2018
tblConstructionPhase	PhaseEndDate	10/29/2019	2/20/2018
tblConstructionPhase	PhaseEndDate	10/3/2018	3/24/2015
tblConstructionPhase	PhaseStartDate	6/1/2017	2/21/2017
tblConstructionPhase	PhaseStartDate	3/1/2014	6/1/2014
tblConstructionPhase	PhaseStartDate	12/26/2018	4/19/2017
tblConstructionPhase	PhaseStartDate	4/19/2018	10/8/2014
tblGrading	AcresOfGrading	1,427.50	775.00
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	ST_TR	10.08	8.15
tblVehicleTrips	SU_TR	8.77	8.15
tblVehicleTrips	WD_TR	9.57	8.15

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	17.9422	99.4427	96.9336	0.1033	20.4329	5.5927	26.0256	10.5668	5.1925	15.7592	0.0000	10,349.8561	10,349.8561	2.0683	0.0000	10,393.2907
2015	18.1014	117.9235	100.5986	0.1260	20.4330	6.0649	25.7838	10.5668	5.6224	15.5323	0.0000	12,586.2822	12,586.2822	2.7450	0.0000	12,643.9271
2016	16.9479	111.0719	95.7553	0.1260	9.8451	5.6666	15.5117	4.1063	5.2516	9.3579	0.0000	12,414.1215	12,414.1215	2.7170	0.0000	12,471.1790
2017	89.7419	125.8108	110.0772	0.1568	10.3302	6.5149	16.8452	4.2350	6.0418	10.2768	0.0000	15,195.7419	15,195.7419	3.4461	0.0000	15,268.1095

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2018	81.8279	49.0430	58.9100	0.0932	2.7047	2.6770	5.3817	0.7259	2.5050	3.2308	0.0000	8,567.5707	8,567.5707	1.4790	0.0000	8,598.6291
Total	**224.5612**	**503.2919**	**462.2747**	**0.6053**	**63.7459**	**26.5162**	**89.5480**	**30.2008**	**24.6133**	**54.1571**	**0.0000**	**59,113.5725**	**59,113.5725**	**12.4554**	**0.0000**	**59,375.1353**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	17.9338	99.3612	96.8768	0.1033	20.4329	5.5878	26.0207	10.5668	5.1879	15.7547	0.0000	10,343.5578	10,343.5578	2.0666	0.0000	10,386.9554
2015	18.0918	117.8235	100.5348	0.1259	20.4330	6.0594	25.7791	10.5668	5.6174	15.5279	0.0000	12,577.8639	12,577.8639	2.7426	0.0000	12,635.4585
2016	16.9388	110.9771	95.6933	0.1259	9.8451	5.6615	15.5066	4.1063	5.2469	9.3532	0.0000	12,405.7872	12,405.7872	2.7146	0.0000	12,462.7946
2017	89.7314	125.7021	110.0024	0.1567	10.3302	6.5091	16.8393	4.2350	6.0364	10.2714	0.0000	15,185.1769	15,185.1769	3.4430	0.0000	15,257.4807
2018	81.8237	49.0041	58.8789	0.0932	2.7047	2.6746	5.3793	0.7259	2.5028	3.2286	0.0000	8,562.8581	8,562.8581	1.4777	0.0000	8,593.8902
Total	**224.5195**	**502.8679**	**461.9861**	**0.6049**	**63.7459**	**26.4925**	**89.5249**	**30.2008**	**24.5913**	**54.1357**	**0.0000**	**59,075.2439**	**59,075.2439**	**12.4446**	**0.0000**	**59,336.5793**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.0186**	**0.0843**	**0.0624**	**0.0611**	**0.0000**	**0.0894**	**0.0257**	**0.0000**	**0.0893**	**0.0395**	**0.0000**	**0.0648**	**0.0648**	**0.0870**	**0.0000**	**0.0649**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	960.0775	13.1453	1,190.8620	0.4482		160.5211	160.5211		160.5164	160.5164	16,801.8971	7,136.3447	23,938.2418	15.5944	1.3216	24,675.4196

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Energy	0.5747	4.9113	2.0899	0.0314		0.3971	0.3971		0.3971	0.3971		6,269.7247	6,269.7247	0.1202	0.1149	6,307.8812
Mobile	65.0405	41.8398	200.4179	0.4031	29.8492	0.5085	30.3577	7.9680	0.4685	8.4365		32,676.9559	32,676.9559	1.4710		32,707.8465
Total	**1,025.6928**	**59.8963**	**1,393.3698**	**0.8826**	**29.8492**	**161.4267**	**191.2759**	**7.9680**	**161.3820**	**169.3500**	**16,801.8971**	**46,083.0253**	**62,884.9224**	**17.1856**	**1.4365**	**63,691.1473**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	35.0986	0.5585	47.8975	2.4500e-003		0.9905	0.9905		0.9828	0.9828	0.0000	11,615.0655	11,615.0655	0.3015	0.2114	11,686.9291
Energy	0.5279	4.5108	1.9195	0.0288		0.3647	0.3647		0.3647	0.3647		5,758.4629	5,758.4629	0.1104	0.1056	5,793.5080
Mobile	59.3112	38.2398	186.7042	0.3649	26.9389	0.4629	27.4018	7.1911	0.4265	7.6176		29,574.1129	29,574.1129	1.3440		29,602.3371
Total	**94.9377**	**43.3091**	**236.5212**	**0.3962**	**26.9389**	**1.8181**	**28.7570**	**7.1911**	**1.7739**	**8.9651**	**0.0000**	**46,947.6413**	**46,947.6413**	**1.7559**	**0.3170**	**47,082.7742**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**90.7440**	**27.6933**	**83.0252**	**55.1153**	**9.7500**	**98.8737**	**84.9657**	**9.7500**	**98.9008**	**94.7062**	**100.0000**	**-1.8762**	**25.3436**	**89.7828**	**77.9359**	**26.0764**

APPENDIX D

NOISE MODELING DATA

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Francisco Drive to El Dorado Hills Blvd
NOTES: Dixon Ranch - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14600   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	108.5	229.2	491.5

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - El Dorado Hills Blvd to Silva Valley Parkway
NOTES: Dixon Ranch - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14400   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	105.2	226.3	487.3

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silva Valley Parkway to Loch Way
NOTES: Dixon Ranch - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10300 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	98.8	212.4	457.4

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Loch Way to Wilson Estates Connector
NOTES: Dixon Ranch - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	97.5	209.7	451.5

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Wilson Estates Connector to Malcom Dixon Road
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	97.5	209.7	451.5

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Malcom Dixon Road to Site Access RIRO
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	97.5	209.7	451.5

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access RIRO to Site Access Full
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10100 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	97.5	209.7	451.5

TABLE Existing-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access Full to Deer Valley Road
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	97.5	209.7	451.5

TABLE Existing-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Deer Valley Road to Silver Springs Parkway
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	95.5	205.5	442.5

TABLE Existing-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silver Springs Parkway to Bass Lake Road
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10400   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	99.4	213.8	460.4

TABLE Existing-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Bass Lake Road to Cambridge Road
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11600   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	106.9	229.9	495.1

TABLE Existing-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Cambridge Road to Cameron Park Drive
NOTES: Dixon Ranch - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9400   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	93.5	200.0	430.2

TABLE Existing + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Francisco Drive to El Dorado Hills Blvd
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16300   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
58.0	116.3	246.4	528.7

TABLE Existing + Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - El Dorado Hills Blvd to Silva Valley Parkway
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17800   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
56.5	121.1	260.6	561.2

TABLE Existing + Project-03

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silva Valley Parkway to Loch Way
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
56.7	121.7	261.8	563.8

TABLE Existing + Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Loch Way to Wilson Estates Connector
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
55.9	119.9	258.1	555.8

TABLE Existing + Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Wilson Estates Connector to Malcom Dixon Road
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
55.9	119.9	258.1	555.8

TABLE Existing + Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Malcom Dixon Road to Site Access RIRO
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
55.9	119.9	258.1	555.8

TABLE Existing + Project-07

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access RIRO to Site Access Full
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
53.2	114.1	245.5	528.6

TABLE Existing + Project-08

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access Full to Deer Valley Road
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11200   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	104.4	224.6	483.7

TABLE Existing + Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Deer Valley Road to Silver Springs Parkway
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11000   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	103.2	221.9	477.9

TABLE Existing + Project-10

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silver Springs Parkway to Bass Lake Road
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	106.3	228.6	492.3

TABLE Existing + Project-11

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Bass Lake Road to Cambridge Road
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
52.4	112.3	241.6	520.3

TABLE Existing + Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Cambridge Road to Cameron Park Drive
NOTES: Dixon Ranch - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10900   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.39

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	103.0	220.7	474.8

TABLE Existing + Approved-01

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Francisco Drive to El Dorado Hills Blvd
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17700   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.53

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
60.8	122.6	260.2	558.5

TABLE Existing + Approved-02

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - El Dorado Hills Blvd to Silva Valley Parkway
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18200   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
57.3	122.9	264.5	569.6

TABLE Existing + Approved-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silva Valley Parkway to Loch Way
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
54.0	115.8	249.3	536.8

TABLE Existing + Approved-04

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Loch Way to Wilson Estates Connector
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
53.2	114.1	245.5	528.6

TABLE Existing + Approved-05

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Wilson Estates Connector to Malcom Dixon Road
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
52.4	112.3	241.6	520.3

TABLE Existing + Approved-06

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Malcom Dixon Road to Site Access RIRO
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
53.2	114.1	245.5	528.6

TABLE Existing + Approved-07

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access RIRO to Site Access Full
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12200   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
51.6	110.5	237.7	511.9

TABLE Existing + Approved-08

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access Full to Deer Valley Road
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12200   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
51.6	110.5	237.7	511.9

TABLE Existing + Approved-09

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Deer Valley Road to Silver Springs Parkway
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12300   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
51.8	111.1	239.0	514.7

TABLE Existing + Approved-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silver Springs Parkway to Bass Lake Road
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11300   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	105.0	225.9	486.6

TABLE Existing + Approved-11

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Bass Lake Road to Cambridge Road
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12600   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
52.7	112.9	242.9	523.1

TABLE Existing + Approved-12

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Cambridge Road to Cameron Park Drive
NOTES: Dixon Ranch - Existing + Approved

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.47

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	104.2	223.4	480.6

TABLE Existing + Approved + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Francisco Drive to El Dorado Hills Blvd
NOTES: Dixon Ranch - Existing + Approved + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19400   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
64.0	130.1	276.4	593.7

TABLE Existing + Approved + Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - El Dorado Hills Blvd to Silva Valley Parkway
NOTES: Dixon Ranch - Existing + Approved + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20500   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
62.0	133.0	286.3	616.6

TABLE Existing + Approved + Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silva Valley Parkway to Loch Way
NOTES: Dixon Ranch - Existing + Approved + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.7	136.7	294.2	633.6

TABLE Existing + Approved + Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Loch Way to Wilson Estates Connector
NOTES: Dixon Ranch - Existing + Approved + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
62.9	135.1	290.7	626.1

TABLE Existing + Approved + Project-05

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Wilson Estates Connector to Malcom Dixon Road
NOTES: Dixon Ranch - Existing + Approved + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16200   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
62.2	133.4	287.2	618.5

TABLE Existing + Approved + Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Malcom Dixon Road to Site Access RIRO
NOTES: Dixon Ranch - Existing + Approved + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
62.9	135.1	290.7	626.1

TABLE Existing + Approved + Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access RIRO to Site Access Full
NOTES: Dixon Ranch - Existing + Approved + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14900   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
58.8	126.2	271.6	584.9

TABLE Existing + Approved + Project-08

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access Full to Deer Valley Road
NOTES: Dixon Ranch - Existing + Approved + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
54.6	117.0	251.8	542.3

TABLE Existing + Approved + Project-09

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Deer Valley Road to Silver Springs Parkway
NOTES: Dixon Ranch - Existing + Approved + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13400 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
54.9	117.6	253.1	545.0

TABLE Existing + Approved + Project-10

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silver Springs Parkway to Bass Lake Road
NOTES: Dixon Ranch - Existing + Approved + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12200   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
51.6	110.5	237.7	511.9

TABLE Existing + Approved + Project-11

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Bass Lake Road to Cambridge Road
NOTES: Dixon Ranch - Existing + Approved + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
55.1	118.2	254.3	547.7

TABLE Existing + Approved + Project-12

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Cambridge Road to Cameron Park Drive
NOTES: Dixon Ranch - Existing + Approved + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
51.5	108.5	232.6	500.5

TABLE Cumulative (2025)-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Francisco Drive to El Dorado Hills Blvd
NOTES: Dixon Ranch - Cumulative (2025)

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19400   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
64.0	130.1	276.4	593.7

TABLE Cumulative (2025)-02

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - El Dorado Hills Blvd to Silva Valley Parkway
NOTES: Dixon Ranch - Cumulative (2025)

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19300   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
59.6	127.8	275.0	592.3

TABLE Cumulative (2025)-03

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silva Valley Parkway to Loch Way
NOTES: Dixon Ranch - Cumulative (2025)

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14600   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
58.0	124.5	267.9	577.0

TABLE Cumulative (2025)-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Loch Way to Wilson Estates Connector
NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
54.0	115.8	249.3	536.8

TABLE Cumulative (2025)-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Wilson Estates Connector to Malcom Dixon Road
NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
54.6	117.0	251.8	542.3

TABLE Cumulative (2025)-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Malcom Dixon Road to Site Access RIRO
NOTES: Dixon Ranch - Cumulative (2025)

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
54.0	115.8	249.3	536.8

TABLE Cumulative (2025)-07

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014

ROADWAY SEGMENT: Green Valley Road - Site Access RIRO to Site Access Full

NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13000   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
53.8	115.3	248.0	534.1

TABLE Cumulative (2025)-08

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access Full to Deer Valley Road
NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13000   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
53.8	115.3	248.0	534.1

TABLE Cumulative (2025)-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Deer Valley Road to Silver Springs Parkway
NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12300   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
51.8	111.1	239.0	514.7

TABLE Cumulative (2025)-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silver Springs Parkway to Bass Lake Road
NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
55.1	118.2	254.3	547.7

TABLE Cumulative (2025)-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Bass Lake Road to Cambridge Road
NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14000   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS		
	88.08	9.34
M-TRUCKS		
	1.65	0.19
H-TRUCKS		
	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
56.5	121.1	260.6	561.1

TABLE Cumulative (2025)-12

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Cambridge Road to Cameron Park Drive
NOTES: Dixon Ranch - Cumulative (2025)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12500   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
53.4	112.7	241.7	520.1

TABLE Cumulative (2025) + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Francisco Drive to El Dorado Hills Blvd
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21100   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
67.2	137.3	292.2	627.8

TABLE Cumulative (2025) + Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - El Dorado Hills Blvd to Silva Valley Parkway
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21600   SPEED (MPH): 50   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
64.2	137.7	296.4	638.4

TABLE Cumulative (2025) + Project-03

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silva Valley Parkway to Loch Way
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18300   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
67.4	144.7	311.5	670.8

TABLE Cumulative (2025) + Project-04

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Loch Way to Wilson Estates Connector
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.7	136.7	294.2	633.6

TABLE Cumulative (2025) + Project-05

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Wilson Estates Connector to Malcom Dixon Road
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17000   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
64.2	137.8	296.5	638.7

TABLE Cumulative (2025) + Project-06

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014

ROADWAY SEGMENT: Green Valley Road - Malcom Dixon Road to Site Access RIRO

NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16800   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.7	136.7	294.2	633.6

TABLE Cumulative (2025) + Project-07

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access RIRO to Site Access Full
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15700   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.55

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
60.9	130.7	281.2	605.7

TABLE Cumulative (2025) + Project-08

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Site Access Full to Deer Valley Road
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14100   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
56.7	121.7	261.8	563.8

TABLE Cumulative (2025) + Project-09

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Deer Valley Road to Silver Springs Parkway
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13400   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
54.9	117.6	253.1	545.0

TABLE Cumulative (2025) + Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Silver Springs Parkway to Bass Lake Road
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14400 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
57.5	123.4	265.5	571.8

TABLE Cumulative (2025) + Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Bass Lake Road to Cambridge Road
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15900   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
61.4	131.8	283.6	610.8

TABLE Cumulative (2025) + Project-12

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/02/2014
ROADWAY SEGMENT: Green Valley Road - Cambridge Road to Cameron Park Drive
NOTES: Dixon Ranch - Cumulative (2025) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13200   SPEED (MPH): 55   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12   SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
55.3	116.8	250.6	539.3

APPENDIX E

BIOLOGICAL RESOURCES REPORTS

DIXON RANCH OAK SITE ASSESSMENT

OWNER/APPLICANT: DIXON RANCH VENTURES, LLC

PARCEL NUMBER: 126-020-01 THRU 04 AND 126-150-23

DATE OF REPORT: April 25, 2014

CERTIFICATION:

I hereby certify that the statements furnished in the attached report and exhibits present the data and information required for this biological survey (or Arborist Report), and the facts, statements, and information presented herein are true and correct to the best of my knowledge and belief.

Signed:______________________________ Date: April 25, 2014

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C) El Dorado County Oak/Canopy Site Assessment Forms (2) Phase 1 and Whole Project

D) Gordon Mann - Professional Credentials & Consulting Resume

E) Site Photos

F) Dixon Ranch Tree Preservation Map – Phase 1, dated April 2014

G) Dixon Ranch Tree Preservation Map, March 2013, Revised March 2014

Section 1 - Introduction

This report provides a summary of the Dixon Ranch project's compliance with the El Dorado County oak canopy retention standards as required by the Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A) adopted November 9, 2006 and amended October 12, 2007 (Interim Guidelines). Included in this report are answers to the Site Assessment Form questionnaire, a summary of the Biological Resources Study, and a summary of the Important Habitat Mitigation Program requirements.

Project Description

The Dixon Ranch Residential project proposes to subdivide 280+/- acres into 444 single family detached residential units, 160 age-restricted single family detached units (age restricted to older adults), and includes retention of one existing single family residence for a total of 604 new units and one existing unit. The project includes preservation or creation of 84.1 +/- acres (30%) of open space including parks, trails, landscaped lots, and native open spaces. The project includes on-site and off-site infrastructure to serve the development. Build-out will likely occur over many years, but ultimately will be dictated by market demands.

Required project approvals would include a General Plan Amendment (File No. A11-0006), Zone Change (file No. Z11-0008), Planned Development (File No. PD11-0006), Tentative Map (File No. TM11-1505), annexation into the El Dorado Irrigation District, annexation into the El Dorado Hills Community Service District, and annexation into the El Dorado Hills County Water District (El Dorado Hills Fire Department).

The project oak tree impacts will be fully analyzed in the EIR, but mitigation for Phase 2 will be assessed at a later date as described in this report. See Dixon Ranch Tree Preservation Plan –Phase 1, dated April 2014 for the location of each phase. The proposed Phase 1 oak canopy removal and replacement meets the 1:1 oak canopy replacement removing less than 10% of the existing canopy as allowed under the Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A).

General Plan Amendment Description

The project is currently located entirely within the General Plan Community Region (urban limit line) of El Dorado Hills and is designated as Low Density Residential (LDR) land use, with the exception of 1.5+/- acres at the southeast corner of the property that is designated as Open Space (OS) and associated with the existing SMUD power transmission corridor. LDR allows for a maximum density of 1 dwelling per 5 acres. The proposed project is applying for a change in the land use designations on the site to High Density Residential (HDR) allowing for a density range of 1 to 5 units per acre, Medium Density Residential (MDR) allowing for a maximum of 1 dwelling unit per acre, and open space (OS). The proposed project is retaining the existing Low Density residential (LDR) land use designation for the existing residence to remain.

Section 2 – Oak/Canopy Site Assessment Form

Below are responses to Items a-j of the Oak/Canopy Site Assessment Forms, see Appendix C for completed Site Assessment Forms. We note there is no Item b included in the County's Form. The responses to the items in the Oak/Canopy Site Assessment Form are based on the overall project with the exception of Item h. The project will be developed in two separate phases because the overall project's oak tree canopy removal exceeds the allowable canopy removal amounts under General Plan Policy 7.4.4.4 (Option A).

The responses to Items a-j are based on the following overall question:

Would the project, directly or indirectly, have the potential to cause any impact, conflict with, or disturbance to:

a) Individual landmark or heritage trees (of any species) subject to review under General Plan Policy 7.4.5.2?

The definitions found in the Interim Interpretive Guidelines for Landmark and Heritage trees follow:

> Heritage trees: Trees planted by a group or individuals or by the City or the County in commemoration of an event or in memory of a person figuring significantly in history (General Plan 2004).
>
> Landmark Tree: Trees whose size, visual impact or association with a historically significant structure or event has led the government to designate them as landmarks (General Plan 2004).

No trees of any species on the project site are known to have been designated Heritage or Landmark trees as delineated from the above definitions. The project does not have the potential to cause any direct or indirect impact, conflict with, or disturbance to Landmark or Heritage trees of any species subject to review under General Plan Policy 7.4.5.2.

c) Oak woodland corridor continuity (General Plan Policy 7.4.4.5)?

According to the Interim Interpretive Guidelines, this analysis should assess whether the proposed removal of oak canopy cover would impact oak corridor continuity between all portions of existing stands of oak woodland habitat with connecting corridors at a tree density that is equal to the density of the stand. The definition found in the Interim Guidelines for Woodland Habitats follows:

> Woodland Habitats: Biological communities that range in structure from open savannah to dense forest. In El Dorado County, major woodland habitats include blue oak-foothill pine, blue oak woodland, montane hardwood, montane hardwood-conifer, and montane riparian.

General Plan Policy 7.4.4.5 states, "Where existing individual or a group of oak trees are lost within a stand, a corridor of oak trees shall be retained that maintains continuity between all portions of the stand. The retained corridor shall have a tree density that is equal to the density of the stand."

The Interim Interpretive Guidelines state the following regarding Reasonable Use Related to Oak Corridor Retention: "In order to ensure that reasonable use of the property is provided, an applicant may request the Planning Commission to provide relief from the strict application of this corridor retention requirement (Policy 7.4.4.5) in the same manner as described above. In addition, for discretionary projects, any effects on biological resources will be analyzed in the environmental document and appropriate mitigation proposed as required by the

California Environmental Quality Act, California Oak Woodlands Conservation Law and other applicable statutes."

Planning Commission Relief is addressed in the Interim Interpretive Guidelines as follows: "Where the Director cannot grant relief, the Commission may grant relief when the following findings can be made.

i. The applicant demonstrates that the project is designed to maximize use of parcel area unconstrained by oak trees, unless precluded by other significant constraints such as steep slopes, streams, creeks, wetlands, or other sensitive environmental resources.

ii. The proposed project is limited to development and site disturbance that is typical and prevalent for the general area surrounding the project site.

iii. Soil disturbance and tree removal is minimized through the incorporation of some or all of the following measures into the project design:

   a. Stepped foundations are used on sloping areas rather than graded pads;
   b. Depth of excavation and/or fill outside of the building footprint is limited to no more than five feet measured vertically from the natural ground surface, except for grading necessary to install retaining walls designed to reduce the total area of tree canopy that will be removed and/or damaged;
   c. Structures and the configuration of the area of disturbance are designed to parallel the natural topographic contours to the greatest extent feasible;
   d. Patio decks are included in the design of dwellings to minimize the need for graded yard areas;
   e. Design techniques such as clustering of buildings are proposed to take advantage of the portions of the property which are least constrained by oaks;
   f. The project is designed to maximize consistency with all applicable policies of the El Dorado County General Plan. *It is recognized that more than one policy may have to be considered in the determination of reasonable use of a particular parcel.*

iv. If the project site is within or directly adjacent to an Important Biological Corridor Overlay or Ecological Preserve a Biological Resources Study and Important Habitat Mitigation Program have been prepared by a qualified professional and approved by the County and will be fully implemented by the applicant. The Study shall be prepared in accordance with the Biological Resources Study and Important Habitat Mitigation Program Interim Guidelines, adopted November 9, 2006.

   Replacement of any oak tree canopy area allowed to be removed by the Planning Commission in excess of the retention standards in the General Plan shall be required. At a minimum, the replacement shall be completed in accordance with the tree replacement formula. Refer to the 1:1 Woodland Replacement definition. A 2:1 ratio or as otherwise specified by a qualified professional approved by the County, pursuant to the options and methods specified in these Guidelines, may be applied at the discretion of the Planning Commission. Further, for discretionary projects, any effects on biological resources will be analyzed in the environmental document and appropriate additional mitigation proposed as required by the California

Environmental Quality Act, California Oak Woodlands Conservation Law and other applicable statutes."

Some groupings and continuous canopy of oak trees are proposed to be removed in the project. The proposed tree retention in the project focuses on the perimeter areas and existing watershed locations where contiguous portions of oak canopy exist and where interaction with offsite oak woodland corridor continuity exists. The project was designed with open space around three sides of the perimeter, and a fourth side of the perimeter is along a utility corridor. There is continuous open space across the existing watershed locations, and oak canopy is retained along the rear setbacks of many of the larger acreage parcels. The project design includes the mitigation planting areas on the perimeter on 5 sides, and within the watershed areas in the project. The design considered the retention of the oak corridors where possible in the areas of continuous canopy.

The project does have the potential to cause a direct and indirect impact, conflict with, or disturbance to oak woodland corridor continuity subject to review under the strict application of General Plan Policy 7.4.4.5. The project has maximized the use of parcel areas unconstrained by oak trees as recommended under Item i above. The project has limited development and site disturbance to that typical and prevalent as identified under item ii above as it relates to other Community Region lands in the general area. The project has minimized soil disturbance and tree removal through designing parallel to natural contours, clustering structures in areas of the site least constrained by oaks, and by maximizing consistency with all applicable policies of the General Plan as recommended under item iii above. The project site is not within or directly adjacent to an Important Biological Corridor Overlay or Ecological Preserve.

Based on the above, the project meets the requirements for Reasonable Use Related to Oak Corridor Retention.

d) Sensitive or important oak woodland habitat as defined in the Guidelines (General Plan Policy 7.4.5.2.A)?

The definitions found in the Interim Interpretive Guidelines for Sensitive Habitat, Important Habitat and Woodland Habitat follow:

Sensitive Habitat: In El Dorado County, this includes the following habitat types: montane riparian, valley-foothill riparian, aspen, valley oak woodland, wet meadow, and vernal pools (General Plan EIR).

Important Habitat: Defined as habitats that support important flora and fauna, including deer winter, summer, and fawning ranges and migration routes; stream, river, and lakeshore habitat; fish spawning areas; seeps, springs, and wetlands; oak woodlands; large expanses of native vegetation; and other unique plant, fish, and wildlife habitats generally located within or adjacent to designated Ecological Preserves, the Important Biological Resource Corridor Overlay, or in other locations otherwise recognized as being important habitat by Federal, State or County agencies.

Woodland Habitat: Biological communities that range in structure from open savannah to dense forest. In El Dorado County, major woodland habitats include blue oak-foothill pine, blue oak woodland, montane hardwood, montane hardwood-conifer, and montane riparian.

The project site does fit within the definition of Important Oak Woodland Habitat. The oak woodland composition on and adjacent to the site does not fit the above definition of Sensitive Habitat in El Dorado County. The percent of valley oak trees is small. The majority of oak canopy consist of blue oak and interior live oak. The project design retains the majority of oak canopy in the proposed open space and the existing watershed areas. The project is not located within or adjacent to designated Ecological Preserves, the Important Biological Resource Corridor Overlay, or other locations recognized as being important habitat by Federal, State, or County agencies.

Based on design of the project preserving a majority of oak canopy, and the analysis of oak woodland habitat on the project site, Phase 1 of the project does not have the potential to cause any direct or indirect impact, conflict with, or disturbance to sensitive or important oak woodland habitat as defined in the Interim Interpretive Guidelines.

e) Movement of Wildlife and/or Any Wildlife Migration Corridor?

The "yes" or "no" box for this item has not been checked as this is outside of Mann Made Resources' area of expertise. The project retains approximately 84 acres of open space with continuous corridors along the watershed and perimeter of the project. Please refer to the Biological Resources section of the Dixon Ranch Environmental Impact Report for an analysis of this issue.

f) Any Candidate Listed or Special Status Plant or Animal Species observed or expected to occur on or adjacent to the project site?

The "yes" or "no" box for this item has not been checked as this is outside of Mann Made Resources' area of expertise. For this analysis, please refer to the Biological Resources section of the Dixon Ranch Environmental Impact Report, as well as the following reports prepared by Gibson & Skordal Wetland Consultants as referenced in the EIR: 1) Jurisdictional Delineation and Special-Status Species Evaluation, May 2012 prepared by Gibson & Skordal, and 2) Special-Status Plant Surveys, August 2011 prepared by Gibson Skordal.

g) Is the affected area of oak canopy within or directly adjacent to an Important Biological Corridor or Ecological Preserve overlay?

A review of the El Dorado County General Plan land use map show the parcels proposed for development are not adjacent to any parcels listed as Important Biological Corridor or Ecological Preserve overlay.

h) Does the removal of oak canopy comply with the retention requirements of Policy 7.4.4.4?

Phase 1 of the proposed project does comply with the retention requirements of Policy 7.4.4.4. The Interim Interpretive Guidelines allow for the removal of 4.48 acres of oak canopy on the project site. The project proposes the removal of 4.45 acres of oak canopy.

The total project does not comply with the retention requirements of the Interim Interpretive Guidelines. The total project proposes the removal of 19.76 acres, or 15.28 acres over the allowed amount. Suitable mitigation will need to be determined and approved to move forward with Phase 2 of the project, subject to completion of the Oak Woodland Management Plan and related fee studies and implementing ordinances (Option B).

i) Was the project subject to prior County approval?

Based on discussions with County staff, the project has not been subject to prior County approvals.

j) For Discretionary Projects, would the project have the potential to cause a significant environmental impact on biological resources?

The project does have the potential to have a significant environmental impact on biological resources. The oak canopy resource is discussed below. The Biological Resources section of the Dixon Ranch Environmental Impact Report provides an analysis of other biological resources.

The majority of the current site environment is not a natural native oak woodland. The site use has been used as a range for cattle and horses. This is a different non-native oak woodland use than the proposed development. Although the space is currently "open" without buildings and paved roads, the presence of cattle grazing has had an impact on the oak trees, and oak tree regeneration. The soil is compacted by cattle movement, the oak regeneration is almost eliminated, the grasses may be mowed and occasionally irrigated, and there is occasional vehicle movement over the dirt roads and other parts of the site. There is a fencing pattern to control the cattle movement that was not designed to protect the existing oak trees.

The new development will have grading, impervious roads, and buildings outside the driplines of the oak trees to be retained in a manner consistent with the tree conservation promoted in the Interim Interpretive Guidelines. There will be tree protection installed prior to construction work on the site. The developed site will have different fencing patterns, and new landscape with irrigation in the developed areas, and open space and tree mitigation planting areas.

One potential environmental impact to biological resources (specifically the oak canopy) could be the change to storm water runoff patterns and management over the site. A majority of the existing project site is open soil and the precipitation runs freely with the topography. Storm water surface flow will change with site grading, addition of impervious pavement and buildings, and planned storm water management. There are approximately 84 acres of open space retained in the proposed project. The soil and existing grades under the oak tree canopy is consistent with the requirements listed in the Interim Interpretive Guidelines. Preserving the existing grades and soil under the tree canopy will retain water infiltration to the roots of the existing trees. Managing the new landscape irrigation to avoid irrigation runoff flow to the base of the native oak trees will minimize the impact of summer watering and new plant establishment. The project design incorporates proven best practices to manage storm water and irrigation runoff. The soil areas under the drip line of trees are being left open. The drainage is being directed away from the base of the native oak trees. The 84 acres of open space are intended to retain the existing storm water flow in the drainage basins. Based on the project design, the impact of changes to the storm water flow patterns on oak canopy will be less than significant.

Section 3 - Tree Survey, Preservation, and Replacement Plan

Mann Made Resources prepared an updated Arborist Report for the Dixon Ranch project dated April 5, 2014 addressing the Tree Survey, Preservation, and Replacement Plan requirements outlined in El Dorado County Biological Resources Study and Important Habitat Mitigation Program Interim Guidelines adopted November 9, 2006. Refer to Appendix A of this document for a copy of the Arborist Report and discussion of oak tree canopy mitigation plan.

Section 4 - Biological Resources Study

Refer to Gibson & Skordal Wetland Consultants 1) Jurisdictional Delineation and Special-Status Species Evaluation, May 2012 prepared by Gibson & Skordal, and 2) Special-Status Plant Surveys, August 2011 prepared by Gibson Skordal. Reference Environmental Impact Report (EIR) Biological Resources Section for Dixon Ranch to be prepared by LSA Associates, Inc., Berkeley, CA for further discussion of Biological Resources as required.

Section 5 - Important Habitat Mitigation Program

The proposed project design implements measures to avoid or minimize impacts to oak woodland habitat including avoidance, open space preservation and corridors, vegetated buffers between the project and surrounding existing land uses, and construction best management practices. Construction protection is the primary management practice for this project to meet the oak canopy retention intent. Construction protection will be put in place before any work is initiated on the site, and be adjusted to protect the trees during the different project phases from clearing and grading, to construction, to landscape installation. Individual home construction will have tree protection delineated for those trees to remain on the site being developed. Specifications for the protection will be included in the development documents and on the project plans and individual home construction plans. Additional mitigation measures addressing oak woodland habitat impacts may be identified in the Dixon Ranch Environmental Impact Report Biological Resources Section.

The 280-acre project site has a total of 44.83 acres of oak canopy. The total proposed project requires the removal of 19.76 acres of oak canopy, or 44.1% of the existing oak canopy. This is not allowed under the current policy, the Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 (Option A). The allowable oak canopy removal is based on the existing total oak canopy. The existing total oak canopy on the project site is 15.9% of the land area, and the guidelines allow for up to 10% of total canopy removal. The 44.1% removal required to complete the whole project exceeds the allowable 10% removal in the tree canopy retention standards matrix. The overall project oak impacts will be fully analyzed by the Dixon Ranch Environmental Impact Report, but mitigation for Phase 2 will be assessed during a review of Phase 2 following completion of the Oak Woodland Management Plan and related fee studies and implementing ordinances (Option B).

Phase 1 of the proposed project includes the removal of 4.45 acres or 9.9% of the existing oak canopy, and this is allowed under the Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 (Option A). This proposed oak canopy mitigation program covers Phase 1.

Under Option A, the project applicant shall replace the allowable woodland habitat canopy removed at a 1:1 canopy cover acreage ratio. Woodland replacement shall be based on the formula developed by El Dorado County that accounts for the number of trees and acreage affected per El Dorado County's ***"General Plan Policies Related To Oak Woodlands"*** document, see Appendix B. Using the formula of 200 seedlings or one gallon trees per acre, as required by the Interim Interpretive Guidelines definition of 1:1 Woodland Replacement, it has been determined that 890 trees will need to be planted for Phase 1 project mitigation. The mitigation plan is to install 890 oak trees with the following species mix: 600 blue oaks, *Quercus Douglasii,* and 290 interior live oaks, *Quercus wislizenii.* The trees will be at least Deepot cells GP352, 2-1/2 inch diameter by 10 inches deep, grown from local acorn sources within 40 miles of El Dorado Hills, California. There is also an option to plant acorns instead of trees. The acorns will be from a local source within 40 miles of El Dorado Hills, California, and three (3) acorns are to be planted per tree, for a minimum total of 600 acorns per acre. The total number of acorns required for the mitigation on this site will be 2,670, and 1,800 will be Blue Oak, and 870 will be Interior Live Oak. The monitoring period may be extended from 10 to 15 years. Survival will be a minimum of 90% of the 200 trees per acre.

The mitigation plan allows for the substitution of #5 or #15 size nursery container stock trees in the re-planting area(s) where larger initial tree size will improve the project appearance, or enhanced screening is desired. If this increase in nursery stock container size is preferred by the developer, any number of trees up to 890 trees may be increased to accomplish enhanced appearance or screening of selected areas of the site.

The available planting locations of these new trees are shown on the attached site map titled, Dixon Ranch Tree Preservation Map –Phase 1, dated April 2014, included in Appendix F. There are 30.24 total acres available for onsite mitigation (refer to Dixon Ranch Tree Preservation Map, March 2013, Revised March 2014, See Appendix G) , 23.90 acres of the Phase 1 area are available for onsite mitigation with Phase 1. The exact site locations of the Phase 1 mitigation planting will be determined based on County approval of the project and available on-site water locations.

The mitigation planting is required to be 90% survival of the 200 trees per acre after 10 years. This amounts to a minimum of 801 trees growing after the 10-year site evaluation. The proposed Phase 1 mitigation plan may be performed in multiple planting phases to achieve the mitigation as the site is developed. The second phase oak mitigation recommendations will be evaluated by the County at a later date as the proposed removal exceeds the allowable percentage of canopy removal under the current Interim Interpretive Guidelines for El Dorado General Plan Policy 7.4.4.4 (Option A). The proposed mitigation tree planting for Phase 1 will replace the 4.45 acres of proposed Phase 1 removals.

The proposed tree planting will be performed to the project tree planting specifications and details summarized in this report. The strategy will be to increase the number of trees or acorns planted per acre by 10% to allow for some tree loss over time and still achieve the desired 180 trees per acre after 10 or 15 years monitoring. Therefore, the tree planting will install 220 trees per acre, irrigated by a temporary irrigation system connected to on-site water or by approved alternate methods. If acorns are used, the planting will install 660 acorns per acre. The site will be prepared to clear space for the trees or acorns, perform planting in tubes for Deepot stock or acorns, install temporary irrigation, and add mulch.

The site will be monitored quarterly for the first year to assure irrigation is functioning and appropriate, assess site conditions, and track survival. During years two and three, monitoring will be performed semi-annually. During years 4 through 10, or 15 if required, monitoring will occur annually. Annual reports confirming survival rate will be completed. If site circumstances require, more frequent monitoring will be performed. If the survival rate is less than 180 trees per acre during any annual monitoring process, trees will be replaced to meet the minimum 180 trees per acre establishment goal for oak tree canopy. If where more than 180 trees per acre are planted, trees are found to be growing too dense during a monitoring period, thinning may be performed to select the best candidate trees for survival, with the requirement to achieve the minimum 180 trees per acre survival goal.

To ensure monitoring, maintenance and replacement of failed plantings occurs during the 10 year (or 15 years for acorns) required monitoring period, the project proponent shall post performance bonds or other funding mechanisms approved by El Dorado County to guarantee success of mitigation planting program. The following information identifies the responsible party for ensuring the mitigation funding:

Dixon Ranch Ventures, LLC
Aidan Barry, President of Development
12647 Alcosta Boulevard, Suite 470
San Ramon, CA 94583
(925) 824-4300
abarry@thetruelifecompanies.com

Section 6 - Findings and Recommendation

Phase 1 of the proposed project complies with the retention requirements of Policy 7.4.4.4. The Interim Interpretive Guidelines allow for the removal of 4.48 acres of oak canopy on the project site. The project proposes the removal of 4.45 acres of oak canopy. The proposed mitigation planting plan will be performed to meet the 90% retention of 180 trees per acre. Phase 1 can be allowed to proceed based on compliance with the Oak Retention Requirements of the Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 (Option A).

The total project does not comply with the current retention requirements of Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 (Option A). The total project proposes the removal of 19.76 acres, or 15.28 acres over the allowed amount. Suitable mitigation will need to be determined and approved to move forward with Phase 2 of the project, subject to completion of the Oak Woodland Management Plan and related fee studies and implementing ordinances (Option B). At that time a mitigation planting plan may be developed to meet the requirements and approval of El Dorado County.

Although the total project proposes more acreage of oak canopy removal than allowed under the current Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 (Option A), the poor natural oak regeneration occurring in the oak canopy on the Dixon Ranch project site, combined with the declining state of many of the trees, will not provide sustainable oak woodlands over many years. The trees are predominantly declining in condition and have been growing without maintenance. Branches and whole trees have failed on the site, reducing the natural canopy cover. This will continue over time. The mitigation planting with the density goal of 180 trees per acre can support a more sustainable long term oak woodland canopy on the site, blending in with the existing oak canopy. While the short term result of canopy removal and replanting will be a reduction in canopy, the long term oak canopy will meet or exceed the existing canopy as new trees grow and older trees senesce.

Section 7 - Certification

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this Arborist Report, and that the facts, statements, and information presented herein are true and correct to the best of my knowledge and belief.

SIGNED: ______________________ DATED: April 25, 2014

Section 8 - Report Authors

- Gordon Mann – Consulting Arborist and Urban Forester, See Appendix D for Professional Credentials & Consulting Resume.

Section 9 - References

1. El Dorado County General Plan Policies Related To Oak Woodlands, attached in Appendix B
2. El Dorado County Biological Resources Study and Important Habitat Mitigation Program Interim Guidelines, November 6, 2006
3. Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A), Adopted November 9, 2006, Amended October 12, 2007

APPENDIX A

MANN MADE RESOURCES ARBORIST REPORT
FOR DIXON RANCH OAK TREE CANOPY MITIGATION PLAN
DATED APRIL 5, 2014

Mann Made Resources

April 5, 2014

Mr. Joel Korotkin
949 Tuscan Lane
Sacramento, CA 95864

SUBJECT: ARBORIST REPORT FOR DIXON RANCH OAK TREE CANOPY MITIGATION PLAN

Dear Mr. Korotkin,

Thank you for the opportunity to provide Arborist Consulting Services. This report includes the observations and analysis of the Oak tree canopy for the Dixon Ranch project. The site was visited on April 10, 23, and 27, 2012. The site was re-visited on March 4, 18, and 20, 2014, and adjustments were made to the study area limits and canopy cover.

Assignment: Brian Allen from CTA Engineering and Surveying contacted my office on your behalf on Tuesday, March 27, 2012, requesting assistance with an arborist site review and evaluation of the tree canopy maps to prepare for compliance with the El Dorado County General Plan policy 7.4.4.4. Calculations and a draft report were prepared. I was contacted on March 21, 2013 and asked to revise the report based on a new lot layout. On February 24, 2014, I was contacted by Mr. Kevin Wipf and asked to verify the canopy in an additional area, inclusive of the approximately 5 acre existing residence lot (to remain) as well as the 'A' Drive and 'C' Drive entry roadways. According to Mr. Wipf, these areas have been identified by County staff as appropriate to include in the total project acreage for purposes of assessing compliance with policy 7.4.4.4. I also re-verified canopy in specific locations identified during the design process as appropriate to revisit and reverify.

All site information, plans, and history were provided by Mr. Brian Allen and Mr. Kevin Wipf of CTA Engineering and Surveying. Plan sheets were provided for review and use. The assignment required the following activities:

Step 1: Visit the site, verify the canopy cover as shown on the Dixon Ranch Tree Preservation Map dated March 2012, identify and separate the Interior Live Oaks, identify trees that I found to be in poor enough condition to list for tree removal and exclude from the tree canopy calculations, and complete the report. Once the final canopy cover was calculated, the arborist met with the engineer in the office to verify the canopy cover calculations.

12661 Torrey Pines Drive, Auburn, CA 95602
(650) 740-3461 ♦ FAX (530) 268-0926
www.mannandtrees.com

Step 2: The Dixon Ranch Tree Preservation Map March 2013 was compared to the Dixon Ranch Tree Preservation Map March 2012 map to identify the changes to lots and canopy based on the new lot and road layout, and the tree list was updated.

Step 3: The Dixon Ranch Tree Preservation Map March 2013, Revised March 2014 was used for the final canopy cover analysis and calculations. This effort included focused site visits and inspection of specific trees.

Observations: The site area, for purposes of policy 7.4.4.4 calculations, is approximately 12,306,347 SF, or 282.51 acres, as shown on the Tree Canopy map dated March 2013, revised March 2014. Initially, the site was visited on Tuesday, April 10, 2012 at about 9:30 am through 5:30 pm, Monday, April 23, 2012 from 1:30 pm to 6:30 pm, and Friday, April 27, 2012 from 11:00 am to 3:00 pm. The CAD image of the Tree Preservation Map dated April 2012 was made available for use in enlarged 11" X 17" sheets. I visited the entire site and compared the canopy to the canopy image on the map sheets, and distinguished the Interior Live Oak tree canopy. The site was revisited on March 4, 18 and 20, 2014, to expand the review area as recommended by County staff and to make the final confirmations of the canopy cover image and calculations.

The oak trees were separated in canopy cover by Blue, Valley, and Black Oaks from Interior Live Oaks. Trees that were observed to be dead, severely declining, or needed the removal of a portion of their crown to stabilize the tree structure were noted. I visually observed the trees on the plan from the ground to confirm the canopy image as relatively accurate. The trees that were to be removed from the canopy cover calculation were sketched on the field plan. The diameter at 4.5' was estimated for reference for the listed trees. The trees were inspected for the following conditions:

- Tree crown – amount and location of live foliage
- Tree structure – location and amount of decay in trunk, root crown, and crotches; broken branches and the absence of branch or trunk attachment strength;
- Trunk flare and root crown – trunk flare grade, absence of roots, decay at base

Dead or diseased and dying oak trees, as shown on the Tree Preservation Map March 2013, Revised March 2014 were determined to require removal or significant pruning for structural integrity based on a variety of factors including, but not limited, to crown decline, broken crowns, broken tops, broken branches, trunk decay, crotch and branch decay, crown dieback, extensive mistletoe, hollow trunks, basal decay, included bark, fallen leaders, or fallen trees as further described later in this report.

The remaining trees observed on the property were found to be consistent with native grown Oak trees and would not present significant risk when cared for with routine maintenance pruning to remove dead and broken branches with limited reduction to the foliar crown. The canopy of these trees was not altered in their appearance on the Tree Preservation Map.

On March 21, 2013, I visited the office of CTA Engineering and Surveying and inspected the Dixon Ranch Tree Preservation Map March 2013, and reviewed the calculations of canopy cover. Sample map changes were performed to verify and confirm the canopy cover calculations were functional.

On March 4, 18, and 20, 2014, I visited the site with Kevin Wipf of CTA Engineering and Surveying to review the additional area and to reconfirm portions of the canopy cover. I evaluated the sites where grade cuts and fill were proposed to confirm the impact would not impact the subject trees.

Other testing or examination: A trench to examine the root system of tree number 8025 was excavated on March 4, 2014 to look for roots in the area proposed for excavation approximately 16 feet from the trunk and within the dripline. The proposed dripline encroachment is less than 20%. The trench was ten feet long, wide enough for a shovel to carefully remove soil, and two feet deep. Two roots were found in the trench. A 0.9 inch diameter root was found at 11 inches below grade, and a 2.1 inch diameter root was found at 14 inches below grade. No other roots were observed.

This excavation confirmed the expectation that few roots will be found in the shallow soil as the distance moves outward towards the dripline farther from the trunk. During the summer months, there is little moisture, and roots will not easily survive in the shallow soil away from the trunk. This supports the ability to cut soil grades at the edge or near the dripline with rare root conflicts.

Ten foot long, two-foot deep trench excavated 16 feet from trunk. Two roots were observed. The impact to tree from root pruning of these two roots at this point from the trunk is considered low.

Discussion: I observed the trees to determine which trees were in fair or better health, structurally sound, moderate risk relative to the proposed site use, and in a condition to continue to have a reasonable useful life on the site. Risk can be managed differently based on site use. In the areas to be developed, there is a higher risk associated with trees on the site where people and improvements will be present. Trees on the sites to be developed need to be in a structurally sound and healthy enough condition to manage for future risk.

Trees in natural areas where people are not invited or not reasonably expected to have structures or activities can accommodate trees with poorer condition. These trees in open space can fail and continue to provide habitat, canopy, and other ecological site benefits with acceptable risk.

I based my assessment of tree condition on a combination of structure and health and listed trees to be removed when I found any of the following criteria:

- The tree crown dieback was greater than 50% dead
- Decay in trunks, main crotches, and branches exceeded 50% of the diameter or > than 33% of the circumference was decayed
- The base of the tree was decayed greater than 50%
- Tree roots were missing from greater than 33% of the circumference of the trunk flare.
- Heavy mistletoe infestation is causing structural or leaf competition concerns in greater than 33% of the crown.
- Combinations of the above

The above criteria would either require necessary pruning to reduce risk of failure of dead or weak branches, or the stability concerns present cannot be corrected by typical pruning or cabling mitigation. Trees that could be pruned and still retain a typical foliar crown and moderate or less structural risk were listed for pruning and the crown size reduced on the site plan by the percent canopy reduction. Trees that cannot be reasonably mitigated were listed for removal. The crown size from pruned or removed trees was subtracted from the canopy image calculations on the Tree Preservation Map.

The field data and canopy adjustments were updated on the Dixon Ranch Tree Preservation Map dated March, 2013, Revised: March, 2014:

- The total project site area is 12,306,347 square feet, or 282.51 acres.
- Trees listed for removal or reduction pruning based on being dead or in poor condition and this canopy were not included in the canopy calculations.
- The total existing Oak Canopy Cover for Blue, Valley, and Black oaks is 1,753,636 square feet, or 40.26 acres.
- The total existing Oak Canopy Cover for Interior Live oaks is 199,299 square feet, or 4.57 acres.
- The total existing oak canopy cover including Blue, Valley, and Black plus Interior Live oaks is 1,952,935 square feet or 44.83 acres, and amounts to 15.9% existing Oak canopy cover.
- The proposed oak canopy removal of Valley, Blue, and Black oak for the onsite project is 744,500 square feet or 17.09 acres.
- The proposed oak canopy removal of Interior Live Oak for the onsite project is 116,430 square feet or 2.67 acres.
- The total proposed oak canopy removal for the onsite project is 860,930 square feet or 19.76 acres, or 44.1%.
- The available area for mitigation onsite is 1,317,154 square feet, or 30.24 acres.

The allowable canopy removal in the Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A) is 10%, or 4.48 acres. The proposed onsite canopy removal exceeds the allowable canopy removal amounts. The allowable 10% oak canopy cover cannot exceed 195,294 square feet or 4.48 acres.

The proposed oak canopy removal mitigation recommendations for the project are divided into two phases corresponding to a Phase 1 area being analyzed with this report and a Phase 2 area, for which mitigation recommendations are deferred at this time, See Dixon Ranch – Phase 1 Tree Preservation Map, April 2014 for phase locations. The project Environmental Impact Report (EIR) will evaluate the proposed oak removals and impacts for the overall project, but only mitigation recommendations associated with Phase 1 removals will be prepared with Phase 1. Phase 2 mitigation recommendations are deferred to a future process as further described later in this report and in the EIR. The Phase 1 cover removal is shown on the Dixon Ranch – Phase 1 Tree Preservation Map, April 2014:

- The total project site area is 12,306,347 square feet, or 282.51 acres.
- Trees listed for removal or reduction pruning based on being dead or in poor condition and this canopy were not included in the canopy calculations.
- The total existing Oak Canopy Cover for Blue, Valley, and Black oaks is 1,753,636 square feet, or 40.26 acres.
- The total existing Oak Canopy Cover for Interior Live oaks is 199,299 square feet, or 4.57 acres.
- The total existing oak canopy cover including Blue, Valley, and Black plus Interior Live oaks is 1,952,935 square feet or 44.83 acres, and amounts to 15.9% existing Oak canopy cover.
- The proposed oak canopy removal of Valley, Blue, and Black oak for the Phase 1 project area is 176,903 square feet or 4.06 acres.
- The proposed oak canopy removal of Interior Live Oak for the Phase 1 project area is 16,759 square feet or 0.38 acres.
- The total proposed oak canopy removal for the Phase 1 project area is 193,662 square feet or 4.45 acres, or 9.9%.
- The available area for mitigation within Phase 1 is 509,560 square feet, or 23.90 acres.

The allowable canopy removal in the Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A) is 10%. The proposed Phase 1 removals are within the allowed guidelines. Adequate space is available for onsite mitigation.

To preserve the existing oak canopy, tree protection will be in place prior to construction activities, installed before clearing and grading, and be appropriately adjusted through landscaping work. There are construction sites where soil cutting and fill are proposed. The cut and fill areas are either outside of the dripline or near the outer edge. The cut areas are not expected to contact significant shallow roots. This was confirmed with a test excavation site. The construction protection will be in place prior to site work protecting the remaining soil under the tree canopy. Mitigation for the fill locations will be to place aeration tubes over the soil before covering with fill soil. The practice for the cut sites is to excavate carefully, and prune any small roots encountered at the edge of the excavation before removing the roots. Sharp tools and clean cuts will be made on all roots. If roots are larger than three inches diameter, or the density of shallow roots is found to be greater than three per ten feet, a qualified arborist will be contacted to assess if the roots can be pruned without significant impact to the tree. If significant impact is expected, a mitigation plan will be developed and implemented.

Biological Resources Study and Important Habitat Mitigation Program:
The relevant calculations used for tree mitigation are based on the canopy cover area, see Table 1-1.

Table 1-1
Dixon Ranch Oak Canopy Coverage Proposed Canopy Removal

Oak Woodland Species	Oak Canopy Coverage (%) Pre-Project	Post Project
Blue, Valley, & Black Oak	14.25%	8.20%
Interior Live Oak	1.62%	0.67%
Total Oak Canopy Coverage	15.9%	8.9%
Oak Canopy Cover Option A	Allowable 10% or 4.48 acres	Proposed 19.76 acres or 44.1%

Table 1-1
PHASE 1 Dixon Ranch Oak Canopy Coverage Proposed Canopy Removal

Oak Woodland Species	Oak Canopy Coverage (%) Pre-Project	Post Project
Blue, Valley, & Black Oak	14.25%	12.81%
Interior Live Oak	1.62%	1.48%
Total Oak Canopy Coverage	15.9%	14.3%
Oak Canopy Cover Option A	Allowable 10% or 4.48 acres	Proposed 4.45 acres or 9.9%

Mitigation Plan
The project proposal cannot comply with the Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A). Phase 1 will comply with the Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A). The mitigation for Phase 1 will comply with the County mitigation 1:1 canopy cover requirements. The existing total oak canopy cover on the site is approximately 15.9% and falls within in the 10 – 19 percent range. The required retention of canopy cover in this percent range is 90%. The total existing oak canopy area is 1,952,935 square feet or 44.83 acres. The allowable 10% canopy reduction area would be 195,293 square feet or 4.48 acres. The proposed canopy removal for Phase 1 is 193,662 square feet, or 4.45 acres, and amounts to 9.9%.

The mitigation under Option A would be to plant a 1:1 ratio for the proposed 4.45 acres. All mitigation tree planting will comply with the county's target density of 200 trees per acre. The mitigation actions that will be performed for this project will be dependent upon the allowable mitigation measures to be conditioned for this project.

The total oak tree canopy removal is proposed to be 19.76 acres. After the allowable 4.48 acres, there is an additional 15.28 acres of oak canopy that needs to be mitigated. The total mitigation acreage can be planted on site, or may be proposed off site. The final proposal will be based on what conditions the County approves for this project, either on site or an equivalent off-site mitigation such as planting or conservation easement acreage.

Oak tree mitigation in El Dorado County is regulated by El Dorado County General Plan policy 7.4.4.4 and the Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A) adopted November 9, 2006 and Amended October 12, 2007.

On September 24, 2012, the Board of Supervisors directed the Development Services Department to prepare a resolution of intention to amend the General Plan Policies 7.4.2.8, 7.4.2.9, 7.4.4.4, 7.4.4.5, 7.4.5.1, and 7.4.5.2 and their related implementation measures to clarify and refine the County's policies regarding oak tree protection and habitat preservation. The Board further directed staff to prepare a Request for Proposal to hire a consultant to assist the County to prepare the policies and Environmental Impact Report (EIR).

The project is submitted based on the expectation that the County of El Dorado Board of Supervisors may amend the General Plan policies based on an Environmental Impact Report. Those amendments and environmental documents are not yet in place to develop the total mitigation plan for this project. Oak canopy removal in excess of the allowed Option A 10% and acceptable mitigation will need to be assessed during Phase 2 project review. The additional oak canopy removal above Option A will need to be revisited with an appropriate level of environmental analysis at a future date, as the County Board of Supervisors takes action to put mitigation alternatives into place. Once the conditions for mitigation are in place, a final mitigation plan will be submitted for approval.

I reviewed the canopy calculation images, and map, and compared with conditions on the site during in-person visits. I am confident they are accurate as presented. The calculations are valid based on my field surveys and map reviews.

Assumptions and Limitations: This report provides information about the subject trees at the times of the inspection. Trees and conditions may change over time. This report is only valid for the trees with the conditions present at the times of the inspections. All observations were made while standing on the ground. The inspection consisted of visual observations, using probe to gain additional information about decay and hollow portions of the tree, and light excavation was performed to observe shallow depth areas below grade at the base of the tree. No further examinations were requested or performed. The time of year the assignment was performed limits some of the observations of health and dieback as most of the leaves were emerging and buds were showing activity.

The site lacked many clear topographic and structural landmarks. Sincere attempts were made to accurately locate the trees and show the trees on the Tree Preservation Map. All tree canopies were attempted to be shown as observed in the field. The relative canopy changes are realistically and accurately reflected on the Tree Preservation Map to the best of my ability.

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that can fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatments, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures.

Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risks is to eliminate all trees. Our company goal is to help clients enjoy life with trees.

Please contact me at 650-740-3461, or gordon@mannandtrees.com, if you have any questions about this report or desire any other services for this project.

I certify that all the statements in this report are true, complete, and correct to the best of my knowledge, and that all statements were made in good faith.

Sincerely,

Gordon Mann
Consulting Arborist and Urban Forester
Registered Consulting Arborist #480
ISA Certified Arborist and Municipal Specialist #WE-0151AM
CaUFC Certified Urban Forester #127
Certified Tree Risk Assessor #1005
Nevada County Fire Safe Council Defensible Space Advisory Training
Mann Made Resources
Auburn, CA
650-740-3461
Fax 530-268-0926
gordon@mannandtrees.com
www.mannandtrees.com

APPENDIX B

EL DORADO COUNTY GENERAL PLAN POLICIES RELATED TO OAK WOODLANDS

El DORADO COUNTY

GENERAL PLAN POLICIES
RELATED TO OAK WOODLANDS

Policy 7.4.4.4 For all new development projects (not including agricultural cultivation and actions pursuant to an approved Fire Safe Plan necessary to protect existing structures, both of which are exempt from this policy) that would result in soil disturbance on parcels that (1) are over an acre and have at least 1 percent total canopy cover or (2) are less than an acre and have at least 10 percent total canopy cover by woodlands habitats as defined in this General Plan and determined from base line aerial photography or by site survey performed by a qualified biologist or licensed arborist, the County shall require one of two mitigation options: (1) the project applicant shall adhere to the tree canopy retention and replacement standards described below; or (2) the project applicant shall contribute to the County's Integrated Natural Resources Management Plan (INRMP) conservation fund described in Policy 7.4.2.8.

Option A
The County shall apply the following tree canopy retention standards:

Percent Existing Canopy Cover	Canopy Cover to be Retained
80–100	60% of existing canopy
60–79	70% of existing canopy
40–59	80% of existing canopy
20–39	85% of existing canopy
10-19	90% of existing canopy
1-9 for parcels > 1 acre	90% of existing canopy

Under Option A, the project applicant shall also replace woodland habitat removed at 1:1 ratio. Impacts on woodland habitat and mitigation requirements shall be addressed in a Biological Resources Study and Important Habitat Mitigation Plan as described in Policy 7.4.2.8. Woodland replacement shall be based on a formula, developed by the County, that accounts for the number of trees and acreage affected.

Option B
The project applicant shall provide sufficient funding to the County's INRMP conservation fund, described in Policy 7.4.2.8, to fully compensate for the impact to oak woodland habitat. To compensate for fragmentation as well as habitat loss, the preservation mitigation ratio shall be 2:1 and based on the total woodland acreage onsite directly impacted by habitat loss and indirectly impacted by habitat fragmentation. The costs associated with acquisition, restoration, and management of the habitat protected shall be included in the mitigation fee. Impacts on woodland habitat and mitigation requirements shall be

addressed in a Biological Resources Study and Important Habitat Mitigation Plan as described in Policy 7.4.2.8.

Policy 7.4.4.5 Where existing individual or a group of oak trees are lost within a stand, a corridor of oak trees shall be retained that maintains continuity between all portions of the stand. The retained corridor shall have a tree density that is equal to the density of the stand.

OBJECTIVE 7.4.5: NATIVE VEGETATION AND LANDMARK TREES

Protect and maintain native trees including oaks and landmark and heritage trees.

Policy 7.4.5.1 A tree survey, preservation, and replacement plan shall be required to be filed with the County prior to issuance of a grading permit for discretionary permits on all high-density residential, multifamily residential, commercial, and industrial projects. To ensure that proposed replacement trees survive, a mitigation monitoring plan should be incorporated into discretionary projects when applicable and shall include provisions for necessary replacement of trees.

Policy 7.4.5.2 It shall be the policy of the County to preserve native oaks wherever feasible, through the review of all proposed development activities where such trees are present on either public or private property, while at the same time recognizing individual rights to develop private property in a reasonable manner. To ensure that oak tree loss is reduced to reasonable acceptable levels, the County shall develop and implement an Oak Tree Preservation Ordinance that includes the following components:

A. Oak Tree Removal Permit Process. Except under special exemptions, a tree removal permit shall be required by the County for removal of any native oak tree with a single main trunk of at least 6 inches diameter at breast height (dbh), or a multiple trunk with an aggregate of at least 10 inches dbh. Special exemptions when a tree removal permit is not needed shall include removal of trees less than 36 inches dbh on 1) lands in Williamson Act Contracts, Farmland Security Zone Programs, Timber Production Zones, Agricultural Districts, designated Agricultural Land (AL), and actions pursuant to a Fire Safe plan; 2) all single family residential lots of one acre or less that cannot be further subdivided; 3) when a native oak tree is cut down on the owner's property for the owner's personal use; and 4) when written approval has been received from the County Planning Department. In passing judgment upon tree removal permit applications, the County may impose such reasonable conditions of approval as are necessary to protect the health of existing oak trees, the public and the surrounding property, or sensitive habitats. The County Planning Department may condition any removal of native oaks upon the replacement of trees in kind. The replacement requirement shall be calculated based upon an inch for inch replacement of removed oaks. The total of replacement trees shall have a combined diameter of the tree(s) removed. Replacement trees may be planted onsite or in other areas to the satisfaction of the County Planning Department. The County may also condition any tree removal permit that would affect sensitive habitat (e.g., valley oak woodland), on preparation of a Biological Resources Study and an Important Habitat Mitigation Program as described in Policy 7.4.1.6. If an application is denied, the County shall provide written notification, including the reasons for denial, to the applicant.

B. Tree Removal Associated with Discretionary Project. Any person desiring to remove a native oak shall provide the County with the following as part of the project application:

- A written statement by the applicant or an arborist stating the justification for the development activity, identifying how trees in the vicinity of the project or construction site will be protected and stating that all construction activity will follow approved preservation methods;
- A site map plan that identifies all native oaks on the project site; and
- A report by a certified arborist that provides specific information for all native oak trees on the project site.

C. Commercial Firewood Cutting. Fuel wood production is considered commercial when a party cuts firewood for sale or profit. An oak tree removal permit shall be required for commercial firewood cutting of any native oak tree. In reviewing a permit application, the Planning Department shall consider the following:

- Whether the trees to be removed would have a significant negative environmental impact;
- Whether the proposed removal would not result in clear-cutting, but will result in thinning or stand improvement;
- Whether replanting would be necessary to ensure adequate regeneration;
- Whether the removal would create the potential for soil erosion;

- Whether any other limitations or conditions should be imposed in accordance with sound tree management practices; and
- What the extent of the resulting canopy cover would be.

D. Penalties. Fines will be issued to any person, firm, or corporation that is not exempt from the ordinance who damages or destroys an oak tree without first obtaining an oak tree removal permit. Fines may be as high as three times the current market value of replacement trees as well as the cost of replacement, and/or replacement of up to three times the number of trees required by the ordinance. If oak trees are removed without a tree removal permit, the County Planning Department may choose to deny or defer approval of any application for development of that property for a period of up to 5 years. All monies received for replacement of illegally removed or damaged trees shall be deposited in the County's Integrated Natural Resources Management Plan (INRMP) conservation fund.

MEASURE CO-P

Develop and adopt an Oak Resources Management Plan. The plan shall address the following:

- Mitigation standards outlined in Policy 7.4.4.4;
- Thresholds of significance for the loss of oak woodlands;
- Requirements for tree surveys and mitigation plans for discretionary projects;
- Replanting and replacement standards;
- Heritage/landmark tree protection standards; and
- An Oak Tree Preservation Ordinance as outlined in Policy 7.4.5.1.

[Policies 7.4.4.4 and 7.4.5.1]

Responsibility:	Planning Department
Time Frame:	Within two years of General Plan adoption.

APPENDIX C

EL DORADO COUNTY OAK/CANOPY SITE ASSESSMENT FORM (2) PHASE 1 AND WHOLE PROJECT

El Dorado County

OAK/CANOPY SITE ASSESSMENT FORM

Qualified Professional & Contact Information: *(attach qualifications)*	Gordon Mann, Consulting Arborist 12661 Torrey Pines Drive, Auburn, CA 95602; 650-740-3461
Property Owner's Name/APN(s):	Faye Louie Living Trust et al, 126-020-01, 02, 03, 04; 126-150-23
Address:	South side of Green Valley Road, 100 feet east of intersection with Malcolm Dixon Road, El Dorado Hills, CA
General Plan Designation:	LDR, OS
Zoning:	RE-5, AE
Project Description: *(attach site photos)*	Phase 1 Approximately 280 acres and is located north of US 50 in the unincorporated community of El Dorado Hills in western El Dorado Co

Would the project, directly or indirectly, have the potential to cause any impact, conflict with, or disturbance to:	**YES**	**NO**
a) Individual landmark or heritage trees (of any species) subject to review under General Plan Policy 7.4.5.2?	☐	☑
c) Oak woodland corridor continuity (General Plan Policy 7.4.4.5)?	☑	☐
d) Sensitive or important oak woodland habitat as defined in the Guidelines?	☐	☑
e) Movement of Wildlife and/or Any Wildlife Migration Corridor?	☐	☐
f) Any Candidate, Listed or Special Status Plant or Animal Species observed or expected to occur on or adjacent to the project site?	☐	☐
g) Is the affected area of oak canopy within or directly adjacent to an Important Biological Corridor or Ecological Preserve overlay?	☐	☑
h) Does the removal of oak canopy comply with the retention requirements of Policy 7.4.4.4?	☑	☐
i) Was project subject to prior County approval? (If yes, provide Tentative Map # and environmental documents if available)	☐	☑
j) For Discretionary Projects, would the project have the potential to cause a significant environmental impact on biological resources?	☑	☐

I affirm that all of the information contained in this document is true and correct to the best of my knowledge and I acknowledge and agree that any material misinformation in this document can result in the denial or revocation of any permits or County approvals for this project.

Qualified Professional: [signature] **Date:** 4/18/14

Applicant/Owner:__________ **Date:**__________

Required Attachments: 1) Qualified Professional Qualifications; 2) Site Photos; 3) Required Tree Survey, Preservation, and Replacement Plan *or* Biological Resources Study and Important Habitat Mitigation Program (see Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 Option A)

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Print Form Clear Form

El Dorado County

OAK/CANOPY SITE ASSESSMENT FORM

Qualified Professional & Contact Information: *(attach qualifications)*	Gordon Mann, Consulting Arborist 12661 Torrey Pines Drive, Auburn, CA 95602; 650-740-3461
Property Owner's Name/APN(s):	Faye Louie Living Trust et al, 126-020-01, 02, 03, 04; 126-150-23
Address:	South side of Green Valley Road, 100 feet east of intersection with Malcolm Dixon Road, El Dorado Hills, CA
General Plan Designation:	LDR, OS
Zoning:	RE-5, AE
Project Description: *(attach site photos)*	Total - Approximately 280 acres and is located north of US 50 in the unincorporated community of El Dorado Hills in western El Dorado Co

Would the project, directly or indirectly, have the potential to cause any impact, conflict with, or disturbance to:	**YES**	**NO**
a) Individual landmark or heritage trees (of any species) subject to review under General Plan Policy 7.4.5.2?	☐	☑
c) Oak woodland corridor continuity (General Plan Policy 7.4.4.5)?	☑	☐
d) Sensitive or important oak woodland habitat as defined in the Guidelines?	☐	☑
e) Movement of Wildlife and/or Any Wildlife Migration Corridor?	☐	☐
f) Any Candidate, Listed or Special Status Plant or Animal Species observed or expected to occur on or adjacent to the project site?	☐	☐
g) Is the affected area of oak canopy within or directly adjacent to an Important Biological Corridor or Ecological Preserve overlay?	☐	☑
h) Does the removal of oak canopy comply with the retention requirements of Policy 7.4.4.4?	☐	☑
i) Was project subject to prior County approval? (If yes, provide Tentative Map # and environmental documents if available)	☐	☑
j) For Discretionary Projects, would the project have the potential to cause a significant environmental impact on biological resources?	☑	☐

I affirm that all of the information contained in this document is true and correct to the best of my knowledge and I acknowledge and agree that any material misinformation in this document can result in the denial or revocation of any permits or County approvals for this project.

Qualified Professional: [signature] **Date:** 4/18/14

Applicant/Owner: ____________________ **Date:** ____________

Required Attachments: 1) Qualified Professional Qualifications; 2) Site Photos; 3) Required Tree Survey, Preservation, and Replacement Plan *or* Biological Resources Study and Important Habitat Mitigation Program (see Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 Option A)

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Print Form | Clear Form

APPENDIX D

GORDON MANN
PROFESSIONAL CREDENTIALS & CONSULTING RESUME

Gordon Mann
Professional Credentials - Consulting Resume

Education:
B.S. Forestry, University of Illinois
Horticulture courses, College of San Mateo
Continuing Education sessions to maintain Certifications and ASCA membership

Awards, Certifications, and Professional Memberships:
Received 2102 Award of Achievement and 2011 Author's Citation from the Society of Municipal Arborists
Received the 2011 True Professional of Arboriculture award from ISA
Member American Society of Consulting Arborists (ASCA), Registered Consulting Arborist #480
Member International Society of Arboriculture (ISA), ISA Certified Arborist and Municipal Specialist #WE-0151 AM; Qualified Tree Risk Assessor
Member California Urban Forest Council (CaUFC), Certified Urban Forester #127
Member Western Chapter International Society of Arboriculture (WCISA)
Member Society of Municipal Arborists (SMA)
Member California Arborist Association (CAA)

Employment:
Owner Mann Made Resources, consulting and marketing tree conservation products, since 1986
Over 36 years in municipal tree and risk management, and public administration
- Part-time and full-time consultant and product sales with Mann Made Resources
- 1 year with Fallen Leaf Tree Service as Municipal Manager/Trainer
- 1.5 years with the Sacramento Tree Foundation as Urban Forest Services Director including six months acting Deputy Director; Led regional ordinance committee
- 22.5 years with the City of Redwood City, CA as Arborist, City Arborist and Public Works Superintendent – overseeing Streets, Sidewalk, Traffic Signals and Street Lights, Parking Meters, Signs and Markings, & Trees
- 2.5 years with the City of San Mateo, CA as Tree Maintenance Supervisor
- 5 years with the Village of Brookfield, IL as Village Forester

Professional Leadership:
Immediate Past President & Board Member, American Society of Consulting Arborists (ASCA)
Current Board Member California Urban Forests Council (CaUFC)
Current WCISA member and serve on Student Committee and Certification Committee
Current member California Urban Forest Advisory Council (CUFAC) supporting CalFire
Current Co-Chair Sacramento Tree Foundation Technical Advisory Committee
Past representative for SMA on American National Standards Institute (ANSI) A300 Tree Maintenance Standards Committee
Past 2012 WCISA Annual Conference Chair, Asilomar, CA, April 29-May 2, 2012
Past President, Western Chapter International Society of Arboriculture
Past President, California Arborists Association
Past Board Member, Society of Municipal Arborists
Past chairperson (3 years) of the International Tree Climbing Competition
Past chairperson (13 years) of the Northern California Tree Climbing Competition
Past President, San Mateo Arboretum Society
Past President, CityTalk Toastmasters

Professional outreach:

- Developed and led training programs with the California Arborists Association
- Provided urban forestry and municipal arboriculture instruction in Sydney and Melbourne, Australia
- Presented urban forestry related sessions at regional and annual meetings with ASCA, ISA, SMA, ISA Chapters, ASCA, ANSI A300, CAA, CaUFC, PAPA, TCIA, CAPCA, Sacramento Tree Foundation, APWA, Arbor Day Foundation, Maintenance Superintendents Association, Oregon Department of Forestry, San Mateo County Stormwater Pollution Prevention Program, CO Pro-Green Expo, Idaho Hort Expo, and BC CanWest Hort Show
- Authored articles in newsletters and magazines including: Western Arborist, Arborist News, City Trees, and Utility Arborists Association
- Presented sessions on urban tree management topics at 2012 Colorado Pro-Green Conference, 2012 Idaho Hort Expo, 2012 WCISA Annual Conference, 2012 Association of Environmental Professionals, and 2012 WCISA Regional Meetings

Other Key Associations:

Served as representative on the Bay Cities Joint Powers Insurance Authority (BCJPIA) Safety and Loss Prevention Committee for Police and Public Works representing public works 2003 – 2007

Served as the Public Works Services representative on Redwood City's Emergency Operations Center steering Committee – 1998 to 2007

Key Projects:

Performed risk assessment and tree risk management plan for Nevada Joint Union High School District, Grass Valley, CA; reference - Paul Palmer (530) 477-6852

Performed Urban Forest Program analysis Oakdale, CA; reference - Robert Swift (209) 595-5013

Performed Campus Urban Forest Management Plan San Francisco State University, San Francisco, CA; reference – Phil Evans (415) 338-1845

Performed Arborists canopy coverage compliance report for Dixon Ranch, Ridgeview Village, Treviso II, and Migianella projects, El Dorado County, CTA Engineering and Survey; reference - Brian Allen and Olga Sciorelli (916) 638-0919

Performed Arborists reports for projects in Rocklin, Loomis, Granite Bay, Sacramento, and Roseville; Reference Nick Feitser (916) 307-3500

Performed Rocklin City Hall Oak Tree Preservation Demonstration Project, Rocklin, CA; reference - Dara Dungworth, (916) 625-5160

Performed sidewalk and tree conflicts analysis, and provided recommendations with the City of San Ramon; reference - John Lichter, 530-231-5586

Performed sidewalk and tree conflicts analysis, and provided recommendations with the Verrado Homeowners Association, Phoenix, AZ; Tim Johnson, 602-843-8733

Performed risk assessment and tree risk management plan for Grass Valley School District, Grass Valley, CA; reference – Steve Spann (530) 362-2571

Performed Sacramento county parks tree inventory; Analisa Stewart (916) 718-1395

Other relevant service:

Public Works representative on the Bay Cities Joint Powers Insurance Authority (BCJPIA) Safety and Loss Prevention Committee for the from 2003 to 2007

Redwood City Emergency Operations Center Steering Committee from 1996 to 2007

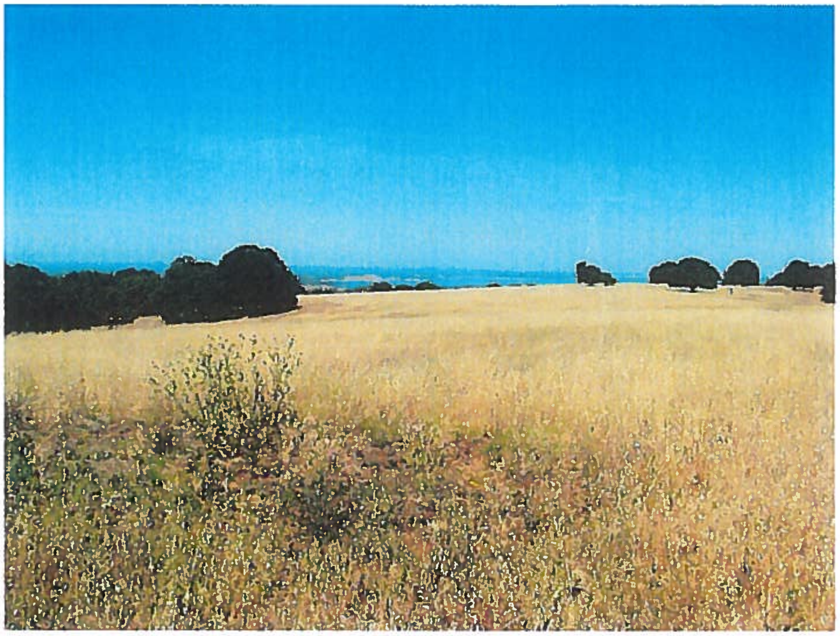
Current Chair of Lake of the Pines Community Firewise Committee

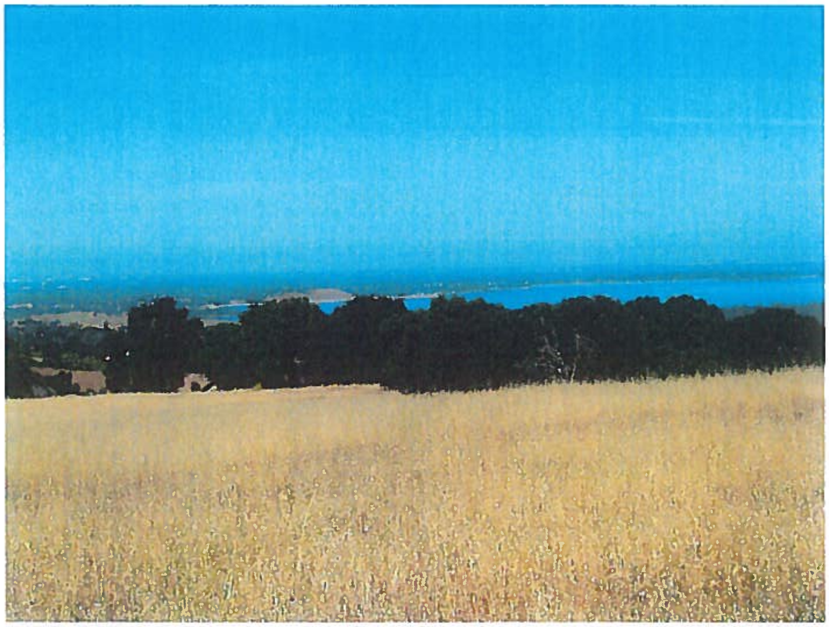
APPENDIX E

SITE PHOTOS

Site Photos

The photos are taken from different locations and perspectives on the property and show the different site uses, and tree canopy densities.





APPENDIX F

DIXON RANCH TREE PRESERVATION MAP – PHASE 1
DATED APRIL 2014

TREE PRESERVATION MAP
DIXON RANCH - PHASE 1

COUNTY OF EL DORADO | APRIL, 2014 | STATE OF CALIFORNIA

LEGEND

- PROJECT AREA USED IN CALCULATION - 12,306,347 SF (282.51 AC)
- PHASE LINE
- EXISTING OAK CANOPY - VALLEY, BLUE, & BLACK OAKS 1,753,636 SF (40.26 AC)
- EXISTING OAK CANOPY - INTERIOR LIVE OAK 199,299 SF (4.57 AC)
- DEAD OR DISEASED AND DYING OAK TREES (TO BE REMOVED AS NECESSARY / EXCLUDED FROM CALCULATIONS)
- NON-OAK ONSITE TREES / OFFSITE TREES

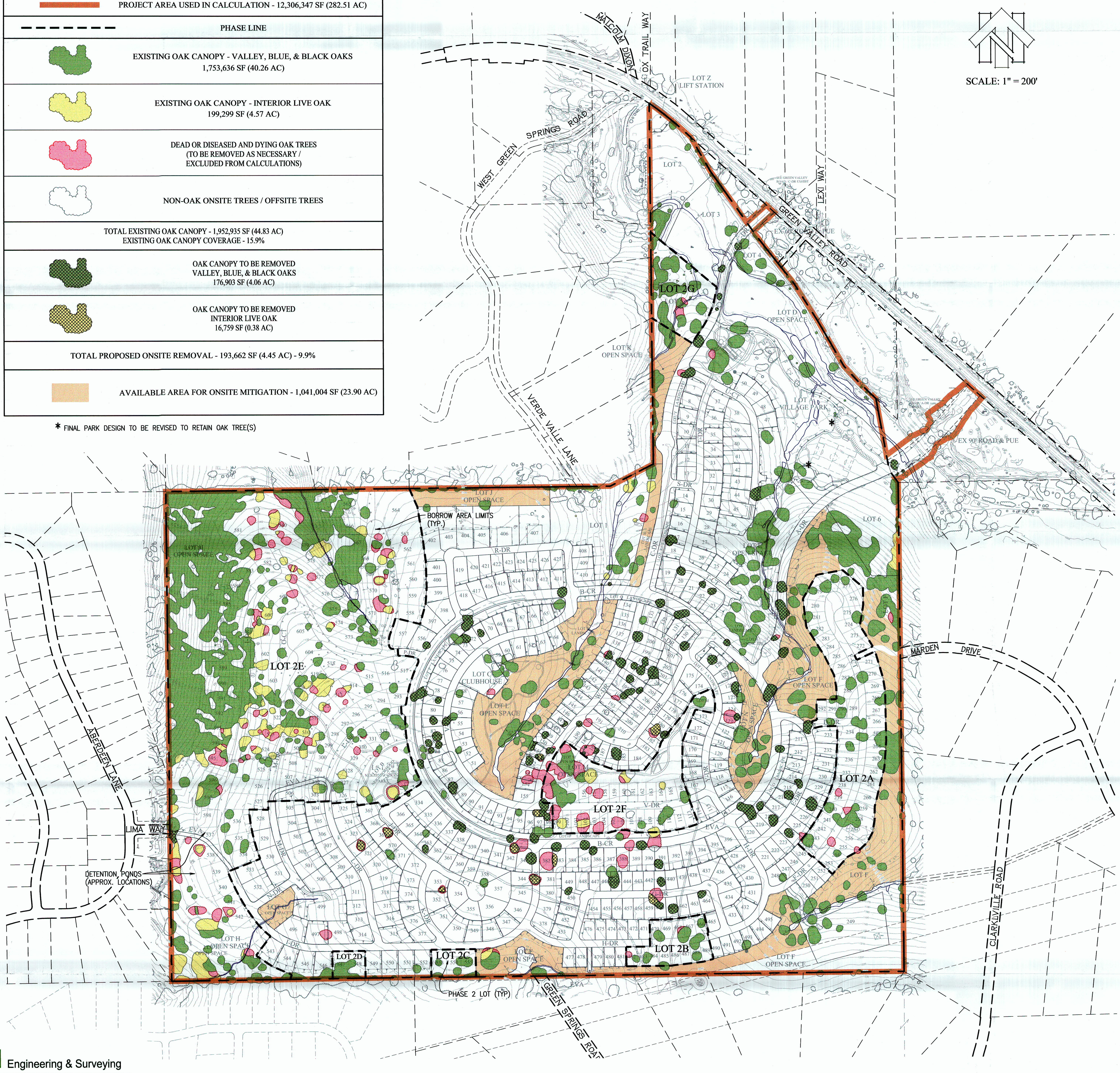
TOTAL EXISTING OAK CANOPY - 1,952,935 SF (44.83 AC)
EXISTING OAK CANOPY COVERAGE - 15.9%

- OAK CANOPY TO BE REMOVED VALLEY, BLUE, & BLACK OAKS 176,903 SF (4.06 AC)
- OAK CANOPY TO BE REMOVED INTERIOR LIVE OAK 16,759 SF (0.38 AC)

TOTAL PROPOSED ONSITE REMOVAL - 193,662 SF (4.45 AC) - 9.9%

- AVAILABLE AREA FOR ONSITE MITIGATION - 1,041,004 SF (23.90 AC)

* FINAL PARK DESIGN TO BE REVISED TO RETAIN OAK TREE(S)



cta Engineering & Surveying
Civil Engineering ▪ Land Surveying ▪ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ▪ F (916) 638-2479 ▪ www.ctaes.net

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APPENDIX G

DIXON RANCH TREE PRESERVATION MAP, MARCH 2013
REVISED MARCH 2014

TREE PRESERVATION MAP
DIXON RANCH

COUNTY OF EL DORADO | MARCH, 2013 REVISED: MARCH, 2014 | STATE OF CALIFORNIA

LEGEND

	PROJECT AREA USED IN CALCULATION - 12,306,347 SF (282.51 AC)
	EXISTING OAK CANOPY - VALLEY, BLUE, & BLACK OAKS 1,753,636 SF (40.26 AC)
	EXISTING OAK CANOPY - INTERIOR LIVE OAK 199,299 SF (4.57 AC)
	DEAD OR DISEASED AND DYING OAK TREES (TO BE REMOVED AS NECESSARY / EXCLUDED FROM CALCULATIONS)
	NON-OAK ONSITE TREES / OFFSITE TREES
TOTAL EXISTING OAK CANOPY - 1,952,935 SF (44.83 AC) EXISTING OAK CANOPY COVERAGE - 15.9%	
	OAK CANOPY TO BE REMOVED VALLEY, BLUE, & BLACK OAKS 744,500 SF (17.09 AC)
	OAK CANOPY TO BE REMOVED INTERIOR LIVE OAK 116,430 SF (2.67 AC)
TOTAL PROPOSED ONSITE REMOVAL - 860,930 SF (19.76 AC) - 44.1%	
	AVAILABLE AREA FOR ONSITE MITIGATION - 1,317,154 SF (30.24 AC)

SCALE: 1" = 200'

cta Engineering & Surveying
Civil Engineering ■ Land Surveying ■ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ■ F (916) 638-2479 ■ www.ctaes.net

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JURISDICTIONAL DELINEATION AND SPECIAL STATUS SPECIES EVALUATION

Dixon Ranch

Gibson & Skordal, LLC
WETLAND CONSULTANTS
2617 K Street, Suite 175
Sacramento, California 95816

JURISDICTIONAL DELINEATION AND SPECIAL STATUS SPECIES EVALUATION

Dixon Ranch

El Dorado County, California

August 2011
Revised: May 2012

Prepared For:

Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

Prepared By:

Gibson & Skordal, LLC
WETLAND CONSULTANTS
2617 K Street, Suite 175
Sacramento, California 95816

INTRODUCTION

This report presents the results of a special status species assessment and a delineation of waters of the United States, including wetlands, for the below described Dixon Ranch parcel.

LOCATION

The approximately 296-acre study area is located in Section 24, Township 10 North, Range 8 East; Section 19, Township 10 North, Range 9 East, MDB&M, El Dorado County, California. The parcel can be found at UTM 670,016 M E; 4,285,698 M N (Zone 10N) and is portrayed on the Clarksville, California 7.5-Minute Series Topographic Quadrangle. Figure 1 is a vicinity map.

To access the site from Sacramento, drive east on Highway 50 into El Dorado County and exit to the north onto El Dorado Hills Boulevard. Travel north on El Dorado Hills Boulevard, and then turn right onto Green Valley Road. Continue east on Green Valley Road until reaching West Green Springs Drive. The study area is located south of the West Green Springs Drive-Green Valley Road intersection.

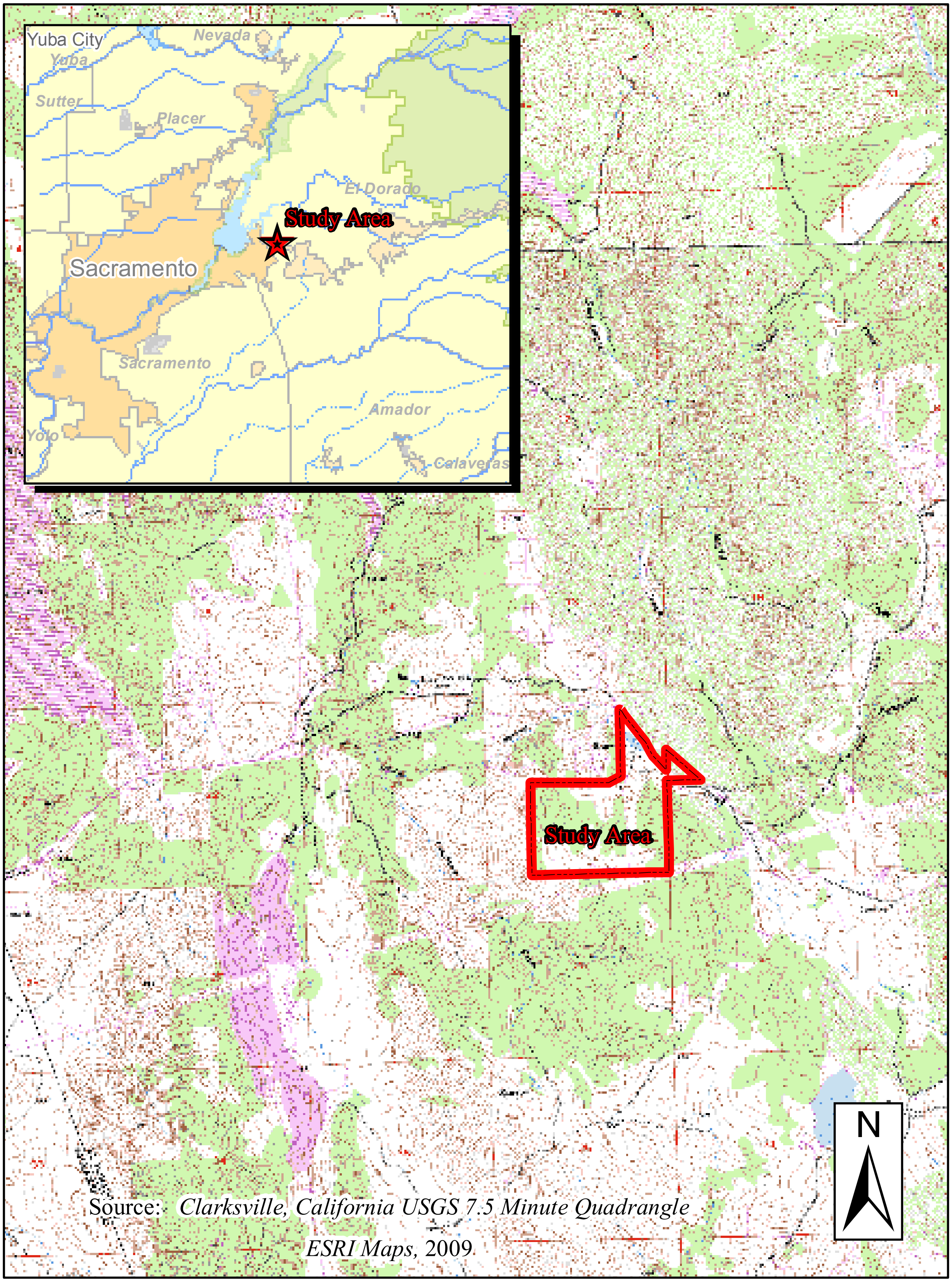
METHODOLOGY

This delineation was performed in accordance with the 1987 **"Corps of Engineers Wetlands Delineation Manual,"**[1] the **"Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0),"**[2] and Sacramento District's **"Minimum Standards for Acceptance of Preliminary Wetlands Delineations"** dated November 30, 2001. Corps' regulations (33 CFR 328) were used to determine the presence of waters of the United States other than wetlands. The **"U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook, May 30, 2007"**[3] was consulted

[1] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station. Vicksburg, Miss.

[2] Wetlands Regulatory Assistance Program. September 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). U.S. Army Engineer Research and Development Center, Vicksburg, Miss.

[3] U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. May 30, 2007. U.S. Army Corps of Engineers & U.S. Environmental Protection Agency.



Dixon Ranch
Jurisdictional Delineation & Special Status Species Evaluation
May 2012

Figure 1
Vicinity Map

in evaluating the jurisdictional status of the various waterbodies existing within the study area. The **"National List of Plant Species That Occur in Wetlands: California (Region 0)"**[4] was used to determine the wetland indicator status of plants observed in the study area.

Field surveys were conducted on February 4, 2011, within the study area to delineate water features, including wetlands that are potentially regulated under Section 404 of the Federal Clean Water Act. Wetland and data point locations were surveyed utilizing a Trimble GeoXT GPS unit equipped with sub-meter accuracy. The delineation map was prepared by digitizing and layering GPS field survey data over 2009 aerial photography. Detailed data on vegetation, soils, and hydrology were taken in the field. Data sheets documenting the basis for determining which areas are wetland or upland are provided in Appendix A.

Mr. Pack Ha of the Sacramento District's Regulatory Division conducted a desk verification, and a jurisdictional determination letter was issued on August 26, 2011, under Corps action ID SPK-2011-00758. Appendix B is a delineation map which portrays the study area boundary as well as the location, size, and reach of water features. Appendix C is the Corps' jurisdictional determination letter.

A record search of the CNDDB was conducted to identify all documented sightings of special status species within approximately ten miles of the study area. In addition to species identified in the CNDDB search, we included other special status species that may occur in the study area based on historical or new range data.

GENERAL SITE CONDITIONS AND HABITAT

Existing Field Conditions

The study area is located on rolling terrain at a mean elevation of about 1,050 feet. The site, which is primarily used as cattle and horse pasturage, is undeveloped. Newer residential developments are located to the west while older ranchettes occupy lands to the north and east. The area in general is in the process of converting from rural to residential land use. The site was not recently graded, grazed, disked, or mowed at the time of field surveys. Appendix D contains photographs of representative landscapes within the study area.

[4] Reed, P.B. 1988. National List of Plant Species That Occur In Wetlands: California (Region 0). Biological Report 88(26.10). May 1988. National Ecology Center, National Wetlands Inventory, U.S. Fish & Wildlife service, St. Petersburg, Florida.

Plant Communities and Habitat Types

The majority of the site supports oak savannah/woodland composed chiefly of valley oaks (*Quercus lobata*), live oaks (*Quercus wislizenii*), and blue oaks (*Quercus douglasii*). The understory consists of numerous grass species such as dogtail (*Cynosurus echinatus*), wild oats (*Avena* sp.), rip-gut brome (*Bromus diandrus*), medusa head (*Taeniatherum caput-medusae*), and soft chess (*Bromus mollis*).

Interspersed between the oak woodlands/savannah are areas of annual non-native grasslands characterized by rip-gut brome, medusa head, and soft chess. Other associated species include yellow start-thistle (*Centaurea solstitialis*), Mediterranean barley (*Hordeum hystrix*), and split-leaf geranium (*Geranium dissectum*).

The study area also encompasses several water features supporting plant communities dominated by hydrophytic macrophytes. These are discussed in greater detail below.

Hydrology

The majority of the site generally drains to the north/northeast into Green Spring Creek. Green Spring Creek, which traverses the northern portion of the study area from east to west, is tributary to Folsom Reservoir by way of New York Creek. The southwestern corner of the parcel appears to drain to the south and into Allegheny Creek outside of the study area boundary. Allegheny Creek is also tributary to Folsom Reservoir by way of Green Spring Creek and New York Creek, respectively.

Soils

According to the April 1974, "**Soil Survey of El Dorado County, California**," four soil map units occur within the study area: Auburn very rocky silt loam, 2-30 percent slopes (AxD), Auburn silt loam, 2-30 percent slopes (AwD), Placer diggings (PrD), and Serpentine Rock Land (SaF).

The first is Auburn very rocky silt loam, 2-30 percent slopes (AxD) which is a well-drained, shallow ruptic-lithic xerochrept composed of 5 to 25 percent rock outcrops. The water holding capacity is 2 to 4 inches, and the depth to bedrock (and effective plant rooting range) varies between 20 to 26 inches. Contained within this unit are inclusions of Argonaut very rocky loam, Boomer very rocky loam, and Sobrante very rocky silt loam.

The second mapped unit is Auburn silt loam, 2-30 percent slopes (AwD). AwD is very similar to AxD except that its surface area is composed of less than 5 percent exposed bedrock. Mapped in AwD are small areas of Perkins gravelly loam, moderately deep variant; Argonaut gravelly loam, and Sobrante silt loam.

Placer diggings (PrD) represents the third map unit and is located in or near creeks, streams, and rivers or areas that have been placer mined. Though enough sand and/or silt are present to support the growth of grasses, it possesses a large proportion of stone, gravel, and cobble.

The final unit is Serpentine Rock Land (SaF), which is located in areas of serpentine and other ultrabasic rock formations. SaF is excessively drained with very rapid surface runoff, and may be composed of 50 to 90 percent rock outcrops and stones. It has a thin mantle of surface soil and is usually found on undulating to very steep terrain. An unnamed inclusion is often present at elevations over 1,000 feet; it has a surface layer of slightly acidic loam and a neutral subsoil of very gravelly heavy clay loam and clay. Depth to bedrock varies from 10 to 24 inches.

None of the above soil map units are listed in the June 1991, "**Hydric Soils of the United States.**" Figure 2 is a soils map, and Table 1 lists the units mapped within the study area.

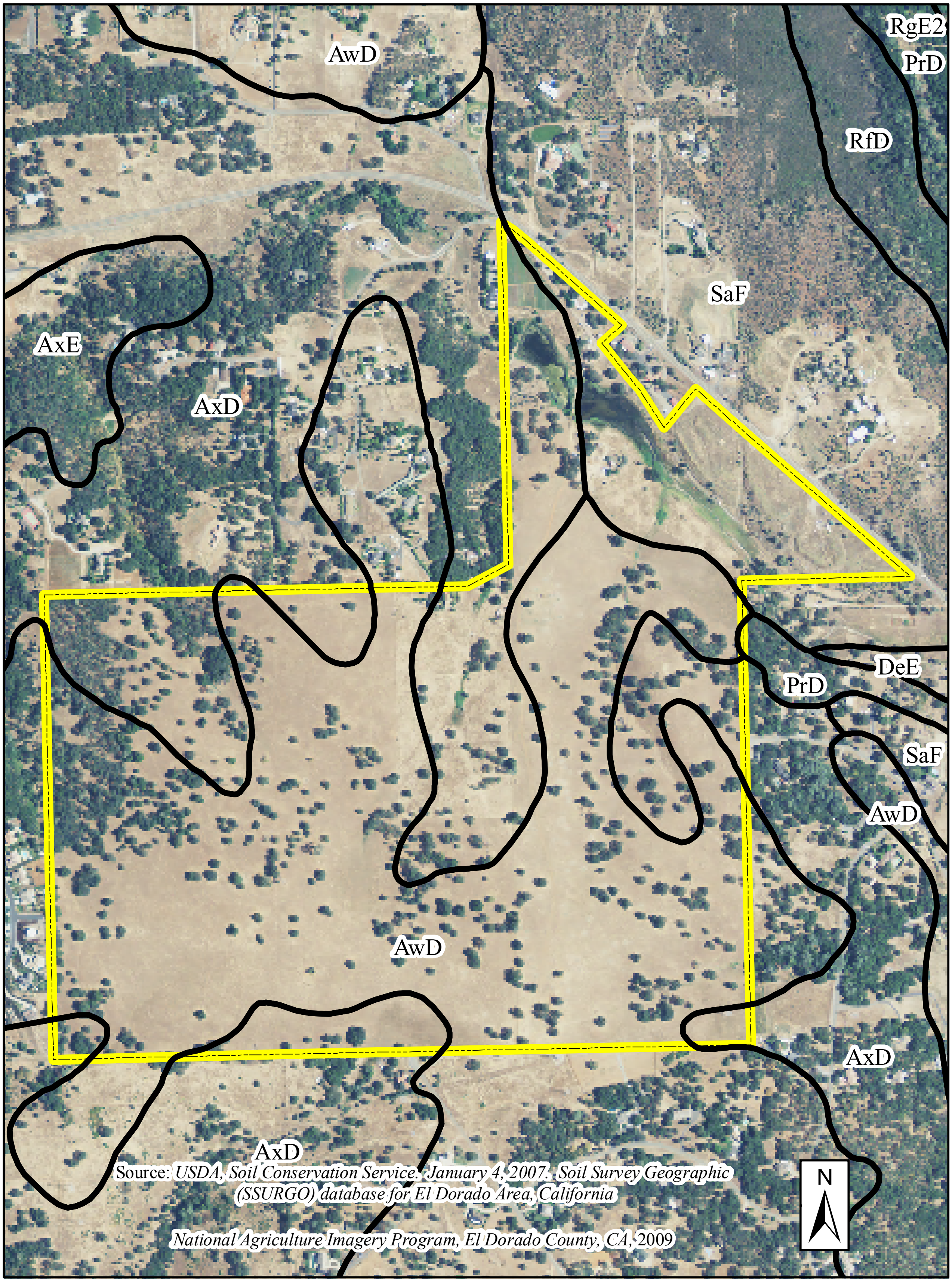
FINDINGS

Potential Wetlands and Waters of the United States

We identified a total of 7.4145 acres of water features in the study area including 0.3944 acre of seeps, 2.1547 acres of seasonal wetland swales, 0.0063 acre of depressional seasonal wetlands, 3.8032 acres of ponds, 0.2444 acre of ephemeral channels, and 0.8114 acre of intermittent channels. Appendix B contains a delineation map with an inset table listing acreages by feature type, and Appendix E provides a list of plant species observed in the study area including their status as wetland indicator species.

Seeps

Four seeps totaling 17,181 square feet were delineated within the study area. Seeps are most often associated with sloping terrain and derived primarily from groundwater seepage in the winter and spring. The plant species included Mediterranean barley, perennial rye (*Lolium perenne*), water cress (*Rorippa nasturtium-aquaticum*), and spiny-fruited buttercup (*Ranunculus muricatus*). The noted soils were sandy clay loams with matrices of 10YR3/1 with



Dixon Ranch
Jurisdictional Delineation & Special Status Species Evaluation
May 2012

Figure 2
Soils Map

Table 1: Study Area Soil Map Units

Map Symbol	Mapping Unit	Drainage Class
AwD	Auburn silt loam, 2-30% slopes	Well drained
AxD	Auburn very rocky silt loam, 2-30% slopes	Well drained
PrD	Placer Diggings	Mixed drainage classes
SaF	Serpentine rock land	Excessively drained

approximately 20% 10YR4/6 redoximorphic features located in the matrix and root channels. Common wetland hydrology indicators were inundation, oxidized root channels on live roots, and/or a positive FAC-Neutral test.

Seasonal Wetland Swales

Approximately 2.1547 acres of seasonal wetland swales were mapped within the study area. Recorded plants included perennial ryegrass, curly dock (*Rumex crispus*), tall flat sedge (*Cyperus eragrostis*), and spiny-fruited buttercup. The soil were sandy loams with matrices of 10YR4/1 with approximately 10 percent 10YR3/6 redoximorphic features located in the matrix and root channels in the top 4 inches. Saturation or inundation was the most common indicators of wetland hydrology.

Depressional Seasonal Wetlands

One depressional seasonal wetland totaling approximately 275 square feet is located within the study area. This feature appears to receive overtopped water from the adjacent Green Spring Creek. The vegetation was sparse and consisted of curly dock, Mediterranean barley, and perennial rye. The primary indicators of wetland hydrology were sediment deposits, water stained leaves, and surface inundation.

Ponds

Two ponds totaling approximately 3.8032 acres are situated behind historic impoundments of Green Spring Creek. Both contained open water at the time of field surveys, and vegetation along the shore and within the shallow margins includes hardstem bulrush (*Scirpus acutus*), willows (*Salix* sp.), cottonwoods (*Populus fremontii*), creeping spike rush (*Eleocharis macrostachya*), and cattails (*Typha* sp.). The soils present were loams with matrices colors of 10YR3/2 with approximately 25% 10YR3/6 redoximorphic features located in the root channels and matrix. Inundation and saturation to the surface were the most obvious indications of wetland hydrology.

Intermittent Channels and Associated Wetlands

We mapped approximately 0.8114 acre of intermittent channel associated with Green Spring Creek within the study area. Green Spring Creek (IC1-IC4 on the attached delineation map) contained several inches of flowing water and supported thick growths of hardstem bulrush and cattails. A distinct bed and bank and ordinary high water mark were observed. No data points were taken within Green Spring Creek due to its obvious break with the surrounding uplands.

Ephemeral Channels

The site contains approximately 0.2444 acre of ephemeral channels. Like the above-described intermittent channels, the ephemeral channels possessed a distinct bed and bank and ordinary high water mark. All ephemeral channels contained flowing water at the time of field surveys due to recent rains. These features generally supported little to no vegetation.

JURISDICTIONAL FINDINGS

The U.S. Army Corps of Engineers has determined that the study area contains a total of 7.4145 acres of water features in the study area including 0.3944 acre of seeps, 2.1547 acres of seasonal wetland swales, 0.0063 acre of depressional seasonal wetlands, 3.8032 acres of ponds, 0.2444 acre of ephemeral channels, and 0.8114 acre of intermittent channels. Appendix B contains the reviewed delineation map with inset acreage table.

SPECIAL STATUS SPECIES ASSESSMENT

This report summarizes our evaluation of the potential presence of special status species within the study area. The special status species assessment considers those species identified as having relative scarcity and/or declining populations by the United States Fish & Wildlife Service (FWS) or California Department of Fish & Game (CDFG). Special status species include those formally listed as threatened or endangered, those proposed for formal listing, candidates for federal listing, and those classified as species of special concern by CDFG. We also included those species considered to be "special animals" or "fully protected" by the CDFG and those plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS). Special-status plant species include those officially listed by California or the federal government as endangered, threatened, or rare, as well as those proposed for formal state or federal listing as candidate species for listing as endangered, threatened, or rare. We also included those plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS); this includes species on Lists 1, 2, 3, and 4 of the CNPS Ranking System:

- List 1 A: Plants presumed extinct in California.
- List 1 B: Plants rare, threatened, or endangered in California and elsewhere.
- List 2: Plants rare, threatened, or endangered in California, but more common elsewhere.
- List 3: Plants about which the CNPS needs more information – a review list.
- List 4: Plants of limited distribution – a watch list.

The CNPS Threat Rank is an extension that is added onto the CNPS List. It ranges from .1 to.3 and indicates the level of endangerment to the species with .1 representing the most endangered and .3 being the least endangered.

Also included are taxa meeting the criteria for listing under Section 15380 of the California Environmental Quality Act (CEQA) Guidelines. (Note that all CNPS List 1 and 2 and some List 3 species may fall under Section 15380 of CEQA.)

A record search of the CNDDB was conducted to identify all documented sightings of special status species within approximately 10 miles of the study area. In addition to species identified in the CNDDB search, we included other special status species that may occur in the study area based on historical range data. Appendix F contains a CNDDB elemental occurrence map.

Table 2 provides a list of special status species that were evaluated including their listing status, habitat associations, and whether potential habitats occur in the study area. The following is a detailed summary of special status species and their habitats as they relate to the study area.

MAMMALS

Pallid Bat

Pallid bat (*Antrozous pallidus*) is a listed CDFG species of special concern. It favors roosting sites in crevices in rock outcrops, caves, abandoned mines, and human-made structures such as barns, attics, hollow trees, and sheds. Though pallid bats are gregarious, they tend to group in smaller colonies of 10 to 100 individuals. It is a nocturnal hunter and captures prey in flight, but unlike most American bats, the species has been observed foraging for flightless insects, which it seizes after landing. The sole occurrence within the target quadrangles is based upon a specimen collected two miles northwest of Folsom in 1942.

Though roosting and foraging habitat are present, the species is not likely to occur within the study area

Silver-Haired Bat

Silver-haired bat (*Lasionycteris noctivagans*) is a listed CDFG special animal. Primarily considered a coastal and montane forest species, the silver-haired bat roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. This insectivore's favored foraging sites include open wooded areas near water features.

Foraging and roosting habitats are present.

Pacific Fisher

The Pacific fisher (*Martes pennanti*) is a federal candidate species and a CDFG species of special concern. It is the second largest member of the weasel family in North America, and its favored prey includes small mammals, birds, carrion, vegetation, insects, and fungi. They are active hunters and extremely secretive. Pacific fishers are associated with old growth forests with thick canopies that are adjacent to other habitat types such are riparian corridors and shrubfields. The presence of numerous downed hollow logs and snags for denning and nesting is crucial.

TABLE 2:
EVALUATION OF SPECIAL STATUS SPECIES HABITATS

	Federal Status	State Status	CNPS Listing	Habitat Association	Potential Habitat In Study Area
Mammals					
Antrozous pallidus (pallid bat)	None	Species of Special Concern		Roosts in rock outcrops, hollow trees, abandoned mines, barns, and attics.	Though foraging and roosting habitats are present, no specimens have been observed in the area since 1942.
Lasionycteris noctivagans (silver-haired bat)	None	CDFG-Special Animals		Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	Foraging and roosting habitat present.
Martes pennanti (pacifica) (Pacific fisher)	Candidate	None		Intermediate to large-tree stages of coniferous forest and deciduous-riparian areas with thicker canopies.	Habitat not within study area; species not likely present.
Birds					
Accipiter cooperi (Cooper's hawk)	None	CDFG-Special Animals		Inhabits forested habitats, forest edge, and riparian habitat, may forage in adjacent grassland and fields.	Foraging and nesting habitat present.
Agelaius tricolor (tricolored blackbird)	None	Species of Special Concern		Colonial nester in cattails, bulrush, or blackberries associated with marsh habitats.	Foraging and nesting habitat present.
Ardea alba (great egret)	None	CDFG-Special Animals		Rivers, streams, lakes, marsh and other aquatic habitats.	Foraging and nesting habitat present.
Ardea herodias (great blue heron)	None	CDFG-Special Animals		Rivers, streams, lakes, marsh and other aquatic habitats.	Foraging and nesting habitat present.
Athene cunicularia (burrowing owl)	None	Species of Special Concern		Nests in abandoned ground squirrel burrows associated with open grassland habitats.	Foraging and nesting habitat present.
Buteo Swainsoni (Swainson's hawk)	None	Threatened		Nests in tall cottonwoods, valley oaks or willows. Forages in fields, cropland, irrigated pasture, and grassland near large riparian corridors.	Study area is located in the foothills which is beyond the normal range of the species; species is not likely present.
Elanus leucurus (white-tailed kite)	None	Fully Protected		Nests in riparian corridors along streams and rivers, and forages in nearby grasslands and fields.	Foraging and nesting habitat present.

TABLE 2:

EVALUATION OF SPECIAL STATUS SPECIES HABITATS

Falco columbarius (Merlin)	None	CDFG-Special Animals		It is not known to nest in California, but it is a winter transient throughout most of California with wintering populations in the Central Valley.	Foraging habitat present.
Haliaeetus leucocephalus (bald eagle)	Delisted	Endangered		Documented as wintering & nesting in El Dorado Co., they typically nest in oak woodland within 1 mile of lakes, rivers, or larger streams.	Foraging habitat present.
Phalacrocorax auritus (double-crested cormorant)	None	CDFG-Special Animals		Nests in colonies on rocks, cliff, or in trees. It prefers open water habitats such as coastlines, ponds, rivers, lakes, estuaries, or lagoons.	Foraging and nesting habitat present.
Amphibians & Reptiles					
Emys marmorata (western pond turtle)	None	Species of Special Concern		Ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	Habitat present.
Phrynosoma blainvillii (California horned lizard)	None	Species of Special Concern		Diverse habitat associations, but normally a low land species associated with sandy scrub habitat and low sand washes.	Habitat not within study area; species not likely present.
Rana draytonii (California red-legged frog)	Threatened	Species of Special Concern		Breeds in permanent to semi-permanent aquatic habitats including lakes, ponds, marshes, creeks, and other drainages.	Habitat present.
Spea hammondii (western spadefoot toad)	None	Species of Special Concern		Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	Habitat present.
Invertebrates					
Andrena blennospermatis (solitary or ground nesting bee)	None	None		Forages in vernal pools for pollen from blennosperma (*Blennosperma nanum*), and nests in nearby uplands.	Habitat not within study area; species not likely present.
Banksula californica (Alabaster Cave harvestman)	None	None		Only known from Alabaster Cave in which has since been partially destroyed by historic mining. Presently, it is sealed with cement.	Habitat not within study area; species not likely present.
Branchinecta conservatio (Conservancy fairy shrimp)	Endangered	None		Vernal pools and other seasonally ponded wetlands.	Habitat not within study area; species not likely present.
Branchinecta lynchi (vernal pool fairy shrimp)	Threatened	None		Vernal pools and other seasonally ponded wetlands.	Habitat not within study area; species not likely present.
Branchinecta mesovallensis (midvalley fairy shrimp)	None	None		Vernal pools and other seasonally ponded wetlands.	Habitat not within study area; species not likely present.

TABLE 2:

EVALUATION OF SPECIAL STATUS SPECIES HABITATS

Desmocerus californicus dimorphus (valley elderberry longhorn beetle)	Threatened	None		Dependent upon elderberry plant (Sambucus mexicana) as primary host species	Habitat present, four elderberry bushes observed.
Hydrochara rickseckeri (Ricksecker's water scavenger beetle)	None	None		Ponds, lakes, streams, rivers, vernal pools, and other freshwater features.	Habitat present.
Lepidurus packardi (vernal pool tadpole shrimp)	Endangered	None		Vernal pools and other seasonally ponded wetlands.	Habitat not within study area; species not likely present.
Linderiella occidentalis (California linderiella)	None	None		Vernal pools and other seasonally ponded wetlands.	Habitat not within study area; species not likely present.
Plants					
Allium jepsonii (Jepson's onion)	None	None	CNPS-1B.2	Prefers cismontane woodland or lower montane coniferous forests associated with serpentine soils or volcanic slopes.	Habitat present, but no specimens observed during plant surveys.
Balsamorhiza macrolepis var. *macrolepis* (big-scale balsamroot)	None	None	CNPS-1B.2	Prefers chaparral, cismontane woodland, and valley and foothill grasslands.	Habitat present, but no specimens observed during plant surveys.
Calystegia stebbinsii (Stebbin's morning glory)	Endangered	Endangered	CNPS-1B.1	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	Habitat present, but no specimens observed during plant surveys.
Ceanothus roderickii (Pine Hill ceanothus)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	Habitat present, but no specimens observed during plant surveys.
Chlorogalum grandiflorum (Red Hills soaproot)	None	None	CNPS-1B.2	Foothill chaparral, cismontane woodland, and lower montane coniferous forest. Sometimes found in serpentine or Gabbro soils.	Habitat present, but no specimens observed during plant surveys.
Clarkia biloba ssp. *brandegeeae* (Brandegee's clarkia)	None	None	CNPS-1B.2	Generally associated with chaparral and cismontane woodland, but may occur in foothill oak woodland and grassland.	Habitat present, but no specimens observed during plant surveys.
Eryngium pinnatisectum (Tuolumne button-celery)	None	None	CNPS-1B.2	Cismontane woodlands, lower montane coniferous forests, and vernal pools.	Habitat present, but no specimens observed during plant surveys.
Fremontodenderon decumbens (Pine Hill flannelbush)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	Habitat present, but no specimens observed during plant surveys.

TABLE 2:

EVALUATION OF SPECIAL STATUS SPECIES HABITATS

Galium californicum ssp. *sierrae* (El Dorado bedstraw)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	Habitat present, but no specimens observed during plant surveys.
Gratiola heterosepala (Bogg's Lake hedge-hyssop)	None	Endangered	CNPS-1B.2	Vernal pools and margins of lakes/ponds	Habitat present, but no specimens observed during plant surveys.
Helianthemum suffrutescens (Bisbee Peak rush rose)	None	None	CNPS-3.2	Open areas within chaparral. Often found in serpentine, Gabbro, or Ione soils.	Habitat present, but no specimens observed during plant surveys.
Legenere limosa (legenere)	Species of Concern	None	CNPS-1B.1	Vernal pools.	Habitat not present; no specimens observed during plant surveys.
Navarretia myersii ssp. *myersii* (Pin cushion navarretia)	None	None	CNPS-1B.1	Vernal pools.	Habitat not present; no specimens observed during plant surveys.
Orcuttia tenuis (slender orcutt grass)	Threatened	Endangered	CNPS-1B.1	Vernal pools.	Habitat not present; no specimens observed during plant surveys.
Orcuttia viscida (Sacramento orcutt grass)	Endangered	Endangered	CNPS-1B.1	Vernal pools.	Habitat not present; no specimens observed during plant surveys.
Packera layneae (Layne's ragwort)	Threatened	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	Habitat present, but no specimens observed during plant surveys.
Pseudobahia bahiifolia (Hartweg's golden sunburst)	Endangered	Endangered	CNPS-1B.1	Prefers grassland or open woodland with clay soils.	Habitat present, but no specimens observed during plant surveys.
Sagittaria sanfordii (Sanford's arrowhead)	None	None	CNPS-1B.2	Emergent marsh habitat, typically associated with drainages, canals, or irrigation ditches.	Habitat present, but no specimens observed during plant surveys.
Wyethia reticulata (El Dorado Co. mule ears)	None	None	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with Gabbro or red stony clay soils.	Habitat present, but no specimens observed during plant surveys.

The site lack of thick forest canopy and the presence of encroaching development make it unlikely that the species would occur within the study area.

BIRDS

Cooper's Hawk

Cooper's hawk (*Accipiter cooperi*), which is also known as the blue darter or chicken hawk, is a listed CDFG special animal. This raptor is an ambush predator that prefers to forage in or near wooded locations for birds, domestic poultry, and small mammals. Unlike falcons which use their beaks, Cooper's hawks subdue prey by continuously squeezing with talon-equipped feet. It has been observed on occasion drowning captured prey in water. This species prefers tree nesting in wooded areas typically 10 to 60 feet above ground level.

The study area contains suitable foraging and nesting habitats for this species.

Tricolored Blackbird

Tricolored blackbirds (*Agelaius tricolor*) are listed by CDFG as a species of special concern due to declining populations in the region. They are colonial nesters preferring to nest in dense stands of cattails and/or bulrush, but they also commonly nest in blackberry thickets associated with drainages, ditches, and canals. The nearest recorded nesting colony location is approximately 3.2 miles to the west near Blue Ravine.

The study area contains suitable foraging and nesting habitats for this species.

Great Egret

The great egret (*Ardea alba*) is listed by CDFG as a special animal. This bird usually forages alone in shallow open water and wetlands for fish, amphibians, and aquatic invertebrates. The species has recovered from historic persecution by plume hunters, but destruction of wetlands, especially in the West where colonies are few and widely scattered, poses a current threat. Great egrets prefer breeding habitat in or near open waters and wetlands.

The study area contains suitable foraging and nesting habitats for this species.

Great Blue Heron

The great blue heron (*Ardea herodias*) is listed by CDFG as a special animal. This wading bird forages in wetlands and shallow open waters for fish, aquatic invertebrates, small mammals, and amphibians. It usually nests in rookeries that are situated in wetlands or near open waters.

The study area contains suitable foraging and nesting habitats for this species.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is a ground nesting raptor species that is afforded protection by CDFG as a species of special concern due to declining populations in the Great Central Valley of California. They typically inhabit open grasslands and nest in abandoned ground squirrel burrows, cavities associated with raised mounds, levees, or soft berm features. The closest recorded occurrence is approximately 4.5 miles southwest of the study area south of Highway 50.

The study area contains suitable foraging and nesting habitats for this species.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a raptor species currently listed as threatened in California by the CDFG. Breeding pairs typically nest in tall cottonwoods, valley oaks, or willows associated with riparian corridors, grassland, irrigated pasture, and cropland with a high density of rodents. The Central Valley populations breed and nest in the late spring through early summer before migrating to Central and South America for the winter. The closest CNDDB listing is approximately 6.2 miles to the southwest near White Rock Road.

Even though the CNDDB records several occurrences within ten miles of the study area, Swainson’s hawks do not normally range into the foothills. The species is not likely present.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*), also known as black-shouldered kite, is a CDFG fully protected species. This non-migrating bird typically attains a wingspan of approximately 40 inches and feeds primarily on insects, small mammals, reptiles, and amphibians, which it forages from open grasslands. It builds a platform-like nest of sticks in trees or shrubs and lays 3 to 5 eggs, but may brood a second clutch if prey is abundant. The kite's distinct style of hunting includes hovering before diving onto its target.

The study area contains suitable foraging and nesting habitats for this species.

Merlin

The Merlin (*Falco columbarius*) is a CDFG species of special concern that has never been observed nesting in California. Though it is a transient throughout most of the state, wintering populations are known to occur in the Central Valley and along the coast.

The study area contains the appropriate foraging habitat for migrating merlins.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is a state endangered raptor that typically nests within one mile of large bodies of water including lakes, streams, or rivers. They prey on fish, waterfowl, squirrels, rabbits, and muskrats, though bald eagles have been observed feeding on carrion. They are solitary nesters and may be monogamous. The closest recorded nest site is approximately 1.6 miles to the southeast at Bass Lake.

Suitable foraging habitat is present.

Double-Crested Cormorant

The double-crested cormorant (*Phalacrocorax auritus*) is listed by CDFG as a species of special concern. This diving aquatic bird is the most widespread cormorant in North America. It prefers open water habitats such as ponds, rivers, estuaries, lagoons, and open coastlines where is forages for fish, amphibians, and crustaceans. It constructs nests near water in colonies on cliffs, rocks, or in trees.

The study area contains suitable foraging and nesting habitats for this species.

AMPHIBIANS & REPTILES

Western Pond Turtle

The western pond turtle (*Emys marmorata*) is a California species of special concern. Its favored habitats include streams, large rivers and canals with slow-moving water, aquatic vegetation, and open basking sites. Although the turtles must live near water, they can tolerate drought by burrowing into the muddy beds of dried drainages. This species feeds mainly on invertebrates such as insects and worms, but will also consume small fish, frogs, mammals and some plants. Western pond turtle predators include raccoons, coyotes, raptors, weasels, large fish, and bullfrogs. This species breeds from mid to late spring in adjacent open grasslands or sandy banks.

The site contains the appropriate habitat for this species.

Coast Horned Lizard

The California horned lizard (*Phrynosoma blainvilli*) is a California species of special concern. Several factors including commercial pet collecting (which was banned in 1981) and habitat destruction have resulted in the decline of the species. This lizard's ability to change color to match its background, and its low, flattened profile make it difficult to detect. When threatened, the horned lizard can shoot streams of blood from its eyes up to a distance of four feet. Ants compose about half of their diet, but it will consume other insects as well. Mature females produce clutches of 6 to 21 eggs from May to June, which hatch in August and September. It lives in several diverse habitats, but the California horned lizard typically prefers lowland sandy scrub habitats.

The study area does not contain the preferred scrub habitat most commonly associated with this species.

California Red-Legged Frog

The California red-legged frog (*Rana draytonii*) is a federally threatened and a CDFG species of special concern. This species is the largest indigenous frog west of the Continental divide. Once harvested for food with an annual take of approximately 80,000 animals per year in the late 1800s and early 1900s, the red-legged frog numbers declined. To bolster diminishing populations, the larger and much more aggressive bull frog (*Rana catesbiana*) was introduced from the eastern United States in 1886. Bull frogs, which are voracious feeders, extirpated the native frogs from much of its historic range. Habitat destruction associated with placer mining, drought, ranching, farming, and urbanization further reduced populations, and in June 1996, the frog was officially assigned protection under the Endangered Species Act. Presently, red-legged frogs are believed to occupy only about 10% of its original range. This species requires deeper (2' to 3') slow moving or still aquatic habitats with abundant emergent vegetation, but it is known also to forage and disperse in nearby uplands. The closest CNDDB occurrence is approximately 2.5 miles northwest of the study area; a specimen was observed during surveys in 2005 in an unnamed drainage near Fitch Way on the east side of Folsom Reservoir.

The study area supports the necessary habitat for this species.

Western Spadefoot Toad

The western spadefoot toad (*Spea hamondii)* is a California species of special concern. It is a nocturnally active animal, and prefers to forage in grassland, scrub, and chaparral for a variety of invertebrates such as insects and worms. This species breeds from January to May in vernal pools, pools in ephemeral stream courses, and other fish-free water features. Females commonly lay more than 500 eggs in one season. The tadpoles develop in 3 to 11 weeks, and must complete their metamorphosis before the temporary pools dry.

The study area supports the necessary habitat for this species.

INVERTEBRATES

Solitary or Ground-Nesting Bee

The solitary bee (*Andrena blennospermatis*) is not a state or federal listed species; however, it has been assigned a State Ranking code of S2 meaning that 6 to 20 elemental occurrences or 1,000 to 3,000 individuals have been identified within the state. This ground nesting species collects pollen from the vernal pool flower, blennosperma (*Blennosperma nanum*), which it caches in several individual underground brood chambers. In each chamber the female deposits a solitary egg that will hatch and feed on the specially treated pollen ball. These bees forage in vernal pool habitat supporting blennosperma and burrow and nest in adjacent uplands.

The site's lack of vernal pools would greatly reduce the likelihood that this ground-nesting bee regularly occupies the parcel.

Alabaster Cave Harvestman

The Alabaster Cave harvestman (*Banksula californica*) was recorded by CNDDB as occurring within the vicinity of the study area. Though it maintains no special state or federal status, it has been assigned a State Ranking of SH meaning that all elemental occurrences are historical. *Banksula californica* is poorly understood and known only from specimens collected from Alabaster Cave around 1900. The Alabaster Cave in El Dorado County has since been partially destroyed by historic mining, and it is presently sealed with cement.

The study area does not appear to support the necessary habitat for this species.

Vernal Pool Branchiopods

The record search lists several occurrences of the federally threatened vernal pool fairy shrimp *(Branchinecta lynchi*) and the federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*) as well as the non-listed California linderiella (*Linderiella occidentalis*) as occurring within ten miles of the study area. Due to the dearth of distribution information and/or the high potential for listing, we also included the federally endangered Conservancy fairy shrimp (*Branchinecta conservatio*) as well as the non-listed midvalley fairy shrimp (*Branchinecta mesovallensis*) in our special status species habitat assessment even though none are listed as occurring in the area of interest. These species exclusively inhabit vernal pools or other seasonally ponded wetlands that sustain inundation during the winter before drying in the late spring

The study area wetlands do not provide the seasonal ponding necessary to support these species.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is a federal threatened insect that is dependent upon the elderberry plant (*Sambucus sp.*) as a primary host species. Elderberry shrubs are a common component of riparian areas throughout the Sacramento Valley region. The CNDDB lists numerous sightings within ten miles of the study with the closest located approximately 4.5 miles to the west on Willow Creek.

The study area contains four elderberry shrubs; the site contains the appropriate habitat for valley elderberry longhorn beetles.

Ricksecker's Water Scavenger Beetle

This aquatic beetle (*Hydrochara rickseckeri*) is not a state or federal listed species; however, it has been assigned a State Ranking code of S1S2 meaning that <6 to 20 elemental occurrences or <1,000 to 3,000 individuals have been identified within the state. The habits of this poorly understood species have not been thoroughly documented. They are believed to be scavengers and metamorphose from a predacious larval stage. This species favors shallow, weedy freshwater habitats such as vernal pools, lakes, ponds, and slow moving streams. It is capable of flight, but its dispersal capabilities are not well understood.

The study area supports the necessary habitat for this species.

PLANTS

Special Status Plants Requiring Gabbro Soils

Several special status species plants associated with Gabbro and serpentine soils are identified on the CNDDB as occurring within the target quadrangles and include Stebbin's morning glory (*Calystegia stebbinsii*), Pine Hill ceanothus (*Ceanothus roderickii*), Pine Hill flannelbush (*Fremontodon decumbens*), El Dorado bedstraw (*Galium californicum* ssp. *sierrae*), and Layne's ragwort (*Packera layneae*). Gabbro soils are derived from igneous rock and possess peculiar characteristics such as high concentrations of magnesium, iron, nickel, chromium, and cobalt and low amounts of calcium and plant nutrients such as phosphorus. This unusual soil has resulted in the evolution of a unique community of plants, many of which are only found in El Dorado County.

Most of the above plants have only been documented in chaparral or cismontane woodland associated with the Gabbro soils region around Pine Hill. According to the April 1974, "**Soil Survey for El Dorado Area, California**" the appropriate soils have been mapped in or within very close proximity of the study area.

The CNDDB also lists the presence of three additional sensitive plant species associated with Gabbro soils. El Dorado mule ears (*Wyethia reticulata*), Bisbee Peak rush-rose (*Helianthemum suffrutescens*) and Red Hills soaproot (*Chlorogalum gradiflorum*) have been documented in the Gabbro region, but are known to grow on other soil types as well. All occur in chaparral, but El Dorado mule ears and Red Hills soaproot are also found in cismontane woodlands, and lower montane coniferous forest.

Though the study area contains the appropriate habitat for all of the above species, no specimens were observed during special-status plant surveys conducted by Gibson & Skordal in 2011.

<u>Plants Associated with Vernal Pools and Other Wet Habitats</u>

Special status plant species identified by CNDDB as occurring in the general vicinity of the study area include Tuolumne button-celery (*Eryngium pinnatisectum*), dwarf pin cushion navarretia (*Navarretia myersii* ssp. *myersii*), legenere (*Legenere limosa*), slender orcutt grass (*Orcuttia tenuis*), Sacramento orcutt grass (*Orcuttia viscida*), Sacramento orcutt grass (*Orcuttia viscida*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), and Sanford's arrowhead (*Sagittaria sanfordii*). Pincushion navarretia and Sacramento orcutt grass are strongly associated with vernal pools or other seasonal wetlands. Bogg's Lake hedge-hyssop is found in vernal pools, but it also favors other shallow water habitats such as lake margins and marshes. Sanford's arrowhead generally occurs in or near standing or slow-moving drainages, canals, ditches, or ponds.

Though the study area contains the appropriate habitat for all of the above species except legenere, pin cushion navarretia, slender orcutt grass, and Sacramento orcutt grass, no specimens were observed during surveys conducted in accordance with CNPS Botanical Survey Guidelines by Gibson & Skordal in 2011.

<u>Other Special Status Plant Species</u>

Several other special status species plants, such as Jepson's onion (*Allium jepsonii*), big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*), Hartweg's golden sunburst (*Pseudobahia bahiifolia*), and Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*) have been recorded as occurring within the target quadrangles. Jepson's onion grows in cismontane woodland and lower cismontane coniferous forests associated with serpentine soils or volcanic slopes. Big-scale balsamroot is also found in valley or foothill grasslands or cismontane woodland habitats; it sometimes is found on serpentine soils. Hartweg's golden sunburst is a federal and California endangered species associated with grasslands and/or open forests with clay soils. Brandegee's clarkia is generally associated with chaparral and cismontane woodland, but is also documented in foothill oak woodland and grassland.

Though the study area contains the appropriate habitat for all of the above species, no specimens were observed during surveys conducted in accordance with CNPS Botanical Survey Guidelines by Gibson & Skordal in 2011.

SUMMARY OF SPECIAL STATUS SPECIES HABITAT ASSESSMENT

Based on the presence of suitable habitat, the following species may occupy the study area: silver-haired bat, Cooper's hawk, tricolored blackbird, great egret, great blue heron, burrowing owl, white-tailed kite, Merlin, bald eagle, double-crested cormorant, western pond turtle, California red-legged frog, western spadefoot toad, valley elderberry longhorn beetle, and Ricksecker's water scavenger beetle. Though the study area contains the appropriate habitat to support Jepson's onion, Tuolumne button-celery, Bogg's Lake hedge-hyssop, El Dorado County mule ears, Stebbin's morning glory, Pine Hill ceanothus, Pine Hill flannelbush, El Dorado bedstraw, Layne's ragwort, big-scale balsamroot, Red Hills soaproot, Brandegee's clarkia, Bisbee Peak rush rose, Hartweg's golden sunburst, and Sanford's arrowhead, no specimens were observed during surveys conducted in accordance with CNPS Botanical Survey Guidelines by Gibson & Skordal in 2011.

If future development of the study area will occur during the raptor nesting season, which extends from February to September, we recommend that a pre-construction nesting survey be completed within two weeks of the start of work.

APPENDIX A

DATA SHEETS

Gibson & Skordal, LLC
WETLAND CONSULTANTS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Dixon Ranch   City/County: El Dorado County   Sampling Date: 2/8/2011

Applicant/Owner: Dixon Ranch Partners, LLC   State: CA   Sampling Point: 1

Investigator(s): MH/JG   Section, Township, Range: Section 24, Township 10 North, Range 8 East

Landform (hillslope, terrace, etc.): seep   Local relief (concave, convex, none): concave   Slope (%): 10

Subregion (LRR): C   Lat: 38○ 42' 20.959" N   Long: 121○ 3' 3.342" W   Datum: WSG84

Soil Map Unit Name: Auburn very rocky silt loam, 2-30% slopes (AxD)   NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

VEGETATION

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 4'x4')			
1. Lolium perenne	80	Yes	FAC
2. Hordeum hystrix	20	Yes	FAC
3. Rorippa nasturtium-aquaticum	1	No	OBL
4. Ranunculus muricatus	1	No	FACW
5. Geranium dissectum	1	No	UPL
6.			
7.			
8.			
Total Cover:	103%		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 0   % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	1.00	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x1= 0
FACW species		x2= 0
FAC species		x3= 0
FACU species		x4= 0
UPL species		x5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Yes Dominance Test is > 50%

____ Prevalence Index is ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOILS

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type	Loc	Texture	Remarks
0-6	10YR3/1	80	10YR4/6	20%	C	RC, M	sandy clay loam	
>6							bedrock	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surace (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: bedrock
Depth (inches): 6

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes ☐	No ☐	Depth (inches): ____
Water Table Present?	Yes ☐	No ☐	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Dixon Ranch　City/County: El Dorado County　Sampling Date: 2/8/2011

Applicant/Owner: Dixon Ranch Partners, LLC　State: CA　Sampling Point: 2

Investigator(s): MH/JG　Section, Township, Range: Section 24, Township 10 North, Range 8 East

Landform (hillslope, terrace, etc.): backslope　Local relief (concave, convex, none): none　Slope (%): 10

Subregion (LRR): C　Lat: 38○ 42' 20.997" N　Long: 121○ 3' 3.121" W　Datum: WSG84

Soil Map Unit Name: Auburn very rocky silt loam, 2-30% slopes (AxD)　NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

VEGETATION

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 4'x4')			
1. Bromus diandrus	35	Yes	UPL
2. Taeniatherum caput-medusae	35	Yes	UPL
3. Erodium botrys	20	Yes	UPL
4. Bromus mollis	10	No	FACU
5. Holocarpha virgata	5	No	UPL
6.			
7.			
8.			
Total Cover:	105%		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 0　% Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.00	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x1= 0
FACW species		x2= 0
FAC species		x3= 0
FACU species		x4= 0
UPL species		x5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

No Dominance Test is > 50%

_____ Prevalence Index is ≤ 3.0

_____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOILS

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture	Remarks
0-10	10YR3/4	100					loam	
>10							bedrock	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surace (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: bedrock
Depth (inches): 10

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Dixon Ranch City/County: El Dorado County Sampling Date: 2/8/2011

Applicant/Owner: Dixon Ranch Partners, LLC State: CA Sampling Point: 3

Investigator(s): MH/JG Section, Township, Range: Section 24, Township 10 North, Range 8 East

Landform (hillslope, terrace, etc.): seasonal wetland swale Local relief (concave, convex, none): concave Slope (%): 8

Subregion (LRR): C Lat: 38○ 42' 4.526" N Long: 121○ 3' 6.591" W Datum: WSG84

Soil Map Unit Name: Auburn silt loam, 2-30% slopes (AwD) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____			
2. ____			
3. ____			
4. ____			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: ______)			
1. ____			
2. ____			
3. ____			
4. ____			
5. ____			
Total Cover:	0%		
Herb Stratum (Plot size: 4'x4')			
1. Hordeum hystrix	70	Yes	FAC
2. Hypochaeris glabra	20	Yes	UPL
3. Lolium perenne	20	Yes	FAC
4. Bromus mollis	1	No	FACU
5. ____			
6. ____			
7. ____			
8. ____			
Total Cover:	105%		
Woody Vine Stratum (Plot size: ______)			
1. ____			
2. ____			
Total Cover:	0%		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x1= 0
FACW species	____	x2= 0
FAC species	____	x3= 0
FACU species	____	x4= 0
UPL species	____	x5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Yes Dominance Test is > 50%

____ Prevalence Index is ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOILS

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type	Loc	Texture	Remarks
0-4	10YR3/1	90%	10YR3/6	10%	C	M,RC	sandy loam	
4-10	10YR3/6	90%	10YR5/3	10%	C	M	sandy loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surace (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ____
Depth (inches): ____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ☐ No ☐ Depth (inches): ____
Water Table Present? Yes ☐ No ☐ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Dixon Ranch　City/County: El Dorado County　Sampling Date: 2/8/2011

Applicant/Owner: Dixon Ranch Partners, LLC　State: CA　Sampling Point: 4

Investigator(s): MH/JG　Section, Township, Range: Section 24, Township 10 North, Range 8 East

Landform (hillslope, terrace, etc.): backslope　Local relief (concave, convex, none): none　Slope (%): 8

Subregion (LRR): C　Lat: 38○ 42' 4.453" N　Long: 121○ 3' 6.536" W　Datum: WSG84

Soil Map Unit Name: Auburn silt loam, 2-30% slopes (AwD)　NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

VEGETATION

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 4'x4')			
1. Taeniatherum caput-medusae	70	Yes	UPL
2. Bromus mollis	20	Yes	FACU
3. Erodium botrys	10	No	UPL
4. Hordeum hystrix	1	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	101%		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 0　% Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.00	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x1= 0
FACW species		x2= 0
FAC species		x3= 0
FACU species		x4= 0
UPL species		x5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

No Dominance Test is > 50%

____ Prevalence Index is ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOILS

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture	Remarks
0-10	10YR3/3	100%					loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surace (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Dixon Ranch | City/County: El Dorado County | Sampling Date: 2/8/2011

Applicant/Owner: Dixon Ranch Partners, LLC | State: CA | Sampling Point: 5

Investigator(s): MH/JG | Section, Township, Range: Section 24, Township 10 North, Range 8 East

Landform (hillslope, terrace, etc.): dry swale | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): C | Lat: 38○ 42' 16.224" N | Long: 121○ 2' 32.060" W | Datum: WSG84

Soil Map Unit Name: Auburn very rocky silt loam, 2-30% slopes (AxD) | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 4'x4')			
1. Taeniatherum caput-medusae	25	Yes	UPL
2. Trifolium hirtum	20	Yes	UPL
3. Erodium botrys	10	No	UPL
4. Bromus diandrus	10	No	UPL
5. Hypochaeris glabra	20	Yes	UPL
6.			
7.			
8.			
Total Cover:	75%		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 25% % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.00	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	0
FACW species		x2=	0
FAC species		x3=	0
FACU species		x4=	0
UPL species		x5=	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

No ___ Dominance Test is > 50%
___ Prevalence Index is ≤ 3.0
___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOILS

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type	Loc	Texture	Remarks
0-1	10YR3/2	100%					loam	
>1-10	7.5YR3/4	100%					loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surace (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ☐ No ☐ Depth (inches): ______

Water Table Present? Yes ☐ No ☐ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Dixon Ranch City/County: El Dorado County Sampling Date: 2/8/2011
Applicant/Owner: Dixon Ranch Partners, LLC State: CA Sampling Point: 6
Investigator(s): MH/JG Section, Township, Range: Section 24, Township 10 North, Range 8 East
Landform (hillslope, terrace, etc.): pond & adjacent wetlands Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): C Lat: 38○ 42' 37.382" N Long: 121○ 2' 35.107" W Datum: WSG84
Soil Map Unit Name: Serpentine rock land (SaF) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

VEGETATION

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 4'x4')			
1. Scirpus acutus	50	Yes	OBL
2. Eleocharis macrostachya	50	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	1.00	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x1= 0
FACW species		x2= 0
FAC species		x3= 0
FACU species		x4= 0
UPL species		x5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Yes Dominance Test is > 50%
_____ Prevalence Index is ≤ 3.0
_____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
_____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOILS

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type	Loc	Texture	Remarks
0-6	10YR3/2	75%	10YR3/6	25%	C	M, RC	clay loam	
>6							bedrock	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surace (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: 6

Depth (inches): bedrock

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Dixon Ranch   City/County: El Dorado County   Sampling Date: 2/8/2011
Applicant/Owner: Dixon Ranch Partners, LLC   State: CA   Sampling Point: 7
Investigator(s): MH/JG   Section, Township, Range: Section 24, Township 10 North, Range 8 East
Landform (hillslope, terrace, etc.): backslope   Local relief (concave, convex, none): none   Slope (%): 5
Subregion (LRR): C   Lat: 38○ 42' 37.500" N   Long: 121○ 2' 35.119" W   Datum: WSG84
Soil Map Unit Name: Serpentine rock land (SaF)   NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 4'x4')			
1. Taeniatherum caput-medusae	40	Yes	UPL
2. Centaurea solstitialis	20	Yes	UPL
3. Bromus diandrus	40	Yes	UPL
4. Geranium dissectum	10	No	UPL
5. Juncus sp.	1	No	-----
6.			
7.			
8.			
Total Cover:	101%		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 0%   % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.00	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x1= 0
FACW species		x2= 0
FAC species		x3= 0
FACU species		x4= 0
UPL species		x5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
No Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOILS

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type	Loc	Texture	Remarks
0-10	10YR3/3	90%	10YR3/4	10%	C	M	loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surace (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ____
Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

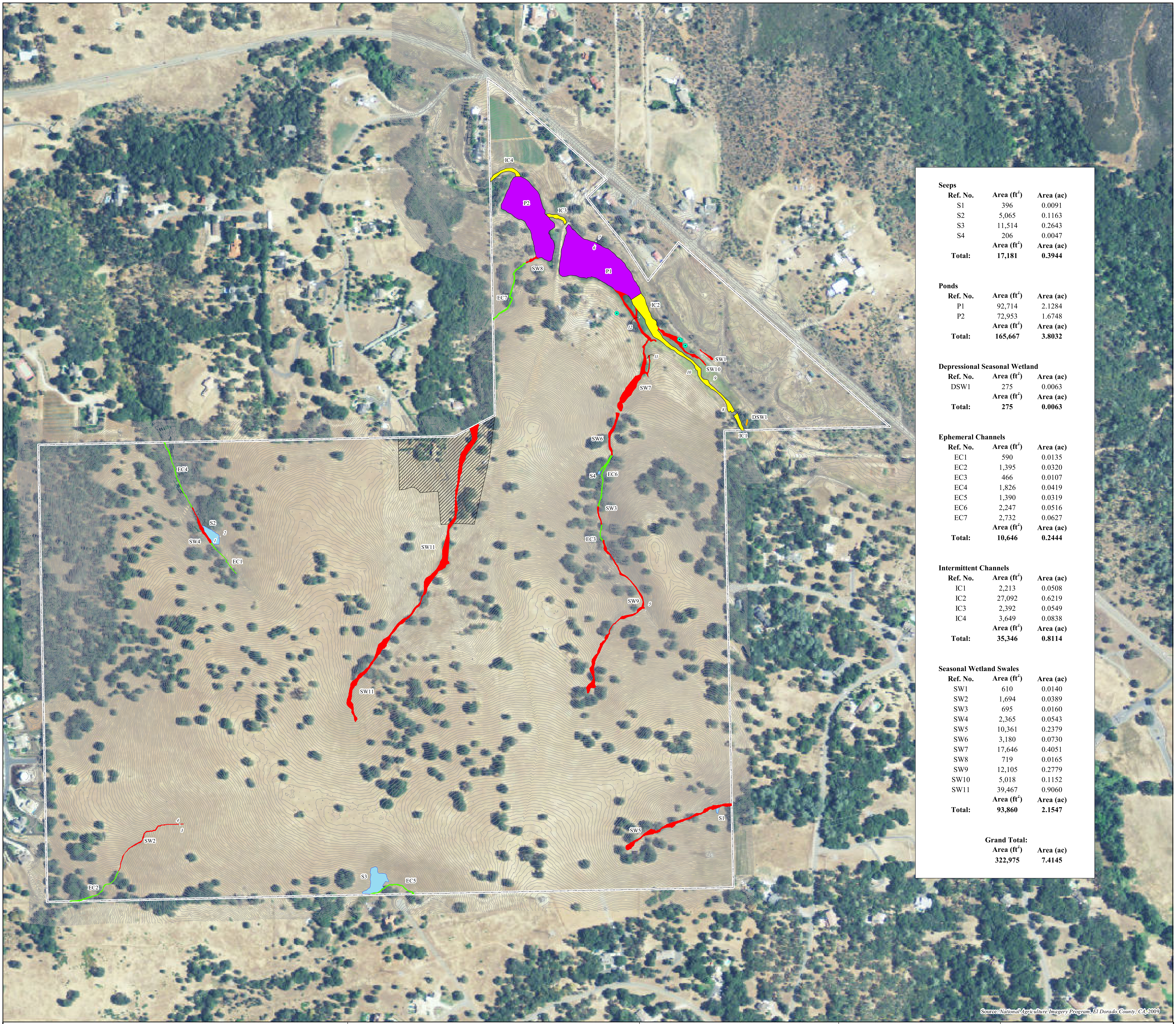
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX B

JURISDICTIONAL DELINEATION MAP

Gibson & Skordal, LLC
WETLAND CONSULTANTS



Seeps

Ref. No.	Area (ft^2)	Area (ac)
S1	396	0.0091
S2	5,065	0.1163
S3	11,514	0.2643
S4	206	0.0047
	Area (ft^2)	**Area (ac)**
Total:	**17,181**	**0.3944**

Ponds

Ref. No.	Area (ft^2)	Area (ac)
P1	92,714	2.1284
P2	72,953	1.6748
	Area (ft^2)	**Area (ac)**
Total:	**165,667**	**3.8032**

Depressional Seasonal Wetland

Ref. No.	Area (ft^2)	Area (ac)
DSW1	275	0.0063
	Area (ft^2)	**Area (ac)**
Total:	**275**	**0.0063**

Ephemeral Channels

Ref. No.	Area (ft^2)	Area (ac)
EC1	590	0.0135
EC2	1,395	0.0320
EC3	466	0.0107
EC4	1,826	0.0419
EC5	1,390	0.0319
EC6	2,247	0.0516
EC7	2,732	0.0627
	Area (ft^2)	**Area (ac)**
Total:	**10,646**	**0.2444**

Intermittent Channels

Ref. No.	Area (ft^2)	Area (ac)
IC1	2,213	0.0508
IC2	27,092	0.6219
IC3	2,392	0.0549
IC4	3,649	0.0838
	Area (ft^2)	**Area (ac)**
Total:	**35,346**	**0.8114**

Seasonal Wetland Swales

Ref. No.	Area (ft^2)	Area (ac)
SW1	610	0.0140
SW2	1,694	0.0389
SW3	695	0.0160
SW4	2,365	0.0543
SW5	10,361	0.2379
SW6	3,180	0.0730
SW7	17,646	0.4051
SW8	719	0.0165
SW9	12,105	0.2779
SW10	5,018	0.1152
SW11	39,467	0.9060
	Area (ft^2)	**Area (ac)**
Total:	**93,860**	**2.1547**

Grand Total:

Area (ft^2)	Area (ac)
322,975	**7.4145**

Revised Jurisdictional Delineation
Dixon Ranch
El Dorado County, California

- Dedicated to Others
- Data Point
- Depressional Seasonal Wetland
- Seep
- Seasonal Wetland Swale
- Pond
- Ephemeral Channel
- Intermittent Channel
- Elderberry Shrub
- Study Area Boundary (+/-296 acres)

N

0 200 400 800

Feet

Prepared For:

Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

2617 K Street, Suite 175
Sacramento, California 95816
www.gibsonandskordal.com
phone: 916.822.3230
Gibson & Skordal, LLC
WETLAND CONSULTANTS

Prepared By: M. Hirkala

Prepared Date: August 2011

Revised Date:

Aerial Photo: July 3, 2009

APPENDIX C

VERIFICATION LETTER

Gibson & Skordal, LLC
WETLAND CONSULTANTS

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

REPLY TO
ATTENTION OF

August 26, 2011

Regulatory Division SPK-2011-00758

Mr. Joel Korotkin
Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

Dear Mr. Korotkin:

We are responding to your August 3, 2011, request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Dixon Ranch site. The approximately 296-acre site is located on Section 24, Township 10 North, Range 8 East, Mount Diablo Meridian, Latitude 38.7046°, Longitude -121.0466°, El Dorado Hills, El Dorado County, California.

Based on available information, **we concur with the estimate of potential waters of the United States, as depicted on the August 2011, Jurisdictional Delineation, Dixon Ranch, El Dorado County, California, drawing prepared by Gibson & Skordal, LLC** (enclosure 1). The approximately 7.4145 acres of wetlands or other water bodies present within the survey area may be jurisdictional waters of the United States. These waters may be regulated under Section 404 of the Clean Water Act.

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

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

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

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for Appeal (RFA) form is enclosed to notify you of your options with this determination (enclosure 3).

This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

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

Please refer to identification number SPK-2011-00758 in any correspondence concerning this project. If you have any questions, please contact Mr. Peck Ha at our California North Branch Office, Regulatory Division, Sacramento District, U.S. Army Corps of Engineers, 650 Capitol Mall, Suite 5-200, Sacramento, California 95814-2922, email *Peck.Ha@usace.army.mil*, or telephone 916-557-6617. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

ORIGINAL SIGNED

Nancy Arcady Haley
Chief, California North Branch

Enclosures

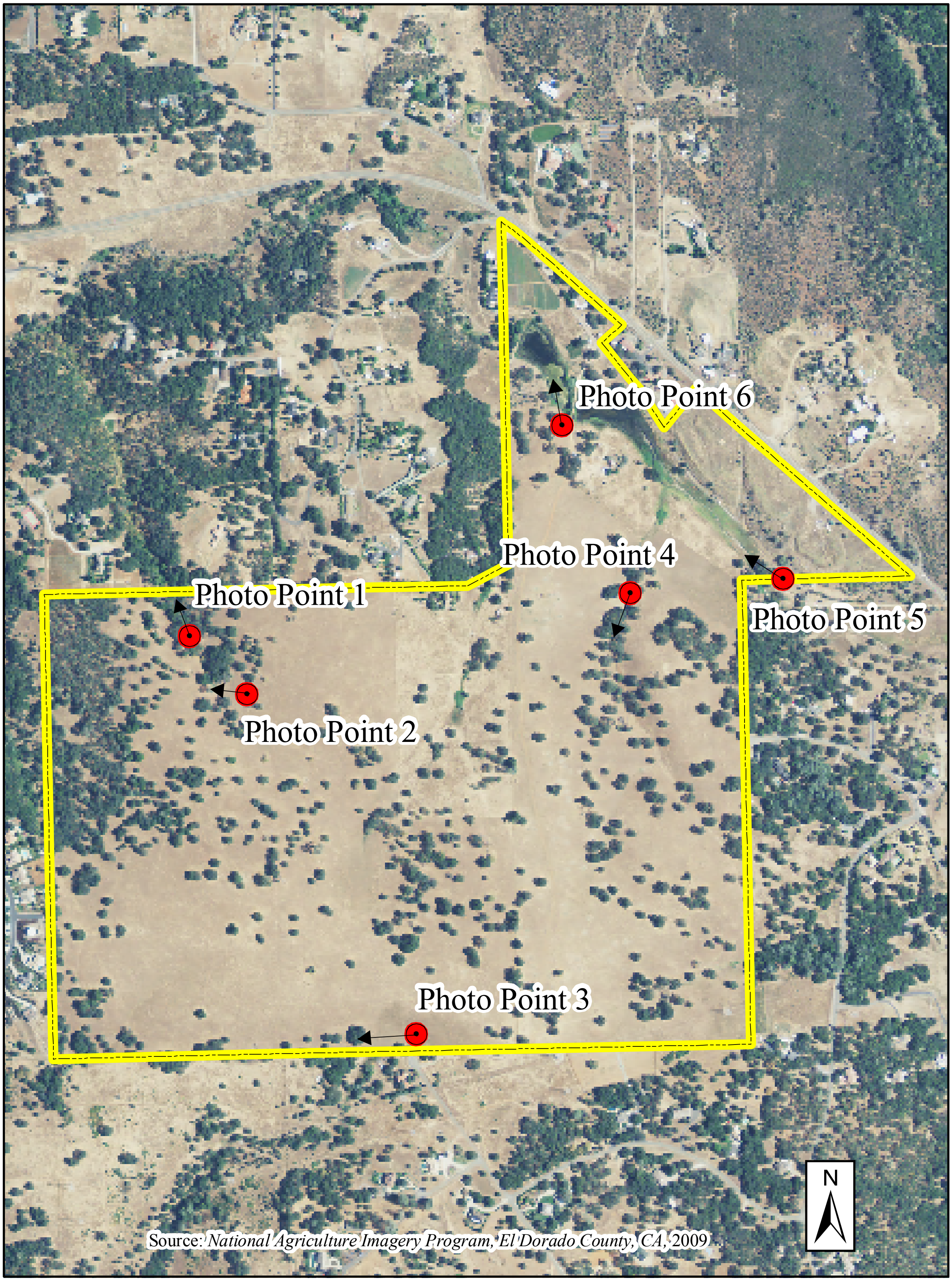
Copies Furnished with enclosure 1:

Mr. Dan Radulescu, Storm Water and Water Quality Certification Unit, California Regional Water Quality Control Board, Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Mr. Kent Smith, California Department of Fish and Game, Region 2, 1701 Nimbus Drive, Rancho Cordova, California 95670-4599
Ms. Kim Squires, Forest Foothill Branch, U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901
Mr. Jason Brush, Environmental Protection Agency, WRT-8, 75 Hawthorne Street, San Francisco, California 94105
✓Mr. Jim Gibson, Gibson & Skordal, LLC, 2277 Fair Oaks Blvd, Suite 105, Sacramento, California 95825
El Dorado County Planning Department, 2850 Fairlane Court, Placerville, California 95667-4103

APPENDIX D

PHOTOGRAPHS

Gibson & Skordal, LLC
WETLAND CONSULTANTS



Dixon Ranch
Jurisdictional Delineation & Special Status Species Evaluation
May 2012

Photo Index


Photo Point 1


Photo Point 2


Photo Point 3


Photo Point 4

Photo Point 5

Photo Point 6

APPENDIX E

PLANT LIST

Gibson & Skordal, LLC
WETLAND CONSULTANTS

LIST OF PLANTS OBSERVED ON THE
DIXON RANCH PROPERTY
AND THEIR STATUS AS WETLAND INDICATOR SPECIES

Scientific Name	Common Name	Status [1]&[2]
Aesculus californica	California buckeye	UPL
Avena fatua	wild oats	UPL
Bidens sp.	beggars tick	-----
Brassica nigra	black mustard	UPL
Bromus diandrus (B. rigidus)	rip-gut grass	UPL
Bromus mollis	soft chess	FACU-
Bromus rubens	foxtail brome	NI
Carduus pycnocephalus	Italian plumeless thistle	UPL
Ceanothus cuneatus	buckbrush	UPL
Centaurea solstitialis	yellow star-thistle	UPL
Chlorogalum sp.	soap-root	-----
Cirsium vulgare	bull thistle	FACU
Claytonia perfoliata	Miner's lettuce	FAC
Conium maculatum	poison-hemlock	FACW
Conyza canadensis	Canada horseweed	FAC
Cynodon dactylon	Bermuda grass	FAC
Cynosurus echinatus	dogtail	UPL
Cyperus eragrostis	tall flatsedge	FACW
Daucus carota	wild carrot	UPL
Dipsacus sp.	teasel	-----
Eichornia crassipes	common water-hyacinth	OBL
Eleocharis acicularis	least spikerush	OBL
Eleocharis macrostachya	creeping spikerush	OBL
Eremocarpus setigerus	doveweed	UPL
Erodium botrys	filaree	UPL
Erodium cicutarium	cut-leaf filaree	UPL
Geranium dissectum	cut-leaf geranium	UPL
Geranium molle	woodland geranium	UPL
Glyceria declinata	manna grass	OBL
Gnaphalium sp.	everlasting	-----
Grindelia sp.	gum weed	-----
Hemizonia pungens	common tarweed	*FAC*
Heteromeles arbutifolia	toyon	*UPL*
Holocarpha virgata	tarweed	UPL
Hordeum hystrix (H. geniculatum)	Mediterranean barley	FAC
Hordeum leporinum	barley	NI
Hypericum perforatum	kalamath weed	*UPL*
Hypochaeris glabra	smooth cats tongue	*UPL*

[1] Reed, P.B. 1988. National List of Plant Species That Occur in Wetlands: California (Region 0). Biological Report 88(26.10) May 1988. National Ecology Research Center, National Wetland Inventory, U.S. Fish and Wildlife Service, St. Petersburg, Fl.

[2] OBL = obligate; FACW = facultative wetland; FAC = facultative; FACU = facultative upland; UPL = upland; and NI = no indicator.

Scientific Name	Common Name	Status [1&2]
Juncus effusus	soft rush	OBL
Lactuca serriola	prickly lettuce	FAC
Lolium perenne (L. multiflorum)	perennial ryegrass	FAC*
Lotus sp.	clover	-----
Lupinus sp.	lupine	-----
Lythrum hyssopifolia	loosestrife	FACW
Marrubium vulgare	common horehound	FAC
Mentha pulegium	penny-royal	OBL
Paspalum dilatatum	dallis grass	FAC
Pinus sabiniana	foothills pine	UPL
Plantago lanceolata	English plantain	FAC-
Polygonum sp.	smartweed	-----
Populus fremontii	Fremont cottonwood	FACW
Quercus douglasii	blue oak	UPL
Quercus kelloggi	black oak	UPL
Quercus lobata	valley oak	FAC*
Quercus wislizenii	interior live oak	UPL
Ranunculus muricatus	spiney-fruited buttercup	FACW+
Raphanus sativus	wild radish	UPL
Rhamnus californica	coffeeberry	UPL
Rorippa nasturtium-aquaticum	watercress	OBL
Rubus procerus	Himalayan blackberry	FAC
Rumex conglomeratus	clustered dock	FACW
Rumex crispus	curly dock	FACW-
Rumex sp.	dock	-----
Salix exigua	sandbar willow	OBL
Salix gooddingii	black willow	OBL
Salix sp.	willow	-----
Sambucus mexicana	blue elderberry	FAC
Scirpus acutus	hardstem bulrush	OBL
Senecio vulgaris	common groundsel	NI
Silybum marianum	milk thistle	UPL
Sonchus asper	prickly sowthistle	FAC
Stellaria media	chickweed	FACU
Taeniatherum caput-medusae	medusa-head	UPL
Trifolium hirtum	rose clover	UPL
Trifolium sp.	clover	-----
Typha latifolia	broad-leaf cattail	OBL
Verbascum thapsus	wooly mullein	UPL
Verbena hastata	blue vervain	FACW
Vicia sp.	vetch	-----
Vitis californica	wild grape	UPL
Xanthium strumarium	rough cocklebur	FAC+

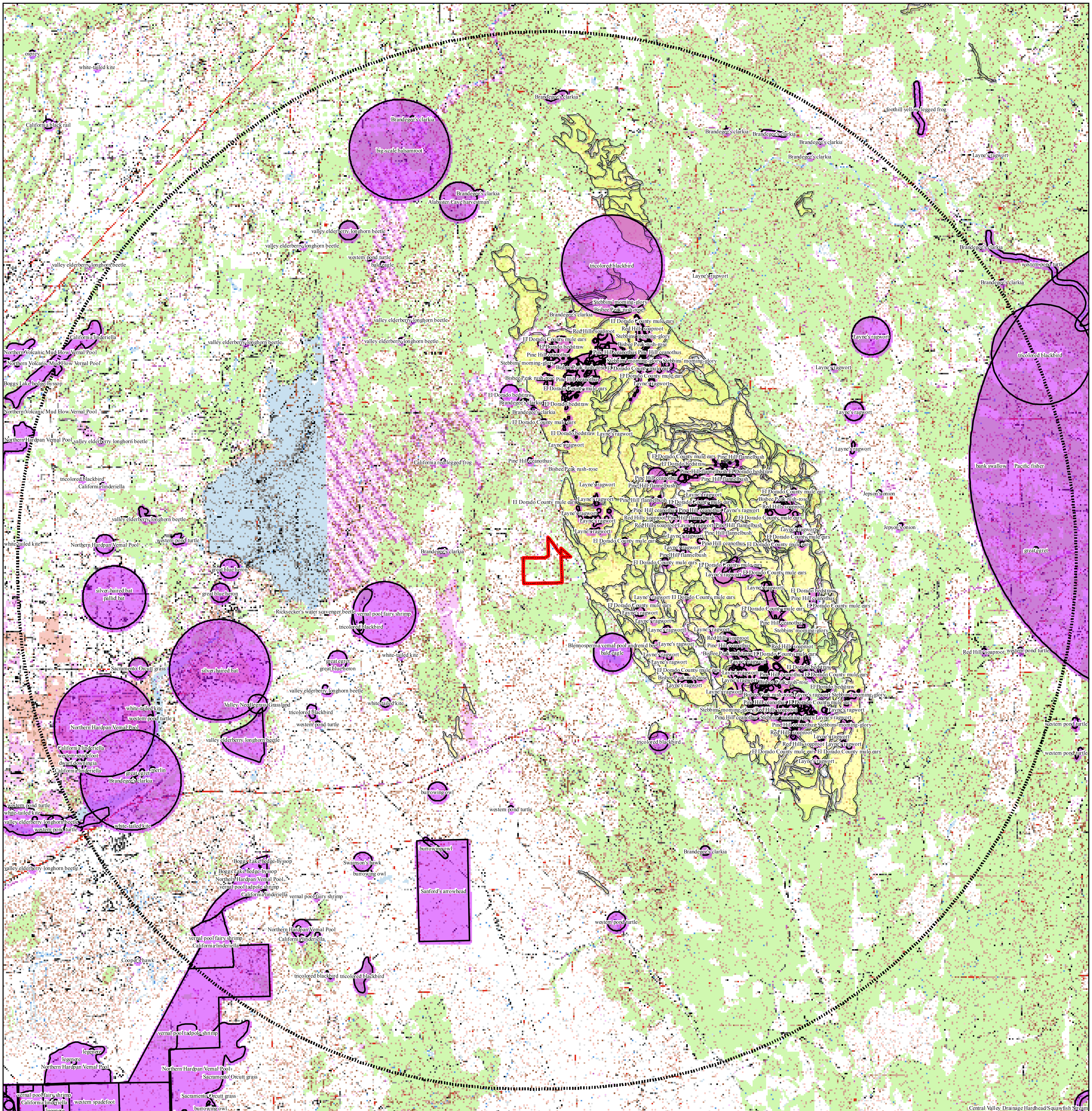
[1] Reed, P.B. 1988. National List of Plant Species That Occur in Wetlands: California (Region 0). Biological Report 88(26.10) May 1988. National Ecology Research Center, National Wetland Inventory, U.S. Fish and Wildlife Service, St. Petersburg, Fl.

[2] OBL = obligate; FACW = facultative wetland; FAC = facultative; FACU = facultative upland; UPL = upland; and NI = no indicator.

APPENDIX F

CNDDB OCCURRENCES MAP

Gibson & Skordal, LLC
WETLAND CONSULTANTS



CNDDB Occurrences

Dixon Ranch

El Dorado County, California

The elemental occurrence location data was provided by the California Department of Fish and Game's Natural Diversity Data Base (Version 3.1.0). The size of elemental occurrence polygons are dependent upon several factors including DFG mapping policies and the age and specificity of reported special status species sightings.

Source: USGS Lincoln, Gold Hill, Auburn, Greenwood, Georgetown, Coloma, Garden Valley, Pilot Hill, Rocklin, Roseville, Shingle Springs, Placerville, Clarksville, Folsom, Citrus Hts, Fiddletown, Latrobe, Folsom SE, Buffalo Creek, and Carmichael, California 7.5-Minute Topographic Quadrangles

Rescue Soils

Study Area Boundary

10 Mile Radius

N

0 0.5 1 2

Miles

Prepared For:

Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

Gibson & Skordal, LLC
WETLAND CONSULTANTS

Prepared By: M. Hirkala

Prepared Date: May 2012

Date Aerial Flown:

Date of CNDDB Shapefiles: May 2012

SPECIAL STATUS PLANT SURVEYS

Dixon Ranch

El Dorado County,
California

August 2011

Prepared For:

Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

Prepared By:

GIBSON & SKORDAL, LLC
Wetland Consultants
2277 Fair Oaks Blvd., Suite 105
Sacramento, California 95825

INTRODUCTION

This report presents the results of special status plant surveys. The surveys were conducted within the study area for the below described Dixon Ranch Property.

LOCATION

The approximately 301-acre study area is located in Section 24, Township 10 North, Range 8 East; Section 19, Township 10 North, Range 9 East, MDB&M, El Dorado County, California. The parcel can be found at UTM 670,016 M E; 4,285,698 M N (Zone 10 North) and is portrayed on the Clarksville, California 7.5-Minute Series Topographic Quadrangle. Figure 1 is a vicinity map, and Figure 2 is an exhibit displaying the study area.

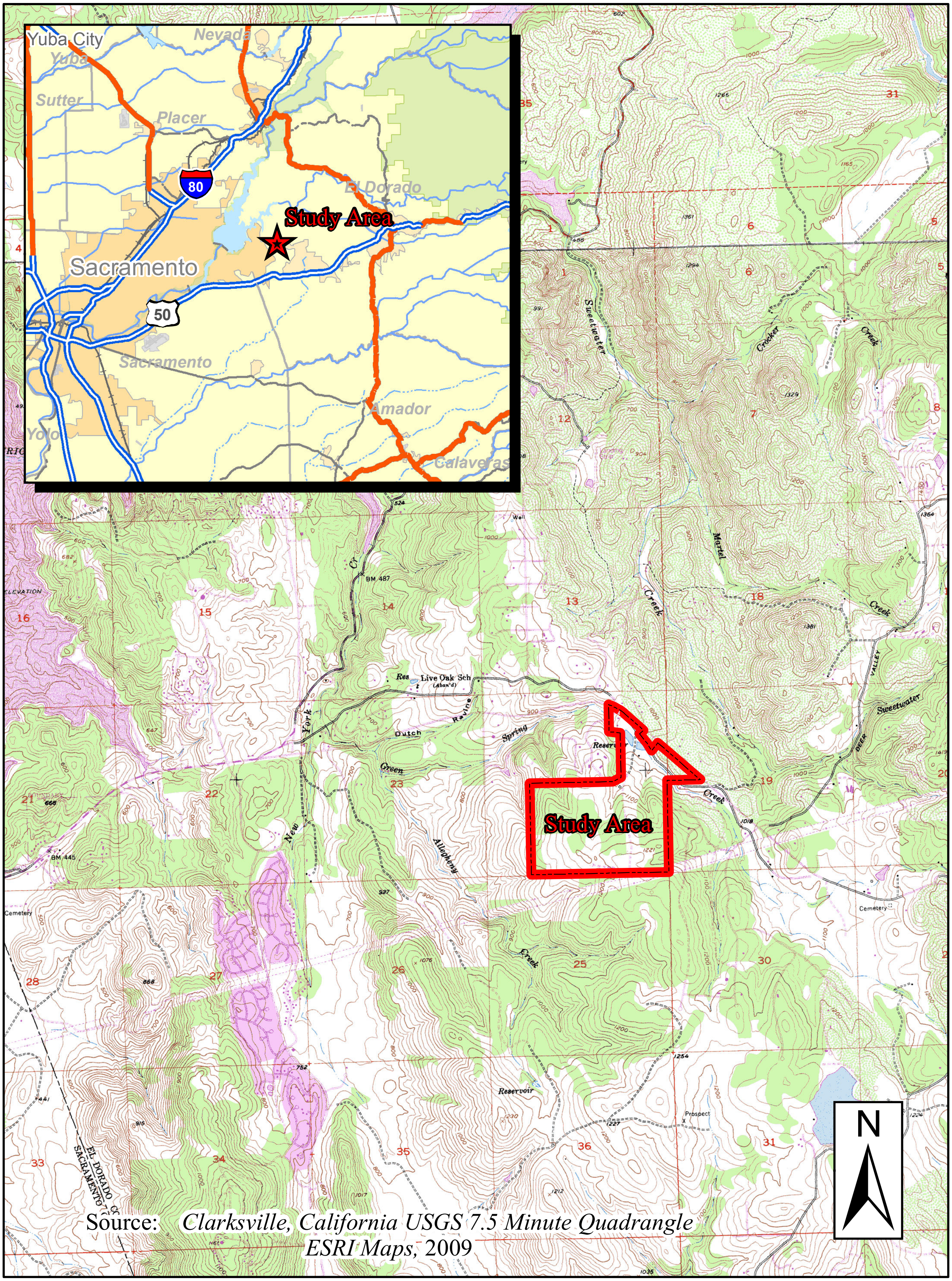
GENERAL SITE CONDITIONS AND HABITATS

The study area is situated in the foothills on rolling to relatively flat terrain at an average elevation of about 1,050 feet. The study area, which is primarily used as pasturage, is undeveloped and contains no habitable structures. Newer residential developments are located to the west while older ranchettes occupy lands to the north and east. The area in general is in the process of converting from rural to residential land use. The site was very lightly grazed by cattle and horses at the time of field surveys.

The majority of the site generally drains to the north/northeast into Green Spring Creek. Green Spring Creek, which traverses the northern portion of the study area from east to west, is tributary to Folsom Reservoir by way of New York Creek. The southwestern corner of the parcel appears to drain to the south towards Allegheny Creek which is located outside of the study area boundary. Allegheny Creek is also tributary to Folsom Reservoir by way of Green Spring Creek and New York Creek, respectively. Appendix A contains digitals of representative landscapes within the study area.

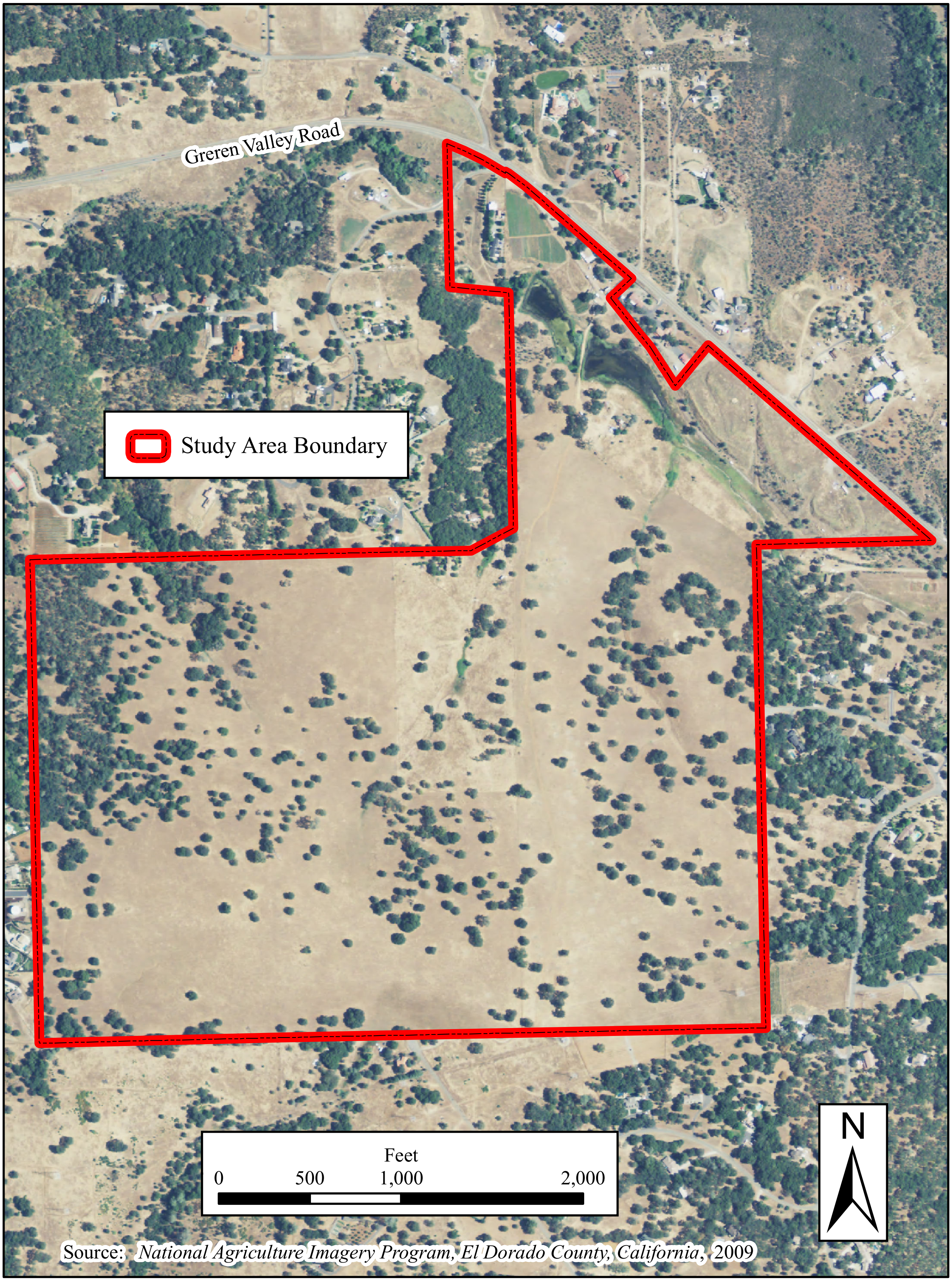
The study area encompasses several habitat types including non-native annual grasslands, foothill oak savannah/woodland, and numerous water features including agricultural ponds, intermittent and ephemeral drainages, seasonal wetlands, and seeps.

The majority of the site supports oak savannah/woodland composed of valley oaks (*Quercus lobata*), live oaks (*Quercus wislizenii*), and blue oaks (*Quercus douglasii*). The understory



Dixon Ranch
Special Status Plant Surveys
August 2011

Figure 1
Vicinity Map



Dixon Ranch
Special Status Plant Surveys
August 2011

Figure 2
Study Area

consists of dogtail (*Cynosurus echinatus*), wild oats (*Avena fatua*), rip-gut brome (*Bromus diandrus*), medusa head (*Taeniatherum caput-medusae*), and soft chess (*Bromus hordeaceus*).

Interspersed between the oak woodlands/savannah are areas of non-native annual grasslands characterized by wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), and medusa-head (*Taeniatherum caput-medusae*). Other common species include yellow start-thistle (*Centaurea solstitialis*), perennial rye grass (*Lolium perenne*), little quacking grass (*Briza minor*), soft chess (*Bromus hordeaceus*), prickly lettuce (*Lactuca serriola*), and split-leaf geranium (*Geranium dissectum*).

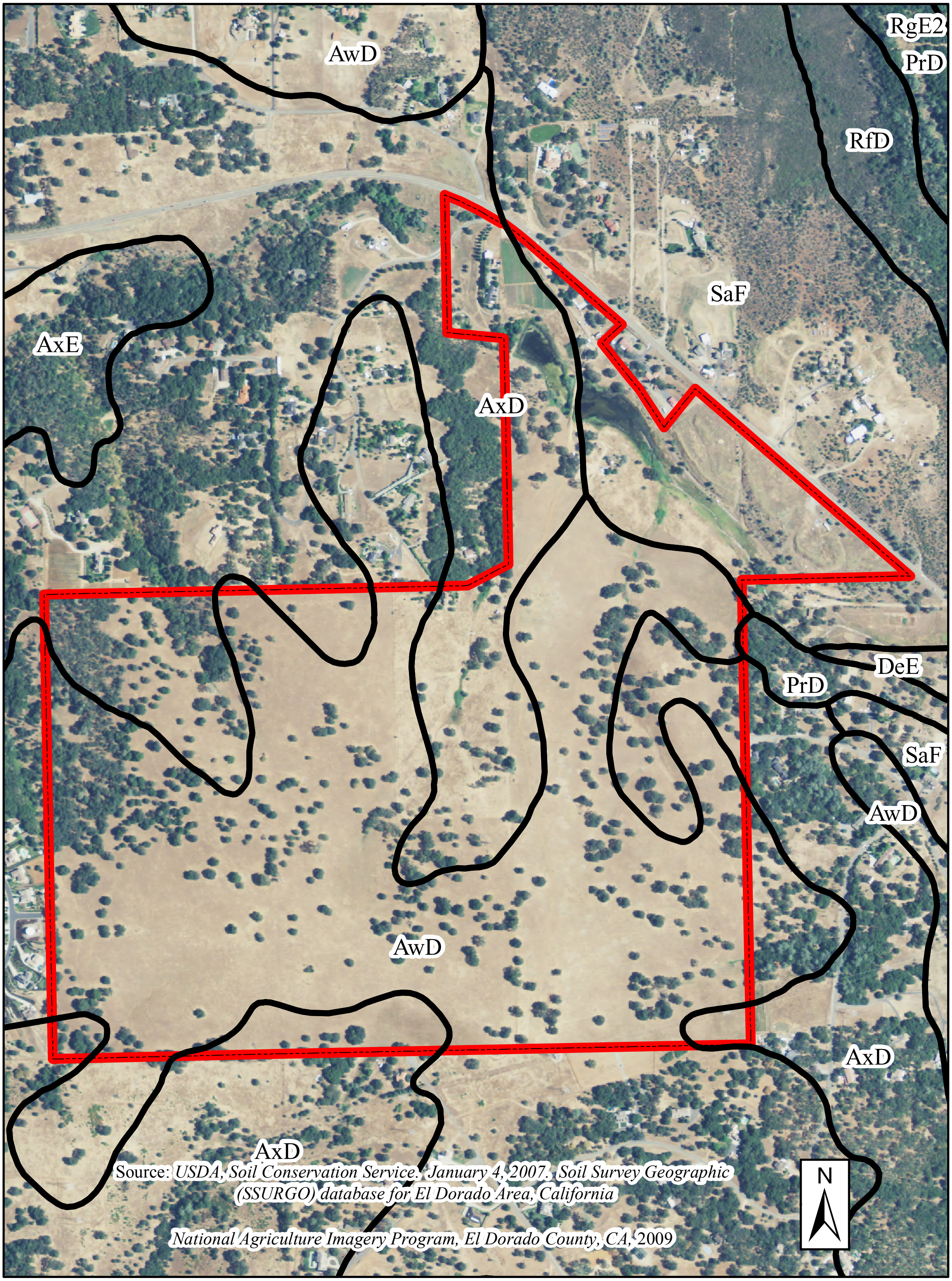
Green Spring Creek and two in-channel ponds created by historic impoundments represent the largest water features within the study area. Green Spring Creek and its associated ponds contained several inches of flowing water and supported thick growths of hardstem bulrush (*Scirpus acutus*), creeping spike rush (*Eleocharis macrostachya*), and narrow-leaf cattails (*Typha angustifolia*). Woody vegetation consisted of cottonwoods (*Populus fremontii*) and narrow-leaf willow (*Salix exigua*).

Several wetland swale-seep complexes are located within the hillier southern portion of study area. Seeps are most often associated with sloping terrain and derived primarily from groundwater seepage in the winter and spring, while seasonal wetland swales represent vegetated linear sloping drainages that lack a defined bed and bank. Common species included Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), curly dock (*Rumex crispus*), perennial rye grass (*Lolium perenne*), water cress (*Rorippa nasturtium-aquaticum*), tall flat sedge (*Cyperus eragrostis*), and spiny-fruited buttercup (*Ranunculus muricatus*).

Soils

According to the April 1974, "**Soil Survey of El Dorado Area, California**," four soil map units occur within the study area: Auburn very rocky silt loam, 2-30 percent slopes (AxD), Auburn silt loam, 2-30 percent slopes (AwD), Placer diggings (PrD), and Serpentine Rock Land (SaF). Figure 3 is a soils map, and Table 1 lists the units mapped within the study area.

The first is Auburn very rocky silt loam, 2-30 percent slopes (AxD) which is a well-drained, shallow ruptic-lithic xerochrept composed of 5 to 25 percent rock outcrops. The water holding capacity is 2 to 4 inches, and the depth to bedrock (and effective plant rooting range) varies between 20 to 26 inches. Contained within this unit are inclusions of Argonaut very rocky loam, Boomer very rocky loam, and Sobrante very rocky silt loam.



Dixon Ranch
Special Status Plant Surveys
August 2011

Figure 3
Soils Map

Table 1: Study Area Soil Map Units

Map Symbol	Mapping Unit	Drainage Class
AwD	Auburn silt loam, 2-30% slopes	Well drained
AxD	Auburn very rocky silt loam, 2-30% slopes	Well drained
PrD	Placer Diggings	Mixed drainage classes
SaF	Serpentine rock land	Excessively drained

The second mapped unit is Auburn silt loam, 2-30 percent slopes (AwD). AwD is very similar to AxD except that its surface area is composed of less than 5 percent exposed bedrock. Mapped in AwD are small areas of Perkins gravelly loam, moderately deep variant; Argonaut gravelly loam, and Sobrante silt loam.

Placer diggings (PrD) represents the third map unit and is located in or near creeks, streams, and rivers or areas that have been placer mined. Though enough sand and/or silt are present to support the growth of grasses, it possesses a large proportion of stone, gravel, and cobble.

The final unit is Serpentine Rock Land (SaF), which is located in areas of serpentine and other ultrabasic rock formations. SaF is excessively drained with very rapid surface runoff, and may be composed of 50 to 90 percent rock outcrops and stones. It has a thin mantle of surface soil and is usually found on undulating to very steep terrain. An unnamed inclusion is often present at elevations over 1,000 feet; it has a surface layer of slightly acidic loam and a neutral subsoil of very gravelly heavy clay loam and clay. Depth to bedrock varies from 10 to 24 inches.

METHODOLOGY

Initially, a record search of the California Natural Diversity Database (CNDDB) was conducted for the Rocklin, Pilot Hill, Coloma, Folsom, Clarksville, Shingle Springs, Buffalo Creek, Folsom SE, and Latrobe, California 7.5-Minute USGS quadrangles to identify all documented sightings of special-status plant species in the vicinity of the study area. Special-status plant species include those officially listed by California or the federal government as endangered, threatened, or rare, as well as those proposed for formal state or federal listing as candidate species for listing as endangered, threatened, or rare. We also included those plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS); this includes species on Lists 1, 2 3, and 4 of the CNPS Ranking System:

- List 1 A: Plants presumed extinct in California.
- List 1 B: Plants rare, threatened, or endangered in California and elsewhere.
- List 2: Plants rare, threatened, or endangered in California, but more common elsewhere.
- List 3: Plants about which the CNPS needs more information – a review list.
- List 4: Plants of limited distribution – a watch list.

The CNPS Threat Rank is an extension that is added onto the CNPS List. It ranges from .1 to.3 and indicates the level of endangerment to the species with .1 representing the most endangered and .3 being the least endangered.

Also included are taxa meeting the criteria for listing under Section 15380 of the California Environmental Quality Act (CEQA) Guidelines. (Note that all CNPS List 1 and 2 and some List 3 species may fall under Section 15380 of CEQA.) Appendix B contains a map displaying CNDDB elemental occurrences recorded in the vicinity of the study area. Table 2 provides a list of special status plant species listed as occurring in the above target quadrangles that were evaluated including their listing status.

Multiple site visits were conducted to coincide with the blooming periods of special status plant species listed by the CNDDB as occurring within the target quadrangles. Field surveys were performed by Sam Garcia and Matt Hirkala on May 6, 2011. Matt Hirkala performed additional surveys on May 29, June 27 and August 2, 2011. Several visits were made to known reference populations throughout the growing season to assess the local phenology of target species. It should be noted that the unusually late rains appear to have interrupted the phenology of many local species by delaying respective blooming periods. Meandering transects were performed throughout the study area parcel. Appendix C contains a list of plants observed within the study area.

RESULTS AND DISCUSSION

The CNDDB search recorded nineteen special-status plant species as occurring within the nine target quadrangles: Jepson's onion (*Allium jepsonii*), big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*), Stebbin's morning glory (*Calystegia stebbinsii*), Pine Hill ceanothus (*Ceanothus roderickii*), Red Hills soaproot (*Chlorogalum gradiflorum*), Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*), Tuolumne button-celery (*Eryngium pinnatisectum*), Pine Hill flannelbush (*Fremontodenderon decumbens*), El Dorado bedstraw (*Galium californicum* ssp. *sierrae*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), Bisbee Peak rush-rose (*Helianthemum suffrutescens*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pin cushion navarretia (*Navarretia myersii* ssp. *myersii*), slender orcutt grass (*Orcuttia tenuis*), Sacramento orcutt grass (*Orcuttia viscida*), Layne's ragwort (*Packera layneae*), Sanford's arrowhead (*Sagittaria sanfordii*), and El Dorado mule ears (*Wyethia reticulata*). Based on a recorded sighting within the Clarksville quadrangle provided by the California Native Plant Society's database, we also included Hartweg's golden sunburst (*Pseudobahia bahiifolia*) in our list of special status plants even though the CNDDB search did not record any occurrences within the target quadrangles. Table 2 lists the special status, habitat associations, and blooming periods of the above species. Appendix B contains a map with the CNDDB occurrences for special-status species plants within the target quadrangles.

Brandegee's Clarkia

Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*) is not listed under the federal or California Endangered Species Act; however, it is designated as a CNPS List 1B.2 plant. It favors chaparral and cismontane woodland at elevations ranging from about 950 to 2,900 feet. It is also often associated with roadcuts. Brandegee's clarkia is an annual herbaceous species, and it blooms from May to July.

Tuolumne button-celery

Tuolumne button-celery (*Eryngium pinnatisectum*) is a CNPS List 1B.2 species. It is a biennial or perennial herb, and it favors vernal pools or other wet depressions located in cismontane woodlands and lower montane coniferous forests. Tuolumne button-celery blooms from June to August and is found between approximately 230 to 3,000 feet.

Bogg's Lake Hedge-Hyssop

Bogg's Lake hedge-hyssop (*Gratiola heterosepala*) is a California endangered species and a CNPS List 1B.2 plant. Though Bogg's Lake hedge-hyssop grows in vernal pools, it can also occur around the perimeter of lakes and ponds. It is found between 30 and 7,800 feet, favors clay soils, and blooms from April to August.

Ahart's Dwarf Rush

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is a CNPS list 1B.2 species. It is an annual herb found between elevations of approximately 110 feet and 3,400 feet. It blooms from March to May and grows along the edges of seasonal wet habitats such as vernal pools and swales.

Legenere

Legenere (*Legenere limosa*) is a CNPS list 1B.1 that is primarily associated with the bottoms of vernal pools between 0 to 2,900 feet. It is an annual herb and it blooms from April to March. Threatened by grazing and developments, many historic populations of legenere are believed to have been extirpated.

Table 2: Special-Status Species Plants and Habitat Associations

	Federal Status	State Status	CNPS Listing	Habitat Association	Blooming Period
Plants					
Allium jepsonii (Jepson's onion)	None	None	CNPS-1B.2	Cismontane woodland or lower montane coniferous forests with serpentine soils or volcanic slopes.	May to August
Balsamorhiza macrolepis var. macrolepis (big-scale balsamroot)	None	None	CNPS-1B.2	Chaparral, cismontane woodland, and valley and foothill grasslands -- sometimes found on serpentine soils.	March to June
Calystegia stebbinsii (Stebbin's morning glory)	Endangered	Endangered	CNPS-1B.1	Open areas in foothill chaparral and cismontane woodland with serpentine or Gabbro soils.	April to July
Ceanothus roderickii (Pine Hill ceanothus)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland with serpentine or Gabbro soils.	May to June
Chlorogalum grandiflorum (Red Hills soaproot)	None	None	CNPS-1B.2	Foothill chaparral, cismontane woodland, and lower montane coniferous forest. Sometimes found on serpentine or Gabbro soils.	May to June
Clarkia biloba ssp. brandegeeae (Brandegee's clarkia)	None	None	CNPS-1B.2	Generally associated with chaparral and cismontane woodland, but may occur in foothill oak woodland and grassland.	May to July
Eryngium pinnatisectum (Tuolumne button-celery)	None	None	CNPS-1B.2	Vernal pools and wet depressions or areas with mesic soils within cismontane woodlands and lower montane coniferous forests.	June to August
Fremontodenderon decumbens (Pine Hill flannelbush)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland with rocky serpentine or Gabbro soils.	April to July
Galium californicum ssp. Sierrae (El Dorado bedstraw)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland with Gabbro soils.	May to June
Gratiola heterosepala (Bogg's Lake hedge-hyssop)	None	Endangered	CNPS-1B.2	Vernal pools, seasonal wetlands, and margins of lakes/ponds.	April to August
Helianthemum suffrutescens (Bisbee Peak rush rose)	None	None	CNPS-3.2	Open areas within chaparral -- sometimes found in serpentine, Ione, or Gabbro soils.	April to June
Juncus leiospermus var. ahartii (Ahart's dwarf rush)	None	None	CNPS-1B.2	Edges of vernal pools and other seasonally flooded features.	March to May
Legenere limosa (legenere)	None	None	CNPS-1B.1	Vernal pools and seasonal wetlands.	April to June

Table 2: Special-Status Species Plants and Habitat Associations

Navarretia myersii ssp. myersii (Pin cushion navarretia)	None	None	CNPS-1B.1	Vernal pools and seasonal wetlands.	May
Orcuttia tenuis (slender orcutt grass)	Threatened	Endangered	CNPS-1B.1	Vernal pools and seasonal wetlands.	May to October
Orcuttia viscida (Sacramento orcutt grass)	Endangered	Endangered	CNPS-1B.1	Vernal pools and seasonal wetlands.	April to July
Packera layneae (Layne's ragwort)	Threatened	Rare	CNPS-1B.2	Chaparral and cismontane woodland with serpentine or Gabbro soils.	April to July
Pseudobahia bahiifolia (Hartweg's golden sunburst)	Endangered	Endangered	CNPS-1B.1	Cismontane woodland, valley and foothill grassland with clay soils.	March to April
Sagittaria sanfordii (Sanford's arrowhead)	None	None	CNPS-1B.2	Freshwater emergent marsh habitat -- also associated with drainages, canals, or irrigation ditches.	May to October
Wyethia reticulata (El Dorado Co. mule ears)	None	None	CNPS-1B.2	Foothill chaparral, cismontane woodland, and lower montane coniferous forest with Gabbro soils.	May to July

Pin Cushion Navarretia

Pin cushion navarretia (*Navarretia myersii* ssp. *myersii*) is a CNPS list 1B.1 plant. It is an annual herb that prefers vernal pools and other seasonal wetlands between approximately 100 and 1,100 feet. Pin cushion navarretia typically blooms in May and is currently threatened by development.

Slender Orcutt Grass

Slender orcutt grass (*Orcuttia tenuis*) is a federally threatened and California endangered species as well as a CNPS list 1B.1 plant. It favors vernal pools and other seasonal wetland habitats between 115 and 5,800 feet. Slender orcutt grass is an annual herbaceous species, and its bloom period extends from May to October.

Sacramento Orcutt Grass

Sacramento orcutt grass (*Orcuttia viscida*) is a federally endangered and California endangered species as well as a CNPS list 1B.1 plant. Like slender orcutt grass, this herbaceous annual also favors vernal pools and other seasonal wetland habitats, though it is found between 100 and 330 feet elevation. (The average elevation of the study area is approximately 1,050 feet.) Sacramento orcutt grass blooms from April to July and faces serious threats from agriculture, urbanization, and non-native species.

Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is listed as a 1B.2 plant by the CNPS. It generally occurs in shallow freshwater habitats associated with drainages, canals, and larger ditches that sustain inundation and/or slow moving water into early summer. It is a perennial rhizomatous emergent species, and it blooms from May to October.

Hartweg's Golden Sunburst

Hartweg's golden sunburst (*Pseudobahia bahiifolia*) is a federal and California endangered species and a CNPS list 1B.1 plant. It is an annual herbaceous species that is associated with grasslands and/or open woodlands and favors clay soils. Hartweg's golden sunburst is known to grow at elevations ranging from approximately 100 to 1,000 feet, and it typically blooms in March and April.

Special Status Plants Requiring Gabbro and/or Serpentine Soils

The ten special-status species of plants listed below are associated with Gabbro and/or serpentine soils and are identified by the CNDDB as occurring within the target quadrangles. The mildly acidic Gabbro soils are derived from igneous rock and possess peculiar characteristics such as high concentrations of magnesium, iron, nickel, chromium, and cobalt and low amounts of calcium and plant nutrients such as phosphorus. Serpentine soils are also known for having atypical characteristics such as a lack of the essential nutrients nitrogen, potassium, and phosphorus, a low calcium-magnesium ratio, and high concentrations of the heavy metals. The unusual soil chemistry has resulted in the evolution of a unique community of plants, many of which are only found in El Dorado County. Most of these plants have only been documented in chaparral or cismontane woodland associated with the Gabbro soils region around Pine Hill. According to the **"Soil Survey of El Dorado Area, California"** serpentine soils are present within the eastern portion of the study area. The majority of CNDDB occurrences for these species are located in western El Dorado County around the Pine Hill Preserve. The CNDDB occurrence map in Appendix B displays the location of the Gabbro soils (also known as the Rescue Series) and serpentine soils in relation to the study area.

Stebbin's Morning Glory

Stebbin's morning glory (*Calystegia stebbinsii*) is a federally endangered and California endangered species as well as a CNPS list 1B.1 plant. It is a perennial herb associated with open areas in foothill chaparral and cismontane woodland with Gabbro or serpentine soils. Stebbin's morning glory blooms from April to July and is found at elevations of approximately 600 to 2,400 feet.

Pine Hill Ceanothus

Pine Hill ceanothus (*Ceanothus roderickii*) is listed as a federally endangered and California rare species; it is also a CNPS list 1B.2 plant. This low growing shrub prefers foothill chaparral and cismontane woodland with serpentine or Gabbro soils at elevations between approximately 850 to 2,100 feet.

Pine Hill Flannelbush

Pine Hill flannelbush (*Fremontodon decumbens*) is listed as a federally endangered and California rare species; it is also a CNPS list 1B.2 plant. Pine Hill flannelbush is a sprawling, low-growing shrub endemic to Pine Hill and the immediate vicinity. The species favors foothill chaparral and cismontane woodland with rocky Gabbro or serpentine soils. It blooms from April to July.

El Dorado Bedstraw

El Dorado bedstraw (*Galium californicum* ssp. *sierrae*) is listed as a federally endangered and California rare species; it is also a CNPS list 1B.2 plant. This low-growing perennial herb prefers foothill chaparral and cismontane woodland with Gabbro soils. El Dorado bedstraw blooms from May to June and is known only grow in the Gabbro region of western El Dorado County.

Layne's Ragwort

Layne's ragwort (*Packera layneae*), which is also known as Layne's butterweed (*Senecio layneae*), is listed as a federally endangered and California rare species; it is also a CNPS list 1B.2 plant. Layne's ragwort is a non-woody perennial associated with open areas in chaparral and cismontane woodland. This member of the sunflower family blooms from April to July and grows on rocky Gabbro or serpentine soils. It can also be found in the Red Hills in Tuolumne County and near Brownsville in Yuba County.

El Dorado Mule Ears

El Dorado mule ears (*Wyethia reticulata*) is listed as a 1B.2 plant by the CNPS. This perennial sunflower grows only in the Gabbro soils area of western El Dorado County. It prefers foothill chaparral, cismontane woodland, and lower montane coniferous forest.

Red Hills Soaproot

Red Hills soaproot (*Chlorogalum gradiflorum*) is listed as a 1B.2 plant by the CNPS. Red Hills soaproot typically favors foothill chaparral, cismontane woodland, and lower montane coniferous forest with Gabbro or serpentine soils; however, it is known to grow on other soil types as well. This perennial blooms from May to June and is found from approximately 800 to 3,300 feet.

Bisbee Peak Rush-Rose

Bisbee Peak rush-rose (*Helianthemum suffrutescens*) is listed as a 3.2 plant by the CNPS. This evergreen shrub grows in open areas within chaparral. Though Bisbee Peak rush-rose grows on the Gabbro and serpentine soils of the Pine Hill region, it is also found on other soils as well.

Jepson's Onion

Jepson's onion (*Allium jepsonii*) is classified as a List 1B.2 plant by the CNPS. It is a bulbiferous perennial herb that is usually associated with open areas within cismontane woodland or lower montane coniferous forest between 985 and 3,800 feet. Jepson's onion is typically found on serpentine soils of the Sierra Nevada, but it has been documented growing on volcanic soils (at Table Mountain) as well. It blooms between May and August.

Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis var. macrolepis*) is classified as a List 1B.2 plant by the CNPS. It is a perennial herbaceous species that favors chaparral, cismontane woodland and valley and foothill grasslands between 295 and 4,600 feet. Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well.

CONCLUSIONS

Field surveys were performed on May 6, May 29, June 27 and August 2, 2011; no special status species plants were observed within the study area.

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APPENDIX A

Digital Photos

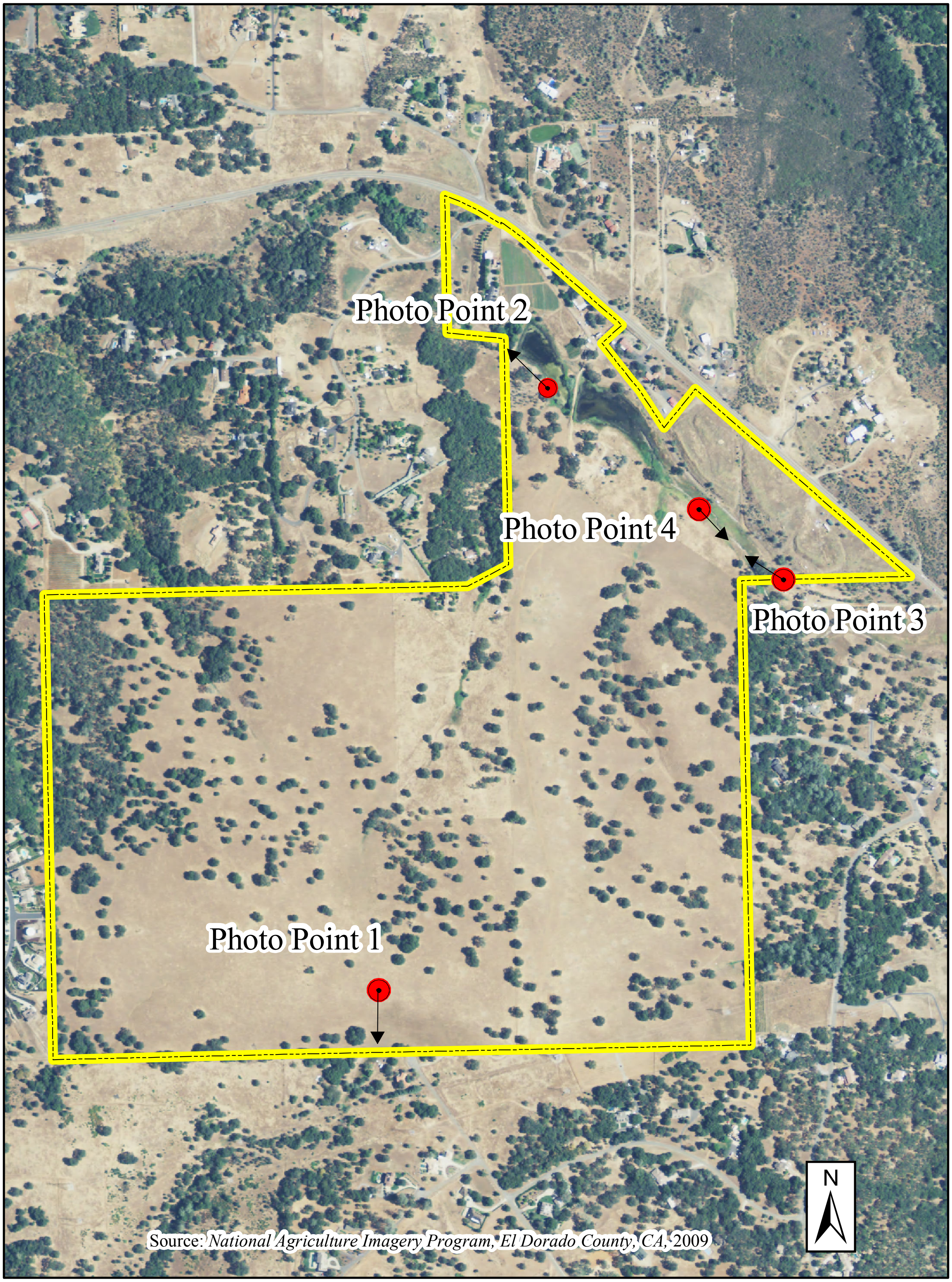


Photo Point 2
Photo Point 4
Photo Point 3
Photo Point 1
N
Source: National Agriculture Imagery Program, El Dorado County, CA, 2009

Photo Index


Photo Point 1: seep/buffer area looking south.

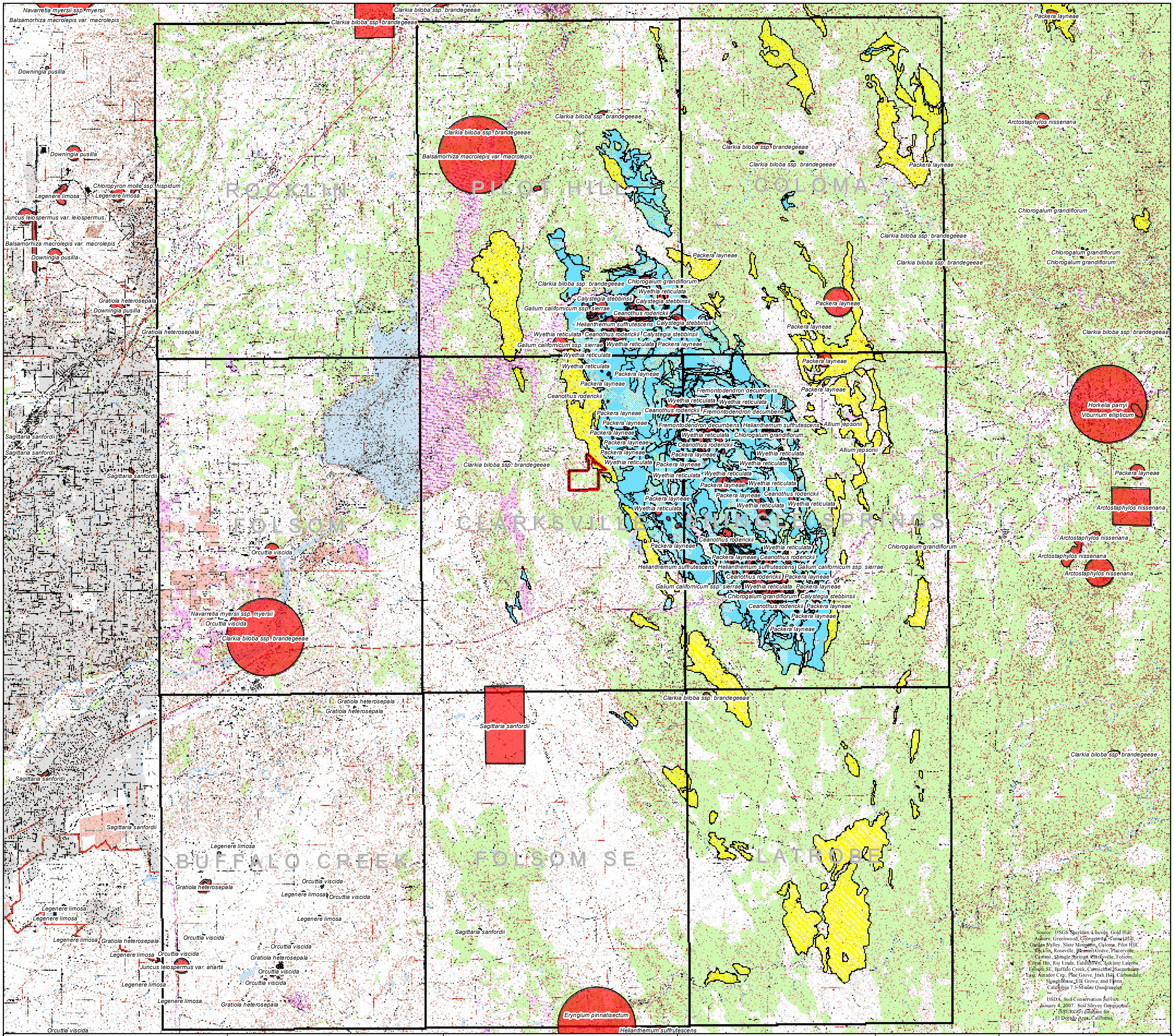

Photo Point 2: lake/buffer area looking northwest.

Photo Point 3: Green Spring Creek facing northwest.

Photo Point 4: creek/buffer area looking southeast.

APPENDIX B

CNDDB Occurrence Map



CNDDB Special-Status Plant Occurrences

Dixon Ranch

El Dorado County, California

The elemental occurrence location data was provided by the California Department of Fish and Game's Natural Diversity Data Base (Version 3.1.0). The size of elemental occurrence polygons are dependent upon several factors including DFG mapping policies and the age and specificity of reported special status species sightings.

- Target USGS 7.5 Minute Quadrangle
- Study Area Boundary
- Serpentine Soils
- Rescue (Gabbro) Soils
- Special Status Plant Occurrence

N

0 0.5 1 2

Miles

Prepared For:

Dixon Ranch Partners, LLC
949 Ruscan Lane
Sacramento, California 95864

GIBSON & SKORDAL, LLC
WETLAND CONSULANTS
2277 Fair Oaks Blvd., Ste. 105
Sacramento, CA 95825
(916) 569-1830

Prepared By: M. Hirkala

Prepared Date: August 2011

Date Aerial Flown:

CNDDB Shapefiles: August 2011 (Commercial Version)

APPENDIX C

Plant List

LIST OF PLANTS OBSERVED ON THE DIXON RANCH PROPERTY

Latin Name	Common Name
Abutilon theophrasti	velvetleaf
Achillea millefolium	yarrow
Aegilops triuncialis	barbed goatgrass
Aesculus californica	California buckeye
Agrostis avenacea	hairy flower bentgrass
Aira caryophyllea	silver hairgrass
Alisma plantago-aquatica	broad-leaf water plantain
Amsinckia intermedia	fiddleneck
Anagallis arvensis	scarlet pimpernel
Anthriscus caucalis	bur chervil
Asclepias cordifolia	purple milkweed
Avena barbata	slender wild oat
Avena fatua	wild oats
Baccharis pilularis	coyote brush
Bidens sp.	beggars tick
Brassica nigra	black mustard
Briza minor	little quaking grass
Bromus diandrus	rip-gut grass
Bromus hordeaceus	soft chess
Bromus madritensis ssp. rubens	red brome
Calandrinia ciliata	red-maids
Calochortus albus	white fairy lantern
Calystegia sp. (hybridized)	morningglory
Carduus pycnocephalus	Italian thistle
Carex praegracilis	clustered field sedge
Castilleja attenuata	valley tassels
Ceanothus cuneatus	buckbrush
Centaurea solstitialis	yellow star-thistle
Centaurium muehlenbergii	Monterey centaury
Cerastium glomeratum	mouse ear chickweed
Chamaesyce maculata	spotted sandmat
Chamomilla suaveolens	pineapple weed
Chenopodium album	lamb's quarters
Chlorogalum pomeridianum	soap-root
Cirsium vulgare	bull thistle
Clarkia purpurea ssp. quadrivulnera	purple clarkia
Clarkia unguiculata	fare-well to spring
Claytonia perfoliata	miner's lettuce
Conium maculatum	poison-hemlock
Convolvulus arvensis	bindweed
Conyza canadensis	Canada horseweed
Crassula tillaea	moss pygmyweed
Crassula tillaea	moss pygmyweed

LIST OF PLANTS OBSERVED ON THE DIXON RANCH PROPERTY

Latin Name	Common Name
Cynodon dactylon	Bermuda grass
Cynosurus echinatus	dogtail
Cyperus eragrostis	tall flat sedge
Daucus carota	Queen Anne's lace
Daucus pusillus	American wild carrot
Delphinium variegatum	royal larkspur
Dichelostemma capitatum	blue dicks
Dichelostemma volubile	twining brodiaea
Dipsacus sativus	Fuller's teasel
Dudleya cymosa	canyon liveforever
Eichornia crassipes	common water-hyacinth
Eleocharis acicularis	least spikerush
Eleocharis macrostachya	creeping spikerush
Eremocarpus setigerus	doveweed
Eriodictyon californicum	Yerba Santa
Erodium botrys	filaree
Erodium cicutarium	cut-leaf filaree
Eschscholzia caespitosa	tufted poppy
Eschscholzia lobbii	frying pans
Eschsholzia californica	California poppy
Ficus carica	fig
Filago gallica	narrowleaf cottonrose
Galium aparine	catchweed bedstraw
Galium parisiense	wall bedstraw
Geranium dissectum	cut-leaf geranium
Geranium molle	dovesfoot cranesbill
Glyceria declinata	manna grass
Gnaphalium sp.	everlasting
Grindelia sp	gumweed
Helenium puberulum	sneezeweed
Hemizonia fitchii	Fitch's spikeweed
Heteromeles arbutifolia	toyon
Holocarpha virgata	tarweed
Holozonia filipes	holozonia
Hordeum marinum ssp. gussoneanum	Mediterranean barley
Hordeum murinum	mouse barley
Hypericum perforatum	kalamath weed
Hypochaeris glabra	smooth cats tongue
Juncus balticus	baltic rush
Juncus bufonius	toad rush
Juncus capitatus	capped rush
Juncus effusus	soft rush
Lactuca serriola	prickly lettuce

LIST OF PLANTS OBSERVED ON THE DIXON RANCH PROPERTY

Latin Name	Common Name
Leontodon taraxacoides	lesser hawkbit
Lepidium nitidum	shining peppergrass
Linum bienne	pale flax
Lithophragma bolanderi	Bolander's woodland star
Lolium perenne	perennial ryegrass
Lonicera sp.	honeysuckle
Lotus purshianus	Spanish clover
Ludwigia peploides	floating primrose
Lupinus nanus	sky lupine
Lythrum hyssopifolia	loosestrife
Madia elegans	common madia
Madia gracilis	slender tarweed
Marrubium vulgare	common horehound
Marsilea vestita var. tenellus	hairy pepperwort
Medicago polymorpha	bur-clover
Mentha arvensis	field mint
Mentha pulegium	penny-royal
Mentha spicata var. spicata	spearmint
Micropus californicus	Q Tips
Mimulus guttatus	yellow monkey-flower
Monardella lanceolata	mustang mint
Navarretia sp.	navarretia
Paspalum dilatatum	dallis grass
Petrorhagia dubia	wilding pink
Phalaris aquatica	Harding canary grass
Pinus sabiniana	foothills pine
Plagiobothrys nothofulvus	rusty popcorn flower
Plantago lanceolata	English plantain
Plantago major	common plantain
Poa annua	annual bluegrass
Poa bulbosa	bulbous bluegrass
Polygonum aviculare	prostrate knotweed
Polygonum hydropiperoides	swamp smartweed
Polypogon monspeliensis	annual rabbit-foot grass
Populus alba	white poplar
Populus fremontii	Fremont cottonwood
Portulaca oleracea	common purslane
Potamogeton sp.	pondweed
Potentilla sp.	cinquefoil
Psilocarphus brevissimus var. brevissimus	wooly marbles
Psilocarphus tenellus var. tenellus	wooly marbles
Quercus douglasii	blue oak
Quercus kelloggii	black oak

LIST OF PLANTS OBSERVED ON THE DIXON RANCH PROPERTY

Latin Name	Common Name
Quercus lobata	valley oak
Quercus wislizenii	interior live oak
Ranunculus muricatus	spiney-fruited buttercup
Raphanus sativus	wild radish
Rhamnus californica	coffeeberry
Rorippa nasturtium-aquaticum	water-cress
Rubus discolor	Himalayan blackberry
Rumex conglomeratu	clustered dock
Rumex crispus	curly dock
Rumex salicifolius	willow dock
Salix exigua	narrowleaf willow
Salix gooddingii	black willow
Salix lasiolepis	Arroyo willow
Sambucus mexicana	blue elderberry
Sanicula bipinnatifida	purple sanicle
Scirpus acutus	hardstem bulrush
Senecio vulgaris	common groundsel
Silene gallica	common catchfly
Silybum marianum	milk thistle
Sisyrinchium bellum	blue-eyed grass
Sonchus asper ssp. asper	prickly sow thistle
Stellaria media	chickweed
Taeniatherum caput-medusae	medusa-head
Torilis arvensis	hedge parsley
Toxicodendron diversilobum	poison oak
Trifolium hirtum	rose clover
Trifolium subterraneum	subterraneum clover
Trifolium variegatum	white-tip clover
Trifolium willdenovii	tomcat clover
Triteleia ixioides	prettyface
Triteleia laxa	Ithuriel's Spear
Typha angustifolia	narrow-leaf cattails
Verbascum blattaria	moth mullein
Verbascum thapsus	wooly mullein
Verbena hastata	blue vervain
Vicia sativa	common vetch
Vicia villosa	winter vetch
Vitis californica	wild grape
Vulpia myuros	rat-tail fescue
Wyethia mollis	mule ears
Xanthium strumarium	rough cocklebur

Mann Made Resources

March 31, 2014

Mr. Joel Korotkin
949 Tuscan Lane
Sacramento, CA 95864

SUBJECT: ARBORIST MEMORANDUM FOR DIXON RANCH OFF-SITE SEWER AT SMUD CORRIDOR

Dear Mr. Korotkin,

Thank you for the opportunity to provide additional Arborist Consulting Services. This memorandum includes the observations and analysis of the off-site Oak tree canopy for the Dixon Ranch off-site sewer located approximately as shown on the attached exhibit, “A.P.E. Exhibit for Offsite Sewer at SMUD Corridor, March 2014”. The depicted A.P.E. was visited on March 20, 2014, and the canopy cover was confirmed for the planned construction of roads and utilities.

Assignment: Brian Allen from CTA Engineering and Survey contacted my office on your behalf on Tuesday, March 18, 2014, requesting additional site review and evaluation of the tree canopy impacts of the proposed off-site construction. I met Mr. Kevin Wipf on site to verify the canopy in the location identified as being affected by the proposed sewer line construction.

All site information, plans, and history were provided by Mr. Brian Allen and Mr. Kevin Wipf of CTA Engineering and Surveying. Plan sheet A.P.E. EXHIBIT FOR OFFSITE SEWER AT SMUD CORRIDOR, March 2014, was provided for review and use.

The assignment required the following activities: visit the site, verify the canopy cover as shown on the plan and image sheet, and verify any impacts to the Oak canopy cover.

Observations: The proposed construction site is off-site. The SMUD Corridor image showed the proposed force sewer main. The sewer force main site should be able to be constructed with no canopy loss. We are able to locate the pipe to connect to the manhole between the edges of two tree canopies without having to remove any trees. The combination of minimal encroachment on the driplines and the shallow design of the force main allow the retention of all these off-site trees adjacent to the sewer force main.

Other testing or examination: No other testing or examination was requested at the time of the site inspection, or recommended as a result of the tree canopy inspection.

12661 Torrey Pines Drive, Auburn, CA 95602
(650) 740-3461 ♦ FAX (530) 268-0926
www.mannandtrees.com

Discussion: There is no proposed oak canopy removal for the off-site sewer force main construction. No additional mitigation would be required for this work.

Tree Protection will need to be in place prior to commencing grading, grubbing or construction. Adequate tree protection around the existing trees will avoid soil compaction, prevent encroachment over root area that is to be protected, and avoid damage to existing trees.

Conclusion: I reviewed the canopy calculation images, and map, and compared with the conditions on the site during my in-person visit. I am confident they are accurate as presented. The calculations are valid based on my field survey, and plan and map review.

Assumptions and Limitations: This report provides information about the subject trees at the times of the inspection. Trees and conditions may change over time. This report is only valid for the trees with the conditions present at the times of the inspections. All observations were made while standing on the ground. The inspection consisted of visual observations. No further examinations were requested or performed.

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that can fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatments, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures.

Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risks is to eliminate all trees. Our company goal is to help clients enjoy life with trees.

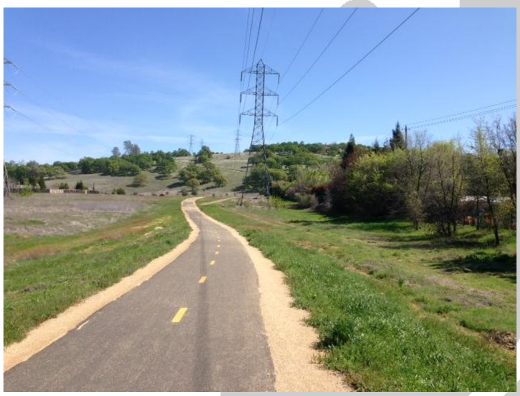
Please contact me at 650-740-3461, or gordon@mannandtrees.com, if you have any questions about this report or desire any other services for this project.

I certify that all the statements in this report are true, complete, and correct to the best of my knowledge, and that all statements were made in good faith.

Sincerely,

Gordon Mann
Consulting Arborist and Urban Forester
Registered Consulting Arborist #480
ISA Certified Arborist and Municipal Specialist #WE-0151AM
CaUFC Certified Urban Forester #127
Certified Tree Risk Assessor #1005
Nevada County Fire Safe Council Defensible Space Advisory Training
Mann Made Resources
Auburn, CA
650-740-3461
Fax 530-268-0926
gordon@mannandtrees.com
www.mannandtrees.com

Photos


Route of force main along bike path.


Route of force main between trees to manhole.


Mr. Wipf standing on manhole connection.


Route between trees to manhole.

Gibson & Skordal, LLC
WETLAND CONSULTANTS

Memo

To: **Brian Allen**

From: **Jim Gibson**

Date: **March 27, 2014**

Subject: **Delineation and Special-Status Species Assessment – Dixon Ranch Off-Site Sewer A.P.E**

Message:

On March 24, 2014, I field reviewed the approximately 5.5-acre offsite sewer A.P.E. for the presence of waters/wetlands that may be regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. I also conducted a special status species assessment.

The property is located immediately east of Silva Valley Parkway with residential subdivisions to the north and south. New York Creek borders the property to the west. The property is undeveloped and is utilized as a power line corridor. A paved trail traverses the property from east to west. A vicinity map is attached (Figure 1).

The site is primarily non-native annual grassland including rip-gut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), yellow-star thistle (*Centaurea solstitialis*), long-beak stork's bill (*Erodium botrys*), tarweed (*Holocarpha virgata*), garden vetch (*Vicia sativa*) and medusa head (*Elymus caput-medusae*). The western portion of the site contains valley oaks (*Quercus lobata*) and blue oaks (*Quercus douglasii*).

The only waters/wetland feature on the site is a wetland swale in the eastern half of the site. It flows from south to north and originates immediately south of the paved trail. The swale is approximately 0.02 acre, and is shown on the attached site map (Figure 2). The swale is dominated by perennial rye (*Lolium perenne*), seaside barley (*Hordeum marinum*), and Carter's buttercup (*Ranunculus bonariensis*).

A Nationwide Permit authorization from the Corps of Engineers under Section 404 of the Clean Water Act would be required for filling any portion of the swale. Water Quality Certification from California Regional Water Quality Control Board and a Streambed Alteration Agreement from California Department of Fish & Wildlife would also be required. However, the sewer line is proposed to avoid the swale by being placed south of the swale. The swale should be fenced with orange construction fencing to avoid inadvertent impacts from construction equipment.

The site was assessed for the potential presence of special-status species. Initially, a record search of the California Natural Diversity Database (CNDDB) was conducted to list all documented sightings of special-status species within ten miles of the site. The special-status species evaluation considers those species identified as having relative scarcity and/or declining populations by the United States Fish & Wildlife Service (FWS) or California Department of Fish & Wildlife (CDFW). Special-status species include those formally listed as threatened or endangered, those proposed for formal listing, candidates for federal listing, and those classified as species of special concern by CDFW. We also included species considered to be "special animals" or "fully protected" by the CDFW and plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS). This includes species on Lists 1, 2, 3, and 4 of the CNPS Ranking System:

- List 1 A: Plants presumed extinct in California.
- List 1 B: Plants rare, threatened, or endangered in California and elsewhere.
- List 2: Plants rare, threatened, or endangered in California, but more common elsewhere.
- List 3: Plants about which the CNPS needs more information – a review list.
- List 4: Plants of limited distribution – a watch list.

The CNPS Threat Rank is an extension that is added onto the CNPS List. It ranges from .1 to .3 and indicates the level of endangerment to the species with .1 representing the most endangered and .3 being the least endangered.

Also included are taxa meeting the criteria for listing under Section 15380 of the California Environmental Quality Act (CEQA) Guidelines. (Note that all CNPS List 1 and 2 and some List 3 species may fall under Section 15380 of CEQA.)

Table 1 provides a list of special-status species that were evaluated including their listing status, habitat associations, and the likelihood of the species occurring on the site.

- Present: Species occurs on the site based on CNDDB records, and/or was observed on the site during field surveys.
- High: Species is known to occur near the site (10-mile radius) and suitable habitat exists within the project site.
- Low: Species is known to occur in the vicinity of the site and there is marginal suitable habitat on the project site.
- None: Suitable habitat for the species does not exist on the site.

2617 K Street, Suite 175, Sacramento, California 95816
phone: 916 822 3230 • fax: 916 822 3231

Figure 3 shows CNDDB occurrences within ten miles of the study area.

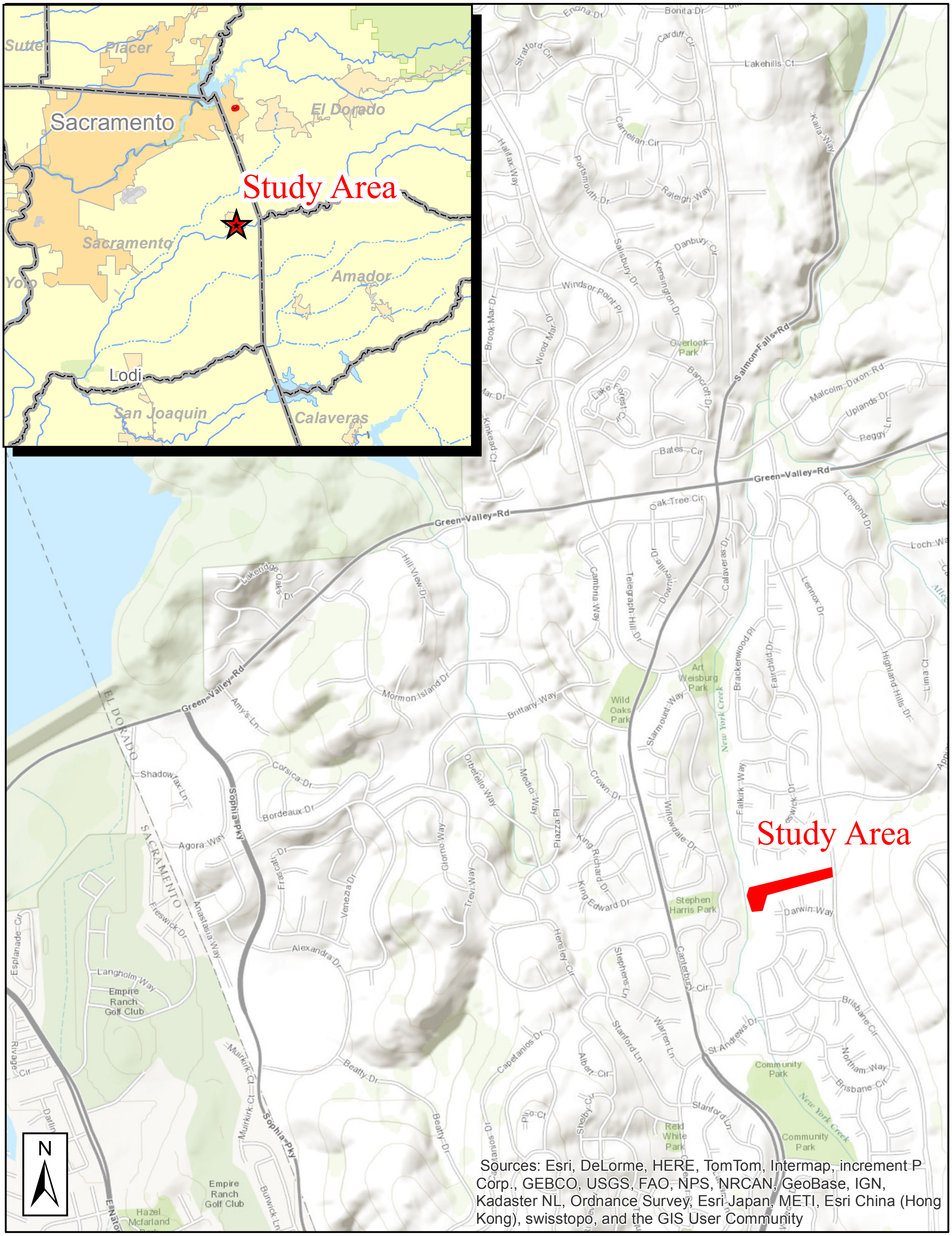
With respect to Federal or State listed species, the site contains nesting and foraging habitat for the State listed Swainson's hawk (*Buteo swainsoni*). Although marginal habitat is present, it is unlikely that the State endangered bald eagle (*Haliaeetus leucocephalus*) would forage on the site. The sewer line construction impact to foraging habitat for these two species is temporary, not resulting in any permanent impacts. Therefore, no mitigation for loss of foraging habitat is necessary. Other listed species are not expected to inhabit the site. We recommend that raptor nesting surveys be conducted within 30 days of construction.

With respect to plants, we recommend that focused surveys for big-scaled balsamroot, Brandegee's clarkia, Bisbee Peak rush rose, and dwarf downingia.

The above recommendations do not go beyond the required conditions identified for the Dixon Ranch project.

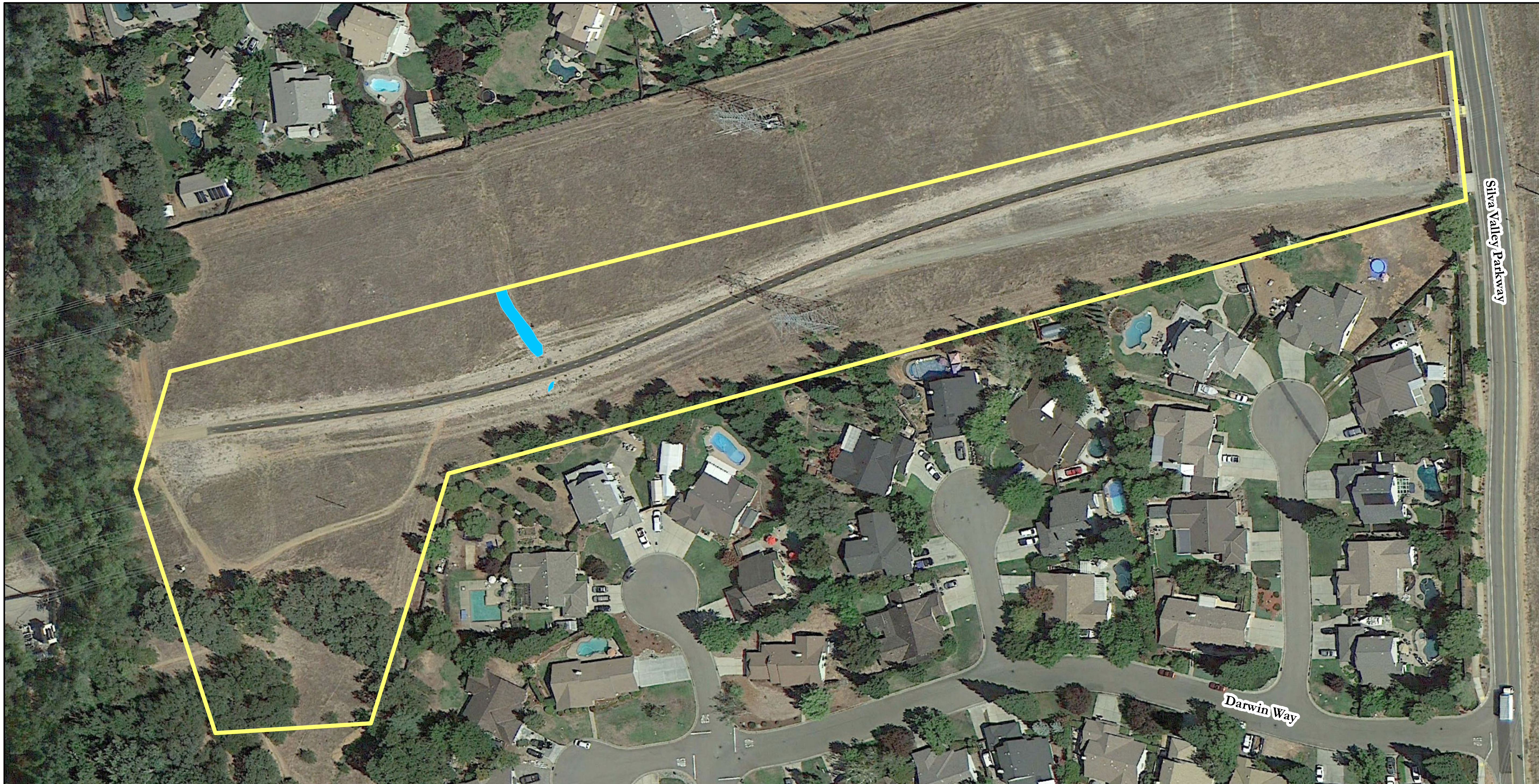
If you have any questions or need additional information, please contact me at (916) 822-3230.

Jim Gibson
Principal



Dixon Ranch Off-Site Sewer A.P.E.
Site Assessment
March 2014

Figure 1
Vicinity Map



Dixon Ranch Off-Site Sewer A.P.E.

Site Assessment
Figure 2

March 2014

Study Area (+/- 5.67 acres)
Wetland Swale (+/- 0.02 acre)

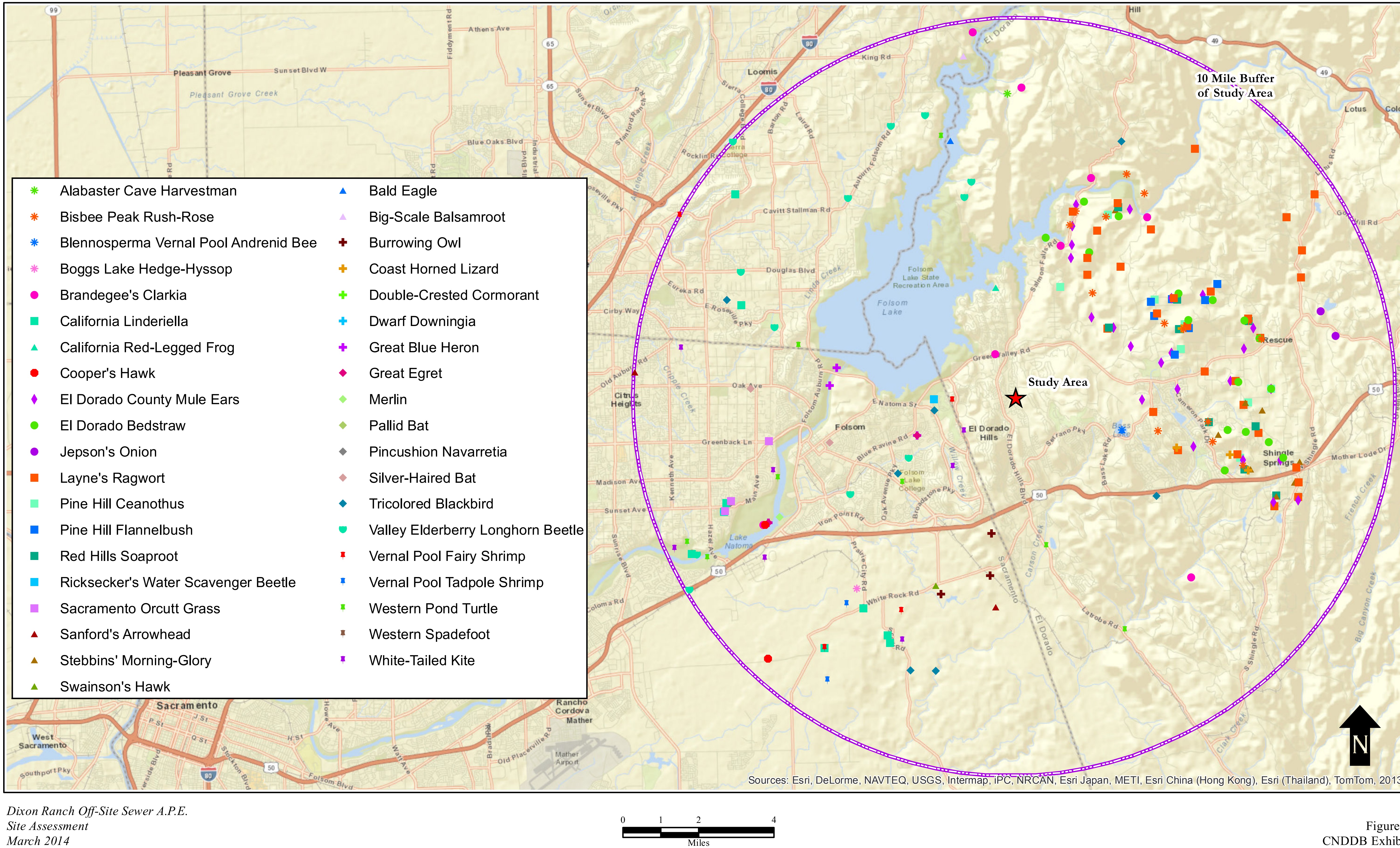
N

0 50 100 200
Feet

Prepared For:
Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

Gibson & Skordal, LLC
WETLAND CONSULTANTS

Prepared By: J. Gibson / B. Wallace
Prepared Date: March 2014
Revision Date:
Date Aerial Flown: August 2013



Dixon Ranch Off-Site Sewer A.P.E.
Site Assessment
March 2014

Figure 3
CNDDB Exhibit

TABLE 1:

EVALUATION OF SPECIAL-STATUS SPECIES HABITATS

	Federal Status	State Status	CNPS Listing	Habitat Association	Potential for Occurrence
Mammals					
Antrozous pallidus (pallid bat)	None	Species of Special Concern		Roosts in rock outcrops, hollow trees, abandoned mines, barns, and attics.	High
Lasionycteris noctivagans (silver-haired bat)	None	CDFG-Special Animals		Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	High
Birds					
Accipiter cooperi (Cooper's hawk)	None	CDFG-Special Animals		Inhabits forested habitats, forest edge, and riparian habitat, may forage in adjacent grassland and fields.	High
Agelaius tricolor (tricolored blackbird)	None	Species of Special Concern		Colonial nester in cattails, bulrush, or blackberries associated with marsh habitats.	Low
Ardea alba (great egret)	None	CDFG-Special Animals		Rivers, streams, lakes, marsh and other aquatic habitats.	Low
Ardea herodias (great blue heron)	None	CDFG-Special Animals		Rivers, streams, lakes, marsh and other aquatic habitats.	Low
Athene cunicularia (burrowing owl)	None	Species of Special Concern		Nests in abandoned ground squirrel burrows associated with open grassland habitats.	High
Buteo Swainsoni (Swainson's hawk)	None	Threatened		Nests in tall cottonwoods, valley oaks or willows. Forages in fields, cropland, irrigated pasture, and grassland near large riparian corridors.	High
Elanus leucurus (white-tailed kite)	None	Fully Protected		Nests in riparian corridors along streams and rivers, and forages in nearby grasslands and fields.	High
Falco columbarius (merlin)	None	CDFG-Special Animals		It is not known to nest in California, but it is a winter transient throughout most of California with wintering populations in the Central Valley.	Low
Haliaeetus leucocephalus (bald eagle)	Delisted	Endangered		Documented as wintering & nesting in El Dorado Co., they typically nest in oak woodland within 1 mile of lakes, rivers, or larger streams.	Low
Phalacrocorax auritus (double-crested cormorant)	None	CDFG-Special Animals		Nests in colonies on rocks, cliff, or in trees. It prefers open water habitats such as coastlines, ponds, rivers, lakes, estuaries, or lagoons.	None
Amphibians & Reptiles					
Emys marmorata (western pond turtle)	None	Species of Special Concern		Ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	None
Phrynosoma blainvillii (coast horned lizard)	None	Species of Special Concern		Diverse habitat associations, but normally a low land species associated with sandy scrub habitat and low sand washes.	None
Rana draytonii (California red-legged frog)	Threatened	Species of Special Concern		Breeds in permanent to semi-permanent aquatic habitats including lakes, ponds, marshes, creeks, and other drainages.	None
Spea hammondii (western spadefoot toad)	None	Species of Special Concern		Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	Low

TABLE 1:

EVALUATION OF SPECIAL-STATUS SPECIES HABITATS

Invertebrates					
Andrena blennospermatis (solitary or ground nesting bee)	None	None		Forages in vernal pools for pollen from blennosperma (*Blennosperma nanum*), and nests in nearby uplands.	None
Banksula californica (Alabaster Cave harvestman)	None	None		Only known from Alabaster Cave in which has since been partially destroyed by historic mining. Presently, it is sealed with cement.	None
Branchinecta lynchi (vernal pool fairy shrimp)	Threatened	None		Vernal pools and other seasonally ponded wetlands.	None
Desmocerus californicus dimorphus (valley elderberry longhorn beetle)	Threatened	None		Dependent upon elderberry plant (Sambucus mexicana) as primary host species	None
Hydrochara rickseckeri (Ricksecker's water scavenger beetle)	None	None		Ponds, lakes, streams, rivers, vernal pools, and other freshwater features.	Low
Lepidurus packardi (vernal pool tadpole shrimp)	Endangered	None		Vernal pools and other seasonally ponded wetlands.	None
Linderiella occidentalis (California linderiella)	None	None		Vernal pools and other seasonally ponded wetlands.	None
Plants					
Allium jepsonii (Jepson's onion)	None	None	CNPS-1B.2	Prefers cismontane woodland or lower montane coniferous forests associated with serpentine soils or volcanic slopes.	None
Balsamorhiza macrolepis var. *macrolepis* (big-scale balsamroot)	None	None	CNPS-1B.2	Prefers chaparral, cismontane woodland, and valley and foothill grasslands.	High
Calystegia stebbinsii (Stebbin's morning glory)	Endangered	Endangered	CNPS-1B.1	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	None
Ceanothus roderickii (Pine Hill ceanothus)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	None
Chlorogalum grandiflorum (Red Hills soaproot)	None	None	CNPS-1B.2	Foothill chaparral, cismontane woodland, and lower montane coniferous forest. Sometimes found in serpentine or Gabbro soils.	None
Clarkia biloba ssp. *brandegeeae* (Brandegee's clarkia)	None	None	CNPS-4.2	Generally associated with chaparral and cismontane woodland, but may occur in foothill oak woodland and grassland.	High
Downingia pusilla (dwarf downingia)	None	None	CNPS-2.2	Vernal pools and seasonal wetlands.	Low
Fremontodenderon decumbens (Pine Hill flannelbush)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	None
Galium californicum ssp. *sierrae* (El Dorado bedstraw)	Endangered	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	None
Gratiola heterosepala (Bogg's Lake hedge-hyssop)	None	Endangered	CNPS-1B.2	Vernal pools and margins of lakes/ponds	None
Helianthemum suffrutescens (Bisbee Peak rush rose)	None	None	CNPS-3.2	Open areas within chaparral. Often found in serpentine, Gabbro, or Ione soils.	High
Navarretia myersii ssp. *myersii* (Pin cushion navarretia)	None	None	CNPS-1B.1	Vernal pools.	None

TABLE 1:

EVALUATION OF SPECIAL-STATUS SPECIES HABITATS

Plants Continued					
Orcuttia viscida (Sacramento orcutt grass)	Endangered	Endangered	CNPS-1B.1	Vernal pools.	None
Packera layneae (Layne's ragwort)	Threatened	Rare	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with serpentine or Gabbro soils.	None
Sagittaria sanfordii (Sanford's arrowhead)	None	None	CNPS-1B.2	Emergent marsh habitat, typically associated with drainages, canals, or irrigation ditches.	None
Wyethia reticulata (El Dorado Co. mule ears)	None	None	CNPS-1B.2	Foothill chaparral and cismontane woodland associated with Gabbro or red stony clay soils.	None

APPENDIX F

WATER SUPPLY INFORMATION

El Dorado Irrigation District

SB 610 Water Supply Assessment for the Dixon Ranch Residential Project

SB 610 Water Supply Assessment

Prepared for the
Dixon Ranch Residential Project

Final

August 2013

Prepared by:

Tully & Young
Comprehensive Water Planning

Prepared for:

El Dorado Irrigation District

Approved by Eldorado Irrigation District Board of Directors
on August 26, 2013 as action item #8

Contact: Cindy Megerdigian - Water/Hydro Engineering Manager
2890 Mosquito Road, Placerville CA 95667
(530) 642-4056 Fax: (530) 642-4356
cmegerdigian@eid.org

Table of Contents

SECTION 1 – PROJECT INTRODUCTION

1.1 INTRODUCTION

In December 2012, the El Dorado Irrigation District (EID) received a letter from the El Dorado County Planning Department (County) requesting the completion of a Water Supply Assessment (WSA) for the Dixon Ranch Residential Project (hereafter referred to as the "Proposed Project"). As the proposed water supply purveyor for the Proposed Project, EID has prepared this WSA to assess the availability and sufficiency of EID's water supplies to meet the Proposed Project's estimated water demands. This document provides the necessary information to comply with the assessment of sufficiency as required by statute.

Statutory Background

Enacted in 2001, Senate Bill 610 added section 21151.9 to the Public Resources Code requiring that any proposed "project," as defined in section 10912 of the Water Code, comply with Water Code section 10910, et seq. Commonly referred to as a "SB 610 Water Supply Assessment," Water Code section 10910 outlines the necessary information and analysis that must be included in an environmental analysis of the project (e.g. CEQA compliance) to ensure that proposed land developments have a sufficient water supply to meet existing and planned water demands over a 20-year projection.

Proposed "projects" requiring the preparation of a SB 610 water supply assessment include, among others, residential developments of more than 500 dwelling units, shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space, commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space and projects that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.[1]

The Proposed Project requires a WSA because it contemplates more than 500 new dwelling units as detailed in Section 1.2.

Document Organization

This WSA supports the Proposed Project's environmental review process and analyzes the sufficiency of water supplies to meet projected water demands of the Proposed Project through the required planning horizon. The WSA is organized according to the following sections:

- **Section 1: Project Introduction**. This section provides an overview of WSA requirements, and a detailed description of the Proposed Project, especially the land-use elements that will require water service.

[1] Water Code § 10912, subdivision (a).

- **Section 2: Proposed Project Estimated Water Demands**. This section describes the methodology used to estimate water demands of the Proposed Project and details the estimated water demands at build-out of the Proposed Project.

- **Section 3: Other Estimated Water Demands**. This section details the other water demands currently served by EID and anticipated to be served based on information in the El Dorado County's (County) General Plan as well as known and potential planned modifications since the County's adoption of the General Plan.

- **Section 4: Water Supply Characterization**. This section characterizes the EID water supply portfolio that will serve the Proposed Project along with other current and future water demands. Water rights, along with water service contracts and agreements are characterized for normal, single dry, and multiple dry year conditions.

- **Section 5: Sufficiency Analysis**. This section assesses whether sufficient water will be available to meet the Proposed Project water demands, while recognizing existing and other potential planned water demands within the EID service area. To provide the necessary conclusions required by statute, the analysis integrates the demand detailed in Section 2 and Section 3 with the characterization of EID's water supply portfolio detailed in Section 4.

1.2 PROPOSED PROJECT DESCRIPTION

The Proposed Project is a planned development, south of the Green Valley Road, north of Serrano Country Club, encompassing 280 acres in the unincorporated community of El Dorado Hills (see **Figure 1-1**).

The Proposed Project includes 605 residences of varying size, active and passive parks, a club house, and open space. Proposed residential dwelling units include 1 existing parcel of 5 acres, 5 custom large lot estates of approximately 3 acres, 5 custom estates on approximately 1 acre, 112 custom and production hillside lots with a density of about 4 dwelling units per acre, 173 production village lots with a density of about 6 dwelling units pre acre, 229 production village and age-restricted lots with a density of about 7.5 dwelling units per acre, and 80 production age-restricted lots with a density of about 9 dwelling units pre acre. A large 9-acre village park will serve the community and a smaller 2-acre neighborhood will serve residents. To accompany the age-restricted lots, a club house will be built.

Table 1-1 summarizes the proposed land use acreages.

Figure 1-1 – Proposed Project Location and Land Uses

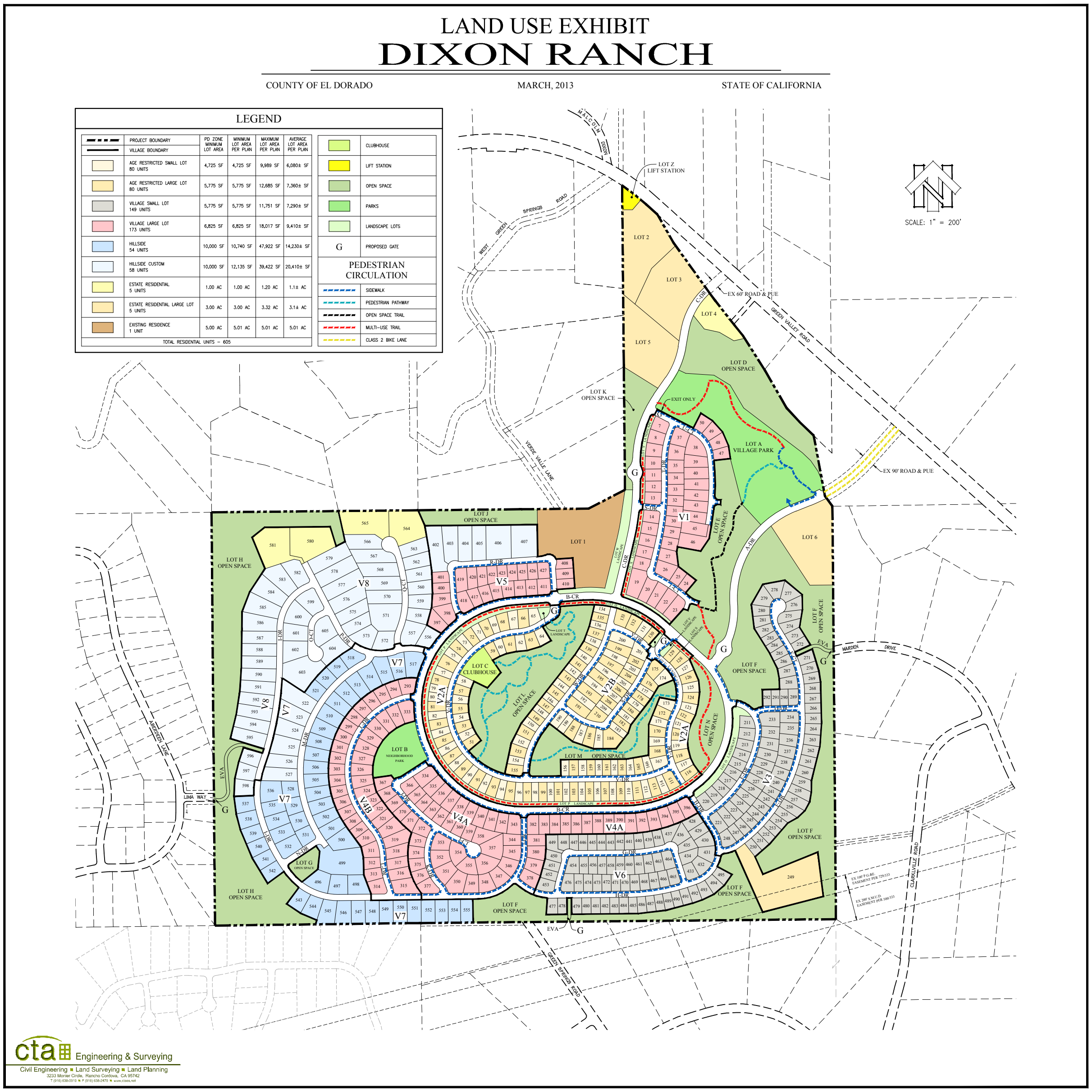


Table 1-1 – Summary of Proposed Build-Out Land Uses and Acreages[2]

Land Use	Description	Acres	Units
Large Lot Estate Residential	3 Acre Lots	--	5
Estate Residential	1 Acre Lots	--	5
Hillside Custom	1/2 to 1 Acre Lots	--	58
Hillside Production	1/4 to 1/2 Acre Lots	--	54
Village Large Lot	8,000 to 10,000 Sqft Lots	--	173
Village Small Lot	5,000 to 8,000 Sqft Lots	--	149
Age Restricted Large Lot	5,000 to 8,000 Sqft Lots	--	80
Age Restricted Small Lot	5,000 to 8,000 Sqft Lots	--	80
Community Center	--	1	--
Village Park	--	11	--
Open Space	--	68	--
ROW and Landscaping	--	6	--

1.3 Proposed Project Phasing

Table 1-2 describes the Proposed Project's three construction phases. Each phase represents a portion of the development, focusing on particular land-use classifications. Before constructing homes, community center, or other parts of the development, the proponents will begin site grading and project-wide infrastructure development. Some infrastructure and site grading will continue throughout all phases of the Proposed Project, as necessary. These activities include installing facilities for potable water, sewer, electric, telecommunications, gas, stormwater, and roads. During these activities, a small water demand will exist – referred to in this WSA as "construction water." This demand is included in the yearly water demands presented in Section 2.

The initial phase, ending prior to the construction phases, will bring about the infrastructure and will not use and significant water. The initial construction phase, scheduled to conclude in 2015 will see the first 125 housing units and the community center constructed. This First phase will see around one third of the total project water demand come online. The subsequent constructions phases, consisting each of years 2016 and 2017 will see 300 and 180 housing unite respectively. This approach will ramp up water demands quickly with construction being completed in 2017, well within the 20-year planning horizon of this WSA.

[2] Specific Plan Land Use Summary was provided by El Dorado County of Development Services Department.

Table 1-2 – Proposed Project Schedule

Land Use	Phase 1 By 2015	Phase 2 2016	Phase 3 2017	Total
Residential Units	125	300	180	605
Community Center	1	--	--	--
Parks	--	2	1	--

SECTION 2 – PROPOSED PROJECT ESTIMATED WATER DEMANDS

2.1 INTRODUCTION

This section describes the methodology, provides the supporting evidence, and presents the estimated water demands for the Proposed Project. For the purpose of estimating water demand, the Proposed Project is planned to develop according to the phasing in **Table 1-2**.

2.2 DETERMINING UNIT WATER DEMAND FACTORS

As detailed in Section 1, the Proposed Project has specific residential and non-residential land-uses with defined residential lot-sizes, and other characteristics. As these attributes vary among the types of proposed land-uses, so too will the water needs. To understand the water needs of the entire Proposed Project, unique demand factors that correspond with each unique land use are necessary. This subsection presents the methodology for determining the baseline unit water use demand factors that become the basis of the Proposed Project water demand estimates. Two distinct groups of demand factors are presented: (1) residential, and (2) non-residential.

2.3 PRIMARY SOURCE OF BASELINE WATER USE DATA

Because the Proposed Project is very similar in nature to particular elements built as part of the Serrano and El Dorado Hills developments over the past few decades, recent water use data for comparable products in these neighborhoods provides a reliable foundation for EID to establish new project-specific water demands. Through comparison of Proposed Project land-use elements to existing land uses, EID determined appropriate existing, established neighborhoods and non-residential facilities that best aligned with each unique residential and non-residential project element. For each comparable neighborhood, EID gathered and assessed total annual water use for the years 2008 through 2012. This selected period of water use best represents 1) the greatest number of homes occupied within each selected area (including established back-yard landscapes), and 2) varied water use over a range of climatic conditions reflecting various rainfall amounts and timing. Average annual uses were derived from the data and are discussed under the respective land-use categories.

2.4 BASELINE RESIDENTIAL WATER USE DEMAND FACTORS

The Proposed Project anticipates specific residential products that fall within general lot-size designations. The size of the lot will have the largest impact on the annual per-lot demand for water. Indoor demands remain relatively consistent regardless of lot size.

For purposes of this WSA, the per-lot demand for residential lots will be described as "the acre-feet of water use annually per dwelling unit" – or simply put, acre-feet/dwelling unit (af/du).

This value will reflect indoor and outdoor uses expected for a typical dwelling unit for each of the following classifications:[3]

- 3-acre custom estate lots
- 1-acre custom home lots
- ¼ and ½ acre hillside lots (14,000 to 20,000 square foot lots)
- 8,000 to 10,000 square foot production lots
- 5,000 to 8,000 square foot production lots

The method and basis for determining the baseline unit water demand factor for each of these classifications is detailed in the following subsections.

3-Acre Custom Estate Lots

Water demand factors for the proposed 3-acre lots are based on the demand factors developed for the 1-acre customer home lots. Because limited data is available to define "typical" demand based on existing use records, the 1-acre demand factor is simply multiplied by three. Therefore, the baseline unit water demand factor for this land-use category is approximately 3.48 af/du. This is a conservative assumption used for this WSA.

1-Acre Custom Home Lots

Water demand factors for the proposed large lots are based on recent water use data records for residential lots in the Serrano development – specifically existing residential lots located on Greenview Drive, Errante Drive, and others. The proposed lots in this category average about 2 acres and have a 1-acre minimum. However, not all land on these lots will be landscaped. For instance, a lot may include hillside and/or areas of oak woodland that must be protected, resulting in a diminished area for the home's footprint, outdoor hardscapes and landscaping. Generally, the house itself is large, with extensive outdoor features including pools, hardscapes, water features, and significant landscaping with well-maintained turf areas.

Based on available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is approximately 1.16 af/du.

¼ and ½-Acre Hillside Lots

Water demand factors for the proposed large lots are based on recent water use data records for residential lots in the Serrano development – specifically existing residential lots located on Renaissance Way and Renaissance Place. The proposed lots in this category average 10,000 to 20,000 square feet, though some of the lot will likely be restricted to low or no-water use landscape due to grading within the hillside areas. Generally, the house itself is large, with extensive outdoor features including pools, hardscapes, water features, and significant

[3] These classifications reflect EID's defined water demand factor categories as EID believes they best relate to the Proposed Project's land-use classifications as shown in the Table 1-1.

landscaping with well-maintained turf areas. But has slightly less landscaped area than the 1-acre custom home lots.

Based on available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is approximately 0.87 af/du.

8,000 to 10,000 Square-foot Production Lots

The proposed project will include a large number of lots reserved for production homes on lots typically described as "large" for a residential community. For these lots, ranging up to ¼-acre or more, water demands will be based on recent water use data records for similar lots in the Serrano development – specifically Village D2 and portions of Village E, which includes numerous similar-sized lots. In contrast to the smaller lot production homes described in the next classification, these lots will retain adequate area on the lot for well-maintained turf and other landscaping. As much as one-half, but not less than about one-quarter, of the lot may still remain for landscaping, after accounting for the home's footprint and hardscape areas – equating to a few thousand to several thousand square-feet. Though less landscaped area than the custom home lots, the landscaped area will drive water use on these lots.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.55 af/du.

5,000 to 7,000 Square-foot Production Lots

The Proposed Project includes numerous proposed lots ranging from 5,000 to 7,000 square feet. This includes the "age-restricted" large and small lots listed in **Table 1-1**. As a result of the limited outdoor area, many of these lots are limited to front-yard landscaping with well-maintained turf, and back yards often only including hardscapes, pools or other amenities, and lower water using landscapes. Unit water demands are based on recent water use data records for similar lots in the Serrano development – specifically Village D1A, portions of Village E and Euer Ranch, which include numerous similar-sized lots.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.50 af/du.

Residential Indoor Water Use

Based on EID meter data for the past several years, indoor water use for typical single-family homes averages about 0.18 af/du.[4] This value can be used to derive separation of residential demands that could be served with non-potable supplies, such as recycled water from the Deer Creek and/or El Dorado Hills wastewater treatment facilities (see Section 2.7.2).

[4] This value is a subset of the total usage estimated for a dwelling unit under each land-use category. Data from 2012 Water Resources and Service Reliability Report, EID, August 13, 2012, Appendix Table A, p.42

2.5 MODIFYING BASELINE VALUES

All of the above-developed water demand factors for the residential classifications are based on similar existing developments in the El Dorado Hills area. However, since construction of the existing houses, a few changes have occurred that will reduce the Proposed Project's water demands from the baseline unit water demands derived from existing meter data. These include:

- CAL Green Code
- California Model Water Efficient Landscape Ordinance

CAL Green Code

In January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (CAL Green Code) that requires the installation of water-efficient indoor infrastructure for all new projects beginning January 1, 2011. CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations.[5] The CAL Green Code applies to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure. All proposed land uses must satisfy the indoor water use infrastructure standards necessary to meet the CAL Green Code. The CAL Green Code requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. The 20 percent water savings can be achieved in one of the following ways: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building "water use baseline."[6] The Proposed Project will satisfy one of these two requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, as well as Energy Star and California Energy Commission-approved appliances.

California Model Water Efficient Landscape Ordinance

In 2006, the Water Conservation in Landscaping Act was enacted, which required the Department of Water Resources to update the Model Water Efficient Landscape Ordinance (MWELO).[7] In fall of 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required that a retail water supplier adopt the provisions of the MWELO by January 1, 2010 or enact its own provisions equal to or more restrictive than the MWELO provisions.

The provisions of the MWELO are applicable to new construction with a landscape area greater than 2,500 square feet.[8] The MWELO provides a methodology to calculate total water use based

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[5] The CAL Green Code is Part 11 in Title 24.
[6] See CAL Green Code.
[7] Gov. Code §§ 65591-65599
[8] CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.

upon a given plant factor and irrigation efficiency. Finally, MWELO requires the landscape design plan to delineate hydrozones (based upon plant factors) and then assign a unique valve for each hydrozone (low, medium, high water use).[9] The design of landscape irrigation systems is anticipated to better match the needs of grouped plant-types and thus result in more efficient outdoor irrigation.

Applying Conservation to Baseline Demand Factors

Collectively, these and other factors will put downward pressure on the baseline residential unit water demand factors – potentially dropping each unit demand by up to 10 percent for the larger lots. Table 2-1 provides a summary of the baseline demand factor for each residential land-use category, the anticipated savings from the conservation mandates, and the resulting unit demand factor used to estimate the Proposed Project's water use.

Table 2-1 – Summary of Residential Baseline and Proposed Project Demand Factors

EID Water Demand Category (Relates to Table 1-1 Land Use)	Lot Size	Current Factor (af/du)	Conservation Applied	Factor Used (af/du)
3-Acre Custom Estate Lots	3 Ac	3.48	10%	3.13
1-Acre Custom Home Lots	1 Ac	1.16	10%	1.04
1/4 and 1/2-Acre Hillside Lots	1/2 to 1 Ac	0.87	8%	0.80
8,000-10,000 sf Lots	8,000 to 10,000 Sqft	0.55	5%	0.53
5,000-7,000 sf Lots	5,000 to 8,000 Sqft	0.50	5%	0.48
Age Restricted Large Lot	5,000 to 8,000 Sqft	0.50	5%	0.48
Age Restricted Small Lot	5,000 to 8,000 Sqft	0.50	5%	0.48

2.6 Baseline Non-Residential Water Use Demand Factors

Similar to the residential water demand factors, non-residential factors are based upon recent water use trends for similar types of land classifications.

For purposes of this WSA, the per-lot demand for non-residential lots is described as "the acre-feet of water use annually per acre of land" – or simply put, acre-feet/acre (af/ac). This value reflects indoor and outdoor water needs expected for a typical non-residential use for each of the following classifications:

- Village and neighborhood parks
- Community Center
- Other miscellaneous uses, including street medians, environmental mitigation, sewer lift stations, and natural ponds.

[9] CCR Tit. 23, Div. 2, Ch. 27, Secs. 492.3(a)(2)(A) and 492.7(a)(2).

The method and basis for determining the baseline unit water demand factor for each of these classifications is detailed in the following subsections.

Village and Neighborhood Parks

The Proposed Project includes a large village park of approximately 9 acres that will include expansive turf areas, playfields and other park amenities and smaller neighborhood parks totaling about 2 acres. Based upon recent water meter data for similar park facilities in the El Dorado Hills area – namely Bella Terra Park, Allan Lindsey Park, and the Village A, C, L3, and L4 parks – a representative water demand factor was identified. A "smart meter" controls the irrigation system at each existing park. These devices adjust water use to actual climate data, including precipitation events. Thus, the recent meter data is very indicative of expected demands for the new parks, which will also be outfitted with similar technology.

Based on the available historic meter data for similar facilities served by EID, the unit water demand factor is 2.77 af/ac.

Community Center

The Proposed Project includes a Community Center located among the age-restricted housing. Through discussions with the Proposed Project's representative, the proposed community center would be similar to other small community centers located in the area. Meter data obtained from community centers in El Dorado Hills, Cameron Park, Shingle Springs, and Rescue was analyzed, with the resulting demand ranging greatly with the size and amenities of each facility. To match the more moderately sized proposed facility, historic water use data from the Cameron Park Community Center was chosen. For purposes of this WSA, the average value of water use for years 2009 to 2012 was used.

Based on the available historic meter data for similar facilities served by EID, the unit water demand factor will use a baseline value of approximately 4.48 af/ac.

Other Miscellaneous Uses

The Proposed Project has additional miscellaneous uses including landscaped street medians, environmental mitigation requirements, natural ponds, sewer lift stations, and construction water. These uses have minimal impacts to the overall per-project total water use due to their limited size and water needs, and some are temporary in nature.

Landscape Street Medians and Community Entrances

The Proposed Project includes proposed landscaping along street corridors and at entrances to particular residential areas, as is common in El Dorado Hills. Since comparable data is not available due to the variety of landscapes used in existing street medians around El Dorado Hills, unit water demands for this category is derived from the MWELO (see prior discussion under "residential land-uses"). To provide flexibility to the Proposed Project to landscape as needed, the entire width of the landscaped area was assumed to demand the maximum use allowed by MWELO.[10] This maximum is determined as 70 percent of the reference evapotranspiration for the area. Using available maps from the California Department of Water Resources, the reference evapotranspiration for the Proposed Project area is approximately 57 inches per year.[11] The resulting demand factor is 3.3 af/ac.

Oak Woodlands Management

As of the preparation of this WSA, the mitigation requirements for impacts to oak woodlands resulting from the Proposed Project are as detailed in the County's Policy 7.4.4.4.[12] For purposes of estimating the water demands of this Proposed Project element, the WSA assumes mitigation will include establishing new trees, likely with associated irrigation water to assure seedlings are established. As defined in the County's Oak Woodland Management Plan Monitoring Program:

> *"Replacement of removed tree canopy . . . is subject to intensive to moderate management and 10 to 15 years of monitoring, respectively. The survival rate shall be 90 percent as specified in the approved monitoring plan for the project, prepared by a qualified professional. Acorns may be used instead of saplings or one gallon trees."*
>
> *"Management intensity assumes that 10 years after planting 1 year old saplings that trees that have been nurtured with high management intensity will be on average 2 inches DBH with 90 percent survival; moderate management intensity will result in trees that are on average 1.5 inches DBH with 85 percent survival."*

More precisely, an intensive management program is required to obtain 90 percent survival. The management includes10 years of monitoring for one-gallon/one year old saplings and 15 years of monitoring if acorns are planted. Any trees/acorns that do not survive within the monitoring periods are to be replaced within that time, so that 90 percent survival is achieved at the end of the monitoring period.

Because establishment of new trees is highly dependent on site conditions (soil depth and composition, depth to water table, slope, aspect, existing vegetation), planting conditions (water

[10] Although this may be higher than seen by EID for current street medians and community entrances, this conservative assumption allows the Proposed Project with flexibility to landscape these areas up to the full demands of MWELO.

[11] Reference Evapotranspiration is obtained from the map available at http://wwwcimis.water.ca.gov/cimis/cimiSatEtoZones.jsp

[12] The County Board of Supervisors has an Oak Woodland Management Plan (OWMP) codified as Chapter 17.73 of the County Code (Ord. 4771. May 6, 2008.). The primary purpose of this plan is to implement the Option B provisions of Policy 7.4.4.4. On September 24, 2012, the Board of Supervisors directed the Development Services Department to prepare a General Plan amendment to amend Policies 7.4.2.8, 7.4.2.9, 7.4.4.4, 7.4.4.5, 7.4.5.1, and 7.4.5.2 and their related implementation measures to clarify and refine the County's policies regarding oak tree protection and habitat preservation. (This excerpt was copied from the following El Dorado County web site: http://www.edcgov.us/Government/Planning/General_Plan_Oak_Woodlands.aspx on May 4, 2013.)

year, starting from acorns or saplings, weed mats, mulch, density of plantings and other adjacent veg, etc.), establishment and maintenance practices (manual or installed irrigation systems, and irrigation intervals), and the required success criteria (target % survival), the estimated water demands are difficult to predict.[13] However, in order to be reasonably conservative, this WSA assumes that each acre of habitat mitigation will require 1 acre-foot per acre of annual irrigation for a period of 15 years.[14] For instance, if the Proposed Project must mitigate with 10 acres of woodland, the demand would be 10 acre-feet annually. All oak woodland will be established prior to build-out and require no on-going irrigation.

Sewer Lift Stations

Lift station demand comes in form of maintenance of the stations. Operational flushing at these lift stations is the primary water use. Based on EID records for such operations, each lift station is assumed to demand 2.5 acre-feet of water annually.

Construction Water

As stated in Section 1, early phases of the Proposed Project will include site grading and infrastructure installation. These and other construction elements will require dust suppression and other incidental water uses. These are estimated to be nominal, and do not continue beyond the construction phases of the Proposed Project. For purposes of identifying incremental water demands, construction water is assumed within this WSA to be 1 acre-foot per year (this is over 300,000 gallons – or over 75 fill-ups of a 4,000 gallon water truck).

Pond Supplementation

As part of maintaining the aesthetics of the parks on the Proposed Project site, maintaining the level in the two ponds will be required. With know surface areas of about 3 acres for the upper pond, and about 1.4 acres for the lower pond, the combined surface area is about 4.4 acres. Because these ponds are naturally fed and water rights associated with continued storage within the ponds exists, the supplemental water needs are difficult to determine. However, for purposes of this WSA, the same unit water demand used for the landscape right-of-ways, which is based upon the evaporation rates in the area, will be used. The resulting demand factor is 3.3 af/ac.

Modifications to Reflect Additional Water Use Reductions

Similar to the residential demand factors, the above-developed water demand factors for the non-residential classifications are based on similar existing developments in the El Dorado Hills area. Considerations to reduce these baseline values for conservation factors, however, are not required, since demand factors for many of the landscaped features, such as parks, will not

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[13] A qualified professional will likely develop the project specific oak management plan. More detailed water use will be available in this plan. Review of information from oak mitigation projects in the area revealed a range of planting types, irrigation methods, and management time frames. Overall, irrigation demands were all low as would be expected for a native species.

[14] A conservative water demand number and a long management window were assumed to provide the Proposed Project applicants flexibility in meeting the oak woodland mitigation requirements.

change from the existing values. The landscape-dominant demand factors are affected primarily by climatic conditions that drive plant evapotranspiration. In other words, an acre of turf at a park will still use the same amount of water in the new parks as the existing parks. **Table 2-2** summarizes the non-residential demand factors used in this WSA.

Table 2-2 – Summary of Non-Residential Demand Factors

Land Use	Use Factor	Units
Community Center	4.48	AF/Unit
Parks	2.77	AF/Ac
ROW Landscaping	3.30	AF/Ac
Lift Station	2.50	AF/Unit
Open Space	0.00	AF/Ac

2.7 Proposed Project Water Demand Projection

Combining the Proposed Project's land-use details and phasing as summarized in **Table 1-1** and **Table 1-2** with the demand factors presented in **Table 2-1** and **Table 2-2**, the water demands for the project from initiation to build-out are estimated. In addition to the Proposed Project elements, the Proposed Project also includes the potential to serve the existing residence, located on a 5-acre lot on the northern border of the project. This parcel currently uses a personal well to serve its needs. However, with the construction of the Proposed Project, EID water will be available, should the existing owner's desire. To accommodate this possibility, the existing residence is assumed to have the same demand as the 3-acre custom estate lots – or 3.13 acre-feet per year at build-out.

At completion, the Proposed Project is estimated to need 427 acre-feet of water annually (prior to considerations of non-revenue water, described in the next subsection) as shown in **Table 2-3**.

2.7.1 Non-Revenue Water Demands

The demand factors presented earlier in this section represent the demand for water at the customer's meter for each category. To fully represent the demand on EID's water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to the customer accounts and reflects distribution system leaks, water demands from potentially un-metered uses such as fire protection, hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[15] In most instances, the predominant source of non-revenue water is from system leaks – the loss from fittings and

[15] The American Water Works Association and the California Urban Water Conservation Council recognize the inherent non-revenue water that is either lost or mis-accounted in urban treated water distribution systems and suggest purveyors strive for a value of 10% of all delivered water. Obtaining this value is dependent on numerous factors including the age and extent of distribution system infrastructure, meter rehabilitation programs, and how a purveyor accounts for actions such as fire flows and hydrant flushing.

connections from EID's water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems. Because a significant portion of the delivery system used to bring water to the Proposed Project already exists, the benefits of new piping within the Proposed Project has limited effect on the overall percentage of non-revenue water necessary to operate the system.

Although EID has an established program for identifying and accounting for most unbilled and other system losses, there are still pipeline leaks, unmetered uses, unauthorized connections, meter inaccuracies, and other losses that are difficult to specifically quantify. Consistent with the District's methodology for calculating future water meter availability, as defined in the *2012 Water Resources and Service Reliability Report,* non-revenue water is projected at a fixed rate of 13 percent. Non-revenue demand is estimated to add 55 acre-feet per year at build-out to the Proposed Project's land-use demands, bringing the estimated build-out water demand attributed to the Proposed Project to 482 acre-feet annually (see **Table 2-3**).

2.7.2 Recycled Water Demand

The Proposed Project will not be utilizing EID's recycled water facilities to serve any part of the project.

Table 2-3 – Estimated Proposed Project Water Demands from Start-up to Build-out

	Unit Count or Acreage						Demand Factor (af/du or af/ac)						Demand (af/yr)					
Category	Current	2015	2020	2025	2030	2035	Current	2015	2020	2025	2030	2035	Current	2015	2020	2025	2030	2035
Residential [A]																		
Existing Large-Lot Estate	1	1	1	1	1	1	0.00	3.13	3.13	3.13	3.13	3.13	0	3	3	3	3	3
3-Acre Custom Estate Lots	0	1	5	5	5	5	3.48	3.13	3.13	3.13	3.13	3.13	0	3	16	16	16	16
1-Acre Custom Home Lots	0	1	5	5	5	5	1.16	1.04	1.04	1.04	1.04	1.04	0	1	5	5	5	5
1/4 and 1/2 Ac Hillside Lots	0	20	112	112	112	112	0.87	0.80	0.80	0.80	0.80	0.80	0	16	90	90	90	90
8,000-10,000 sf Lots	0	23	173	173	173	173	0.55	0.53	0.53	0.53	0.53	0.53	0	12	91	91	91	91
5,000-7,000 sf Lots	0	20	149	149	149	149	0.50	0.48	0.48	0.48	0.48	0.48	0	10	71	71	71	71
Age Restricted Large Lot	0	30	80	80	80	80	0.50	0.48	0.48	0.48	0.48	0.48	0	14	38	38	38	38
Age Restricted Small Lot	0	30	80	80	80	80	0.50	0.48	0.48	0.48	0.48	0.48	0	14	38	38	38	38
												Subtotal		73	351	351	351	351
Public																		
Community Center	0	1	1	1	1	1	4.48	4.48	4.48	4.48	4.48	4.48	0	4	4	4	4	4
Village Park	0	0	9	9	9	9	2.77	2.77	2.77	2.77	2.77	2.77	0	0	25	25	25	25
Neighborhood Park	0	0	2	2	2	2	2.77	2.77	2.77	2.77	2.77	2.77	0	0	5	5	5	5
Lift Station	0	2	2	2	2	2	2.50	2.50	2.50	2.50	2.50	2.50	0	5	5	5	5	5
Open Space	0	66	66	66	66	66	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal		9	40	40	40	40
Other																		
Mitigation	0	15	31	31	15	0	1.00	1.00	1.00	1.00	1.00	1.00	0	15	31	31	15	0
ROW & Landscape	0	6.3	6.3	6.3	6.3	6.3	3.30	3.30	3.30	3.30	3.30	3.30	0	21	21	21	21	21
Pond Supplementation	0	4.4	4.4	4.4	4.4	4.4	3.30	3.30	3.30	3.30	3.30	3.30	0	15	15	15	15	15
Construction Water	0	1	1	0	0	0	1.00	1.00	1.00	1.00	1.00	1.00	0	1	1	0	0	0
												Subtotal		52	67	66	51	35
												Total Water Demand	**0**	**135**	**459**	**458**	**442**	**427**
												Non-Revenue Demand at 13%	0	17	59	59	57	55
												Total Proposed Project Demand	**0**	**152**	**518**	**517**	**499**	**482**

[A] The distribution of housing units over time is EID's representation of the anticipated total number of units planned under each phase as described in Table 1-2.

SECTION 3 – OTHER ESTIMATED WATER DEMANDS

3.1 INTRODUCTION

As stated in this excerpt from Water Code Section 10910(b)(3): *"[T]he water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available…will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses…"* This section details EID's other "existing and planned future uses." For purposes of this WSA, existing and planned future uses are subdivided into the following:

- **Other Currently Proposed Projects** – in addition to the Proposed Project, El Dorado County (County) is the Lead Agency (pursuant to CEQA) for four additional proposed development projects. As Lead Agency, the County has requested separate WSAs from EID for each of these other projects. Because detailed land-use information is available for three of the four projects and separate WSAs are being developed for these three in parallel to this WSA, each of these three projects have unique water demand estimates that are included in this WSA.[16]

- **All Other Existing and Planned Future Uses –** in addition to the Proposed Project and the Other Currently Proposed Projects, existing customers and anticipated growth in the County must be quantified. The subdivisions of this category are:

  - **Current Customers and Uses** – using 2012 as a baseline condition, this category reflects the current range of EID's potable and recycled water customers. Because these customers and uses already exist, keeping them separate from planned future uses allows an analysis to reflect anticipated reductions in use over time as EID continues to implement its urban water conservation programs targeted at many of the existing customers.[17]

  - **Adjusted General Plan Update Land Use Growth** – in addition to the identified development projects currently undergoing County CEQA review, the County's 2004 General Plan Update (GPU) anticipates continued urban growth throughout the EID service area. This growth is accounted for in the EID 2013 *Integrated*

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[16] EID understands the fourth project, San Stino, to be undergoing changes to its land-use plans at the time of drafting this WSA. Lacking the details needed to determine water demands similar to the other WSAs currently being completed, the San Stino project is reflected in the next subgroup of demands (see Section 3.3).

[17] New customers added to EID's system will have lower demand factors, as discussed in Section 2, and will be less likely to implement additional conservation or see much reduction when changes are made. For instance, many existing customers may still have 3 gallon per flush toilets or even 1.6 gallon per flush toilets, which when replaced, will likely only use 1.28 gallons. New houses will be constructed, per the CAL Green Code, with 1.28 gallon per flush toilets. EID has had conservation and incentives programs for more than 20 years.

Water Resources Master Plan (2013 IWRMP) and serves as the primary water demand driver into the future. Adjustments to anticipated GPU growth to reflect the "Other Currently Proposed Projects" and other proposed land-use changes, however, must be made. The adjustments discussed under this category include: (1) potential changes in the 2004 General Plan land use designations as identified in Facility Improvement Letters received and analyzed by EID; and (2) the removal of the Proposed Project and other proposed project uses being developed under concurrent WSAs.

  - **Other Authorized Uses** – EID does not anticipate increases above 2012 levels in other authorized potable water uses such as fire flows, meter testing, water quality flushing, and ditch system operations. Demands for this category of water use is removed from the general plan growth and included separately.

- **Non-Revenue Water** – As discussed in Section 2.7.1, an additional demand is seen by EID to treat and deliver water to all customers. Referred to as non-revenue water, this water demand represents a 13 percent increase added to estimated customer demands. This value represents a long-term average experienced by EID.

3.2 Other Currently Proposed Projects

As mentioned in the previous section, El Dorado County is the Lead CEQA Agency for four additional proposed development projects and has requested EID to prepare WSA's for each development concurrent with this Proposed Project WSA. EID is currently drafting three of these four WSAs.[18] The estimate of water demand for each WSA follows the same methods used in Section 2 of this WSA, with specific unit demand factors applied to each unique land use element. The other projects are:

- Central El Dorado Hills – located along El Dorado Hills Blvd north of Hwy 50, this projects is a planned infill mixed development with primarily residential units and some commercial space.
- Lime Rock Valley Specific Plan – located adjacent to the Village of Marble Valley, this development is a planned residential community with a variety of lot sizes and housing types.
- The Village of Marble Valley Specific Plan – located southeast of the Propose Project, this development features many additional complex water use elements such as vineyards, schools, parks, a large lake, and a diverse range of housing types and lot sizes.

Based on the detailed analysis completed in the other WSAs, these "Other Currently Proposed Projects" represent approximately 2,800 acre-feet per year of new demand by 2035. **Table 3-1**,

[18] EID understands that the San Stino development project is undergoing changes to the land-use plans previously submitted to the County. Therefore, EID has not begun the WSA for that project.

presented later in this section, summarizes the estimated water demands as determined and detailed in the concurrent WSAs for each unique project. The values shown are the estimated customer and use demands and do not include the additional water associated with non-revenue percentages attributable to the treatment and distribution for each project (see Section 3.5).

3.3 ALL OTHER EXISTING AND PLANNED FUTURE USES

In simple terms, this category of use would typically reflect all the other water demands anticipated by EID that are in addition to the Proposed Project. However, because of the unique circumstance that other WSAs are concurrently being drafted by EID, this category must be adjusted to remove those other well-defined water demands. Furthermore, because other potential changes to the 2004 GPU have been brought to EID's attention, and EID anticipates changes to current customer uses, a more detailed assessment of future demands is warranted. This subsection describes:

- Current Customers and Uses
- Adjusted GPU Land Use Growth
- Other Authorized Uses

3.3.1 Current Customers and Uses

Current customers and uses in the contiguous EID service area provide a baseline from which to assess additional demand from the Proposed Project and other potential planned uses. For purposes of the WSA, the deliveries to current customers in 2012 were used to define this baseline. Based on the 2012 EID *Water Diversion Report*, EID diverted 36,580 acre-feet into its potable water system. In addition to the potable water, EID served 2,404 acre-feet of recycled water to meet customer demands.[19] Combined, the current water demand is represented as 38,984 acre-feet. This value includes the non-revenue water (see Section 2.7.1), including system losses, necessary to deliver these supplies from their respective treatment plants to the customer meter. This value also includes 1,269 acre-feet sold to the City of Placerville.[20]

Since the WSA uses 2012 as a baseline, the "current" demand varies from that used in the recently adopted 2013 IWRMP, which used the year 2008 for its baseline.[21] Given on-going conservation efforts, adoption of new rate structures, and other drivers, EID has seen an overall decrease in the annual customer use since the IWRMP selected its baseline. Therefore the 2012 baseline used for this WSA is more representative of the baseline use expected into the future from these existing customers and uses.

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[19] See EID 2013 Water Resources and Reliability Report (Table 14)
[20] See EID Consumption Report: Reporting Year 2012 (Table on p. 7)
[21] The IWRMP, adopted by the EID Board in March 2013, began several years ago and at the time used 2008 as a baseline. Since that time, EID's annual diversions have dropped from a high in 2008 of about 45,000 acre-feet to 35,678, 33,453, and 36,580 in 2010, 2011, and 2012, respectively. Combined with recycled water deliveries, the 2012 demand is lower than that used for the 2013 IWRMP, but greater than 2010 and 2011.

A slight adjustment to this baseline is necessary, however, to project it into the future. Although this demand will remain relatively constant since it does not add any new uses (additional uses are discussed in the next subsections), a slight decrease is assumed that reflects on-going implementation of conservation and installation of new water-using fixtures by existing customers. EID's continued leadership in conservation will enable existing customers to retrofit toilets, receive appliance rebates for new household items such as dishwashers, water heaters and clothes washers, and implement irrigation efficiency improvements through various incentives. Additional reductions in existing customer demands will also occur simply as a result of the natural replacement of old fixtures and appliances with lower water-use devices. For purposes of the WSA, EID estimates the reduction in current customer demand will be approximately 2% by 2020 and an additional 1% by 2035. This is consistent with EID's expectations necessary to meet its per-capita water use targets as detailed in the 2010 Urban Water Management Plan.[22]

3.3.2 Adjusted GPU Land Use Growth

In the 2004 GPU, the County made growth projections using land-use zoning throughout the County. Within the contiguous EID water service area, the GPU land-use zoning correlates to EID defined unit water demand factors. During preparation of the recently adopted 2013 IWRMP, EID used GIS-based land-use designations, combined with the water demand factors, to develop estimated growth in water demand. Absent any changes to the 2004 GPU land-use designations, the 2013 IWRMP demand projections would provide a valid representation of future water needs. However, because several proposed changes to the GPU land-use designations have been submitted – both through the County's formal process, such as is the situation with the Proposed Project and Other Planned Projects, and through an EID process explained below – the 2013 IWRMP demand projections require refinement. The steps to adjust these demands included:

- Removal of Proposed Project and Other Planned Projects water demands
- Modifying land-use zoning based on Facility Improvement Letters
- Determining Growth to Year 2035

Once these steps were completed, the analysis reassessed the water demand using the water demand factors applied in the 2013 IWRMP.

Step 1: Removal of Proposed Project and Other Planned Project Water Demands

The first step in adjusting the water demands was to remove the detailed water demands estimated in this WSA for the Proposed Project and for the Other Planned Projects (see Section 2 and Section 3.2). This step involved removing the specific acreage and water demand factors from the 2013 IWRMP analysis. The 2004 GPU included land-use zoning for the lands underlying the Proposed Project as well as the Other Planned Projects. In the 2013

[22] See Section 3 of the 2010 UWMP available here: http://www.eid.org/modules/showdocument.aspx?documentid=338

IWRMP, water demands were estimated using the existing zoning. Removing these land uses eliminates the potential to double-count the associated acreage when assessing the remaining GPU expected growth.

Step 2: Modifying Land-use Zoning based on FILs

When investigating water service from EID for development projects (e.g. lot splits, land use changes, and new service to existing parcels), existing landowners submit a Facilities Improvement Letter (FIL). This document allows EID to assess whether infrastructure or supplies are available to serve the proposed project. In some instances, the FILs include proposed land-use zoning changes not previously incorporated into EID water demand projections. By using GIS to map the locations of the FILs requesting a change in land-use zoning, EID was able to identify where changes to the 2013 IWRMP demand estimates would occur. About 25 specific FILs were identified as having land-use designation changes. These identified parcels were removed from the prior analysis to eliminate potential double counting of demands.

In a separate analysis, the water demand for this subset of parcels was recalculated using the appropriate water demand factor for the new proposed land-use classification (e.g. water needs for these parcels may have previously been calculated based on very-low density housing, but is requesting a change to higher density housing). Through the analysis, an increased demand of approximately 3,000 acre-feet over the 2013 IWRMP projections was identified.

Step 3: Determining Growth to 2035

The GPU identifies anticipated build-out conditions for the County and, as a subset, for the EID contiguous water service area. Since this WSA assesses water demands in 5-year increments only to 2035 – well short of the anticipated timing of the County's build-out – the amount of build-out growth occurring by 2035 must be determined. This was done for both the parcels identified with new land-use zoning through the FIL analysis, and for the remaining parcels with original GPU land-use designations.

Because there is little detail about planned development rates for the FIL-related parcels, this WSA assumed that these parcels would have full water demand usage by 2035.[23] This is a conservative estimate, since some of these lands may not develop by 2035 or may never develop. Thus, the estimated increase in demand of approximately 3,000 acre-feet was assumed to occur by 2035 with the 2013 IWRMP growth rate applied.

For the remaining parcels, growth rates used to determine the degree of development were based on EID's 2013 IWRMP. In the 2013 IWRMP, growth rates for the El Dorado Hills,

[23] This assumption also considers that a landowner would likely only submit a FIL to EID if they are seriously contemplating the development activity. Thus, there is a higher likelihood that these parcels will develop at a faster rate than other generally anticipated growth for the remaining parcels in the GPU.

and Western/Eastern water service areas were identified for specific year-ranges.[24] This WSA uses those growth rates for the remaining parcels. Using the 2013 IWRMP growth rates, the analysis determined build-out for the El Dorado and Western/Eastern service areas occurs after 2035.

During this adjustment, special attention was provided to the City of Placerville. The City purchases potable water from EID for distribution to its residents. The 2013 IWRMP projected future water demands for the City based on the City's existing General Plan. This WSA assumes the same rate of growth and build-out demand as the 2013 IWRMP for the City.

Upon completion of these steps, the adjusted demand for the GPU land uses was determined. **Table 3-1** summarizes the anticipated increase in water demand during each 5-year increment as a result of these adjustments to the GPU land-uses.

3.3.3 Other Authorized Uses

In addition to the sale of water to metered customers, EID has a set of water demands it refers to as "Other Authorized Uses." This designation is for the following existing uses:

- Knolls Reservoir Assessment District
- Private Fire Services
- Temporary Water Use Permit
- Bulk Water Stations - Permanent
- Bulk Water Stations - Temporary
- Lift Stations
- Collection System Flushing
- Spills, Overflows, and Flushing
- Clear Creek Aesthetics Flow Maintenance District

Of these, the Clear Creek aesthetic flows comprise over 80 percent of the annual authorized uses. Lift stations and temporary use permits comprise another 10 percent. The current demand of approximately 2,200 acre-feet is already reflected in the "Current Customers and Uses." EID anticipates no growth in these authorized water uses, with the total demand to remain constant at 2,200 acre-feet through 2035.

3.4 NON-REVENUE WATER DEMANDS

The subtotal values in **Table 3-1** represent the demand for water at the customer's meter for each category. To fully represent the demand placed on EID's water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to

[24] EID Integrated Water Resources Master Plan, adopted March 2013 (Table 9-2).

the meter and reflects distribution system leaks, water demands from potentially un-metered uses of fire protection, fire hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[25] In most instances, the predominant source of non-revenue water is from system losses – the loss from fittings and connections from the District's water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems.

Although the District has an established program for identifying and accounting for most unbilled and other system losses, there are still pipeline leaks, unmetered uses, unauthorized connections, meter inaccuracies, and other losses that are difficult to specifically quantify. Consistent with the District's methodology for calculating future water meter availability, as defined in the *2012 Water Resources and Service Reliability Report,* non-revenue water is projected at a fixed rate of 13 percent.

As shown in **Table 3-1**, non-revenue demand for Existing and Planned Future Uses is estimated to be about 7,700 acre-feet per year by 2035.

3.5 ESTIMATED EXISTING AND PLANNED FUTURE USES

Combining the estimated water demand for Other Currently Planned Projects (see Section 3.2 with the All Other Existing and Planned Future Uses demand (Current Customers and Uses plus the Adjusted GPU Land Use values), the total estimated demand during each 5-year increment to 2035 is derived (see subtotal water demand in **Table 3-1)**.

Table 3-1 – All Other Existing and Planned Future Uses

Category	Estimated Demand (af/yr)					
	Current	2015	2020	2025	2030	2035
Other Currently Proposed Projects	0	153	876	1,732	2,476	2,832
Current Customers and Uses [1]	38,984	34,154	33,809	33,694	33,579	33,464
Adjusted GPU Land Use [2]	0	514	2,853	7,975	14,718	22,830
Subtotal Water Demand	**38,984**	**34,821**	**37,539**	**43,401**	**50,774**	**59,127**
	Current	**2015**	**2020**	**2025**	**2030**	**2035**
Non-Revenue Water at 13%	--	4,527	4,880	5,642	6,601	7,686
Total Water Demand	**38,984**	**39,348**	**42,419**	**49,043**	**57,375**	**66,813**

1. The "Current Customers and Uses" demand value includes the "Other Authorized Uses." The Value is greater under the "Current" condition because "Non-Revenue Water" is included in the current year. All other years will have "non-revenue water" added on a separate line. A 3% conservation decrease occurs by 2035.
2. "Adjusted GPU Land Use" reflects changes to the 2004 GPU as determined by FILs submitted to EID. This value also does NOT include the other proposed projects currently undergoing County CEQA review.

[25] See footnote 14

3.6 TOTAL ESTIMATED DEMAND

The other existing and planned future water demands described in this section represent the total demands anticipated *in addition to* the water demands of the Proposed Project. Combining the estimated Proposed Project water demands of 482 acre-feet annually (see **Table 2-3**) with the estimated Existing and Planned Future water demands of nearly 67,000 acre-feet annually (see **Table 3-1**), a total estimated demand for EID water supplies by 2035 is determined. Estimated existing and planned future water demands, inclusive of non-revenue water needs, for each 5-year increment to 2035 are presented in **Table 3-2**. The estimated demand for EID Water supplies is 67,295 acre-feet annually.

Table 3-2 – Total Estimated Water Demands

Category	Estimated Demand (af/yr)					
	Current	2015	2020	2025	2030	2035
Proposed Project	0	152	518	517	500	482
Existing and Planned Future Uses	38,984	39,348	42,419	49,043	57,375	66,813
Total Water Demand	**38,984**	**39,500**	**42,937**	**49,560**	**57,875**	**67,295**

Of note is that the estimated water demand for 2035 presented in **Table 3-2** fits within the range of total demands presented in Table 9-1 of the 2013 IWRMP (estimated to be between 61,262 acre-feet and 77,315 acre-feet). The primary differences is that the 2013 IWRMP used 2008 as a baseline demand, which is substantially higher than EID has seen in the last several years. This WSA uses 2012 as a baseline. The 2008 value was approximately 45,000 acre-feet, while the 2012 value is 38,984 – or about 39,000 acre-feet. This represents a difference of about 6,000 acre-feet. Starting from a different baseline quantity and year, and then applying the 2013 IWRMP growth rates, results in a different estimated total demand when reaching 2035.

SECTION 4 – WATER SUPPLY CHARACTERIZATION

4.1 INTRODUCTION

This section explains the intended water supply that EID will use to serve the Proposed Project.[26] EID will meet the Proposed Project's water demands by utilizing water assets derived from its existing sources as well as through future asset acquisition efforts with El Dorado County Water Agency. This section details the Proposed Project's available water supplies and entitlements as well as its planned water supplies and entitlements in both normal water years and dry water years. The Proposed Project exists completely in El Dorado Irrigation District's contiguous water service area (see **Figure 4-1**) but may only be served with treated water, as recycled water infrastructure does not reach the project site.[27]

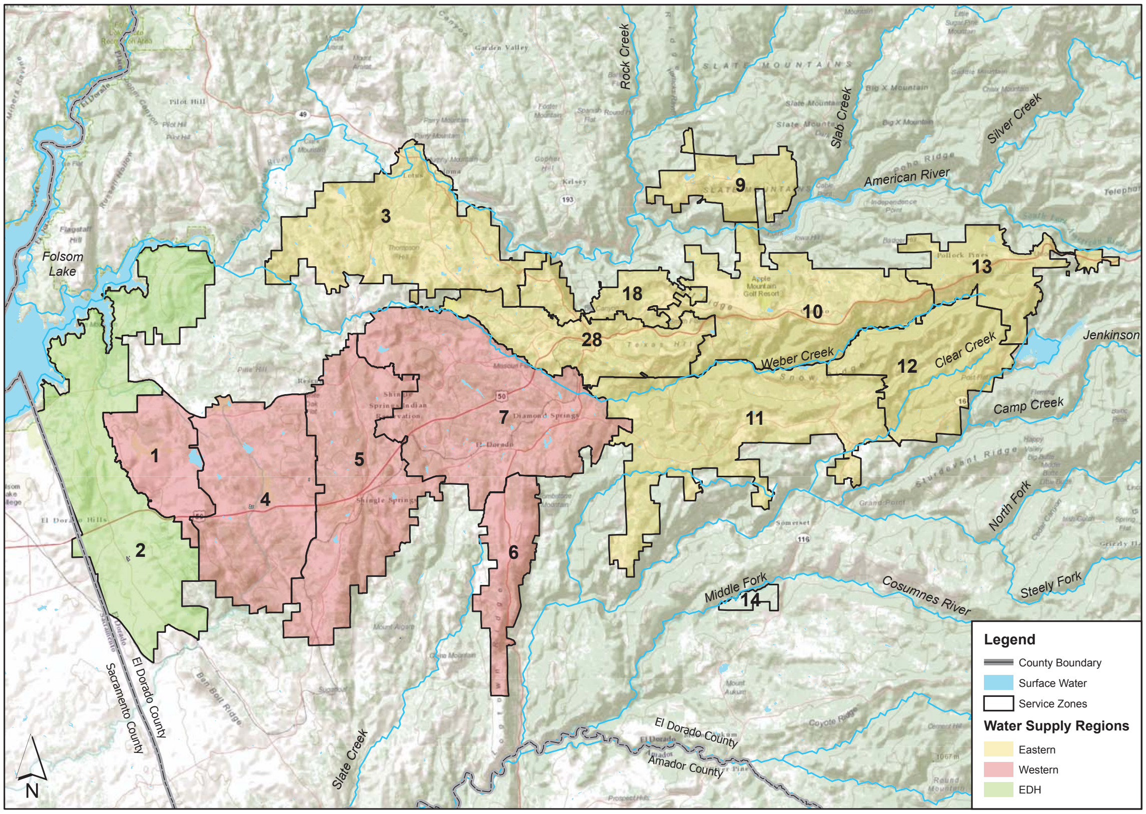
El Dorado Irrigation District maintains two primary interconnected water systems in its contiguous service area: the El Dorado Hills system and the Western/Eastern system, along with a separate recycled water system. The El Dorado Hills water system obtains its primary supplies under rights and entitlements from Folsom Reservoir. The Western/Eastern system derives its supplies from sources under rights and entitlements emanating from further up the American River watershed and the Cosumnes River watershed. The recycled water system serves treated wastewater from the El Dorado Hills wastewater treatment plant and the Deer Creek wastewater treatment plant.

The water assets can be further categorized by the service area they primarily serve and the treatment plant they flow through. Water derived from Folsom Reservoir is delivered to the El Dorado Hills water treatment plant and serves the El Dorado Hills area. Water derived from upstream American River watershed diversions and storage reservoirs generally use the Reservoir 1 Water Treatment Plant while the Cosumnes River diversions use Reservoir A Water Treatment Plant to serve the Western/Eastern area. Water assets from these upstream diversions can be delivered by gravity feed to the El Dorado Hills area, but assets from Folsom Reservoir are not delivered outside the El Dorado Hills area due to infrastructure limitations. The following subsections describe these water supplies and delivery mechanics in more detail.

[26] CWC § 10910(d)(1) requires that "The assessment… include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system…under existing water supply entitlements, water rights, or water service contracts. (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system…shall be demonstrated by providing information related to all of the following: (A) Written contracts or other proof of entitlement to an identified water supply. (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system. (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply. (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply."

[27] EID also has surface water assets that it serves to two non-contiguous areas as well as raw water assets that are used for agricultural purposes. These water assets are irrelevant to the Proposed Project contemplated in this Water Supply Assessment and are, therefore, not analyzed.

Figure 4-1 – El Dorado Irrigation District Service Area
(from Figure 8-7, Integrated Water Resources Master Plan, EID, March 2013)



4.2 TREATED WATER SUPPLIES

EID's treated water supplies identified for the Proposed Project are derived from a number of water rights and entitlements as detailed in **Table 4-1**. The maximum available water assets column in **Table 4-1** does not account for other hydrological, technical, regulatory, and contractual limitations that apply to the water assets for normal year and dry year deliveries. These issues are addressed in the other two columns in the table. EID's water assets available for the Proposed Project include water rights and entitlements that EID currently has in its possession and planned water rights and entitlements that it will control in the future.

4.2.1 Water Rights and Entitlements Description

Generally, EID's water assets are derived from pre-1914 appropriative water rights, licensed and permitted appropriative water rights, Central Valley Project (CVP) contracts, Warren Act contracts (that allow non-federal water assets to be wheeled through the federal storage and conveyance facilities), and recycled water generated from the effluent treated at the District's two wastewater treatment plants. The District's counsel has recently confirmed all of these water rights and entitlements. Pertinent information regarding these water assets is included in **Appendix A** of this document as required by Water Code section 10910(d).

Water for the Proposed Project will be derived from both Folsom Reservoir and upstream American River and Cosumnes River diversions. As shown in **Table 4-1**, the primary water assets for diversion at Folsom Reservoir are: CVP Contract 14-06-200-1375A-LTR1, and License 2184 and several pre-1914 water rights incorporated into Warren Act contract 06-WC-20-3315. EID is seeking to finalize its Warren Act contract for diversions of Permit 21112 at Folsom Reservoir. EID also has additional water assets under the El Dorado – SMUD Cooperation Agreement and a Central Valley Project water entitlement derived from El Dorado County Water Agency's Fazio water supply. These water assets will be described in **Section 4.2.2**.

Table 4-1 – Water Rights, Entitlements, and Supply Availability

Water Right or Entitlement	Maximum Water Assets Available (Ac-ft)	Normal Year Planned Supply Availability (Ac-ft)	Dry-Year Planned Supply Availability (Ac-ft)
License 2184 and pre-1914 ditch rights including Warren Act Contract 06-WC-20-3315	4,560	4,560	3,000
Licenses 11835 and 11836	33,400	23,000	20920[A]
CVP Contract 14-06-200-1375A-LTR1	7,550	7,550	5,660
Pre-1914 American River diversion and storage rights	15,080	15,080	15,080
Permit 21112	17,000	17,000	17,000
Subtotal Existing	**77,590**	**67,190**	**61,660**
Central Valley Project Fazio water entitlement (PL 101-514 (1990) Fazio) [D]	7,500	7,500	5,625
Applications 5645X12, 5644X02 and partial assignment of Applications 5645, 5644 with El Dorado-SMUD Cooperation Agreement [E]	40,000[B]	30,000	5,000[C]
Subtotal Planned	**47,500**	**37,500**	**10,625**
Recycled Water	5,600	5,600	5,600
Total	**130,690**	**110,290**	**77,885**

[A] This is the modeled safe-yield of this water right during a single dry-year. For planning purposes, the second and third dry years of a three-year dry period are assumed to be 17,000 acre-feet, and 15,500 acre-feet, respectfully
[B] Section 5.1.1 of the El-Dorado SMUD Cooperation Agreement indicates that 40,000 acre-feet of SMUD water will be available after 2025. For conservative Normal Year planning purposes, the District uses 30,000 acre-feet of available supply.
[C] Available supply is 15,000 acre-feet in a single dry year but in preparing for multiple dry years EID anticipates using only 5,000 acre-feet per year for a three year period.
[D] Available starting in 2015
[E] Available starting in 2025

License 2184 and Pre-1914 Water Rights

Water rights associated with Weber Dam, Weber Creek (Farmer's Free Ditch), Slab Creek (Summerfield Ditch), and Hangtown Creek (Gold Hill Ditch) are available to be diverted at Folsom Reservoir under a long-term Warren Act Contract, with approximately 4,560 acre-feet available each year from these sources. A Warren Act Contract allows the use of federal facilities to take non-CVP water such as these supplies. The 40-year contract commenced on March 1, 2011 and has a maximum net contract amount of 4,560 acre-feet per year. The contract total also assumes a 15% conveyance loss between the former points of diversion and Folsom Reservoir, which can be adjusted at a later date by mutual agreement without amending the contract. The annual water diversion season is limited to April through November 15 and the water must be used for municipal and industrial purposes in the El Dorado Hills and Cameron Park areas.

Licenses 11835 and 11836

Licenses 11835 and 11836 allow for 33,400 acre-feet of diversion in EID's upstream system in the Cosumnes River watershed. These diversions are stored in Jenkinson Lake, the largest storage reservoir in EID, formed by two earth and rock dams across Sly Park Creek near Pollock Pines with a maximum capacity of 41,033 acre-feet. The dam was constructed as a portion of the United States Bureau of Reclamation (USBR) CVP in 1955. With the transfer of ownership from the USBR of the Sly Park dam and associated lands and facilities in 2003, EID not only operates and maintains the Jenkinson Lake and Sly Park Dam facilities, including recreational aspects, but also holds the water rights. The average annual use from this facility is approximately 23,000 acre-feet, though EID's annual water right is for 33,400 acre-feet of total beneficial use. This water supply is used entirely within EID's contiguous service area. Under average flow conditions, Jenkinson Lake is operated to maintain 14,000 to 18,000 acre-feet of carryover storage each year. The outlet works at Sly Park Dam have a maximum capacity of 125 cfs. Water is released to the Reservoir A Water Treatment Plant for subsequent treatment, transmission, and distribution.

Jenkinson Lake contributes approximately 20,920 acre-feet per year to EID's system firm yield. Over the past five years, EID's annual diversions from Jenkinson Lake have averaged approximately 22,600 acre-feet per year. EID's maximum and minimum diversions from this particular water source during this five-year period were 25,745 and 20,800 acre-feet per year, respectively.

USBR CVP Contract 14-06-200-1375A-LTR1

Surface water from Folsom Reservoir is provided to the El Dorado Hills area. By contract with the USBR for Folsom Reservoir water, EID is entitled to 7,550 acre-feet per year. The contract includes provisions for use in a particular area that generally encompasses the El Dorado Hills and Cameron Park areas. Folsom Reservoir is operated by the USBR as part of the CVP, a multipurpose project that provides flood control, hydroelectricity, drinking water, and water for irrigation.

The El Dorado Hills County Water District entered into a USBR Contract in 1964 for water supply from Folsom Reservoir. The contract had a not-to-exceed limit of 37,600 acre-feet per year. When EID annexed the El Dorado Hills County Water District in 1973, the contract was assigned to EID, and subsequently, in 1979, an amendatory contract replaced the original 1964 contract and reduced the maximum annual supply quantity of Folsom Reservoir water to 6,500 acre-feet per year. In 1983, the USBR increased the maximum annual supply quantity from 6,500 to 7,500 acre-feet per year. EID also annexed and succeeded to a USBR Contract for 50 acre-feet per year to supply the Lakehills area in El Dorado Hills. In 2006, these two contracts were consolidated into a single 40-year USBR Contract with a maximum quantity of 7,550 acre-feet per year.

Pre-1914 South Fork American River and Project 184

EID acquired Project 184 from Pacific Gas and Electric (PG&E) in 1999. Project 184 includes reservoirs and associated dams, 22 miles of canals, a 21 Mw powerhouse, and other ancillary facilities. Prior to the transfer of ownership and water rights, EID held a contract to purchase water from PG&E and its predecessor, Western States Gas and Electric Co. The original water rights claims date back to 1856, with additional claims being filed in the 1860s and 1870s. The water rights for diversions from Echo Lake were established in 1880 in a California Supreme Court decision. Then, in 1918, the California Railroad Commission (predecessor to the California Public Utilities Commission) recognized the use of water from the El Dorado Canal for irrigation and domestic purposes.

The sources of this water supply include natural flows in the South Fork American River and its tributaries, and stored water in Silver, Aloha, Echo, and Caples Lakes. The supply is diverted from the South Fork American River at Kyburz and is conveyed via the El Dorado Canal to the El Dorado Forebay. Some additional water is obtained by diversions into the El Dorado Canal from streams tributary to the South Fork American River. EID takes consumptive use of the water supply at the Main Ditch Intake, located at the El Dorado Forebay. This particular supply contributes 15,080 acre-feet per year to EID’s system firm yield.

Water diversions of up to 156 cfs can be made from the South Fork American River at the diversion dam. In addition to these direct diversion rights, EID also has pre-1914 diversion and storage rights associated with portions of the waters stored in Silver Lake, Caples Lake, and Lake Aloha and all of the waters stored in Echo Lake.

El Dorado Forebay is filled by the surface water supply from the Project 184 facilities upstream in the South Fork American River basin and at Echo Lake. EID has a consumptive water entitlement of 15,080 acre-feet per year delivery at the Forebay. The entitlement is a pre-1914 water right, and diversions are made in compliance with the 40-year Federal Energy Regulatory Commission Project 184 operating license issued to EID in October 2006. Because the full entitlement can be provided in all years including the most severe historic single dry year of 1977, this source of water is considered assured, and not subject to shortage from hydrologic droughts.

Permit 21112 and Warren Act Contract

The State Water Resources Control Board (SWRCB) issued EID a water right permit in 2001 for an additional 17,000 acre-feet per year of water supply associated with Project 184 facilities and power operations to be taken at Folsom Reservoir. This water supply was authorized under Permit 21112 for diversion and consumptive use anywhere within EID's contiguous service area. There are no cutback provisions on this supply.

The El Dorado County Water Agency (EDCWA) and EID applied to the SWRCB to obtain water rights for consumptive use of waters previously stored and released for power generation from Caples, Silver, and Aloha Lakes, as well as certain direct diversions from the South Fork American River, all of which have been used by Project 184 for hydroelectric power generation or instream flows. The EDCWA later assigned all of its rights under this application to EID. The SWRCB granted the right to appropriate 17,000 acre-feet per year of water. Permit 21112 allows EID to make direct diversions from the South Fork American River at Folsom Reservoir; to store in Caples, Silver, and Aloha Lakes; and to redivert the water released from storage. The sole approved point of take for consumptive purposes is Folsom Reservoir.

A diversion from Folsom Reservoir requires acquiescence from the USBR and issuance of a Warren Act Contract. EID has diverted water under this right under a temporary urgency basis and the Warren Act Contract is pending.

Recycled Water Supplies

EID produces recycled water at both the El Dorado Hills and Deer Creek wastewater treatment plants which is then used by EID's customers for irrigation of residential landscape and commercial landscape. The availability of recycled water is currently limited to the El Dorado Hills and Cameron Park areas. EID anticipates a 2035 recycled water supply totaling 5,600 acre-feet per year (see Section 4.3 for further details).

4.2.2 Planned Water Supplies

EID has plans to acquire and use two additional water supplies from EDCWA for use within its service area to make available for the Proposed Project – water under the El Dorado-SMUD Cooperation Agreement and water under EDCWA's Fazio CVP supply. This section describes these supplies.

El Dorado-SMUD Cooperation Agreement

As shown in **Table 4-1**, the additional supplies include a grouping of water right applications and assignment of existing water right applications totaling approximately 40,000 acre-feet of water. This supply is being developed by the El Dorado Water and Power Authority (EDWPA). EDWPA is a Joint Powers Authority consisting of El Dorado County, El Dorado County Water Agency and El Dorado Irrigation District (collectively, El Dorado Parties). EDWPA was formed to pursue additional water supplies for the western slope of El Dorado County as determined by the El Dorado County General Plan. This need is identified in the El Dorado County Water Agency Water Resources Development and Management Plan (Water Plan).[28] The Water Plan is

[28] http://www.edcgov.us/water/final_water_resources_plan.html

designed to coordinate water resource planning activities within El Dorado County and identifies water supply needs for the western slope of El Dorado County of approximately 34,000 acre-feet per year (AFA) at the 2025 demand level.

In 2005, the El Dorado Parties signed the "El Dorado – SMUD Cooperation Agreement" (included with **Appendix A**), which would help meet the Water Plan's identified water supply needs. This Agreement requires SMUD to make annual deliveries of up to 30,000 acre-feet of water through 2025 and 40,000 acre-feet thereafter from SMUD's Upper American River Project (UARP) to the El Dorado Parties. In 2008, EDWPA petitioned the SWRCB for partial assignment of two applications for diversion and storage to obtain water supplies necessary to trigger SMUD's obligations. A Draft Environmental Impact Report has been prepared in support of the water rights application and was circulated in July 2010. EDWPA is currently in the protest settlement phase and the CEQA process is anticipated to be completed in 2014 with award of water rights shortly thereafter.

The El Dorado-SMUD Cooperation Agreement also obliges SMUD to provide carryover storage and delivery to EID of up to 15,000 acre-feet of drought protection water supplies to be obtained by EDWPA. Based on demand projections, EID anticipates that only 30,000 acre-feet of the 40,000 acre-feet identified in the water right applications and the El Dorado – SMUD Cooperative Agreement will be available to EID in normal years. Moreover, EID has planned that a mere 5,000 acre-feet of the water supply will be available for EID's uses in each dry year. This number is derived from Appendix H of the El Dorado – SMUD Cooperation Agreement describing deliveries available from carryover storage. Both of these conservative assumptions are shown in **Table 4-1**. EID has planned this supply to be available starting in 2025.

Fazio CVP Supply

EID is also in the final stages of securing 7,500 acre-feet of CVP water supplies in conjunction with EDCWA. In 1990, Congress directed the Secretary of the Interior, through the USBR, to enter into a new CVP Municipal and Industrial (M&I) water service contract with EDCWA for up to 15,000 acre-feet of water annually (Section 206 of P.L. 101-514). The CVP water service contract requires requisite compliance by EDCWA and the USBR with CEQA, NEPA, and ESA statutes.

In 2009, a draft EIS/EIR was released for public review and comment for the CVP M&I water rights contract. In 2010, USBR advised EDCWA that it would take another 5 years before the CVP-Operations Criteria and Plan (OCAP) related litigation would allow the EIS to move forward. As a result, EDCWA made the decision to detach the EIR from the EIS – essentially separating the CEQA and NEPA processes. EDCWA certified the Final EIR and approved the project in January 2011. EDCWA then prepared and submitted to USBR a draft Biological Assessment (BA) in September 2011 and a draft Final EIS in October 2011. USBR submitted the draft Final EIS to NOAA Fisheries in December 2011. Final EIS completion and contract execution is pending completion of ESA consultation with NOAA Fisheries.

The CVP contract seeks to acquire 15,000 acre-feet of CVP project water, of which at least 7,500 acre-feet would be made available to EID by subcontracts with EDCWA.[29] Diversions by EID would occur at its existing intake in Folsom Reservoir, conveyed to the El Dorado Hills Water Treatment Plant, and delivered to a specific place of use location in El Dorado Hills and Cameron Park areas as shown in Figure ES-2 of EDCWA's EIR.

The contract negotiations and environmental compliance efforts are ongoing. These actions allow EID to use this water supply in this WSA as a planned supply that will be available to EID in the future to serve the Proposed Project. The approval of the contract terms as well as finalization of the environmental documents will allow EID to apply the water supplies under this contract entitlement to municipal and industrial beneficial uses. EID has planned this water supply to be available starting in 2015.

4.2.3 Normal Year Water Supply Availability

As shown in **Table 4-1**, EID's total water entitlements under its existing and planned supplies does not equate to the amount of water available in normal years in the future. The normal year water supplies will be described in this section.

Excluding recycled supplies, EID's secured water rights and entitlements available for the Proposed Project total 67,190 acre-feet. As shown in the sufficiency analysis in Section 5, this amount is insufficient to serve EID's future demand incorporating the Proposed Project and all planned future projects. Accordingly, this section assesses both EID's secured supplies and additional planned supplies. EID's water supplies associated with the entire secured and planned water assets totals 110,290 acre-feet per year.

The 67,190 acre-feet of secured supplies include appropriative water right license 2184 and pre-1914 appropriative water rights associated with Slab Creek, Hangtown Creek and Weber Creek. As described above, these rights are collectively combined for conveyance purposes in a Warren Act Contract, No. 06-WC-20-3315, that allows for storage in and diversion from Folsom Reservoir. The total volume is 4,560, net of a negotiated 15% conveyance loss under the terms of the Warren Act contract. For purposes of serving the Proposed Project, EID assumes full diversion at 4,560 in normal years under these water assets.

Appropriative water right licenses 11835 and 11836 are also secured supplies. These supplies can be diverted from several creeks in the Cosumnes River watershed (Camp, Hazel, and Sly

[29] Central Valley Project Water Supply Contracts Under Public Law 101-514 (Section 206): Proposed Contract Between the U.S. Bureau of Reclamation and the El Dorado County Water Agency, and Proposed Subcontracts Between the El Dorado County Water Agency and the El Dorado Irrigation District, and Between the El Dorado County Water Agency and the Georgetown Divide Public Utility District Final Environmental Impact Report at ES-1, January 2011.

Park) and are typically stored in Jenkinson Lake. The maximum rate of diversion is 500 cfs for a total possible diversion volume of 33,400. However, due to limitations in storage availability in Jenkinson Lake assessed through OASIS hydrologic modeling, the maximum available normal year supply for the Proposed Project is 23,000 acre-feet. [30] Although EID has diverted as much as 25,745 acre-feet from this reservoir, EID does not anticipate using more than 23,000 acre-feet under this right for its normal year diversions in the future.

Central Valley Project Contract 14-06-200-1375A-LTR1 is a secured supply available for immediate use for the Proposed Project. This CVP contract entitlement requires the USBR to deliver up to 7,550 acre-feet of water from its SWRCB water right permits on the American River to EID.

As described in Section 4.2.1, EID also has a number of pre-1914 appropriative water rights on the American River with storage components in Silver Lake, Lake Aloha, Caples Lake, and Echo Lake. For purposes of this document, these are collectively called the pre-1914 American River water rights.[31] The total volume of water available under the pre-1914 American River water rights is 15,080 acre-feet in normal years.

Appropriative water right permit 21112 is a secured supply for purposes of this WSA. Permit 21112 allows EID to divert up to 17,000 acre-feet of water per year from Folsom Reservoir to be used in EID's service area. EID has diverted water under this permit as part of a temporary urgency in 2008. EID must finalize its Warren Act Contract to divert this water at Folsom Reservoir. However, based upon the availability of the supply in Permit 21112, the ability to store the water in Caples, Silver, and Aloha lakes, and the pending conveyance agreement with USBR, the normal-year availability of this supply is 17,000 acre-feet.[32]

As described in Section 4.2.2, EID's planned water supplies include the CVP Fazio supply of 7,500 acre-feet as authorized under federal law. Once secured, EID should receive normal-year deliveries of the full entitlement just as USBR promises to other CVP M&I contract holders on the American River system. There is no reason to believe that this contract entitlement will be different than other CVP contract entitlements on the American River system.

Last, as described in Section 4.2.2, EID's planned water supplies derived from the EDWPA appropriative water right applications filings and assignments, as well as the El Dorado – SMUD Cooperation Agreement, indicate that EID should receive normal-year water deliveries of 30,000 acre-feet per year starting in 2025 and then as much as 40,000 acre-feet of deliveries thereafter.

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[30] 2013 Water Resources Report

[31] California Water Code section 10910(d)(2)(A) requires "proof of entitlement" of each individual water right that is combined into this pre-1914 American River water rights grouping. These documents are contained in **Appendix A** of this Water Supply Assessment.

[32] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-7 of 22. Follow-up discussion with EID Counsel on water availability on April 23, 2013.

Based on demand projections, the District uses 30,000 acre-feet of normal-year deliveries under these collective applications and the El Dorado-SMUD Cooperation Agreement.

4.2.4 Dry-Year Water Supply Availability

As shown in **Table 4-1**, EID anticipates less water being available in dry years than is otherwise available in normal years as described in Section 4.2.3. Dry-year supplies include supply reductions attributable to hydrologic droughts and regulatory curtailments. The dry-year water supplies are described in this section.

EID's entire normal-year secured and planned water assets total 110,290 acre-feet per year. In dry years, EID's total water assets equal 77,885 acre-feet. Of this total supply, 61,660 acre-feet are secured water assets and 16,225 acre-feet are planned water assets.

As described in Section 4.2.3, the secured water assets include License 2184 and the additional pre-1914 appropriative rights that are included in Warren Act contract 06-WC-20-3315, Licenses 11835 and 11836, CVP Contract 14-06-200-1375A-LTR1, the pre-1914 American River water rights grouping, and Permit 21112. All of these water rights are subject to different regulatory and hydrological restrictions that could result, in some instances, in reduction of the water supplies available under the right or entitlement in dry years.

The water rights contained in the Warren Act Contract 06-WC-20-3315 have some level of regulatory restrictions and hydrological uncertainty. EID's 2010 UWMP indicates that the estimated dry-year yield associated with this water asset is 3,000 acre-feet per year based upon regional hydrologic conditions.[33] Accordingly, based upon the presumed hydrologic conditions, the dry-year reliability for this supply in three consecutive dry years is 3,000 acre-feet per year.

Licenses 11835 and 11836 have a full diversion entitlement of 33,400 acre-feet per year. Of that amount, carryover storage in Jenkinson Lake and diminished inflow reduce that entitlement to a normal-year supply of 23,000 acre-feet per year. In dry years, this amount is further reduced based upon hydrologic conditions as well as carryover storage needs for future years from Jenkinson Lake. Accordingly, based upon the OASIS hydrologic modeling report, EID reduces this supply's availability to 20,920 acre-feet in a single dry year. Thus, 20,920 acre-feet per year is used in this WSA as the dry-year safe yield number for a single dry year. To be conservative, EID plans for this supply to be further reduced during year two and again in year three of and three consecutive dry years. This WSA uses 17,000 acre-feet and 15,500 acre-feet as the available supply in year two and year three of a multi-year drought, respectfully.

CVP Contract 14-06-200-1375A-LTR1 has a normal-year entitlement of 7,500 acre-feet per year. The USBR, however, assesses the dry-year supply availability of its CVP M&I contracts

[33] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-6 of 22. Follow-up discussion with EID Counsel on water availability on April 23, 2013.

through the CVP M&I Shortage Policy. Based on inflow and storage criteria developed at the joint operations center, USBR can reduce contract water supplies under the CVP M&I Shortage Policy by up to 25% of historic use with various adjustments made for population, use of non-CVP water and extraordinary conservation actions.[34] With these adjustments in mind, USBR calculates the reduced CVP M&I delivery essentially based upon the average of the three previous normal years of use under the CVP contract. Under the strictest interpretation of this policy, if the water under the CVP contract was not used, then the dry year water is not available. But, USBR has considered that use of non-CVP supplies in lieu of CVP water use may be used to calculate use under this shortage policy. For purposes of this analysis, however, we have determined that based upon normal growth in demand in EID's service area, EID's customers would utilize the entire contract entitlement in normal years in the future. As such, EID calculates its dry-year reduction for this Proposed Project based upon three years of full use of its contract allocation. Accordingly, the dry year supply under this water contract entitlement is 5,660 acre-feet per year.

EID's pre-1914 American River water rights-grouping has a normal-year reliability of 15,080 acre-feet per year. Based upon the early priority date of these water assets and the storage capability within EID's system associated with these water assets, they are not reduced at all in a single dry year or three consecutive dry years.

Permit 21112 is another secure dry-year water asset. EID's 2010 UWMP states "there are no cutback provisions on this supply."[35] As such, the dry year reliability of Permit 21112 is 17,000 acre-feet per year.

As described in Section 4.2.2, EID's planned supplies include the CVP Fazio supply, and the several rights and contract that make up the UARP SMUD water. All of these assets combined have a three consecutive dry year supply reliability of 10,625 acre-feet per year.

The CVP Fazio supply is another CVP M&I contract supply that is subject to the same Municipal and Industrial shortage provisions described above for EID's other CVP contract entitlement. EID's expected portion of the Fazio supply has a normal-year contract allocation of 7,500 acre-feet per year. Assuming under the rules described above that EID is able to use its entire contract entitlement in the future, a 25% reduction from the contract entitlement reduces the delivery by 1,875 acre-feet per year. As such, the single dry year reliability and three consecutive dry year reliability under this contract is 5,625 acre-feet per year.

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[34] Reclamation has the authority to reduce the supply volumes even further under extreme conditions – Health and Safety criteria – but this sort of supply reduction would only occur in extreme drought and would be offset by reductions in demand in EID's service area, as needed, to maintain basic Health and Safety conditions. The District's drought contingency plans address these situations.

[35] This assertion was confirmed in a telephone conversation with the District's Counsel on April 23, 2013.

Last, the UARP SMUD water that is derived from the numerous water right applications and assignments as well as the El Dorado-SMUD Cooperative Agreement indicates that the water available under these components in dry years could be severely curtailed. Appendix H of the Agreement states that annual deliveries can be superseded and deliveries from carryover drought storage can be reduced to as little as 5,000 acre-feet in a declared Critically Dry year if SMUD reservoir storage drops below 100,000 acre-feet (approximately 25%). Out of an abundance of caution, EID anticipates only 5,000 acre-feet of carryover drought-supply water would be available each year over the course of a three-year drought.

4.3 Recycled Water Supplies

EID uses recycled water to meet some current non-potable demands within its service area. EID may expand its development and use of recycled water in the future to meet a portion of the non-potable demands associated with the Proposed Project and other anticipated new demands. EID's current recycled water use is about 2,200 acre-feet per year. This use will expand incrementally over time. By 2035, EID anticipates a supply of 5,600 acre-feet of recycled water per year within its service area.[36]

EID's recycled water system consists of supply from the El Dorado Hills wastewater treatment plant and the Deer Creek wastewater treatment plant. These treatment plants have an interconnected network of transmission and distribution pipelines, pump stations, storage tanks, pressure reducing stations, and appurtenant facilities located within the communities of El Dorado Hills and Cameron Park.[37] EID mandates the use of recycled water through Board Policy 7010, wherever economically and physically feasible as determined by the Board, for non-domestic purposes.[38] At this time, non-domestic use includes commercial landscape irrigation, residential or multi-family dual-plumbed landscape irrigation, construction water, and recreational impoundments.

Recycled water availability is an outcome of increased municipal and domestic demand and wastewater production as a byproduct of this demand. In other words, annual recycled water production capabilities are based on the total wastewater flows to the treatment plants. With the population and industrial demands growing in this region, as described in Section 3, the availability of recycled water will increase. EID is taking a conservative view of the growth in recycled water based upon its current production levels, estimated regional population growth, facility expansion identified in its 2013 IWRMP and WWFMP, treated water discharge requirements, and its ability to capture and store recycled water supplies in the future. The total recycled water available for use in 2035 is estimated to be 5,600 acre-feet per year.[39]

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[36] EID Integrated Water Resources Master Plan, March 31, 2013
[37] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-10 of 22.
[38] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-6 of 22.
[39] EID Integrated Water Resources Master Plan, March 31, 2013 at page 221.

Accordingly, Table 4-2 shows the incremental recycled water assets that would be available over time for the District's non-potable water uses.

Table 4-2 – Timing of Recycled Water and Quantities

Year	Recycled Water Supply (acre-feet)
Current	2,200
2015	2,400
2020	2,600
2025	3,100
2030	4,200
2035	5,600

4.4 Facility Costs and Financing

EID's recently completed 2013 IWRMP and WWFMP identify and allocate the future costs of capital expansion and replacement needs, and addresses financing mechanisms for EID's water assets. These costs and financing mechanisms are hereby incorporated by reference.

The District establishes and periodically updates its Facility Capacity Charges (FCCs) to recover the cost of those portions of existing District facilities that will be used by future customers and to fund needed expansion, or additional capacity, of District facilities to serve new users. The District periodically reviews its FCCs to ensure they accurately reflect the costs of providing service to new customers. Currently the District is updating the FCCs to incorporate projects identified in the adopted 2013 IWRMP. The FCC update is currently under review by the Board and a developer committee, and the District anticipates adoption of the updated FCCs in August 2013.

4.5 Regulatory Approvals and Permits

As described in Section 4.2.2, EID has water assets that require further regulatory approvals, permit compliance, and contract approvals. Each water asset has its own set of regulatory requirements that are assessed in this section.

Appropriative water right Permit 21112 issued by the SWRCB has not been perfected. In order to perfect an appropriative water right, EID must put all of the water assets under that permit to beneficial use. Upon putting the water to beneficial uses and meeting all of the other conditions in the water right permit, EID will be eligible to obtain a water right license for this appropriative water right. Attaining a water right license further fortifies the legitimacy of the water right for EID's continual use in the future. There is no indication that EID will have difficulty in obtaining a water right license for Permit 21112.

Permit 21112 also requires a Warren Act Contract to be negotiated and approved by the USBR. The Warren Act Contract will allow EID to divert water from Folsom Reservoir for delivery to the El Dorado Hills Water Treatment Plant. Although the District may choose to divert some of the water upstream of Folsom Reservoir through other SWRCB regulatory processes, a Warren Act Contract is essential for any diversions emanating from Folsom Reservoir. EID is currently in negotiations with USBR to obtain a long-term contract. While those negotiations continue, short-term Warren Act Contracts are also obtainable, if needed. There are no foreseeable reasons that these negotiations will not succeed. Both EID's Board of Directors and USBR officials will need to execute the contract once the terms have been drafted, and EID will need to obtain judgment in a judicial action to validate the contract.

The Fazio water supply also has additional regulatory approvals and permits pending. This CVP contract entitlement is authorized by Public Law 101-514. The 15,000 acre-feet of water supply is contemplated to be split equally between Georgetown Divide Public Utilities District and EID. As described in Section 4.2.2, EDCWA is negotiating with USBR on behalf of EID to secure the CVP contract entitlement authorized by this federal statute and finalize the EIS. Accordingly, EID will continue to work with EDCWA and USBR to finalize acquisition of this water supply. Upon completion of the EIS, the EDCWA's designee and USBR officials will need to execute the CVP water supply contract, and EDCWA may need to obtain judgment in a judicial action validating the contract.

The pending water right applications and application assignments before the SWRCB as well as the El Dorado – SMUD Cooperation Agreement constitute the last water supply that is pending further regulatory approvals. As described in Section 4.2.2, EDWPA is awaiting approvals from SWRCB for these water assets. Upon SWRCB approval, EID will obtain 30,000 acre-feet of water under the El Dorado – SMUD Cooperation Agreement.

The SWRCB water right process requires the SWRCB to conduct an internal project review of the applicable technical and hydrological information as well as consider the broader effects on other legal users of water throughout the watershed before issuing a permit. This regulatory process may eventually necessitate a SWRCB hearing where testimony from proponents and opponents of the water right permit is heard and weighed by the SWRCB Board Members before issuing the conditioned permits. Once permits have been issued, then the District must comply with the permit terms and perfect application of the water supplies to beneficial use in order to acquire water right licenses associated with the appropriative water rights.

The El Dorado – SMUD Cooperation Agreement is an agreement among the various parties to cooperate in facilitating the storage and delivery of these water assets to the identified purveyors. As such, through the processing of the water right applications and the furtherance of compliance with the terms of those agreements, the water assets considered there are likely to be available to

EID. The regulatory approvals and permits needed to finalize EID's control over these water assets are moving forward.

4.6 SUPPLY SUMMARY

EID has two broad categories of water assets that are available for the Proposed Project – the secured water assets and planned water assets. Collectively, these supplies total 110,290 acre-feet in normal water years and 77,885 acre-feet in a single dry water year. In year two and year three of a multi-year drought, supplies are further reduced to 73,965 acre-feet and 72,465 acre-feet, respectfully.

As described above, the secured water assets include appropriative water right License 2184 and the accompanying pre-1914 appropriative water rights held under Warren Act Contract 06-WC-20-3315, appropriative water right Licenses 11835 and 11836, CVP Contract 14-060200-1375A-LTR1, the pre-1914 American River storage and diversion appropriative water rights, and Permit 21112. The normal year water supplies available to EID under the secured assets total 67,190 acre-feet per year. In dry years, the water supplies available to EID under the secured assets totals 61,660 acre-feet per year.

The planned water assets, although partially secured, are not yet fully available for EID's use to serve the Proposed Project contemplated in this WSA. As described above, these assets are sufficiently secure to be considered planned supplies for the Proposed Project in 2035. In normal years, the water supplies under these assets total 37,500 acre-feet. In dry years, the water supplies under these assets total 10,625 acre-feet.

Finally, the recycled water assets in both normal and dry years, derived from planned growth and continual indoor water usage regardless of year type, total 5,600 acre-feet in 2035.

SECTION 5 – SUFFICIENCY ANALYSIS

5.1 INTRODUCTION

The analysis detailed in this section provides a basis for determining whether sufficient water supplies exist to meet the estimated water demand of the Proposed Project.[40]

This section includes:

- Analysis of sufficiency, considering variations in supply and demand characteristics under normal, single-dry and multi-dry hydrologic conditions,
- Analysis conclusions

5.2 SUFFICIENCY ANALYSIS

The sufficiency analysis integrates the water demands detailed in Section 2 and Section 3 with the water supplies characterized in Section 4. The results are presented in **Table 5-1** beginning with "current" conditions (recognized as 2012) and continuing with 5-year increments from 2015 through 2035. While the analysis at various intervals before build-out is important, the most critical projection for the sufficiency analysis occurs in 2035. This analysis assumes that the Proposed Project, along with the other projects simultaneously undergoing a WSA analysis (see Section 3.3), are fully constructed by 2035, and other anticipated growth continues as described in Section 3.4.

Table 5-1 incorporates the Proposed Project water demand projection in **Table 2-3**, assuming the Proposed Project develops as detailed in Section 1, and the estimated water demands for all other existing and planned future uses through 2035 as detailed in **Table 3-2**. **Table 5-1** also presents the available water supplies for the contiguous EID service area during normal, single-dry and multiple-dry years, as detailed in Section 4. The water demands and available supplies in a single dry-year and multiple dry-year condition are discussed in the following subsections.

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[40] CWC § 10910 (c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

Table 5-1 – Comparable Analysis of Supply and Demand

Year	Project Water Demand (af/yr)	All Other EID Water Demands (af/yr)	Total Water Demands (af/yr)	Non-Revenue Water @ 13%	Demands with Loss	EID Water Supplies					Recycled Water (af/yr)	Total Available Water Supply (af/yr)	Projected Surplus/ (Shortfall) (af/yr)
						Surface Water							
						Hydrologic Year Type		EDH Service Area (af/yr)	West/East Service Area (af/yr)	Total (af/yr)			
Current	0	38,984	38,984	N/A	38,984	Normal		29,110	38,080	67,190	2,200	69,390	30,406
	0	40,933	40,933	N/A	40,933	Single Dry		25,660	36,000	61,660		63,860	22,927
	0	40,933	40,933	N/A	40,933	Multiple Dry	Year 1	25,660	36,000	61,660		63,860	22,927
	0	38,068	38,068	N/A	38,068		Year 2	25,660	32,080	57,740		59,940	21,872
	0	34,793	34,793	N/A	34,793		Year 3	25,660	30,580	56,240		58,440	23,647
2015	135	34,821	34,956	4,544	39,500	Normal		36,610	38,080	74,690	2,400	77,090	37,590
	141	36,562	36,704	4,771	41,475	Single Dry		31,285	36,000	67,285		69,685	28,210
	141	36,562	36,704	4,771	41,475	Multiple Dry	Year 1	31,285	36,000	67,285		69,685	28,210
	131	34,003	34,134	4,437	38,572		Year 2	31,285	32,080	63,365		65,765	27,193
	120	31,078	31,198	4,056	35,254		Year 3	31,285	30,580	61,865		64,265	29,011
2020	459	37,539	37,997	4,940	42,937	Normal		36,610	38,080	74,690	2,600	77,290	34,353
	481	39,415	39,897	5,187	45,084	Single Dry		31,285	36,000	67,285		69,885	24,801
	481	39,415	39,897	5,187	45,084	Multiple Dry	Year 1	31,285	36,000	67,285		69,885	24,801
	448	36,656	37,104	4,824	41,928		Year 2	31,285	32,080	63,365		65,965	24,037
	409	33,503	33,912	4,409	38,321		Year 3	31,285	30,580	61,865		64,465	26,144
2025	458	43,401	43,859	5,702	49,561	Normal		19,610	85,080	104,690	3,200	107,890	58,329
	480	45,572	46,052	5,987	52,039	Single Dry		14,285	58,000	72,285		75,485	23,446
	480	45,572	46,052	5,987	52,039	Multiple Dry	Year 1	14,285	58,000	72,285		75,485	23,446
	447	42,382	42,828	5,568	48,396		Year 2	14,285	54,080	68,365		71,565	23,169
	408	38,736	39,144	5,089	44,233		Year 3	14,285	52,580	66,865		70,065	25,832
2030	442	50,774	51,216	6,658	57,874	Normal		19,610	85,080	104,690	4,100	108,790	50,916
	464	53,312	53,777	6,991	60,768	Single Dry		14,285	58,000	72,285		76,385	15,617
	464	53,312	53,777	6,991	60,768	Multiple Dry	Year 1	14,285	58,000	72,285		76,385	15,617
	432	49,580	50,012	6,502	56,514		Year 2	14,285	54,080	68,365		72,465	15,951
	395	45,315	45,710	5,942	51,652		Year 3	14,285	52,580	66,865		70,965	19,313
2035	427	59,127	59,554	7,742	67,295	Normal		19,610	85,080	104,690	5,600	110,290	42,995
	448	62,083	62,531	8,129	70,660	Single Dry		14,285	58,000	72,285		77,885	7,225
	448	62,083	62,531	8,129	70,660	Multiple Dry	Year 1	14,285	58,000	72,285		77,885	7,225
	417	57,737	58,154	7,560	65,714		Year 2	14,285	54,080	68,365		73,965	8,251
	381	52,771	53,152	6,910	60,061		Year 3	14,285	52,580	66,865		72,465	12,404

5.2.1 Single Dry Year Supply and Demand Conditions

Under this condition, EID would anticipate a variance from the normal-year analysis, including: (1) shortage in full availability of supplies as detailed in **Section 4**, and (2) an increase in water demand. The increase in demand is based on the following:

- Landscape irrigation demands will increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer's demand, an adjustment factor of 5 percent is applied to the total normal-year water demand values.
- Historically, during single dry year circumstances, EID does not implement its shortage contingency plan,[41] since the extent of the dry conditions into future years is unknown. EID follows adopted policies and its 2008 *Drought Preparedness Plan* when implementing any voluntary or mandatory demand reduction measures.

As a result of these factors, the Proposed Project water demand and those of the other existing and planned uses is expected to increase in a single dry year above the demand expected under normal hydrologic circumstances. Additionally, as detailed in Section 4, EID anticipates a decrease in available water supplies. These changes are shown in **Table 5-1**.

5.2.2 Multi-Dry Year Supply and Demand Conditions

When a single dry year expands into a series of dry years, water supply and demand conditions will continue to evolve. Under such a multi-dry year, EID would anticipate many similar conditions that were assumed for the single-dry year, including: (1) shortage in full availability of supplies as detailed in Section 4, and (2) increases in projected demands. However, when entering the second and third year of a sequence of dry-years, EID would implement necessary policies to manage limited water supplies.[42] Demands over a series of three dry years are adjusted as follows:

- Year 1 – the first year mimics a "single-dry year" condition, where demands increase approximately 5 percent and EID shortage policies are not yet invoked (see Section 5.2.1).
- Year 2 – The demands again mimic a "single-dry year" and would be expected to increase by 5 percent above normal year conditions. However, when recognizing a second dry-year, EID would invoke the first stage of the 2008 *Drought Preparedness Plan*. This stage states: "*The objective of Stage 1 is to initiate public awareness of predicted water shortage conditions, and encourage voluntary water conservation to*

[41] See EID Board Policy AR 5011-Water Supply Management Conditions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).
[42] See EID Board Policy AR 5011-Water Supply Management Conditions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).

decrease normal demand up to 15%."[43] As part of this stage, EID implements drought water rates among other specified activities to encourage conservation. For purposes of this WSA, the demand reduction achieved under Stage 1 is estimated to be 7 percent of the already higher single dry-year demand.

- Year 3 – Upon entering the third dry year, EID would invoke the second stage of the Drought Preparedness Plan. This stage states: "*The objective of Stage 2 is to increase public understanding of worsening water supply conditions, encourage voluntary water conservation measures, and then if necessary, enforce mandatory conservation measures in order to decrease normal demand up to 30%.*"[44] Under this Stage, EID increases efforts to reduce demand. For purposes of this WSA, the savings achieved under Stage 2 is estimated to be 15 percent of the already higher single dry-year demand.

As a result of these factors, the Proposed Project water demand and those of the Other Existing and Planned Uses is expected to increase in the first year of a multi dry-year condition above that estimated during normal hydrologic circumstances. In subsequent years, the demand will drop as elements of EID's Drought Preparedness Plan are implemented. These changes are shown in **Table 5-1**.

5.2.3 Analysis

As shown in **Table 5-1**, the demand and supply are compared under each hydrologic condition for each 5-year increment out to 2035. The resulting "supply surplus" or "supply shortfall" is shown in the final column. Based on the analyses, EID anticipates it will have sufficient water under all hydrologic conditions in each of the 5-year increments through 2035. Notably, the "surplus" supply is lowest during the second year of a multi-dry year condition, since this is the circumstance where demand is only slightly constrained, while supplies are the most constrained. Yet, even under such circumstances, sufficient water should be available.

5.3 Sufficiency Analysis Conclusions

As detailed in **Section 2**, this WSA estimates water demands for the Proposed Project of 482 acre-feet per year at build-out (including non-revenue water demands). The annual water demand estimate for all existing and planned projects in the contiguous EID service area, as detailed in **Section 3**, is approximately 67,300 acre-feet per year by 2035. After accounting for these demand projections for the next twenty years, EID should have sufficient water to meet the demands of the Proposed Project and its other service area demands for at least the next 20 years.

[43] See EID Board Policy AR 5011.2-Water supply slightly restricted Drought Stage 1 – Voluntary reductions in use (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).
[44] See EID Board Policy AR 5011.3-Water supply slightly restricted Drought Stage 2 – Voluntary and mandatory reductions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).

The conclusion that EID should have sufficient water available to meet the needs of the Proposed Project, in addition to the other demands in its service area through 2035, rests on the following set of assumptions:

- EID, EDCWA, and EDWPA successfully execute the contracts and obtain the water right permit approvals for currently unsecured water supplies discussed in Section 4. Absent these steps, the water supplies currently held by EID and recognized to be diverted under existing contracts and agreements would be insufficient in 2035 to meet the Proposed Project demands along with all other existing and planned future uses.
- EID will commit to implement Facility Capacity Charges in an amount sufficient to assure the financing is available as appropriate to construct the necessary infrastructure as detailed in the March 2013 EID *Integrated Water Resources Master Plan*.
- Demand in single-dry years includes an additional 5 percent of demand over the normal year demand during the same time period. This conservative assumption accounts for the likelihood that EID customers will irrigate earlier in the season to account for dry spring conditions. This hypothetical demand augmentation may or may not manifest in dry years, but this conservative assumption further tests the sufficiency of water supplies during dry conditions.
- The estimated demands include 13 percent to account for non-revenue water losses (e.g. distribution system losses).

The finding of this WSA is that EID should have sufficient water to meet the demands of Proposed Project and its other service area demands for the next 20 years.

Tully & Young
Comprehensive Water Planning

Tully & Young, Inc.
3600 American River Drive, Suite 260
Sacramento, CA 95864

MEMORANDUM

To: Lillian Macleod, County of El Dorado

Copy: Judith Malamut, LSA Associates
Amy Paulsen, LSA Associates

Date: March 7, 2014

From: Greg Young, Tully & Young

Subject: Water Supply Options to El Dorado Irrigation District's Long-Term Planned Water Supplies

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The purpose of this memorandum is to document the water supply options to El Dorado Irrigation District's (hereafter the "EID") long-term planned water supplies as detailed in the Dixon Ranch Residential Project Water Supply Assessment (hereafter "Dixon Ranch WSA").

In *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal 4th 412 (hereafter *Vineyard*), the California Supreme Court identified specific requirements for an adequate analysis of water supply issues in an Environmental Impact Report (EIR). The court explained that future water supplies identified and analyzed in an EIR must be reasonably likely to prove available. Speculative water sources and unrealistic water allocations do not provide an adequate basis for a public agency's decision-making. The Supreme Court said that when a full analysis of future water supplies for a project leaves some uncertainty regarding the availability of the identified future supplies, the EIR must discuss possible replacement or alternative supply sources. In addition, the EIR must discuss the environmental effects of resorting to those alternative supply sources. The court held that it is not sufficient to address issues relating to future water supplies by simply stating that future development will not go forward in the absence of a sufficient water supply. (*Vineyard* at 431).

The court also recognized that the ultimate question under CEQA "is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable impacts of supplying water to the project." (*Vineyard* at 450). Accordingly, if uncertainties inherent in long-term planning make it impossible to identify the future water sources with certainty, an EIR may satisfy CEQA if it acknowledges the degree of uncertainty involved, discusses the reasonably foreseeable water supply alternatives, and discloses the significant foreseeable environmental effects of each alternative, as well as mitigation measures to minimize each adverse impact. (*Vineyard* at 434).

Accordingly, the *Vineyard* opinion outlined the following general principles governing an EIR's analysis of water supply issues:

- An adequate environmental impact analysis for a long-range development plan cannot be limited to the water supply for the first stage of development. It must consider supplies necessary for the entire development.
- Future water supplies identified and analyzed in an EIR must be reasonably likely to prove available. Speculative sources and unrealistic paper allocation do not provide an adequate basis for decision making under CEQA.
- When, despite a full analysis, "it is impossible to confidently determine that anticipated future water sources will be available," CEQA requires some discussion of possible replacement or alternative supply sources, and of the environmental consequences of resorting to those sources. (*Vineyard* at 432)
- An EIR for a land use plan need not demonstrate that the water supply for the project is assured through enforceable agreements with a provider and built or approved treatment and delivery facilities. To interpret CEQA as requiring firm assurances of future water supplies at early stages of the planning process would be inconsistent with the water supply statutes, which call for an assured supply only at the end of the approval process. (*Vineyard* at 432).
- The "ultimate question under CEQA is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable impacts of supplying water to the project." (*Vineyard* at 434)

For the El Dorado County development that is the subject of this analysis, the WSA identifies a potential water shortfall in very dry years absent planned water supplies (as detailed below). Accordingly, under the guidance of the *Vineyard* decision, the analysis below characterizes alternative water sources for the identified development.

As detailed in Section 4 of the Dixon Ranch WSA and summarized in the Dixon Ranch WSA's Table 4-1 (included below), the EID water supplies are separated into two classifications: existing and planned. Combined, the Dixon Ranch WSA concluded that these supplies provide sufficient water for the proposed project (see **Figure 1**).

While there is reasonable certainty that all of the existing EID water supplies are available, there is a degree of uncertainty whether the planned Central Valley Project Fazio water entitlement (hereafter the "Fazio supply"), or the supplies anticipated under the El Dorado-SMUD Cooperation Agreement (hereafter the "UARP supply") will manifest in the quantities or on the schedule currently planned as EID proceeds through regulatory approval and contracting processes. Therefore, as directed by the *Vineyard* principles outlined above, an analysis of options that would provide sufficient water for the proposed project is necessary. The following discussion characterizes three Water Supply Options that are viable alternative methods to serve the project.

Figure 1 – Project Water Supplies from the Dixon Ranch WSA

Table 4-1 – Water Rights, Entitlements, and Supply Availability

Water Right or Entitlement	Maximum Water Assets Available (Ac-ft)	Normal Year Planned Supply Availability (Ac-ft)	Dry-Year Planned Supply Availability (Ac-ft)
License 2184 and pre-1914 ditch rights including Warren Act Contract 06-WC-20-3315	4,560	4,560	3,000
Licenses 11835 and 11836	33,400	23,000	20920 [A]
CVP Contract 14-06-200-1375A-LTR1	7,550	7,550	5,660
Pre-1914 American River diversion and storage rights	15,080	15,080	15,080
Permit 21112	17,000	17,000	17,000
Subtotal Existing	**77,590**	**67,190**	**61,660**
Central Valley Project Fazio water entitlement (PL 101-514 (1990) Fazio) [D]	7,500	7,500	5,625
Applications 5645X12, 5644X02 and partial assignment of Applications 5645, 5644 with El Dorado-SMUD Cooperation Agreement [E]	40,000 [B]	30,000	5,000 [C]
Subtotal Planned	**47,500**	**37,500**	**10,625**
Recycled Water	5,600	5,600	5,600
Total	**130,690**	**110,290**	**77,885**

[A] This is the modeled safe-yield of this water right during a single dry-year. For planning purposes, the second and third dry years of a three-year dry period are assumed to be 17,000 acre-feet, and 15,500 acre-feet, respectfully
[B] Section 5.1.1 of the El-Dorado SMUD Cooperation Agreement indicates that 40,000 acre-feet of SMUD water will be available after 2025. For conservative Normal Year planning purposes, the District uses 30,000 acre-feet of available supply.
[C] Available supply is 15,000 acre-feet in a single dry year but in preparing for multiple dry years EID anticipates using only 5,000 acre-feet per year for a three year period.
[D] Available starting in 2015
[E] Available starting in 2025

Quantity of Water to Replace

To understand the quantity each Water Supply Option must provide, an evaluation of the Dixon Ranch WSA's conclusions about surplus water is necessary. Table 5-1 of the Dixon Ranch WSA summarizes the assessment of supply and demand for the year 2035. As demonstrated in that table, surplus water exists under all hydrologic conditions: normal, single-dry, and multi-dry years. Absent the Fazio and the UARP water supplies, however, the surpluses shown in WSA Table 5-1 are reduced or even become shortfalls. **Table 1** presents the surplus as analyzed in the Dixon Ranch WSA and the resulting change when the Fazio and UARP planned water supplies are removed.

Table 1 – Comparison of Surplus/Shortfall Conditions with and without Planned Supplies at Build-out Conditions (2035)

Hydrologic Year Type	Surplus Water (T. 5-1 of WSA) acre-feet/year	Quantity of "Planned Supplies" acre-feet/year		Surplus/(Shortfall) Water w/o "Planned Supplies" acre-feet/year
		Fazio	UARP	
Normal	42,995	7,500	30,000	5,495
Single Dry	7,225	5,625	5,000	(3,400)
Multi dry (Year 1)	7,225			(3,400)
Multi dry (Year 2)	8,251			(2,374)
Multi dry (Year 3)	12,404			1,779

As demonstrated in **Table 1**, at build-out conditions (2035) during a normal year there is still surplus water, absent the planned supplies, and thus no alternative supply is necessary. During single-dry and multi-dry hydrologic conditions, the anticipated supply when considering the "planned supplies" becomes a shortfall with their absence. The worst-case shortfall occurs during a single-dry hydrologic year – when supplies are curtailed and temporary demand management efforts are yet to be triggered by EID. Under these shortfall conditions, EID would not have sufficient water to serve the proposed project and other existing and planned uses. Per the *Vineyard* decision, a water supply option must be identified and its impacts assessed for a water supply that would provide up to 3,400 acre-feet during a single dry-year.

Water Supply Options

To enable comparison to the sufficient water supplies identified by the WSA, and summarized in Draft EIR Section IV.L, Utilities , this analysis identifies water supply options that have been developed to meet the 3,400 ac-ft shortfall and are assessed in this section:

- Option 1 – Construct Alder Reservoir
- Option 2 – Construct recycled water seasonal storage and implement additional conservation
- Option 3 – Participate in regional groundwater banking and exchange programs

Option 1 – Construct Alder Reservoir

Water Supply Option 1 (Option 1) envisions the construction of a new dam and storage reservoir in the Alder Creek watershed. Option 1 would provide more than ample dry-year water supplies to meet the targeted shortfall identified in **Table 1**. A storage facility on Alder Creek has been studied for many years, with the most recent analysis included in EID's 2013 *Integrated Water Resources Master Plan* (IWRMP). In the IWRMP, construction of the Alder Reservoir is an integral part of the EID recommended water resources plan. The IWRMP is included in this EIR by reference.[1]

As described in the IWRMP:

> *"[T] he Alder Dam would be a rock-fill dam approximately 143 feet high with a crest length of 800 feet and width of 30 feet at elevation 5,333 feet. The Alder Reservoir would have a capacity of 31,700 ac-ft and capture approximately 23,100 ac-ft of water in an average runoff year from the Alder Creek drainage basin of 18.6 square miles. A new penstock and 10 MW powerhouse would be located near the existing El Dorado Canal allowing water withdrawn from Alder Reservoir to be used for hydroelectric generation and released into the El Dorado Canal downstream of the Alder Creek inverted siphon."*(IWRMP, p. 201)

Figure 2 represents the proposed location of Alder Dam and the resulting footprint of Alder Reservoir. The new reservoir is projected to provide a dry-year safe yield of 11,250 acre-feet.

Water captured and stored during the spring snowmelt runoff period would be released throughout the remaining months at either (1) Jenkinson Lake via the Hazel Creek Tunnel, (2) the Forebay Reservoir, (3) Folsom Reservoir, or (4) a new point of diversion such as the proposed White Rock diversion.

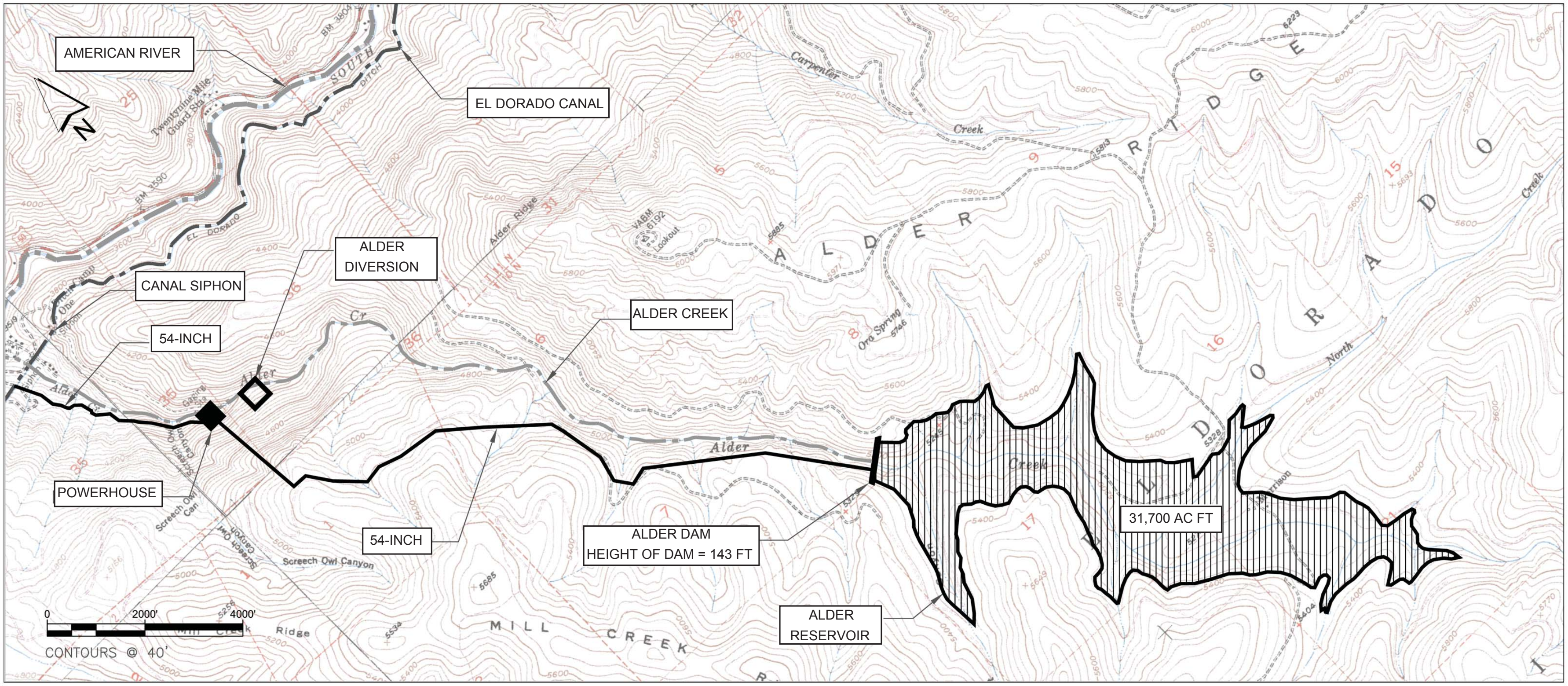
While the estimated safe yield is more than three times the quantity necessary for a Water Supply Option, the Alder Reservoir project as currently planned by EID provides a well-documented alternative that has already undergone assessment and is included in the EID Board-adopted IWMRP.

Water Supply Certainty

As detailed in the IWRMP, Alder reservoir would have a capacity of 31,700 acre-feet, capturing about 23,000 acre-feet in an average runoff year from the Alder Creek watershed. The safe yield of the reservoir is estimated to be about 11,250 acre-feet per year. This option provides significantly more water than is necessary to replace the WSA's planned water supplies. Thus, even if the hydrology estimates produced lower runoff quantities, there would still be significantly more water than is required for replacement, resulting in a high level of certainty of availability during dry-years.

[1] Integrated Water Resource Master Plan, March 2013, accessed on EID's website via http://www.eid.org/modules/showdocument.aspx?documentid=3554

Figure 2 – Location of Alder Dam and resulting Alder Reservoir
(source: EID IWRMP, Figure 8-4, p 203)



Source: EID Water Supply Optimization Study, Conceptual Designs and Cost Analyses TM (Domenichelli & Assoc., Inc., 2011)

HDR ONE COMPANY | Many Solutions

Alder Reservoir Facilities
Figure 8-4

Tully & Young
Comprehensive Water Planning

Option 2 – Construct Recycled Water Seasonal Storage and Implement Additional Conservation

Water Supply Option 2 (Option 2) includes two components: (1) a recycled water seasonal storage reservoir to capture treated wastewater produced by EID that is otherwise in excess of the daily demand for recycled water, and (2) additional water conservation actions implemented by EID and its customers to reduce customer demand and/or reduce delivery system losses.

Seasonal Storage Reservoir

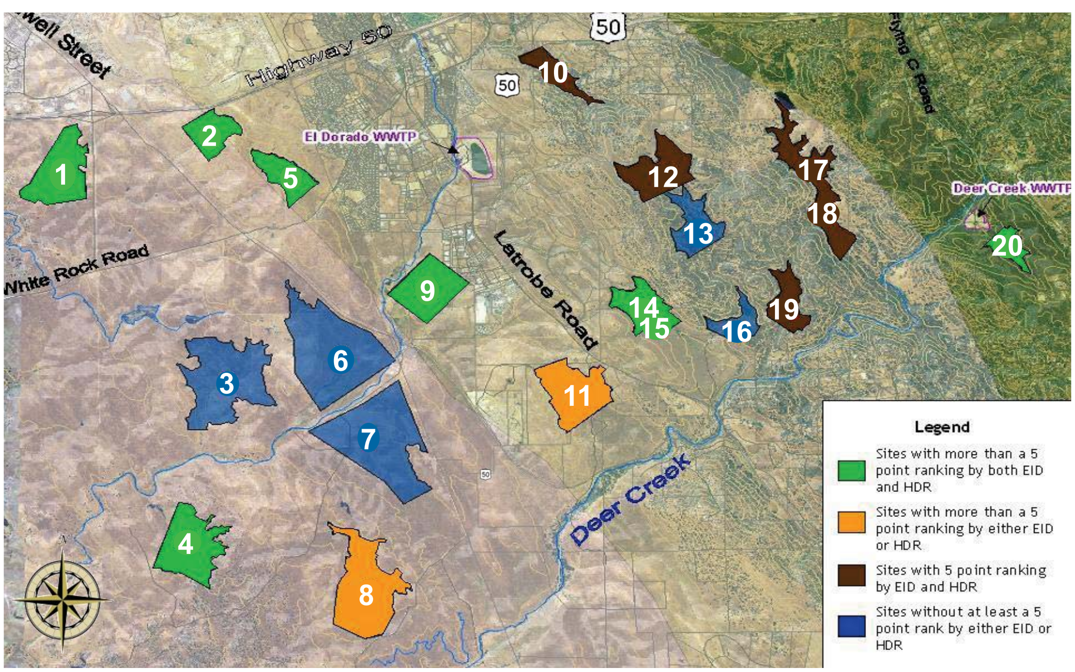
The first component, seasonal storage, has been analyzed by EID. In a report published in May of 2011, EID detailed an assessment of potential seasonal storage locations (see *Basis of Design Report - EID Recycled Water Seasonal Storage Reservoir*, May 2011 [hereafter referred to as the "Design Report"]), included as **Attachment 1**.

Of the twenty locations assessed in the Design Report, two locations were determined most suitable for additional analysis (see **Figure 3**). These were:

- El Dorado Hills Reservoir - Site 15 located south of the El Dorado Hills Wastewater Treatment Plant
- Deer Creek Reservoir – Site 20 located just south of the Deer Creek Wastewater Treatment Plant

Figure 3 – Sites investigated in the EID Design Report

(source: EID's Basis of Design Report - EID Recycled Water Seasonal Storage Reservoir, May 2011, Figure 3-5, p. 22)



These sites were thoroughly investigated to determine each location's ability to store 2,500 acre-feet of annual recycled water supply.

Section 4 of the Design Report provides detailed information regarding site location, geology, embankment design, pipeline routing, and other relevant information.

Water Conservation

With availability of 2,500 acre-feet from a recycled water storage reservoir to help meet the 3,400 acre-foot shortfall in dry years, the water conservation component of Option 2 would need to provide an additional 900 acre-feet. This supply may manifest either as additional reduction in EID customer demands, or as a reduction in distribution system losses, with the latter enabling EID to route the saved water to meet customer demands.

Currently, EID implements a variety of water conservation practices consistent with the best management practices (BMPs) identified in the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding. These programs are part of EID's on-going operations, and include, but are not limited to: tiered pricing, water meters, leak audits, and public education. EID's Water Efficiency Programs offer numerous options directed towards conserving water uses for commercial, residential, and landscaping purposes.

As demonstrated in Section 3.3 of the Dixon Ranch WSA and summarized in the Dixon Ranch WSA's Table 3-1, the existing EID customers are anticipated to reduce their demands through implementing conservation actions over the analysis period. Specifically, EID anticipates current customer demands will reduce by 2% by 2020 and an additional 1% by 2035. As shown in the Dixon Ranch WSA Table 3-1, these savings are estimated to reduce current customer demands by 690 acre-feet annually.

Under this portion of Option 2, additional conservation actions will target generating an additional 900 acre-feet, slightly more than the conservative estimates in the Dixon Ranch WSA.

Though there may begin to be limits for additional conservation opportunities from existing EID customers, EID also recognizes opportunities to conserve water through improvements to its existing water delivery infrastructure. As detailed in Section 3.4 of the Dixon Ranch WSA, a "non-revenue" component of total water demands represents the system losses, meter inaccuracies, illegal connections, and other factors that help explain the differences between metered customer use and water entering EID's distribution system. For purposes of the Dixon Ranch WSA, and as a conservative planning tool in other EID water planning efforts, this non-revenue value is assumed to hold constant at 13% of the overall customer demand. The 13% reflects over 4,500 acre-feet of water essentially unaccounted-for in EID's system under current delivery conditions. With increased customer demands, this value increases to over 7,500 by

2035. By fixing system leaks and addressing other elements of non-revenue demands, water can be recaptured and made available to meet customer demands.

As a routine part of its operations, EID works to identify sources of non-revenue demand, seeking to improve delivery system efficiencies as economically feasible. Though the specific requirements and resulting water savings from addressing overall distribution system losses and inefficiencies are an evolving process, EID has been successful in the past and will continue to do so into the future. As issues are identified, EID evaluates options, assesses costs, and details savings opportunities. As these plans are developed they are assigned a project number, priority level, and moved into EID's Capital Improvement Plan (CIP) as specific projects.

One example of a water conservation project EID has assessed and included as part of its CIP is the Main Ditch piping project from Forebay Reservoir to the Reservoir 1 Water Treatment Plant. The conservation savings from piping a 3-mile long earthen canal that carries as much as 15,080 acre-feet annually are estimated as high as 1,300 acre-feet per year. In addition to the water savings from this project, public health benefits will also accrue including lower sediment levels in the raw water reaching the treatment plant and greatly reduced risk of contamination. EID has included this project in its latest Board approved CIP and is currently working to secure funding.[2] For purposes of Option 2, this particular system loss reduction project is assumed to achieve the additional 900 acre-feet of conservation supply.

In 2004 EID participated in the testing of the new American Water Works Association water audit methodology (AWWA audit) to evaluate the losses from its delivery system. From the AWWA audit, EID recognized it had significantly reduced its water losses over the previous decade, from 28% in 1991 to 13% in 2004. With a decade passing since the AWWA audit, there have been improvements in leak detection technologies as well as growth in the number and experience of contractors specializing in leak detection and repair. As EID continues to improve its distribution system to efficiently meet customer needs, some of the opportunities identified by the 2004 AWWA audit may now be cost effective to investigate, assess and implement.

Along with continued investigation, assessment and implementation of actions to reduce non-revenue demands, EID can expand current rebate programs and other customer-focused water conservation measures. An additional one percent reduction in the demands of current customers, beyond the savings already anticipated in the Dixon Ranch WSA, could reduce demand by another 350 acre-feet annually.

As a conservative assumption, an additional 1% reduction in customer demands through conservation measures and a 1% reduction in the non-revenue demands could produce

[2] EID 2014-2018 CIP, Project Number 11032

over 900 acre-feet of water annually. Greater reduction in either category and/or piping the Main Ditch would only increase the savings further.

Water Supply Certainty

Combined, the recycled water seasonal storage reservoir and additional conservation measures could generate at least 3,400 acre-feet needed in dry years. Because the seasonal storage facility would capture and regulate the consistent outflows of EID's wastewater treatment plants, the identified yield is considered to be highly reliable under all hydrologic conditions. Long-term reductions in customer demand and fixes to distribution system inefficiencies also provide a consistent savings regardless of hydrologic conditions. Thus, this Water Supply Option provides a high level of certainty of availability during dry years.

Option 3 – Participate in Regional Groundwater Banking and Exchange Program

Under Water Supply Option 3, EID would coordinate with other regional water purveyors to exchange wet and normal year EID surface water supplies for use of non-EID water supplies in critical dry years. Option 3 could be achieved in partnership with one or more of many water purveyors that share access to the American River. Any opportunity, however, is premised on an agreement among the parties and regulatory approvals to allow EID surface water supplies to be used or stored outside of EID's existing place of use during normal and wet conditions, and EID's use of a partner's American River-related water supplies during dry conditions.

Like the other two options, this Option 3 needs to assure a minimum of 3,400 acre-feet of water is available to EID during a single dry year.

As presented in the Dixon Ranch WSA and summarized in Table 1, during normal and wet years, EID has a surplus of secured water supplies totaling about 5,500 acre-feet annually. All or a portion of this supply is assumed available for delivery to another regional water purveyor to enable the conjunctive use exchange opportunities envisioned under this option. Table 2 includes a sample 13-year condition illustrating a potential exchange of water among the parties.[3]

Several water purveyors with surface water rights and entitlements on the American River could participate with EID to develop this water supply option.

As envisioned, EID would exchange normal year water for use of a portion of the partner's surface supplies (e.g., if Sacramento County Water Agency was the partner, the supply exchanged to EID could be SCWA's dry year CVP contract water supply or other SCWA water rights). In wetter and normal water years, EID would deliver its 5,500 acre-feet surplus to its conjunctive use partner for use in the partner's service area (e.g. SCWA would deliver the surface water to its customers). In taking EID's surplus surface water, the partnering agency would forego groundwater use and thus "bank" groundwater supplies as stored water in the underground aquifer. During critical dry years, the partnering agency would rely upon this banked groundwater to meet local needs and allow EID to divert up to 3,400 acre-feet of its surface rights or entitlements at an existing EID facility in Folsom Reservoir or another existing EID diversion and treatment facility.

[3] The sample period reflects the CA Department of Water Resources' Sacramento Valley water year index for 2000 through 2012 from Bulletin 120.

Table 2 – Sample exchange of water among parties to facilitate dry-year water supplies for EID

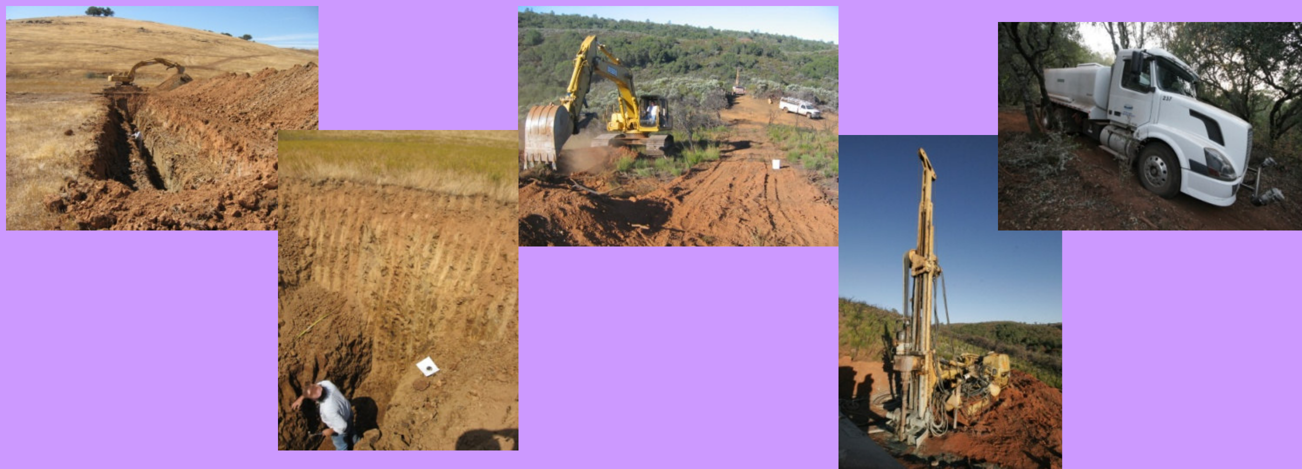
Year	Sample Hydrology (2000-2012)	EID supply "banked" (af/yr)	Other water to EID (af/yr)	Balance
0	above normal	5,500	0	5,500
1	dry	0	3,400	2,100
2	dry	0	2,374	-274
3	above normal	5,500	0	5,226
4	below normal	0	3,400	1,826
5	above normal	5,500	0	7,326
6	wet	5,500	0	12,826
7	dry	0	3,400	9,426
8	critical	0	2,374	7,052
9	dry	0	2,374	4,678
10	below normal	0	2,374	2,304
11	wet	5500	0	7,804
12	below normal	0	3,400	4,404

Notes:
(1) Sample series of water year types is derived from the CA Department of Water Resources Bulletin 120 series for the Sacramento Valley.
(2) In a second dry year, the EID demand for supplemental water is reduced as shown in Table 1

Water Supply Certainty

This Water Supply Option could generate up to 3,400 acre feet of water for diversion by EID in dry years on a reasonably certain basis – given that any conjunctive use partnership would only be established with a purveyor(s) able to reliable provide adequate dry year surface supplies to EID.

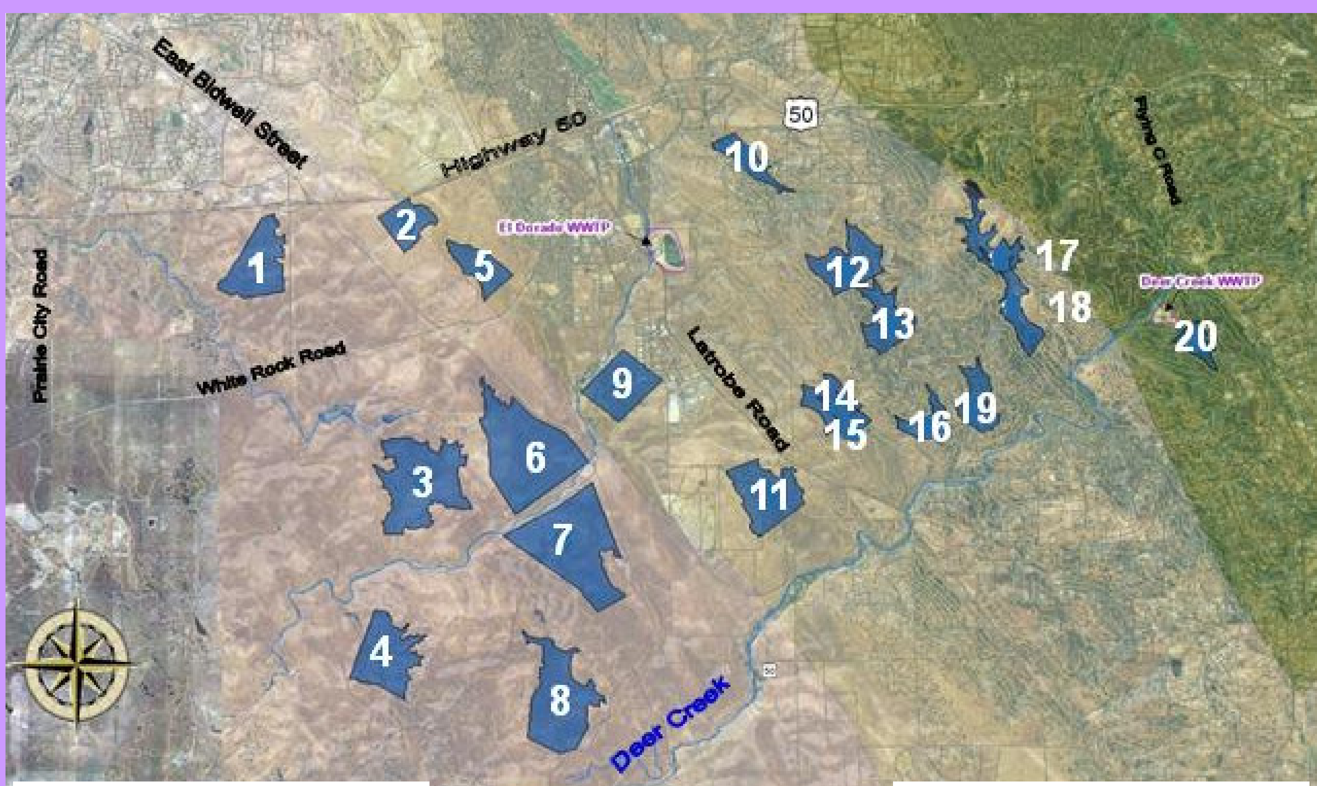
Water Supply Option 3, which would exchange groundwater supplies and surface supplies in the Sacramento region, entails concerns related to the long-term reliability of groundwater supplies. In addition, there are also concerns related to the migration of existing groundwater contamination in eastern Sacramento County as a result of additional pumping under this water supply option.



Basis of Design Report

EID Recycled Water Seasonal Storage Reservoir

May 31, 2011



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El Dorado Irrigation District

Basis of Design Report

Recycled Water Seasonal Storage Reservoir

FINAL

May 31, 2011

REGISTERED PROFESSIONAL ENGINEER
Mark J. Hammer, Jr.
No. C45762
5/31/11
CIVIL
STATE OF CALIFORNIA
12/31/12

Prepared under the responsible charge of

Mark J. Hammer, Jr., P.E., Civil
Registration Number

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Contents of Attached Computer Disk

Task	Date Completed	Folder
1. Verify and Update Assumptions	October 5, 2006	Task 1
2. Identify Funding Resources	October 24, 2006	Task 2
3. Perform Regulatory Review	Oct 3, 2007 RWQCB Jan 29, 2008 DPH	Task 3
5. Assess Environmental Considerations	April 7, 2008	Task 5
6. Identify Reservoir Site Locations	July 18, 2008	Task 6
7. Select Sites for Further Evaluation	April 29, 2008	Task 7
8. Summarize and Compare Sites – Board Presentation	April 10, 2008	Task 8
9. Economic Evaluation	March 18, 2009	Task 9
11. Land Analysis	April 7, 2008	Task 11
Pre-Design Drawings	May 2008	Drawings PDF and DWG
Note: Tasks 4 and 10 did not result in any documents being produced		

Executive Summary

The El Dorado Irrigation District (EID) is located in El Dorado County, on the western slope of the Sierra Nevada Mountains. The District's Deer Creek Wastewater Treatment Plant (DCWWTP) and El Dorado Hills Wastewater Treatment Plant (EDHWWTP) produce tertiary treated recycled water suitable for unrestricted reuse under California Title 22. The recycled water is used in the El Dorado Hills and Cameron Park areas for commercial, industrial, golf course, and dual-plumbed residential irrigation.

Deer Creek Wastewater Treatment Plant

The DCWWTP is located approximately two miles south of Highway 50 in the community of Cameron Park, south of Cameron Park Estates. The plant is required to discharge at least 1.0 MGD to Deer Creek under a mandate from the State Water Resources Control Board (SWRCB), which reduces the amount of recycled water available.

The liquid stream treatment processes include aeration basins, biological nutrient removal, secondary clarifiers, filtration, and disinfection. The treatment plant was recently modified to provide ultraviolet light disinfection. These processes meet the requirements for the Title 22 recycled water and surface discharge requirements for Deer Creek.

El Dorado Hills Wastewater Treatment Plant

The EDHWWTP is located in El Dorado Hills, on Latrobe Road, approximately 1.25 miles south of US Highway 50. The treatment plant provides recycled water to the community of El Dorado Hills and excess treated wastewater is discharged to Carson Creek.

The liquid stream treatment processes include primary clarifiers, aeration basins, biological nutrient removal, secondary clarifiers, secondary storage pond, dissolved air flotation, flocculation/filtration, and disinfection. The treatment plant is currently being expanded to increase capacity and to change the disinfection system from sodium hypochlorite to ultraviolet light. These processes meet the requirements for the Title 22 recycled water and surface discharge requirements for Carson Creek.

Project Goals

EID intends to expand the recycled water system and build a seasonal storage reservoir to achieve a goal of meeting the future community's recycled water demands. The goal can be achieved as an economically preferred project for seasonal storage and limited stream discharge of excess winter flows.

Scope of this Study

The scope of this study is to advance the work of the Recycled Water Master Plan, evaluate potential reservoir sites, develop a preliminary reservoir design, and estimate the probable construction cost of the reservoir and supporting facilities. This study also includes an updated economic evaluation. The scope of services for this project has been divided into 10 tasks:

1. Verify and Update Assumptions
2. Identify Funding Resources
3. Perform Regulatory Review
4. Meet with the City of Folsom
5. Assess Environmental Considerations
6. Identify Reservoir Site Locations
7. Select Sites for Further Evaluation
8. Summarize and Compare Alternative Sites
9. Economic Evaluation
11. Land Assessment

Recycled Water Supply and Reservoir Sizing

All reservoir sizing is based on the El Dorado County General Plan build-out conditions and projections for recycled water demands maintained by EID. Reservoir options sizing options include:

No Seasonal Storage. Recycled water supply without seasonal storage is limited by wastewater flow (recycled water supply) available during summer low flows and peak irrigation demands during a dry year. The maximum recycled water supply is 4,100 acre-feet. To meet the build-out demand, an additional 4,530 acre-feet of water must be provided. (See Figure 2-4 for recycled water components.)

2,500 acre-feet of Seasonal Storage. To meet the irrigation demands in El Dorado County at build-out, 8,630 acre-feet of total recycled water demand is met with a storage reservoir of 2,500 acre-feet. With seasonal storage, an additional 2,030 acre-feet of recycled water becomes available without going through the storage reservoir. During dry years, all of the available wastewater (except for the 1 MGD required for discharge to Deer Creek) is used for recycled water. During normal and wet years, excess wastewater must be discharged to Deer Creek and Carson Creek.

5,000 acre-feet of Seasonal Storage. To meet the irrigation demands in El Dorado County at build-out and provide zero discharge to surface water (except for the required 1 MGD to Deer Creek), a reservoir of 5,000 acre-feet and additional 1,030 acres of irrigation would be required. During wet years, all of the wastewater (except for 1 MGD) would be stored and used for recycled water irrigation. During normal and dry years, the additional irrigation area needs to be left fallow or kept in service with a supplemental water supply.

The Basis of Design is focused on a 2,500 acre-feet reservoir to meet the irrigation demands in El Dorado County at build-out. Excess wastewater is discharged to Deer Creek and Carson Creek. Additional seasonal storage capacity should be evaluated if additional recycled water demands are identified.

Identification of Potential Reservoir Sites

In general, the optimal location for a seasonal storage reservoir is within the existing or future service areas. Locations outside of the service area may be advantageous if they offer benefits such as land use compatibility, efficient topography, readily available material for embankment construction, and limited environmental impacts. However, these must be weighed against the additional piping and pumping costs.

The study area was bounded on the east by Flying C Road and Amber Field Road due to residential development and elevation gain further east; on the north by Highway 50, due to residential development; to the south by Deer Creek because of the cost of creek crossing and distance away from the service area; and on the west by Prairie City Road due to distance from the service area. Within this study area, HDR identified 20 potential seasonal storage reservoir sites (including those sites identified in previous studies), as shown in Figure ES-1. USGS topographic maps were used to identify sites having a capacity of between 2,500 and 5,000 acre-feet. Sites within major streams, roads, and developed areas were avoided.

Ranking criteria were developed to cover engineering, environmental, community impacts, and implementation considerations. All ranking was based on numeric data using an appropriate metric measure and adjusted to a 1 to 10 scale, with 10 being the best rank. Detailed metric measures and ranking for each of the individual criteria are presented in the technical memorandum for Task 6. Table ES-1 shows the total points for each category, the weighted total result and average weighted ranking for each site. The best sites have the highest scores.

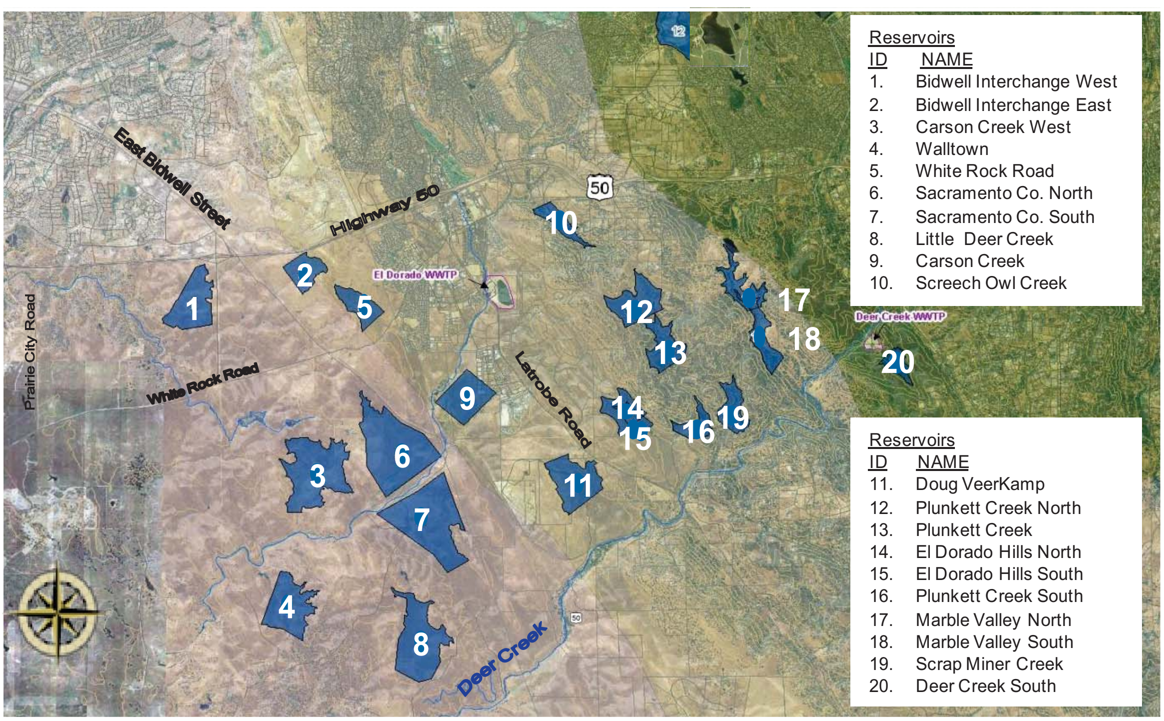


Figure ES-1. Location of Potential Reservoir Sites

The table is sorted in order of most advantageous to least advantageous site. From this weighted and ranked list of 20 sites, eight sites were selected for continued evaluation. The top eight sites are listed in Table ES-2.

Table ES-1. Ranking and Weighting Results

		Engineering and Operations	Environmental	Community Impacts	Implementation	Weighted Results	Average Weighted Results
Potential Reservoir Sites							
5	White Rock Road	24	38	17	34	113	8
2	Bidwell Interchange East	24	38	12	36	109	7
20	Deer Creek South	26	29	14	30	98	7
9	Carson Creek	16	38	7	31	92	6
1	Bidwell Interchange West	20	29	13	30	92	6
4	Walltown	17	25	20	25	87	6
14	El Dorado Hills North	24	24	11	26	85	6
15	El Dorado Hills South	23	24	11	24	82	6
10	Screech Owl Creek	21	21	7	25	75	5
8	Little Deer Creek	15	20	18	20	74	5
11	Doug Veerkamp	24	19	11	18	72	5
17	Marble Valley North	19	18	16	16	70	5
19	Scrap Miller Creek	20	21	7	22	70	5
12	Plunkett Creek North	19	18	15	17	69	5
18	Marble Valley South	16	18	16	18	68	5
16	Plunkett Creek South	15	20	10	20	65	4
3	Carson Creek West	12	13	21	12	58	4
7	Sacramento Co. South	13	13	21	12	58	4
6	Sacramento Co. North	15	12	13	12	51	3
13	Plunkett Creek	15	10	12	14	50	3

Table ES-2. Top 8 Ranked and Weighted Sites

Site Number	Site Name
5	White Rock Road
2	Bidwell Interchange East
20	Deer Creek South
9	Carson Creek
1	Bidwell Interchange West
4	Walltown
14	El Dorado Hills North
15	El Dorado Hills South

Site locations adjacent to the EID recycled water system are more efficient because of reduced energy cost and shorter travel times for operations and maintenance staff. Based on the weighted ranking results and locations adjacent to the EID recycled water system, the following two sites were selected for further evaluation and on-site geotechnical exploration (see TM Task 6B):

- Deer Creek Reservoir - Site 20 is located just south of the Deer Creek Wastewater Treatment Plant (DCWWTP)
- El Dorado Hills Reservoir - Site 15, south of the El Dorado Hills Wastewater Treatment Plant (EDHWWTP)

Evaluation of Selected Sites

Deer Creek Site

The reservoir site is located immediately south of the DCWWTP in a deep canyon. Figure ES-2 shows the location of geotechnical borings, test pits, and seismic refraction survey. Results of the field investigations indicate that the site area is generally covered by a thin (approximately 2- to 3-foot-thick) layer of loose sandy to silty or clayey gravel with varying amounts of cobble-size material overlying bedrock. Free groundwater was not encountered in our exploratory test pits or trenches. Due to the use of drilling water during coring, detection and measurement of groundwater was not possible in the exploratory borings. The results of the refraction survey, combined with the test pit observations, suggest that adequate material is available for construction of the embankment. DSOD representatives visited the site on August 9th and 24th, 2007, observed the geology and site conditions, and informally concurred with the findings in the field.

The following is a list of findings of the Deer Creek Site Investigation:

1. Geology at the site is highly variable.
2. On-site investigation and laboratory testing confirms that the materials, once excavated, are more similar to soil than rock.
3. Soil-like material exists in at least the upper 10 to 15 feet across much of the east half of the site.
4. Obtainable rock size and hardness is not suitable for a rock fill embankment.
5. There is insufficient silty-clay soil to create an impermeable core.
6. Borrow quantity and quality is suitable for an earthen embankment, but on-site segregation will be required to remove potential large quantities of talc schist in the rest of the fill. Insufficient quantities of silt and clay materials were found to construct a suitable core, therefore a monofill embankment of homogeneous material is recommended.
7. Fractured and sheared rock and other materials are relatively permeable, again justifying a homogeneous embankment fill.

8. Faulting was not evident in the excavation and there is no fault mapped through this area. Fault activity is not an issue for design.
9. Earthfill embankment requires slopes of 3:1.
10. Filter materials for zoned embankment are not readily available without excessive material handling and should be imported.
11. The foundation support for an earthfill embankment is acceptable for the proposed size of the structure, with appropriate foundation preparation.
12. Shallow fractured rock with shear and fault zones throughout the site may necessitate a liner under the entire reservoir.

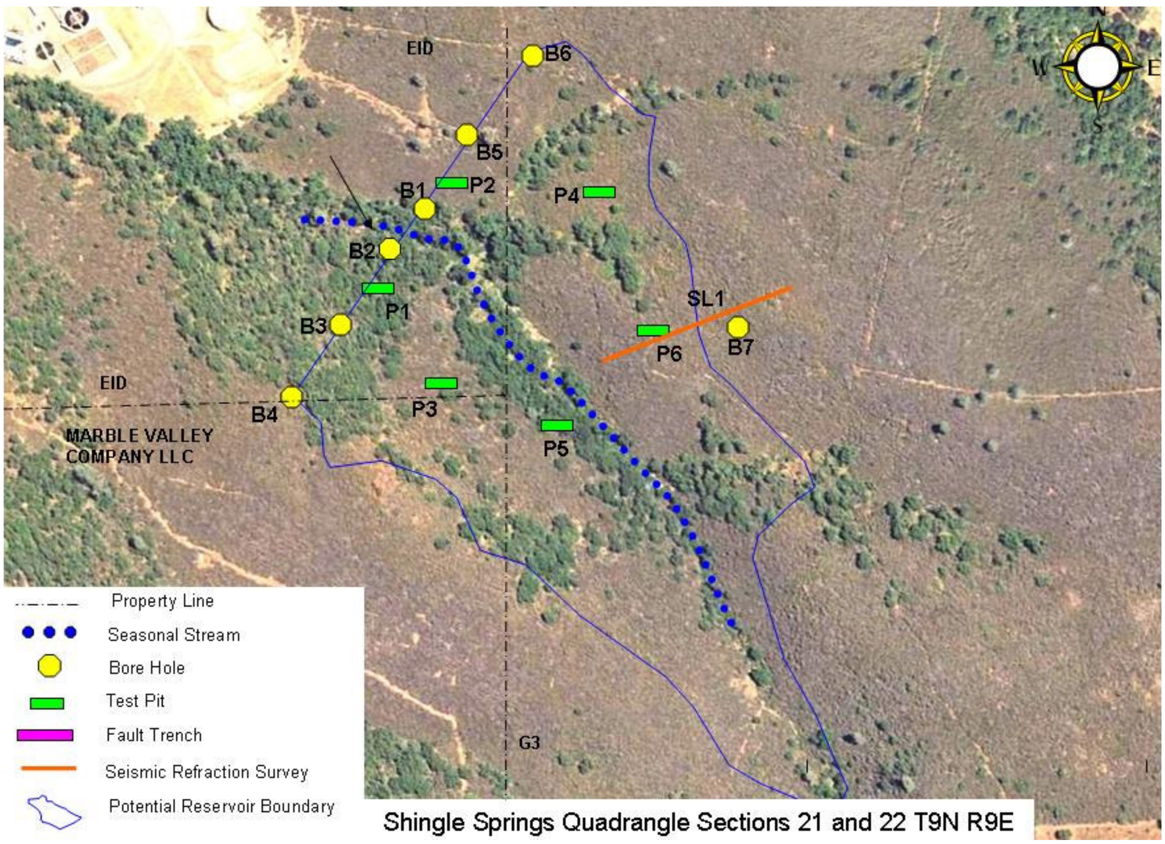


Figure ES-2. Geotechnical Investigation of the Deer Creek Site

El Dorado Hills Site

The site is located south of the EDHWWTP in a valley. Figure ES-3 shows the location of geotechnical borings, test pits, trenches, and seismic refraction survey. The field investigation revealed a shallow soil cover of less than 3 feet over bedrock. The bedrock is deeply weathered, sheared, and highly fractured. The material in the upper 10 to 15 feet is more similar to soil than to rock and is more suitable for an earthen embankment. The results of the refraction survey, combined with the test pit observations, suggest that adequate material is available for construction of the embankment.

Three fault trench locations were excavated to confirm the location of the west branch of the Bear Mountains Fault Zone. Trench T1 was located along the fault line reported by Loyd in 1984 and Busch in 2001. In 1981, Wagner located the fault line west of the reservoir site. The Tierra study concluded that the last movement along the west branch of the Bear Mountains Fault Zone occurred at least 65,000 years ago. The TEC study concluded that the West Branch of Bear Mountains Fault Zone is not a capable fault under USACE criteria. As such, we conclude that the El Dorado Hills site is not at risk with respect to impacts related to active or conditionally active faulting across the site.

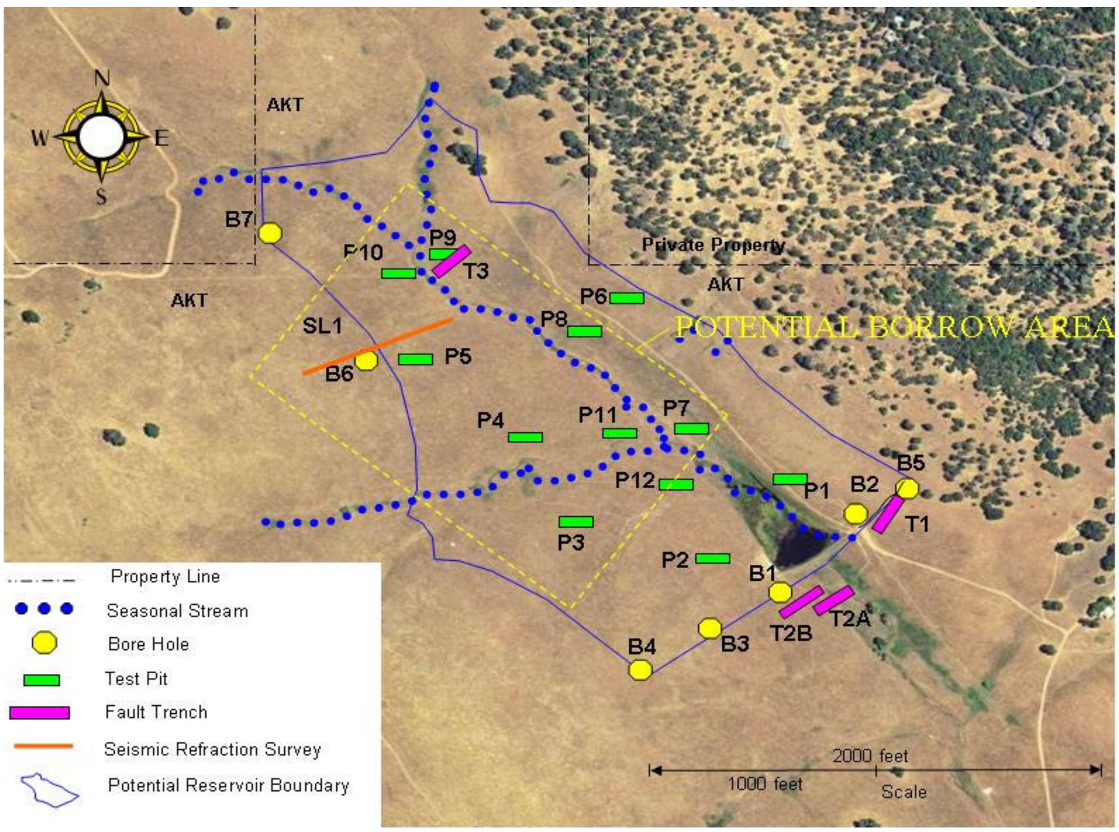


Figure ES-3. Geotechnical Investigation of the Deer Creek Site

The following is a list of findings of the El Dorado Hills Site Investigation:

1. Geology at the site is highly variable.
2. Soil-like material exists in at least the upper 12 to 15 feet across two-thirds of the site.
3. Fractured and sheared rock found underlying the site is highly permeable.

4. DSOD representatives observed the geology and site conditions, and informally concurred with the findings in the field.
5. The Bear Mountains Fault Zone does not appear to be an issue for design with respect to fault activity.
6. Earthfill embankment requires slopes of 3:1 or shallower.
7. The material is suitable for an earthfill embankment.
8. Filter materials for zoned embankment are not readily available and should be imported.
9. Shallow fractured rock with shear and fault zones throughout the site may necessitate a liner under the entire reservoir.
10. The foundation support for an earthfill embankment is acceptable for the proposed size of the structure with appropriate foundation preparation.
11. Sandy clay found on the western slope of the site is potentially good for an impermeable core.
12. Shallow groundwater exists across the western portion of the site.
13. Shallow groundwater must be considered as part of construction.
14. Shallow groundwater and the presence of springs could complicate the liner design and may require relief valves.

Based on geologic conditions, preliminary embankment designs were created to maintain a minimum operating volume of 2,500 acre-feet of operating volume. Figure ES-4 shows the typical cross-section of the 127.5 foot high embankment for the Deer Creek site. Figure ES-5 shows the typical cross-section of the 77 foot high embankment needed at the El Dorado Hills site. Both sites and embankments passed analyses under various hydraulic and failure conditions per the Department of Safety of Dams, US Army Corps of Engineers, and Federal Energy Regulatory Commission.

Other studies at each site included land acqusition requirements, roads and site access, electrical service, communication with other EID facilities, post recycled water treatment, piping, and pumping to daily storage.

Seasonal Storage Components Included in the Recycled Water System

Roads and Access included with the Reservoir Embankment. Each reservoir requires a modest extension of existing roads to provide access to the site. At the Deer Creek site, the access to the DCWWTP is shared and a short road extension is required to the south onto the reservoir site. At the El Dorado Hills site, the access is along private roads that require right-of-way and improvement.

Reservoir Membrane Liner. To provide a leak-proof liner and prevent degradation of groundwater, a liner to the reservoir is required. The most effective liner is a membrane liner such as Hypalon.

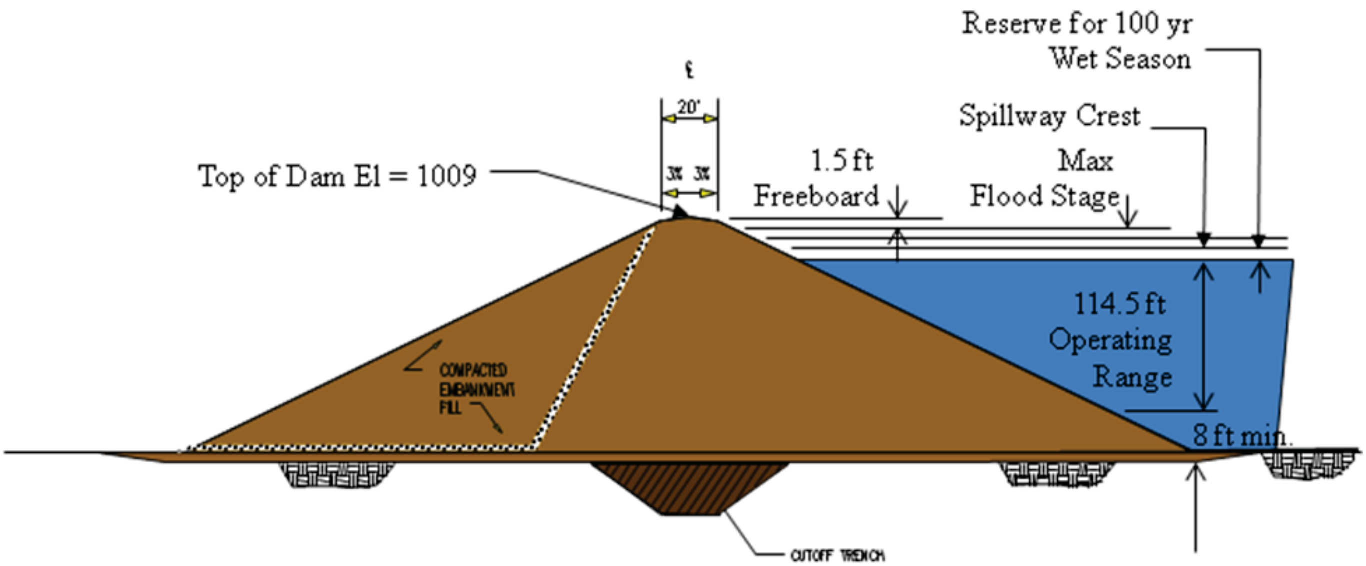


Figure ES-5. Typical Cross-Section of the Embankment for the El Dorado Hills Site

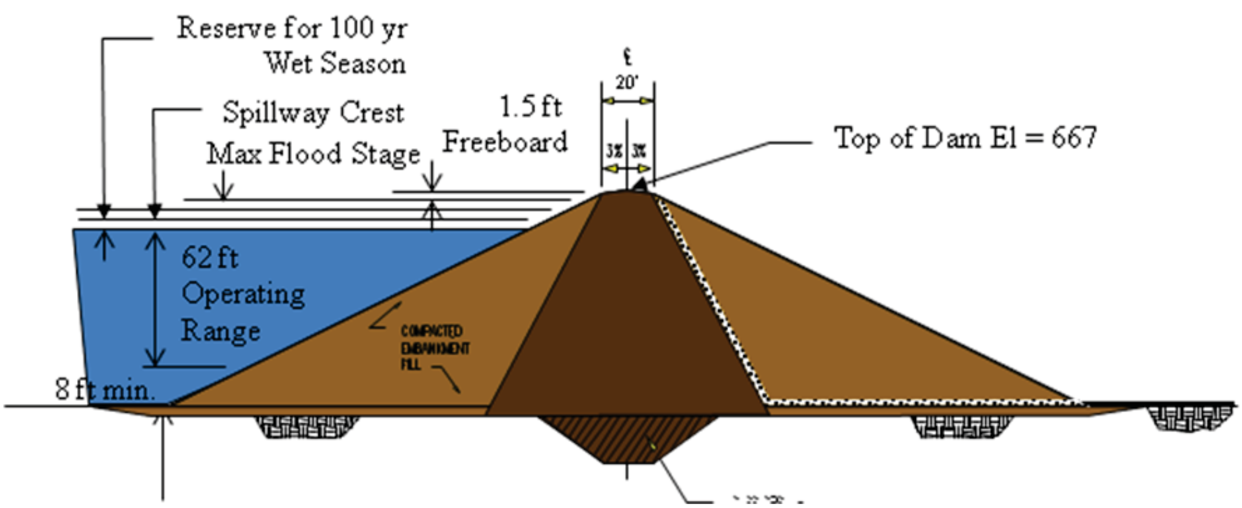


Figure ES-4. Typical Cross-Section of the Embankment for the Deer Creek

Aeration for Algae Control. Blowers and diffused aeration increases the dissolved oxygen level in the reservoir and inhibits algae growth. Operation of the aeration system is based on measurement of chlorophyll (algae concentration).

Chlorine for Post Treatment. Chlorine is required to kill any algae and prevent bacterial deposits on the interior surface of distribution mains. Chlorine feed includes sodium hydroxide storage and chemical feed pumps.

Filtration for Algae and Solids Removal. Algae and solids from the reservoir can be removed using filters prior to and following the pumps. Filters may not be required due to the reservoir water depth so provisions for adding filters in the future are included.

Pump Station. Alternatives for pump types were evaluated in a technical memorandum for Task 7. Vertical turbine pumps were recommended because of the superior flow and head characteristics. Pumps were sized based on meeting the peak day demand at build-out with phasing to handle initial conditions.

Piping. Three route alternatives were developed for each of the reservoir sites. The optimal route from the Deer Creek site is through future development to the Tank Farm east of the EDHWWTP. The optimal route from the El Dorado Hills site is through the open land east of the Valley View development. For both sites, a pipe size of 20 inches is required to convey the maximum daily flow.

Electrical Service. Extension of underground conduit and wire is required for a new power source having a capacity of 420 kVa.

Communication. To provide communication between the site and control system at the respective wastewater treatment plant, a fiber optic line has been included along the pipeline transmission route.

Contractor Costs. The cost estimate includes the contractor costs for insurance, overhead, profit, mobilization, and demobilization.

Soft Costs. Soft costs include additional geotechnical and survey requirements for complete design, design engineering, construction, inspection during construction, and construction management.

Land, Easements, Environmental, and Permitting. The costs for land, easements, environmental, and permitting costs have been estimated. Environmental mitigation costs for each site and optimum pipeline routes were estimated for the purpose of cost comparison. Mitigation includes loss of plants and animal habitat. Actual environmental costs can only be estimated following a complete Environmental Impact Report. Detailed information is included in the technical memorandums for Task 5, Task 7, and Task 11.

Cost Estimates

The cost estimate was based on quantity take-offs from the preliminary design and unit costs from RS Means Construction Estimating Guides, past projects, and HDR experience. All estimates were projected to April 2008 with an Engineering News Record (ENR) construction cost index value of 8150. A cost comparison of the major capital items between the Deer Creek Reservoir site and the El Dorado Hills Reservoir site is shown in Table ES-3. The table shows that the El Dorado Hills Reservoir would be less costly to construct. The largest difference is the cost of pipeline construction.

Table ES-3. Summary of Capital Costs for the Major Elements of the Deer Creek Reservoir and El Dorado Hills Reservoir.

Items		Deer Creek	El Dorado Hills
Reservoir Embankment		$19,047,000	$15,405,000
	Membrane Liner	$3,606,000	$7,563,000
Post Treatment			
	Aeration	$406,000	$341,000
	Chlorine	$7,000	$7,000
	Filtration	$187,000	$146,000
Pumping Station			
	Vertical Turbine Pump Station	$1,125,000	$988,000
Conveyance Piping			
	Pipeline Construction	$4,779,000	$1,817,000
Electrical			
	Site Power	$400,000	$429,000
	Pipeline Fiber Optic Cable	$158,000	$81,000
Contractor's Costs			
	Insurance Provisions	$149,000	$134,000
	Contractor OH & Profit	$4,457,000	$4,017,000
	Mobilization/Demobilization	$1,486,000	$1,339,000
Subtotal		**$35,806,000**	**$32,267,000**
	Contingency (15%)	$5,370,000	$4,840,000
Construction Cost Total		**$41,177,000**	**$37,107,000**
Softcosts			
	Geotech and Survey	$1,029,000	$898,000
	Design Engineering	$3,294,000	$2,875,000
	Construction		
	Engineering During Construction	$1,235,000	$1,078,000
	Construction Management	$4,118,000	$3,594,000
Subtotal		**$9,676,000**	**$8,445,000**
Land, Easements, Environmental, and Permitting		$4,500,000	$6,723,000
Project Grand Total		**$55,353,000**	**$52,275,000**

Recommended Site for Seasonal Storage

The El Dorado Hills site is the recommended site for construction of a Recycled Water Seasonal Storage Reservoir. The site is advantageous because the reservoir is less costly to construct, on-site materials are available for construction, and the location is adjacent to the future recycled water system expansion.

Economic Evaluation

Cost Development

Labor, chemical, and energy costs were estimated using published and calculated values, manufacturer information, and HDR experience. Pumping was determined to represent a significant portion of the overall O&M costs. All capital cost estimates were based on quantity take offs and unit cost estimates. Values correspond well with unit costs used in EID's capital improvement estimates for similar construction projects.

The economic and financial factors used in the evaluation update include inflation, rate of return, time period, replacement life, cost of capital, and other cost parameters listed in Table ES-4.

Table ES-4. Factors Used for the Updated Economic Evaluation

Item	Value	Comment
Rate of return (Cost of money)	5%	Average market value of money
Labor inflation rate	3%	20 year average for state of California
Energy inflation rate	6%	Based on increased inflation of power
Economic life cycle duration	60 years	Service life longer than 60 years will be accounted for using residual value. See below for additional details.
Service life before replacement		
Reservoir	100 years	Corps of Engineers life for gravity dam design
Concrete	100 years	EPA economic life
Piping	30 years	EPA economic life
Electrical	30 years	EPA economic life
Reservoir liner	20 years	Manufacturer warranty
Pumps, blowers, equipment	20 years	EPA economic life
Financing Alternatives		
Bond financing	5%	Interest for 20 years
SRF load	2.5%	Interest for 20 years
Grant	25%	Balance financed by bonds
	0%	Interest for 20 years on half the capital, bond financed

Alternatives to Meet the Recycled Water Irrigation Demand within El Dorado County

A total of five alternatives were developed for economic and non-economic comparisons. In general, the primary difference between the alternatives is the source water used to satisfy the future irrigation demands per the RWMP. The 2,500 acre-ft recycled water seasonal storage reservoir was sized to meet the build-out annual recycled water demand of about 8,630 acre-ft in El Dorado County.

Alternative 1 Potable Water

All future developments would be single plumbed for potable water only. This alternative takes advantage of the existing treated water infrastructure in place to provide potable water service for all uses. Build-out of Valley View and Serrano will be dual-plumbed and irrigation demands will be met using recycled water (some potable water supplementation will be required until build-out when wastewater flows meet dual-plumbed demands in a dry season). Carson Creek and all future developments would need to be single plumbed to avoid potable water supplementation at build-out.

If Carson Creek were developed as dual plumbed, the 1,450 EDUs were demand 610 acre-ft/year for outdoor irrigation (at a demand of 0.42 acre-ft/year/EDU). For this alternative, all 610 acre-ft/year would be provided by potable water.

Alternative 2 Seasonal Storage

This alternative continues the development of seasonal storage in accordance with the Recycled Water Master Plan. Excess treated wastewater in wet years would be discharged to Deer Creek and/or Carson Creek. All future development in the El Dorado Hills area will be dual-plumbed in accordance with the RWMP as the seasonal storage reservoir is constructed. Potable water supplementation will be required until the seasonal storage reservoir is completed.

Alternative 3 Raw Water Supplementation

This alternative considers taking raw water from Folsom Lake at the EDHWTP but bypassing treatment, then pumping and piping the raw water to Bass Lake or directly to the Tank Farm in EDH for distribution within the recycled water system. The advantage of raw water as a supplement to recycled water is that raw water does not require treatment, thus avoiding the cost of expanding and avoiding the additional cost of operating the EDHWTP. Because the water is not treated, a dedicated pipeline to Bass Lake or the Tank Farm is necessary.

If Carson Creek were developed as dual plumbed, the 1,450 EDUs were demand 610 acre-ft/year for outdoor irrigation (at a demand of 0.42 acre-ft/year/EDU). For each acre-ft of dual plumbed irrigation demand, 45% can be provided by additional recycled water without seasonal storage and 55% requires supplementation. For this alternative, 273 acre-ft/year would be provided by additional recycled water and 337 acre-ft/year would require raw water supplementation in a dry year.

Alternative 4 Supplementation with Treated Water

This alternative considers continued treated water supplementation through the current potable water distribution system. Treated water supplementation to the recycled water system requires the expansion of the EDHWTP, but less treated water is used than Alternative 1 because the recycled water system is also expanded.

Alternative 5 Delay Seasonal Storage

This alternative is a combination of Alternatives 4 and 2. Treated potable water would continue to be used as a supplement for recycled water, allowing future developments to continue as dual-plumbed. However, as new home construction picks up over the next seven years, plans for construction of the seasonal storage reservoir would continue. A 10-year delay, for the purpose of present value analysis, is based on seven years of postponement followed by three years of construction. The timeframe is flexible, but a specific period was needed to perform the economic evaluation. This alternative reduces the risk associated with recovering the capital cost of seasonal storage through connection fees.

Economic Evaluation Results

A detailed listing of capital costs and operation and maintenance costs can be found in the technical memorandum for Task 9. Using these values, the present value was calculated and presented in Table ES-5 and Table ES-6. The table lists the estimated net present value costs associated with each alternative and the total net present value of capital and 60 years of operation and maintenance.

Table ES-5 Estimated Total Net Present Value Cost (60 year life cycle cost)

	Alternative				
	1	2	3	4	5
	Potable Water	Seasonal Storage	Supplemental Raw Water	Supplemental Treated Water	Delay Seasonal Storage (Combo Alt. 1 & 2)
Raw Water Supply					
Raw Water Pumping	$10,136,423		$6,504,423	$6,504,423	$1,351,000
Raw Water Conveyance	$14,911,000		$8,420,000	$8,420,000	$2,123,000
Water Treatment and Distribution					
Water Treatment and TCD pumps	$53,702,502			$40,534,000	$6,022,000
Finished Water Pumping	$13,625,412		$8,439,330	$9,026,412	$1,584,000
Conveyance to Tank Farm			$64,966,697		
Water Distribution					
Wastewater Treatment and Disposal					
Collection	Same for all alternatives				
Wastewater Treatment	Same for all alternatives				
Surface Water Discharge	Same for all alternatives				
Recycled Water					
Pump from EDHWWTP to Tank		$12,267,000	$23,340,000	$23,340,000	$9,803,000
Pumping to Seasonal Storage		$7,008,000			$6,399,000
Seasonal Storage		$49,527,000			$45,060,000
Seasonal Storage Pumping		$12,952,000			$9,632,000
Conveyance to Tank Farm		$4,764,000			$4,764,000
Recycled Water Distribution		$10,428,000	$10,428,000	$10,428,000	$10,428,000
Total	**$ 92,375,337**	**$ 96,946,000**	**$ 122,098,450**	**$ 98,252,835**	**$ 97,166,000**

Table ES-6 Relative Unit Capital, O&M, and Net Present Value Costs

Alternative	Capital Cost $/acre-ft	O&M Cost $/acre-ft	Total Cost $/acre-ft
1. Potable Water	133	207	340
2. RW Seasonal Storage	195	162	357
3. Supplemental Raw Water	298	151	449
4. Supplemental Treated Water	164	197	361
5. Delay Seasonal Storage	195	162	357

Potential Funding Alternatives for Seaonal Storage

All financial evaluations were based on a State Water Bond interest rate of 5%. Capital funding options include: State Revolving Fund at an interest rate of 2.5%, US Bureau of Reclamation (USBR) Title XVI Grant Funding for 25% of the construction cost, and Clean Renewable Energy Bonds (CREBS) that defer all principial and interest costs of ½ the total construciton costs for 20 years.

Alternative #5 above was evaluated for each of the funding options with the following results:

1. Standard Bond funding $97.2 million
2. State Revolving funding $86.5 million
3. USBR Title XVI Grant funding $83.9 million
4. CREBS $80.7 million

The analysis shows that CREBS financing offers the least cost total cost to EID.

Conclusions

a. The economic evaluation indicates that Alternative 1 has the lowest unit cost at $340 per acre-foot without recycled water funding. Alternative 1 has the lowest capital cost and avoids costs associated with expanding the recycled water system.

b. If CREBS financing is available, recycled water seasonal storage would be the least cost alternative. Other funding alternatives result in a lower cost to EID than potable and raw water alternatives.

In addition to economics, eight tangible and intangible (non-economic) parameters were evaluated for the five alternatives. The alternatives were scored relative to their potential to meet the criteria defined for each of the parameters. Alternatives 2 and 5 scored the highest for the non-economic comparison, with Alternative 5 scoring higher.

Recommendations

1. Based on the results of the alternative evaluation, Alternative 5 is the recommended plan, costs are within 10 percent of the cost of Alternative 1; however, the non-economic scoring is significantly greater. This alternative involves supplementing recycled water with potable water for the next 5 to 10 years while constructing the seasonal storage reservoir to continue the expansion of the recycled water system. There are two considerations:
   - In order to secure the future construction of the recycled water reservoir, it is important to begin the property acquisition process.
   - The potable water system should be expanded as needed to meet the potable water requirements, but limited to the build-out requirements that include recycled water supplied from seasonal storage.
2. Due to the current uncertainty in the economy, future conditions and levels of development could vary significantly and have an impact on the relative benefits and costs of the alternatives. Therefore, EID should retain the maximum level of flexibility in project implementation. Some of the development and economic considerations to be monitored include the following:
   - Approval of future development can be for dual plumbed, but without the seasonal storage reservoir recycled water supply cannot be maintained in the summer. Meeting the summer water demand requires water supplementation.
   - Improvement of the economic climate over the next five to eight years and the return of new home construction will reduce the risk of constructing capital intensive projects, such as seasonal storage.
3. EID should pursue funding alternatives including CREBS, USBR Title XVI, and State Revolving financing to lower the cost of recycled water.
4. Issues to be considered when selecting potable versus recycled water, but were not part of this study:
   - Sources and cost for additional potable water supplies needed to meet build-out water demands.
   - Impact of additional recycled water development on drought planning.
   - Future connection fees and rates for potable water and recycled water.
   - Phasing and timing of potable water treatment, pumping, and piping to meet future demands.
   - Expansion of the recycled water system will require a change of use permit, which will take some time to work through the application and approval process.
5. The results of this evaluation and issues not considered should be incorporated into the Integrated Water Master Plan to be completed by EID.

1.0 Basis of Design Report

1.1 Setting

The El Dorado Irrigation District (EID) is located in El Dorado County, on the western slope of the Sierra Nevada Mountains. The District's Deer Creek Wastewater Treatment Plant (DCWWTP) and El Dorado Hills Wastewater Treatment Plant (EDHWWTP) produce tertiary treated recycled water suitable for unrestricted reuse under California Title 22. The recycled water is used in the El Dorado Hills and Cameron Park areas for commercial, industrial, golf course, and dual-plumbed residential irrigation.

1.1.1 Deer Creek Wastewater Treatment Plant

The DCWWTP is located approximately two miles south of Highway 50, in the community of Cameron Park, south of Cameron Park Estates. The DCWWTP provides recycled water to the communities of El Dorado Hills, and Cameron Park. Excess treated wastewater is discharged to Deer Creek. Depending on the influent flows to DCWWTP, the plant is required to discharge at least 1.0 millions of gallons per day (MGD) under a mandate from the State Water Resources Control Board (SWRCB), which reduces the amount of recycled water available.

The liquid stream treatment processes include aeration basins, biological nutrient removal, secondary clarifiers, filtration, and disinfection. The treatment plant was recently modified to provide ultraviolet light disinfection. These processes meet the requirements for the Title 22 recycled water and surface discharge requirements for Deer Creek.

1.1.2 El Dorado Hills Wastewater Treatment Plant

The EDHWWTP is located in El Dorado Hills, on Latrobe Road, approximately 1.25 miles south of US Highway 50. The treatment plant provides recycled water to the community of El Dorado Hills and excess treated wastewater is discharged to Carson Creek. Carson Creek flows from north to south immediately west of the plant site, and discharges to the Cosumnes River when sufficient flow is available.

The liquid stream treatment processes include primary clarifiers, aeration basins, secondary clarifiers, secondary storage pond, dissolved air flotation, flocculation/filtration, and disinfection. The treatment plant is currently being expanded to increase capacity and to change the disinfection system from sodium hypochlorite to ultraviolet light. These processes meet the requirements for the Title 22 recycled water and surface discharge requirements for Carson Creek.

1.1.3 Recycled Water System

EID's recycled water system consists of a network of transmission and distribution pipelines, pump stations, storage tanks, pressure reducing stations, and ancillary facilities. All areas are within the communities of Cameron Park and El Dorado Hills. The existing recycled water customers are serviced from water stored in four daily (diurnal) storage tanks: the 2.0 MG

Village C, 4.0 MG Bridlewood Tank, the 2.0 MG 800 Tank, and the 2.0 MG 940 Tank. The new 940 Tank replaced the existing 960 Tank. Other tanks will be added as the distribution system expands.

Recycled water from the EDHWWTP is pumped through an 18-inch transmission main to the El Dorado Hills Golf Course, Vineyard Court, and Whiterock Village Apartments, the eastern portions of Town Center, customers along Silva Valley Parkway and the lower elevations within the Serrano Development. Recycled water is conveyed north in an 8-inch main that services Creekside Greens, El Dorado Estates, and the western portion of Town Center. A 10-inch transmission main parallels Latrobe Road leading to the former Wetzel-Oviatt property and serves the Euer Ranch Development.

Recycled water produced at the DCWWTP is pumped through an 18-inch main to Highway 50 and is then pumped through a 16-inch main to the Bridlewood Tank. The tank serves areas at the higher elevations within the Serrano Development.

The recycled water mains from the EDHWWTP and the DCWWTP form a loop through the Serrano Development. Recycled water can be conveyed to the Bridlewood Tank from either the EDHWWTP or the DCWWTP. The capacity of the pump station and the 12-inch main in Serrano Boulevard limit the amount of recycled water that can be exchanged between the facilities.

1.2 Previous Studies

EID's recycled water program was initiated in the 1970's and has expanded significantly since then. The December 2002 Recycled Water Master Plan (RWMP) identified the areas to be serviced with recycled water. At that time, the Regional Water Quality Control Board, Central Valley Region (RWQCB), required EID to comply with a monthly coliform limit of 2.2 most probable number (MPN) per 100 ml on a year-round basis, with potential temperature and pH limits implemented in the future. In addition, it appeared that the RWQCB might also include salinity and metals limitations in EID's National Pollution Discharge Elimination System (NPDES) permit. Considering all of these potential limitations, it seemed conceivable that pH control, effluent cooling, ultra filtration, and reverse osmosis could be required in the future to assure effluent compliance.

An objective of the RWMP was to identify, evaluate, and compare the economics for effluent disposal via beneficial reuse and surface water discharge. It was found that complete reuse at build-out flows in a wet season would require a 5,000 AF seasonal storage reservoir and pasture land for excess disposal. The economic evaluation in the RWMP demonstrated that beneficial reuse was less expensive than continued surface water discharge due to the high cost of reverse osmosis treatment required to ensure compliance with metals and salinity limits that could be imposed in future permits.

Since the completion of the RWMP, there have been several changes regarding surface water discharge compliance and the regulatory environment that necessitate an update of the beneficial reuse and surface water discharge evaluation. EID has been successful in showing the RWQCB that treated effluent cooling and pH adjustment should not be required at either plant. Although salinity continues to represent a significant issue for the Central Valley, it does not appear to be as critical or problematic for EID. Metals continue to be of concern, but compliance may not require reverse osmosis treatment. It is anticipated that compliance with the California Toxics Rule metals requirements can be achieved through other strategies that may be less costly than treatment plant improvements.

In May 2004, the Board adopted the mandatory requirement of the use of recycled water where available and feasible. Board Policy 7010 states: "The District mandates the future use of recycled water, wherever economically and physically feasible, as determined by the Board, for non-domestic purposes when such water is of adequate quality and quantity, available at a reasonable cost, not detrimental to public health, and not injurious to plant life, fish, and wildlife." EID in tends to expand the recycled water service area; however, the amount of recycled water available is limited by the low wastewater flows and high irrigation demands in the spring and summer. As a result, potable water is currently being used to supplement the recycled water available. Recycled water seasonal storage would eliminate the need for potable water supplement and could be sized to avoid surface discharge, even during wet years.

The Draft Seasonal Storage Feasibility Report (January 2005) looked at potential locations to site a 5,000 acre-foot reservoir. The Draft Seasonal Storage Feasibility Report identified 11 potential seasonal storage sites, narrowed the number of sites down to five, and identified two sites as the preferred sites. An Environmental Impact Report was initiated based on the two selected sites.

1.3 Project Goals

EID intends to expand the recycled water system and build a seasonal storage reservoir to achieve the goal of meeting the future community's recycled water demands within the EID service area. The goal is to be achieved as an economically preferred project for seasonal storage and limited stream discharge of excess winter flows.

1.4 Status of Technical Memorandums Generated Under Each Task

Technical memorandums, meeting minutes, and presentations were prepared as part of each task. These documents were presented to EID for review during the course of the project. These documents have been condensed to prepare this Basis of Design Report (BODR) and are included in their final form on a Computer Disk attached as an appendix to this report. During the course of time, some changes have taken place and are noted. The BODR presents information as of June 2009 while the task technical memos and documents represent the status of the project at the date they were completed. Significant changes between the date of the technical memo and June 2009 are noted.

1. Verify and Update Assumptions October 5, 2006
2. Identify Funding Resources October 24, 2006
3. Perform Regulatory Review
   Regional Water Quality Control Board meeting October 3, 2007
   California Department of Health Services January 29, 2008
   Department of Safety of Dams Site Visits in September and October 2007
   As the project moves into the design phase, renewed contact with all regulatory agencies will be required.
4. Meet with the City of Folsom No documents were created.
5. Assess Environmental Considerations April 7, 2008
   Information in the TM was for the initial evaluation of sites. A complete EIR will be required for the project.
6. Identify Reservoir Site Locations December 14, 2006
7. Select Sites for Further Evaluation June 10, 2009
8. Summarize and Compare Alternative Sites May 20, 2008
9. Economic Evaluation March 18, 2009
   As funding options become available, an update to the analysis is warranted.
11. Land Negotiations April 7, 2008
   Land values are based on comparable transactions that will change with changes to economic conditions.

2.0 Seasonal Storage Reservoir Sizing

The technical memorandum for Task 1, dated October 5, 2006, included detailed information regarding current and projected flows for the influent to the wastewater treatment plants, the recycled water generated at each plant, and the water balances used to support storage reservoir sizing in wet, normal, and dry weather years. The information developed for the wet and dry years was based on rainfall representing the 1-in-100 year annual totals (measured from January to December). The wet year refers to the 1-in-100 year wettest total for 12 months in the same calendar year. The recycled water supply is determined by measuring the wastewater treatment influent flow and reducing the flow by the water lost during wastewater treatment (5 percent), the water lost in the recycled water distribution system (5 percent was used for planning purposes although current losses are higher than 5 percent), and the 1 MGD required for discharge to Deer Creek. The recycled water available is determined by adjusting the recycled water supply to take into account the precipitation collected by the storage reservoir and the water lost through evaporation. Differences in supply and demand are accounted for in wet, normal, and dry years.

2.1 Recycled Water Supply and Demand

The projected demand for recycled water was estimated based on recycled water use, the construction start dates for new development, and the anticipated connection timing. The projection was completed prior to the 2008 recession and the full impacts of the current recession have yet to be determined. The detailed list of anticipated recycled water connections can be found in Table 2-1.

Table 2-1. Summary of Recycled Water Demands 2000 to 2025

			Annual Average		ac-ft/yr																					
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Starting	Buildout	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand
	Year	Year	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
Residential Dual Pipe																												
Serrano	Existing	2011	46	155	272	491	520	1,008	1,229	1,286	1,319	1,412	1,469	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,48
Valley View	2008	2019	0	0	0	0	0	0	0	0	91	183	274	365	457	548	639	731	822	914	1,005	1,050	1,050	1,050	1,050	1,050	1,050	1,05
East Ridge	2012	2018	0	0	0	0	0	0	0	0	0	0	0	0	66	132	198	264	330	396	462	462	462	462	462	462	462	46
Bass Lake Hills Specific Plan	2012	2015	0	0	0	0	0	0	0	0	0	0	0	0	100	250	400	588	588	588	588	588	588	588	588	588	588	58
Bell Ranch	2010	2012	0	0	0	0	0	0	0	0	0	0	20	50	60	60	60	60	60	60	60	60	60	60	60	60	60	6
Carson Creek/Euer Ranch	2005	2009	0	0	0	0	0	62	124	186	248	311	311	311	311	311	373	435	497	559	621	683	714	714	714	714	714	71
Creekside Green	2003	2005	0	0	0	25	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	5
Marble Valley	2011	2019	0	0	0	0	0	0	0	0	0	0	0	34	69	104	139	174	209	244	278	313	348	383	400	400	400	40
SUBTOTAL			**46**	**155**	**274**	**493**	**571**	**1,121**	**1,404**	**1,523**	**1,709**	**1,957**	**2,125**	**2,297**	**2,600**	**2,942**	**3,346**	**3,789**	**4,043**	**4,298**	**4,551**	**4,693**	**4,759**	**4,794**	**4,811**	**4,811**	**4,811**	**4,81**
Schools																												
SV Parkway	2006	2006	0	0	0	0	0	0	0	0	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Village J	2012	2012	0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	3
Village A	2008	2008	0	0	0	0	0	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	3
Valley View	2010	2010	0	0	0	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	1
Bass Lake	2015	2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	1
High School No. 6	2020	2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	60	60	6
SUBTOTAL			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**37**	**37**	**55**	**55**	**85**	**85**	**85**	**100**	**100**	**100**	**100**	**100**	**160**	**160**	**160**	**160**	**160**	**16**
Parks																												
Village A, Private	2006	2006	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Village A, Public	2006	2006	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Village C, E, F, G	2006	2010	0	0	0	0	0	0	8	17	25	34	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Village J	2012	2012	0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Village K	2007	2007	0	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Village L	2010	2010	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bass Lake Fields	Existing	Existing	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Hollow Park	2008	2008	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Valley View	2009	2014	0	0	0	0	0	0	0	0	0	46	92	138	184	228	258	258	258	258	258	258	258	258	258	258	258	258
Carson Creek	2010	2017	0	0	0	0	0	0	0	0	0	0	8	16	24	41	58	75	92	111	111	111	111	111	111	111	111	111
SUBTOTAL			**30**	**30**	**30**	**30**	**30**	**30**	**61**	**79**	**102**	**157**	**224**	**278**	**362**	**423**	**470**	**487**	**504**	**523**	**523**	**523**	**523**	**523**	**523**	**523**	**523**	**523**
Golf Courses																												
Serrano	Existing	Existing	411	616	541	605	571	463	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525
Executive	Existing	Existing	150	270	270	150	150	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
SUBTOTAL			**561**	**886**	**811**	**755**	**721**	**538**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**
Commercial																												
Wetsel-Oviatt Lumber Mill	Existing	Existing	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
EDH Blvd Median	2006	2006	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
EDH Business Park	2008	2013	0	0	0	0	0	0	0	0	30	30	30	30	40	60	60	60	60	60	60	60	60	60	60	60	60	60
EDH Blvd. Interchange	2008	2008	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Creekside Development	Existing	Existing	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Bass Lake Rd Specific Plan	2015	2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	32	48	64	80	96	96	96	96	96	96
Silva Valley Pkwy Interchange	2010	2010	0	0	0	0	0	0	0	0	0	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Villages T & U	2008	2010	0	0	0	0	0	0	0	0	8	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Serrano Pkwy to Bass Lake Rd	2010	2010	0	0	0	0	0	0	0	0	0	0	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
SV Pkwy to Village A	2007	2007	0	0	0	0	0	0	0	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Carson Creek	2010	2007	0	0	0	0	0	0	0	0	0	0	2	3	5	10	16	22	28	33	33	33	33	33	33	33	33	33
Valley View	2010	2010	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
H-4 Landscaping	2006	2006	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
D-2 Landscaping	2007	2007	0	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
I - Lot A Landscaping	2008	2008	0	0	0	0	0	0	0	0	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Marble Valley Landscaping	2011	2015	0	0	0	0	0	0	0	0	0	0	0	5	5	5	10	15	15	15	15	15	15	15	15	15	15	15
Construction Dust Control	Existing	2010	78	91	90	23	28	134	226	226	226	226	226	226	226	226	140	140	80	80	50	50	0	0	0	0	0	0
Existing Meters (prior to 1999)	Existing	Existing	388	348	324	298	591	414	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420
SUBTOTAL			**557**	**530**	**505**	**412**	**710**	**639**	**743**	**759**	**806**	**816**	**865**	**871**	**883**	**908**	**833**	**860**	**822**	**843**	**829**	**845**	**811**	**811**	**811**	**811**	**811**	**811**
Retrofits																												
Oakridge High School	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	31	31	31	31	31	31	31	31	31	31	31	31	31
Rolling Hills	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	27	27	27	27	27	27	27	27	27	27	27	27	27
Blue Oak	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	11	11	11	11	11	11	11	11	11	11	11
Camerado	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	10	10	10	10	10	10	10	10	10	10	10
EDH CSD Complex	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30
Christa McAuliffe	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19
Cameron Park Golf Course	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0			175	175	175	175	175	175	175	175	175	175	175
Church of the Foothills	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2
Cameron Park Library	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2
Raley's	2003	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	6	6	6	6	6	6	6	6	6
SUBTOTAL			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**138**	**138**	**313**	**313**	**313**	**313**	**313**	**313**	**313**	**313**	**313**	**313**	**313**

Table 2-1. Summary of Recycled Water Demands 2000 to 2025 (continued)

			Annual Average		ac-ft/yr										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Starting	Buildout	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand
	Year	Year	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
Normal/Wet Year Demand															
Total Demand			1,194	1,601	1,620	1,690	2,032	2,328	2,808	2,961	3,254	3,567	3,869	4,101	4,530
Total Demand without Retrofit Projects			1,194	1,601	1,620	1,690	2,032	2,328	2,808	2,961	3,254	3,567	3,869	4,101	4,530
Total Demand of Retrofit Projects			-	-	-	-	-	-	-	-	-	-	-	-	-
Dry Year Demand															
Total Demand			1,421	1,905	1,928	2,011	2,418	2,770	3,342	3,523	3,872	4,244	4,604	4,880	5,391
Total Demand without Retrofit Projects			1,421	1,905	1,928	2,011	2,418	2,770	3,342	3,523	3,872	4,244	4,604	4,880	5,391
Total Demand of Retrofit Projects			-	-	-	-	-	-	-	-	-	-	-	-	-
Actual Metered Demand			2000	2001	2002	2003	2004	2005							
Residential Dual Plumbed			46	155	272	491	518	1,007							
Multi-Family Dual Plumbed			0	0	2	2	2	1							
Commercial/Industrial Landscape			509	469	445	418	713	536							
Commercial/Industrial Recreational Turf			561	886	811	755	721	538							
Construction			78	91	90	23	28	134							
Total Actual Metered Demand			1,194	1,601	1,620	1,690	1,981	2,215							

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand	Demand
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
Normal/Wet Year Demand													
Total Demand	5,096	5,472	6,149	6,382	6,677	6,916	7,074	7,166	7,201	7,218	7,218	7,218	7,218
Total Demand without Retrofit Projects	4,958	5,334	5,836	6,069	6,364	6,603	6,761	6,853	6,888	6,905	6,905	6,905	6,905
Total Demand of Retrofit Projects	138	138	313	313	313	313	313	313	313	313	313	313	313
Dry Year Demand													
Total Demand	6,064	6,512	7,317	7,595	7,946	8,230	8,418	8,526	8,569	8,589	8,589	8,589	8,589
Total Demand without Retrofit Projects	5,900	6,347	6,945	7,222	7,573	7,858	8,046	8,155	8,197	8,217	8,217	8,217	8,217
Total Demand of Retrofit Projects	164	164	372	372	372	372	372	372	372	372	372	372	372

Figure 2-1 shows the projected dry year irrigation demand and the total supply of recycled water available through build-out. The figure was adjusted from that presented in TM#2 by showing a 5 year stagnant period from 2008 through 2013 due to the recession. The figure shows some periods of shortfall when supplementation would be required in a dry year.

2.2 Seasonal Storage Reservoir Sizing

2.2.1 No Seasonal Storage Reservoir

Without a seasonal storage reservoir, the number of homes that can be dual-plumbed is limited by the dry year recycled water available in spring and summer. The wastewater flow at build-out, the recycled water supply, and the irrigation demand are shown in Figure 2-2 and listed in Table 2-2 for a dry year. The figure shows that the maximum amount of available recycled water is not enough to meet the demands without seasonal storage. Any excess recycled water is discharged as treated wastewater to Deer Creek and Carson Creek. On an annual basis at buildout:

- Wastewater flow = 650 to 900 acre-ft/month or 8,490 acre-ft (dry year) (Table 2-3, includes dry year I&I)
- Dry year precipitation = 610 acre-ft for a total recycled water supply of 9,100 acre-ft (dry year)
- Recycled water supply = 4,100 acre-feet (dry year without storage)
- Residential irrigation demand = 100 to 1,200 acre-ft/month or 8,630 acre-feet (dry year)
- Peak recycled water shortfall of 770 acre-ft/month in summer must be met to meet residential irrigation demands.

2.2.2 Five Thousand acre-feet of Seasonal Storage allows for Zero Wastewater Discharge

To create zero discharge, all of the wastewater produced by EDHWWTP and DCWWTP (less the 1 MGD discharge to Deer Creek) must be used for irrigation. The water balance used to calculate the storage reservoir size and recycled water supply for wet years is presented in Table 2-2. In a wet year, 12,200 acre-ft of recycled water must be used for irrigation (column 9 plus 10). The EID wet year demand plus evaporation loss is 8,050 acre-ft (columns 11 and 12) and require an additional 4,100 acre-ft of irrigation. Wastewater flow at build-out all becomes recycled water supply by storing recycled water during the non-irrigation season, see Figure 2-3. In order to store this water in wet years, the water balance shows that 5,000 acre-feet of storage volume is required. All of the wastewater flow would be needed to meet the irrigation demands in El Dorado County in the dry year, but excess recycled water would be available during the normal wet year, see Figure 2-3. During the wet year, the residential irrigation demand would be less than the recycled water supply; therefore, supplemental land of over 1,000 acres (either pasture land in El Dorado County or areas of the City of Folsom) is required.

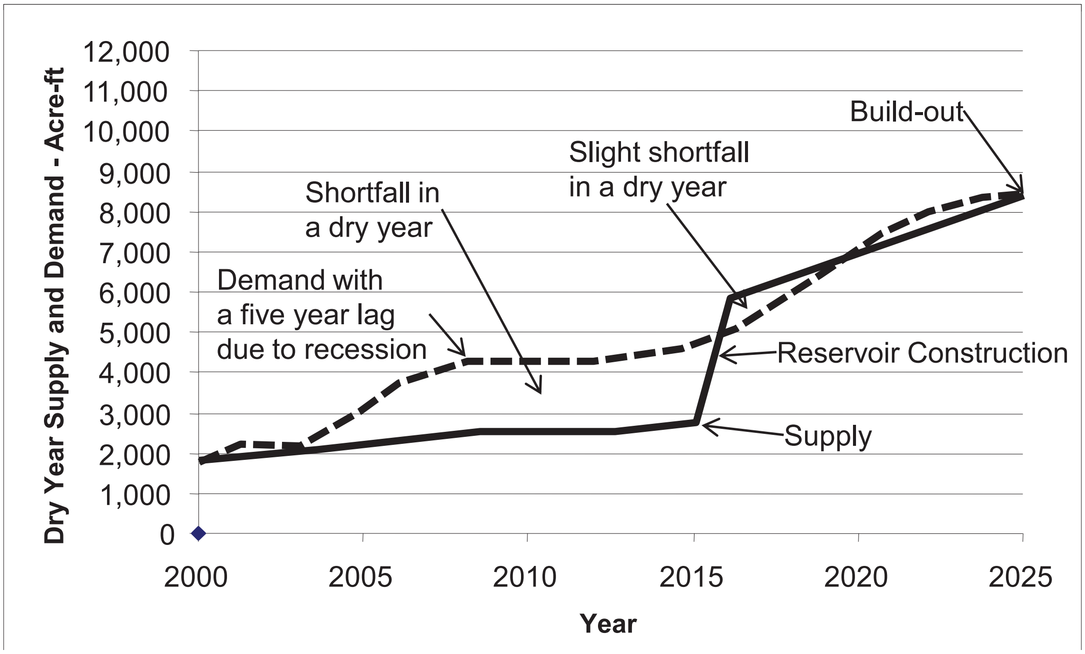


Figure 2-1 Recycled Water Supply and Demand - Historic and Projected through Build-out (adjusted to represent recession impacts with no increase from 2008 through 2013)

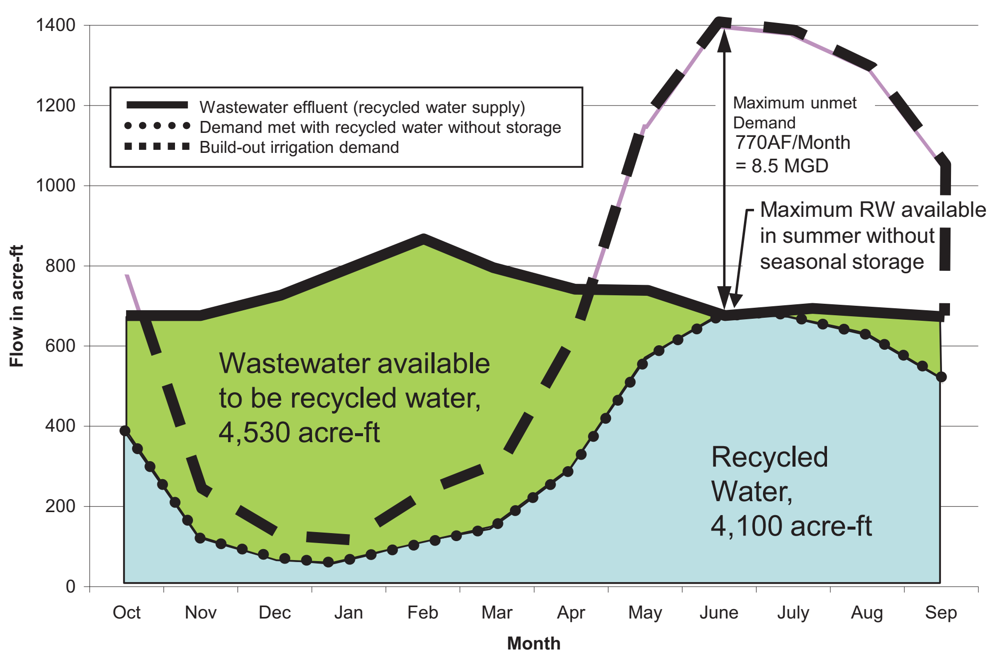


Figure 2-2 Build-out Irrigation Demand, Recycled Water Availability, and Maximum Recycled Water Available without Recycled Water Seasonal Storage or Expanding the Recycled Water System, in a Dry Season

Table 2-2. Reservoir Sizing Calculation Based on Wet Weather Year Supply and Demand, Excluding 1 mgd Average from Deer Creek

		Recycled Water Supply					HISTORIC WEATHER DATA				INFLOW / OUTFLOW FROM STORAGE FACILITY						
		Monthly average flow - Wet Weather					Precipitation		Pan Evaporation		Inflow, ac-ft		Outflow, ac-ft			Storage Facility Volume, ac-ft	
		ADWF MGD	ADWF Flow ac-ft/month	I&I ac-ft/month	Surface discharge ac-ft/month	Recycled water flow ac-ft/month	in/month	% of Total	in/month	% of Total	Recycled water flow ac-ft/month	Precipitation ac-ft/month	Pond Evaporation ac-ft/month	EID Demand ac-ft/month	Additional Demand ac-ft/month	Change ac-ft/month	Req'd Storage ac-ft/month
Month	Days	(1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Oct	31	8.3	654.8	498.7	0	1153.5	2.7	6.5	5.5	9.0	1153.5	70.4	42.4	678.8	369.1	133.6	134
Nov	30	8.3	598.1	836.0	0	1434.1	4.6	11.2	1.7	2.7	1434.1	121.3	12.8	204.8	111.3	1226.5	1,360
Dec	31	8.3	657.8	477.9	0	1135.7	6.1	14.8	0.9	1.4	1135.7	160.4	6.6	105.5	57.4	1126.7	2,487
Jan	31	8.4	667.3	308.3	0	975.6	6.3	15.3	0.8	1.2	975.6	165.7	5.9	94.3	51.3	989.8	3,477
Feb	28	8.4	678.5	279.1	0	957.7	6.2	15.0	1.6	2.6	957.7	162.6	12.4	198.6	108.0	801.3	4,278
Mar	31	8.4	688.3	107.4	0	795.7	5.9	14.3	2.1	3.5	795.7	155.5	16.6	265.6	144.4	524.6	4,802
Apr	30	8.4	697.9	94.3	0	792.2	3.4	8.2	4.2	6.9	792.2	89.0	32.9	526.2	286.1	36.1	**4,838**
May	31	8.4	699.6	81.6	0	781.2	1.7	4.0	8.1	13.3	781.2	43.8	63.0	1007.7	547.9	-793.6	**Okay**
Jun	30	8.4	695.9	43.4	0	739.3	1.2	3.0	9.9	16.2	739.3	32.6	76.7	1227.4	667.3	-1199.5	
Jul	31	8.4	707.4	12.5	0	719.9	1.1	2.6	9.8	16.0	719.9	28.0	75.6	1210.0	657.9	-1195.7	
Aug	31	8.4	696.9	42.5	0	739.4	1.1	2.6	9.1	14.9	739.4	27.7	70.8	1131.8	615.4	-1050.9	
Sep	30	8.4	692.9	170.2	0	863.2	1.1	2.7	7.5	12.2	863.2	28.9	58.0	928.3	504.7	-598.9	
Total		100.4	8,135.5	2,952.0	0.0	11087.5	41.5	100.0	61.1	100.0	11087.5	1086.0	473.8	7578.9	4120.7	0.0	

* See Table 3-4 for EID demand and a list of RW retrofit projects

Recycled Water Available (gpm)	9,898,914	Wet Weather I&I included.
Average Storage Pond surface area, ac	100	Calculated from GIS by HDR Engineering.
Total pond catchment/storage area, ac	314	Calculated from GIS by HDR Engineering.
Application Area, acres	3,714	All of the flow will be used for irrigation.
Available Storage, acre-ft	4,850	Operating Volume
Maximum Irrigation Application Rate (in/ac-yr)	36	
Maximum Irrigation Demand (ac-ft)	11,700	
Total Available Water (ac-ft)	11,700	Effluent + Precipitation - Evaporation
Supplemental Water Requirements (ac-ft)	0	
Over Irrigation ?	**Okay**	

(1) Monthly average dry weather flow during dry weather seasons in MGD and Mgal/month less the 1 MGD discharged to Deer Creek and 10% losses in wastewater process and plant use
(2) Wet weather I&I prorated to each month based on precipitation
(3) All of the RW supply will be used to meet EID demand and the excess used for other applications, see alternatives for excess water use and pasture irrigation
(4) Net recycled water available
(5) 1 in 103 yr rainfall data for Folsom, CA acquired from www.ncdc.noaa.gov.
(6) Monthly precipitation as a percentage in each month
(7) 1 in 28 yr pan evaporation data for Folsom, CA acquired from www.ncdc.noaa.gov.
(8) Monthly pan evaporation percentage in each month
(9) Recycled water available, Equal to Column (4)
(10) Precipitation inflow = Annual Precipitation x Total Pond Catchment/Storage Area x Prorated by Monthly Rainfall
(11) Pond = Monthly Evaporation x Pan Factor x Shading Factor x Average Storage Pond Surface Area = Column (7) x 0.98 x 0.95 x Average Storage Pond surface area.
(12) Demand = Recycled water demand from Table 3-4 Updated with retrofit projects plus 5% recycled water distribution system losses
(13) Additional Demand required to use RW in excess of EID demand
(14) Change in Storage = recycled water flow + precipitation + pond evaporation - (EID demand - 5% distribution losses) - Additional demand
(15) Required Storage to store all recycled water supply

On an annual basis:

- Wastewater flow = 11,090 acre-ft (wet year)
- Recycled water supply = 11,700 acre-feet (wet year) (includes increase due to precipitation and net of evaporation)
- Residential irrigation demand = 7,580 acre-feet (wet year)
- Supplemental water supply = 0 acre-ft (wet year)
- Wastewater discharge or additional irrigation 4,120 = acre-ft (wet year)
  Additional irrigation acres = 1,030 acres

2.2.3 Two Thousand-Five Hundred acre-feet of Seasonal Storage meets the needs for Residential Irrigation

To meet the needs of residential irrigation demands in El Dorado County, the water balance presented in Table 2-3 shows that 2,700 acre-feet of seasonal storage are required. Wastewater flow at build-out, residential irrigation demand, and recycled water flow are shown on Figure 2-4 for the dry year. During the wet year, excess wastewater must be discharged to Deer Creek or Carson Creek. On an annual basis:

- Wastewater flow = 8,490 acre-ft (dry year)
- Recycled water supply = 8,630 acre-feet (dry year) (includes increase due to precipitation and net of evaporation)
- Residential irrigation demand = 8,630 acre-feet (dry year)
- Supplemental water supply = 0 acre-ft (dry year)
- Wastewater discharge = 0 acre-ft (dry year)

2.3 Excess Water Reuse and Disposal Alternatives

2.3.1 Regulatory Review

During the late 1990s, the RWQCB, Central Valley Region required EID to comply with a monthly coliform limit of 2.2 most probable number (MPN) per 100 ml on a year-round basis, with potential temperature and pH limits implemented in the future. In addition, it appeared that the RWQCB might also include salinity and metals limitations in EID's National Pollutant Discharge Elimination System (NPDES) permit. Considering all of these potential limitations, it seemed conceivable that pH control, effluent cooling, ultra filtration, and reverse osmosis could be required in the future to assure effluent compliance.

*Table 2-3. Reservoir Sizing Calculation based on Dry Weather Year Supply and Demand Excluding 1 MGD Average Flow to Deer Creek and Without RW Retrofit Projects**

		Recycled Water Supply					HISTORIC WEATHER DATA				INFLOW / OUTFLOW FROM STORAGE FACILITY					
		Monthly average flow - Dry Weather					Precipitation		Pan Evaporation		Inflow, ac-ft		Outflow, ac-ft		Storage Facility Volume, ac-ft	
		ADWF MGD	ADWF Flow ac-ft/month	I&I ac-ft/month	Excess water discharge ac-ft/month	Recycled water available ac-ft/month	in/month	% of Total	in/month	% of Total	Recycled water flow ac-ft/month	Precipitation ac-ft/month	Pond Evaporation ac-ft/month	EID Demand w/ RW losses ac-ft/month	Change in storage ac-ft/month	Req'd Storage ac-ft/month
Month	Days	(1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Oct	31	8.3	687	175	0.00	737.33	1.5	6.5	5.5	9.0	737.3	39.5	42.4	772.8	-38.4	-38
Nov	30	8.3	652	294	158.64	582.66	2.6	11.2	1.7	2.7	582.7	68.1	12.8	233.1	404.9	366
Dec	31	8.3	689	168	169.61	622.92	3.4	14.6	0.9	1.4	622.9	90.1	6.6	120.1	586.3	953
Jan	31	8.4	687	108	185.69	681.98	3.6	15.3	0.8	1.2	682.0	93.0	5.9	107.4	661.7	1,615
Feb	28	8.4	697	98	203.92	748.96	3.5	15.0	1.6	2.6	749.0	91.3	12.4	226.0	601.8	2,216
Mar	31	8.4	695	38	185.38	680.85	3.3	14.3	2.1	3.5	680.8	87.3	16.6	302.3	449.2	2,666
Apr	30	8.4	704	33	172.73	634.40	1.9	8.2	4.2	6.9	634.4	50.0	32.9	599.0	52.5	**2,718**
May	31	8.4	705	29	0.00	808.55	0.9	4.0	8.1	13.3	808.5	24.6	63.0	1147.2	-377.0	**Okay**
Jun	30	8.4	699	15	0.00	748.76	0.7	3.0	9.9	16.2	748.8	18.3	76.7	1397.2	-706.9	
Jul	31	8.4	708	4	0.00	755.31	0.6	2.6	9.8	16.0	755.3	15.7	75.6	1377.5	-682.1	
Aug	31	8.4	700	15	0.00	753.91	0.6	2.6	9.1	14.9	753.9	15.5	70.8	1288.5	-589.8	
Sep	30	8.4	704	60	0.00	736.32	0.6	2.7	7.5	12.2	736.3	16.2	58.0	1056.8	-362.2	
Total		100.4	8,326.5	1,037.2	1,076.0	8,491.9	23.3	100	61.1	100	8,491.9	609.7	473.8	8,627.9	0.0	

* See Table 3-4 for EID demand and a list of RW retrofit projects

Recycled Water Available (gpd)	7,581,615	Exceeds recycled water demand
Average Storage Pond surface area, ac	100	Calculated from GIS by HDR Engineering.
Total pond catchment/storage area, ac	314	Calculated from GIS by HDR Engineering.
Application Area, acres	2,739	All of the flow will be used for irrigation.
Available Storage, acre-ft	2,720	Operating Volume
Maximum Irrigation Application Rate (in/ac-yr)	36	

ses

vaporation - Excess water to creek discharge

1 MGD discharged to Deer Creek and 10% losses in wastewater process and plant use

y Monthly Rainfall

\rea = Column (7) x 0.98 x 0.95 x Average Storage Pond surface area.

cycled water distribution system losses

% distribution losses)

Maximum Irrigation Demand (ac-ft)	8,628	Includes 5% RW water los
Total Available Water (ac-ft)	8,628	Effluent + Precipitation - E
Supplemental Water Requirements (ac-ft)	0	
Over Irrigation ?	Okay	

(1) Monthly average dry weather flow during dry weather seasons in MGD and Mgal/month less the

(2) Dry weather I&I prorated to each month based on precipitation

(3) Supply is greater than demand, therefore, excess wastewater must be discharged to the creeks

(4) Net recycled water available

(5) 1 in 103 yr rainfall data for Folsom, CA acquired from www.ncdc.noaa.gov.

(6) Monthly precipitation as a percentage in each month

(7) 1 in 28 yr pan evaporation data for Folsom, CA acquired from www.ncdc.noaa.gov.

(8) Monthly pan evaporation percentage in each month

(9) Recycled water available, Equal to Column (4)

(10) Precipitation inflow = Annual Precipitation x Total Pond Catchment/Storage Area x Prorated b

(11) Pond = Monthly Evaporation x Pan Factor x Shading Factor x Average Storage Pond Surface

(12) Demand = Recycled water demand from Table 3-4 Updated without retrofit projects plus 5% re

(13) Change in Storage = recycled water flow + precipitation + pond evaporation - (EID demand - 5'

(14) Required Storage to meet demands

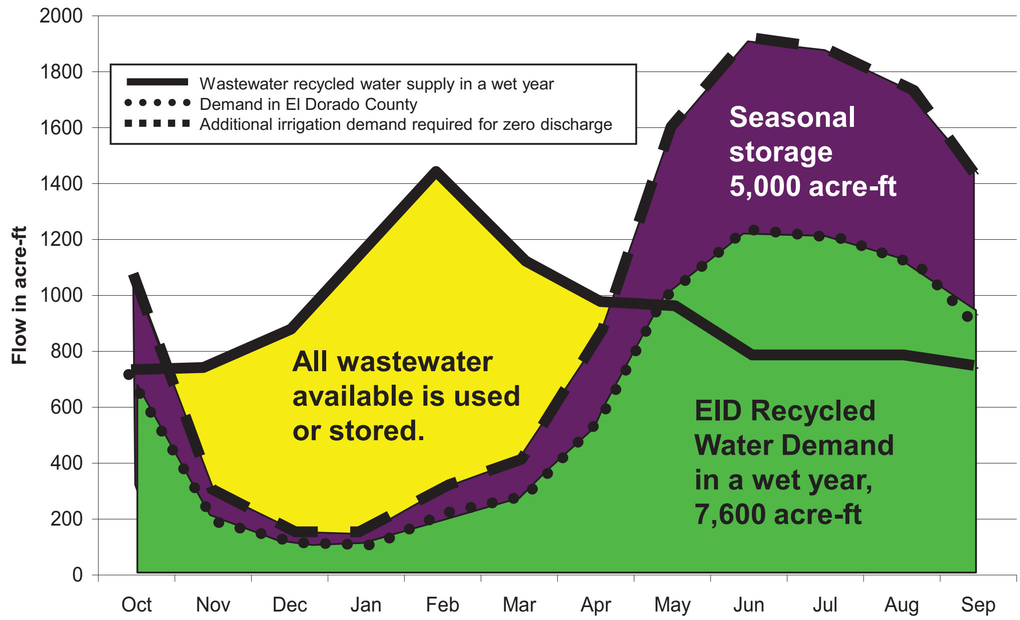


Figure 2-3 Irrigation Demand and Recycled Water Supply in a Wet Year, Total Demand includes Supplemental Irrigation Area for Zero Discharge to Surface Water

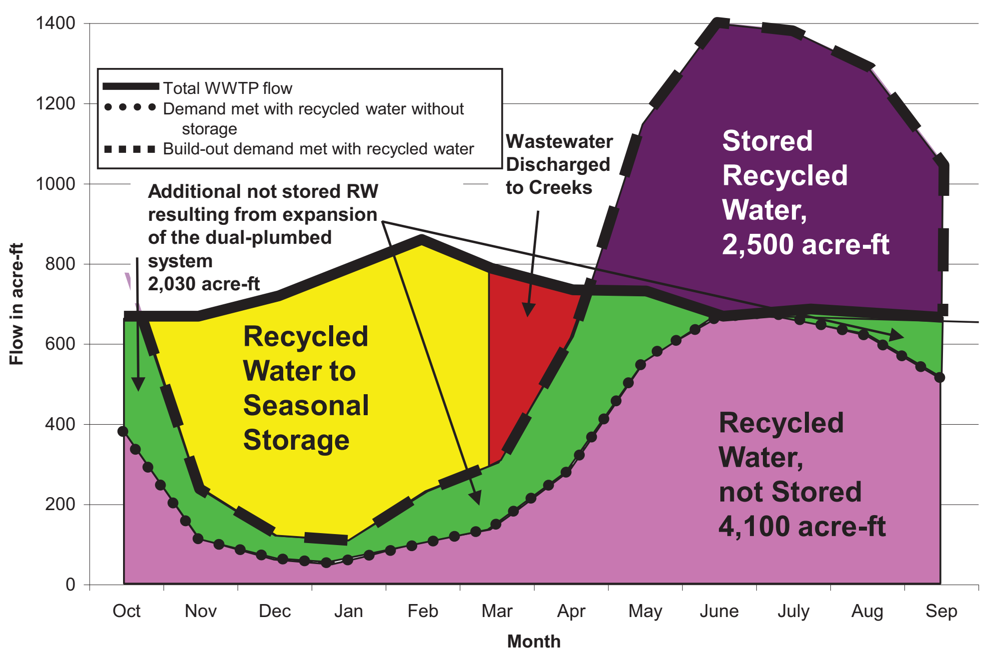


Figure 2-4 Irrigation Demand and Recycled Water Supply in a Dry Year, Total Demand for El Dorado Hills only; Excess Water is Discharged to Surface Water

An objective of the Recycled Water Master Plan was to identify, evaluate, and compare the economics of continued effluent disposal to surface water via discharge with the economics of the development of recycled water and zero discharge (except 1 MGD to Deer Creek).

EID has been successful in showing the RWQCB that treated effluent cooling and pH adjustment should not be required. Although salinity continues to represent a significant issue for the Central Valley, it does not appear to be as critical or problematic for EID.

Both the Deer Creek and El Dorado Hills wastewater treatment plants (DCWWTP and EDHWWTP, respectively) produce “Disinfected Tertiary” grade recycled water and provide nitrogen removal. Ultraviolet (UV) disinfection has also been installed at the DCWWTP for surface water discharge compliance and UV at EDHWWTP.

Metals continue to be of concern, but compliance may not require reverse osmosis treatment. It is anticipated that compliance with the California Toxics Rule metals requirements can be achieved through other strategies that may be less costly than treatment plant improvements.

2.3.2 Meeting with the City of Folsom

As part of this project, a meeting was held with representatives from the City of Folsom to discuss their interest in a joint project and support for recycled water in the City of Folsom. The project would provide recycled water for both El Dorado County and portions of the City of Folsom.

Although demand for recycled water within the City of Folsom exceeds the potential supply from EID, the City was not interested in a joint project at this time.

If interest is expressed in the future, the project would require a booster pumping station and pipeline for conveyance and additional seasonal storage (above 2,500 acre-ft) sized to meet the additional irrigation demand potentially in the City of Folsom.

2.3.3 Recommendation for Excess Water Disposal

Regulatory requirements for Title 22 recycled water for unrestricted reuse remain unchanged and are not likely to change through build-out of the facilities.

Due to the additional costs associated with an increase in seasonal storage size, pasture land acquisition, or additional recycled water development, we recommend that excess recycled water be discharged to surface water under EID’s existing NPDES permits.

2.4 Recommendation for Seasonal Storage Reservoir Size

Given that excess recycled water is best discharged from the wastewater treatment plants to surface water, the seasonal storage reservoir should be sized for 2,500 acre-feet of active volume. During a dry year, all of the recycled water available will be used to meet irrigation demands in El Dorado County. During the wet year, excess wastewater should be treated and discharged to Deer Creek and/or Carson Creek.

3.0 Evaluation of Potential Reservoir Sites

3.1 Evaluation Process

The process of evaluating potential reservoir sites followed a stepwise process as shown in Figure 3-1. A discussion of each of the steps follows.

3.2 Study Boundary

In general, the optimal location for a seasonal storage reservoir is within the existing or future service areas. The current recycled water distribution mains are shown in a red line on Figure 3-2. Locations outside of the service area may be advantageous if they offer benefits such as land use compatibility, efficient topography, readily available material for embankment construction, and limited environmental impacts. However, these must be weighed against the additional piping and pumping costs.

The study area, shown in Figure 3-3, is bounded on the east by Flying C Road and Amber Field Road due to residential development and elevation gain further east; on the north by Highway 50, due to residential development; to the south by Deer Creek because of the cost of creek crossing and distance away from the service area; and on the west by Prairie City Road due to distance from the service area. This study area provides significant opportunity to identify potential locations for reservoir sites.

3.3 Initial Sites

Identification of potential reservoir sites requires and understanding of reservoir type and topography. Potential reservoir types are as follows:

1. Single embankment reservoirs are used where topography allows a relatively steep valley to be closed off by a single embankment. The advantage of these reservoirs is that a large water volume may be available with a relatively small embankment volume. Many locations in El Dorado County are suitable for this type of reservoir.

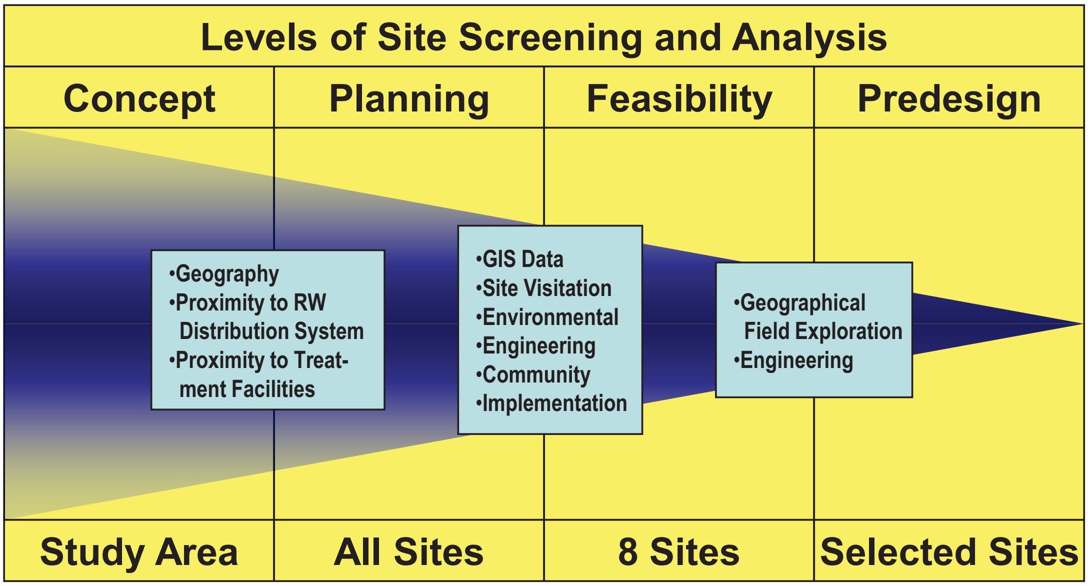


Figure 3-1 Screening Steps for Potential Recycled Water Seasonal Storage Reservoir Sites

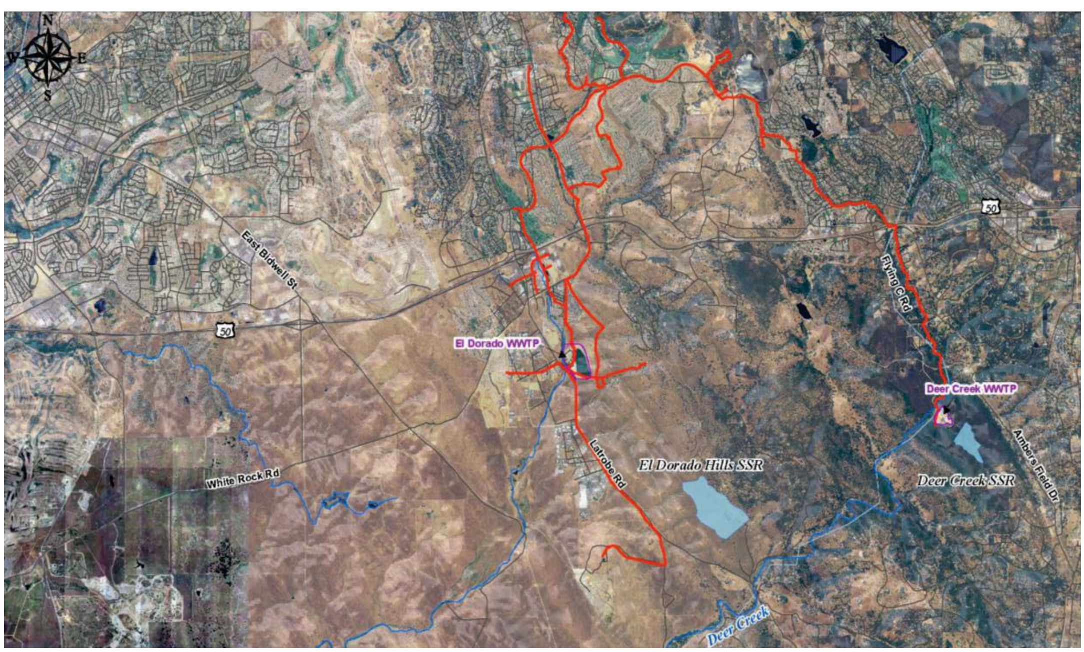


Figure 3-2 Existing Recycled Water Distribution Mains (in red) and Location of the DCWWTP and EDHWWTP

2. Twin (upstream and downstream) embankment reservoirs are used in valleys to create a reservoir by enclosing each end. The upstream embankment intercepts drainage (which is diverted around the reservoir) and the downstream embankment forms the reservoir volume. This type of reservoir is required in the Marble Valley area due to the large drainage area upstream of the potential reservoir sites.
3. Ring dam reservoirs are used where there is no suitable valley and three or more sides of the reservoir must be built up due to flat topography. The embankments tend to be low, but require a significant amount of earthwork because of their length. The reservoirs tend to have large surface areas and are relatively shallow. Areas within Sacramento County are suitable for this type of reservoir.

In evaluating potential reservoir sites, HDR used United States Geological Survey (USGS) topographic maps to select to identify locations where reservoirs could be constructed with a capacity between 2,500 acre-feet and 5,000 acre-feet. Sites within major streams (Deer Creek and Carson Creek) and roads (Latrobe and Whiterock) were avoided. Sites included in previous studies along with potential sites identified by HDR are shown in Figure 3-4. A total of 20 potential reservoir locations were identified. Bass Lake was excluded because of it cannot be expanded to meet the minimum of 2,500 acre-feet. Bass Lake is used as an existing source of raw water for supplementation.

3.4 Evaluation of Potential Reservoir Sites

3.4.1 GIS Data

Geographic Information System (GIS) data were obtained from EID, El Dorado County, and web sources. Some data from Sacramento County was not in GIS format, but was used as a photo overlay to the GIS data.

3.4.2 Field Survey

Following GIS ranking, field surveys were conducted on selected sites to verify land use, drainage, and environmental areas of interest including endangered species and habitats. The results from the field surveys was incorporated into the evaluation criteria and used in Task 7 for evaluation of mitigation costs.

3.4.3 Ranking Criteria

Ranking criteria were developed to cover engineering, environmental, community impacts, and implementation criteria. The detailed criteria used for evaluation of the reservoir sites are listed in Table 3-1.

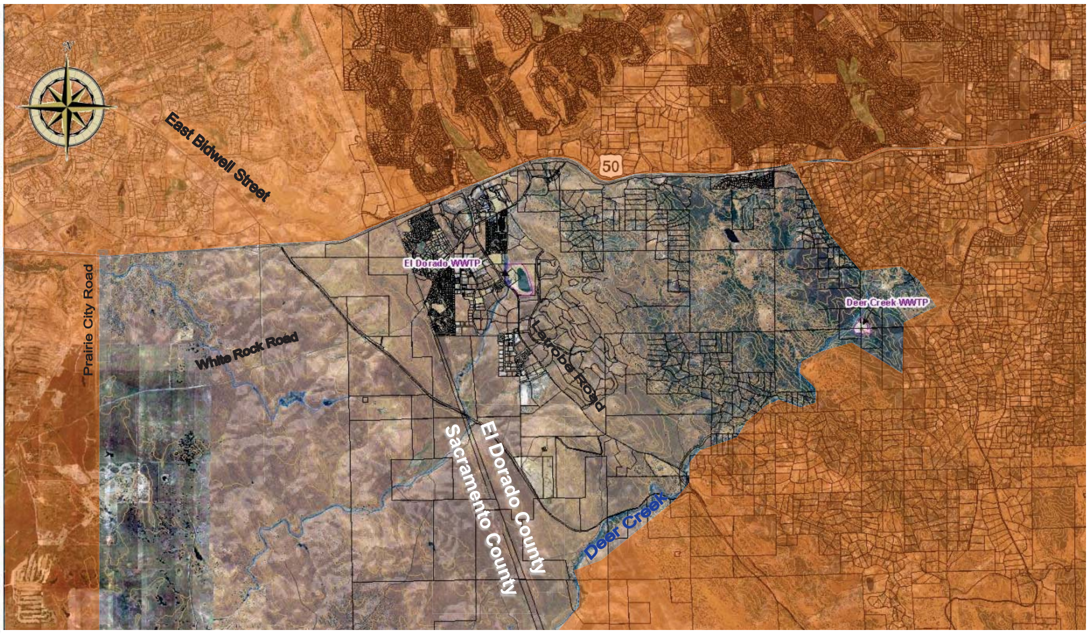


Figure 3-3 Study Boundary (not shaded)

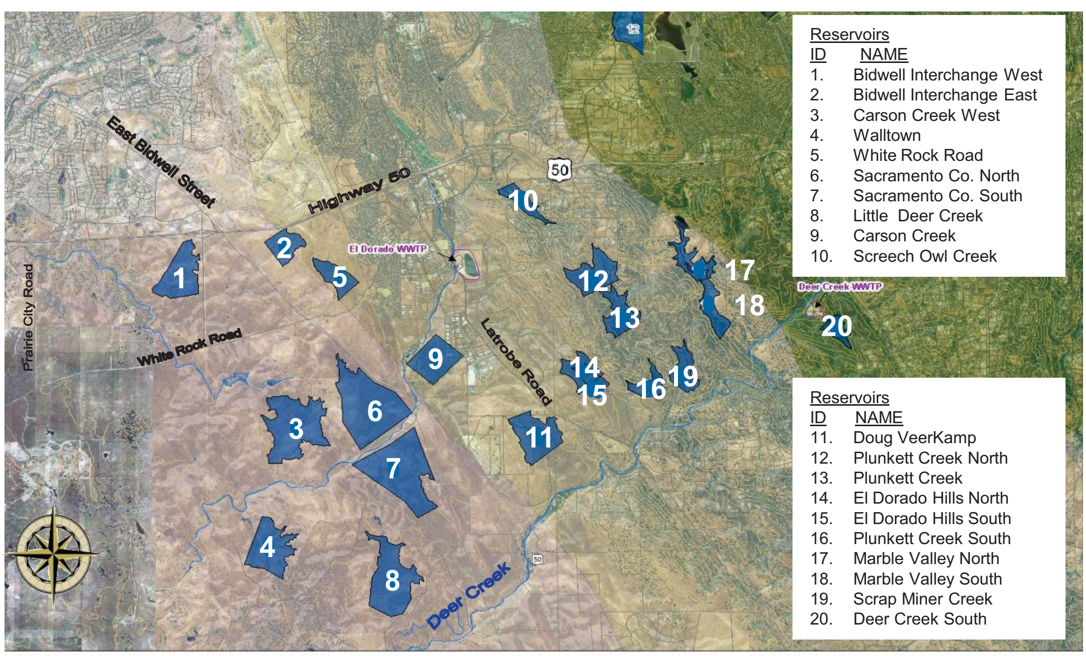


Figure 3-4 Potential Recycled Water Storage Reservoir Sites within Boundary Area

Table 3-1. Evaluation Criteria Used for Ranking Reservoir Site Alternatives

Engineering and Operations Ranking Criteria	1. Storage efficiency and liner area
	2. Energy efficiency
	3. Operations
	4. Site access
	5. Constructability
	6. Proximity to power
	7. Surface water and contributing drainage
	8. California Division Safety of Dam (DSOD) hazard ranking
	9. Earthquake acceleration
	10. Fault off-set potential
Environmental Ranking Criteria	11. Wetlands, vernal pools, and other water of the US
	12. Habitats and sensitive species
	13. Cultural resources
Community Impacts Ranking Criteria	14. Inundation zones
	15. Noise, odor, and distance to residential area
	16. Visual impact
	17. Land development potential and land use
	18. Recreation
	19. Permitting feasibility
	20. Risk to schedule impacts

3.5 Ranked and Weighted Results

All ranking was based on numeric data using an appropriate metric measure and adjusted to a 1 to 10 scale with 10 being the best rank. Detailed metric measures and ranking for each of the individual criteria are presented in the technical memorandum for Task 6. The ranking results are listed in Table 3-2. The table lists the sites and the individual ranking results for each evaluation criteria.

Weighting factors were used to determine the relative importance for each evaluation criteria. Importance factors used a 5 point scale from least important, not as important, somewhat important, important, to most important. EID staff representing a cross-section of interested including engineering, operations, legal, finance, environmental, public relations, and management were surveyed to obtain the weighting factors listed in Table 3-3. The weighting factors were used in conjunction with the ranking values in Table 3-2 to develop a weighted ranking for each site and for the four major evaluation categories. Table 3-4 shows the total ranking points for each category, the weighted value and weighted ranking results. The table is sorted in order of most advantageous to least advantageous site.

Table 3-2. Summary of Ranking Results for Each Criteria

		Engineering and Operations										Environmental			Community Impacts					Implementation	
		Storage Efficiency and Liner Area	Energy Efficiency	Operations	Access to Site	Constructability	Proximity to Power	Surface Water and Contributing Drainage Area	DSOD Hazard Ranking	Potential Earthquake Acceleration	Fault Off-Set Potential	Wetlands, Vernal Pools, and Other Waters of the US	Habitats and Sensitive Species	Cultural Resources	Inundation Zones	Noise, Odor, Distance To Residential Areas	View-Scape	Development Potential and Land Use	Recreation	Permitting Feasibility	Risk to Schedule Impacts
1	Bidwell Interchange West	5	3	7	10	3	9	7	2	3	10	7	7	10	1	7	9	6	5	8.0	7.0
2	Bidwell Interchange East	4	5	8	7	8	9	10	1	2	10	10	10	10	1	5	9	6	5	10.0	8.0
3	Carson Creek West	1	4	6	5	2	4	4	8	3	10	1	3	8	10	10	9	8	3	3.0	3.0
4	Walltown	5	3	6	3	7	1	9	8	7	10	10	1	9	10	8	9	8	3	8.0	4.0
5	White Rock Road	5	5	9	9	8	5	10	3	1	10	10	10	10	10	5	9	6	3	10.0	7.0
6	Sacramento Co. North	6	4	4	3	1	9	5	9	2	10	1	1	9	6	1	9	8	3	3.0	3.0
7	Sacramento Co. South	5	4	4	1	2	4	6	9	2	10	1	1	10	10	10	9	8	3	3.0	3.0
8	Little Deer Creek	10	3	4	1	6	1	5	7	3	10	5	3	9	6	10	9	8	3	6.0	4.0
9	Carson Creek	3	5	9	10	1	5	2	4	1	10	10	10	10	1	1	9	2	5	10.0	5.0
10	Screech Owl Creek	5	6	10	10	5	7	2	1	1	10	7	3	7	1	1	9	2	5	6.0	7.0
11	Doug Veerkamp	7	5	9	7	7	8	7	9	1	10	5	3	8	6	1	5	6	5	5.0	4.0
12	Plunkett Creek North	4	6	8	2	9	3	6	7	1	10	7	5	1	6	5	7	6	7	4.0	5.0
13	Plunkett Creek	5	6	8	3	5	1	2	8	1	10	5	1	1	6	3	7	2	7	3.0	4.0
14	El Dorado Hills North	4	6	9	7	8	7	9	5	1	1	7	3	10	6	2	4	4	7	7.0	6.0
15	El Dorado Hills South	5	6	9	7	7	7	8	5	1	1	5	5	10	6	2	5	4	7	6.0	6.0
16	Plunkett Creek South	4	6	8	5	2	7	1	7	1	10	7	1	8	6	1	5	2	7	6.0	4.0
17	Marble Valley North	8	6	9	8	1	8	1	8	2	10	7	3	4	10	4	4	6	7	5.0	3.0
18	Marble Valley South	4	6	9	5	2	7	1	7	2	10	5	3	7	10	4	4	6	7	5.0	4.0
19	Scrap Miller Creek	4	6	8	4	9	4	6	6	1	10	7	1	9	1	1	6	2	7	6.0	5.0
20	Deer Creek South	4	6	10	10	9	9	7	5	3	10	7	7	10	6	3	6	8	5	8.0	7.0

Table 3-3. Weighting Factors Developed by EID Staff

Evaluation Criteria	Factor
Engineering and Operations	4.6
Environmental	3.8
Community Impacts	2.4
Implementation Risks	3.9
Storage Efficiency and Liner Area	4.3
Energy Efficiency	4.1
Operations	3.7
Access to Site	3.3
Constructability	4.0
Proximity to Power	2.6
Surface Water and Contributing Drainage	3.6
DSOD Hazard Ranking	3.4
Potential Earthquake Acceleration	2.4
Potential for Fault Off-Set Across Dam and/or Reservoir	3.4
Wetlands, Vernal Pools, and Other Waters	4.2
Habitats and Sensitive Species	3.4
Cultural Resources	2.7
Inundation Zones	4.2
Noise, Odor, Distance to Residential Areas	3.3
View-Scape	2.4
Development Potential and Land Use	3.0
Recreation	2.0
Permitting Feasibility	4.6
Time/Risk to Schedule	3.6

3.6 Top Eight Sites

Based on the weighted ranked results in Table 3-3, the top eight sites were listed in Table 3-4Table 3-5 and shown highlighted in Table 3-5.

Table 3-4. Weighted Ranked Results by Major Category

Potential Reservoir Sites		Engineering and Operations	Environmental	Community Impacts	Implementation	Weighted Results	Average Weighted Results
5	White Rock Road	24	38	17	34	113	8
2	Bidwell Interchange East	24	38	12	36	109	7
20	Deer Creek South	26	29	14	30	98	7
9	Carson Creek	16	38	7	31	92	6
1	Bidwell Interchange West	20	29	13	30	92	6
4	Walltown	17	25	20	25	87	6
14	El Dorado Hills North	24	24	11	26	85	6
15	El Dorado Hills South	23	24	11	24	82	6
10	Screech Owl Creek	21	21	7	25	75	5
8	Little Deer Creek	15	20	18	20	74	5
11	Doug Veerkamp	24	19	11	18	72	5
17	Marble Valley North	19	18	16	16	70	5
19	Scrap Miller Creek	20	21	7	22	70	5
12	Plunkett Creek North	19	18	15	17	69	5
18	Marble Valley South	16	18	16	18	68	5
16	Plunkett Creek South	15	20	10	20	65	4
3	Carson Creek West	12	13	21	12	58	4
7	Sacramento Co. South	13	13	21	12	58	4
6	Sacramento Co. North	15	12	13	12	51	3
13	Plunkett Creek	15	10	12	14	50	3

Table 3-5. Top 8 Ranked and Weighted Sites

Number	Site Name
5	White Rock Road
2	Bidwell Interchange East
20	Deer Creek South
9	Carson Creek
1	Bidwell Interchange West
4	Walltown
14	El Dorado Hills North
15	El Dorado Hills South

Figure 3-5 shows the locations of the potential sites and is color coded based on the weighted ranked results. Figure 3-6 highlights the eight most advantageous sites.

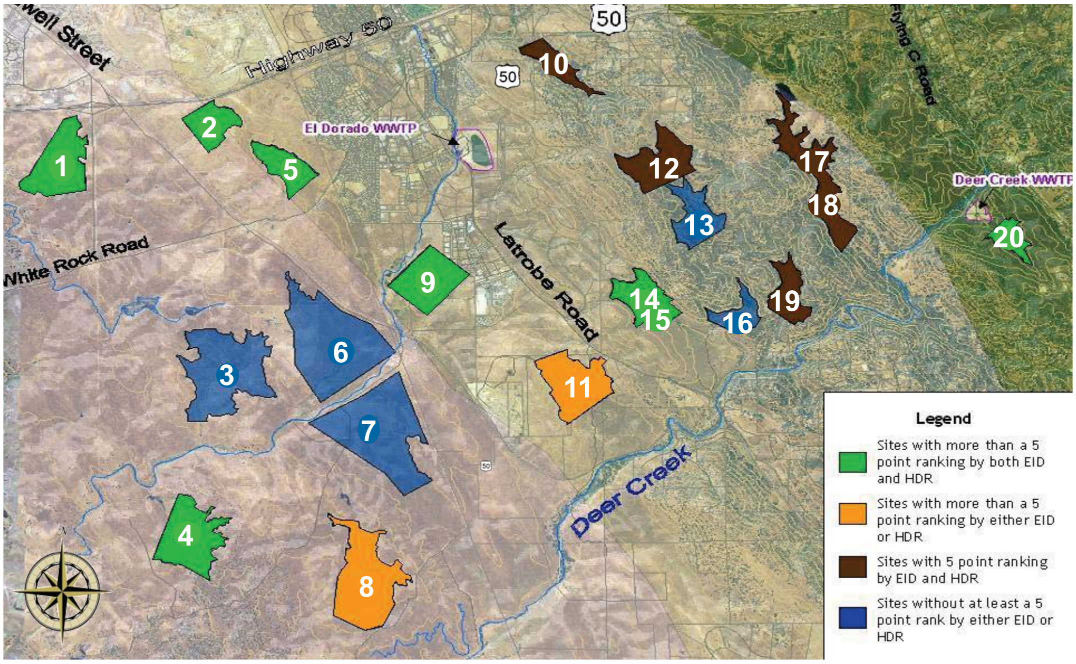


Figure 3-5 Weighted and Ranked Results for each Site

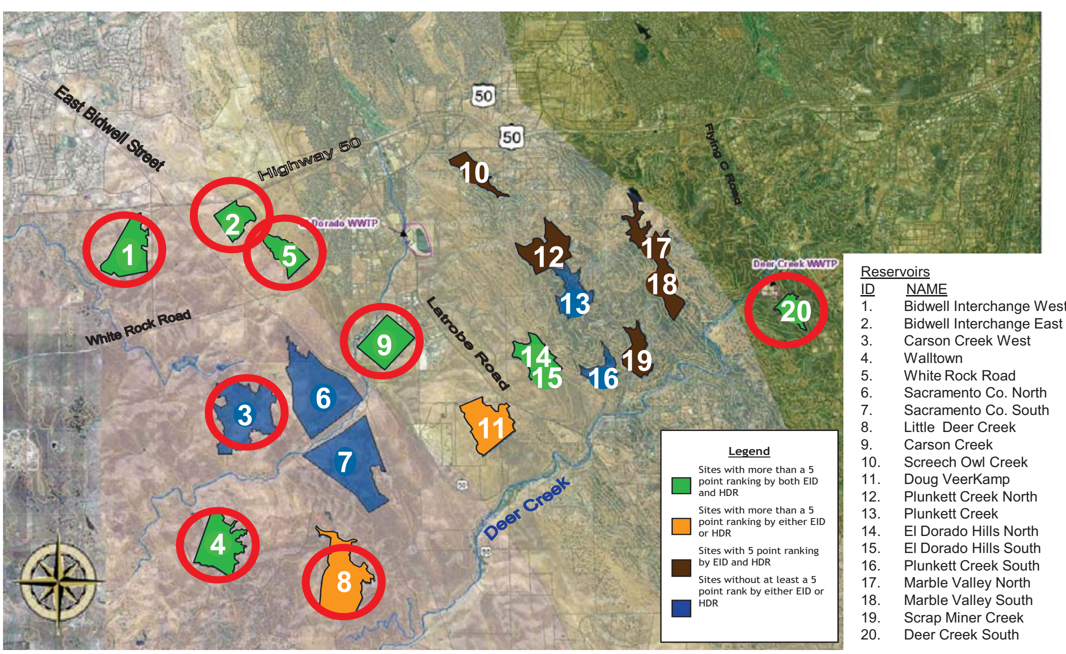


Figure 3-6 Potential Recycled Water Storage Reservoir Sites within Boundary Area

3.7 Recommendation of Top Two Sites for Field Investigation

The top two sites are located in Sacramento County and could be developed as reservoir sites when the City of Folsom develops a recycled water program. Site 20 ranked very high and is adjacent to the existing recycled water distribution system and adjacent to one of the major sources of recycled water, the DCWWTP. Site 9 is within an area identified to be developed for residential homes and commercial. Sites 1 and 4 ranked high, but are outside of the EID recycled water distribution area in Sacramento County. Portions of Site 14 are under development for residential homes. Site 15 was ranked in the top 8 and is adjacent to the existing recycled water distribution system, adjacent to one of the major sources of recycled water, the EDHWWTP, and is in the area identified for expansion of the recycled water system.

Based on the weighted ranking results and locations adjacent to the EID recycled water system, the following two sites were selected for further evaluation and on-site geotechnical exploration:

- Deer Creek Reservoir - Site 20 is located just south of the Deer Creek Wastewater Treatment Plant (DCWWTP)
- El Dorado Hills Reservoir - Site 15, south of the El Dorado Hills Wastewater Treatment Plant (EDHWWTP)

4.0 Evaluation of Selected Sites

4.1 Deer Creek Site

The reservoir site is located immediately south of the DCWWTP in a deep canyon. Figure 4-1 shows the location of the reservoir, the DCWWTP, and locations for geotechnical exploration.

4.1.1 Geological and Geotechnical Evaluation

Drilling at the Deer Creek site started on August 6, 2007. After environmental clearance and permits, EID staff cleared a path to the boring and test pit sites, allowing access and creating a level platform for the drilling equipment. EID staff also installed timbers to allow creek crossing. Figure 4-2 shows the drill rig at boring location B7, looking west-north-west. Figure 4-3 shows test pit excavation at P2, looking west, with the drilling machine in the background at B1.

Results of the field investigations indicate that the site area is generally covered by a thin (approximately 2- to 3-foot-thick) layer of loose sandy to silty or clayey gravel with varying amounts of cobble-size material overlying bedrock (Figure 4-4). The silts and clays were generally of low plasticity. The upper approximately 10 to 15 feet of bedrock exposed in the test pits and trenches was typically deeply weathered, closely to very closely fractured, and weak to moderately strong. Occasional localized zones of strong, moderately fractured rock were noted in several of the test pits and trenches. However, for the most part, the excavated bedrock material broke down easily into rock fragments of approximately 1 to 6 inches with a

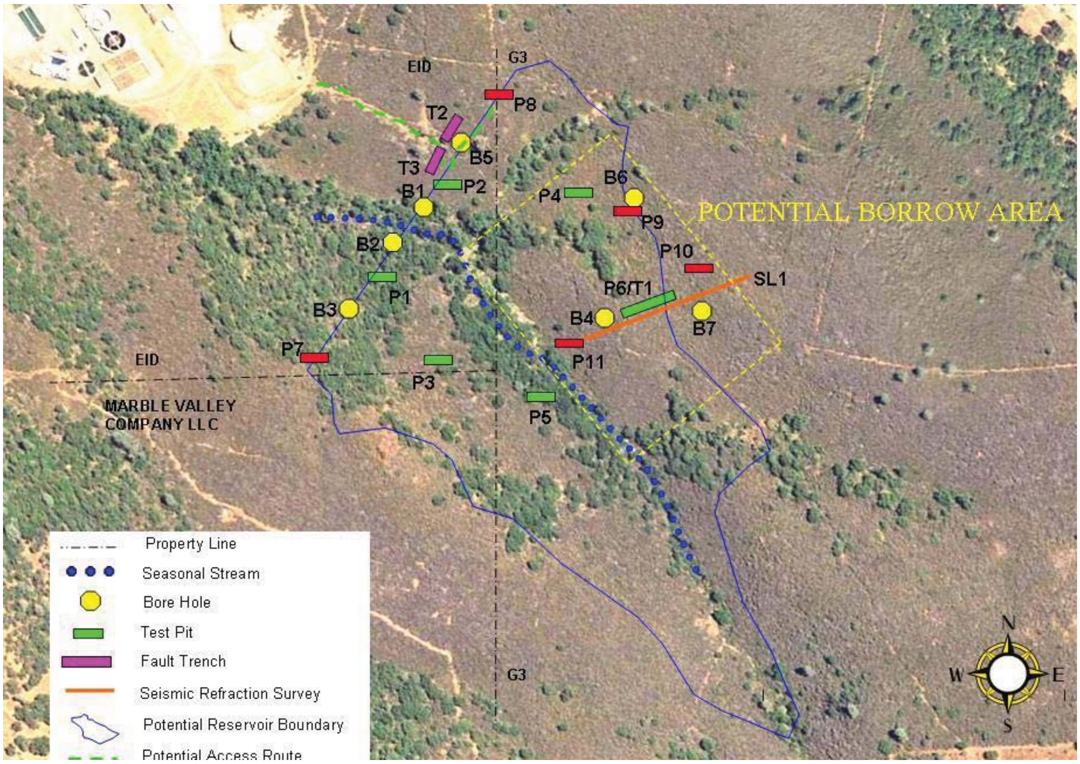


Figure 4-1. Final Plan for Geological Site Evaluation – Deer Creek Site

Figure 4-2. Drilling Rig

Figure 4-3. Test Pit Excavation

Figure 4-4. Excavation Showing Less Than 3-ft of Soil Cover

significant portion of sand- and silt-sized material. In general, the depth of weathering was greater toward the middle and upper portion of the slopes of the drainage, and relatively shallow, closer to the bottom of the drainage channel. The bedrock contains significant amounts of talc schist and serpentinite (containing naturally occurring asbestos) (Figure 4-5). The rock size and hardness is not suitable for a rock fill embankment (Figure 4-6); instead, the material is more similar to a soil than a rock and is suitable for an earthen embankment.

Free groundwater was not encountered in our exploratory test pits or trenches. Due to the use of drilling water during coring, detection and measurement of groundwater was not possible in the exploratory borings. Given the seasonal surface flows found in the main drainage, it is reasonable to assume that shallow groundwater is present in the bottom of the drainage during the year. Groundwater perched on shallow rock may also be encountered seasonally throughout the site.

The result of the seismic refraction survey is shown in Figure 4-7. Seismic refraction equipment sends a signal into the ground that is refracted by the subsurface rock and results in a picture showing the interfaces between rock formations. In Figure 4-7, the blue color represents soil-like conditions and the pink color represents solid rock. The green through red colors represent

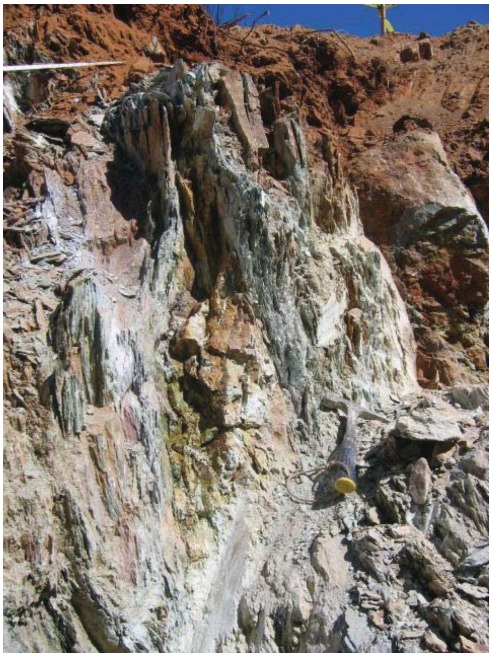


Figure 4-5. Bedrock general deeply weathered and/or sheared, highly fractured – significant amounts of talc schist and serpentinite

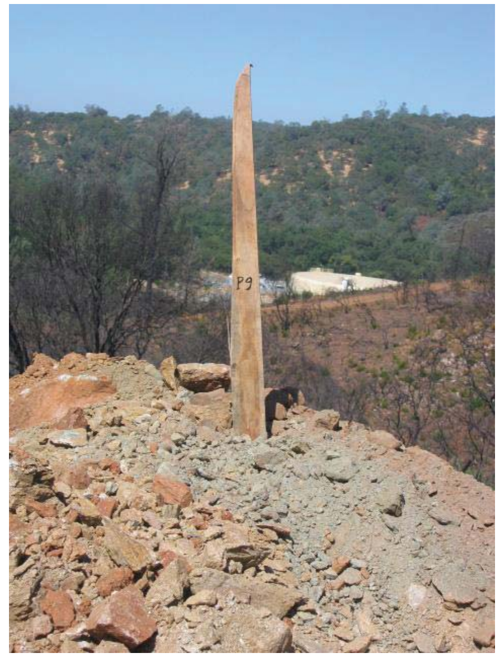


Figure 4-6. Rock not suitable for rock fill embankment: materials closer to soil than rock.

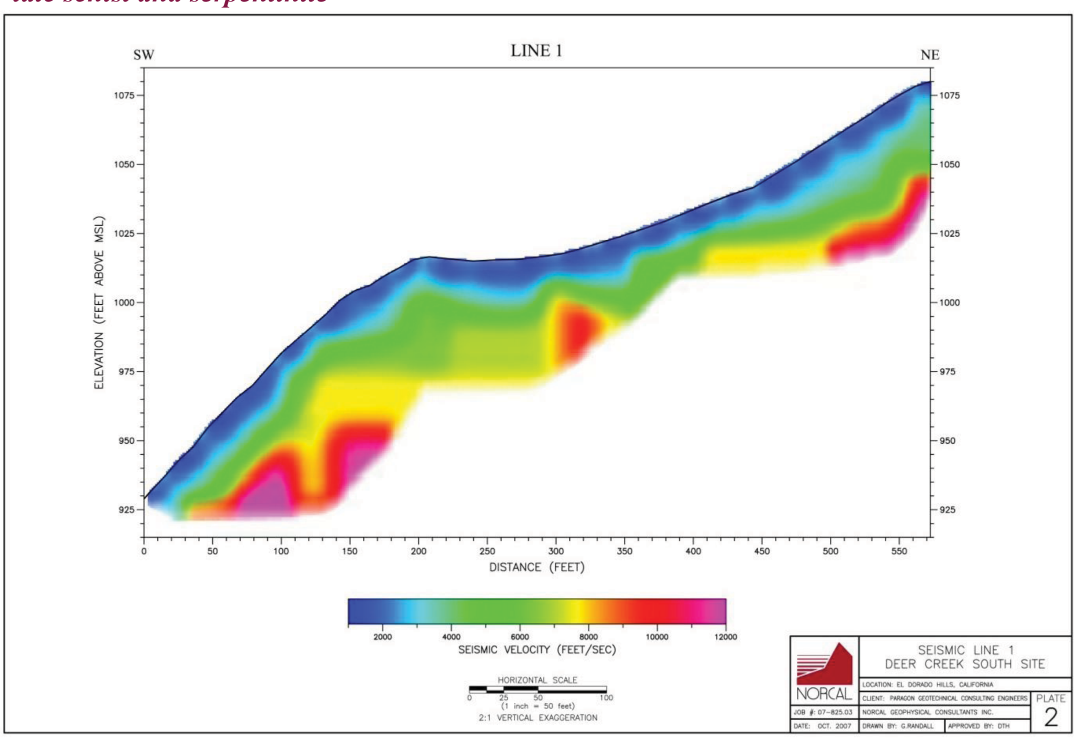


Figure 4-7. Seismic Refraction Survey Results – Deer Creek Site

increasing soil densities. The figure shows 25 to 50 feet of fractured rock over solid rock. The results of the refraction survey, combined with the test pit observations, suggest that adequate material is available for construction of the embankment. It also suggests that the material can be excavated without excessive effort or blasting. Embankment fill will come from on-site borrow source located at the northern end of the reservoir.

Division Safety of Dam (DSOD) representatives visited the site on August 9th and 24th, 2007, observed the geology and site conditions, and informally concurred with the findings in the field.

4.1.2 Deer Creek Site Findings

The following is a list of findings of the Deer Creek Site Investigation:

1. Geology at the site is highly variable.
2. On-site investigation and laboratory testing confirms that the materials, once excavated, are more similar to soil than rock.
3. Soil-like material exists in at least the upper 10 to 15 feet across much of the east half of the site.
4. Obtainable rock size and hardness is not suitable for a rock fill embankment.
5. There is insufficient silty-clay soil to create an impermeable core.
6. Borrow quantity and quality is suitable for an earthen embankment, but on-site segregation will be required to remove potential large quantities of talc schist in the rest of the fill. Insufficient quantities of silt and clay materials were found to construct a suitable core, therefore a monofill embankment of homogeneous material is recommended.
7. Fractured and sheared rock and other materials are relatively permeable, again justifying a homogeneous embankment fill.
8. Faulting was not evident in the excavation and there is no fault mapped through this area. Fault activity is not an issue for design.
9. Earthfill embankment requires slopes of 3:1.
10. Filter materials for zoned embankment are not readily available without excessive material handling and should be imported.
11. The foundation support for an earthfill embankment is acceptable for the proposed size of the structure, with appropriate foundation preparation.
12. Shallow fractured rock with shear and fault zones throughout the site may necessitate a liner under the entire reservoir.

4.1.3 Embankment Design

To create a minimum operating volume of 2,500 acre-feet, the embankment will be 127.5 feet from the existing grade. Because of the topography on the south side of the reservoir, this is the maximum reservoir size at this location. A drawing showing the typical cross-section is shown in Figure 4-8. The crest width of the embankment will be 20 feet, and both upstream and downstream slopes will be 3:1 (horizontal:vertical [H:V]). The foundation of the embankment will be excavated to approximately 5 feet to remove the surficial layer of weathered rock. This area will be filled with borrow material from the proposed borrow site. A 20-foot deep cutoff trench will be excavated along the centerline of the foundation excavation and backfilled with relatively impervious material. Material for the outer shell of the embankment will come from an on-site borrow area.

The soils at this site contain insufficient clay material to create an impermeable liner under the reservoir. Imported clay material is more costly than synthetic liner alternatives. Hypalon is the traditional membrane material and comes in 40, 60, and 80 mm thicknesses. The material has a long history of good performance and only comes in a black color, but Hypalon may be laminated with a color coating to provide a tan surface layer to match the native color. To aid in water migration under the liner and limit puncture by surface rocks, a geotextile underlayment is recommended.

4.1.4 Hydraulic Analysis

Rainfall is reported at the Prairie City rain gage (Station A00669034) which is located approximately 8 miles from the reservoir sites. The 1:100 year 72-hour rainfall was determined to be 7.9 inches. Water falling within the catchment area above the interception trench is intercepted and discharged downstream of the reservoir (see Figure 4-9). Rain falling below the interception trench flows into the reservoir and is stored along with rain falling directly on the reservoir. The flow in the natural channel downstream of the reservoir is less than existing conditions because 25 to 30 percent of the 1:100 year storm falls on the reservoir and is retained. Table 4-1 characterizes the hydraulic conditions during the 1:100 year storm event and storm season:

Table 4-1. 1:100 Year Rainfall and Stormwater Flow

	Deer Creek Reservoir
1:100 year rainfall	7.9 inches in 72 hours
1:100 year rainfall total October to May	22.3 inches per year (wet season)
Area of reservoir	42 acres
Area of catchment including reservoir	180 acres
Wet year rainfall storage requirement	78 acre-feet

Inundation due to instantaneous embankment failure simultaneous with the 1:100 year storm flow (purple) and inundation due to the 1:100 storm (green) are shown in Figure 4-10.

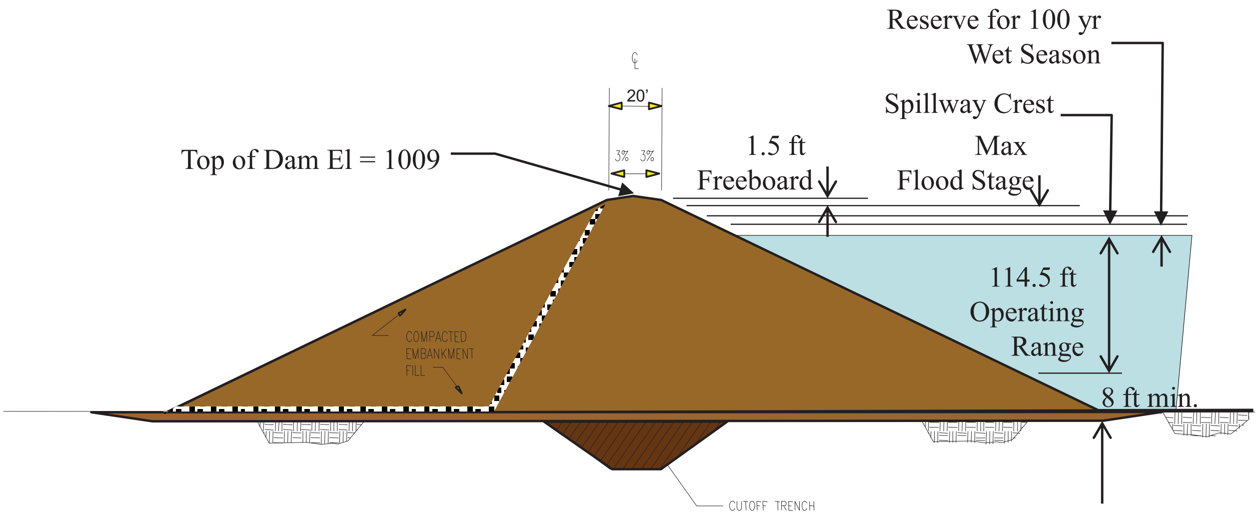


Figure 4-8. Section through the Embankment at the Deer Creek Reservoir

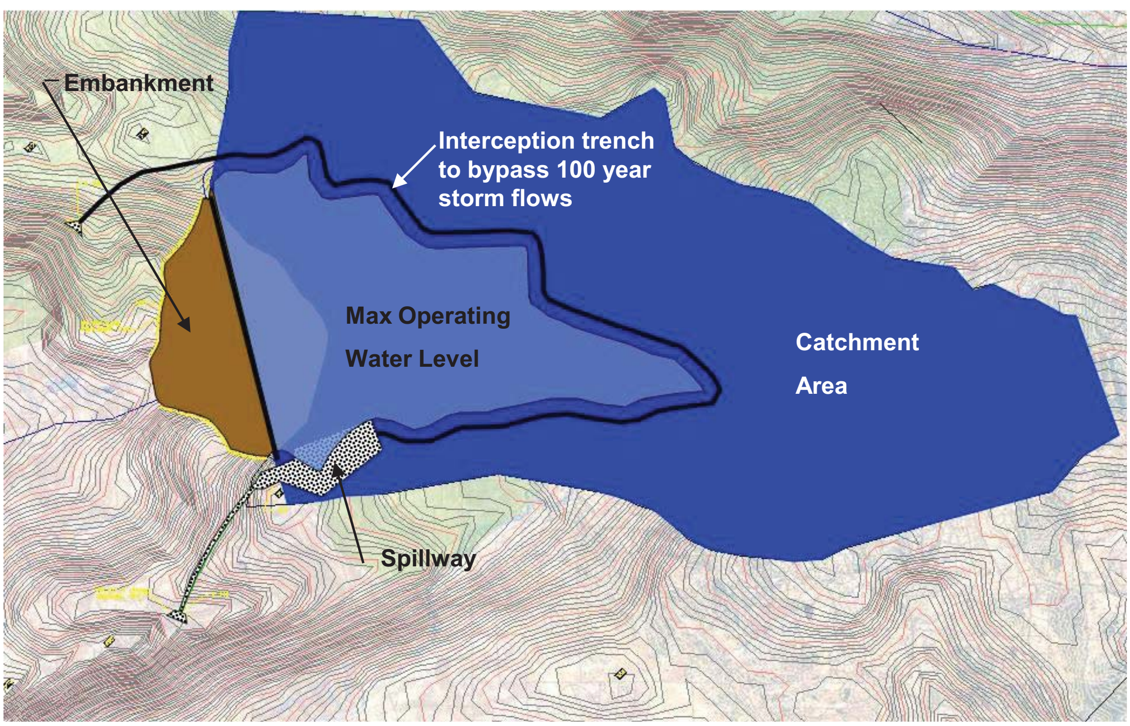


Figure 4-9. Deer Creek Embankment Alignment, Reservoir, and Catchment Area

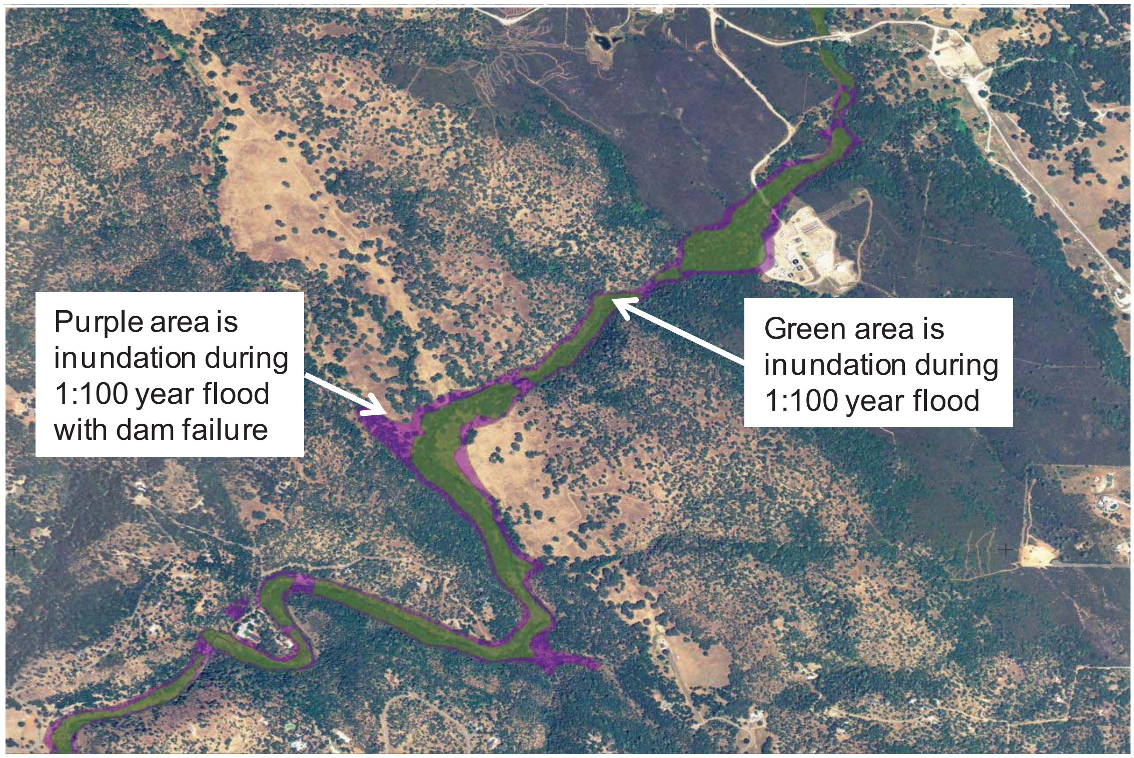


Figure 4-10. Inundation During Embankment Failure at Deer Creek Site During 1:100 Year Storm in Purple and 1:100 Year Flood Flow in Green

4.1.1 Embankment Failure Analysis

Steady state seepage was reviewed at the maximum storage pool of 1,003 feet for estimating pore water pressures within the embankment and for sizing the internal drain. As a conservative measure, seepage analysis ignores the interior liner of the reservoir.

Six loading cases were analyzed for slope stability following both the United States Army Corps of Engineers (USACE) and Federal Energy Regulatory Commission (FERC) criteria.

Case 1 - End-of-construction analysis assumes internal pore pressures caused by construction have not yet dissipated. Both the upstream (Case 1A) and downstream (Case 1B) slopes were investigated.

Case 2 – Maximum storage pool analysis assumes long-term steady-state seepage from the maximum storage pool level.

Case 3 – Maximum surcharge pool analysis assumes the pool thrust from the maximum surcharge pool elevation is placed on the upstream embankment slope and the phraetic surface from Case 2 loading is imported to model internal pore pressures.

Case 4 - Rapid drawdown analysis assumes the case where the reservoir is drawn down from the maximum storage elevation to the bottom elevation, instantaneously. The phreatic surface is imported from Case 2 loading and continued from the maximum storage elevation down the upstream embankment slope and along the bottom of the reservoir.

Case 5 – Earthquake analysis assumes steady state seepage was reviewed at the maximum storage pool of 1,003 feet for estimating pore water pressures within the embankment and for sizing the internal drain. Earthquake guidance was taken from FERC's Engineering Guidelines for the Evaluation of Hydropower Projects coupled with USACE EM 1110-2-1806, Earthquake Design and Evaluation for Civil Works Projects. A pseudo-static analysis was completed for both the upstream (Case 5A) and downstream (Case 5B) slopes. The analysis used a peak ground acceleration of 0.75g (acceleration rate due to gravity = 32.2 feet/second) for the Deer Creek site.

Case 6 - Deformation analysis was considered at the Deer Creek site per USACE and FERC guidance. FERC guidelines recommend a maximum deformation of 2 feet or one half of the filter thickness, whichever is less, in order to retain embankment integrity.

For the deformation analysis, a yield acceleration (k_y) of 0.37g was calculated utilizing Slope/W. The maximum average acceleration (k_{max}) was conservatively set to be equal to the peak ground acceleration of 0.75g. The ratio of k_y/k_{max} was used to determine the estimated deformation. Preliminary results of the analysis reflect a displacement of approximately 0.4 feet (12 centimeters), indicating the reservoir will not experience deformations beyond the point of failure.

As shown in Table 4-2, the majority of loading cases meets or exceeds the project criteria. The pseudo-static analysis resulted in an FS below the requirement of 1.0. The East Branch (closest to the Deer Creek site) has not been studied, HDR used a conservative interpretation of the values, resulting in failure under the earthquake criteria. Per FERC guidelines, a deformation analysis was completed to ensure the reservoir would retain flood waters should the embankment fail following a seismic event. The deformation analysis shows that the embankment would be acceptable during an earthquake. The analysis shows that the embankment as designed is acceptable.

Table 4-2. Summary of Stability Factors of Safety for Deer Creek South

Case	Loading	FS	Required FS	Met?
1A	End of Construction – Upstream	2.569	1.3	Y
1B	End of Construction – Downstream	2.459	1.3	Y
2	Maximum Storage Pool	2.505	1.5	Y
3	Maximum Surcharge Pool	2.531	1.4	Y
4	Rapid Drawdown (from Maximum Storage Pool)	1.797	1.3	Y
5A	**Earthquake (Pseudo-Static) – Upstream**	**0.809**	**>1.0**	**N**
5B	**Earthquake (Pseudo-Static) – Downstream**	**0.814**	**>1.0**	**N**
6	Deformation Analysis		<2.0 ft	Y

4.1.2 Reservoir Needs

Land Acquisition

The Dry Creek reservoir site is bounded on the north by EID property containing the DCWWTP, on the west by property owned by Marble Valley Company, LLC, and on the east and south by property owned by United States Intermodal (G3), as shown in Figure 4-11. The area of property required is listed in Table 4-3:

Table 4-3. Property Ownership and Area Required

Owner and Property	Straight-line Boundary
Marble Valley Company	12.1 acres
US Intermodal (G3)	61.6 acres
EID Owned Property	43.5 acres

The site has no direct street frontage along Deer Creek Road. The parcels are currently zoned open space and rural residential. Marble Valley LLC and G3 are considering development projects that would comprise large lot subdivisions. The G3 land will be most affected by the project; the Marble Valley LLC site is nominally affected in the northeast corner of their parcel. The EID site would utilize the southeastern corner of their existing lands that include the DCWWTP.

4.1.2.1 Roads and Access

The Deer Creek Reservoir site is located south and adjacent to the DCWWTP. Site access is available through the DCWWTP through an existing gate on the south side of the plant. An unimproved road from DCWWTP leads to the reservoir site. This road is on EID property. Approximately 1,000 feet of existing dirt road from the DCWWTP to the reservoir site will need to be improved, including a drainage culvert.

4.1.2.2 Electrical Service

The total estimated power requirement for the new reservoir is approximately 420 kVa. At the time of application, Pacific Gas & Electric Company (PG&E) will evaluate their portion of costs. For the purposes of this estimate, we assumed that the project will be responsible for the buried conduit (5-inch) and wire for a new 12.5kV service. PG&E will provide the transformer.

Adequate power is not available at the DCWWTP site for the complete demand; therefore, a new power service will be required for the reservoir and pumping station.

4.1.2.3 Communication

If the seasonal storage reservoir were at the Deer Creek site with pumping to the diurnal tank (Tank Farm) by the EDHWWTP, communication between the plants will be necessary. The most practical means of communication between the facilities would be to bury a fiber optic cable with the pipeline. If the reservoir were to be constructed at the El Dorado Hills site, a radio system would be installed to communicate data to operating staff.

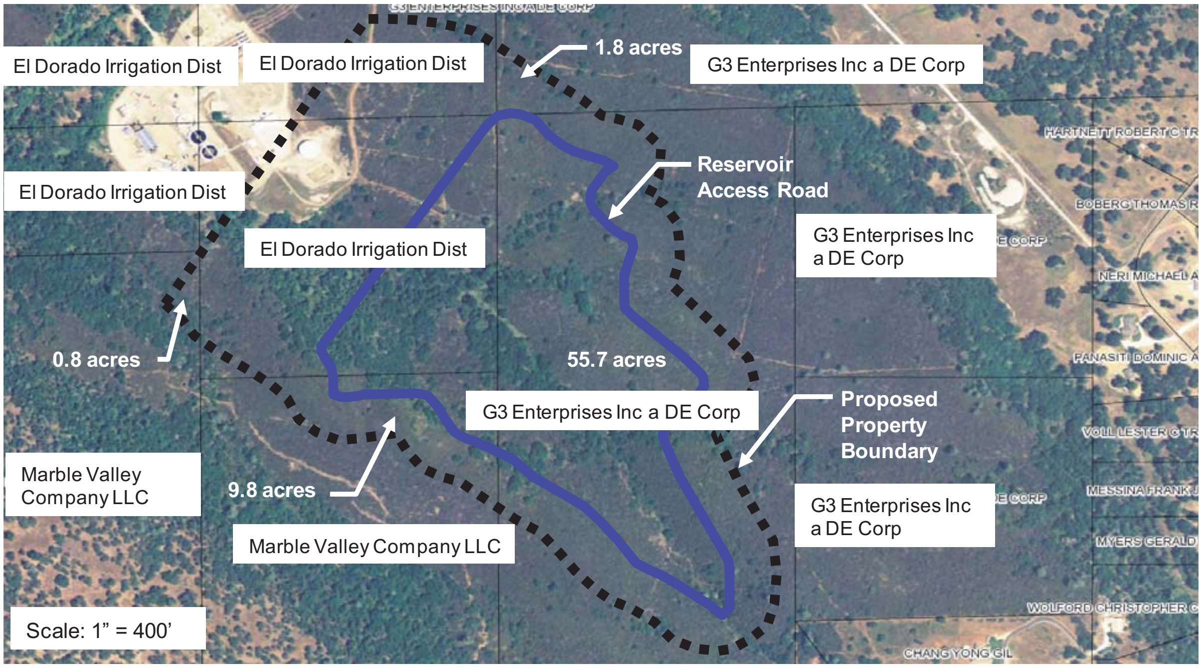


Figure 4-11. Minimum Land Acquisition Requirement

Another alternative would be to install a fiber optic communication cable installed in the trench with the pipeline. Ultimately, the choice will be based on the infrastructure installed as part of the project and current status of communication.

4.1.2.4 Post Treatment

The recommendation for post treatment includes an aeration system in the reservoir and chlorine injection prior to the recycled water entering transmission pipelines. The aeration system provides mixing to reduce the impacts of seasonal turnover and provides oxygen to reduce algae growth. Chlorine reduces bacterial growth and limits slime buildup and sprinkler clogging.

Piping at the base of the reservoir would be designed such that a fine screen for algae removal could be included in the future, as the capacity of the reservoir is reached and dry years require prolonged operation at low reservoir water levels.

Chemical addition to the reservoir for algae control is not recommended.

4.1.3 Reservoir Operations, Pumping and Piping Requirements

4.1.3.1 Wheeling Water

Figure 4-12 shows a schematic of the distribution of recycled water from the treatment plants and the seasonal storage reservoir. During the winter, excess recycled water would be pumped from the DCWWTP to the Seasonal Storage Reservoir located at the site. During the summer, recycled water would be pumped from each treatment plant and from the Seasonal Storage

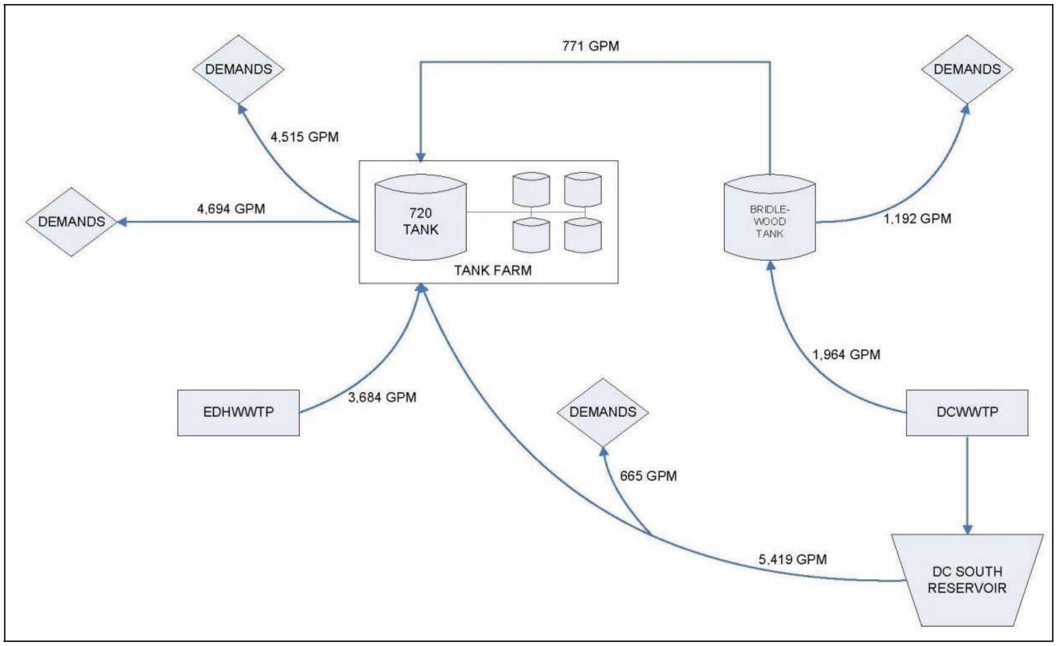


Figure 4-12. Supply and Distribution Quantities With Seasonal Storage at the Deer Creek Reservoir Site

Reservoir located at the DCWWTP into the distribution system and to the new tanks located east of the EDHWWTP at the location of the Tank Farm. A 20-inch pipeline will need to be constructed from the Seasonal Storage Reservoir to the Tank Farm. Excess recycled water from the El Dorado WWTP will be discharged to Carson Creek and any excess recycled water from the Deer Creek WWTP will be discharged to Deer Creek.

4.1.3.2 Piping

The existing recycled water piping was evaluated to determine if capacity is available to convey recycled water from the El Dorado Hills WWTP to the Deer Creek Seasonal Storage Reservoir for the storage of El Dorado Hills WWTP recycled water production during the winter, and from the reservoir to the tank farm for distribution during the summer. The analysis determined that the existing system is correctly sized for the current demands, but undersized for the projected future recycled water demands. The existing piping is limited by the 18-inch pipeline that transitions to a 16-inch pipeline at highway 50 between the Deer Creek WWTP and the 12-inch recycled pipeline between the Bridlewood storage tank and the Village C storage tank. Figure 4-13 shows three alternative routes for the 20-inch pipeline between the reservoir and daily storage tanks at the Tank Farm. Each alternative route is discussed as follows:

1. Alternative 1 is based on maximizing the use of existing service roads and public roads with right-of-way. The total length is approximately 36,100 feet.

Beginning at the Deer Creek Reservoir, the alignment follows a service road west along the south bank of Deer Creek, then crosses Deer Creek south of the confluence with Marble Creek, continues north and west uphill to the future Marble View Drive to an unnamed service road to Beaver Pond Road to Ryan Ranch Road to Latrobe road, and north to the El Dorado Hills WWTP and Tank Farm.

2. Alternative 2 is based on a middle route along existing property lines. The total length is approximately 27,400 feet.

   Beginning at the Deer Creek Storage Reservoir, the alignment follows Deer Creek Road north across Deer Creek, then parallels Deer Creek on the north side across Marble Creek and west to Ryan Ranch Road, then west across Plunkett Creek and north on Lesara Court and along dirt roads toward the Tank Farm. The alignment is intended to follow future roads in the East Ridge development.

3. Alternative 3 is based on traveling along roads in the future developments of Marble Valley and Ease Ridge. The total length is approximately 26,400 feet.

   Beginning at the Deer Creek Storage Reservoir, the alignment travels north along Deer Creek Road, then follows an existing emergency vehicle access road west to the future Marble Lake Drive, then along Marble View Drive through an unnamed cul-de-sac along the property line to the East Ridge development, and then along future roads to the Tank Farm.

Route Alternative 3 is recommended because of the shorter distance. The route through Marble Valley should be coordinated with future development.

4.1.3.3 Pumping

Pumping is required from the DCWWTP and EDHWWTP to the seasonal storage reservoir and from the reservoir to the Tank Farm for distribution. The existing recycled water pumping station at both plants can be modified to transfer recycled water to the reservoir. A new pumping station at the reservoir site is required for pumping from the reservoir to distribution.

Several pump station types were evaluated and the vertical turbine pump station recommended because of the good fit between pump characteristics and flow/head conditions, ease of construction, and EID experience with this type of pump.

4.2 El Dorado Hills Site

4.2.1 Geological and Geotechnical Evaluation

The EDHSSR site is located in El Dorado Hills, just east of Latrobe Road, approximately 3.5 miles south of US Highway 50 and 2.3 miles south of the EDHWWTP.

Figure 4-14 shows the geotechnical exploration for the El Dorado Hills site. Drilling started at the El Dorado Hills site on September 9, 2007. HDR arranged to have the grass cleared to reduce the fire hazard and EID arranged for placement of a temporary bridge over the seasonal stream.

Figure 4-15 shows the drill rig at boring location B3 looking west-south-west. Figure 4-16 shows a fault trench excavation at T3 looking west.

The field investigation revealed a shallow soil cover of less than 3 feet over bedrock (Figure 4-17). The bedrock is deeply weathered, sheared, and highly fractured. The bedrock is very soil-like in the upper several feet, across the western two-thirds of the site (Figure 4-18). Groundwater was found at a depth between 6 and 8 feet in all test pits in the western half of the site (Figure 4-19). The rock size and hardness are not suitable for a rock fill embankment (Figure 4-20). Instead, the material in the upper 10 to 15 feet is more similar to soil than to rock and is more suitable for an earthen embankment. Little on-site classification will be necessary to segregate the low permeability materials for the embankment core.

Results of the seismic refraction survey are shown in Figure 4-21. The blue color represents soil-like conditions and the pink color represents solid rock. The gradation from green to red represents increasing density. The figure shows 15 to 25 feet of fractured rock over solid rock. The results of the refraction survey, combined with the test pit observations, suggest that adequate material is available for construction of the embankment. It also suggests that the material can be excavated without excessive effort or blasting. Embankment fill will come from an on-site borrow source located at the north western end of the reservoir. This material is classified as silty gravel with sand.

Due to the presence of fractured and sheared rock combined with relatively steep slopes in eastern portion of the proposed reservoir footprint, and the presence of springs within the footprint, the design of a reservoir liner will need to consider slope stability, both from a structural standpoint and the need to provide proper drainage from behind the liner. The final slope geometry of a borrow area excavation extending into the reservoir footprint will need to consider stability of the slopes upon inundation.

Three fault trench locations were excavated to confirm the location of the west branch of the Bear Mountains Fault Zone (Figure 4-22). Trench T1 was located along the fault line reported by Loyd in 1984 and Busch in 2001. In 1981, Wagner located the fault line west of the reservoir site. Because more than one significant shear/fault splay may cross the site, trenches T2 and T3 were excavated to better determine site conditions. Obvious cross-structure shear zones were found in trench T3 (Figure 4-23). A shear zone greater than 25 feet wide was found in trench T1. Highly sheared and fractured rock along with geologic contact was found in the trenches T2A and T2B. In 1983, a comprehensive investigation of geological and seismological conditions of the wider Folsom area, including the El Dorado Hills area and project vicinity, was conducted by Tierra Engineering Consultants (TEC). The investigation was conducted to "*assess the potential for earthquakes in the vicinity of the Folsom Reservoir, develop data for estimating the magnitude of the earthquakes, and investigate the potential*

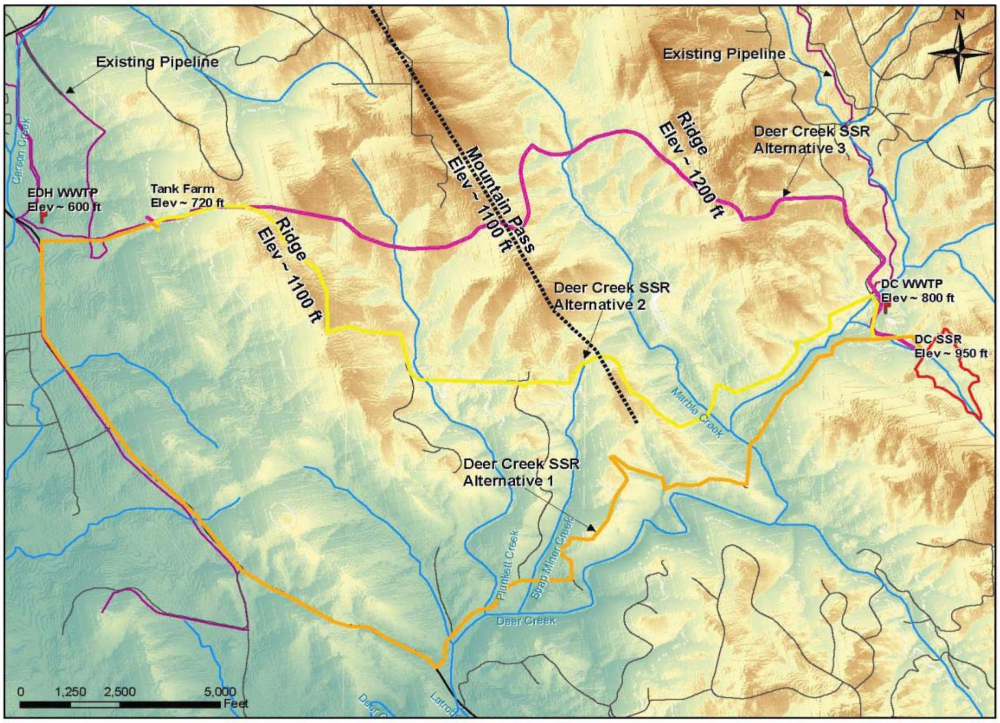


Figure 4-13. Pipeline Routes from the Reservoir Pumping Station to the Daily Storage Tank Farm with Seasonal Storage at the Deer Creek Reservoir Site

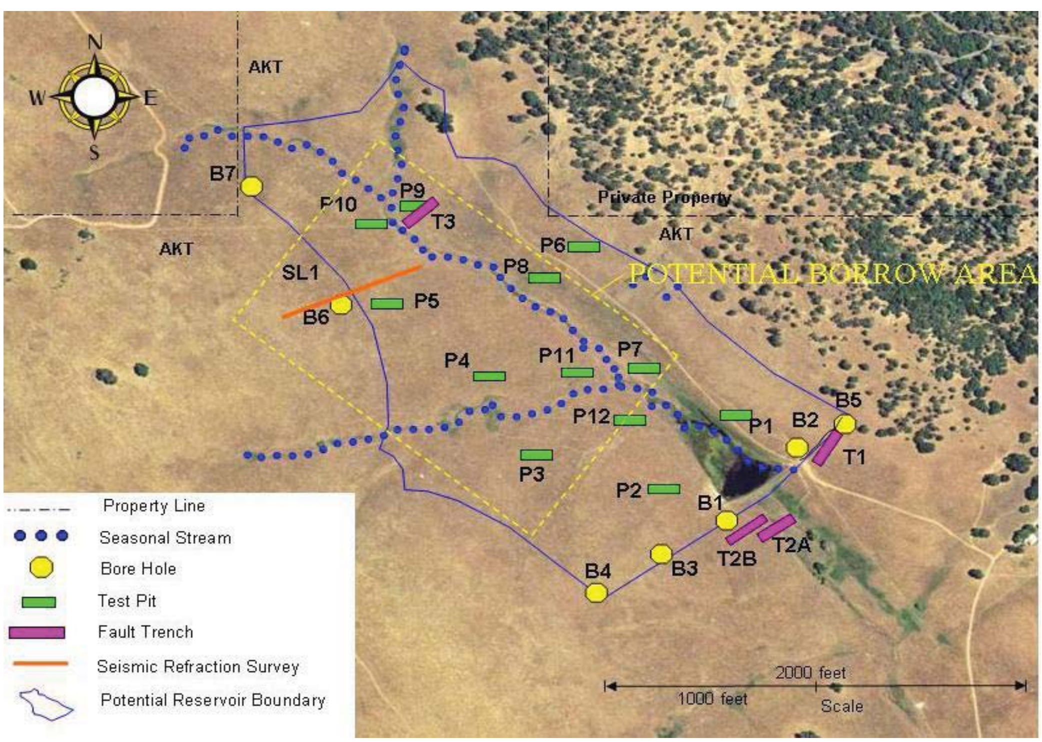


Figure 4-14. Final Plan for Geological Site Evaluation – El Dorado Hills Site

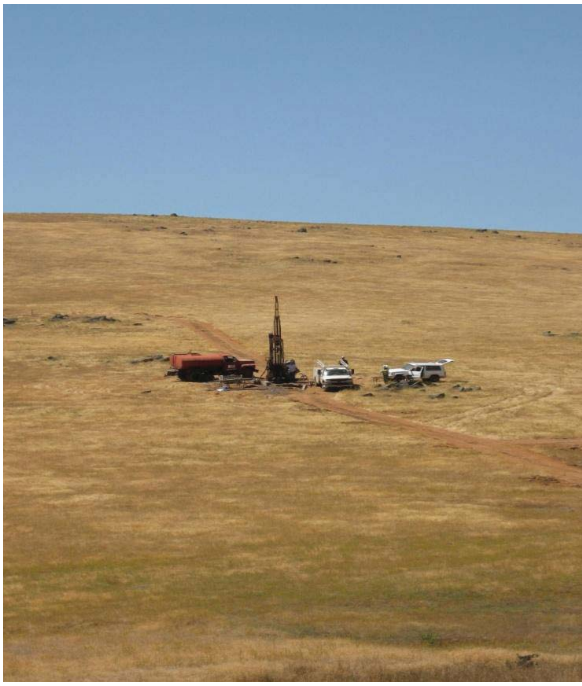


Figure 4-15. Drilling Rig

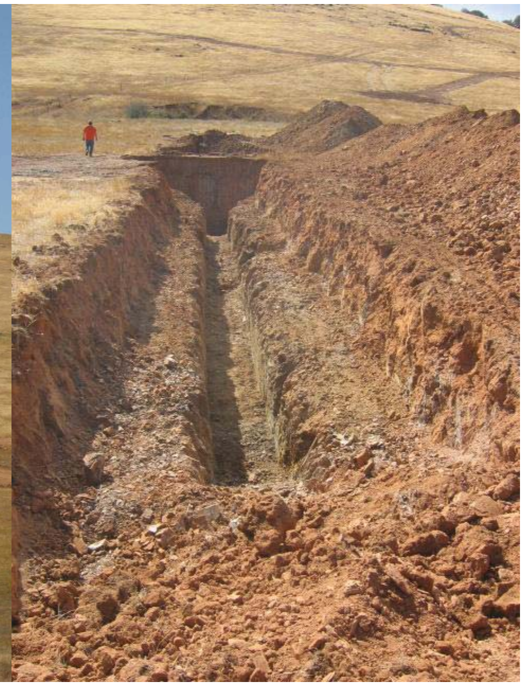


Figure 4-16. Fault Trench

Figure 4-17. Shallow Bedrock with less than 3-Ft of soil cover

Figure 4-18. Bedrock Deeply Weathered and Sheared, Highly Fractured

Figure 4-19. Groundwater Found at 6 to 8 Feet in Western Half of Site

Figure 4-20. Rock not Suitable for Rockfill Embankment, Soil-like in Upper Several feet Across Western two-thirds of Site.

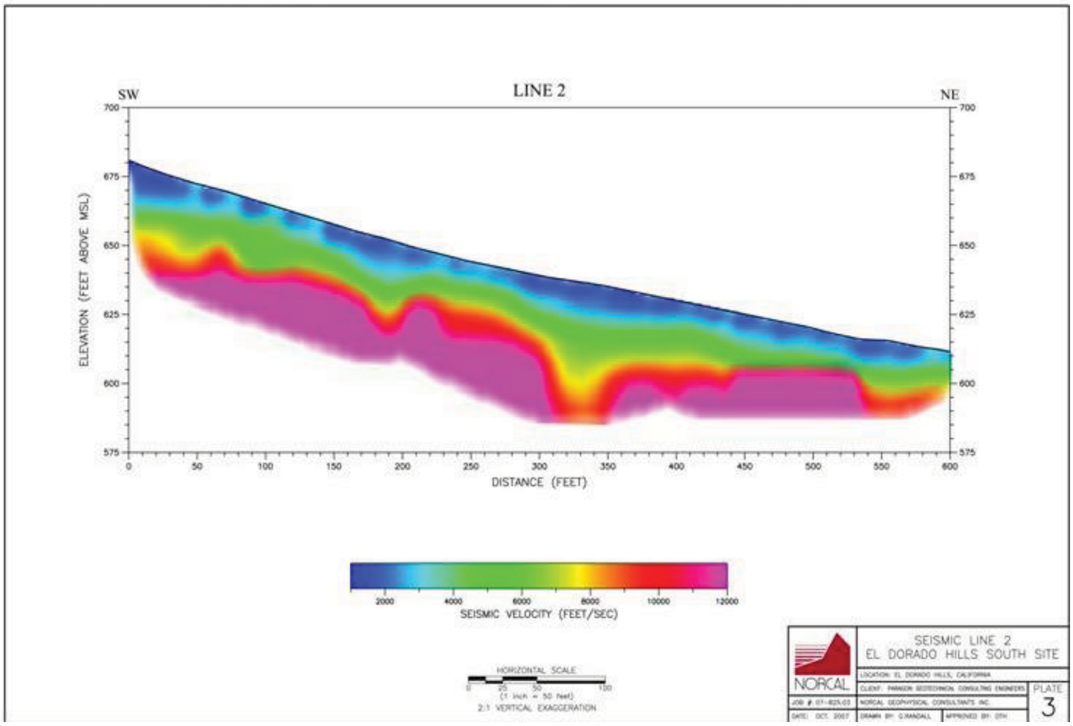


Figure 4-21. Seismic Refraction Survey Results – El Dorado Hills Site

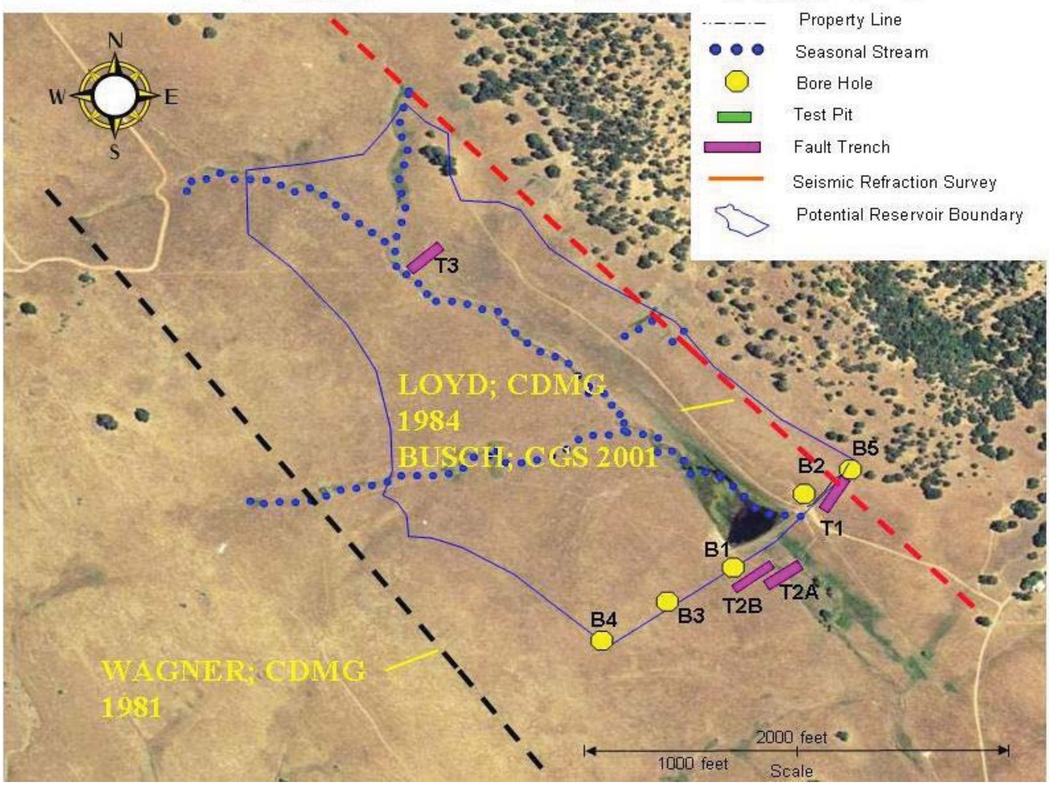


Figure 4-22. Bear Mountains Fault Locations at the El Dorado Hills Site

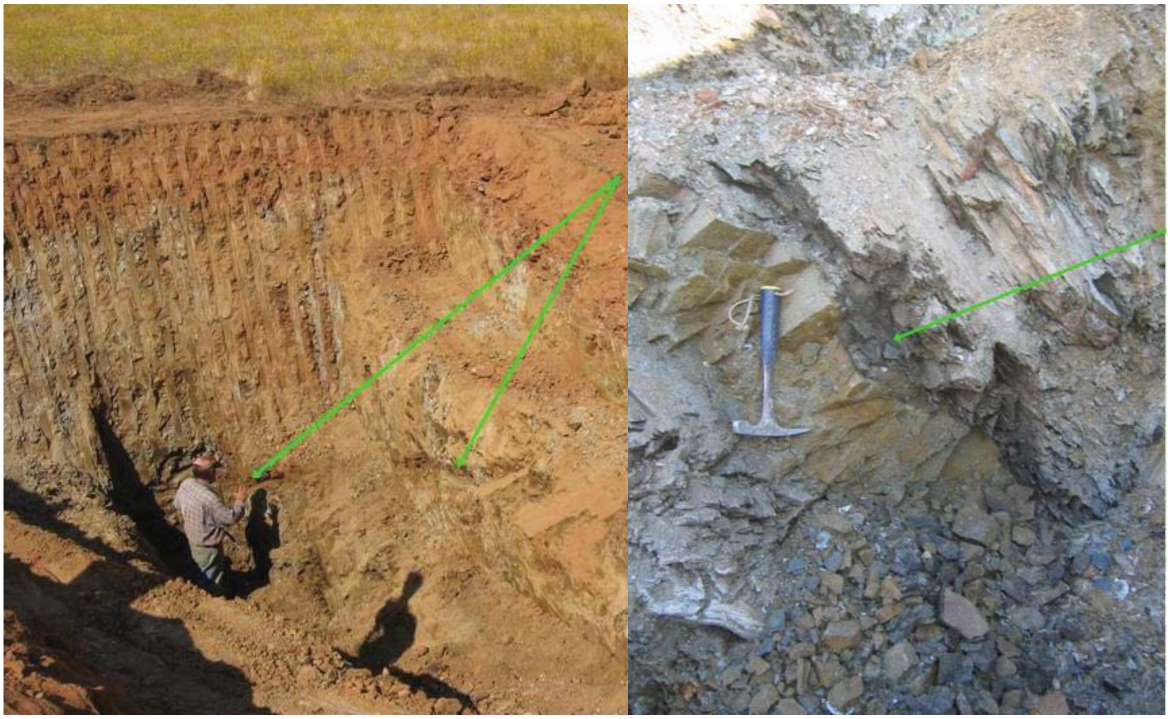


Figure 4-23. Cross-Structure Shear in Trench T3 and Sheared Rock and Contact in Trench T1

for ground rupture at the main dam, associated dikes and appurtenant structures." The TEC work included an evaluation of the western trace of the Bear Mountains Fault Zone, and their geologic and fault mapping extended through the El Dorado Hills project site. Geologic conditions exposed in the fault trenches at the El Dorado Hills site correspond with the Tierra findings, specifically the Tierra report on the Sunset Trench, which contained three colluvium units. The Tierra study concluded that the last movement along the west branch of the Bear Mountains Fault Zone occurred at least 65,000 years ago.

In the TEC report, the definition of a capable fault was specified by the USACE as that definition given in ER 1110-2-1806 - Earthquake Design and Analysis for Corps of Engineers Dams, dated April 30, 1977. As defined by that document, a capable fault is one that is considered to have potential for generating an earthquake if the fault can be shown to exhibit one or more of the following characteristics:

1. movement at or near the ground surface at least once within the past 35,000 years;
2. macro-seismicity (3.5 magnitude or greater) instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault; and
3. a structural relationship to a capable fault such that movement on one fault could be reasonably expected to cause movement on the other.

Based on the above definition, the TEC study concluded that the West Branch of Bear Mountains Fault Zone is not a capable fault under USACE criteria.

The DSOD fault activity criteria include the following:

- Fault is inactive by confidently locating trace overlain by unbroken material >35,000 years old
- Conditionally active if displacement history during last 35,000 years, but investigations have not shown enough to determine activity or inactivity

The DSOD geology chief, William Fraser, visited the site on September 11 and October 12, 2007. He had read the Tierra report and verbally indicated that the west branch of the Bear Mountains Fault Zone in this area appears to be inactive under DSOD criteria. Having observed the fault trenches in the field, he generally concurred that this area is similar to the areas evaluated in the Tierra report and that the area appears to be inactive. However, in accordance with published DSOD policy, the final position of DSOD will not be confirmed until a formal site application is filed.

Regardless of the interpretation, the main consideration is that within either potential fault location, no indications were observed to suggest that the fault should be considered active or conditionally active based on current DSOD guidelines. This conclusion is consistent with the previous work performed by TEC in 1983, north of the project site. Well developed soil horizons are observed in areas of extensive shearing and there is no evidence that the shears extend into the soils. Similar soil profiles were identified and evaluated as part of the TEC work, and it was concluded that the western trace of the Bear Mountains faults, within the general vicinity, has not experienced displacement for at least 125,000 years, and possibly as much as 195,000 years. As such, we conclude that the El Dorado Hills site is not at risk with respect to impacts related to active or conditionally active faulting across the site.

4.2.2 El Dorado Hills Site Findings

1. Geology at the site is highly variable.
2. Soil-like material exists in at least the upper 12 to 15 feet across two-thirds of the site.
3. Fractured and sheared rock found underlying the site is highly permeable.
4. DSOD representatives observed the geology and site conditions, and informally concurred with the findings in the field.
5. The Bear Mountains Fault Zone does not appear to be an issue for design with respect to fault activity.
6. Earthfill embankment requires slopes of 3:1 or shallower.
7. The material is suitable for an earthfill embankment.
8. Filter materials for zoned embankment are not readily available and should be imported.
9. Shallow fractured rock with shear and fault zones throughout the site may necessitate a liner under the entire reservoir.

10. The foundation support for an earthfill embankment is acceptable for the proposed size of the structure with appropriate foundation preparation.
11. Sandy clay found on the western slope of the site is potentially good for an impermeable core.
12. Shallow groundwater exists across the western portion of the site.
13. Shallow groundwater must be considered as part of construction.
14. Shallow groundwater and the presence of springs could complicate the liner design and may require relief valves.

4.2.3 Embankment Design

To create an operating storage volume of 2,500 acre-ft, the embankment must be 77.0 feet above existing grade, see Figure 4-24. The maximum embankment height is 107.0 feet resulting in a maximum operating storage volume of 4,000 acre-ft. The crest width of the embankment will be 15 feet and both upstream and downstream slopes will be 3:1 (H:V). Material for the embankment will come from the on-site borrow area. The foundation of the embankment will be excavated approximately 8 feet below the existing grade to remove unsuitable foundation material. The excavation will be backfilled with the same fill material as the embankment. A 15-foot deep cutoff trench will be excavated along the centerline of the foundation excavation. Material for the outer shell of the embankment will come from an on-site borrow area.

A embankment core will be constructed with a 1:2 (H:V) side slope extending from the embankment crest to the bottom of the excavation. A chimney drain will extend along the downstream face of the core from the approximate elevation of the maximum storage pool to existing ground. A blanket drain will extend from the terminus of the chimney drain down at a 2 percent slope to the downstream embankment toe. Material for the core and cutoff trench will consist of on-site clayey soils. The interior of the reservoir will be lined with an impermeable material to prevent migration of recycled water into the surrounding subsurface.

The soils at this site contain insufficient clay material to create an impermeable liner under the reservoir, but sufficient clay material exists to create the impermeable embankment core. Imported clay material is more costly than a synthetic liner alternatives. Hypalon is the traditional membrane material and comes in 40, 60, and 80 mm thicknesses. The material has a long history of good performance and only comes in a black color, but Hypalon may be laminated with a color coating to provide a tan surface layer to match the native color. To aid in water migration under the liner and limit puncture by surface rocks, a geotextile underlayment is recommended.

4.2.4 Hydraulic Analysis

Rainfall is reported at the Prairie City rain gage (Station A00669034) which is located approximately 8 miles from the reservoir sites. The 1:100 year 72-hour rainfall was determined to be 7.9 inches. Water falling within the catchment area above the interception trench is intercepted and discharged downstream of the reservoir (see Figure 7-25 El Dorado Hills). Rain falling below the interception trench flows into the reservoir and is stored along with rain falling directly on the reservoir. The flow in the natural channel downstream of the reservoir is less than existing conditions because 25 to 30 percent of the 1:100 year storm falls on the reservoir and is retained. Table 4-4 characterizes the hydraulic conditions during the 1:100 year storm event and storm season:

Table 4-4. 1:100 Year Rainfall and Stormwater Flow

	El Dorado Hills Reservoir
1:100 year rainfall	7.9 inches in 72 hours
1:100 year rainfall total October to May	22.3 inches per year (wet season)
Area of reservoir	73 acres
Area of catchment including reservoir	266 acres
Wet year rainfall storage requirement	135 acre-feet

Inundation due to an instantaneous embankment failure simultaneous with the 1:100 year storm flow (purple) and inundation from the 1:100 year storm event (green) are shown in Figure 4-26.

4.2.5 Embankment Failure Analysis

Steady state seepage was reviewed at the maximum storage pool of 661 feet for estimating pore water pressures within the embankment and for sizing the internal drain. As a conservative measure, seepage analysis ignores the interior liner of the reservoir.

Five loading cases were analyzed for slope stability following both the USACE and FERC criteria.

Case 1 - End-of-construction analysis assumes internal pore pressures caused by construction have not yet dissipated. Both the upstream (Case 1A) and downstream (Case 1B) slopes were investigated.

Case 2 – Maximum storage pool analysis assumes long-term steady-state seepage from the maximum storage pool level.

Case 3 – Maximum surcharge pool analysis assumes the pool thrust from the maximum surcharge pool elevation is placed on the upstream embankment slope and the phraetic surface from Case 2 loading is imported to model internal pore pressures.

Case 4 - Rapid drawdown analysis assumes the case where the reservoir is drawn down from the maximum storage elevation to the bottom elevation, instantaneously. The phraetic surface is imported from Case 2 loading and continued from the maximum storage elevation down the upstream embankment slope and along the bottom of the reservoir.

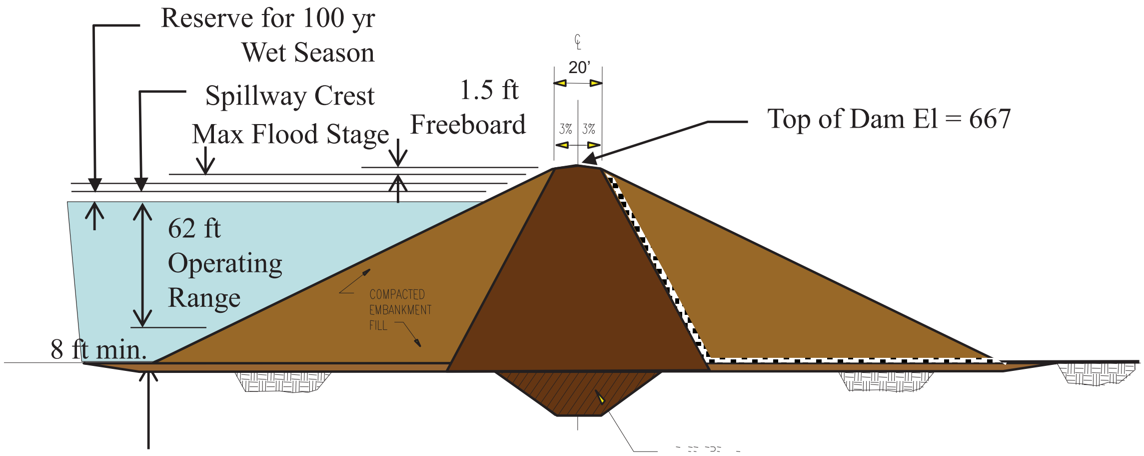


Figure 4-24. Section through the Embankment at the El Dorado Hills Reservoir

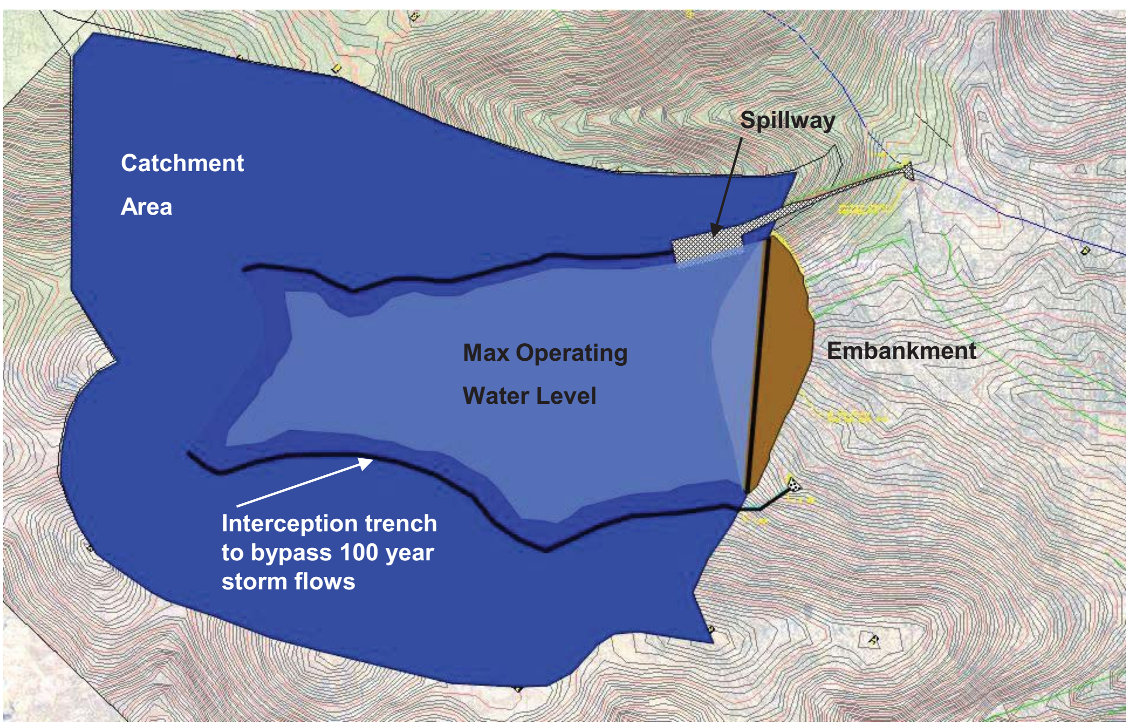


Figure 4-25. El Dorado Hills Embankment Alignment, Reservoir, and Catchment Area

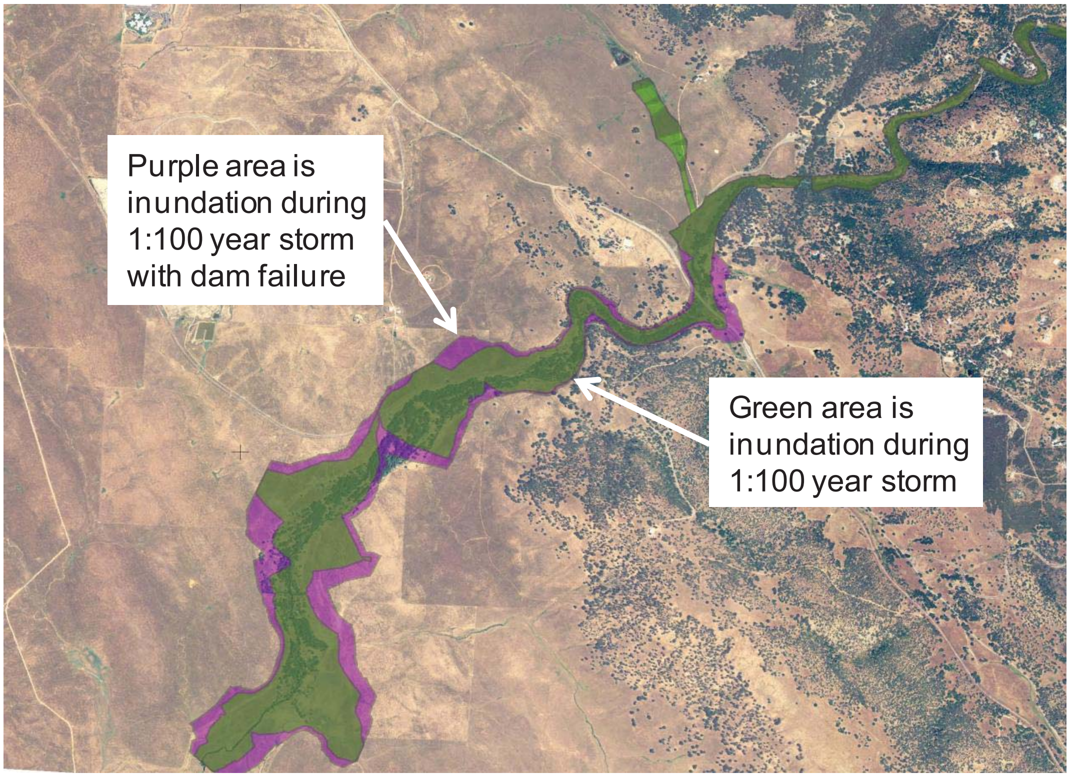


Figure 4-26. Inundation due to Embankment Failure at El Dorado Hills Site During 1:100 Year Storm in Purple and 1:100 Year Storm Event shown in Green.

Case 5 – Earthquake analysis assumes steady state seepage was reviewed at the maximum storage pool of 661 feet for estimating pore water pressures within the embankment and for sizing the internal drain. Earthquake guidance was taken from FERC's Engineering Guidelines for the Evaluation of Hydropower Projects coupled with USACE EM 1110-2-1806, Earthquake Design and Evaluation for Civil Works Projects. A pseudo-static analysis was completed for both the upstream (Case 5A) and downstream (Case 5B) slopes. The analysis used a peak ground acceleration of 0.5g for the El Dorado Hills site. The lower value for the El Dorado Hills site (relative to the Deer Creek site) is due to the fault trenching and evaluation conducted at the site.

As shown in Table 4-5, all of the loading cases meet or exceed the project criteria.

Table 4-5. Summary of Stability Factors of Safety for Deer Creek South

Case	Loading	FS	Required FS	Met?
1A	End of Construction – Upstream	2.673	1.3	Y
1B	End of Construction – Downstream	2.568	1.3	Y
2	Maximum Storage Pool	2.512	1.5	Y
3	Maximum Surcharge Pool	2.672	1.4	Y
4	Rapid Drawdown (from Maximum Storage Pool)	1.827	1.3	Y

5A	Earthquake (Pseudo-Static) – Upstream	1.140	>1.0	Y
5B	Earthquake (Pseudo-Static) – Downstream	1.114	>1.0	Y

4.2.6 Reservoir Needs

4.2.6.1 Land Acquisition

The reservoir site is bounded on all sides by property owned by MJ 318A CAP (Deer Creek 608 Group). There is a small corner portion of a residential parcel, owned by Darren Mayo, that intersects the proposed property boundary on the east side (Figure 4-27). The area of property required is listed in Table 4-6:

Table 4-6. Property Ownership and Area Required

Owner and Property	200-foot Boundary
MJ 318A CAP (DEER CREEK 608 GROUP)	141.6 acres
Darren Mayo	2.4 acres

This parcel has a sloping topography with rolling to steep terrain at the eastern boundary. There is no direct street frontage along Latrobe Road. The parcel is currently zoned open space and rural home sites (40 acre minimum). There is no immediate development planned for this location.

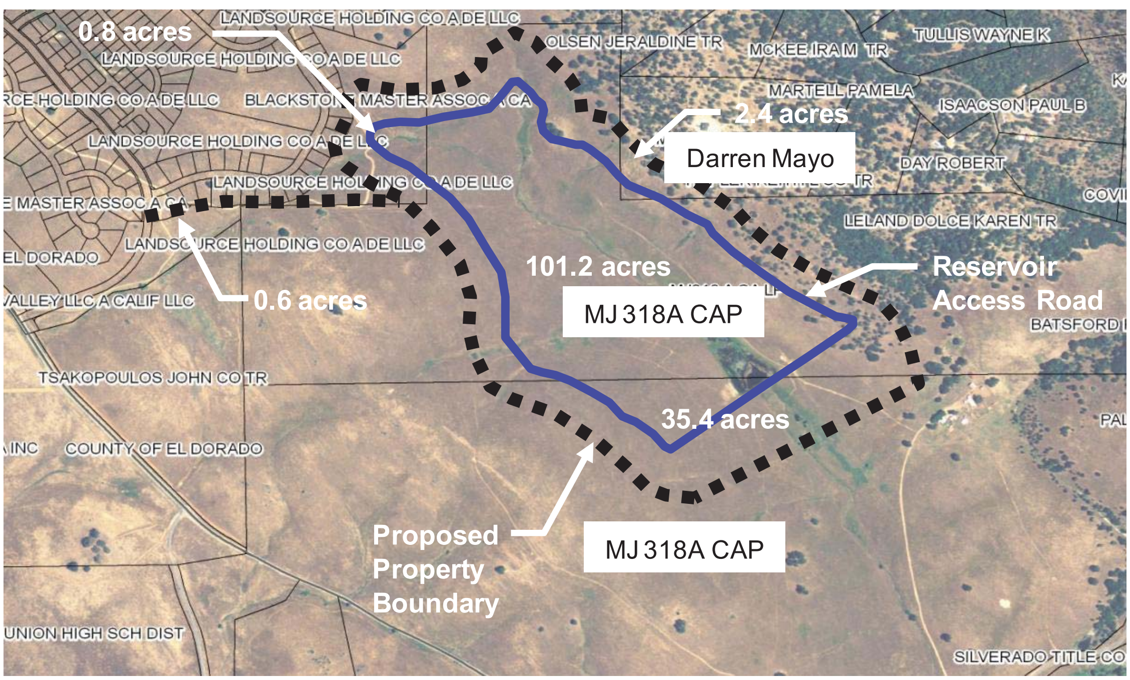


Figure 4-27. El Dorado Hills Embankment Alignment, Reservoir, and Catchment Area

4.2.6.2 Roads and Access

The El Dorado Hills Reservoir site is located in the middle of unimproved property. Existing access from the south is available from Latrobe Road to (private) Ryan Ranch Road to a private single-lane paved road (Latigo Lane) leading onto private property. Both Ryan Ranch Road and Latigo Lane will require improvement in exchange for an access easement. Road construction and/or improvements required include 1) widening of 900 feet of Ryan Ranch Road, 2) rebuilding of 2,500 feet of Latigo Lane, and 3) construction of 1,100 feet of new road to the reservoir site. Access from the south would require an easement along Latigo Lane and to the property site, approximately 3,100 feet long and 50 feet wide.

An alternative to access from the south is access from the west at the northern end of the reservoir, from Latrobe Road, to Royal Oak Lane, to a new access road. The new access road could be constructed on property purchased as part of the reservoir property south of the housing development.

The preferred access is from the south with the west access as an alternative. This decision depends on requirements for development through private property. Access from the side of the reservoir to Royal Oak Road and out to Latrobe Road may be preferred.

4.2.6.3 Electrical Service

The total estimated power requirement for the new reservoir is approximately 420 kVa. At the time of application, PG&E will evaluate their portion of costs. For the purposes of this estimate, we assumed that the project will be responsible for the buried conduit (5-inch) and wire for a new 12.5kV service. PG&E will provide the transformer.

Power is available along Latrobe Road. Power could be extended along the access road from the south or along the access road from the west.

4.2.6.4 Communication

If the reservoir were to be constructed at the El Dorado Hills site, a radio system could be installed to communicate from the site to the EDHWWTP and Tank Farm; however, we recommend installation of a fiber optic communication cable be installed in the trench with the pipeline.

4.2.6.5 Post Treatment

The recommendation for post treatment includes an aeration system in the reservoir and chlorine injection prior to the recycled water entering tank farm. The aeration system provides mixing to reduce the impacts of seasonal turnover and provides oxygen to reduce algae growth. Chlorine reduces bacterial growth and limits slime buildup and sprinkler clogging.

Piping would be designed such that a fine screen for algae removal could be included in the future, as the capacity of the reservoir is reached and dry years require prolonged operation at low reservoir water levels screening of algae becomes more important.

Chemical addition to the reservoir for algae control is not recommended.

4.2.7 Reservoir Operations Analysis

4.2.7.1 Wheeling Water

Figure 4-28 shows a schematic of the distribution from the wastewater treatment plants and the seasonal storage reservoir located at the El Dorado Hills site. During the winter, excess recycled water from the EDHWWTP would be used to fill the seasonal storage reservoir. In the summer, recycled water from each of the wastewater treatment plants and from the seasonal storage reservoir would be used to meet the irrigation demands. Approximately 5,400 gallons per minute (gpm) must be transferred using a dedicated pumping station from the reservoir to the Tank Farm. A new 20-inch pipeline is necessary between the seasonal storage reservoir and the Tank Farm with a connection to the EDHWWTP.

4.2.7.2 Piping

Figure 4-29 shows three alternative routes between the reservoir and daily storage tanks at the tank farm. Each alternative route is discussed as follows:

1. Alternative 1 is based on maximizing the use of existing public roads with right of way while maintaining the shortest pipe travel. The total length is approximately 18,900 feet.
   Beginning at the El Dorado Hills Storage Reservoir, the alignment travels north along the west side of the reservoir to the Blackstone development, then west on the south side of the development to Royal Oak Drive (south entrance to the Blackstone development), and along Royal Oak Drive to Latrobe Road, then north to the EDHWWTP and the Tank Farm.

2. Alternative 2 is the shortest route and travels through property designated as open space east of the Blackstone development. The total length is 11,500 feet.
   Beginning at the El Dorado Hills Storage Reservoir, the alignment travels along the east side of the reservoir and continues north along the east side of the Blackstone development to the Tank Farm.

3. Alternative 3 follows existing service and public roads. The total length is 23,700 feet. This alternative was not considered for further evaluation because of significant traffic control along Latrobe Road north of Ryan Ranch Road and because of the greater distance.
   Beginning at the El Dorado Hills Storage Reservoir, the alignment travels south to Latigo Lane, then to Ryan Ranch Road and west to Latrobe Road, then north along Latrobe Road to the EDHWWTP and to the Tank Farm. The Latrobe widening project does not extend to Ryan Ranch Road, and significant portions of the pipe would need to be placed in the narrow portion of the road where no shoulder exists along with a number of blind curves and a significant uphill grade.

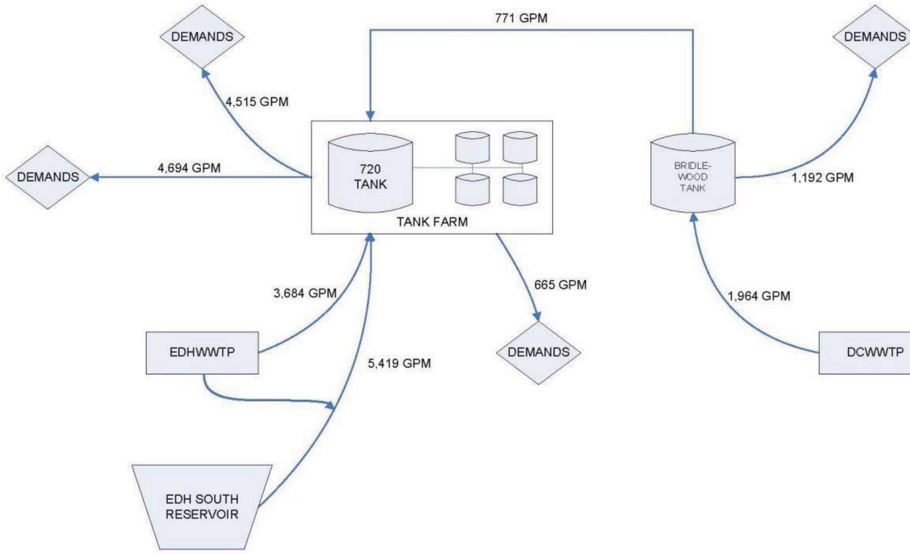


Figure 4-28. Supply and Distribution Quantities with Seasonal Storage at the El Dorado Hills Reservoir Site

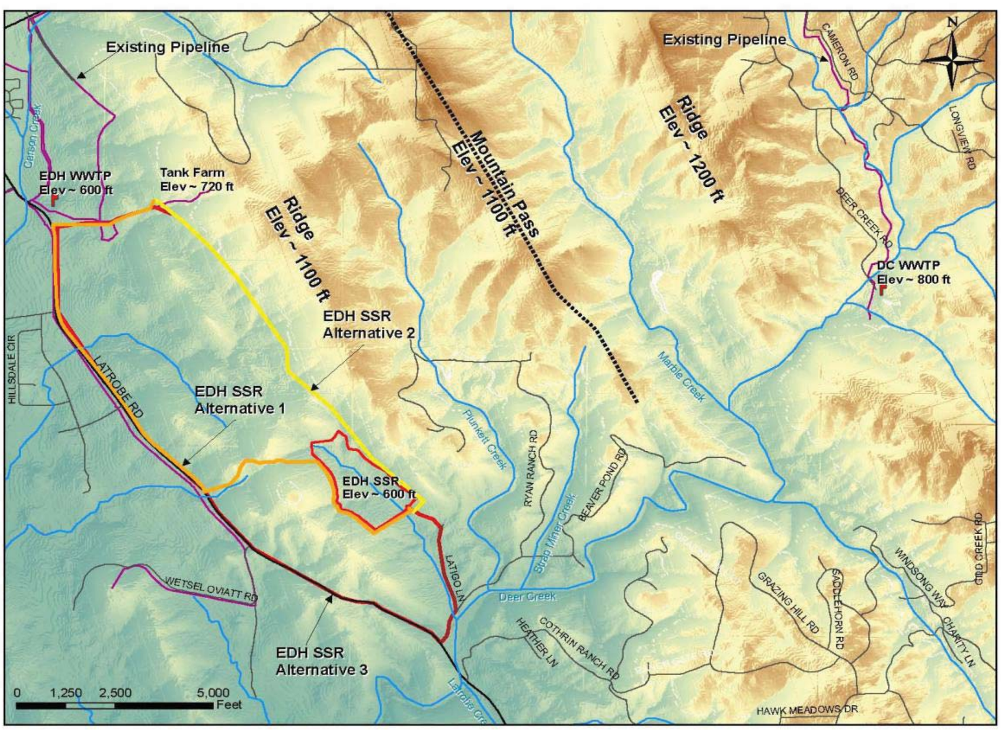


Figure 4-29. Pipeline Routes from the Reservoir Pumping Station to the Daily Storage Tank Farm with Seasonal Storage at the El Dorado Hills Reservoir Site

Route Alternative 2 is recommended because of the shorter distance. The majority of the route is through open space.

4.2.7.3 Pumping

Pumping is required from the EDHWWTP to the seasonal storage reservoir and from the reservoir to the Tank Farm for distribution. The existing recycled water pumping station can be modified to transfer recycled water to the reservoir. A new pumping station at the reservoir site is required for pumping from the reservoir.

Several pump station types were evaluated and the vertical turbine pump station recommended because of the good fit between pump characteristics and flow/head conditions, ease of construction, and EID experience with this type of pump.

4.3 Cost Estimates

The cost estimate was based on quantity take-offs from the preliminary design and unit costs from RS Means Construction Estimating Guides, past projects, and HDR experience. All estimates were projected to April 2008 with an Engineering News Record (ENR) construction cost index value of 8150.

A cost comparison of the major capital items between the Deer Creek Reservoir site and the El Dorado Hills Reservoir site is shown in Table 4-7. The table shows that the El Dorado Hills Reservoir would be less costly to construct. Many of the costs are comparable; the largest difference is the cost of pipeline construction and the environmental and permitting.

4.4 Recommended Site for Seasonal Storage

The El Dorado Hills site is the recommended site for construction of a Recycled Water Seasonal Storage Reservoir. The site is advantageous because the reservoir is less costly to construct, the location is adjacent to the future recycled water system expansion, and on-site materials are available for construction.

Table 4-7. Summary of Capital Costs for the Major Elements of the Deer Creek Reservoir and El Dorado Hills Reservoir.

Items		Deer Creek	El Dorado Hills
Reservoir Embankment		$19,047,000	$15,405,000
	Membrane Liner	$3,606,000	$7,563,000
Post Treatment			
	Aeration	$406,000	$341,000
	Chlorine	$7,000	$7,000
	Filtration	$187,000	$146,000
Pumping Station			
	Vertical Turbine Pump Station	$1,125,000	$988,000
Conveyance Piping			
	Pipeline Construction	$4,779,000	$1,817,000
Electrical			
	Site Power	$400,000	$429,000
	Pipeline Fiber Optic Cable	$158,000	$81,000
Contractor's Costs			
	Insurance Provisions	$149,000	$134,000
	Contractor OH & Profit	$4,457,000	$4,017,000
	Mobilization/Demobilization	$1,486,000	$1,339,000
Subtotal		**$35,806,000**	**$32,267,000**
	Contingency (15%)	$5,370,000	$4,840,000
Construction Cost Total		**$41,177,000**	**$37,107,000**
Softcosts			
	Geotech and Survey	$1,029,000	$898,000
	Design Engineering	$3,294,000	$2,875,000
	Construction		
	Engineering During Construction	$1,235,000	$1,078,000
	Construction Management	$4,118,000	$3,594,000
Subtotal		**$9,676,000**	**$8,445,000**
Land, Easements, Environmental, and Permitting		$4,493,800	$6,719,000
Project Grand Total		**$55,346,800**	**$52,271,200**

5.0 Task 9 Economic Evaluation

5.1 Cost Development

Labor, chemical, and energy costs were estimated using published and calculated values, manufacturer information, and HDR experience. Pumping was determined to represent a significant portion of the overall O&M costs.

All capital cost estimates were based on quantity take offs and unit cost estimates. Values correspond well with unit costs used in EID's capital improvement estimates for similar construction projects. All values are in 2008 dollars using an Engineering News Record construction cost index of 8150. EID design standards allow pipes to be sized for a maximum of 10 feet per second (ft/s); however, this value is based on pipes with fire flow and peak flows of 2:1. The most economical pipe size, considering the cost of the pipe, the cost of power, friction, and other factors, result in a pipe velocity of about 5 ft/s.

The economic factors used in the evaluation update include inflation, rate of return, time period, replacement life, and other life cycle cost parameters listed in Table 5-1.

Table 5-1. Factors Used for the Updated Economic Evaluation

Item	Value	Comment
Rate of return (Cost of money)	5%	Average market value of money
Labor inflation rate	3%	20 year average for state of California
Energy inflation rate	6%	Based on increased inflation of power
Economic life cycle duration	60 years	Service life longer than 60 years will be accounted for using residual value. See below for additional details.
Service life before replacement		
Reservoir	100 years	Corps of Engineers life for gravity dam design
Concrete	100 years	EPA economic life
Piping	30 years	EPA economic life
Electrical	30 years	EPA economic life
Reservoir liner	20 years	Manufacturer warranty
Pumps, blowers, equipment	20 years	EPA economic life

5.2 Alternatives to Meet the Recycled Water Irrigation Demand within El Dorado County

A total of five alternatives were developed for economic and non-economic comparisons. In general, the primary difference between the alternatives is the source water used to satisfy the future irrigation demands per the RWMP. The 2,500 acre-ft recycled water seasonal storage reservoir was sized to meet the build-out annual recycled water demand of about 8,630 acre-ft in El Dorado County.

5.2.1 Alternative 1 Potable Water (Stop Future Expansion of the Recycled Water System and Do Not Build Seasonal Storage)

All future developments would be single plumbed for potable water only. This alternative takes advantage of the existing treated water infrastructure in place to provide potable water service for all uses. Build-out of Valley View and Serrano will be dual-plumbed and irrigation demands will be met using recycled water (some potable water supplementation will be required until build-out when wastewater flows meet dual-plumbed demands in a dry season). Carson Creek and all future developments would need to be single plumbed to avoid potable water supplementation at build-out. Irrigation demand and water supplies are shown in Figure 5-1.

If Carson Creek were developed as dual plumbed, the 1,450 EDUs were demand 610 acre-ft/year for outdoor irrigation (at a demand of 0.42 acre-ft/year/EDU). For this alternative, all 610 acre-ft/year would be provided by potable water.

Figure 5-2 shows the locations of the EDHWTP, pumping station expansions, and the location of the Tank Farm. The following infrastructure is required to meet this future demand:

- Raw water pumping from Folsom Lake requires expansion. EID has plans to construct a new raw water pumping station and temperature control structure to meet current and future potable water demands. The structure is adequately sized to meet the future water supply, but the costs of additional pumps and the connection needed to provide an additional 8.5 MGD must be included.
- An 8.5 MGD expansion to the water treatment plant is required to provide potable water. Water treatment costs are based on the proposed membrane water treatment facilities, expansion to disinfection, and on-site solids dewatering and disposal.

Similar to raw water pumping, an expansion to the finished water pump station will be required to transport the additional 8.5 MGD of water from the water treatment plant to the daily storage tanks located at the Tank Farm. Piping to the water treatment plant and from the water treatment plant through much of the distribution system is adequately sized for the future demand. The build-out demand for the area south of Highway 50 is projected to be 15.3 MGD (10,600 gpm). The area is currently served by an 18-inch pipe running along Silva Valley Road into Town Center and a 12-inch pipe running along El Dorado Hills Blvd. These pipes appear to be adequate.

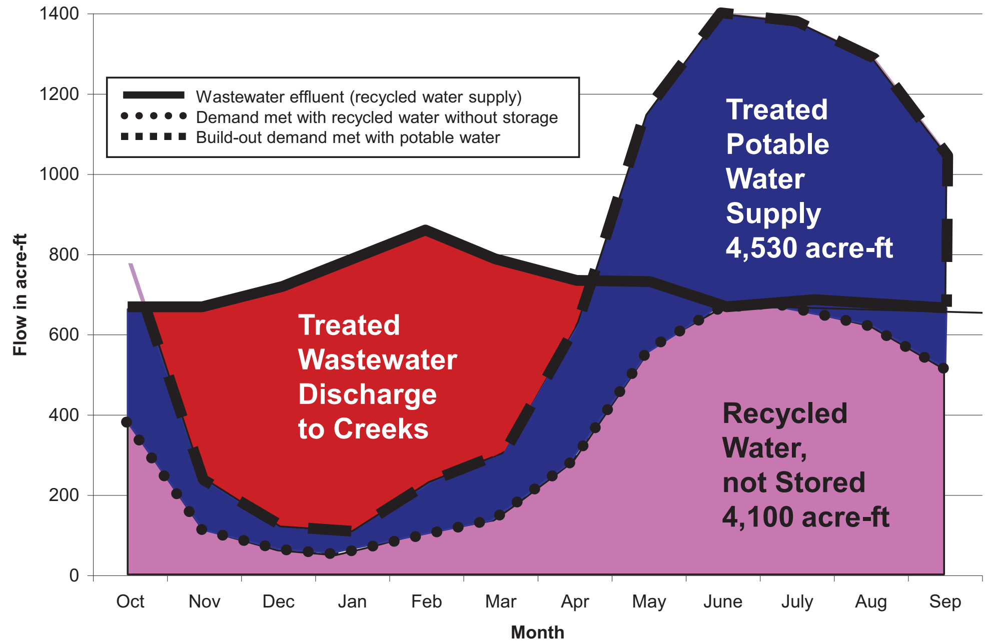


Figure 5-1. Alternative 1 - Water Demand and Uses with Build-out Irrigation Demand met with Potable Water

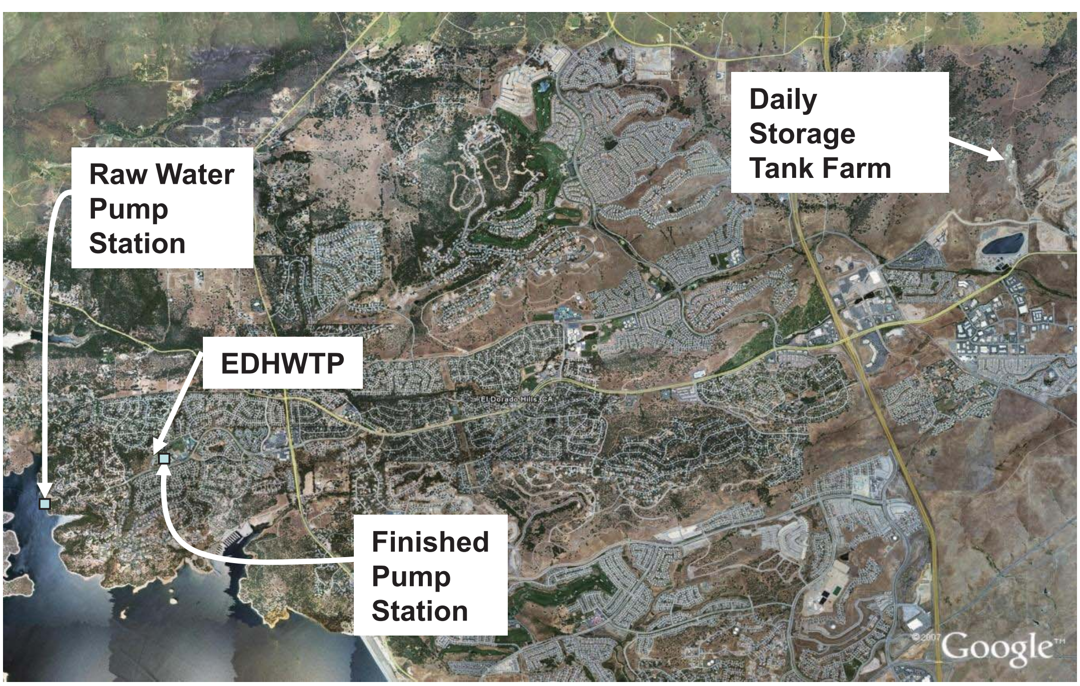


Figure 5-2. Potable Water Treatment, Raw Water Pump Station Expansions, and Finished Water Pump Station for Alternatives 1 & 4

5.2.1 Alternative 2 Seasonal Storage (Continue Expansion of Recycled Water System and Build Seasonal Storage)

This alternative continues the development of seasonal storage in accordance with the Recycled Water Master Plan. Excess treated wastewater in wet years would be discharged to Deer Creek and/or Carson Creek. All future development in the El Dorado Hills area will be dual-plumbed in accordance with the RWMP as the seasonal storage reservoir is constructed. Potable water supplementation will be required until the seasonal storage reservoir is completed. Irrigation demand and recycled water supply are shown in Figure 2-4.

Figure 5-3 shows the proposed locations of seasonal storage, the pumping station expansions and the pipelines in El Dorado Hills.

The following infrastructure is required to meet this future demand:

- Expansion of the pumping station at the EDHWWTP and a 20-inch diameter pipeline are required to convey recycled water to seasonal storage and connect with daily storage.
- A 2,500 acre-ft reservoir is required to meet the dry season demands.
- A new pumping station with chlorine addition and 2,200 linear feet (lf) of 20-inch diameter pipeline are required to convey stored recycled water to the Tank Farm.

5.2.2 Alternative 3 Raw Water Supplementation

This alternative considers taking raw water from Folsom Lake at the EDHWTP but bypassing treatment, then pumping and piping the raw water to Bass Lake or Tank Farm for distribution within the recycled water system. Irrigation demand and recycled water supply are shown in Figure 5-4. The advantage of raw water as a supplement to recycled water is that raw water does not require treatment, thus avoiding the cost of expanding and avoiding the additional cost of operating the EDHWTP. Because the water is not treated, a dedicated pipeline is necessary.

Two sub-alternatives were considered for this alternative, as shown in Figure 5-5 and Figure 5-6:

- **Pumping Supplemental Water through Bass Lake (Alternative 3A):** Bass Lake is currently used to provide supplemental raw water; however, this particular scenario requires its use to be expanded. A new 7-mile long, 20-inch diameter pipeline from the EDHWTP to Bass Lake is required to convey raw water. Pipe alignments were based on trying to stay within public right-of-way. The existing 12-inch recycled water pipeline from Bass Lake along Serrano Parkway is inadequately sized to convey future water needs and a new 6-mile long, 18-inch diameter pipeline from Bass Lake to the Tank Farm is required to satisfy future demands and expanded Bass Lake use. More

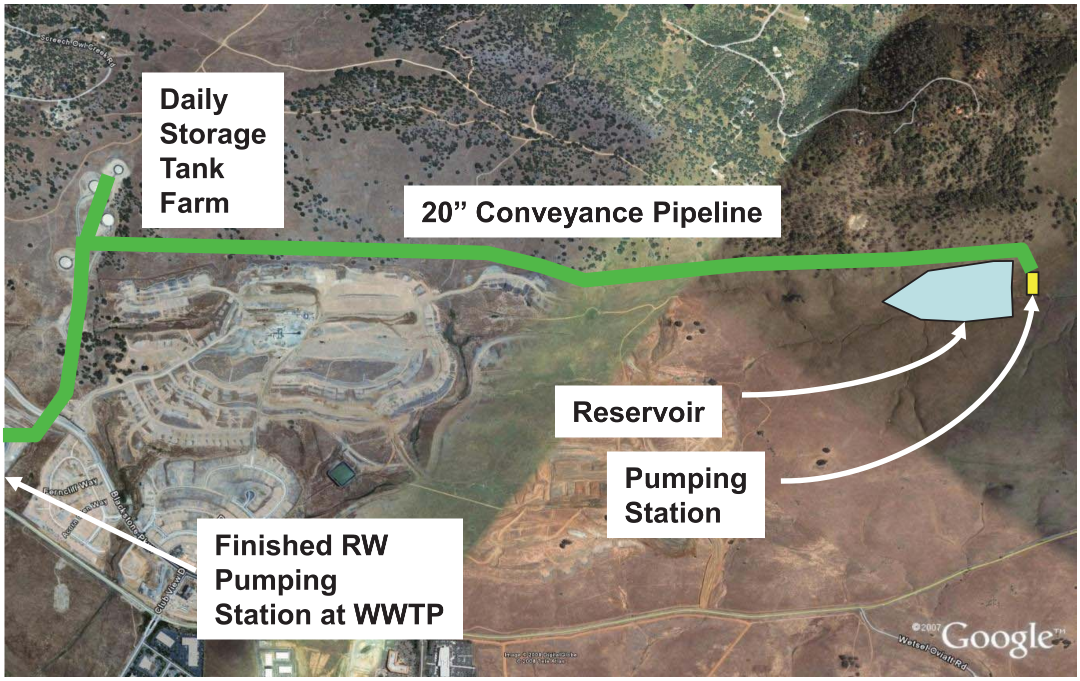


Figure 5-3. Recycled Water Seasonal Storage Reservoir, Pump Stations, and Piping, Alternative 2

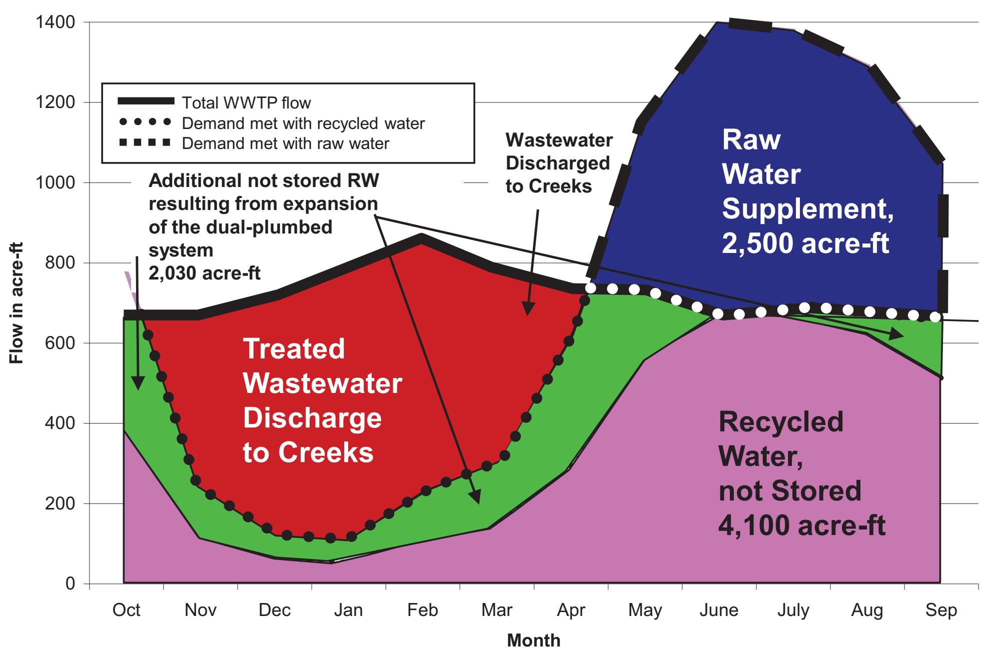


Figure 5-4. Alternative 3 - Water Demand and Uses with Expansion to the Recycled Water System and Supplemental Raw Water to Meet Peak Demands

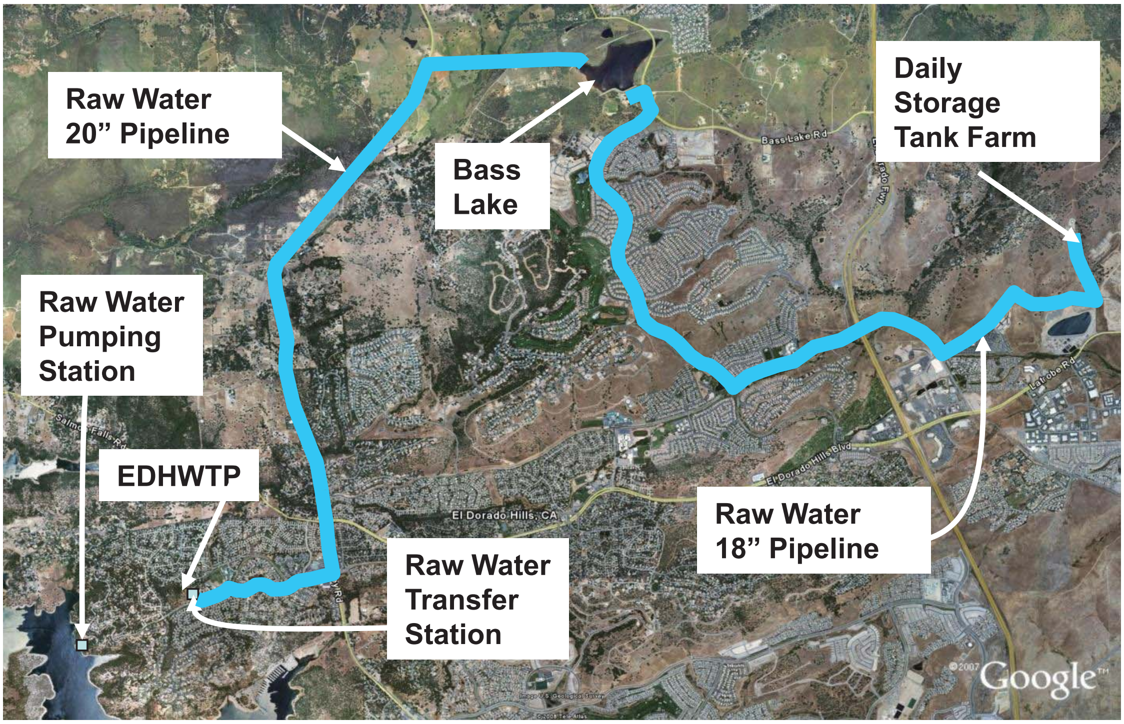


Figure 5-5. Raw Water Pumping and Pipeline to Bass Lake and Tank Farm, Alternative 3A

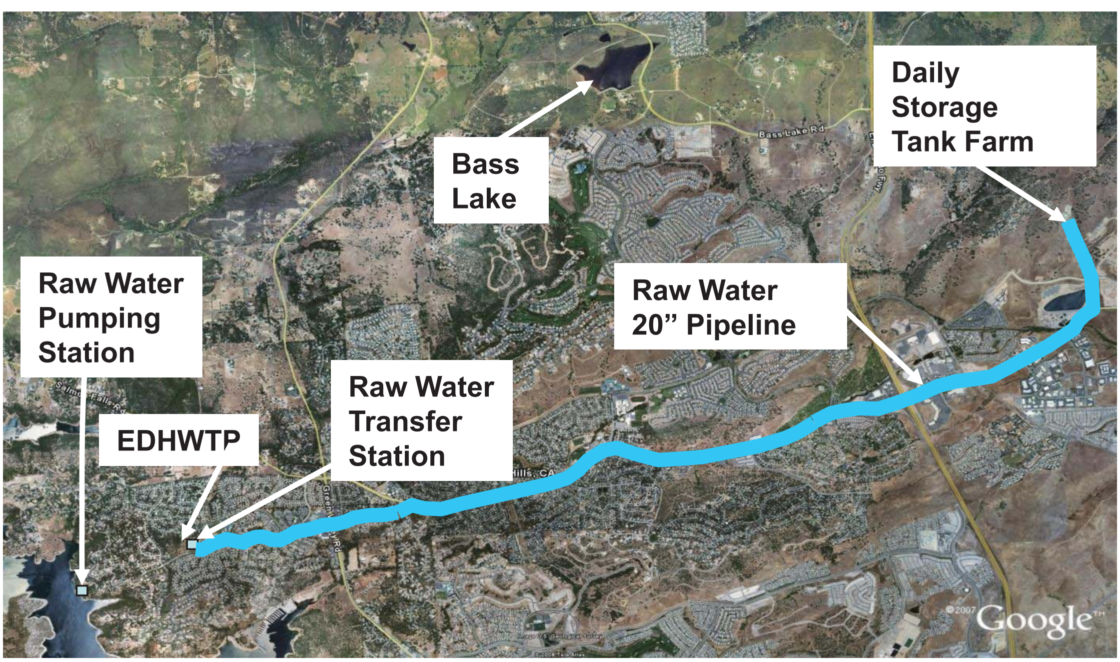


Figure 5-6. Raw Water Pumping and Pipeline from EDHWTP to Tank Farm, Alternative 2B

importantly, the conveyance of supplemental water from Bass Lake to the Tank Farm would require pumping, since the static head differential is inadequate to provide the needed capacity. Figure 5-5 shows the pipelines and associated infrastructure required for this sub-alternative.

- **Pumping Supplemental Water Directly to the Tank Farm (Alternative 3B):** Pumping directly from the EDHWTP to the Tank Farm requires the installation of a 20-inch raw water pipeline along El Dorado Hills Boulevard and Latrobe Road. The entire line would be placed in existing public right-of-way. This particular route provided the shortest overall length of 39,600 feet (7.5 miles). Figure 5-6 shows the pipeline and the associated infrastructure required for this sub-alternative.

Due to the infrastructure needs and the added pumping costs associated with the Bass Lake option (Alternative 3A), the Bass Lake option was not evaluated further. The infrastructure required for Alternative 3B was based on the direct pumping to the Tank Farm, and was included in the economic analysis. Locations of the infrastructure are shown in Figure 5-6.

If Carson Creek were developed as dual plumbed, the 1,450 EDUs were demand 610 acre-ft/year for outdoor irrigation (at a demand of 0.42 acre-ft/year/EDU). For each acre-ft of dual plumbed irrigation demand, 45% can be provided by additional recycled water without seasonal storage and 55% requires supplementation. For this alternative, 273 acre-ft/year would be provided by additional recycled water and 337 acre-ft/year would require raw water supplementation in a dry year.

5.2.3 Alternative 4 Supplementation with Treated Water (Continue Dual-plumbed Development without Seasonal Storage and with continuous Treated Water Supplementation)

This alternative considers continued treated water supplementation through the current potable water distribution system. Treated water supplementation to the recycled water system requires the expansion of the EDHWTP, but less treated water is used than Alternative 1 because the recycled water system is also expanded. Irrigation supply and demand is shown in Figure 5-4 with treated water replacing the raw water shown in the figure.

For this alternative, the infrastructure requirements are identical to Alternative 1 and are shown in Figure 5-2. Note that the infrastructure requirement to provide 8.5 MGD is the same because the summer maximum irrigation demand is the same, but the annual quantity of treated water required is reduced to 2,500 acre-ft because of expansion to the recycled water system. The difference is that Alternative 1 stops dual-plumbed development with the completion of existing developments, while Alternative 4 continues dual-plumbed development through build-out and uses potable water to replace the recycled water that would have been provide by seasonal storage.

5.2.4 Alternative 5 Delay Seasonal Storage (Expansion of the Recycled Water System with Treated Water Supplementation for about 10 years followed by and Construction of Seasonal Storage)

This alternative is a combination of Alternatives 4 and 2. Treated potable water would continue to be used as a supplement for recycled water, allowing future developments to continue as dual-plumbed. However, as new home construction picks up over the next seven years, plans for construction of the seasonal storage reservoir would continue. A 10-year delay, for the purpose of present value analysis, is based on seven years of postponement followed by three years of construction. The timeframe is flexible, but a specific period was needed to perform the economic evaluation. This alternative reduces the risk associated with recovering the capital cost of seasonal storage through connection fees. Although the decision to continue to supplement with treated water accelerates the need for potable water infrastructure, that infrastructure would be returned to meet future potable water needs following expansion of the recycled water system and construction of seasonal storage.

From the standpoint of the economic evaluation update, the infrastructure requirements for this alternative are equal to those required for Alternative 2. The Alternative 4 infrastructure that is currently being implemented would be "temporarily used" for 10 years of supplementation, after which time it would be transferred back for potable water service. Borrowing treated water may accelerate some water treatment projects currently being planned, but will not be sized above the build-out potable water needs accounting for expansion of the recycled water system.

The sources and quantities of water used for residential irrigation varies for each alternative and are summarized in Table 5-2.

Table 5-2. Source and Quantity of Water for Residential Irrigation at Build-out during a Dry Season

	Source and Quanity (acre-ft per year)		
Alternative	**Potable Water**	**Raw Water**	**Recycled Water**
1. Potable Water	4,530		
2. Seasonal Storage		*	4,530
3. Raw Water Supplementation		2,500	2,030
4. Treated Water Supplementation	2,500		2,030
5. Delay Seasonal Storage		**	4,530

Note: Total buildout demand for recycled water is projected to be 8,630 acre-ft/yr and 4,100 acre-ft/yr can be provided without seasonal storage

* Because of some shortfalls may exist in multiple dry seasons, supplementation may be required, but is not predicted

** Limited supplementation, say 340 acre-ft for Carson Creek plus current dry season supplementation until seasonal storage is constructed

5.3 Economic Evaluation Results

A detailed listing of capital costs and operation and maintenance costs can be found in the technical memorandum for Task 9. Using these values, the present value was calculated and presented in Table 5-3. The table lists the estimated net present value costs associated with each alternative and the total net present value of capital and 60 years of operation and maintenance.

Table 5-3. Estimated Total Net Present Value Cost (60 year life cycle cost)

	Alternative				
	1	2	3	4	5
	Potable Water	Seasonal Storage	Supplemental Raw Water	Supplemental Treated Water	Delay Seasonal Storage (Alt. 1 & 2 Combination)
Raw Water Supply					
Raw Water Pumping	$10,136,423		$6,504,423	$6,504,423	$1,351,000
Raw Water Conveyance	$14,911,000		$8,420,000	$8,420,000	$2,123,000
Water Treatment and Distribution					
Water Treatment	$53,702,502		$-	$40,534,000	$6,022,000
Finished Water Pumping	$13,625,412		$8,439,330	$9,026,412	$1,584,000
Conveyance to Tank Farm	$-		$64,966,697	$-	$-
Water Distribution					
Wastewater Treatment and Disposal					
Collection	Same for all alternatives				
Wastewater Treatment	Same for all alternatives				
Surface Water Discharge	Same for all alternatives				
Recycled Water					
Pump from EDHWWTP to Tank		$12,267,000	$23,340,000	$23,340,000	$9,803,000
Pumping to Seasonal Storage		$7,008,000	$-	$-	$6,399,000
Seasonal Storage		$49,527,000	$-	$-	$45,060,000
Seasonal Storage Pumping		$12,952,000	$-	$-	$9,632,000
Conveyance to Tank Farm		$4,764,000	$-	$-	$4,764,000
Recycled Water Distribution		$10,428,000	$10,428,000	$10,428,000	$10,428,000
Total	**$ 92,375,337**	**$ 96,946,000**	**$ 122,098,450**	**$ 98,252,835**	**$ 97,166,000**

Unit costs for the key cost components of capital, O&M, and total cost per acre-ft of water demand are listed in Table 5-4.

Table 5-4. Relative Unit Capital, O&M, and Net Present Value Costs

Alternative	Capital Cost $/acre-ft	O&M Cost $/acre-ft	Total Cost $/acre-ft
1. Potable Water	133	207	340
2. RW Seasonal Storage	195	162	357
3. Supplemental Raw Water	298	151	449
4. Supplemental Treated Water	164	197	361
5. Delay Seasonal Storage	195	162	357

5.4 Potential Funding Alternatives for Seasonal Storage

Capital financing alternatives and O&M sensitivity were compared by comparing the cash flow over the first 20 years and over the lifetime (60 years) of the project. Financing alternatives included:

- **Potable Water Treatment** based on 70 percent financed in Year 1 and 30 percent in Year 10, 20-year bonds at 5 percent interest.
- **Recycled Water State Revolving Fund Financing** based on 100 percent financing in Year 1, 20 year State Revolving Fund (SRF) loan at 2.5 percent interest.
- **Recycled Water UC Bureau of Reclamation Title XVI Grant Funding** based on a 25 percent Grant, financed in Year 1, 20 year Bonds at 5 percent interest.
- **Recycled Water Tax Credit Bonds** based on 50 percent financing in Year 1 with 20 year Bonds at 5 percent interest, balanced Financed in 20 years.

The results of comparing capital cost financing alternatives only are presented in Table 5-5.

Table 5-5. Capital Cost Financing Comparison Only

Phase Water Treatment Facilities, Build all Recycled Water Facilities in Year 1					
Summary, Lifetime	**Total**	**Ratio**	**Summary, 20 years**	**Total**	**Ratio**
Potable Water, Bond Financed	$61,965,126	1.00	Potable Water, Bond Financed	$50,641,997	1.00
Recycled Water, SRF Financing	$66,713,014	1.08	Recycled Water, SRF Financing	$66,713,014	1.32
Recycled Water USBR Title XVI Grant	$62,589,218	1.01	Recycled Water USBR Title XVI Grant	$62,589,218	1.24
Recycled Water Tax Credit Bonds	$83,452,291	1.35	Recycled Water Tax Credit Bonds	$41,726,145	0.82

Four scenarios were created to compare the sensitivity of O&M costs were evaluated:

1. O&M costs increase at a rate of 3 percent on labor and materials and 6 percent on energy and chemicals
2. O&M costs all increase at a rate of 3 percent (assumes that recovering from the current recession does not promote excessive inflation on energy and chemicals.
3. What if the O&M costs are 20 percent less than the estimates in Scenario 1.
4. What if the O&M costs are 20 percent more than the estimates in Scenario 1.

The results of these scenario evaluations are listed in Table 5-6

Table 5-6. Scenario Evaluations using a Cash Flow Analysis

Scenario 1, Phase Water Treatment Facilities, Build all Recycled Water Facilities in Year 1, Project O&M labor at 3% and energy at 6% (Scenario is most compariable with Present Value Analysis)						
Summary, Lifetime	**Total**	**Ratio**		**Summary, 20 years**	**Total**	**Ratio**
Potable Water, Bond Financed	$349,000,000	1.00		Potable Water, Bond Financed	$80,100,000	1.00
Recycled Water, SRF Financing	$257,000,000	0.73		Recycled Water, SRF Financing	$87,000,000	1.09
Recycled Water USBR Title XVI Grant	$252,000,000	0.72		Recycled Water USBR Title XVI Grant	$82,900,000	1.04
Recycled Water Tax Credit Bonds	$273,000,000	0.78		Recycled Water Tax Credit Bonds	$62,000,000	0.77
Scenario 2, Phase Water Treatment Facilities, Build all Recycled Water Facilities in Year 1, Project O&M labor and energy at 3%						
Summary, Lifetime	**Total**	**Ratio**		**Summary, 20 years**	**Total**	**Ratio**
Potable Water, Bond Financed	$219,000,000	1.00		Potable Water, Bond Financed	$76,500,000	1.00
Recycled Water, SRF Financing	$177,000,000	0.81		Recycled Water, SRF Financing	$84,900,000	1.11
Recycled Water USBR Title XVI Grant	$173,000,000	0.79		Recycled Water USBR Title XVI Grant	$80,800,000	1.06
Recycled Water Tax Credit Bonds	$194,000,000	0.88		Recycled Water Tax Credit Bonds	$59,900,000	0.78
Scenario 3, What if O&M costs are 20% less? Phase Water Treatment Facilities, Build all Recycled Water Facilities in Year 1, Project O&M labor and energy at 3%						
Summary, Lifetime	**Total**	**Ratio**		**Summary, 20 years**	**Total**	**Ratio**
Potable Water, Bond Financed	$188,000,000	1.00		Potable Water, Bond Financed	$71,400,000	1.00
Recycled Water, SRF Financing	$155,000,000	0.83		Recycled Water, SRF Financing	$81,200,000	1.14
Recycled Water USBR Title XVI Grant	$151,000,000	0.80		Recycled Water USBR Title XVI Grant	$77,100,000	1.08
Recycled Water Tax Credit Bonds	$172,000,000	0.91		Recycled Water Tax Credit Bonds	$56,300,000	0.79
Scenario 4, What if O&M costs are 20% more? Phase Water Treatment Facilities, Build all Recycled Water Facilities in Year 1, Project O&M labor and energy at 3%						
Summary, Lifetime	**Total**	**Ratio**		**Summary, 20 years**	**Total**	**Ratio**
Potable Water, Bond Financed	$250,000,000	1.00		Potable Water, Bond Financed	$81,700,000	1.00
Recycled Water, SRF Financing	$199,000,000	0.79		Recycled Water, SRF Financing	$88,500,000	1.08
Recycled Water USBR Title XVI Grant	$195,000,000	0.78		Recycled Water USBR Title XVI Grant	$84,400,000	1.03
Recycled Water Tax Credit Bonds	$216,000,000	0.86		Recycled Water Tax Credit Bonds	$63,500,000	0.78

The ratio uses the Potable Water, Bond Financed alternative as 1.0 and calculates the other alternatives as greater or less than 1.0.

The results of a cash flow analysis are listed in Table 5-6 shows that Recycled Water Tax Credit Bonds are the least cost alternative for the first 20 years of the project. SRF financing and United States Bureau of Reclamation (USBR) Title XVI Grant funding are slightly more expensive for the first 20 years. However, all financing alternatives are less costly than potable water over the lifetime of the project.

5.5 Updated Present Value using the Funding Alternatives

Alternative #5for delaying seasonal storage construction from Table 5-3 above was evaluated for each of the funding alternatives with the following results:

1. Standard Bond funding $97.2 million
2. State Revolving funding $86.5 million
3. USBR Title XVI Grant funding $83.9 million
4. CREBS $80.7 million

The analysis shows that Clean Renewable Energy Bonds (CREBS) financing offers the least cost total cost to EID. In addition, all financing alternatives offer a lower cost of water than providing potable water for irrigation.

5.6 Comparison of Tangible and Intangible Parameters

Tangible and intangible parameters are not anticipated to have a direct financial impact to EID. However, these parameters should be considered when evaluating relative alternative impacts. Table 5-7 presents a summary of the comparison results along with a description of each parameter and its potential impact to EID.

A comparison of non-economic factors demonstrated that Alternatives 2 and 5 are the preferred alternatives since these alternatives score the highest relative to the other three alternatives. The primary reasons for this outcome are attributed to these alternatives' consistency with existing Board policies, their reliability and equity benefits, public perception, environmental enhancement, and regulatory permitting considerations.

5.7 Comparison of Tangible and Intangible Parameters

Tangible and intangible parameters are not anticipated to have a direct financial impact to EID. However, these parameters should be considered when evaluating relative alternative impacts. Table 5-7 presents a summary of the comparison results along with a description of each parameter and its potential impact to EID.

Table 5.7 Comparison of Tangible and Intangible Parameters

Parameter	Description	Score (-1 lowest, 0 neutral, + 1 highest)					Rational				
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
		Potable Water	Seasonal Storage	Supplemental Raw Water	Supplemental Treated Water	Temporary Supplemental Water	Potable Water	Seasonal Storage	Supplemental Raw Water	Supplemental Treated Water	Temporary Supplemental Water
Consistency with Board Policies	Policies currently require dual plumbed systems.	-1	0	0	-1	0	Requires policy change	No impact	Potential to revisit connection fees and rates	Requires policy change	Potential to revisit connection fees and rates
Improvements Reliability & Drought Protection	Recycled water is more reliable than Folsom Lake surface water. Drought may create loss of income to EID due to demand reduction	-1	+1	-1	-1	+1	Reduces drought protection	Improves drought protection with recycled water	Reduces drought protection	Reduces drought protection	Short-term: no improvement; Long-term improvement
Public Relations	The beneficial reuse is anticipated to have a positive public support.	-1	+1	0	-1	+1	Negative public impact due to drought curtailment of recycled water customers	Continued public support	Potential negative public impact due to drought curtailment of recycled water customers	Negative public impact due to drought curtailment of recycled water customers	Continued public support
Environmental Benefits	Seasonal storage provides significant environmental benefits	0	+1	0	0	+1	No impact	Endangered species and environmental restoration ($4 million)	No impact	No impact	Endangered species and environmental restoration ($4 million)
Carbon Footprint	Additional pumping energy requirements	-1	+1	0	-1	+1	Added energy associated with treatment	Minimum energy use	Added energy associated with pumping, but no treatment	Added energy for treatment	Best case for energy use
Phased Implementation	Match housing development	+1	-1	-1	+1	+1	Maximum phasing potential	Minimum phasing potential	Minimum phasing potential	Maximum phasing potential	Maximum phasing potential
Regulatory Policy	Consistent with RWQCB, DPH, and other agencies policies	-1	0	-1	-1	0	Inconsistent with Draft Recycled Water Policy	Consistent with Draft Recycled Water Policy	Inconsistent with Draft Recycled Water Policy	Inconsistent with Draft Recycled Water Policy	Consistent with Draft Recycled Water Policy
Future Water Rights	Impacts to EID's ability to secure future water supplies from Folsom Lake and lower American River	0	0	0	0	0	No impact	Maximizing use of all available water resources	No impact	No impact	Maximizing use of all available water resources
Total Score		**-4**	**+3**	**-3**	**-4**	**+5**					

5.7 Conclusions

a. The economic evaluation summarized in Table 5-4 indicates that Alternative 1 has the lowest unit cost at $340 per acre-ft. Alternative 1 has the lowest capital cost and avoids costs associated with expanding the recycled water system.

b. If CREBS financing is available, recycled water seasonal storage would be the least cost alternative. Other funding alternatives result in a lower cost to EID than potable and raw water alternatives.

In addition to economics, eight tangible and intangible (non-economic) parameters were evaluated for the five alternatives. The alternatives were scored relative to their potential to meet the criteria defined for each of the parameters. Alternatives 2 and 5 scored the highest for the non-economic comparison, with Alternative 5 scoring higher.

5.8 Recommendations

1. Based on the results of the alternative evaluation, Alternative 5 is the recommended plan, costs are within 10 percent of the cost of Alternative 1; however, the non-economic scoring is significantly greater. This alternative involves supplementing recycled water with potable water for the next 5 to 10 years while constructing the seasonal storage reservoir to continue the expansion of the recycled water system. There are two considerations:
   - In order to secure the future construction of the recycled water reservoir, it is important to begin the property acquisition process.
   - The potable water system should be expanded as needed to meet the potable water requirements, but limited to the build-out requirements that include recycled water supplied from seasonal storage.
2. Due to the current uncertainty in the economy, future conditions and levels of development could vary significantly and have an impact on the relative benefits and costs of the alternatives. Therefore, EID should retain the maximum level of flexibility in project implementation. Some of the development and economic considerations to be monitored include the following:
   - Approval of future development can be for dual plumbed, but without the seasonal storage reservoir this decision would require additional supplementation or the construction of seasonal storage.
   - Improvement of the economic climate over the next five to eight years and the return of new home construction will reduce the risk of constructing capital intensive projects, such as seasonal storage.
3. EID should pursue funding alternatives including CREBS, USBR Title XVI, and State Revolving financing to lower the cost of recycled water.

4. Issues to be considered when selecting potable versus recycled water, but were not part of this study:
   - Sources and cost for additional potable water supplies needed to meet build-out water demands.
   - Impact of additional recycled water development on drought planning.
   - Future connection fees and rates for potable water and recycled water.
   - Phasing and timing of potable water treatment, pumping, and piping to meet future demands.
   - Expansion of the recycled water system will require a change of use permit, which will take some time to work through the application and approval process.
5. The results of this evaluation and issues not considered should be incorporated into the Integrated Water Master Plan to be completed by EID.

APPENDIX G

GEOTECHNICAL REPORTS

YOUNGDAHL CONSULTING GROUP, INC.
Building Innovative Solutions
1234 Glenhaven Court, El Dorado Hills, CA 95762
5750 Arabian Lane, Loomis, CA 95650
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net
30 YEARS

Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

Project No. E11047.000
19 March 2014

Attention: Mr. Joel Korotkin

Subject: **DIXON RANCH SUBDIVISION**
Green Valley Road, El Dorado Hills, California
MEMO REGARDING OFFSITE SEWER

References:
1. Proposal and Contract for Dixon Ranch Subdivision Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 6 April 2011.
2. Survey Limits Exhibit for Dixon Ranch Subdivision, prepared by CTA Engineering & Surveying, dated 3 February 2011 (CTA No. 10-026-001).
3. Phase I Environmental Site Assessment for Dixon Ranch, prepared by Youngdahl Consulting Group, Inc., dated 12 April 2011 (Project No. E11047.001).
4. Preliminary Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 29 April 2011 (Project No. E11047.000).
5. Assessment for Naturally Occurring Asbestos, prepared by Youngdahl Consulting Group, Inc., dated 29 April 2011 (Project No. E11047.000).
6. A.P.E. exhibit for offsite sewer at SMUD corridor, prepared by CTA, Inc. dated March 2014.
7. New York Creek Force Main NOA Assessment for EID, prepared by Youngdahl Consulting Group, Inc, dated 21 May 2003.

Dear Mr. Korotkin:

As requested, Youngdahl Consulting Group, Inc. is providing this memorandum regarding the offsite sewer through the SMUD corridor as shown on Reference No. 6. For planning purposes we have summarized what should be anticipated for this offsite project from a geotechnical stand point.

For the development of the force main project, we anticipate that a geotechnical design level study will be necessary to assess the construction and design level aspects of the force main. This study will likely include a subsurface investigation, laboratory testing and a report summarizing conclusions and recommendations for the project.

The project is in a Naturally Occurring Asbestos (NOA) review zone which should trigger an environmental review by AQMD upon permit submittal. We anticipate that the application of Rule 223 will apply to the site which would include appropriate dust mitigation procedures for fugitive dust and NOA, as applicable. Reference No. 7 was prepared for El Dorado Irrigation District in 2003 for the same proposed alignment. This study completed 6 tests of the soils for NOA which were all found to be Non Detect (ND). An additional study in this area also completed 4 tests for NOA and also found them to be ND.

We trust that this provides you with the needed information. Please do not hesitate to contact us should you have any questions.

Very Truly Yours,
Youngdahl Consulting Group, Inc.

John Youngdahl

REGISTERED PROFESSIONAL ENGINEER
JOHN C. YOUNGDAHL
NO. C60224
Exp. 06-30-14
CIVIL
STATE OF CALIFORNIA

John Youngdahl, P.E.
Principal Engineer

YOUNGDAHL CONSULTING GROUP, INC.
Building Innovative Solutions
1234 Glenhaven Court, El Dorado Hills, Ca 95762
5750 Arabian Lane, Loomis, Ca 95650
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net
YOUNGDAHL CONSULTING GROUP INC. 25 YEARS

Dixon Ranch Partners, LLC
707 Commons Drive, Suite 103
Sacramento, California 95825

Project No. E11047.000
14 June 2011

Attention: Mr. Joel Korotkin

Subject: **DIXON RANCH SUBDIVISION**
Green Valley Road, El Dorado Hills, El Dorado County, California
PRELIMINARY GEOTECHNICAL ENGINEERING STUDY- ADDENDUM PARCEL

References:
1. Proposal and Contract for Dixon Ranch Subdivision Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 6 April 2011.
2. Survey Limits Exhibit for Dixon Ranch Subdivision, prepared by CTA Engineering & Surveying, dated 3 February 2011 (CTA No. 10-026-001).
3. Phase I Environmental Site Assessment for Dixon Ranch, prepared by Youngdahl Consulting Group, Inc., dated 12 April 2011 (Project No. E11047.001).
4. Preliminary Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 29 April 2011 (Project No. E11047.000).
5. Assessment for Naturally Occurring Asbestos, prepared by Youngdahl Consulting Group, Inc., dated 29 April 2011 (Project No. E11047.000).

Dear Mr. Korotkin:

1.0 INTRODUCTION

This report presents the results the additional study requested to add Parcel No. 126-020-01 (Dixon) to the parcels discussed in the Reference 4 Preliminary Geotechnical Engineering Study performed for the proposed Dixon Ranch Subdivision. The subdivision is planned to be constructed on the south side of Green Valley Road in El Dorado Hills, El Dorado County, California. A vicinity map is provided on Figure A-1 to identify the approximate project location and the additional parcel.

Purpose and Scope

The purpose of this study was to explore and evaluate the surface and subsurface conditions at the additional parcel site in order to provide geotechnical information and design criteria, and to develop geotechnical recommendations for the proposed project. The scope of this study included a site reconnaissance, limited subsurface exploration, and preparation of this report.

2.0 PROJECT UNDERSTANDING

Recently, our firm completed a geotechnical engineering study (Reference 4, GES) for the project site to be known as Dixon Ranch Subdivision. The previous project consisted of the exploration of approximately 280 acres; however, a 20 acre parcel at the middle of the north side of the previous study area (Parcel No. 126-020-01, Dixon) was excluded from the subdivision map. Since that time, we understand that the parcel was added to the list of parcels to be developed for the proposed subdivision. We understand that the northern 5 acres of the parcel are proposed to remain unaltered

3.0 FINDINGS

The following section describes our additional findings regarding the site conditions that we observed during our site reconnaissance and limited subsurface exploration. Unless provided below, the findings, recommendations, and conclusions made in the Reference 4 report are considered applicable for use on the proposed project site

Surface Observations
The project area is located on the south side of Green Valley Road near Green Springs Drive in El Dorado Hills, El Dorado County, California; the additional parcel described in this study is located at the middle of the north side of the project area. The parcel is roughly rectangular in shape, consisting of about 20 acres, and is generally vacant land with the exception of one existing single family residence at the north side of the parcel. The parcel is bordered by rural residential land to the east, south, and west which are portions of the project area, and a rural residential subdivision to the north.

The site topography generally slopes toward the middle of the parcel from the east, south, and west sides to a drainage channel that trends toward the north. The gradients sloping toward the drainage channel are generally 5H:1V (Horizontal:Vertical) or less. The main channel is fed by two drainage channels (southeast and southwest corners) and appeared to flow to the north at a shallow gradient (30H:1V or less). The site surface is generally covered with shallow grasses and sparse trees which are concentrated near the drainage channels.

Subsurface Conditions
Our field study included a site reconnaissance by a representative of our firm followed by a limited subsurface exploration program conducted on 6 June 2011. The exploration program included the advancement of 3 exploratory hand augered locations by our representative at the approximate locations shown on Figure A-2, Appendix A. A description of the soil types and conditions encountered at the exploratory hand augered borings is provided in Table 1, below.

Table 1: Subsurface Conditions

Test Pit	Location	Depth (ft)	Soil Type
HA-1	West Slope	0 – 2	Red brown sandy SILT (ML), soft, moist to slightly
		Notes:	Terminated at 2 feet (Practical Refusal) No Groundwater Encountered
HA-2	Adjacent to Drainage Channel	0 – 2	Red brown sandy SILT (ML), soft, very moist
		2	Blue gray BEDROCK.
		Notes:	Terminated at 2 feet (Practical Refusal) No Groundwater Encountered
HA-3	East Slope	0 – 2	Red brown sandy SILT (ML), soft, moist to slightly
		Notes:	Terminated at 2 feet (Practical Refusal) No Groundwater Encountered

Underlying the native soils, our hand augered borings encountered shallow weathered metavolcanic BEDROCK at the maximum depth explored in each hand augered boring. Effective refusal was encountered with the equipment used for our study.

Groundwater Conditions
Free groundwater was not encountered during our explorations; however, subsurface water conditions typically vary in the foothill region. Our experience in the area shows that, at varying times of the year, water may be perched on less weathered rock and present in the fractures and seams of the weathered rock found beneath the site.

Recommendations and Conclusions
Based on our observations during the site reconnaissance and our limited subsurface explorations, the surface, and subsurface conditions are relatively similar to the adjacent previously studies parcels. Therefore, it is our opinion that the findings and recommendations presented in the Reference 4 GES are appropriate for Parcel No. 126-020-01 (Dixon) with the additional information provided above.

Limitations

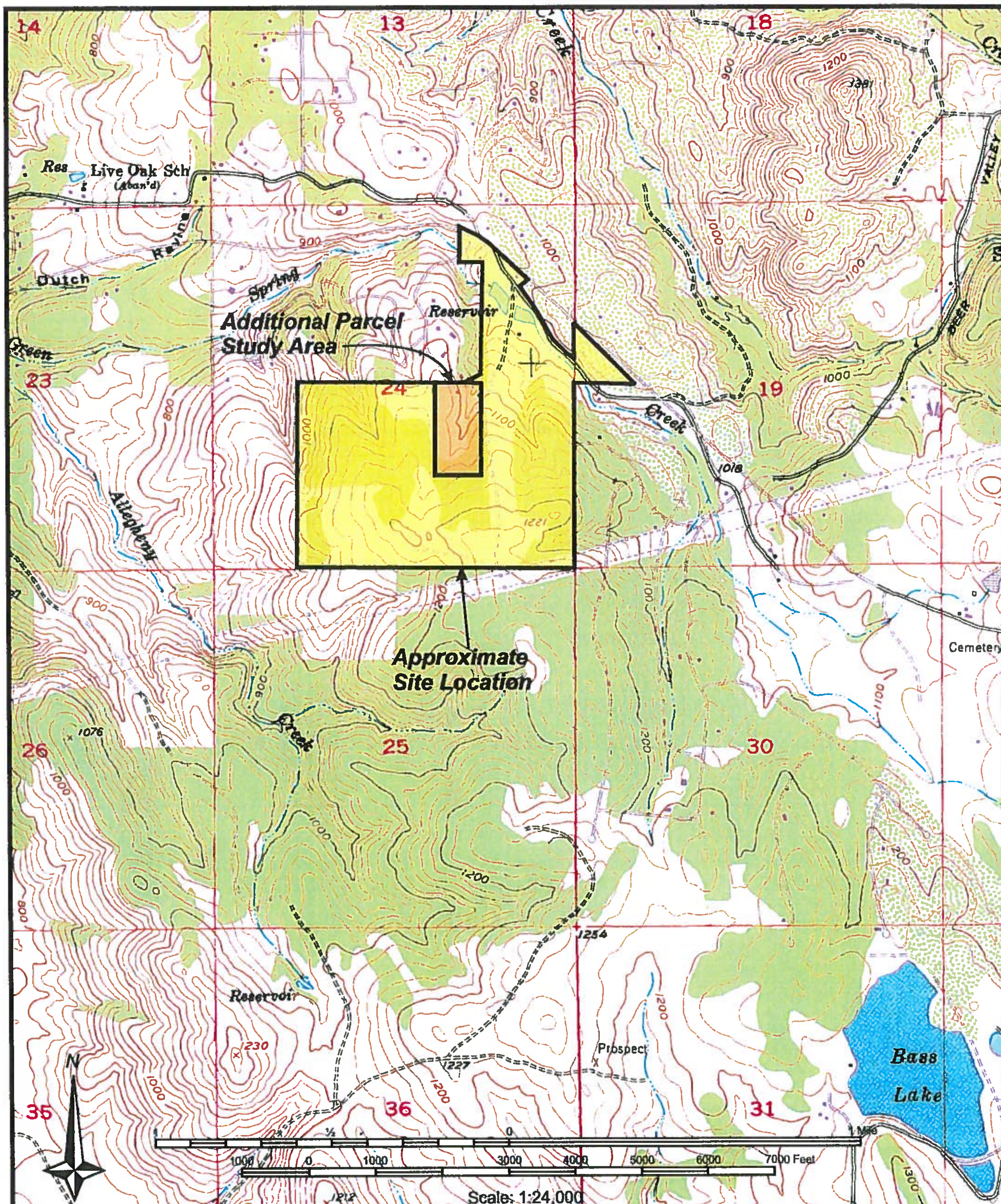
This report has been prepared for the exclusive use of Dixon Ranch Partners, LLC and their consultants, for specific application to this project, in accordance with generally accepted geotechnical engineering practice. The limitations described in the Reference 4 GES apply to this report. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

REGISTERED PROFESSIONAL ENGINEER
MATTHEW J. GROSS
No. 77630
Exp. 06-30-11
CIVIL
STATE OF CALIFORNIA

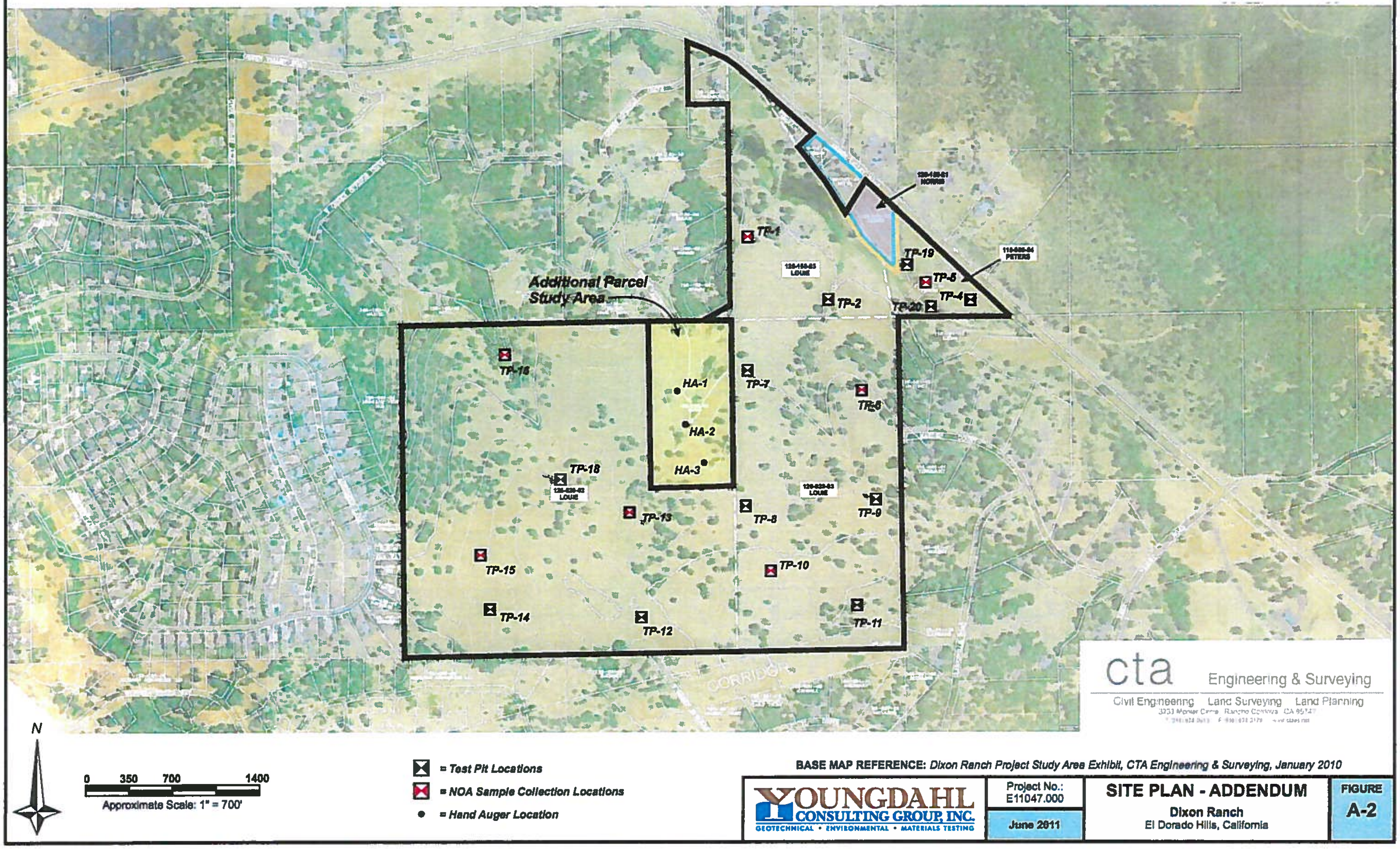
Matthew J. Gross, P.E.
Project Engineer

Distribution: (4) to Client



BASE MAP REFERENCE: *U.S.G.S. 7.5 Minute Topographic Series, Clarksville Quadrangle, Dated 1953 (Revised 1980)*

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000	VICINITY MAP - ADDENDUM	FIGURE
	June 2011	Dixon Ranch El Dorado Hills, California	A-1



BASE MAP REFERENCE: *Dixon Ranch Project Study Area Exhibit, CTA Engineering & Surveying, January 2010*

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 / June 2011	SITE PLAN - ADDENDUM Dixon Ranch El Dorado Hills, California	FIGURE A-2

YOUNGDAHL CONSULTING GROUP, INC.
Building Innovative Solutions
1234 Glenhaven Court, El Dorado Hills, Ca 95762
5750 Arabian Lane, Loomis, Ca 95650
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net

Dixon Ranch Partners, LLC
707 Commons Drive, Suite 103
Sacramento, California 95825

Project No. E11047.000
29 April 2011

Attention: Mr. Joel Korotkin

Subject: **DIXON RANCH SUBDIVISION**
Green Valley Road, El Dorado Hills, El Dorado County, California
PRELIMINARY GEOTECHNICAL ENGINEERING STUDY

References:
1. Proposal and Contract for Dixon Ranch Subdivision Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 6 April 2011.
2. Survey Limits Exhibit for Dixon Ranch Subdivision, prepared by CTA Engineering & Surveying, dated 3 February 2011 (CTA No. 10-026-001).

Dear Mr. Korotkin:

In accordance with your authorization, Youngdahl Consulting Group, Inc. has performed a preliminary geotechnical engineering study for the project site located on the south side of Green Valley Road near Green Springs Road in El Dorado Hills, El Dorado County, California. The purpose of this study was to explore and evaluate the surface and subsurface soil conditions at the site and provide geotechnical information and design criteria for the proposed project appropriate to the observed site conditions. Our scope was limited to a subsurface investigation, laboratory testing, and preparation of this report per the Reference 1 proposal.

Based upon our site reconnaissance, subsurface exploration program, laboratory testing, and engineering analysis, we believe the primary geotechnical issues to be addressed consist of loose fills and ponds/detentions basins at the northeast corner of the project site, loose surface soils, and excessive seepage and the potential for moisture related issues at the drainage channels and valleys. Due to the non-uniform nature of soils, other geotechnical issues may become more apparent during mass grading operations which are not listed above. The descriptions, findings, conclusions, and recommendations provided in this report are formulated as a whole; specific conclusions or recommendations should not be derived or used out of context. Please review the limitations and uniformity of conditions section of this report.

This report has been prepared for the exclusive use of Dixon Ranch Partners, LLC and their consultants, for specific application to this project, in accordance with generally accepted geotechnical engineering practice. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

REGISTERED PROFESSIONAL ENGINEER
MATTHEW J. GROSS
No. 77630
Exp. 03-30-11
CIVIL
STATE OF CALIFORNIA

Matthew J. Gross, P.E.
Project Engineer

Distribution: (4) to Client

TABLE OF CONTENTS

PRELIMINARY GEOTECHNICAL ENGINEERING STUDY
FOR
DIXON RANCH SUBDIVISION

1.0 INTRODUCTION

This report presents the results of our Preliminary Geotechnical Engineering Study performed for the proposed Dixon Ranch Subdivision planned to be constructed on the south side of Green Valley Road in El Dorado Hills, El Dorado County, California. An annotate vicinity map is provided on Figure A-1 to identify the approximate project location.

Purpose and Scope

The purpose of this study was to explore and evaluate the surface and subsurface conditions at the site, to provide geotechnical information and design criteria, and to develop geotechnical recommendations for the proposed project. The scope of this study includes the following:

- A review of geotechnical and geologic data available to us at the time of our study;
- A field study consisting of a site reconnaissance, followed by an exploratory test pit program to observe and characterize the subsurface conditions;
- A testing and review program for naturally occurring asbestos (NOA) which is summarized in Appendix D.
- A laboratory testing program performed on representative samples collected during our field study;
- Engineering analysis of the data and information obtained from our field study, laboratory testing, and literature review;
- Develop geotechnical recommendations regarding site grading including, site preparation and grading, soil moisture considerations, excavation characteristics, placement of engineered fills, slope configuration and grading, differential support conditions, and underground improvements.
- Develop geotechnical design criteria for foundations, seismic design criteria, slabs on grade, retaining walls, pavements, and drainage considerations;
- Preparation of this report summarizing our findings, conclusions, and recommendations regarding the above describe information.

2.0 PROJECT UNDERSTANDING

Based on the Reference 2 survey limits and the descriptions of the project provided to our firm, we understand that the proposed project consists of the construction of a 280-acre subdivision south of Green Valley Road near Green Springs Drive in El Dorado Hills, El Dorado County, California. The proposed density and subdivision arrangement have not been determined. We anticipate that the subdivision development will consist of the construction of one to two story single family residences with conventional shallow foundations cut/fill building pads intented to support slab on grade floors.

3.0 FINDINGS

The following section describes our findings regarding the site conditions that we observed during our site reconnaissance and subsurface exploration. In addition, this section also provides the results of our laboratory testing, geologic review, and engineering assessments related to the project site.

Surface Observations

The project is located on the south side of Green Valley Road near Green Springs Drive in El Dorado Hills, El Dorado County, California. The area is irregular in shape, consisting of about 280 acres, and is generally vacant land used for livestock grazing with the exception of some existing residential development along Green Valley Road extending a maximum of about 800 feet perpendicular to Green Valley Road. The project is bordered by rural residential land to the east, south, and northwest, a residential subdivision to the west, and Green Valley Road to the northeast.

The site topography generally slopes to the west and north at varying gradients from a east to west ridgeline near the south side of the study area. The USGS topographic map of the project area suggests that the topographic relief on the site is about 300 feet south to north and about 100 feet east to west. Numerous surface drainage channels extend from the ridgeline to form shallow channels to the east and west and deeper channels to the north. The site surface is generally covered with shallow grasses and sparse trees which are concentrated near the drainage channels and on the west facing slopes.

Subsurface Conditions

Our field study included a site reconnaissance by a representative of our firm followed by a subsurface exploration program conducted on 4 April 2011. The exploration program included the excavation of 18 exploratory test pits under the direction of our representative at the approximate locations shown on Figure A-2, Appendix A. A description of the field exploration program is provided in Appendix A.

Test Pits TP-1, TP-2, and TP-6 through TP-18 (TP-3 and TP-17 was not excavated) typically encountered surface soils consisting predominantly of sandy SILT in a soft to medium stiff and moist to very moist condition to depths varying from 1 to 4 feet below current site grades. Test Pits TP-4, TP-5, TP-19, and TP-20 were performed in a stockpile area at the northeast corner of the site and generally encountered variable conditions. Test pit TP-4 encountered silty SAND (FILL) in a loose and moist condition to a depth of about 8 feet and appeared to overly sandy SILT (Native) in a medium stiff, and slightly moist condition to a depth of about 11 feet. Test pit TP-5 encountered silty SAND (FILL) with some gravel and boulders up to 36 inches in diameter. The fills appeared to be in a loose to very loose and moist condition to a depth of 11 feet. Test pit TP-19 encountered silty SAND (FILL) with cobble and boulders to a depth of 6 feet overlying silty SAND (NATIVE?) with abundant rock. Test pit TP-20 was excavated at the base of the fill area and consisted of a thin layer of silty SAND (SM) overlying slightly weathered serpentinite bedrock.

Underlying the surface fills and native soils, our excavations encountered weathered metasedimentary BEDROCK to the maximum depth explored in each pit. Bedrock at the northeast area of the project site was exposed at the surface in some locations and consisted of weathered serpentinite BEDROCK. Where noted, effective refusal was encountered with the equipment used for our study.

A more detailed description of the subsurface conditions encountered during our subsurface exploration is presented graphically on the "Exploratory Test Pit Logs", Figures A-3 through A-20, Appendix A. These logs show a graphic interpretation of the subsurface profile, the location and depths at which samples were collected.

Groundwater Conditions
Groundwater was encountered during our explorations; however, subsurface water conditions typically vary in the foothill region. Our experience in the area shows that, at varying times of the year, water may be perched on less weathered rock and present in the fractures and seams of the weathered rock found beneath the site.

Laboratory Testing
Laboratory testing of the collected samples was directed towards determining the physical and engineering properties of the soil underlying the site. A description of the tests performed for this project and the associated test results are presented in Appendix B. In summary, the following tests were performed:

Table 1: Laboratory Tests

Laboratory Test	Test Standard
Dry Density and Soil Moisture	ASTM D2937
Modified Proctor	ASTM D1557
Direct Shear	ASTM D3080
Expansion Index Test	ASTM D4829
R-Value tests	ASTM D2844
Corrosivity Suite	CA DOT Tests 417, 422 and 643

Soil Expansion Potential
The materials encountered in our explorations were non-plastic or had a low plasticity. Materials with this behavior are generally considered to be non-expansive. Additionally, expansion index testing indicated that the materials were non-expansive. Therefore, we do not anticipate that special design considerations for expansive soils will be required for the design or construction of the proposed improvements. If necessary, should expansive soils be encountered at the project site which were not disclosed during our study, recommendations can be made based on our observations at that time.

Soil Corrosivity
A corrosivity testing suite consisting of Soil pH, resistivity, sulfate, and chloride content tests were performed on selected soil samples collected during our site exploration. We are not corrosion specialists and recommend that the results be evaluated by a qualified corrosion expert. The laboratory test results (provided by Sunlab, Inc.) are provided in Appendix B and are summarized in Table 2, below.

Table 2: Corrosivity Summary

Location	Depth (ft)	Soil pH	Minimum Resistivity ohm-cm (x1000)	Chloride (ppm)	Sulfate (ppm)	Caltrans Environment	ACI Environment
TP-4, BK1	0-8	6.91	3.22	9.5	2.7	Non Corrosive	Non Corrosive
TP-15, BK4	2-5	5.68	8.31	12.9	1.9	Non Corrosive	Non Corrosive
TP-12, BK3	0-1	5.70	6.70	9.6	0.3	Non Corrosive	Non Corrosive

According to CalTrans Corrosion Guidelines Version 1.0, September 2003, the test results appear to indicate a non-corrosive environment. According to the 2010 California Building Code Section 1907.7.6 and ACI 318 Table 4.3.1, the test results indicate the onsite soils have a negligible potential for sulfide attack of concrete. Accordingly, Type I / /II Portland cement is appropriate for use in concrete construction. A certified corrosion engineer should be consulted to review the above tests and site conditions in order to develop specific mitigation recommendations if metallic pipes or structural elements are designed to be in contact with or buried in soil.

Geologic Conditions

The geologic portion of this report included a review of geologic data pertinent to the site and an interpretation of our observations of the surface exposures and our observations in our exploratory test pits excavated during the field study. The site is located within the western foothills region of the Sierra Nevada Mountain Range. According to the General Geologic Map of the Folsom 15-Minute Quadrangle (R.C. Loyd, et. al., 1984) this portion of the foothills and the project area (located in Cell 24) are underlain by inter-fingerings of metavolcanic and ultramafic rocks of the Foothills Melange-Ophiolite Terrane of Late Paleozoic to Mesozoic age. The smaller easternmost portion of the site generally delineated as the Peters Pacerl on Figure A-2 appears to be underlain by ultramafic bedrock which have a potential to contain naturally occurring asbestos, while the remaining western majority is underlain by metavolcanic rocks.

Naturally Occurring Asbestos

An assessment for naturally occurring asbestos (NOA) was prepared. A Workplan was submitted to, reviewed by, and accepted by the El Dorado County Air quality Management District. The sampling collection was integrated with the field work for this Geotechnical Engineering Study. The NOA Assessment report is provided as appendix D.

Seismicity

According to the Fault Activity Map of California and Adjacent Areas (Jennings, 2010) and the Peak Acceleration from Maximum Credible Earthquakes in California (CDMG, 1992), no active faults or Earthquake Fault Zones (Special Studies Zones) are located on the project site. Additionally, no evidence of recent or active faulting was observed during our field study. The nearest mapped potentially active and active faults pertinent to the site are summarized in the following table.

Table 3: Local Active and Potentially Active Faults

Age	Fault Name	Distance, Direction
Last 200 years	West Tahoe Fault	85 km ENE
Last 200 years	North Tahoe Fault	95 km NE
Late-Quaternary	Dunnigan Hills Fault	62 km W
Late-Quaternary	Bear Mountains Fault Zone – East Splay	10 km W
Pre-Quaternary	Bear Mountain Fault Zone – West Splay	2 km E
Pre-Quaternary	Melones Fault Zone	20 km E
Pre-Quaternary	Maidu Fault	9 km W

Based on our literature review of shear-wave velocity characteristics of geologic units in California (Wills and Silva; August 1998: Earthquake Spectra, Volume 14, No. 3) and subsurface interpretations, we recommend that the project site be classified as Site Class C in accordance with Table 1613.5.2 of the 2010 California Building Code.

Earthquake Inducted Liquefaction, Surface Rupture Potential, and Settlement
Liquefaction is the sudden loss of soil shear strength and sudden increase in porewater pressure caused by shear strains, as could result from an earthquake. Research has shown that saturated, loose to medium-dense sands with a silt content less than about 25 percent located within the top 40 feet are most susceptible to liquefaction and surface rupture/lateral spreading.

Due to the absence of a permanent elevated groundwater table, the relatively low seismicity of the area, the relatively shallow depth to bedrock, and the relatively dense nature of site materials, the potential damage due to site liquefaction, slope instability and surface rupture are considered negligible. For the above-mentioned reasons, mitigation for these potential hazards is not considered necessary.

Existing Slope Stability
The existing native slopes on the project site were observed to have adequate vegetation on the slope face, appropriate drainage away from the slope face, and no apparent tension cracks or slump blocks in the slope face or at the head of the slope. No other indications of slope instability such as seeps or springs were observed. As such, we anticipate that the risk of slope instability for the existing slope orientations is negligible.

We understand that the existing fill slopes located at the northeast corner of the site were constructed during end dump operations for the fill deposits. The existing fill slopes are generally oversteepened and are not considered substantially stable for long-term use. We anticipate that excess water and/or other erosive factors may decrease the stability of the slopes. We recommend that the slopes be removed and reconstructed during the overexcavation operations of the other non-engineered fills at the northeast corner of the site.

4.0 RECOMMENDATIONS

General
Based upon the results of our field explorations, findings, and analysis described above, it is our opinion that construction of the proposed improvements is feasible from a geotechnical standpoint, provided the recommendations contained in this report are incorporated into the design plans and implemented during construction. The native soils, rock, and fills, if and processed and compacted as recommended below and composed of like materials may be considered "engineered" and suitable for support of the planned improvements. The existing shallow native surface soils, undocumented fills, and fill stockpiles are relatively loose and are not considered suitable for support of the proposed improvements in their current condition. Recommendations are presented below for the overexcavation and recompaction of the existing non-suitable conditions on the site.

4.1 SITE GRADING AND IMPROVEMENTS

Site Preparation
Preparation of the project site should involve demolition, site drainage controls, dust control, clearing and stripping, overexcavation and recompaction of existing fills, and exposed grade compaction considerations. The following paragraphs state our geotechnical comments and recommendations concerning site preparation.

Demolition: As part of the demolition operation, all foundation and structural improvement elements should be exhumed and removed from the site. In addition, any underground storage tanks, abandoned wells or other utilities not intended for reuse should be removed or backfilled in accordance with the appropriate regulations.

Concrete and asphalt separated from the other debris, and adequately broken down in particle size, may be mixed thoroughly with soil and placed as engineered fill as described below. If this option is exercised, a representative from our firm should be contacted to observe the adequacy of grading operations associated with the breaking and mixing of these elements.

Site Drainage Controls: We recommend that initial site preparation involve intercepting and diverting any potential sources of surface or near-surface water within the construction zones. Because the selection of an appropriate drainage system will depend on the water quantity, season, weather conditions, construction sequence, and methods used by the contractor, final decisions regarding drainage systems are best made in the field at the time of construction. All drainage and/or water diversion performed for the site should be in accordance with the Clean Water Act and applicable Storm Water Pollution Prevention Plan.

Swales and natural hillside drainage proposed to receive engineered fill may require the installation of a canyon style drain. Close coordination between the design professionals for placement and discharge of canyon style drains should be performed.

Dust Control: Dust control provisions should be provided for as required by the local jurisdiction's grading ordinance (i.e. water truck or other adequate water supply during grading). Special attention to dust control may be necessary due to the anticipated cuts into naturally occurring asbestos materials. Refer to Appendix D for details on grading within naturally occurring asbestos areas.

Clearing and Stripping: Clearing and stripping operations should include the removal of all organic laden materials including trees, bushes, root balls, root systems, and any soft or loose soil generated by the removal operations. Surface grass stripping operations may be necessary depending upon the in-situ conditions at the time of mass grading. Short or mowed dry grasses may be pulverized and lost within fill materials provided no concentrated pockets of organics result. It is the responsibility of the grading contractor to remove excess organics from the fill materials. No more than 2 percent of organic material, by weight, should be allowed within the fill materials at any given location.

General site clearing should also include removal of any loose or saturated materials from the proposed structural improvement and pavement areas. A representative of our firm should be present during site clearing operations to identify the location and depth of potential fills not disclosed by this report, to observe removal of deleterious materials, and to identify any existing site conditions which may require mitigation prior to site development. Preserved trees may require tree root protection which should be addressed on an individual basis by a qualified arborist.

Addressing Existing Fills: All fills and fill stockpiles, if encountered during grading, should be over-excavated down to firm native materials. The thickest fills anticipated at the project site are located at the northeast corner of the site (APN 126-180-21 and 115-080-04) and are anticipated to be up to 20 deep from the existing site grade. Reference should be made to the site description and exploratory test pit logs for anticipated fill locations. Any depressions extending below final grade resulting from the removal of fill materials or other deleterious materials should be properly prepared as discussed below and backfilled with engineered fill. **Due to the NOA content all fills within these parcels should remain on the parcels and not be imported to other areas of the project.**

Addressing Existing Ponds/Detention Areas: The existing ponds/detention areas at the northeast corner of the project area appear to retain water for all or most of the year. Alterations or removal of these ponds may require significant drying periods and/or stabilization techniques to access the areas or place engineered fills. No exploratory test pit excavations were performed at the pond/detention areas due to very soft subgrades and limited access.

We understand that the existing embankment separating the existing ponds/detention areas is being used as an one-lane road and may be expanded or reconstructed to accommodate for general vehicular traffic. Following drying or stabilization, additional geotechnical exploration should be performed to review the existing site conditions in these areas and provided more specific recommendations regarding grading, drainage, and other geotechnical conditions.

Native Grade Compaction: Following initial site preparation activities and overexcavation operations, native soil grades should be scarified to a minimum depth of 8 inches and compacted to the requirements for engineered fill. Prior to placing fill, the exposed subgrades should be in a firm and unyielding state. Any localized zones of soft or pumping soils observed within a subgrade should either be scarified and recompacted or be overexcavated and replaced with engineered fill as detailed in the engineered fill section below.

Soil Moisture Considerations

The near-surface soils may become partially or completely saturated during the rainy season. Grading operations during this time period may be difficult since compaction efforts may be hampered by saturated materials. Therefore, we suggest that consideration be given to the seasonal limitations and costs of winter grading operations on the site. Special attention should be given regarding the drainage of the project site.

If the project is expected to work through the wet season, the contractor should install appropriate temporary drainage systems at the construction site and should minimize traffic over exposed subgrades due to the moisture-sensitive nature of the on-site soils. During wet weather operations, the soil should be graded to drain and should be sealed by rubber tire rolling to minimize water infiltration.

Excavation Characteristics

The exploratory test pits were excavated using a CAT430D backhoe equipped with an 24 inch wide bucket. The degree of difficulty encountered in excavating our test pits is an indication of the effort that will be required for excavation during construction. Based on our test pits, we expect that the site soils can be excavated using conventional earthmoving equipment such as a Caterpillar D8 to D9 for mass grading and rubber tired backhoe for trench excavations.

The underlying rock materials can likely be excavated to depths of several feet using dozers equipped with rippers. We expect that the upper, weathered portion of the rock will require use of a Caterpillar D8 equipped with a single or multiple shank rippers, or similar equipment. We anticipate that a ripper equipped D8 can penetrate at least as deep as our test pits at most locations with moderate effort. Deeper excavation into the less weathered rock may require heavier equipment, such as a D9, or a D10 as some areas of shallow resistant were encountered. Blasting cannot be ruled out in areas of resistant rock.

Where hard rock cuts in fractured rock are proposed, the orientation and direction of ripping will likely play a large role in the rippability of the material. When hard rock is encountered, we should be contacted to provide additional recommendations prior to performing an alternative such as blasting.

Utility trenches will likely encounter hard rock excavation conditions especially in deeper cut areas. Utility contractors should be prepared to use special rock trenching equipment such as large excavators (Komatsu PC400 or CAT 345 or equivalent). Blasting to achieve utility line grades, especially in planned cut areas, cannot be precluded. Water inflow into any excavation approaching hard rock surface is likely to be experienced in all but the driest summer and fall months. Pre-ripping during mass grading may be beneficial and should be considered with the our firm prior to, or during mass grading.

Engineered Fills

All materials placed as fills on the site should be placed as "Engineered fill" observed and compacted as described in the following paragraphs.

Suitability of Onsite Materials: We anticipate that a large amount of onsite soils will be generated during mass grading operations. We expect that soil generated from excavations on the site, excluding deleterious material, may be used as engineered fill provided the material does not exceed the maximum size specifications listed below.

Rock fragments or boulders exceeding 24 inches in maximum dimension should not be placed within the upper five feet of lot and street grade. The upper two feet of lot or street grades should consist of predominantly rocks and rock fragments less than 12 inches in maximum dimension. The rock fragments should be thoroughly mixed with soil so that a uniform mixture of rocks and compacted soil is obtained without voids. Boulders over 24 inches in maximum dimension should be placed within the deeper portions of fill embankments below a depth of 5 feet and a minimum of 5 feet from the finish slope face. The individual boulders should be spaced such that compaction of finer rock and soil materials between the boulders can be achieved. Materials placed between the boulders should consist of predominantly soil and rock less than 12 inches in maximum dimension. The soil/rock mixture should be placed between the boulders so as to preclude nesting or the formation of voids and compacted to the requirements of engineered fill. Should insufficient deep fill areas exist for oversize rock disposal, contractor should (at his option) either dispose of the excess materials to an offsite location or mechanically reduce the rocks to less than 24 inches in maximum dimension. The contractor should avoid placing rocks or rock fragments larger than 12 inches in maximum dimension within zones of proposed underground facilities.

Fill Placement and Compaction: All areas proposed to receive fill should be scarified to a minimum depth of 8 inches, moisture conditioned as necessary, and compacted to at least 90 percent of the maximum dry density based on the ASTM D1557 test method. The fill should be placed in thin horizontal lifts not to exceed 12 inches in uncompacted thickness. The fill should be moisture conditioned as necessary and compacted to a relative compaction of not less than 90 percent based on the ASTM D1557 test method. The upper 8 inches of fills placed under proposed pavement areas should be compacted to a relative compaction of not less than 95 percent based on the ASTM D1557 test method. To mitigate the potential for deep fill settlement, all fills placed deeper than 10 feet from finished grade should be compacted to a minimum of 95 percent relative compaction. The fills should be placed at a minimum of two percent over optimum moisture content.

Fill soil compaction should be verified by means of in-place density tests performed during fill placement so that adequacy of soil compaction efforts may be evaluated as earthwork progresses, or by method specification if the quantity of rock fragments in the fills preclude traditional compaction testing. This will likely include the excavation of test pits within the fill materials to observe and document that a uniform over-optimum moisture condition, and absence of large and/or concentrated voids has been achieved prior to additional fill placement.

Compaction Equipment: In areas to receive structural fill, a Caterpillar 825 steel-wheel compactor, large vibratory padded drum compactor, or approved equivalent should be employed as a minimum to facilitate breakdown of oversize bedrock materials and generation of soil fines during the fill placement process. If the quantity of rock fragments in the fills preclude traditional compaction testing, then the proposed fills should be compacted using method specifications as indicated below.

Soils exposed in excavations should be moisture conditioned and compacted in place by a minimum of four completely covering passes with a Caterpillar 825, or approved equivalent. The compactor's last two passes should be at 90 degrees to the initial passes. In areas where 95 percent relative compaction is designated, an additional two passes should be applied, with three completely covering passes made at 90 degrees to the initial three passes. Engineered fill should be constructed in lifts not exceeding 12 inches in uncompacted thickness, moisture conditioned and compacted in accordance with the above specification. Additional passes as deemed necessary during fill placement to achieve the desired condition based upon field conditions may be recommended.

Import Materials: If imported fill material is needed for this project, import material should be approved by the Geotechnical Engineer prior to transporting it to the project. It is preferable that import material meet the following requirements:

- Plasticity index not to exceed 12.
- "R"-value of equal to or greater than 40.
- Should not contain rocks larger than 6 inches in diameter.
- Not more than 15% passing through the No. 200 sieve.

If these requirements are not met, additional testing and evaluation may be necessary to determine the appropriate design parameters for foundations, pavement, and other improvements.

Slope Configuration and Grading

With the exception of the slopes located along the south side of the properties adjacent to Green Valley Road, the existing slopes on the project site were observed to have adequate vegetation on the slope face, appropriate drainage away from the slope face, and no apparent tension cracks or slump blocks in the slope face or at the head of the slope.

The project site is proposed to have cuts and fill with a maximum slope orientation of 2H:1V (Horizontal:Vertical). Generally a cut slope orientation of 2H:1V is considered stable with the material types encountered on the site. A fill slope constructed at the same orientation is considered stable if compacted to the engineered fill recommendations as stated in the recommendations section of this report. All slopes should have appropriate drainage and vegetation measures to minimize erosion of slope soils.

Steeper fill slope gradients may be achievable through the use of geotextile materials to strengthen and/or provide erosion protection. Surficial stability of steeper cut slopes may be achievable due to the geology of the cut materials. Steepening of slopes greater than 2H:1V will require design and observation during the proposed cut and/or fill. Any slope excavations proposed to be greater than 10 feet in maximum height should be evaluated during and prior to completion of site grading.

Placement of Fills on Slopes: Placement of fill material on natural slopes should be stabilized by means of keyways and benches. Where the slope of the original ground equals or exceeds 5H:1V, a keyway should be constructed at the base of the fill. The keyway should consist of a trench excavated to a depth of at least two feet into firm, competent materials. The keyway trench should be at least eight feet wide or as recommended by our firm to achieve a suitable condition for the proposed fills. Benches should be cut into the original slope as the filling operation proceeds. Each bench should consist of a level surface excavated at least six feet horizontally into firm soils or four feet horizontally into rock. The rise between successive benches should not exceed 36 inches. The need for subdrainage should be evaluated at the time of construction.

Slope Face Compaction: All slope fills should be laterally overbuilt and cut back such that the required compaction is achieved at the proposed finish slope face. As a less preferable alternative, the slope face could be track walked or compacted with a wheel. If this second alternative is used, additional slope maintenance may be necessary.

Slope Drainage: Surface drainage should not be allowed to flow uncontrolled over any slope face. Adequate surface drainage control should be designed by the project civil engineer in accordance with the 2010 California Building Code. All slopes should have appropriate drainage and vegetation measures to minimize erosion of slope soils.

Differential Support Conditions

Differential support conditions may be a concern where fills are placed and compacted for construction of a building pad and the proposed building will span from a native to deep fill condition. In order to mitigate the potential for differential settlement, overexcavation of the cut portion of the building pad, deepening of the foundations or adjustment of compaction requirements may be recommended. We should be afforded the opportunity to review the construction plans in order to develop site specific recommendations regarding differential conditions.

Underground Improvements

Trench Excavation: Trenches or excavations in soil should be shored or sloped back in accordance with current OSHA regulations prior to persons entering them. Refer to the Excavation Characteristics subsection of the Site Grading and Improvements Section in this report for anticipated excavation conditions.

Backfill Materials: Backfill materials for utilities should conform to the local jurisdiction's requirements. It should be realized that permeable backfill materials will likely carry water at some time in the future.

When backfilling within structural footprints, compacted low permeability materials are recommended to be used a minimum of 5 feet beyond the structural footprint to minimize moisture intrusion. If the materials are too rocky, they may need to be screened prior to backfill in order to limit pipe damage. If a permeable material is used as backfill within this zone, subdrainage mitigation may be required. In addition, if the structure is oriented below the roadway and associated utilities, grout cutoffs or plug and drains around all utility penetrations are useful to keep moisture out from underneath the structure.

A common problem occurs on lots graded with large equipment and rocky fill materials where the excavated spoils from the lot utilities are too rocky to place as engineered fill back in the trench with the common compaction practices employed by the subcontractors installing these utilities. We recommend that where excavated soils are too rocky to place and compact to a tight condition with low void space, these materials be replaced with a proper import material for compaction.

Backfill Compaction: All backfill, placed after the underground facilities have been installed, including lot wet/dry utilities and lateral connections, should be compacted a minimum of 90 percent relative compaction. Compaction should be accomplished using lifts which do not exceed 12 inches. However, thickness of the lifts should be determined by the contractor. If the contractor can achieve the required compaction using thicker lifts, the method may be judged acceptable based on field verification by a representative of our firm using standard density testing procedures. Light weight compaction equipment may require thinner lifts to achieve the required densities.

Drainage Considerations: This subdivision has a potential for a perched groundwater condition related to shallow bedrock and underground utilities may become collections points for subsurface water. When these conditions are present, we recommend permanent subdrainage mitigation measures be installed. Such measures may include plug and drains within the utility trenches to collect and convey water to the storm drain system or other approved outlet. Temporary dewatering measures may be necessary and could include the installation of submersible pumps and/or point wells. Our firm should be contacted to provide additional recommendations during the design and construction processes of the subdivision.

4.2 DESIGN RECOMMENDATIONS

Foundations

In our opinion, conventional shallow footings will provide adequate support for the proposed buildings if the subgrades are properly prepared as described in the Site Grading and Improvement section. We offer the following comments and recommendations for purposes of footing design and construction. The provided minimums do not constitute a structural design of foundations which should be performed by the structural engineer. Our firm should be afforded the opportunity to review the project grading and foundation plans to confirm the applicability of the recommendations provided below. Modifications to these recommendations may be made at the time of our review. In addition to the provided recommendations, foundation design and construction should conform to applicable sections of the 2010 California Building Code.

Bearing Capacities: An allowable dead plus live load bearing pressure of 2,000 psf may be used for design of footings based on native soils or engineered fills with 12 inches of embedment. An allowable dead plus live load bearing pressure of 4,000 psf may be used for design of footings based on weathered bedrock. These capacities are based upon minimum foundations depths of 18 inches below lowest adjacent grade. The above allowable pressures are for support of dead plus live loads and may be increased by 1/3 for short-term wind and seismic loads.

A total settlement of less than 1 inch is anticipated; a differential settlement of ½ of the total is anticipated where foundations are bearing on like materials. This settlement is based upon the assumption that foundation loads will be typical of residential wood framed construction with foundations sized in accordance with the provided allowable bearing capacities.

Lateral Pressures: Lateral forces on structures may be resisted by passive pressure acting against the sides of shallow footings and/or friction between the soil and the bottom of the footing. For resistance to lateral loads, a friction factor of 0.40 may be utilized for sliding resistance at the base of spread footings in firm native materials or engineered fill and 0.50 may be utilized for sliding resistance at the base of spread footings in weathered bedrock. A passive resistance of 350 pcf equivalent fluid weight may be used against the side of shallow footings in firm native soil or engineered fill and a passive resistance of 450 pcf equivalent fluid weight may be used against the side of shallow footings in weathered bedrock. If friction and passive pressures are combined, the lesser value should be reduced by 50 percent.

Footing Configuration: Foundation reinforcement should be provided by the structural engineer. The reinforcement schedule should account for typical construction issues such as load consideration, concrete cracking, and the presence of isolated irregularities. At a minimum, we recommend that continuous spread footing foundations be reinforced with two No. 4 reinforcing bars, one located near the bottom of the footing and one near the top of the stem wall.

Where foundations are constructed within a cut-fill transition, soil to rock interface, or over minor surface irregularities (i.e. point load conditions within resistant bedrock), as a consideration to span these localized differential irregularities, we suggest that structural footing reinforcing steel be doubled top and bottom (minimum, four #4 reinforcing bars, two each top and bottom) extending a minimum of 10 feet continuous length on both sides of the transition/irregularity.

All footings should be founded below an imaginary 2H:1V plane projected up from the bottoms of adjacent footings and/or parallel utility trenches, or to a depth that achieves a minimum horizontal clearance of 6 feet from the outside toe of the footings to the slope face, whichever requires a deeper excavation.

Foundations for one and two-story concrete slab-on-grade structures should be a minimum of 12 inches in width, and be founded a minimum of 12 or 18 inches below the lowest adjacent grade, respectively. Isolated pad footings should be a minimum of 24 inches wide. Footings for raised floor foundations and/or multi-story structures may require additional depth and width. Footings on sloping ground with a gradient of 5H:1V or less should be constructed level and imbedded a minimum of 18 inches below the lowest adjacent grade.

Subgrade Conditions: Footings should never be cast atop soft, loose, organic, slough, debris, nor atop subgrades covered by ice or standing water. A representative of our firm should be retained to observe all subgrades during footing excavations and prior to concrete placement so that a determination as to the adequacy of subgrade preparation can be made.

Shallow Footing / Stemwall Backfill: All footing/stemwall backfill soil should be compacted to at least 90 percent of the maximum dry density (based on ASTM D1557).

Seismic Design Criteria

Based on the 2010 California Building Code, Chapter 16, and our previous site investigation findings, the following seismic parameters are recommended from a geotechnical perspective for structural design. The final choice of design parameters, however, remains the purview of the project structural engineer.

Table 4: Seismic Design Criteria

IBC/CBC Chapter 16	Seismic Parameter	Recommended Value
Table No. 1613.5.2	Site Class	C
Figure No. 1613.5(3)*	Short-Period MCE at 0.2s, S_S	0.39g
Figure No. 1613.5(4)*	1.0s Period MCE, S_1	0.19g
Table No. 1613.5.3(1)**	Site Coefficient, F_a	1.20
Table No. 1613.5.3(2)**	Site Coefficient, F_v	1.61
Equation 16-36	Adjusted MCE Spectral Response Parameters, $S_{MS} = F_aS_s$	0.46
Equation 16-37	Adjusted MCE Spectral Response Parameters, $S_{M1} = F_vS_1$	0.31
Equation 16-38	Design Spectral Acceleration Parameters, $S_{DS} = \frac{2}{3}S_{MS}$	0.31
Equation 16-39	Design Spectral Acceleration Parameters, $S_{D1} = \frac{2}{3}S_{M1}$	0.20
Table 1613.5.6(1)	Seismic Design Category (Short Period) Occupancy I to III	B
Table 1613.5.6(1)	Seismic Design Category (Short Period) Occupancy IV	C
Table 1613.5.6(2)	Seismic Design Category (1-Second Period) Occupancy I to III	C
Table 1613.5.6(2)	Seismic Design Category (1-Second Period) Occupancy IV	D

* Values from Figures 1613.5(3)/(4) are derived from the National Earthquake Hazards Reduction Program (NEHRP) for Site Class B soil profiles.

** Values from Tables 1613.3(1)/(2) are adjustments to account for the Site Class (Project Specific) provided in Table 1613.5.2.

Slab-on-Grade Construction

It is our opinion that soil-supported slab-on-grade floors could be used for the main floor, contingent on proper subgrade preparation. Often the geotechnical issues regarding the use of slab-on-grade floors include proper soil support and subgrade preparation, proper transfer of loads through the slab underlayment materials to the subgrade soils, and the anticipated presence or absence of moisture at or above the subgrade level. We offer the following comments and recommendations concerning support of slab-on-grade floors. The slab design (concrete mix, reinforcement, joint spacing, moisture protection and underlayment materials) is the purview of the project Structural Engineer.

<u>Slab Subgrade Preparation</u>: All subgrades proposed to support slab-on-grade floors should be prepared and compacted to the requirements of engineered fill as discussed in the Site Grading and Improvements section of this report.

<u>Slab Underlayment</u>: As a minimum for slab support conditions, the slab should be underlain by a minimum 4 inch crushed rock layer and covered by a moisture retarding plastic membrane. An optional 1 inch blotter sand layer above the plastic membrane is sometimes used to aid in curing of the concrete. If the blotter is omitted, special curing procedures may be necessary. The blotter layer can become a reservoir for excessive moisture if inclement weather occurs prior to pouring the slab, excessive water collects in it from the concrete pour, or an external source of water enters above or bypasses the membrane. The membrane may only be

functional when it is above the vapor sources. The bottom of the crushed rock layer should be above the exterior grade to act as a capillary break and not a reservoir, unless it is provided with an underdrain system. The slab design and underlayment should be in accordance with ASTM E1643 and E1745.

Slab Moisture Protection: Due to the potential for landscape to be present directly adjacent to the slab edge/foundation or for drainage to be altered following our involvement with the project, elevated levels of moisture below, at, or above the pad subgrade level should be anticipated. The slab designer should include the potential for moisture vapor transmission when designing the slab. Our experience has shown that vapor transmission through concrete is controlled through slab thickness as well as proper concrete mix design.

It should be noted that placement of the recommended plastic membrane, proper mix design, and proper slab underlayment and detailing per ASTM E1643 and E1745 will not provide a waterproof condition. If a waterproof condition is desired, we recommend that a waterproofing expert be consulted for slab design.

Slab Thickness and Reinforcement: Geotechnical reports have historically provided minimums for slab thickness and reinforcement for general crack control. The concrete mix design and construction practices can additionally have a large impact on concrete crack control. All concrete should be anticipated to crack. As such, these minimums should not be considered to be stand alone items to address crack control, but are suggested to be considered in the slab design methodology.

In order to help control the growth of cracks in interior concrete from becoming significant, we suggest the following minimums. Interior concrete slabs-on-grade not subject to heavy loads should be a minimum of 4 inches thick. A 4 inch thick slab should be reinforced. A minimum of No. 3 deformed reinforcing bars placed at 30 inches on center both ways, at the center of the structural section is suggested. Joint spacing should be provided by the structural engineer. Troweled joints recovered with paste during finishing or "wet sawn" joints should be considered every 10 feet on center. Expansion joint felt should be provided to separate floating slabs from foundations and at least at every third joint. Cracks will tend to occur at recurrent corners, curved or triangular areas and at points of fixity. Trim bars can be utilized at right angle to the predicted crack extending 40 bar diameters past the predicted crack on each side.

Vertical Deflections: Soil-supported slab-on-grade floors can deflect downward when vertical loads are applied, due to elastic compression of the subgrade. For design of concrete floors, a modulus of subgrade reaction of k = 150 psi per inch would be applicable for native soils and engineered fills.

Exterior Flatwork: Exterior concrete flatwork need not be underlain by a rock cushion where non-expansive soils are encountered. However, some vertical movement of concrete should be anticipated when arranging outside concrete flatwork joints where rock is omitted. Where expansive soils are encountered, a 4 inch rock cushion under concrete flatwork and pre-saturation is recommended.

If exterior flatwork concrete is against the floor slab edge without a moisture separator it may transfer moisture to the floor slab. Expansion joint felt should be provided to separate exterior flatwork from foundations and at least at every third joint. Contraction / groove joints should be provided to a depth of at least 1/4 of the slab thickness and at a spacing of less than 30 times the slab thickness for unreinforced flatwork, dividing the slab into nearly square sections.

Cracks will tend to occur at recurrent corners, curved or triangular areas and at points of fixity. Trim bars can be utilized at right angle to the predicted crack extending 40 bar diameters past the predicted crack on each side.

Retaining Walls
Our design recommendations and comments regarding retaining walls for the project site are discussed below.

Retaining Wall Foundations: For footings founded a minimum of 18 inches into firm native soil or engineered fill, an allowable dead plus live load bearing capacity of 2,500 psf should be used. For footings with a minimum depth of 18 inches into weathered bedrock, an allowable dead plus live load bearing capacity of 2,500 pounds per square foot is considered appropriate. The following allowable pressures may be increased by 1/3 for short term wind or seismic loads.

Resisting Forces: Lateral forces on the retaining walls may be resisted by passive pressure acting against the side of the wall footing and/or friction between the soil and the bottom of the footing. A passive equivalent fluid weight of 350 pcf may be used against the sides of shallow footings founded in firm native soil or engineered fill and a passive equivalent fluid weight of 450 pcf may be used against the sides of shallow footings founded in weathered bedrock. A friction factor of 0.40 may be used at the base of footings founded in firm native soil or engineered fill and a friction factor of 0.50 may be used at the base of footings founded in weathered bedrock. If friction and passive pressures are combined, the lesser value should be reduced by 50 percent. All backfill placed behind retaining walls or against retaining wall footings should be compacted in accordance with the "Engineered Fill" section of this report.

Retaining Wall Lateral Pressures: Based on our observations and testing, the retaining wall should be designed to resist lateral pressure exerted from a soil media having an equivalent fluid weight as follows.

Table 5: Retaining Wall Design Pressures

Wall Type	Wall Slope Configuration	Equivalent Fluid Weight (pcf)	Surcharge Load (psf)*	Lateral Pressure Coefficient	Earthquake Loading (plf)***
Free Cantilever	Flat	35	per structural	0.27	$6H^2$ Applied 0.6H above the base of the wall
	2H:1V	50	per structural	0.39	
Restrained**	Flat	55	per structural	0.43	

* The surcharge loads should be applied as uniform loads over the full height of the walls as follows: Surcharge Load (psf) = (q) (K), where q = surcharge in psf, and K = coefficient of lateral pressure. Final design is the purview of the project structural engineer.

** Restrained conditions shall be defined as walls which are structurally connected to prevent flexible yielding, or rigid wall configurations (i.e. walls with numerous turning points) which prevent the yielding necessary to reduce the driving pressures from an at-rest state to an active state.

*** Section 1802.2.7 of the 2007 California Building Code states that a determination of lateral pressures on basement and retaining walls due to earthquake loading shall be provided for structures to be designed in Seismic Design Categories D, E or F (Load value derived from Wood (1973) and modified by Whitman (1991)).

Wall Drainage: The above criteria are based on fully drained conditions as detailed in the attached Figure C-1. For these conditions, we recommend that a blanket of filter material be placed behind all proposed walls. The blanket of filter material should be a minimum of 12 inches thick and should extend from the bottom of the wall to within 12 inches of the ground surface. The filter material should conform to Class One, Type B permeable material as specified in Section 68 of the California Department of Transportation Standard Specifications, current edition. A clean ⅜ inch angular gravel or ¾ inch crushed rock is also acceptable, provided filter fabric is used to separate the open graded gravel/rock from the surrounding soils. The top 12 inches of wall backfill should consist of a compacted native soil cap. A filter fabric should be placed on top of the gravel filter material to separate it from the native soil cap. A 4 inch diameter drain pipe should be installed near the bottom of the filter blanket with perforations facing down. The drain pipe should be underlain by at least 4 inches of filter-type material. As an alternative to drain pipe, where deemed appropriate, weep holes may be provided. Adequate gradients should be provided to discharge water that collects behind the retaining wall to an controlled discharge system. Prior to placement of the drainage blanket, additional consideration should be given to the use of a waterproofing membrane such as bituthene or equivalent membrane system on the outside of the wall.

Pavement Design

We understand that asphaltic pavements will be used for the associated roadways. The following comments and recommendations are given for pavement design and construction purposes. All pavement construction and materials used should conform to applicable sections of the latest edition of the California Department of Transportation Standard Specifications.

Subgrade Compaction: After installation of any underground facilities, the upper 8 inches of subgrade soils under pavements sections should be compacted to a minimum relative compaction of 95 percent based on the ASTM D1557 test method at a moisture content near or above optimum. Aggregate bases should also be compacted to a minimum relative compaction of 95 percent based on the aforementioned test method. All subgrades and aggregate base should be proof-rolled with a full water truck or equivalent immediately before paving, in order to verify their condition.

Design Criteria: Critical features that govern the durability of a pavement section include the stability of the subgrade; the presence or absence of moisture, free water, and organics; the fines content of the subgrade soils; the traffic volume; and the frequency of use by heavy vehicles. Soil conditions can be defined by a soil resistance value (R-Value) and traffic conditions can be defined by a Traffic Index (TI).

Design Values: Table 6 provides recommended pavement sections based on the R-Value test (ASTM D2844) performed on a bulk sample representative of the silty SAND materials expected to be exposed at subgrade as well as our experience with similar materials in the area. An R-value of 41 was determined for the silty SAND tested. If clay soils are encountered, we should review pavement subgrades to determine the appropriateness of the provided sections, and provide additional pavement design recommendations as field conditions dictate. Even minor clay constituents will greatly reduce the design R-Value. The recommended design thicknesses presented in Table 6 were calculated in accordance with the methods presented in the latest update of the Sixth Edition of the California Department of Transportation Highway Design Manual. A varying range of traffic indices are provided for use by the project Civil Engineer for roadway design.

Design values provided are based upon properly drained subgrade conditions. Although the R-Value design to some degree accounts for wet soil conditions, proper surface and landscape drainage design is integral in performance of adjacent street sections with respect to stability and degradation of the asphalt. Proper drainage design is particularly important for pavements constructed on relatively flat sites with subgrades consisting of finer grained, low permeability materials (i.e. silts and clays) and/or cemented soil horizons.

Table 6. Recommended Pavement Design Thickness

Design Traffic Indices	Alternative Pavement Sections	
	Asphalt Concrete* (Inches)	Aggregate Base** (Inches)
4.5	3.0	4.0
5.0	2.5 3.0	5.0 4.0
5.5	3.0 3.5	5.5 4.5
6.0	3.0 3.5	6.5 5.5
6.5	3.5 4.0	7.0 6.0

* Asphalt Concrete: Must meet specifications for Caltrans Type B Asphalt Concrete
** Aggregate Base: Must meet specifications for Caltrans Class 2 Aggregate Base (R-Value=minimum 78)

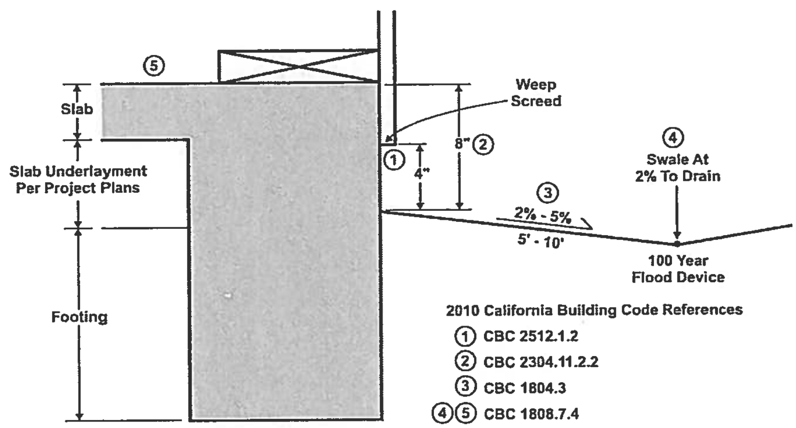
Due to the redistribution of materials that occurs during mass grading operations, we should review pavement subgrades to determine the appropriateness of the provided sections. Deep cut areas may have better support characteristics than those used in determining the above sections.

Drainage Considerations
In order to maintain the engineering strength characteristics of the soil presented for use in this Geotechnical Engineering Study, maintenance of the lots will need to be performed. This maintenance generally includes, but is not limited to, proper drainage and control of surface and subsurface water which could affect structural support and fill integrity. A difficulty exists in determining which areas are prone to the negative impacts resulting from high moisture conditions due to the diverse nature of potential sources of water; some of which are outlined in the paragraph below. We suggest that measures be installed to minimize exposure to the adverse effects of moisture, but this will not guarantee that excessive moisture conditions will not affect the structure.

Some of the diverse sources of moisture could include water from landscape irrigation, annual rainfall, offsite construction activities, runoff from impermeable surfaces, collected and channeled water, and water perched in the subsurface soils on the bedrock and/or present in fractures in the weathered rock horizon. Some of these sources can be controlled through drainage features installed either by the homeowners or homebuilders. Others may not become evident until they, or the effects of the presence of excessive moisture, are visually observed on the property.

Some measures that can be employed to minimize the build up of moisture include, but are not limited to; proper backfill materials and compaction of utility trenches on the lots and within the footprint of the proposed residences to minimize the transmission of moisture through these areas; grout plugs at foundation penetrations; collection and channeling of drained water from impermeable surfaces (i.e. roofs, concrete or asphalt paved areas); installation of subdrain/cut-off drain provisions; utilization of low flow irrigation systems; education to the proposed homeowners of proper design and maintenance of landscaping and drainage facilities that they or their landscaper installs.

All grades should provide rapid removal of surface water runoff; ponding water should not be allowed on building pads or adjacent to foundations or other structural improvements (during and following construction). All soils placed against foundations during finish grading should be compacted to minimize water infiltration. Finish and landscape grading should include positive drainage away from all foundations. Section 1808.7.4 of the 2010 California Building Code (CBC) states that for graded soil sites, the top of any exterior foundation shall extend above the elevation of the street gutter at the point of discharge or the inlet of an approved drainage device a minimum of 12 inches plus 2 percent. If overland flow is not achieved adjacent to buildings, the drainage device should be designed to accept flows from a 100 year event. Grades directly adjacent to foundations should be no closer than 8 inches from the top of the slab (CBC 2304.11.2.2), and weep screeds are to be placed a minimum of 4 inches clear of soil grades and 2 inches clear of concrete or other hard surfacing (CBC 2512.1.2). From this point, surface grades should slope a minimum of 2 percent away from all foundations for at least 5 feet but preferably 10 feet, and then 2 percent along a drainage swale to the outlet (CBC 1804.3). Downspouts should be tight piped via an area drain network and discharged to an appropriate non-erosive outlet away from all foundations.



Typical 2010 California Building Code Drainage Requirements

The above referenced elements pertaining to drainage of the proposed structures is provided as general acknowledgement of the California Building Code requirements, restated and graphically illustrated for ease of understanding. Surface drainage design is the purview of the Project Architect/Civil Engineer. Review of drainage design and implementation adjacent to the building envelopes is recommended as performance of these improvements are crucial to the performance of the foundation and construction of rigid improvements.

In subdivisions built on relatively poor draining soils (i.e. shallow bedrock horizons), prolonged water seepage into pavement sections can result in softening of subgrade soils and subsequent pavement distress. In addition, where shallow bedrock or clayey soil conditions are present, water can become perched on the relatively impermeable soil horizon and eventually inundate utility trench backfill. The variable support condition between native soils and compacted trench backfill materials, coupled with prolonged water exposure can lead to subsidence of trench backfill materials if bridging of trench backfill occurs during placement or natural jetting of soils into voids around pipes occurs. Joint utility trenches are generally more susceptible to the jetting issues due to the quantity of pipe placed in the trench.

It is anticipated that heavy landscape watering could enter and pond within the street aggregate base section as it permeates through the aggregate base under the sidewalks. Prolonged seepage within the pavement section could cause distress to pavements. Some measures that can be employed to minimize the saturation of the subgrade and aggregate base materials include, but are not limited to, construction of cut-off drains or moisture barriers alongside the roadway, adjacent to the curb/roadway interface, and installation of plug and drain systems within utility trenches. Due to the elusive and discontinuous nature of drainage related issues, a risk based approach should be determined by the developer based on consultation and discussions with the design professionals and the amount of protection of facilities that the developer may want to provide against potential moisture related issues.

Post Construction: All drainage related issues may not become known until after construction and landscaping are complete. Therefore, some mitigation measures may be necessary following site development. Landscape watering is typically the largest source of water infiltration into the subgrade. Given the soil conditions on site, excessive or even normal landscape watering may contribute to groundwater levels rising, which could contribute to moisture related problems and/or cause distress to foundations and slabs, pavements, and underground utilities, as well as creating a nuisance where seepage occurs. In order to mitigate these conditions, additional subdrainage measures may be necessary. On foothill subdivisions constructed with cut/fill pads on shallow bedrock conditions, seepage may not be apparent until post construction. In order to mitigate these conditions additional subdrainage measures may be necessary.

5.0 DESIGN REVIEW AND CONSTRUCTION MONITORING

The design plans and specifications should be reviewed and accepted by Youngdahl Consulting Group, Inc., hereinafter described as the Geotechnical Engineer, prior to contract bidding. A review should be performed to determine whether the recommendations contained within this report are still applicable and/or are properly reflected and incorporated into the project plans and specifications.

Construction Monitoring

Construction monitoring is a continuation of the findings and recommendations provided in this report. It is essential that our representative be involved with all grading activities in order for us to provide supplemental recommendations as field conditions dictate. Youngdahl Consulting Group, Inc. should be notified at least two working days before site clearing or grading operations commence, and should observe the stripping of deleterious material overexcavation of existing fills and provide consultation to the Grading Contractor in the field.

Low Impact Development Standards

Low Impact Development or LID standards have become a consideration for many projects in the region. LID standards are intended to address and mitigate urban storm water quality concerns. These methods include the use of Source Controls, Run-off Reduction and Treatment Controls. For the purpose of this report use of Run-off Reduction measures and some Treatment Controls may impact geotechnical recommendations for the project.

Youngdahl Consulting Group, Inc. did not perform any percolation or infiltration testing for the site as part of the Geotechnical Investigation. A review of soil survey and the data collected from test pits indicate that soils within the project are Hydrologic Soil Group D (low permeability). Based on this condition, use of infiltration type LID methods (infiltration trenches, dry wells, infiltration basins, permeable pavements, etc.) should not be considered without addressing applicable geotechnical considerations/implications. As such, use of any LID measure that would require infiltration of discharge water to surfaces adjacent to structures/pavement or include infiltration type measures should be reviewed by Youngdahl Consulting Group, Inc. during the design process.

Post Construction Monitoring
As described in Post Construction section of this report, all drainage related issues may not become known until after construction and landscaping are complete. Youngdahl Consulting Group, Inc. can provide consultation services upon request that relate to proper design and installation of drainage features during and following site development.

6.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. This report has been prepared for the exclusive use of Dixon Ranch Partners, LLC and their clients for specific application to the Dixon Ranch Subdivision project. Youngdahl Consulting Group, Inc. has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Youngdahl Consulting Group, Inc. makes no other warranty, express or implied.

2. As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they be due to natural processes or to the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may cause this report to be invalid, wholly or partially. Therefore, this report should not be relied upon after a period of three years without our review nor should it be used or is it applicable for any properties other than those studied.

3. Section 107.3.4.1 of the International Building Code and the 2010 California Building Code states that, in regard to the design professional in responsible charge, the building official shall be notified in writing by the owner if the registered design professional in responsible charge is changed or is unable to continue to perform the duties.

   WARNING: Do not apply any of this report's conclusions or recommendations if the nature, design, or location of the facilities is changed. If changes are contemplated, Youngdahl Consulting Group, Inc. must review them to assess their impact on this report's applicability. Also note that Youngdahl Consulting Group, Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of this report's subsurface data or engineering analyses without the express written authorization of Youngdahl Consulting Group, Inc.

4. The analyses and recommendations contained in this report are based on limited windows into the subsurface conditions and data obtained from subsurface exploration. The methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. Should any variations or undesirable conditions be encountered during the development of the site, Youngdahl Consulting Group, Inc., will provide supplemental recommendations as dictated by the field conditions.

5. The recommendations included in this report have been based in part on assumptions about strata variations that may be tested only during earthwork. Accordingly, these

recommendations should not be applied in the field unless Youngdahl Consulting Group, Inc. is retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method. Youngdahl Consulting Group, Inc. cannot assume responsibility or liability for the adequacy of its recommendations when they are used in the field without Youngdahl Consulting Group, Inc. being retained to observe construction. Unforeseen subsurface conditions containing soft native soils, loose or previously placed non-engineered fills should be a consideration while preparing for the grading of the property. It should be noted that it is the responsibility of the owner or his/her representative to notify Youngdahl Consulting Group, Inc., in writing, a minimum of 48 hours before any excavations commence at the site.

6. Our experience has shown that vapor transmission through concrete is controlled through proper concrete mix design. As such, proper control of moisture vapor transmission should be considered in the design of the slab as provided by the project architect, structural or civil engineer. It should be noted that placement of the recommended plastic membrane, proper mix design, and proper slab underlayment and detailing per ASTM E1643 and E1745 will not provide a waterproof condition. If a waterproof condition is desired, we recommend that a waterproofing expert be consulted for slab design.

7. Following site development, additional water sources (ie. landscape watering, downspouts) are generally present. The presence of low permeability materials can prohibit rapid dispersion of surface and subsurface water drainage. Utility trenches typically provide a conduit for water distribution. Provisions may be necessary to mitigate adverse effects of perched water conditions. Mitigation measures may include the construction of cut-off systems and/or plug and drain systems. Close coordination between the design professionals regarding drainage and subdrainage conditions may be warranted.

   Seepage may be observed emanating from the cut slopes following their excavation during the following rainy season or following development of the areas above the cut. Generally this seepage is not enough flow to be a stability issue to the cut slope, but may be an issue for the owner of the lot at the base of the cut from a surface drainage and standing water (damp spot) standpoint. This amount of water is generally collected easily with landscaping drainage, surface drainage at the toe of the slope, or subsurface toe drains. Recommendations may be provided at the time of observed seepage; however, we recommend that the developer of the property disclose this possibility to future owners.

Table 7: Checklist of Recommended Services

	Item Description	Recommended	Not Anticipated
1	Provide foundation design parameters	Included	
2	Review grading plans and specifications	✓	
3	Review foundation plans and specifications	✓	
4	Observe and provide recommendations regarding demolition	✓	
5	Observe and provide recommendations regarding site stripping	✓	
6	Observe and provide recommendations on moisture conditioning removal, and/or precompaction of unsuitable existing soils	✓	
7	Observe and provide recommendations on the installation of subdrain facilities	✓	
8	Observe and provide testing services on fill areas and/or imported fill materials	✓	
9	Review as-graded plans and provide additional foundation recommendations, if necessary	✓	
10	Observe and provide compaction tests on storm drains, water lines and utility trenches	✓	
11	Observe foundation excavations and provide supplemental recommendations, if necessary, prior to placing concrete	✓	
12	Observe and provide moisture conditioning recommendations for foundation areas and slab-on-grade areas prior to placing concrete		✓
13	Provide design parameters for retaining walls	Included	
14	Provide finish grading and drainage recommendations	Included	
15	Provide geologic observations and recommendations for keyway excavations and cut slopes during grading	✓	
16	Excavate and recompact all test pits within structural areas	✓	

APPENDIX A: FIELD STUDY

Vicinity Map

Site Plan

Logs of Exploratory Test Pits

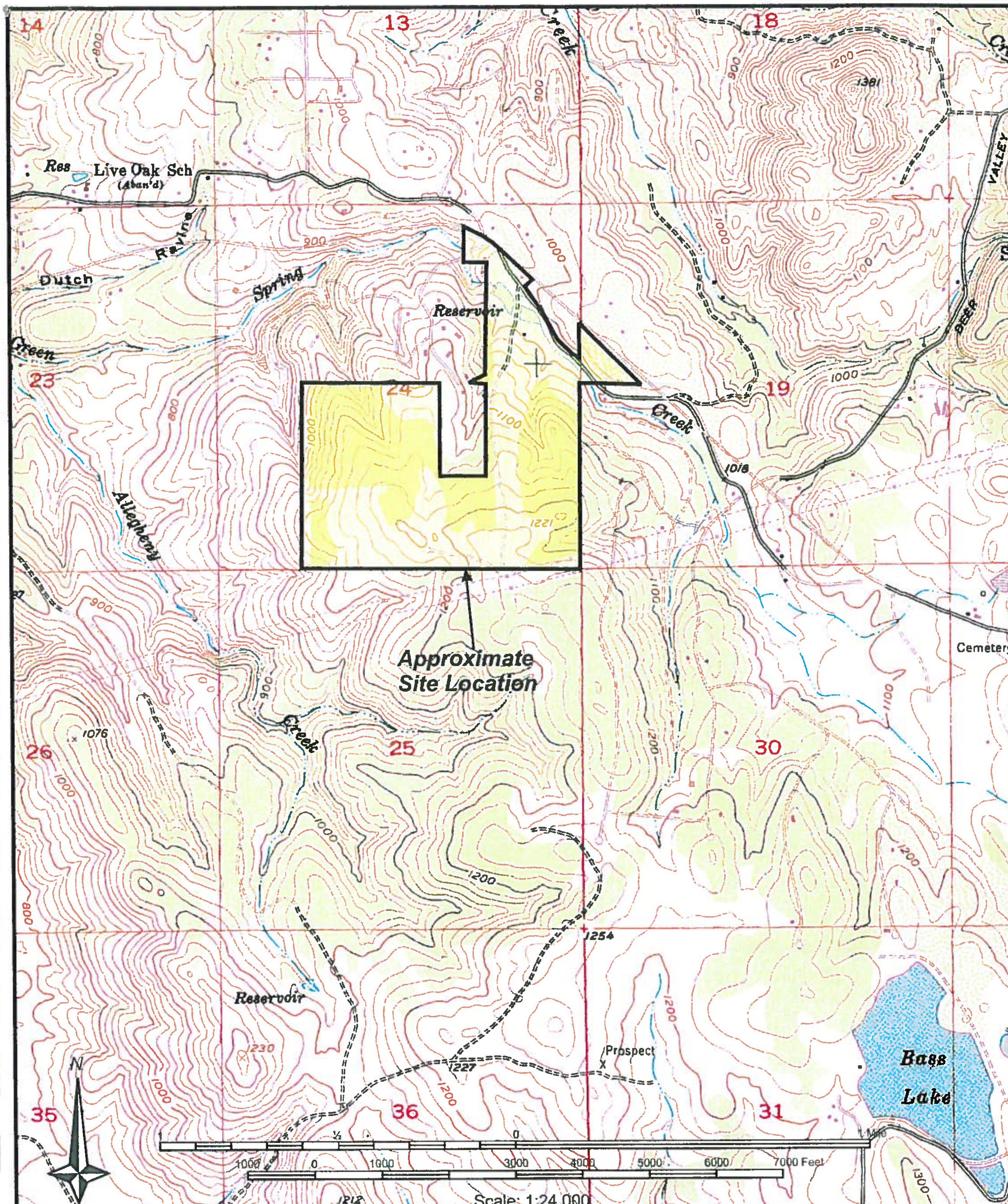
Soil Classification Chart and Log Legend

Introduction
The contents of this appendix shall be integrated with the geotechnical engineering study of which it is a part. They shall not be used in whole or in part as a sole source for information or recommendations regarding the subject site.

Field Study Description
Our field study included a site reconnaissance by a Youngdahl Consulting Group, Inc. representative on 10 March 2011, followed by a subsurface exploration program conducted on 4 April 2011. The subsurface excavation included the excavation of 18 test pits under the direction of our representative at the approximate locations shown on Figure A-2. Excavation of the test pits was accomplished with a CAT 430D rubber tire-mounted backhoe equipped with an 24 inch wide bucket. As the excavation proceeded, bulk and bag samples were collected from the exploratory test pits. Samples for naturally occurring asbestos were also acquired and sealed during the exploration operations.

The Exploratory Test Pit Logs describe the vertical sequence of soils and materials encountered in each test pit, based primarily on our field classifications and supported by our subsequent laboratory examination and testing. Where a soil contact was observed to be gradual, our logs indicate the average contact depth. Our logs also graphically indicate the sample type, sample number and approximate depth of each soil sample obtained from the test pits.

The soils encountered were logged during excavation and provide the basis for the "Logs of Exploratory Test Pits", Figures A-3 through A-20, this Appendix. These logs show a graphic representation of the soil profile, the location and depths at which samples were collected.



BASE MAP REFERENCE: *U.S.G.S. 7.5 Minute Topographic Series, Clarksville Quadrangle, Dated 1953 (Revised 1980)*

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 April 2011	**VICINITY MAP** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-1**

cta Engineering & Surveying

Civil Engineering Land Surveying Land Planning

3233 Monier Circle, Rancho Cordova, CA 95742

T (916) 638 0919 F (916) 638 2479 www.ctaes.net

N

0 350 700 1400

Approximate Scale: 1" = 700'

rea Exhibit, CTA Engineering & Surveying, January 2010

SITE PLAN

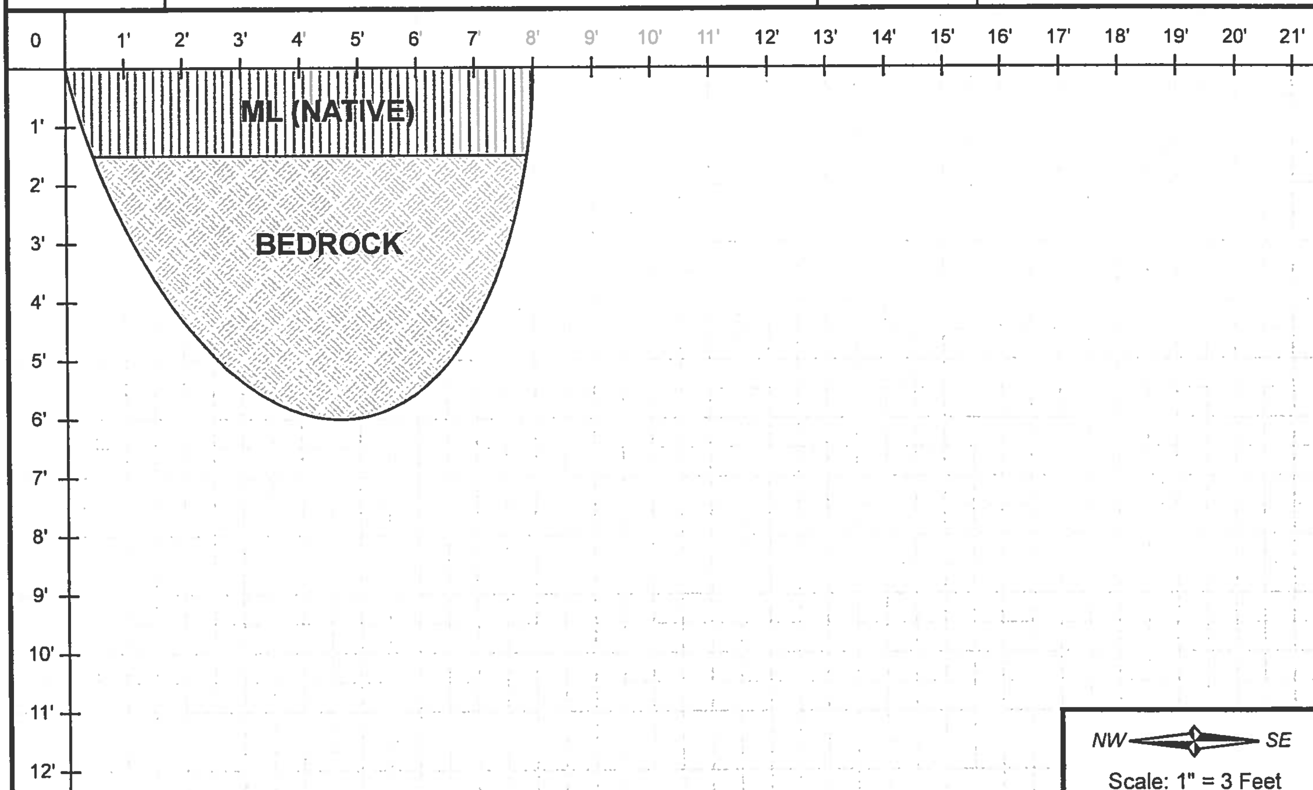
Dixon Ranch

El Dorado Hills, California

FIGURE A-2

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-1**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **NE - SW**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1.5'	Red brown sandy **SILT (ML)**, soft, moist (NATIVE)		*NOA Sample*
@ 1.5' - 6'	Moderately weathered sedimentary **BEDROCK**, closely fractured, defined fractures		
	Test pit terminated at 6' (practical refusal) No free groundwater encountered No caving noted		

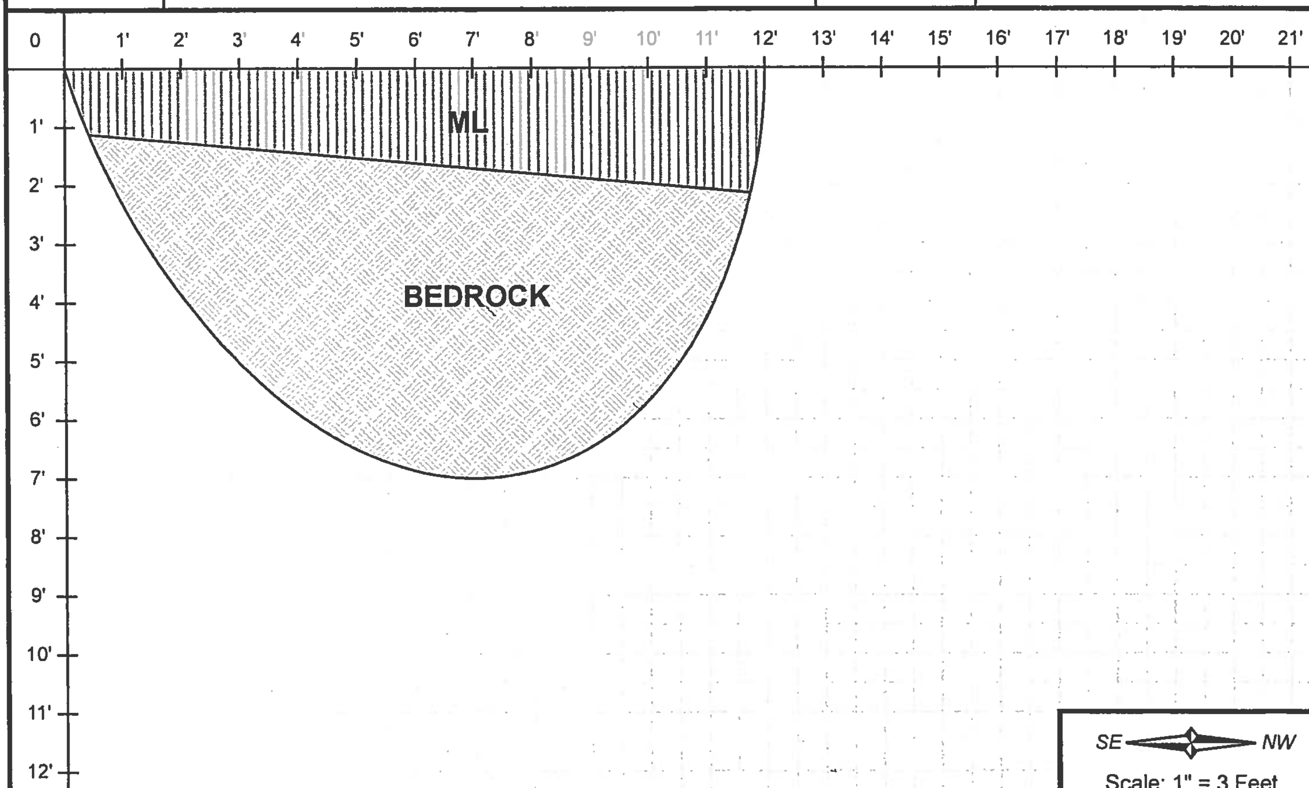


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-3**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-2**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **SE - NW**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown sandy **SILT (ML)**, soft to medium stiff, moist		
@ 2' - 7'	Moderately weathered meta-sedimentary **BEDROCK**		
	Test pit terminated at 7' (practical refusal) No free groundwater encountered No caving noted		

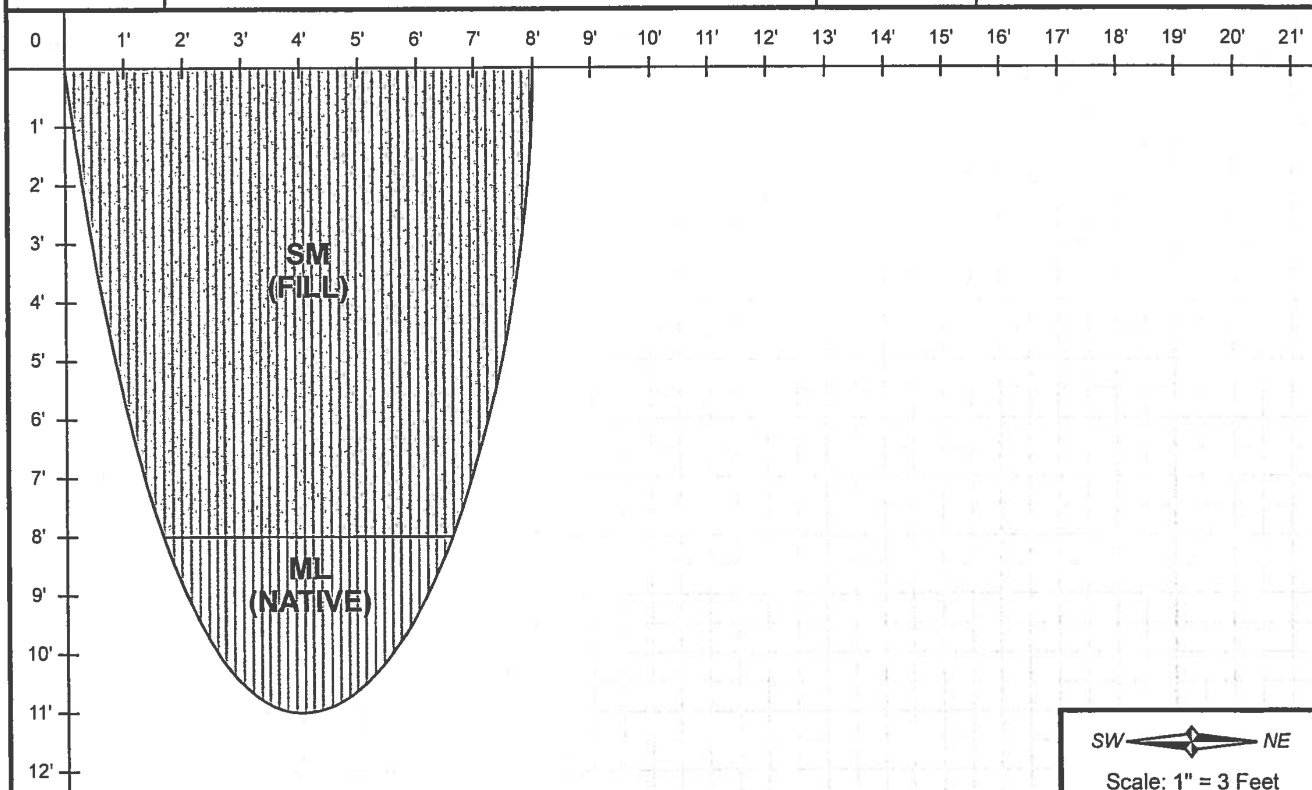


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-4**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No.
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **SW - SE**	**TP-4**

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 8'	Yellow brown and red brown silty **SAND (SM)** with some gravel, loose, moist (FILL)	**BULK 1** @ 0 - 8'	
@ 8' - 10'	Blue gray sandy **SILT (ML)** with few gravel, medium stiff (NATIVE)		
@ 10' - 11'	*Grades rocky*		
	Test pit terminated at 11' No free groundwater encountered No caving noted		

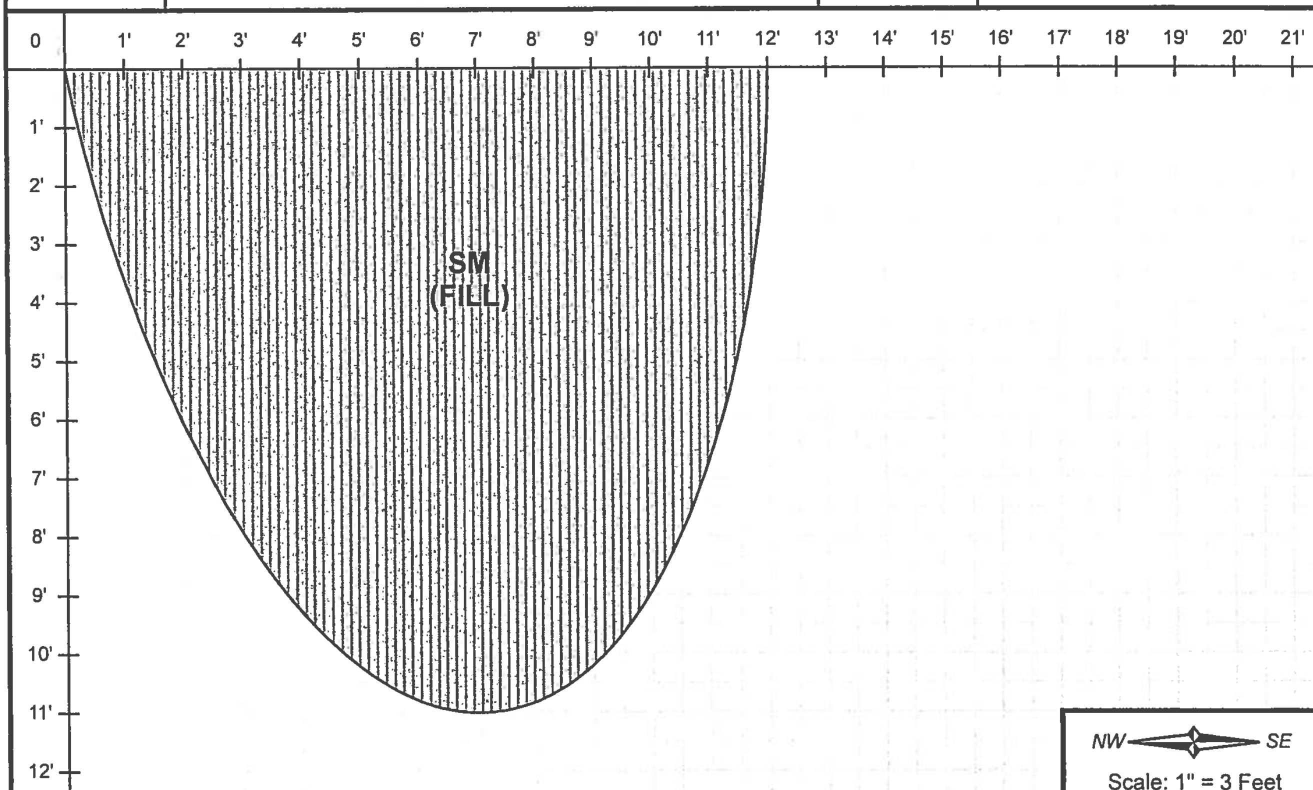


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-5**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No.
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **NE - SW**	**TP-5**

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 4'	Yellow brown silty **SAND (SM)** with some gravel, loose, moist (FILL)		*NOA Sample*
@ 4 - 6'	Yellow brown silty **SAND (SM)** with boulders (up to 36"), loose, moist (FILL)		
@ 6' - 11'	*Grades very loose*		*Contains Construction Debris*
	Test pit terminated at 11' No free groundwater encountered Caving noted at 4'		

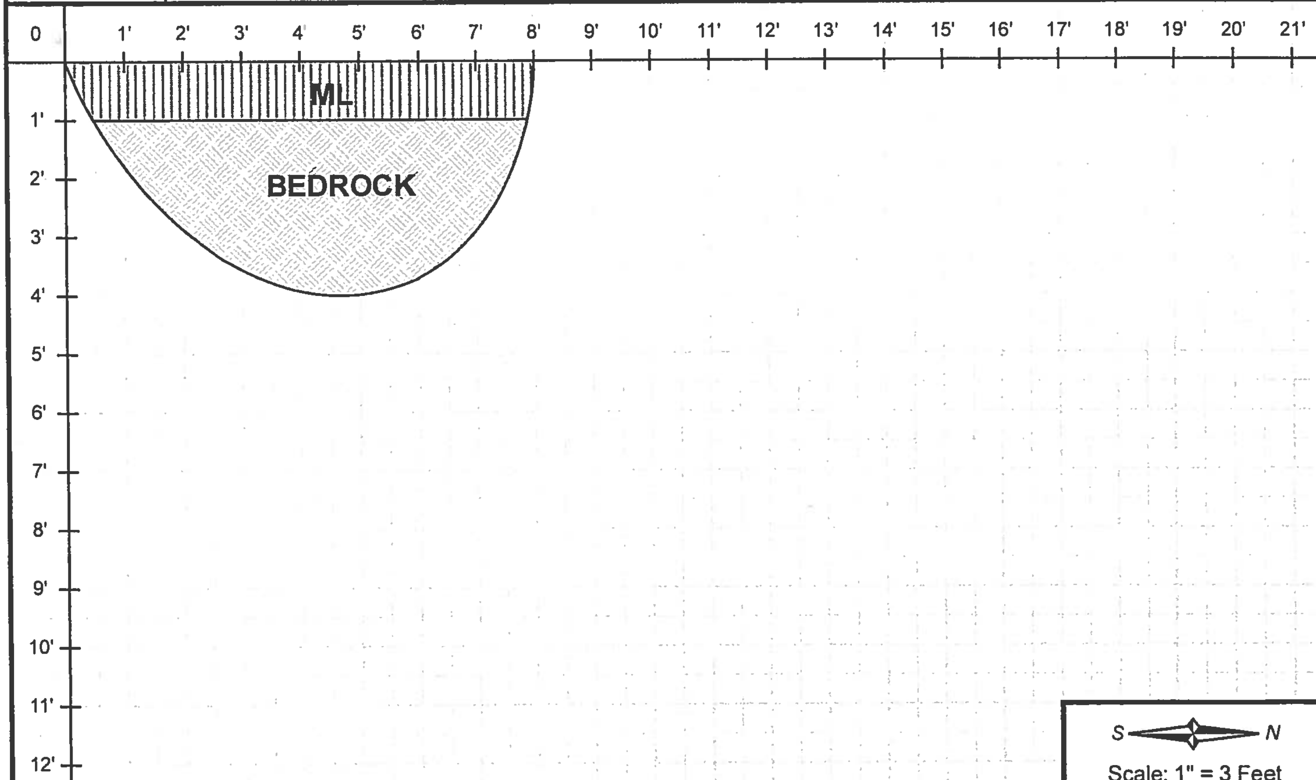


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-6**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-6**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **S - N**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown sandy **SILT (ML)**, soft, very moist		*NOA Sample*
@ 1' - 4'	Moderately weathered meta-sedimentary **BEDROCK**, thinly bedded, closely fractured		
	Test pit terminated at 4' (practical refusal) No free groundwater encountered No caving noted		

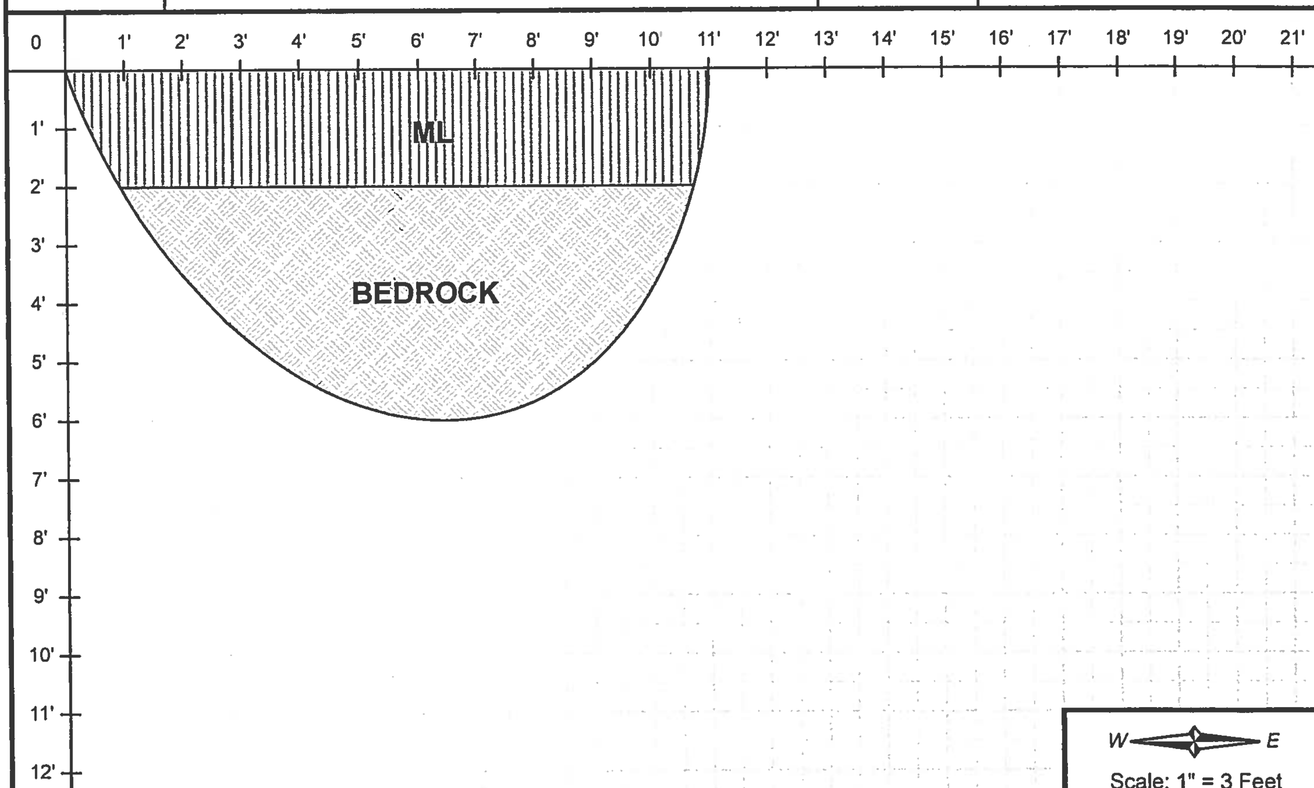


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000	**EXPLORATORY TEST PIT LOG**	**FIGURE**
	April 2011	**Dixon Ranch** El Dorado Hills, California	**A-7**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-7**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **W - E**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown sandy **SILT (ML)**, soft, slightly moist		
@ 2' - 6'	Moderately weathered meta-sedimentary **BEDROCK**, moderately friable, thinly bedded, close to moderate fracture spacing		
	Test pit terminated at 6' (practical refusal) No free groundwater encountered No caving noted		

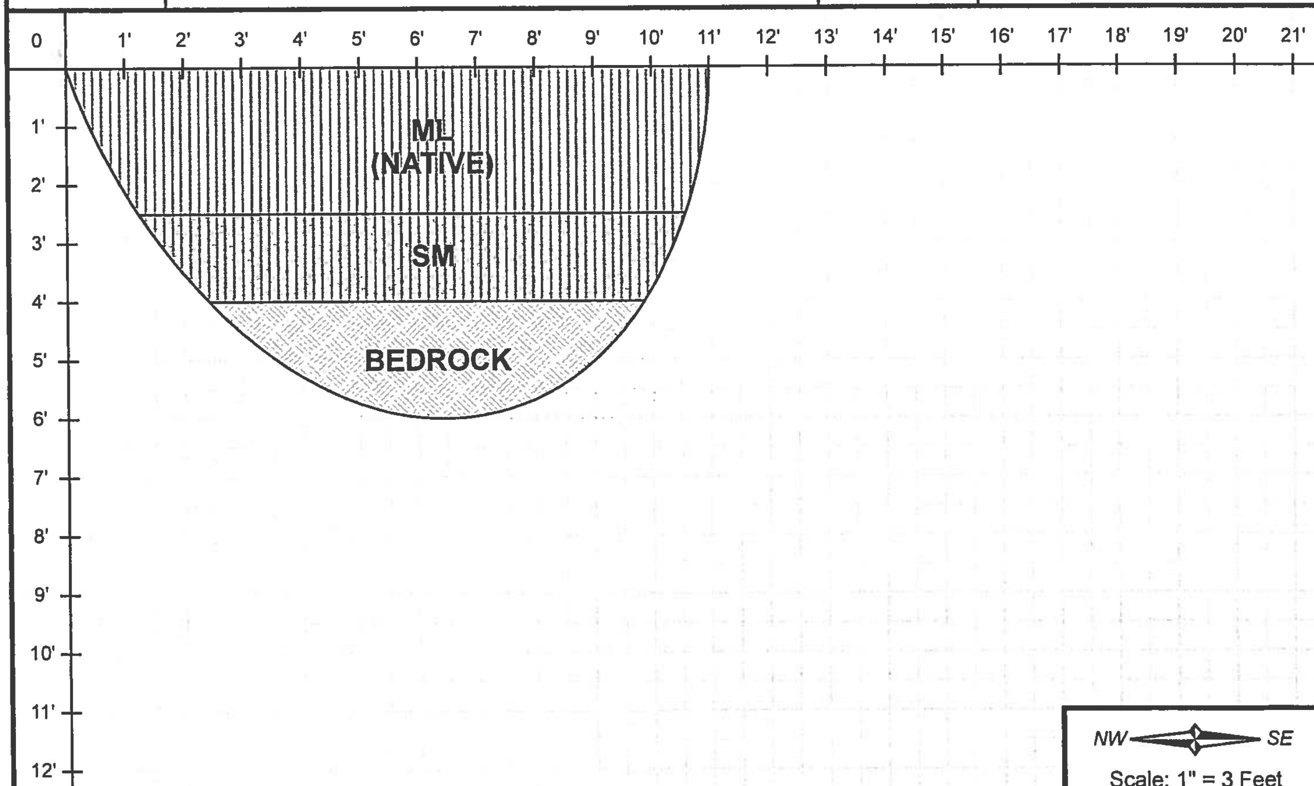


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000	**EXPLORATORY TEST PIT LOG**	**FIGURE**
	April 2011	**Dixon Ranch** El Dorado Hills, California	**A-8**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-8**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **NW - SE**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2.5'	Red brown sandy **SILT (ML)**, medium stiff, moist (NATIVE)	**BULK 2** @ 0 - 3'	
@ 2.5' - 4'	Yellow brown silty **SAND (SM)**, medium dense to dense, moist		
@ 4' - 5.5'	Moderately weathered meta-sedimentary **BEDROCK**, no visible fractures		
@ 5.5' - 6'	*Grades slightly weathered*		
	Test pit terminated at 6' (practical refusal) Slow groundwater seepage encountered at 4' No caving noted		

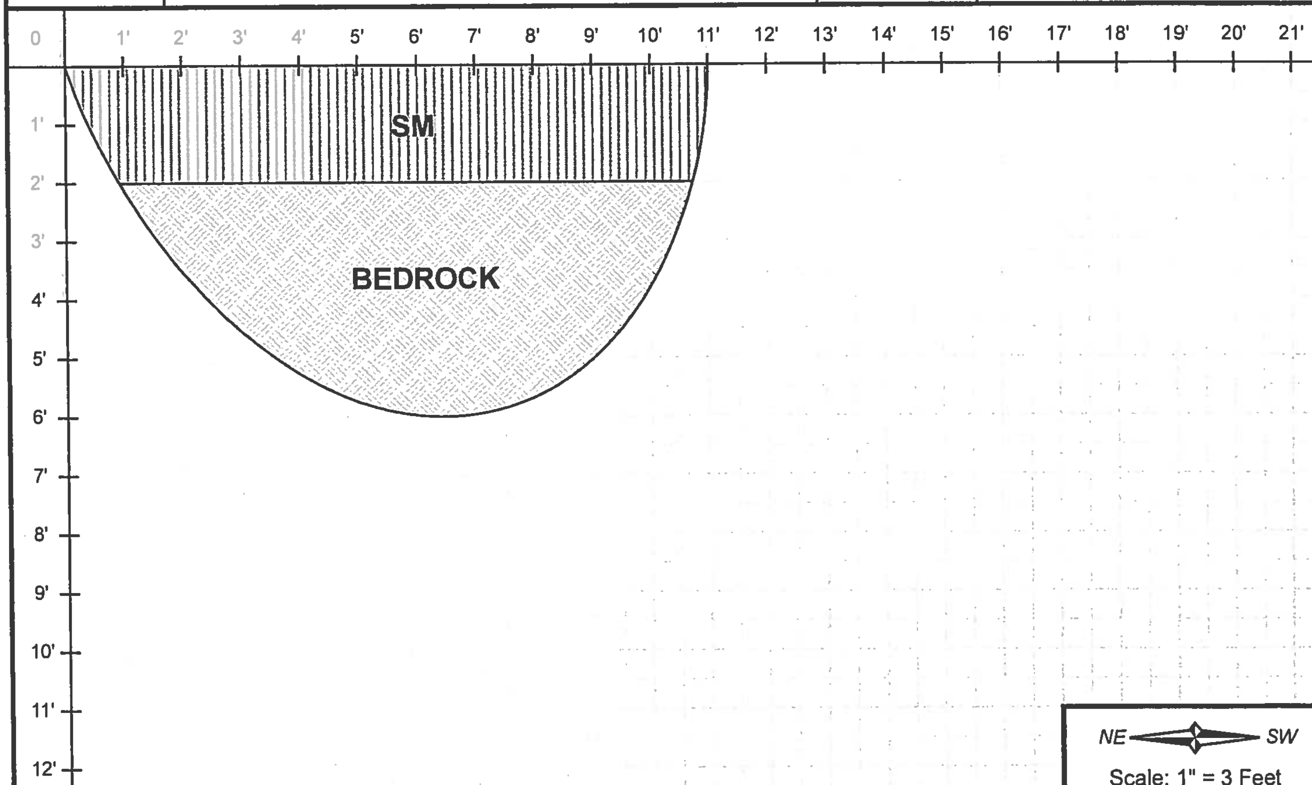


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000	**EXPLORATORY TEST PIT LOG**	**FIGURE**
	April 2011	**Dixon Ranch** El Dorado Hills, California	**A-9**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-9**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **NE - SW**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown silty **SAND (SM)**, loose, moist		
@ 2' - 4'	Blue gray completely weathered meta-sedimentary **BEDROCK**		
@ 4' - 6'	*Grades highly weathered to moderately weathered, friable, no discernible fractures*		
@ 5.5' - 6'	*Grades slightly weathered*		
	Test pit terminated at 6' (practical refusal) No free groundwater encountered No caving noted		

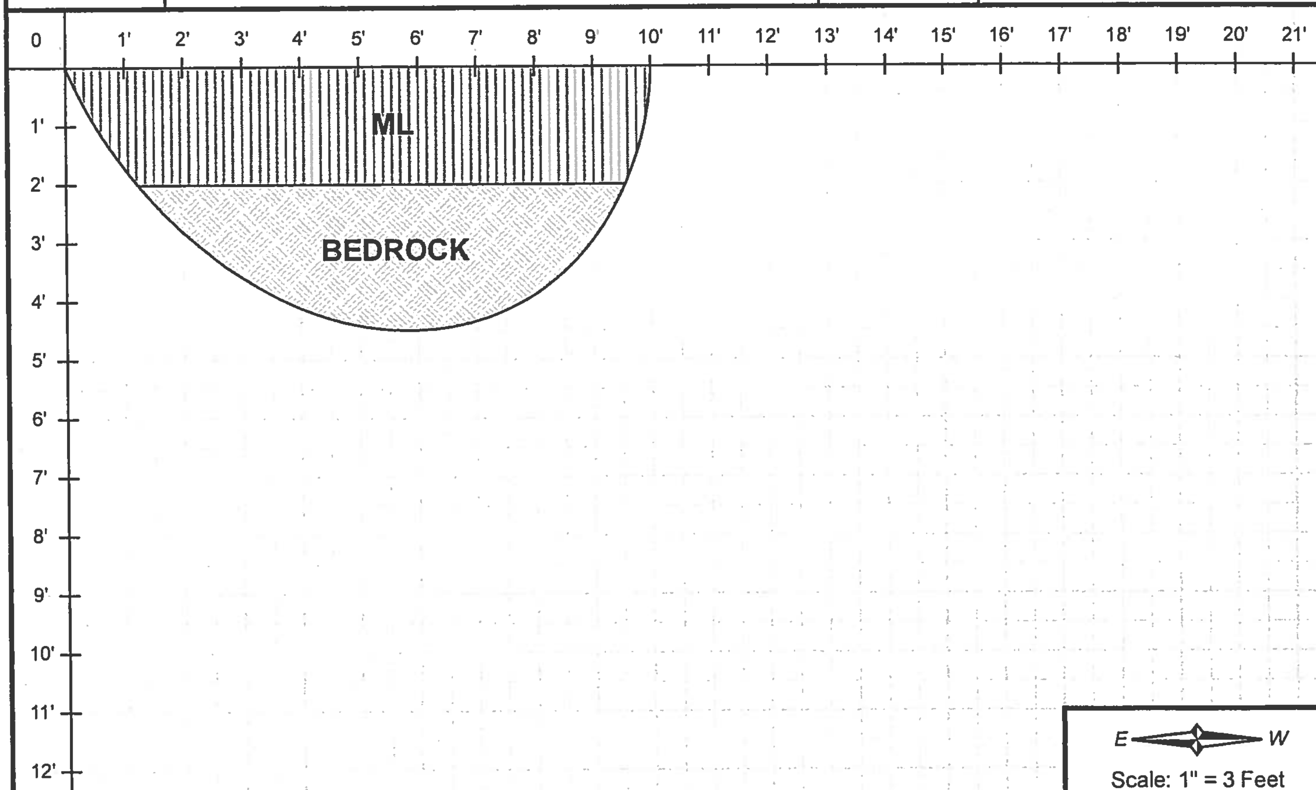


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE A-10**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-10**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **E - W**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown sandy **SILT (ML)**, medium stiff, moist		*NOA Sample*
@ 2' - 4.5'	Red brown moderately weathered meta-sedimentary **BEDROCK**, closely fractured with clay infill and seep		
	Test pit terminated at 4.5' (practical refusal) Seepage encountered at 4' No caving noted		

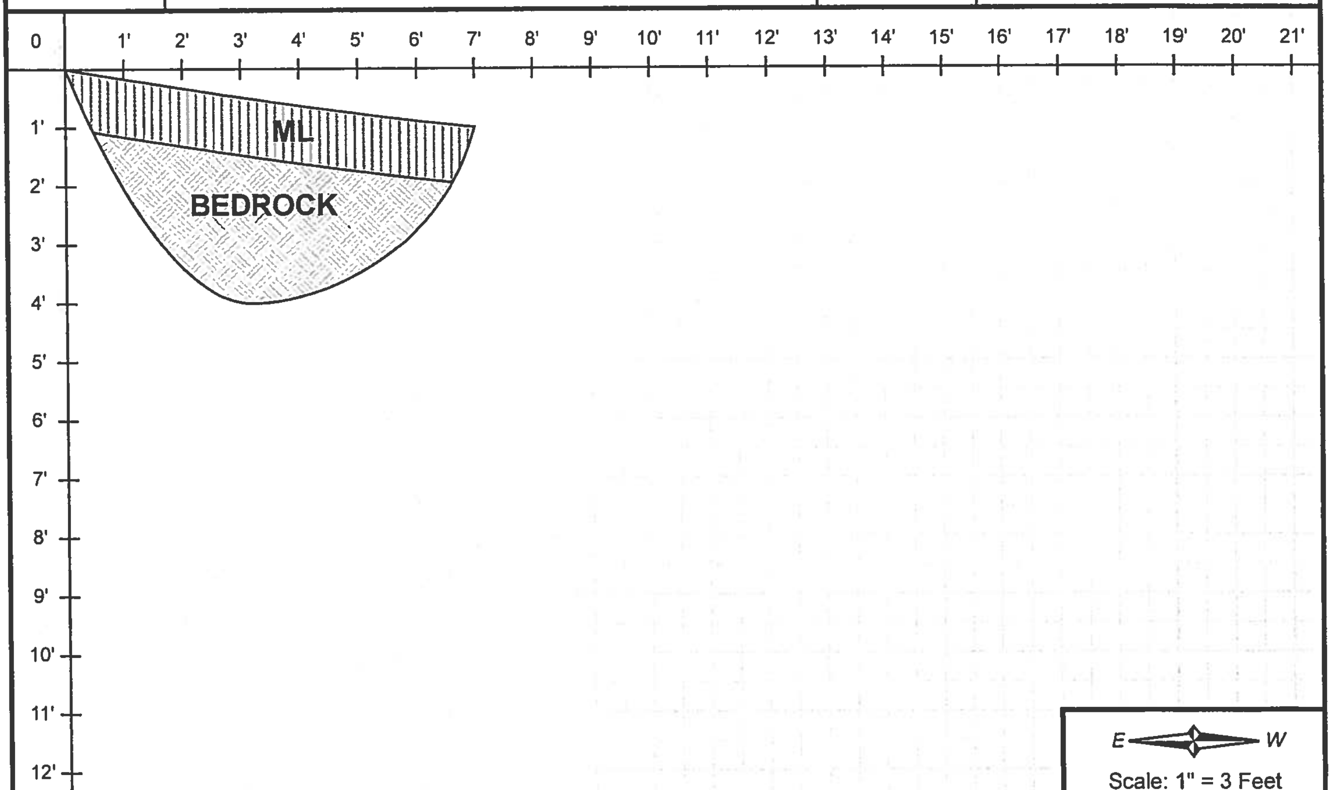


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-11**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-11**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **E - W**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown sandy **SILT (ML)**, soft, very moist		
@ 1' - 4'	Blue gray moderately to slightly weathered meta-sedimentary **BEDROCK**, thinly bedded, moderately spaced fractures (6")	**BULK 5** @ 2' - 4'	
	Test pit terminated at 4' (practical refusal) Seepage encountered at 1' No caving noted		

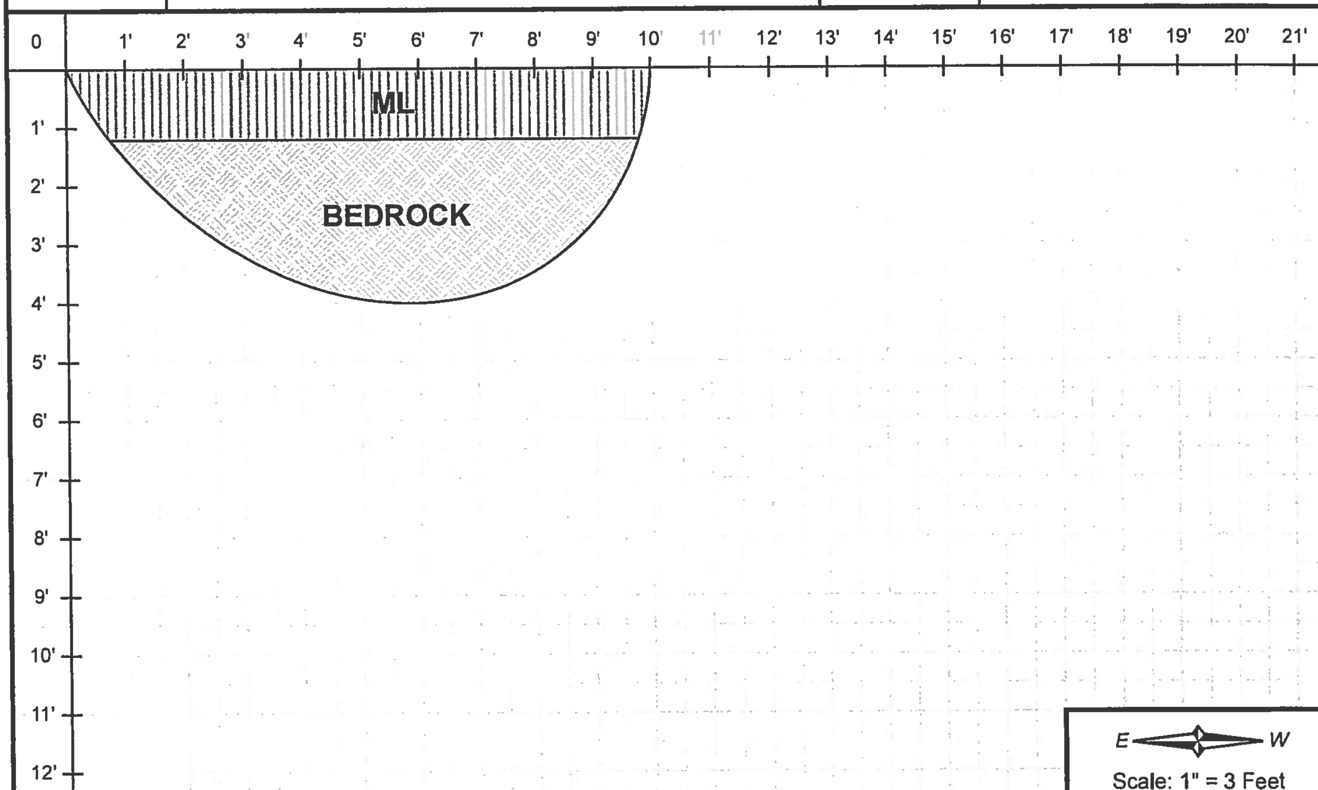


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000	**EXPLORATORY TEST PIT LOG**	**FIGURE**
	April 2011	**Dixon Ranch** El Dorado Hills, California	**A-12**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-12**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **E - W**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown sandy **SILT (ML)**, soft to medium stiff, moist	**BULK 3** @ 0 - 1'	
@ 1' - 4'	Moderately weathered meta-sedimentary **BEDROCK**, closely defined fractures with clay and seep		
@ 4'	*Grades slightly weathered*		
	Test pit terminated at 4' (practical refusal) No free groundwater encountered No caving noted		

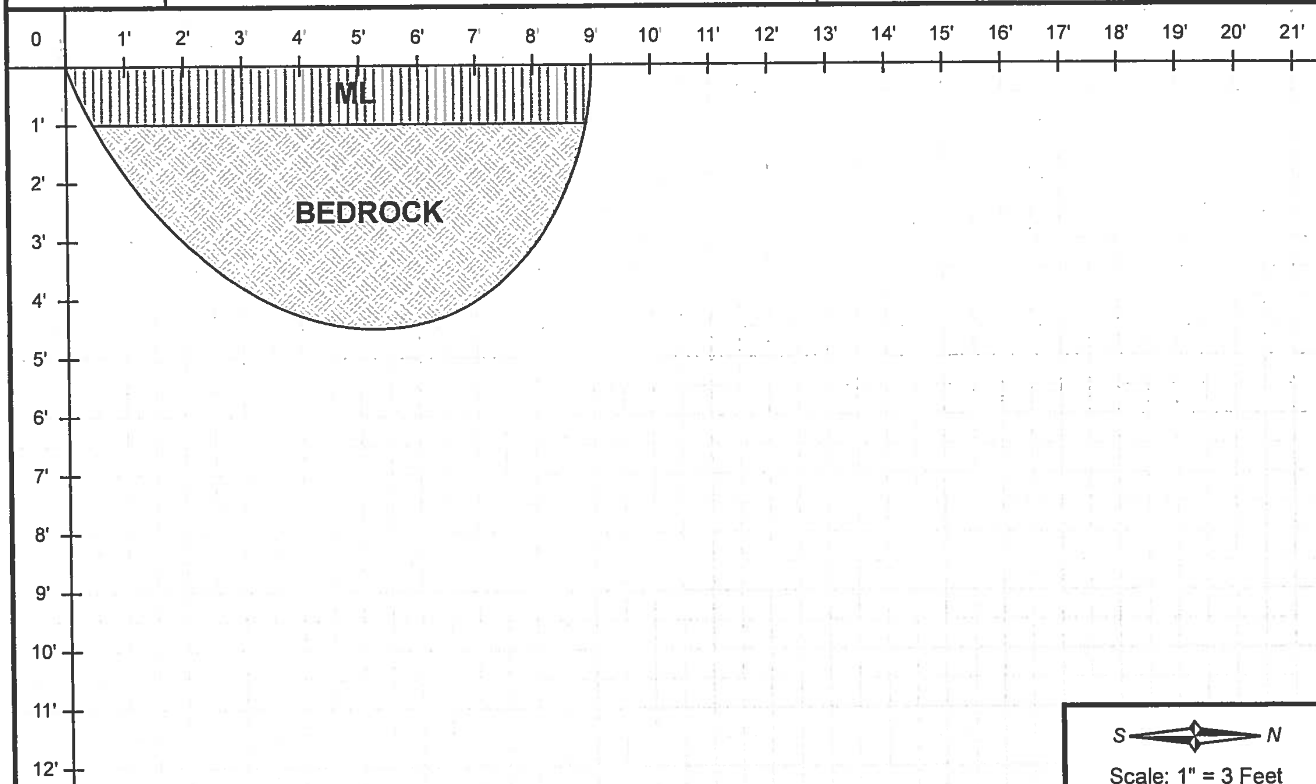


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-13**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-13**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **S - N**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown sandy **SILT (ML)**, soft, very moist		*NOA Sample*
@ 1' - 4.5'	Moderately weathered meta-sedimentary **BEDROCK**, closely bedded (1" - 2"), moderate fracture, clay gouge infill with seep		
	Test pit terminated at 4.5' (practical refusal) Seepage encountered at 2' No caving noted		

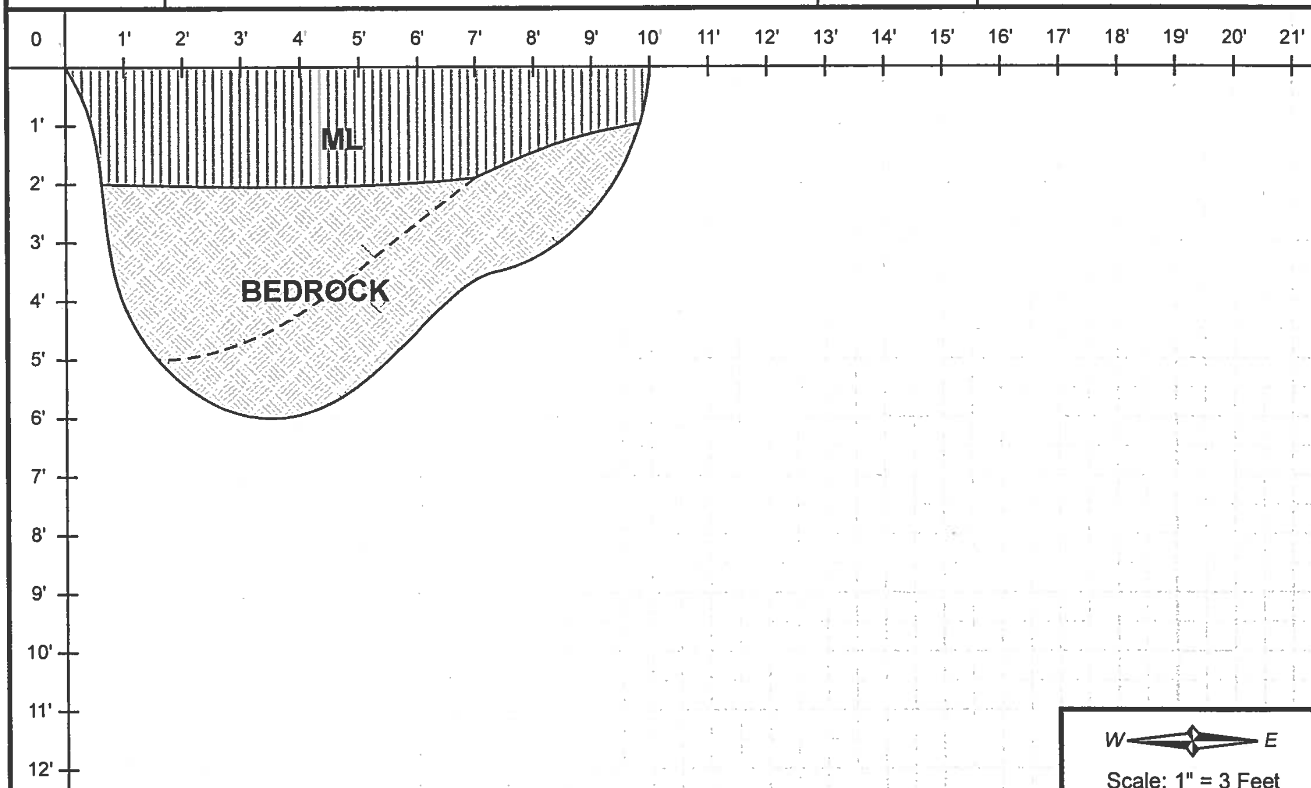


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-14**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-14**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **W - E**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown sandy **SILT (ML)**, soft, very moist to wet		
@ 2' - 5'	Completely to moderately weathered metasedimentary **BEDROCK**		*Poor fracturing in test pit*
@ 5' - 6'	*Grades moderately to slightly weathered*		
	Test pit terminated at 6' (practical refusal) Seepage encountered at 2' No caving noted		

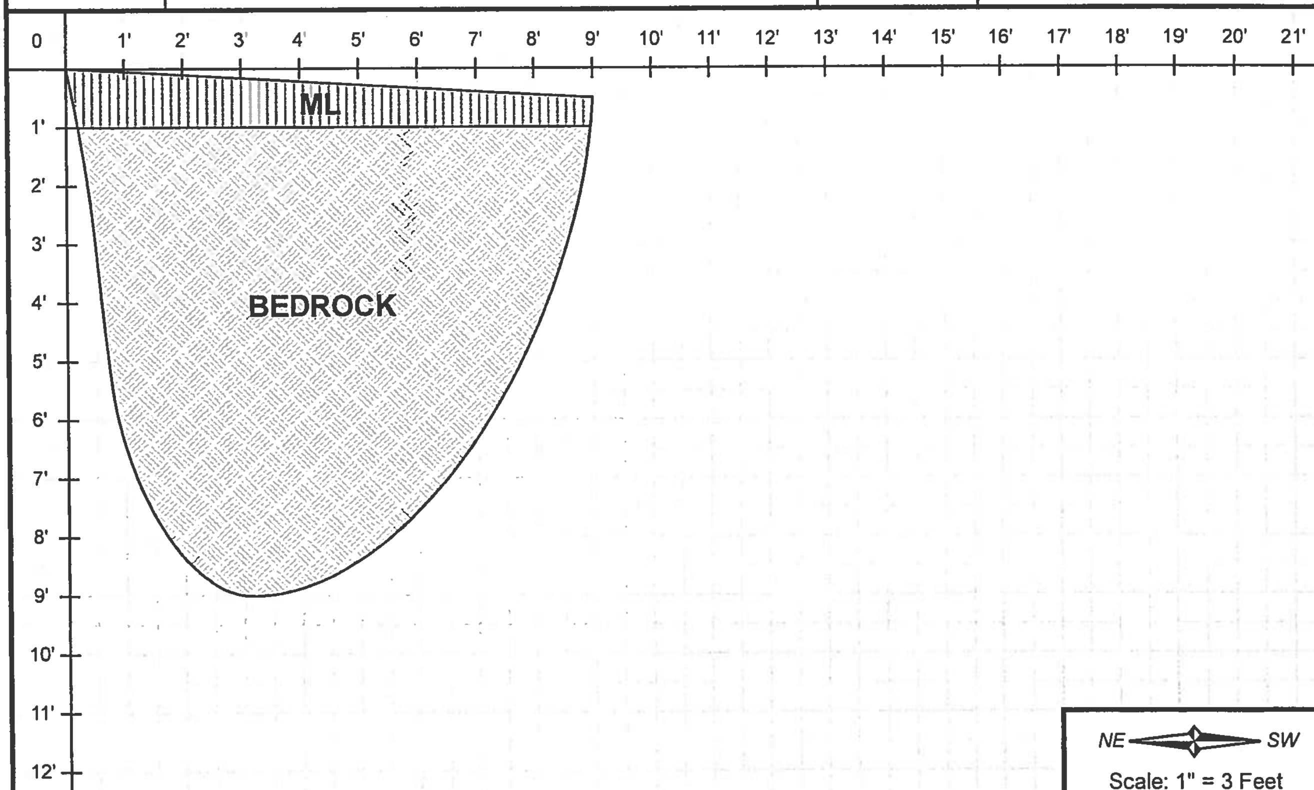


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE A-15**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-15**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **NE - SW**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown sandy **SILT (ML)**, soft, moist to very moist		
@ 1' - 5'	Blue gray completely weathered metasedimentary **BEDROCK**, few identifiable fractures/bedding planes after a "sand" cave in	**BULK 4** @ 2' - 5'	*NOA Sample*
@ 5' - 8'	*Grades highly weathered, friable*		
@ 8' - 9'	*Grades moderately weathered, generally thickly bedded and wide fracture spacing*		
	Test pit terminated at 9' (practical refusal) Seepage encountered at 4' Caving noted at 4'		

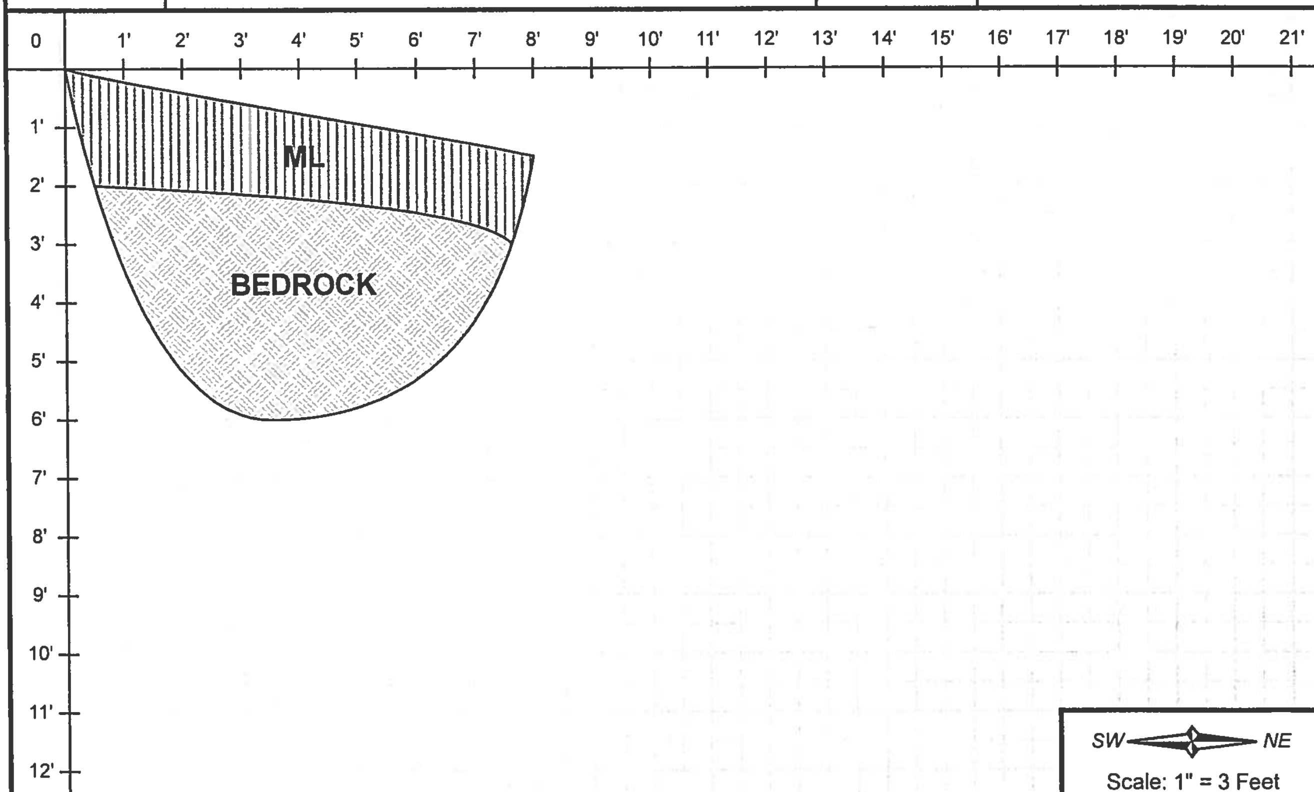


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-16**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-16**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **SW - NE**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown sandy **SILT (ML)**, soft, moist		*NOA Sample*
@ 2' - 4'	Blue gray with yellow mottling highly to moderately weathered metasedimentary **BEDROCK**, closely fractured		
@ 4' - 6'	*Grades moderately weathred*		
	Test pit terminated at 6' (practical refusal) No free groundwater encountered No caving noted		

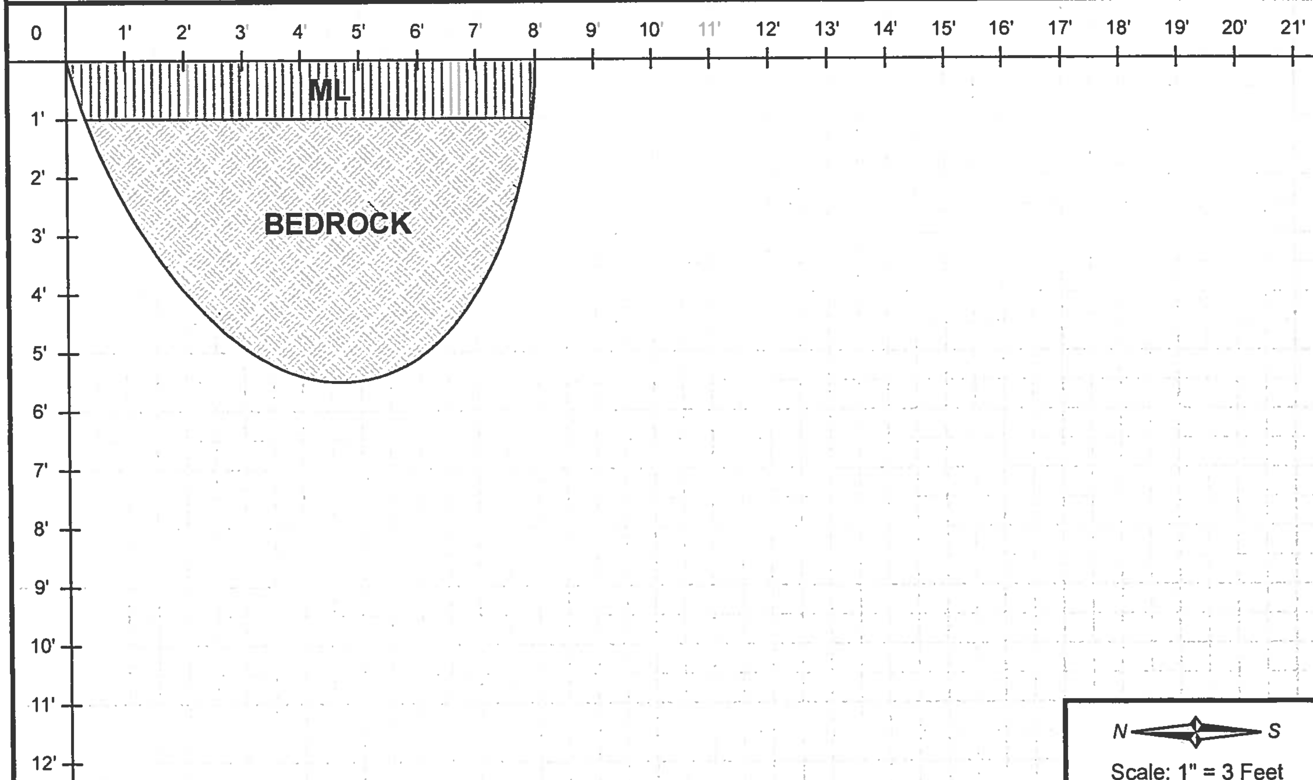


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-17**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-18**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **N - S**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown sandy **SILT (ML)**, soft, moist		
@ 1' - 5'	Moderately weathered metasedimentary **BEDROCK**, closely fractured, thinly bedded, clay gouge infill		*Hand Sample*
@ 5' - 5.5'	*Grades slightly weathered*		
	Test pit terminated at 5.5' (practical refusal) No free groundwater encountered No caving noted		

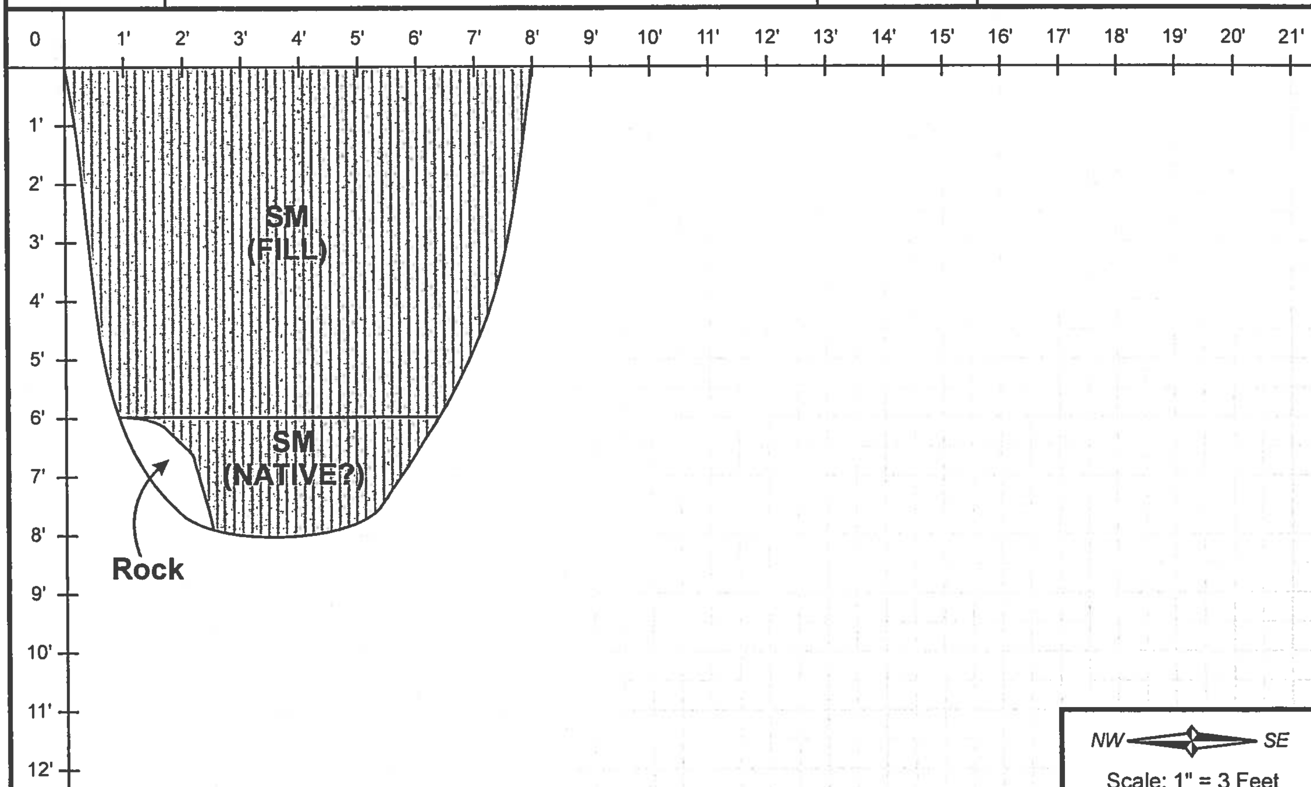


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE A-18**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No. **TP-19**
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **NW - SE**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 4'	Red brown silty **SAND (SM)** with cobble sized rock (mixture), loose, slightly moist (FILL)		
@ 4' - 6'	*Grades with abundant boulders (1' - 2')*		
@ 6' - 8'	Blue gray silty **SAND (SM)** with abundant rock (NATIVE?)		
	Test pit terminated at 8' (practical refusal on boulder) Seepage encountered at 4' No caving noted		

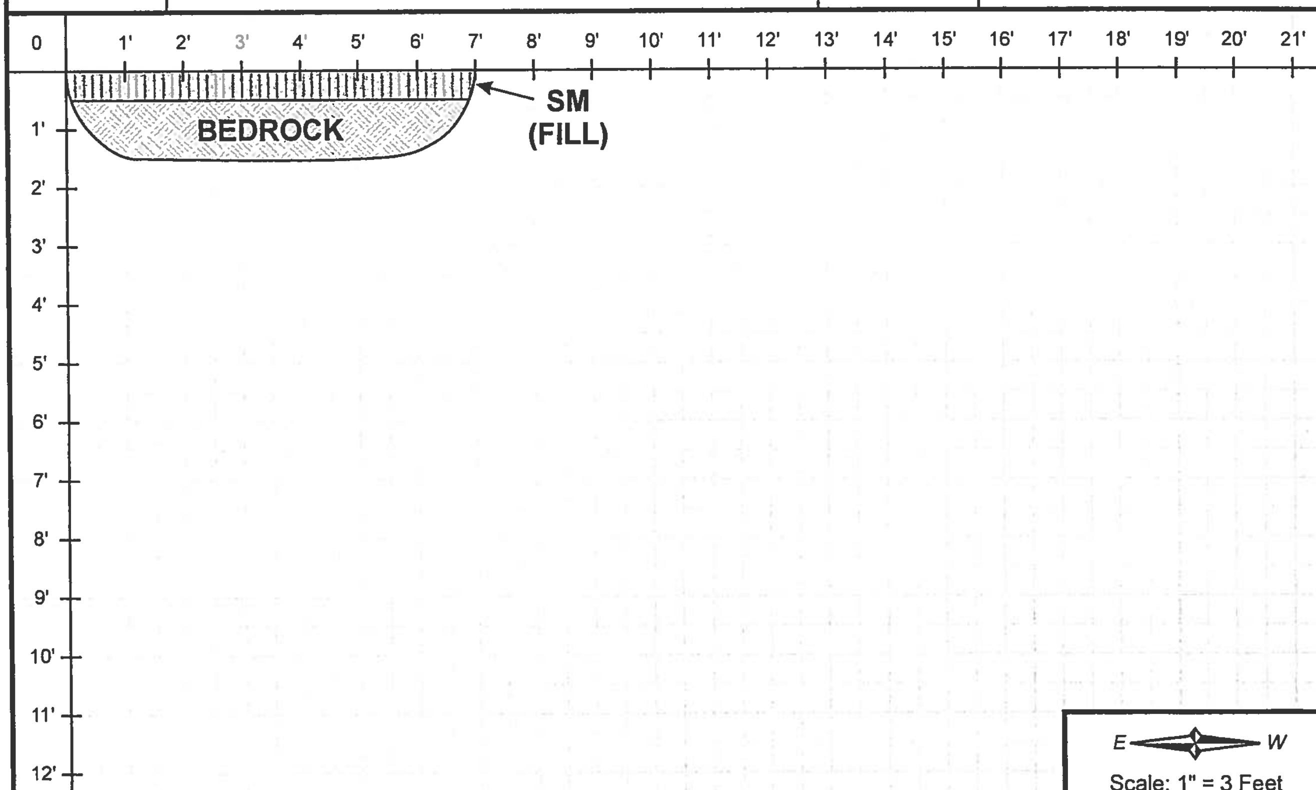


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-19**

Logged By: **MJG**	Date: **4 April 2011**	Elevation:	Pit No.
Equipment: **CAT 430 D With 24" Bucket**		Pit Orientation: **E - W**	**TP-20**

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 0.5'	Yellow brown silty **SAND (SM)**, loose, slightly moist (FILL)		
@ 0.5' - 1.5'	Moderately to slightly weathered **BEDROCK**		
	Test pit terminated at 1.5' (practical refusal on hard rock) No free groundwater encountered No caving noted		



Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

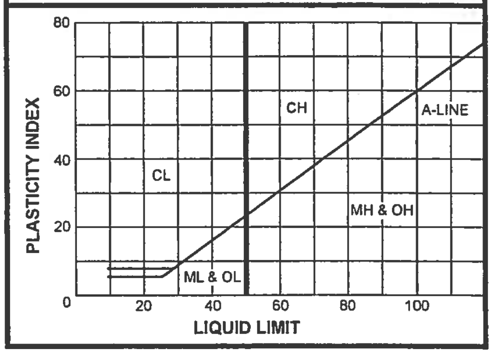
YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 **April 2011**	**EXPLORATORY TEST PIT LOG** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-20**

UNIFIED SOIL CLASSIFICATION SYSTEMS

MAJOR DIVISION			SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS Over 50% > #200 sieve	GRAVELS Over 50% > #4 sieve	Clean **GRAVELS** With Little Or No Fines	GW	Well graded **GRAVELS**, **GRAVEL-SAND** mixtures
			GP	Poorly graded **GRAVELS**, **GRAVEL-SAND** mixtures
		GRAVELS With Over 12% Fines	GM	Silty **GRAVELS**, poorly graded **GRAVEL-SAND-SILT** mixtures
			GC	Clayey **GRAVELS**, poorly graded **GRAVEL-SAND-CLAY** mixtures
	SANDS Over 50% < #4 sieve	Clean **SANDS** With Little Or No Fines	SW	Well graded **SANDS**, gravelly **SANDS**
			SP	Poorly graded **SANDS**, gravelly **SANDS**
		SANDS With Over 12% Fines	SM	Silty **SANDS**, poorly graded **SAND-SILT** mixtures
			SC	Clayey **SANDS**, poorly graded **SAND-CLAY** mixtures
FINE GRAINED SOILS Over 50% < #200 sieve	SILTS & CLAYS Liquid Limit < 50		ML	Inorganic **SILTS**, silty or clayey fine **SANDS**, or clayey **SILTS** with plasticity
			CL	Inorganic **CLAYS** of low to medium plasticity, gravelly, sandy, or silty **CLAYS**, lean **CLAYS**
			OL	Organic **CLAYS** and organic silty **CLAYS** of low plasticity
	SILTS & CLAYS Liquid Limit > 50		MH	Inorganic **SILTS**, micaceous or diamacious fine sandy or silty soils, elastic **SILTS**
			CH	Inorganic **CLAYS** of high plasticity, fat **CLAYS**
			OH	Organic **CLAYS** of medium to high plasticity, organic **SILTS**
HIGHLY ORGANIC CLAYS			PT	PEAT & other highly organic soils

PLASTICITY CHART

USED FOR CLASSIFICATION OF FINE GRAINED SOILS



SAMPLE DRIVING RECORD

BLOWS PER FOOT	DESCRIPTION
25	25 Blows drove sampler 12 inches, after initial 6 inches of seating
50/7"	50 Blows drove sampler 7 inches, after initial 6 inches of seating
50/3"	50 Blows drove sampler 3 inches during or after initial 6 inches of seating

Note: To avoid damage to sampling tools, driving is limited to 50 blows per 6 inches during or after seating interval.

SOIL GRAIN SIZE

U.S. STANDARD SIEVE	6"		3"	¾"	4	10	40	200	
SOIL	BOULDER	COBBLE	GRAVEL COARSE	GRAVEL FINE	SAND COARSE	SAND MEDIUM	SAND FINE	SILT	CLAY
GRAIN SIZE IN MILLIMETERS	150		75	19	4.75	2.0	.425	0.075	0.002

KEY TO PIT & BORING SYMBOLS

- Standard Penetration test
- 2.5" O.D. Modified California Sampler
- 3" O.D. Modified California Sampler
- Shelby Tube Sampler
- 2.5" Hand Driven Liner
- Bulk Sample
- Water Level At Time Of Drilling
- Water Level After Time Of Drilling
- P Perched Water

KEY TO PIT & BORING SYMBOLS

	Joint
	Foliation
	Water Seepage
NFWE	No Free Water Encountered
FWE	Free Water Encountered
REF	Sampling Refusal
DD	Dry Density (pcf)
MC	Moisture Content (%)
LL	Liquid Limit
PI	Plasticity Index
PP	Pocket Penetrometer
UCC	Unconfined Compression (ASTM D2166)
TVS	Pocket Torvane Shear
EI	Expansion Index (ASTM D4829)
Su	Undrained Shear Strength

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.000 April 2011	**SOIL CLASSIFICATION CHART AND LOG EXPLANATION** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **A-21**

APPENDIX B: LABORATORY TESTING

Modified Proctor Test

Direct Shear Test

Expansion Index Test

Resistance Value Test

Corrosivity Test

Introduction
Our laboratory testing program for this evaluation included numerous visual classifications, a modified Proctor, a direct shear, an expansion index, resistance value, and corrosivity tests. The following paragraphs describe our procedures associated with each type of test. Graphical results of certain laboratory tests are enclosed in this appendix. The contents of this appendix shall be integrated with the geotechnical engineering study of which it is a part. They shall not be used in whole or in part as a sole source for information or recommendations regarding the subject site.

Laboratory Testing Description
Visual Classification Procedures: Visual soil classifications were conducted on all samples in the field and on selected samples in our laboratory. All soils were classified in general accordance with the Unified Soil Classification System, which includes color, relative moisture content, primary soil type (based on grain size), and any accessory soil types. The resulting soil classifications are presented on the exploration logs in Appendix A.

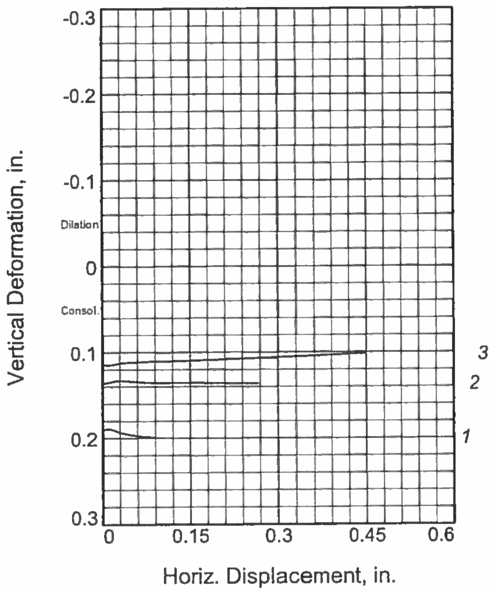
Soil Strength Determination Test: The strength parameters of the foundation soils were based on direct shear tests (ASTM D3080) performed on a representative remolded sample of the near-surface soils. The results of these tests are presented on Figure B-1.

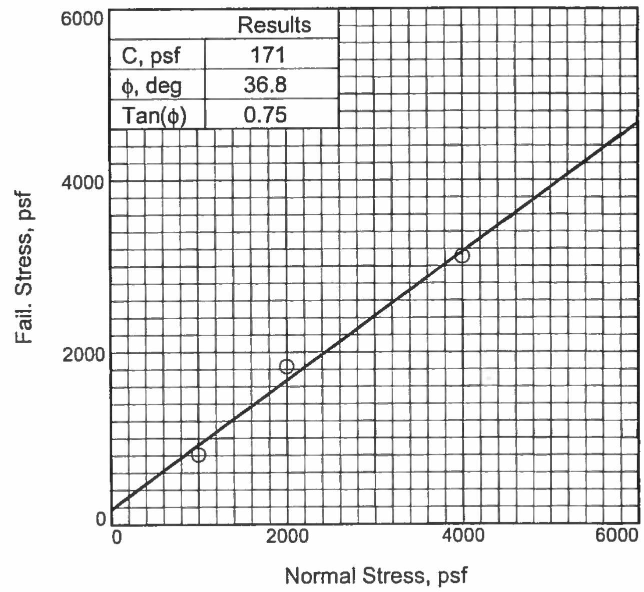
Modified Proctor Test: A modified Proctor Test (ASTM D1557) was conducted to provide the optimum moisture and maximum dry density of the near surface material. The results of this test are presented on Figure B-2.

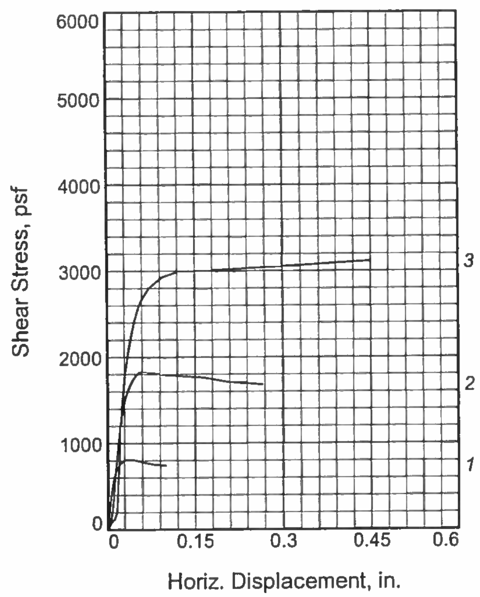
Expansion Index Determination Test: An expansion index test (ASTM 4829) provides an index to the expansion potential of compacted soils. The result from this test is presented on Figure B-3.

Resistance Value Determination Test: Resistance value tests (ASTM D2844) were performed to obtain asphalt concrete pavement design parameters. The results of this test are presented on Figure B-4.

Corrosivity Test: A corrosivity test typically comprises individual measurements of pH, electrical resistivity, sulfate content, and chloride content, which together indicate the corrosiveness of a soil. Corrosivity tests were performed on selected samples by an independent analytical laboratory working under subcontract to Youngdahl Consulting Group, Inc. The results of these tests are presented in the Corrosivity Testing subsection of the Findings Section of this report and the analytical certificate provided to our firm are enclosed as an attachment to this appendix.







	Sample No.	1	2	3
Initial	Water Content, %	13.5	13.5	13.5
	Dry Density, pcf	109.4	109.4	109.4
	Saturation, %	68.1	68.1	68.1
	Void Ratio	0.5297	0.5297	0.5297
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	13.7	17.9	17.4
	Dry Density, pcf	122.5	113.1	114.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.3661	0.4790	0.4652
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.893	0.967	0.958
	Normal Stress, psf	1000	2000	4000
	Fail. Stress, psf	811	1834	3112
	Displacement, in.	0.044	0.065	0.446
	Ult. Stress, psf			
	Displacement, in.			
	Strain rate, %/min.	0.0025	0.0025	0.0025

Sample Type: Remolded
Description: Red Brown SILT w/ gravel

Specific Gravity= 2.68
Remarks: Remolded to 90% of 121.5

Figure B-1

Client:

Project: Dixon Ranch

Source of Sample: Native
Sample Number: BK 3
Proj. No.: E11047.000 **Date Sampled:**

DIRECT SHEAR TEST REPORT

YOUNGDAHL CONSULTING GROUP, INC.

Tested By: BLM **Checked By:** BLM

EXPANSION INDEX TEST (ASTM 4829)

SAMPLE NO. **BK 2** DEPTH:

SAMPLE DESCRIPTION: Red Brown Sandy SILT

REMARKS:

SAMPLE DATA:

	Initial	Final
Dry Density (pcf)	111.3	107.4
Moisture Content (%)	7.9%	21.1%

Maximum Dry Density (pcf)	NA *
Optimum Moisture (%)	NA *

*Based on ASTM 1557

Tested Expansion Index	**0**
Expansion Potential	**VERY LOW**

Expansion Index	Expansion Potential
0 - 20	Very Low
21 - 50	Low
51 - 90	Moderate
91 - 130	High
Over 130	Very High

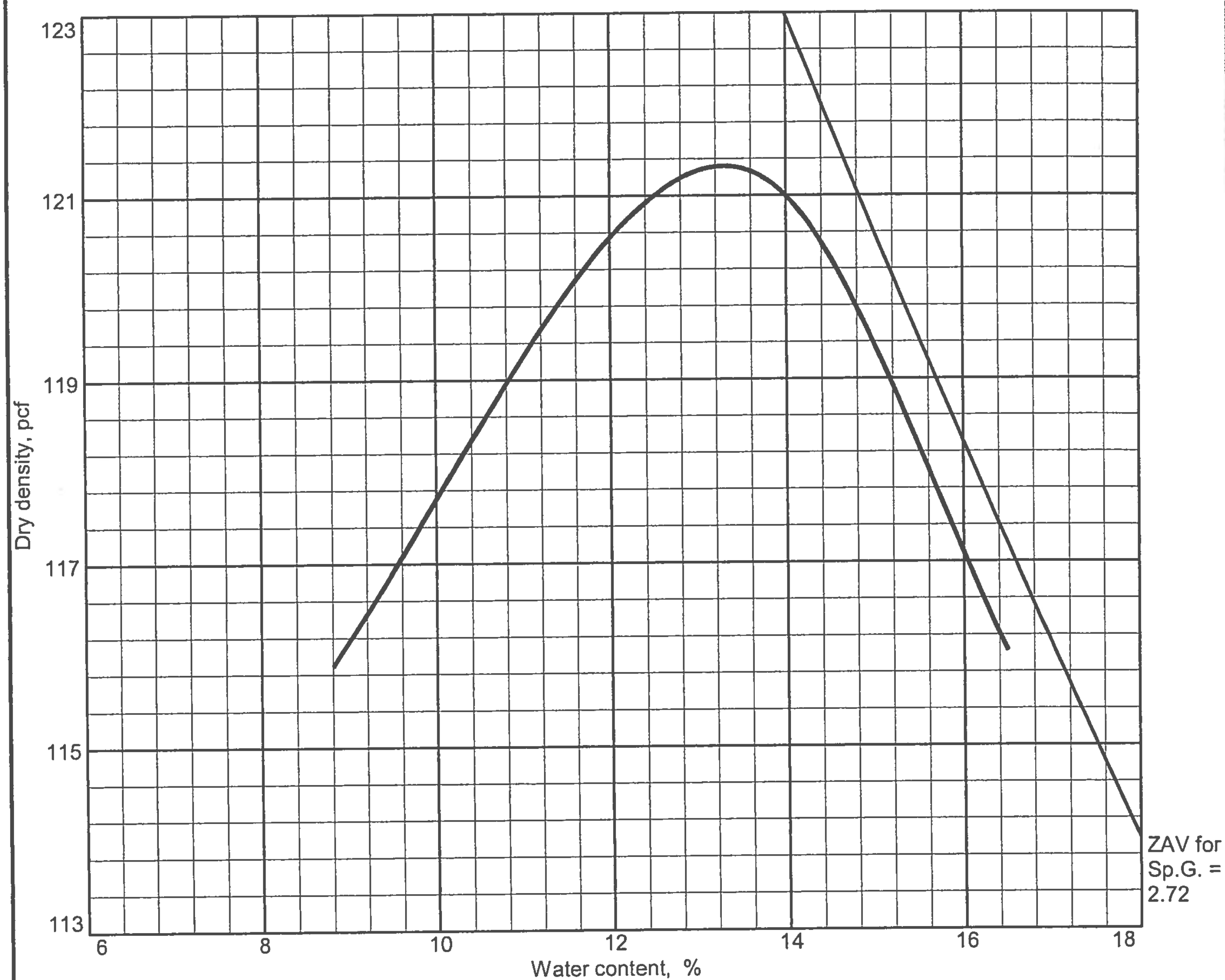
Tested By: BLM

Reviewed By: BLM

YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

Dixon Ranch		FIGURE NO
PROJECT NO	DATE	
E11047.000	April 2011	B-2

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification USCS	Classification AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
				2.68				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 121.5 pcf Optimum moisture = 13.5 %	Red Brown SILT w/ gravel

Project No. E11047.000 **Client:**

Project: Dixon Ranch

Date: 4/12/11

● **Source:** Native **Sample No.:** BK 3

YOUNGDAHL CONSULTING GROUP, INC.

El Dorado Hills, California

Remarks:

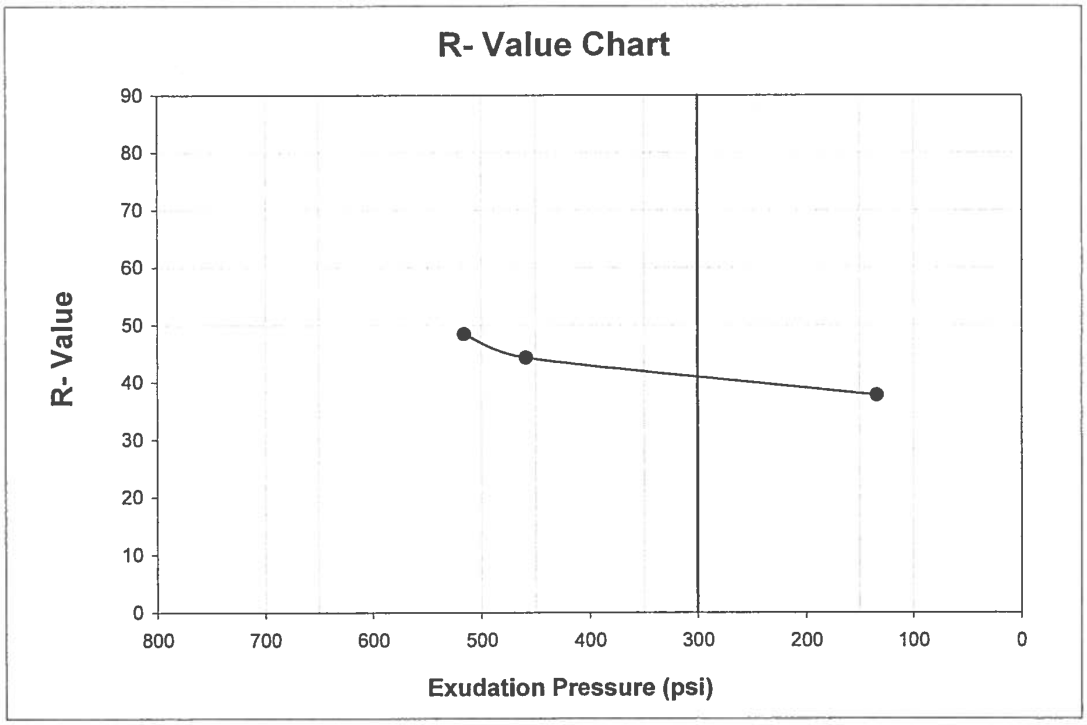
Figure B-3

RESISTANCE VALUE TEST (Cal Test 301, ASTM D2844)

Sample I.D.: BK 1, TP-4 Depth: 0-3'

Description: Red Brown Silty SAND

Test Specimen	C	G	K
Moisture Content (%)	12.7	12.2	11.6
Dry Density (pcf)	123.7	127.5	128.2
Expansion Dial (0.0001")	22	380	440
Expansion Pressure (psf)	95.3	1645.4	1905.2
Exudation Pressure (psi)	133.7	458.4	515.7
Resistance Value "R"	38	44	48
R Value at 300 psi Exudation Pressure:			**41**



YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Dixon Ranch		FIGURE NO
	PROJECT NO	DATE	B-4
	E11047.000	April 2011	

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/20/2011
Date Submitted 04/15/2011

To: Matt Gross
Youngdahl Consulting Group
1234 Glenhaven Ct.
El Dorado Hills,CA 95762

From: Gene Oliphant, Ph.D. \ Randy Horney RH
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : E11047.000/DIXON RCH Site ID : BK.1.
Thank you for your business.

* For future reference to this analysis please use SUN # 59876-122249.

EVALUATION FOR SOIL CORROSION

Soil pH	6.91	
Minimum Resistivity	3.22 ohm-cm (x1000)	
Chloride	9.5 ppm	00.00095 %
Sulfate	2.7 ppm	00.00027 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/20/2011
Date Submitted 04/15/2011

To: Matt Gross
Youngdahl Consulting Group
1234 Glenhaven Ct.
El Dorado Hills,CA 95762

From: Gene Oliphant, Ph.D. \ Randy Horney RA
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : E11047.000/DIXON RCH Site ID : BK.4.
Thank you for your business.

* For future reference to this analysis please use SUN # 59876-122250.

EVALUATION FOR SOIL CORROSION

Soil pH	5.68	
Minimum Resistivity	8.31 ohm-cm (x1000)	
Chloride	12.9 ppm	00.00129 %
Sulfate	1.9 ppm	00.00019 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/20/2011
Date Submitted 04/15/2011

To: Matt Gross
Youngdahl Consulting Group
1234 Glenhaven Ct.
El Dorado Hills,CA 95762

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : E11047.000/DIXON RCH Site ID : BK.3.
Thank you for your business.

* For future reference to this analysis please use SUN # 59876-122251.

EVALUATION FOR SOIL CORROSION

Soil pH	5.70	
Minimum Resistivity	6.70 ohm-cm (x1000)	
Chloride	9.6 ppm	00.00096 %
Sulfate	0.3 ppm	00.00003 %

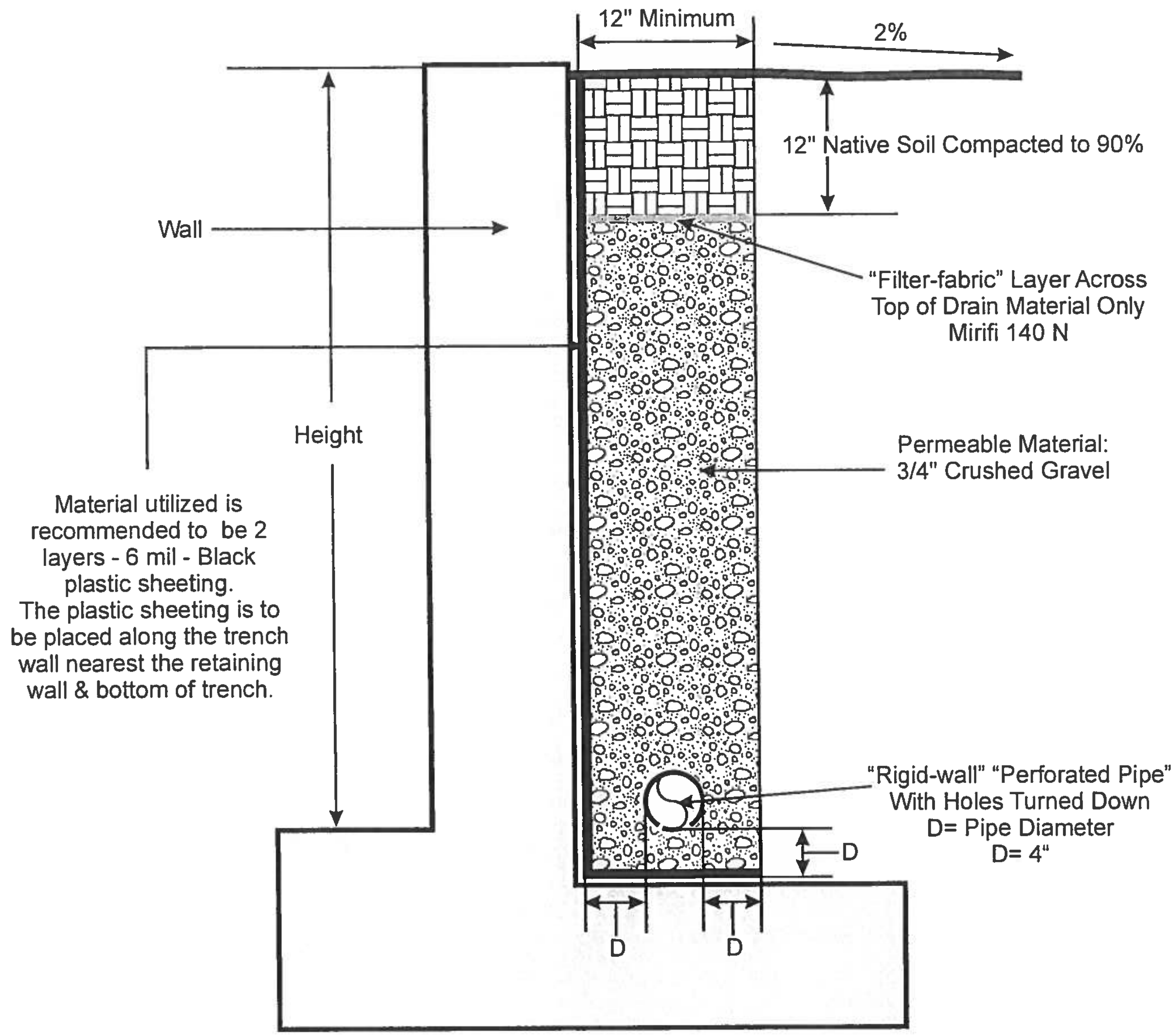
METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

APPENDIX C: RECOMMENDED DETAILS

Retaining Wall Drainage

Retaining Wall With "Perforated Pipe Sub-Drain"

Typical Cross Section



Notes:

1. Slope trench and "rigid-wall" pipes at least 1% gradient to drain to an appropriate outfall area away from residence.
2. Use "sweeps" for directional changes in pipe flow **(do not use 90°elbows)**.
3. Provide periodic "clean-outs".
4. Washed clean permeable material.

Not To Scale

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 **April 2011**	**RETAINING WALL DRAINAGE DETAIL** **Dixon Ranch** El Dorado Hills, California	**FIGURE** **C-1**

APPENDIX D: NATURALLY OCCURRING ASBESTOS

Assessment for Naturally Occurring Asbestos

Bulk Asbestos Materials Analysis

YOUNGDAHL CONSULTING GROUP, INC.
Building Innovative Solutions
1234 Glenhaven Court, El Dorado Hills, Ca 95762
5750 Arabian Lane, Loomis, Ca 95650
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net
YOUNGDAHL CONSULTING GROUP INC. 25 YEARS

Dixon Ranch Partners, LLC
707 Commons Drive, Suite 103
Sacramento, California 95825

Project No. E11047.000
29 April 2011

Attention: Mr. Joel Korotkin

Subject: **DIXON RANCH SUBDIVISION, 126-150-23, 126-020-03, 126-020-02, 115-080-04**
Green Valley Road, El Dorado Hills, El Dorado County, California
ASSESSMENT FOR NATURALLY OCCURRING ASBESTOS

References:
1. Proposal and Contract for Dixon Ranch Subdivision Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 6 April 2011.
2. Survey Limits Exhibit for Dixon Ranch Subdivision, prepared by CTA Engineering & Surveying, dated 3 February 2011 (CTA No. 10-026-001).

Dear Mr. Korotkin:

At your request, Youngdahl Consulting Group, Inc. has completed a Naturally Occurring Asbestos (NOA) Assessment for the proposed Dixon Ranch Project (subject properties) located on the south side of Green Valley Road, west of Green Springs Road in El Dorado Hills, California (Figure A - Vicinity Map). Our work scope included the preparation of an assessment workplan, the collection of soil/rock samples from test pits under the supervision of a licensed geologist, laboratory testing for naturally occurring asbestos, and the preparation of this report.

1.0 Introduction
NOA has been identified as a potential health hazard in the El Dorado Hills area. NOA has been found in association with ultramafic rocks such as serpentine, with fault zones and with certain metamorphic belts in the Sierra Nevada foothills. NOA has been found in a belt of ultramafic rock that extends northwesterly from Bass Lake through the northeastern edge of the subject properties, and in association with branches of the Bear Mountains Fault Zone 2 km west and 10 km east of the subject property.

Project plans for the Dixon Ranch have not yet been developed. This NOA Assessment was performed to provide information to assist in project planning.

2.0 Geology
The project site is identified by the California Geological Survey as being underlain by metavolcanic rock of the Foothill Melange with the geology described as a chaotic intermixture of metasedimentary and metavolcanic rocks of varying lithologies and ages (Mineral Land Classification of the Folsom 15-Minute Quadrangle, Sacramento, El Dorado, Placer and Amador Counties, California, Ralph C. Loyd, California Department of Conservation, Division of Mines and Geology, Open File Report 84-50 SAC, 1984). The map titled "Asbestos Review Areas, Western Slope, County of El Dorado" prepared by Frank Bruyn, 21 July 2005, shows all but one of the parcels to be in an asbestos review zone.

Four of the parcels are mapped as being completely or partially underlain by ultramafic rock. Serpentinite was observed beneath these parcels. Assessor's Parcel Number (APN) 115-080-04 contains imported fill that includes some serpentinite. Five of the parcels were observed to be underlain by a mixture of metasedimentary and metavolcanic rock that is likely to be amphibolite schist. No indications of conditions commonly associated with NOA (i.e. quartz veins) were visible in three of the parcels evaluated.

4.0 Field Sampling

The sampling program was focused on evaluating if the metavolcanic and metasedimentary rock contains NOA. Some import fill was also sampled to confirm our preliminary opinion that the material likely contains at least traces of NOA.

On 5 April 2011, a total of 18 test pits were excavated for a geotechnical engineering study. Seven of these test pits were selected for sampling to check for NOA. Samples were collected from the sidewalls of each selected pit to a maximum depth of 5 feet by carving a channel down the side of one pit wall. The material at the bottom was then collected into a one-gallon resealable plastic bag and homogenized for several minutes. A split sample was then removed from the one-gallon bag and placed into a whirl-pack plastic bag. A set of samples was sent to Forensic Analytical Laboratories in Hayward, California, for California Air Resources Board Test Method 435 (ARB TM-435) analysis with a 0.25% quantification limit. The samples were sent under COC protocol. Each one-gallon split sample is being retained by Youngdahl Consulting Group, Inc. for a period of one year.

5.0 Analytical Results

Each of the samples collected was analyzed by Forensic Analytical Laboratories using ARB TM-435 (using a ball mill with 1-inch ceramic balls for grinding) at a quantification limit of 0.25 percent. The results are presented below in tabular format:

TABLE 1 – ARB TM 435 ANALYSES

APN	Sample Number	Analytical Results
126-150-23	TP-1	None Detected
*115-080-04	TP-5	Trace < 0.25%
126-020-03	TP-6	None Detected
126-020-03	TP-10	None Detected
126-020-02	TP-13	None Detected
126-020-02	TP-15	None Detected
126-020-02	TP-16	None Detected

* Sample collected from imported fill.

6.0 Findings and Conclusions

Four parcels are underlain completely or partially by ultramafic rock. Five parcels are underlain either completely or partially by a mixture of metasedimentary and metavolcanic rock. Asbestos was not detected in any the test pits dug in the metavolcanic or metasedimentary rock. Trace levels of asbestos were detected in the import fill on APN 115-080-04.

Parcel 126-150-13 was not evaluated and would therefore still be considered to potentially contain NOA. Parcels 126-150-15, 126-150-21, and 115-080-04 are underlain by serpentinite and therefore are ineligible to "test out" of the requirement for the preparation and implementation of an asbestos dust hazard mitigation plan for earthwork.

A portion of Parcel 126-150-23 is underlain by serpentinite. It is not clear if the El Dorado County Air Quality Management District would allow any portion of the parcel to be exempted from having to provide an asbestos dust hazard mitigation plan.

Parcels 126-020-02 and 126-020-03 were not found to contain detectable NOA. If grading on these two parcels is isolated from the rest of the parcels, then asbestos dust mitigation plans should not be required. However, a fugitive dust mitigation plan would still be required for any project for which a grading permit is also required.

TABLE 2 – SUMMARY OF NOA IMPACTS ON PARCELS

APN	Geology	Asbestos Dust Mitigation Plan Required/Special Soil Export Limitations
126-150-13	Metavolcanic/Metasedimentary	Yes until tested
126-150-15	Ultramafic/Serpentinite	Yes
126-150-21	Ultramafic/Serpentinite	Yes
115-080-04	Ultramafic/Serpentinite	Yes
126-150-23	Ultramafic/Serpentinite, Metavolcanic/Metasedimentary	Yes
126-020-03	Metavolcanic/Metasedimentary	No
126-020-02	Metavolcanic/Metasedimentary	No

This report must be submitted to the El Dorado County Air Quality Management District within 60 days of the date of sample collection along with the requisite review fee. If you have any questions regarding this NOA Assessment please do not hesitate to contact us at: (916) 933-0633.

Very truly yours,
Youngdahl Consulting Group, Inc.

David C. Sederquist, C.E.G., C.HG.
Senior Engineering Geologist/Hydrogeologist

CERTIFIED ENGINEERING GEOLOGIST
DAVID C. SEDERQUIST
NO. 2133
EXPIRATION DATE 9/30/2012
STATE OF CALIFORNIA

Reviewed by:

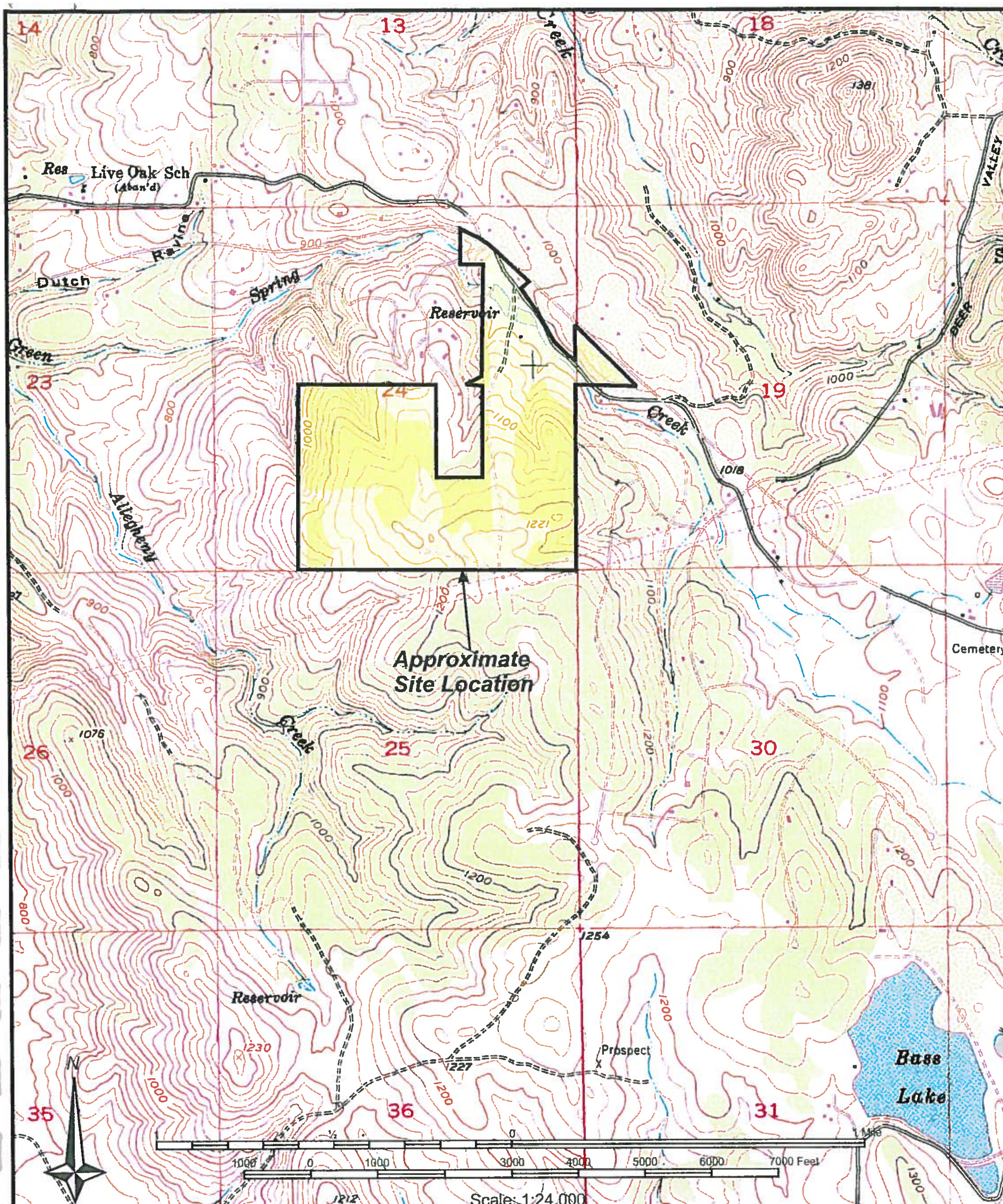
John C. Youngdahl, P.E.
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
JOHN C. YOUNGDAHL
NO. C60224
Exp. 06-30-12
CIVIL
STATE OF CALIFORNIA

Attachments: Figure A – Vicinity Map
Figure B – Geology Map
Laboratory Results Sheets from Forensic Analytical Laboratories.

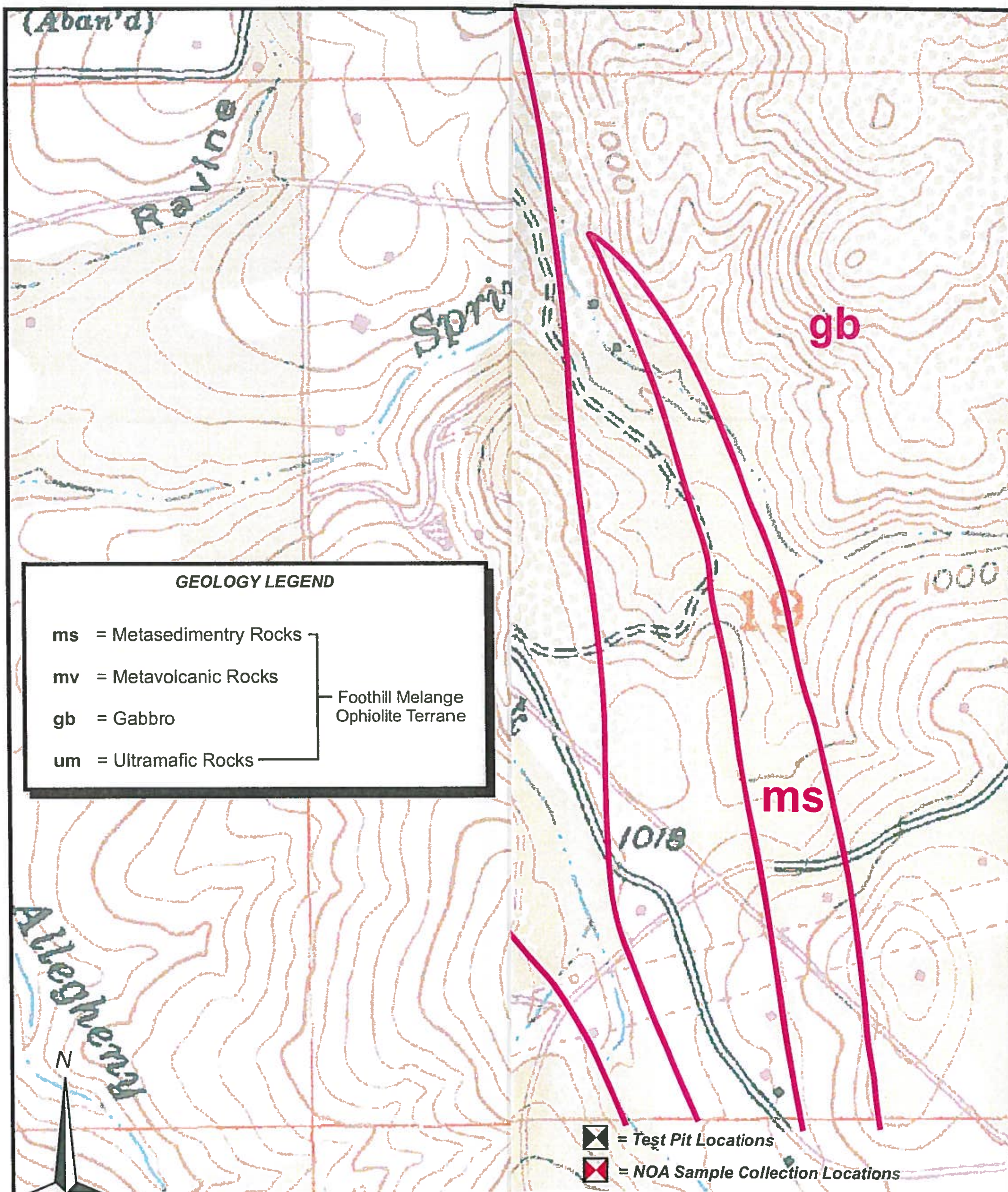
Dist: (3) Client

FIGURES



BASE MAP REFERENCE: *U.S.G.S. 7.5 Minute Topographic Series, Clarksville Quadrangle, Dated 1953 (Revised 1980)*

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001	VICINITY MAP	FIGURE
	April 2011	Dixon Ranch - Assessment For Naturally Occurring Asbestos El Dorado Hills, California	A



ngle, Sacramento, El Dorado, Placer and Amador Counties, California, Ralph
ogy, Open File Report 84-50 SAC, 1984
3 (Revised 1980)

GEOLOGY MAP
Dixon Ranch - Assessment For Naturally Occurring Asbestos
El Dorado Hills, California

FIGURE B

Laboratory Analytical Results

YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

1234 Glenhaven Court
El Dorado Hills, CA 95762
Telephone: (916) 933-0633 Fax: (916) 933-6482

Lab Number

Report Due Date:

CHAIN OF CUSTODY

Client: Youngdahl Consulting Group, Inc.
Address: 1234 Glenhaven Court

City, State & Zip:	El Dorado Hills, CA 95762	Project Name:	Dixon Ranch
Contact:	Matthew J. Gross	Project Number:	E11047.000
Telephone:	(916) 933-0633	Collection Point:	Dixon Ranch
Fax Number:	(916) 933-6482	Collector's Name:	Matthew J. Gross
Fax Results:	Y N — Page 1 of 1	Location (City):	El Dorado Hills, California

SAMPLE TYPE CODES

*Matrix	*Container Type
Soil = S	P = Plastic
Rock = R	G = Glass
Mineral Fragments = MF	O = Other

TURNAROUND TIME REQUESTED

Standard 5 Day Turnaround	Lab Manager Approval
RUSH	
Special	

ANALYSES REQUESTED: ARB-TM-435 — PLM per Matt 4/6/11

CLIENT'S SAMPLE ID/LOCATION	Date	Time	SAMPLE TYPE	CONTAINERS	ARB-TM-435
TP-1	4/4/11	9:50A	S	P	\
TP-5	4/4/11	8:30A	S	P	\
TP-6	4/4/11	3:21P	S	P	\
TP-10	4/4/11	10:45A	S	P	\
TP-13	4/4/11	1:50P	S	P	\
TP-15	4/4/11	1:15P	S	P	\
TP-16	4/4/11	12:45P	S	P	\

Instructions/Comments/Special Requirements:

*ARB TM 435 preparation

SAMPLE RECEIPT			Date	Time	Samples Relinquished By	Samples Received By
Received Cold	Y	N	4/5	11:45	[signature]	ET 4-6- C 9:33 AM
Custody Seals	Y	N	4/5	11:45A	[signature]	
Seals Intact	Y	N	4/5	11:45A	[signature]	
No. of Containers	7					

Forensic Analytical Laboratories

Final Repor

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Youngdahl & Associates, Inc.
David Sederquist
1234 Glenhaven Court

El Dorado Hills, CA 95762

Client ID:	3691
Report Number:	N003583
Date Received:	04/06/11
Date Analyzed:	04/13/11
Date Printed:	04/13/11

Job ID/Site: E11047.000 - Dixon Ranch, El Dorado Hills, CA

FALI Job ID:	3691
Total Samples Submitted:	
Total Samples Analyzed:	

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
TP-1	11097817	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire sample:	100
Visual estimation percentage:	None Detected
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
TP-5	11097818	**Brown Soil**

Point Count Results:

Number of asbestos points counted:	0
Number of non-empty points:	400
Matrix percentage of entire sample:	100
Percent asbestos in matrix:	< 0.25
Visual estimation percentage:	Trace
Asbestos type(s) detected:	Actinolite

Comment: Asbestos was detected but no points were counted due to counting criteria. Therefore quantitation deemed to be < 0.25%.

Sample ID	Lab Number	Layer Description
TP-6	11097819	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire sample:	100
Visual estimation percentage:	None Detected
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Forensic Analytical Laboratories

Final Repor

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Youngdahl & Associates, Inc.
David Sederquist
1234 Glenhaven Court

El Dorado Hills, CA 95762

Client ID:	3691
Report Number:	N003583
Date Received:	04/06/11
Date Analyzed:	04/13/11
Date Printed:	04/13/11

Job ID/Site: E11047.000 - Dixon Ranch, El Dorado Hills, CA

FALI Job ID: 3691
Total Samples Submitted:
Total Samples Analyzed:

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
TP-10	11097820	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire sample: 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
TP-13	11097821	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire sample: 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
TP-15	11097822	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire sample: 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Forensic Analytical Laboratories

Final Repor

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Youngdahl & Associates, Inc.
David Sederquist
1234 Glenhaven Court

El Dorado Hills, CA 95762

Client ID:	3691
Report Number:	N003583
Date Received:	04/06/11
Date Analyzed:	04/13/11
Date Printed:	04/13/11

Job ID/Site: E11047.000 - Dixon Ranch, El Dorado Hills, CA

FALI Job ID:	3691
Total Samples Submitted:	
Total Samples Analyzed:	

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
TP-16	11097823	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire sample: 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

James Flores, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

1234 Glenhaven Court
El Dorado Hills, CA 95762
Telephone: (916) 933-0633 Fax: (916) 933-6482

Lab Number	
Report Due Date:	

CHAIN OF CUSTODY

Client:	Youngdahl Consulting Group, Inc.		
Address:	1234 Glenhaven Court		
City, State & Zip:	El Dorado Hills, CA 95762	Project Name:	Dixon Ranch
Contact:	Matthew J. Gross	Project Number:	E11047.000
Telephone:	(916) 933-0633	Collection Point:	Dixon Ranch
Fax Number:	(916) 933-6482	Collector's Name:	Matthew J. Gross
Fax Results:	Y N — Page 1 of 1	Location (City):	El Dorado Hills, California

SAMPLE TYPE CODES

*Matrix	*Container Type
Soil = S	P = Plastic
Rock = R	G = Glass
Mineral Fragments = MF	O = Other

TURNAROUND TIME REQUESTED

Standard	5 Day Turnaround	Lab Manager Approval
RUSH		
Special		

ANALYSES REQUESTED: ARB-TM-435 — PM per Matt 4/6/11

CLIENT'S SAMPLE ID/LOCATION	Date	Time	SAMPLE TYPE	CONTAINERS	ARB-TM-435
TP-1	4/4/11	9:50A	S	P	\
TP-5	4/4/11	8:30A	S	P	\
TP-6	4/4/11	3:21P	S	P	\
TP-10	4/4/11	10:45A	S	P	\
TP-13	4/4/11	1:50P	S	P	\
TP-15	4/4/11	1:15P	S	P	\
TP-16	4/4/11	12:45P	S	P	\

Instructions/Comments/Special Requirements:

***ARB TM 435 preparation**

SAMPLE RECEIPT			Date	Time	Samples Relinquished By	Samples Received By
Received Cold	Y	N	4/5	11:45A	[signature]	EJ 4-6- C 9:33
Custody Seals	Y	N	4/5	11:45A	[signature]	
Seals Intact	Y	N	4/5	11:45A	[signature]	
No. of Containers	7					

YOUNGDAHL
CONSULTING GROUP, INC.
Building Innovative Solutions
1234 Glenhaven Court, El Dorado Hills, Ca 95762
5750 Arabian Lane, Loomis, Ca 95650
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net
YOUNGDAHL CONSULTING GROUP INC. 25 YEARS

Dixon Ranch Partners, LLC
949 Tuscan Lane
Sacramento, California 95864

Project No. E11047.000
19 March 2013

Attention: Mr. Joel Korotkin

Subject: **DIXON RANCH SUBDIVISION**
Green Valley Road, El Dorado Hills, California
GEOTECHNICAL DESIGN AND CONSTRUCTION CONSIDERATIONS FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS

References:

1. Proposal and Contract for Dixon Ranch Subdivision Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 6 April 2011.
2. Survey Limits Exhibit for Dixon Ranch Subdivision, prepared by CTA Engineering & Surveying, dated 3 February 2011 (CTA No. 10-026-001).
3. Phase I Environmental Site Assessment for Dixon Ranch, prepared by Youngdahl Consulting Group, Inc., dated 12 April 2011 (Project No. E11047.001).
4. Preliminary Geotechnical Engineering Study, prepared by Youngdahl Consulting Group, Inc., dated 29 April 2011 (Project No. E11047.000).
5. Assessment for Naturally Occurring Asbestos, prepared by Youngdahl Consulting Group, Inc., dated 29 April 2011 (Project No. E11047.000).
6. Green Valley Road/C-DR Exhibit, prepared by CTA Engineering & Surveying, undated.

Dear Mr. Korotkin:

As requested, Youngdahl Consulting Group, Inc. is providing geotechnical design and construction considerations for mechanically stabilized earth (MSE) retaining walls for the above-referenced project site.

We understand that consideration is being given to constructing two MSE style retaining walls along the eastern pond embankment. The walls are proposed to be on the order of 22 feet high (maximum) and will support a 24 foot wide asphalt concrete roadway. The MSE walls are proposed to be constructed such that the walls will serve as the new roadway embankment with the western wall constructed along the base of the existing pond embankment and the eastern wall constructed along the top of the existing embankment/access road, as detailed on Section E-E of the Reference No. 6 exhibit. Based on the information provided, we offer the following geotechnically related design and construction considerations related to the proposed MSE wall construction.

To supplement the subsurface information in the Reference No. 4 Geotechnical Engineering Study (GES), three soil borings were advanced along the top of the eastern pond embankment. Our subsurface investigation indicated that the pond embankment is constructed with approximately 10 to 12 feet of fills overlying weathered bedrock. Based on the proposed layout of the walls and our subsurface interpretations, it appears that the western MSE wall will be constructed with an embedment into the weathered bedrock materials and the eastern wall within about 6 to 8 feet of fill soils.

Due to the variably dense and undocumented nature of the embankment fills, all of the existing fills within the proposed MSE wall improvements should be overexcavated and recompacted to the requirements of engineered fill. However, due to the jurisdictional wetland constraints, a complete overexcavation of the fill materials adjacent to the eastern wall (extending a minimum of 5 feet beyond the face of the wall) to provide suitable foundation support for the wall will not be achievable.

As such, in order to provide suitable support for the eastern wall, the foundation of this wall should be constructed to bear on the weathered bedrock. It should be noted that this condition will result in approximately 6 to 8 feet of the wall being buried below grade.

With the two MSE wall systems proposed for the embankment, consideration should be given to constructing the walls in stages to minimize multiple handling of the embankment materials. During the wall construction procedures, it is recommended that the western wall be constructed first. To accomplish this we anticipate that a minimum of 15 to 20 feet of the existing embankment soils (measured from the face of the proposed wall into the embankment) will require removal to accommodate installation of the reinforcing grids. Once a suitable embedment into weathered bedrock is achieved, construction of the MSE wall can be initiated.

During the wall construction process, as backfill is placed and compacted between the reinforcing grids, the remaining embankment soils to the east can be excavated and subsequently placed and compacted as backfill for the wall. Construction of the wall may continue in this manner as long as adequate overbuild beyond the back of the reinforcing grids is maintained to insure suitable compaction throughout the entire grid zone.

The excavation procedures should extend to the east until suitable materials are exposed for support of the eastern MSE wall (i.e. weathered bedrock). The excavation should proceed to the outside face of the eastern wall, and slope up such that the edge of the excavation daylights at the edge of the jurisdictional wetland boundary. Once the excavation is complete, the MSE wall construction for the eastern wall may be initiated. It should be noted that in order to accomplish the recommended excavation limits, these operations will likely need to occur during the summer and fall months when the pond is nearly empty.

We understand that during high flow events, up to about 6 feet of water may be impounded along the face of the eastern wall, as well as potentially the lower couple of feet within the western wall. Due to the anticipated impounded conditions, specific MSE wall design and construction considerations will be required to address the anticipated inundation of water. Any specific recommendations can be provided during the wall design process once a wall type/style has been selected.

A representative from our firm should be present during the above-described procedures to observe and document the operations and provide additional geotechnical consultation as field conditions dictate.

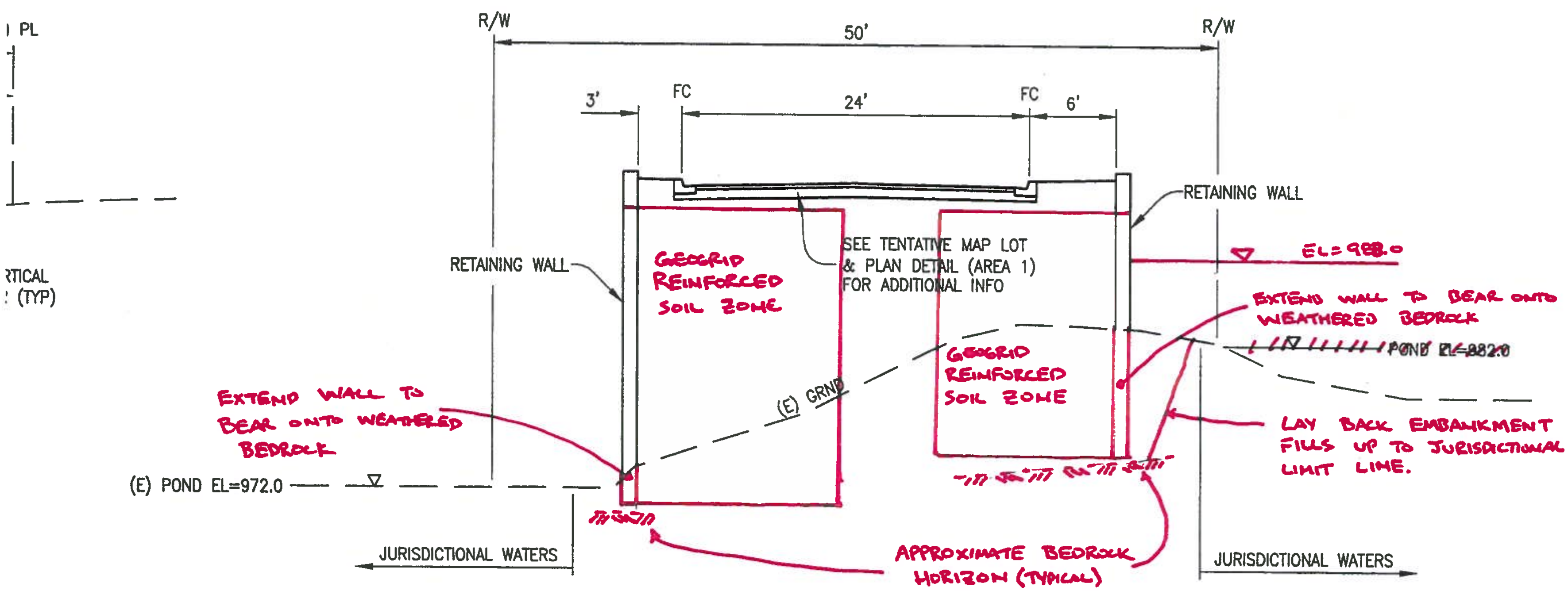
We trust that this provides you with the needed information. Please do not hesitate to contact us should you have any questions regarding our MSE wall design and construction considerations.

Very Truly Yours,
Youngdahl Consulting Group, Inc.

REGISTERED PROFESSIONAL ENGINEER
BRANDON KIYOMI SHIMIZU
No. GE 02712
Exp. 06-30-13
GEOTECHNICAL
STATE OF CALIFORNIA

Brandon K. Shimizu, P.E., G.E.
Senior Geotechnical Engineer

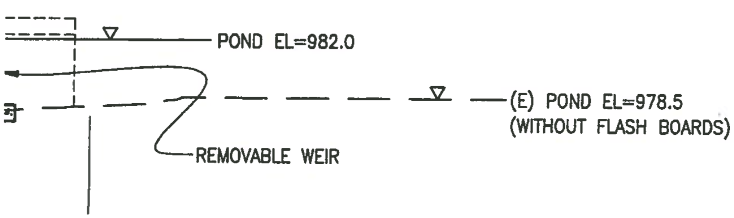
CONCEPTUAL MSE WALL SKETCH



SECTION E - E

SCALE: 1" = 10'

NOTE: THIS SKETCH IS CONCEPTUAL AND FOR INFORMATIONAL PURPOSES ONLY.



PHASE I ENVIRONMENTAL SITE ASSESSMENT
DIXON RANCH
GREEN VALLEY ROAD
EL DORADO HILLS, CALIFORNIA 95762

EL DORADO COUNTY ASSESSOR PARCEL NUMBERS
126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), and 115-080-04 (Peters)

Prepared By

Youngdahl Consulting Group, Inc.
1234 Glenhaven Court
El Dorado Hills, California 95762

Prepared For

Dixon Ranch Partners, LLC
707 Commons Drive, Suite 103
Sacramento, California 95825

Project No. E11047.001
April 2011

YOUNGDAHL CONSULTING GROUP, INC.
Building Innovative Solutions
1234 Glenhaven Court, El Dorado Hills, Ca 95762
5750 Arabian Lane, Loomis, Ca 95650
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net

Project No. E11047.001
12 April 2011

Dixon Ranch Partners, LLC
Mr. Joel Korotkin
707 Commons Drive, Suite 103
Sacramento, California 95825

Subject: **Phase I Environmental Site Assessment**
Dixon Ranch, Green Valley Road, El Dorado Hills, California 95762
APNs: 126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), and 115-080-04 (Peters)

Reference: 1. Proposal PE11-025; Prepared by Youngdahl Consulting Group, Inc.; Contract signed 15 February 2011 by Mr. Joel Korotkin with Dixon Ranch Partners, LLC.

Dear Mr. Korotkin:

As requested, Youngdahl Consulting Group, Inc. has performed a Phase I Environmental Site Assessment for the 450-acre mixed-use property, Dixon Ranch, located south and west of Green Valley Road in El Dorado Hills, El Dorado County, California for Dixon Ranch Partners, LLC (Figure 1 - Vicinity Map). The property is assigned El Dorado County Assessors Parcel Numbers (APNs): 126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), 115-080-04 (Peters) (subject property) and includes 450 acres of property used for rural residential, grazing, commercial storage, horse boarding, and agricultural (strawberries) purposes.

Our study consisted of a review of environmental record sources, physical setting sources, review of site related documents, historical use information, and a site reconnaissance. This assessment has not revealed evidence of recognized environmental conditions in connection with the subject property. No additional investigation is recommended. There is a potential for lead from lead paint and/or asbestos containing building materials to be present in the older structures on site. If residential development is planned, screening for these contaminants may be required by the local enforcement agency (LEA).

This Phase I Environmental Site Assessment has been completed in accordance to the ASTM Practice E 1527-05. Youngdahl Consulting Group, Inc. (YCG) declares that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in ASTM Practice E 1527-05 §312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Very truly yours,
Youngdahl Consulting Group, Inc.

Reviewed by:

Laurie B. Israel, R.E.A.
Senior Environmental Scientist

David C. Sederquist, C.E.G., C.HG.
Senior Engineering Geologist/Hydrogeologist

Distribution: Dixon Ranch Partners, LLC, Mr. Joel Korotkin, 3 copies

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Privileged & Confidential
PHASE I ENVIRONMENTAL SITE ASSESSMENT
DIXON RANCH
GREEN VALLEY ROAD
EL DORADO HILLS, CALIFORNIA 95762

EL DORADO COUNTY ASSESOR PARCEL NUMBERS
126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), and 115-080-04 (Peters)

EXECUTIVE SUMMARY

The subject property, Dixon Ranch, is 450 acres of mixed use property located south and west of Green Valley Road in El Dorado Hills, El Dorado County, California. The subject property is assigned seven El Dorado County Assessor's Parcel Numbers (APNs): 126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), 115-080-04 (Peters). This report was prepared for Dixon Ranch Partners, LLC. The subject property is located in Section 24, Township 10 North, Range 8 East and Section 19, Township 10 North, Ranch 9 East, El Dorado County, California. The subject property is owned by the following entities: Vanderburg, Mikulaco, Louie, Norris, and Peters. The subject property is currently mixed use: rural residential, grazing land, and agricultural (strawberry fields).

- Parcel 126-150-13 (Vanderburg) is undeveloped land historically used for horse grazing.
- Parcel 126-150-15 (Mikulaco) is currently rural residential property historically used as grazing land.
- Parcel 126-150-23 (Louie) is currently includes the historic Dixon Ranch, grazing land, a strawberry field, and two old fuel tanks stored on the soil surface west of the strawberry field. The contents of the two fuel tanks are unknown. According to the County of El Dorado Agricultural Commissioner, strawberry fields do not use "legacy" chemicals that persist over time in the soil.
- Parcels 126-020-02 (Louie) and 126-020-03 (Louie) are used for cattle grazing.
- Parcel 126-150-21 (Norris) is undeveloped land with a water well.
- Parcel 115-080-04 (Peters) is an agricultural dump site with swimming pool spoils to depths of 30-40 feet. Mr. Peters was issued a permit violation for receiving pools spoils after the permit had expired. The 500-gallon aboveground fuel tank has been empty for six years and has only been filled twice, once with gasoline and once with diesel. Mr. Peters stated that the tank has never leaked and no fuel spills have occurred at the tank's location. The northern half is used for strawberry fields. According to the County of El Dorado Agricultural Commissioner, strawberry fields do not use "legacy" chemicals that persist over time in the soil. The central portion is used by the current tenant, Erik Landscaping of Cameron Park, for storage and staging.

Green Spring Creek traverses through the northeastern portion of the subject property flowing north and west towards Folsom Lake. The subject property is covered with native plants and oak trees. Bisecting the subject property is the contemporary Dixon family residential property. Adjacent to the west is a residential subdivision. Adjacent property to the east includes Green Valley Road and rural residential property. Adjacent property to the north, south, and west includes rural residential property.

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that no identified recognized environmental conditions were identified during this investigation of the subject property. No further investigation is required. It is recommended that the three fuel tanks located on the subject property be cleaned, transported, and disposed of following regulatory procedures.

There is a potential for lead from lead paint and/or asbestos containing building materials to be present in the older structures on site. If residential development is planned, screening for these contaminants may be required by the local enforcement agency (LEA).

1.0 INTRODUCTION

This report presents the results of the Phase I Environmental Site Assessment (ESA) performed for 450 acres of mixed use property located south and west of Green Valley Road in El Dorado Hills, El Dorado County, California (subject property). The subject property is located in Section 24, Township 10 North, Range 8 East and Section 19, Township 10 North, Ranch 9 East, El Dorado County, California (Figure 1). The property is assigned El Dorado County Assessor's Parcel Numbers (APNs): 126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), 115-080-04 (Peters).

This report is intended for the use of Dixon Ranch Partners, LLC. The users of this report, Dixon Ranch Partners, LLC and all "intended users", other potential purchasers of the subject property, and funders in relation to the transaction(s) may rely on the information contained herein for all purposes in connection with making a loan secured by, or investment in, the subject property as contemplated pursuant to the Contract dated 18 February 2011, by and between the Dixon Ranch Partners, LLC and Youngdahl Consulting Group, Inc. All such "intended users" of the Phase I ESA shall be allowed to rely upon the Phase I ESA to the same extent as Dixon Ranch Partners, LLC. This report is valid as of the date stated on the document; the report should not be relied upon for information concerning changes in the condition of the property after the report was prepared.

1.1 Purpose

This Phase I ESA was conducted according to the American Society for Testing and Materials (ASTM) Designation E1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Phase I Standards). The ASTM E1527-05 standard is consistent with the requirement of the All Appropriate Inquiry (AAI) rule in Title 40 of the Code of Federal Regulations (40 C.F.R. § 312). The ASTM practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability. The purpose of this Phase I ESA was to identify recognized environmental conditions which may affect the property. Recognized environmental conditions are defined in the ASTM Phase I Standards to mean "the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum product into structures on the property or into the ground, groundwater, or surface water of the property." The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

Controlled substances (i.e. illicit drugs) are not included within the scope of this standard. Petroleum products are included within the scope of this practice because they are of concern with respect to many parcels of commercial real estate and current custom and usage is to include an inquiry into the presence of petroleum products when doing an ESA of commercial real estate. This practice does not address requirements of any state or local laws or of any federal laws other than the appropriate inquiry provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)'s landowner liability protection. Users are cautioned that federal, state, and local laws may impose environmental assessment obligations that are beyond the scope of this practice. Users should also be aware that there are likely to be other legal obligations with regard to hazardous substances or petroleum products discovered on the property that are not addressed in this practice and that may pose risks of civil and/or criminal sanctions for non-compliance. The scope of this practice includes research and reporting requirements that support the user's ability to qualify for landowner liability protection. As such, sufficient documentation of all sources, records, and resources utilized in conducting the inquiry required by this practice must be provided in the written report.

1.2 Detailed Scope of Services

This scope of services is site specific in that it relates to assessment of environmental conditions on a specific parcel of commercial real estate. The Phase I ESA will be performed by an environmental professional. An environmental professional (EP) is defined as a person meeting the education, training, and experience requirements set forth in 40 CFR § 312.10(b). We declare that, to the best of our professional knowledge and belief, we meet the definition of an Environmental Professional (EP). The scope of services for this Phase I ESA is as follows:

Government Records Review: Standard environmental record sources, including Federal, Tribal, and State lists as well as local sources of environmental records were reviewed. We authorized Environmental Data Resources (EDR), to conduct a search of specified government databases and produce a map-based radius search report which would identify sites within the approximate minimum distances pursuant to the ASTM E1527-05 Standard. A current USGS 7.5 Minute Topographic Map showing the area on which the property is located was reviewed.

Review of Historical Sources: Historical records that may have been reviewed include, but are not limited to, aerial photographs, fire insurance (Sanborn®) maps, building department records, chain-of-title documents, city directory abstracts, land use records, and USGS Topographic Maps. The AAI rule requires that historical documents be reviewed as far back in time as the property contained structures or the property was used for agricultural, residential, commercial, industrial, or governmental purposes. Under the AAI rule, historical sources of information must be reviewed as far back as 1940. The AAI rule does not specify a research interval for reviewing historical records.

Site Reconnaissance: A site reconnaissance visit was conducted on 3 March 2011 by Ms. Laurie Israel with Youngdahl Consulting Group, Inc.

Interviews: Prior to the site visit, the Client was asked to identify a person with good knowledge of the property (the key site manager). The Phase I ESA Questionnaires completed by the Owner or representative are provided in Appendix A. The AAI rule requires interviews be conducted with the current owner(s) and occupant(s) of the subject property. The AAI rule also requires that additional interviews be conducted with current and past facility managers, past owners, operators or occupants of the property, and past employees, as necessary to meet the objectives of the AAI rule. The AAI rule allows the environmental professional to determine whether such interviews are necessary.

Identify Data Gaps: If data failure is encountered, the report shall document the failure and, if any of the standard historical sources were excluded, the environmental professional will give the reasons for their exclusion. If data failure represents a significant data gap, the report shall comment on the impact of the data gap on the ability of the environmental professional to identify recognized environmental conditions. If the data gaps are found, the Environmental professional can and does not warrant nor guarantee that no significant events, releases, or conditions arose during the periods of such data gaps.

Evaluation and Report Preparation: The findings, opinions, and conclusions in the Phase I ESA report are supported by documentation. The report: (1) describes all services performed; (2) has a findings section which summarizes known or suspect environmental conditions associated with the property, and which may include recognized environmental conditions, historical recognized environmental conditions, and de minimis conditions; (3) includes Youngdahl Consulting Group Inc.'s opinion(s) of the impact on the property of the known or suspect environmental conditions identified in the findings section as well as the logic and reasoning used in evaluating information collected during the course of the investigation; and (4) includes a conclusions and recommendations section that summarizes the recognized environmental conditions connected with the property and presents recommendations to address those conditions. The report will include an analysis of the relationship of the purchase price of the subject property to the fair market value of the property, if it were not contaminated.

Report Shelf Life: Under the AAI rule, a prospective property owner may use a Phase I ESA Report without having to update any information collected as part of the inquiry: (1) if the all appropriate inquiries investigation was completed less than 180 days prior to the date of acquisition of the property or (2) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation and was completed less than 180 days prior to the date of acquisition of the property. A prospective property owner may use a previously conducted Phase I ESA Report: (1) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation for the same property; and (2) if the information was collected or updated within one year prior to the date of acquisition of the property; and (3) certain aspects of the previously conducted report are conducted or updated within 180 days prior to the date of acquisition of the property. These aspects include the interviews, on-site visual inspection, the historical records review, the search for environmental liens, and the declaration by the EP responsible for the assessment or update.

1.3 Significant Assumptions

This report and review of the subject property is limited in scope. All appropriate inquiry does not mean an exhaustive assessment of a clean property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of the ASTM E1527-05 practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an ESA and the reduction of uncertainty about unknown conditions resulting from additional information. The appropriate level of inquiry will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry. This type of investigation is undertaken with the risk that the presence, full nature, and extent of contamination would not be revealed by visual observation and review of available data alone. The findings presented in this report were based on field observations and review of available data. Therefore, the data obtained is clear and accurate only to the degree implied by the sources and methods used. The information presented herewith was based on professional interpretation and on the data obtained.

1.4 Limitations and Exceptions

The ASTM E1527-05 Practice lists 14 items that are non-scope items that persons may want to assess in connection with commercial real estate. Radon is a non-scope item and a review of regional radon values was performed as part of this study.

1.5 Special Terms and Conditions and/or Additional Services

A Phase I ESA meeting or exceeding the ASTM E1527-05 practice and completed less than 180 days prior to the date of acquisition (the date on which a person acquires title to the subject property) or the date of the intended transaction is presumed to be valid. If within this period the assessment will be used by a different user than the user for whom the assessment was originally prepared, the subsequent user must also satisfy the User's Responsibilities set forth in Section 1.6. Users and environmental professionals may use information in prior environmental site assessments provided such information was generated as a result of procedures that meet or exceed the requirements of ASTM E1527-05.

1.6 User Responsibilities

The user should provide reasonably ascertainable land title records and judicial records for review for the existence of environmental liens or activity and use limitations (AUL), if any, that are currently recorded against the property. AULs are an explicit recognition by a federal, tribal, state, or local regulatory agency that residual levels of hazardous substances or petroleum products may be present on a property, and that unrestricted use of the property may not be acceptable. If the user is aware of any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate any information based on such specialized knowledge or experience in the EP, and before the site reconnaissance is conducted. In a transaction involving the purchase of a parcel of commercial real estate, the user shall consider the relationship of the purchase price of the property to the fair market value of the property if the property was not affected by hazardous substances or petroleum products. The user should try to identify an explanation for a lower price which does not reasonably reflect fair market value if the property were not contaminated, and make a written record of such explanation. If the user is aware of any commonly known or reasonable ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate such information to the environmental professional before the site reconnaissance is conducted.

2.0 PROPERTY DESCRIPTION

The property description referred to herein is based on a parcel map and on a site reconnaissance visit performed by Youngdahl Consulting Group, Inc. The subject property to the south and west of Green Valley Road is assigned El Dorado County APNs: 126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), and 115-080-04 (Peters).

The subject property is situated in Section 24, Township 10 North, Range 8 East and Section 19, Township 10 North, Ranch 9 East of the Mount Diablo Base and Meridian (M.D.B.& M.), El Dorado County, California (Figure 1, Vicinity Map and Figure 2, Site Plan). The subject property is currently mixed use land used as rural residential, grazing land, and agricultural (strawberry fields) property. Bisecting the subject property is the contemporary Dixon family residential property. Adjacent to the west is a residential subdivision. Adjacent property to the east includes Green Valley Road and rural residential property. Adjacent property to the north, south, and west includes rural residential property.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

Title records were not provided for review

3.2 Environmental Liens or Activity and Use Limitations

No environmental liens or other activity and use limitations were found by EDR during their lien search (Section 5.3.4).

3.3 Specialized Knowledge and Commonly Known or Reasonably Ascertainable Information

The existence of specialized knowledge was not identified in the completed questionnaires (Appendix A).

3.4 Valuation Reduction for Environmental Issues

Based on the completed questionnaires (Appendix A), the purchase price or appraised value of the property is not significantly less than comparable properties in the vicinity.

3.5 Reasons for Performing the Phase I

The buyer, Dixon Ranch Partners, LLC, requested the completion of the Phase I ESA per ASTM E1527-05 to satisfy due diligence requirements.

4.0 INTERVIEWS

Telephone conversation records and completed Phase I ESA Questionnaires are provided in Appendix A.

4.1 Interviews with Owners and/or Occupants

Vanderburg Parcel 126-150-13: Mr. Lee Vanderburg completed a Phase I ESA Questionnaire and provided additional information by telephone on 1 March 2011. Mr. Vanderburg stated that his residential property's address is 1768 Green Valley Road. The parcel has historically been used for residential purposes and for horse grazing according to Mr. Vanderburg. Mr. Vanderburg indicated on the questionnaire that old fuel tanks are stored on the soil surface on the adjacent Louie parcel 126-150-23.

Mikulaco Parcel 126-150-15: Mr. Paul Mikulaco completed a Phase I ESA Questionnaire and provided additional information during the site visit. Mr. Mikulaco stated that the addresses of the duplex units on the property are 1838 and 1840 Green Valley Road. Mr. Mikulaco lives in one of the duplex units and the other one is rented out to a friend of Mr. Mikulaco. According to Mr. Mikulaco, there is one 250-foot-deep domestic well on his property and two 1,000-gallon septic tanks. Mr. Mikulaco noted that the strawberry field northwest of the duplex is farmed organically. Mr. Mikulaco answered "No" to all of the questions on the Phase I ESA Questionnaire.

Louie Parcels 126-150-23, 126-020-02, 126-020-03: Mr. Louie is an absentee owner and has no knowledge of the historical use of the parcels. Mr. Richard Klingensmith, caretaker and long-time tenant at the historic Dixon Ranch, was identified as a knowledgeable person. Mr. Klingensmith completed a Phase I ESA Questionnaire and provided additional information during the site visit. Mr. Klingensmith noted that two old fuel storage tanks are located adjacent to the strawberry field on parcel 126-150-23.

Norris Parcel 126-150-21: Mr. Bill Norris completed a Phase I ESA Questionnaire and provided additional information by telephone on 1 March 2011. Mr. Norris stated that the property was graded and a domestic well installed for residential development; however, the property remains undeveloped. Mr. Norris answered "No" to all of the questions on the Phase I ESA Questionnaire.

Peters Parcel 115-080-04: Mr. Michael Peters completed a Phase I ESA Questionnaire and provided additional information by telephone on 31 March 2011. Mr. Peters stated that he purchased the property in 1996. In approximately 2006, Mr. Peters applied for and was granted an agricultural dump site permit and swimming pool spoils were deposited on the property. Mr. Peters stated that only clean material from residential swimming pool construction firms was brought onto the subject property. Additionally, large rocks deposited on site from the swimming pool excavations were sold to local landscaping firms. According to Mr. Peters, approximately 30-40 feet of clean fill material was deposited on the property. This material capped the naturally occurring asbestos present onsite. Mr. Peters permit expired; however, since pool spoils continued to be deposited on site, Mr. Peters was issued a permit violation by El Dorado County. When asked about the aboveground fuel tank observed on the property during the site visit, Mr. Peters stated that he owns the 500-gallon tank and that it has been empty for six years. Mr. Peters noted that the tank has only been filled twice, once with gasoline and once with diesel. Mr. Peters stated that the tank has never leaked and no fuel spills have occurred at the tank's location. Currently the parcel is occupied by a tenant, Erik Landscaping of Cameron Park. The site is also being used to grow strawberries. Mr. Peters answered "Yes" to Question 16, the existence of environmental violations, on the Phase I ESA Questionnaire. Mr. Peters said that this "Yes" response is in reference to the permit violation for the swimming pool spoils.

4.2 Interviews with State and/or Local Government Officials

Mr. Todd Lenkin with El Dorado County Environmental Management was contacted for information. Mr. Lenkin did not find any files for the subject property.

The subject property is currently being used for agricultural (strawberry fields) purposes. According to the County of El Dorado Agricultural Commissioner, strawberry fields do not use "legacy" chemicals that persist over time in the soil.

The subject property does not have a physical address; therefore, it is not possible for site specific files to be researched for the subject property. The State of California Water Resources Control Board GeoTracker website was researched for information and the current status of sites in the vicinity of the subject property under investigation. According to GeoTracker, there are no sites under investigation in the vicinity of the subject property.

5.0 RECORDS REVIEW

The records review consisted of a review of reasonably ascertainable environmental record sources, physical setting sources, and historical use information that will help identify recognized environmental conditions in connection with the property. Reasonably ascertainable record information must be publicly available, obtainable from its source within reasonable time and cost constraints, and be practically reviewable.

5. 1 Standard Environmental Record Sources

A commercial database search of Federal, Tribal, State, and Local regulatory lists was conducted in order to assess whether documented environmental conditions exist on or near the property. In an effort to fulfill due diligence requirements, Youngdahl Consulting Group, Inc. employed the services of Environmental Data Resources, Inc. (EDR) to identify sites listed on regulatory agency databases within approximate minimum search distances from the subject property with potential of existing environmental problems. The term approximate minimum search distances means the distances within the area which government records must be reviewed pursuant to ASTM Phase I Standards. The term minimum search distance is used in lieu of radius as to include irregularly shaped properties. The EDR Radius Map with GeoCheck® (EDR Report) was provided by EDR on 1 March 2011 (Appendix B). Included in the report are the dates the original government sources were updated and the dates the sources were last updated by EDR, as well as a list of acronyms used by EDR. The subject property was not identified in the EDR Report. Listed sites within the minimum search distances include: 1 ENVIROSTOR, 2 NPDES sites, and 1 HAZNET site. The Envirostor site, Sanford Ranch (2321 Green Valley Road), is identified with a status date of November 1994. The two NPDES sites (2070 W Green Springs Road and 1801 Green Valley Road) are listed for storm water construction violations. The HAZNET site (3141 Valley Valle Lane) is listed as having generated 0.1042 tons of oil/water separation sludge. A date was not provided. These listed sites do not appear to present a significant potential to impact the subject property.

Due to poor or inadequate information, EDR is unable to map certain sites. These sites are referred to by EDR as Orphans. None of these Orphan sites appear to be within the minimum search distances from the subject property. According to the EDR Report, the subject property is not designated as a wetland, per the National Wetlands Inventory (1994).

5.2 Physical Setting Source(s)

Geologic maps and a current U.S.G.S. 15 Minute Topographic Map of the Clarksville, California Quadrangle, as well as observations made during our site reconnaissance were used to make interpretations regarding the physical setting of the subject property and the surrounding area. The property's elevation ranges from approximately 920 to 1,221 feet above sea level. The topography of the property is variable.

5.2.1 Regional Geology

The subject property is located in northern California and in the western portion of the Sierra Nevada Foothills. According to the Mineral Land Classification of the Folsom 15-minute Quadrangle (CDMG publication OFR 84-50), the property is underlain by ultramafic rock and metavolcanic rock of the Foothill Melange.

In Youngdahl Consulting Group, Inc.'s experience, groundwater in the vicinity of the subject property is controlled by rock fractures and topography. Groundwater generally flows along the fractures with depths and directions controlled by topography. Groundwater depths vary from near surface (springs) to several hundreds of feet below ground surface. Records were not found regarding the depth to groundwater within the general vicinity of the subject property during a search of the California Department of Water Resources (DWR) Water Data Library.

The Soil Survey of El Dorado County (1974) notes the subject property to consist predominately of two soil types, Auburn very rocky silt loam, 2 to 30 percent slopes (mapped as unit AxD) and Auburn silt loam, 2 to 30 percent slopes (mapped as unit AwD). These soils are well drained and are underlain by hard metamorphic rocks at a depth of 12 to 26 inches. These soils are undulating to very steep on foothills. The easternmost portion of the subject property is identified as Delpiedra very rocky loam, 3 to 50 percent slopes (mapped as unit DeE) and Serpentine rock land (mapped as unit SaF). Delpiedra very rocky loam is gently sloping with outcrops of bedrock that cover 5 to 25 percent of the surface. Serpentine rock land is in areas of highly resistant serpentine and other ultrabasic rock formations. Rock outcrops and stones make up from 50 to 90 percent of the surface.

5.2.2 Regional Radon Values

Elevated radon gas levels in indoor air are a result of radon moving into buildings from the soil, either by diffusion or flow due to air pressure differences. The ultimate source of radon gas in buildings is the uranium naturally present in rock, water, and soil. Some rock types are known to contain more uranium than others. In California, most uranium deposits are relatively small in aerial extent and are located in rural areas. Consequently, the chance of severe radon levels (>200 pCi/L) occurring in buildings in California should be very low. The following rock units in California contain uranium in concentrations above the crustal average: the Monterey Formation, asphaltic rocks, marine phosphatic rocks, granitic rocks, felsic volcanic rocks, and certain metamorphic rocks. According to EPA publication 402-R-93-025, entitled EPA's Map of Radon Zones, California, dated September 1993, El Dorado County is shown to be in Zone 2. Zone 2 has a predicted average radon screening level of between greater than 2 Pico Curies per Liter (pCi/l) to less than 4 pCi/l. This is considered to be a moderate value of geologic radon potential.

5.3 Historical Use Information on the Property and Adjoining Properties

All obvious uses of the property shall be identified from the present, back to the property's first developed use, or back to 1940, whichever is earlier. The term developed use includes agricultural uses and placement of fill dirt. Standard historical sources shall be reviewed at approximately five year intervals. Uses in the area surrounding the property shall also be identified. Standard historical sources include: aerial photographs, fire insurance maps, property tax files, recorded land title records, USGS topographic maps, local street directories, building department records, and zoning/land use records. There are no Sanborn Maps that cover the subject property.

5.3.1 Aerial Photographic Review

Aerial photographs for the years 1953, 1961, 1973, 1984, 1993, 1998, and 2005 were provided in the EDR Aerial Photo Decade Package, a copy of which is provided in Appendix B. The 1937 and 1952 aerial photograph from Youngdahl Consulting Group, Inc.'s collection were also reviewed. Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and to determine if any significant topographic or cultural changes have occurred. A summary of the photographs reviewed is provided in Table 1.

The **1937** and **1952** aerial photographs provide coverage of the western portion of the subject property only. These photographs show the subject property and adjacent property to be undeveloped land.

The **1953** and **1961** aerial photographs show the subject property to be predominantly undeveloped land. There are indications of development in the northeastern portion of the property. Two dammed reservoirs are present west of Green Valley Road and structures are present to the southeast of the reservoirs. There are no developed properties adjacent to the subject property.

The **1973** and **1984** aerial photographs show the subject property and adjacent property to be similar to what was observed on the 1961 aerial photograph with the addition of residential development on parcel 126-150-15 (Mikulaco). Green Springs Drive is present to the west.

The **1993** aerial photograph shows the subject property to be similar to what was observed on the 1973 aerial photograph, with the addition of residential development on parcel 126-150-13 (Vanderburg). Parcel 126-150-21 (Norris) appears to be active, while parcel 115-080-04 (Peters) appears undeveloped. An unpaved road traverses through the northern and southeastern Louie parcels, 126-150-23 and 126-020-03. Residential development is present on the two adjacent parcels between the Mikalaco and Norris parcels. Green Springs Drive and residential development are present to the west.

The **1998** and **2005** aerial photographs show the subject property to be similar to what was observed during the site visit. A structure is present on parcel 115-080-04 (Peters).

5.3.2 Review of Historical and Current USGS Topographic Maps

A topographic map (topo) is a color coded line-and-symbol representation of natural and selected artificial features plotted to a scale. Topographic maps show the shape, elevation, and development of the terrain in precise detail by using contour lines and color coded symbols. The EDR Historical Topographic Map Report provided maps dated 1893 to 1973. Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and determine if any significant topographic or cultural changes have occurred. A summary of the topographic maps review is provided below. A copy of the EDR - Historical Topographic Map Report is provided in Appendix B.

The **1893** Sacramento 30-minute quadrangle map shows the subject property and surrounding property to be undeveloped. Green Valley Road, Green Spring Creek, and New York Creek are identified in the vicinity of the subject property.

The **1944** Folsom 15-minute quadrangle map shows the majority of the subject property and surrounding property to be undeveloped. An unpaved road is identified entering the Louie parcel 126-150-23, at the northern-most portion of the subject property. A single structure is identified to the east of the unpaved road, adjacent to Green Spring Creek. Green Valley Road and Green Spring Creek are identified in the vicinity of the subject property.

The **1953** Clarksville 7.5-minute quadrangle map shows the majority of the subject property and surrounding property to be undeveloped. An unpaved road is identified entering the Louie parcel 126-150-23, at the northern-most portion of the subject property and bisecting two reservoirs on the parcel. A single structure is identified to the east of the unpaved road, adjacent to Green Spring Creek. Green Valley Road and Green Spring Creek are identified in the vicinity of the subject property.

The **1973** (revised from 1953) Clarksville 7.5-minute quadrangle map shows the majority of the subject property and surrounding property to be undeveloped. An unpaved road is identified entering the Louie parcel 126-150-23, at the northern-most portion of the subject property and bisecting two reservoirs on the parcel. A single structure is identified to the east of the unpaved road, adjacent to Green Spring Creek. Two additional structures are identified on the subject property, on the 1973 revision to the west of Green Valley Road. High-power transmission line is identified at the southern boundary of Louie parcel 126-020-03. The re-alignment of Green Valley Road to the east and the addition of Green Springs Road and Verde Valley Lane to the west are identified on the 1973 revision.

5.3.3 Historical City Directory Abstract Review

EDR provided the EDR-City Directory Abstract for review and a copy is provided in Appendix B. Building directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1976 through 2008. The following table summarizes the EDR-City Directory Abstract.

YEAR	ADDRESS	USE
	SUBJECT PROPERTIES	
1996, 2008	1768 Green Valley Road	Residential
1996	1838 Green Valley Road	Residential
	NEARBY PROPERTIES	
1996, 2008	1851 Green Valley Road	Residential
1996, 2008	1870 Green Valley Road	Residential

5.3.4 Review of EDR Environmental Lien Search Report

The EDR Environmental Lien Search Report for the subject property was received on 9 March 2011 and is provided in Appendix A. The EDR Environmental Lien Search report includes results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

The report identified that title for El Dorado County APN 115-080-04 is vested in Michael J Peters & Betty L Peters in the deed dated 31 December 2008. No environmental liens or other activity and use limitations were found by EDR.

The report identified that title for El Dorado County APN 126-020-02 is vested in Louie Helm Living Trust in the deed dated 15 November 2003. No environmental liens or other activity and use limitations were found by EDR.

The report identified that title for El Dorado County APNs 126-020-03 and 126-150-23 are vested in Louie Helm Living Trust in the deed dated 15 November 2003. No environmental liens or other activity and use limitations were found by EDR.

The report identified that title for El Dorado County APN 125-150-13 is vested in Macon L Vanderburg & Marian Vanderburg in the deed dated 9 December 1991. No environmental liens or other activity and use limitations were found by EDR.

The report identified that title for El Dorado County APN 125-150-15 is vested in Ronald P Mikulaco in the deed dated 6 January 2006. No environmental liens or other activity and use limitations were found by EDR.

The report identified that title for El Dorado County APN 126-150-21 is vested in The Louis SW & Joyce E Sherman Revocable Trust in the deed dated 3 May 1995. No environmental liens or other activity and use limitations were found by EDR.

6.0 SITE RECONNAISSANCE

A reconnaissance of the subject property and a windshield survey of the surrounding area were conducted by Youngdahl Consulting Group, Inc. on 9 February 2011. Views of the subject property at the time of the reconnaissance visit are presented as Figures 3 through 14. The property consists of residential property (Mikulaco and Vanderburg), undeveloped residential property (Norris), commercial/agricultural/landfill property (Peters), and property used for various uses (agriculture, residential, cattle grazing, horse boarding, and open space) (Louie).

There is a duplex on the Mikulaco parcel 126-150-15 where Mr. Mikulaco lives and stores his household items and extra vehicles (Photo 1). South of the Mikulaco parcel are two residential parcels that are not included in the project. South of these two parcels is the Norris parcel 126-150-21. The Norris parcel was observed to be a vacant lot (Photo 2) with an electrical pole onsite. The Peters parcel 115-080-04 is south of the Norris parcel. The Peters parcel includes strawberry fields on the northern portion (Photo 3) and landscaping equipment and storage sheds on the southern portion (Photo 4). Paint cans, gas containers, and other containers were observed on the southern portion of the Peters parcel (Photo 5). An aboveground diesel fuel storage tank (AST) was present on the Peters parcel (Photo 6). Soil and rock piles were also noted on the southern and western slopes of the Peters parcel (Photo 7). The northern and western portions of the Vanderburg parcel 126-150-13 include the residence's mailbox and driveway and undeveloped areas (Photo 8).

The Louie property includes three parcels 126-150-23, 126-020-02, and 126-020-03. Strawberry fields are located in the northernmost portion of parcel 126-150-23 (Photo 9). Two fuel storage tanks, reportedly used as water irrigation tanks for the strawberry field, were observed on surface soil in the northernmost portion of parcel 126-150-23 (Photo 10). A shed with chemicals and fertilizers for the strawberry field was observed in the central portion of parcel 126-150-23 (Photo 11). A landscaping storage yard was also noted in the central portion of parcel 126-150-23 (Photo 12). The historic Dixon Ranch residence and animal sheds (Photo 13) and barn with stored materials (batteries, vehicles, lawnmower, etc.) (Photo 14) are located in the central portion of parcel 126-150-23. East of the historic Dixon Ranch area are two ponds and Green Springs Creek (Photo 15). The southern portion of this parcel is grazing land (Photo 16).

An overhead power line and tower are located at the southern boundary of parcel 126-020-03 (Photo 17). Parcel 126-020-03 is grazing land (Photo 18). A cattle corral is located at the boundary between parcel 126-020-03 and parcel 126-020-02 (Photo 19). Cattle were observed grazing on parcel 126-020-02 (Photo 20). All of parcel 126-020-02 was observed to be cattle grazing land (Photo 21). A rock wall was observed on parcel 126-020-02 (Photo 22). Bisecting parcels 126-020-02 and 126-020-03 is the contemporary Dixon family residential property (Photo 23).

Adjacent to the west is a residential subdivision (Photo 24). Adjacent property to the east includes Green Valley Road and rural residential property. Adjacent property includes rural residential property.

7.0 FINDINGS AND CONCLUSIONS

Based on our study the subject is currently mixed use: rural residential, grazing land, and agricultural (strawberry fields). The property is assigned El Dorado County Assessor's Parcel Numbers (APNs): 126-150-13 (Vanderburg), 126-150-15 (Mikulaco), 126-150-23 (Louie), 126-020-02 (Louie), 126-020-03 (Louie), 126-150-21 (Norris), and 115-080-04 (Peters).

- Parcel 126-150-13 (Vanderburg) is undeveloped land historically used for horse grazing.
- Parcel 126-150-15 (Mikulaco) is currently rural residential property historically used as grazing land.
- Parcel 126-150-23 (Louie) is currently includes the historic Dixon Ranch, grazing land, strawberry fields, and two old fuel tanks stored on the soil surface west of the strawberry field. The contents of the two fuel tanks are unknown. According to the County of El Dorado Agricultural Commissioner, strawberry fields do not use "legacy" chemicals that persist over time in the soil.
- Parcels 126-020-02 (Louie) and 126-020-03 (Louie) are used for cattle grazing.
- Parcel 126-150-21 (Norris) is undeveloped land with a water well.
- Parcel 115-080-04 (Peters) is an agricultural dump site with clean fill from swimming pool excavations deposited onsite to depths of 30-40 feet. Mr. Peters was issued a

permit violation for receiving pools spoils after the permit had expired. The 500-gallon aboveground fuel tank has been empty for six years and has only been filled twice, once with gasoline and once with diesel. Mr. Peters stated that the tank has never leaked and no fuel spills have occurred at the tank's location. The northern half is used for strawberry fields. According to the County of El Dorado Agricultural Commissioner, strawberry fields do not use "legacy" chemicals that persist over time in the soil. The central portion is used by the current tenant, Erik Landscaping of Cameron Park, for storage and staging.

7.1 Data Gaps

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that no data gaps were identified during completion of this Phase I ESA.

8.0 OPINION

Youngdahl Consulting Group, Inc. has performed a Phase I Environmental Site Assessment in general conformance with ASTM Practice E 1527-05. Any exceptions to, or deletions from, this practice are described in Section 1.4 of this report. It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that no identified recognized environmental conditions were identified during this review of the subject property. The rationale used for this opinion is the observations made during the site visit, the review of aerial photographs, and interviews with knowledgeable persons. No additional investigation is recommended for the subject property.

There is a potential for lead from lead paint and/or asbestos containing building materials to be present in the older structures on site. If residential development is planned, screening for these contaminants may be required by the local enforcement agency (LEA).

9.0 SELECTED REFERENCES

1. Churchill, Ronald, Geologic Controls on the Distribution of Radon in California for the Department of Health Services, 25 January 1991, revised December 2003.

2. Loyd, R.C., (1984): "Mineral Land Classification of the Folsom 15-Minute Quadrangle, Sacramento, El Dorado, Placer, and Amador Counties, California", California Department of Conservation, Division of Mines and Geology, Open-File Report 84-50.

3. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of El Dorado Area, California, 1974.

4. U.S. Geological Survey Topographic Map – Clarksville, California Topographic Quadrangle, 7.5 minute series, 1953 (photorevised 1980).

10.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

David C. Sederquist, C.E.G., C. HG.
Registered Geologist - California No. 4715
Certified Engineering Geologist, California No. 2133
Certified Hydrogeologist, California No. 619
Bachelor of Arts in Geology, California State University, Sacramento, 1980

Mr. Sederquist has performed Phase I and Phase II Environmental Site Assessments for commercial, residential, public utility and school projects since 1990. He has assessed, monitored, and closed soil and groundwater contamination sites. He is experienced in working closely with both regulatory officials and property owners/purchasers.

Laurie B. Israel, R.E.A.
Registered Environmental Assessor - California No. 05557
Bachelor of Science in Environmental Policy Analysis and Planning, UC - Davis, 1988

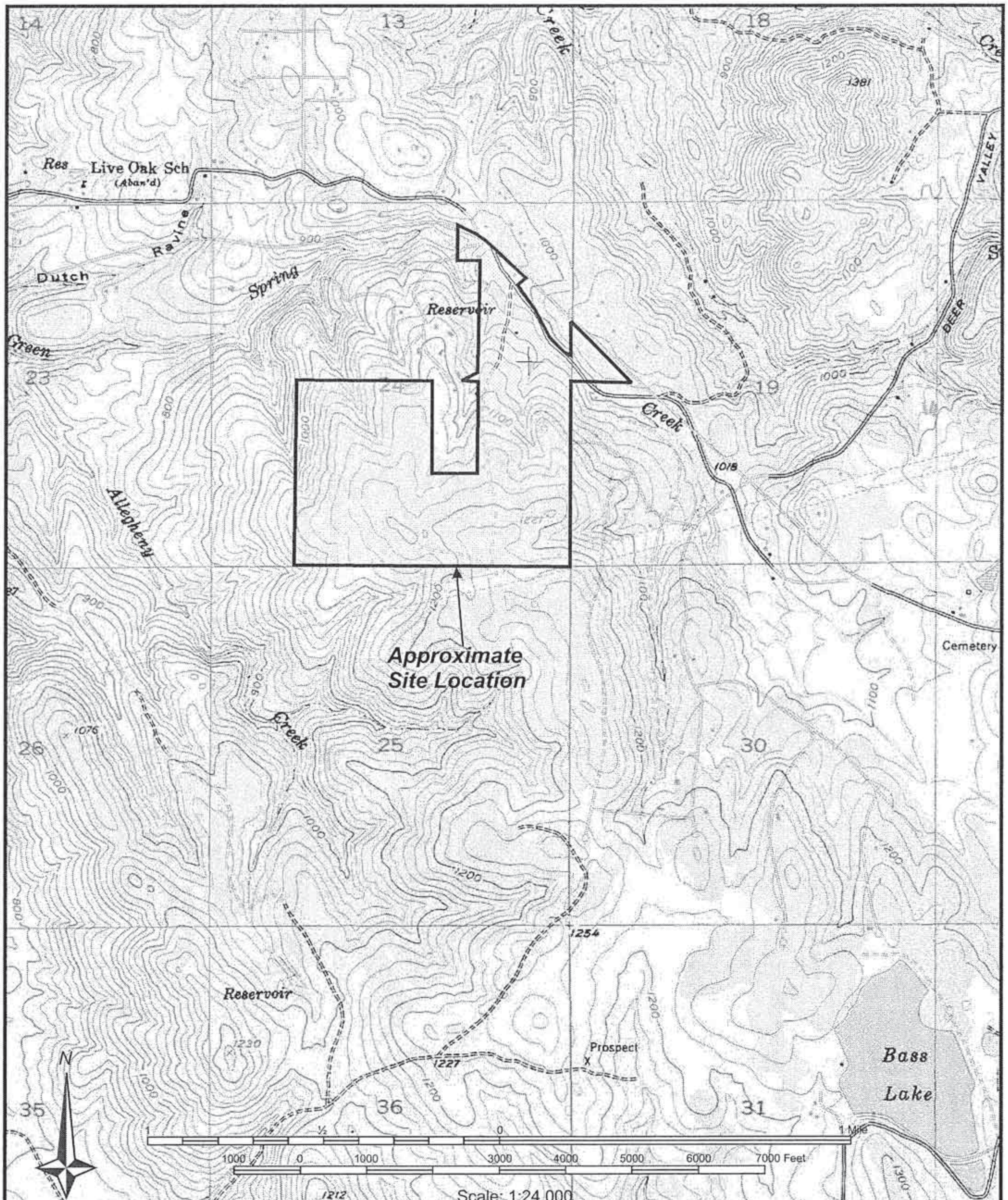
Ms. Israel has worked in the environmental field since 1988. She has been involved in all aspects of Phase I Environmental Site Assessments. Ms. Israel became a Registered Environmental Assessor with the State of California in 1994. Ms. Israel has also performed limited Phase II investigations.

TABLES

TABLE 1: SUMMARY OF AERIAL PHOTOGRAPHS REVIEWED
DIXON RANCH
GREEN VALLEY ROAD
EL DORADO HILLS, CALIFORNIA 95762
Project No. E11047.001

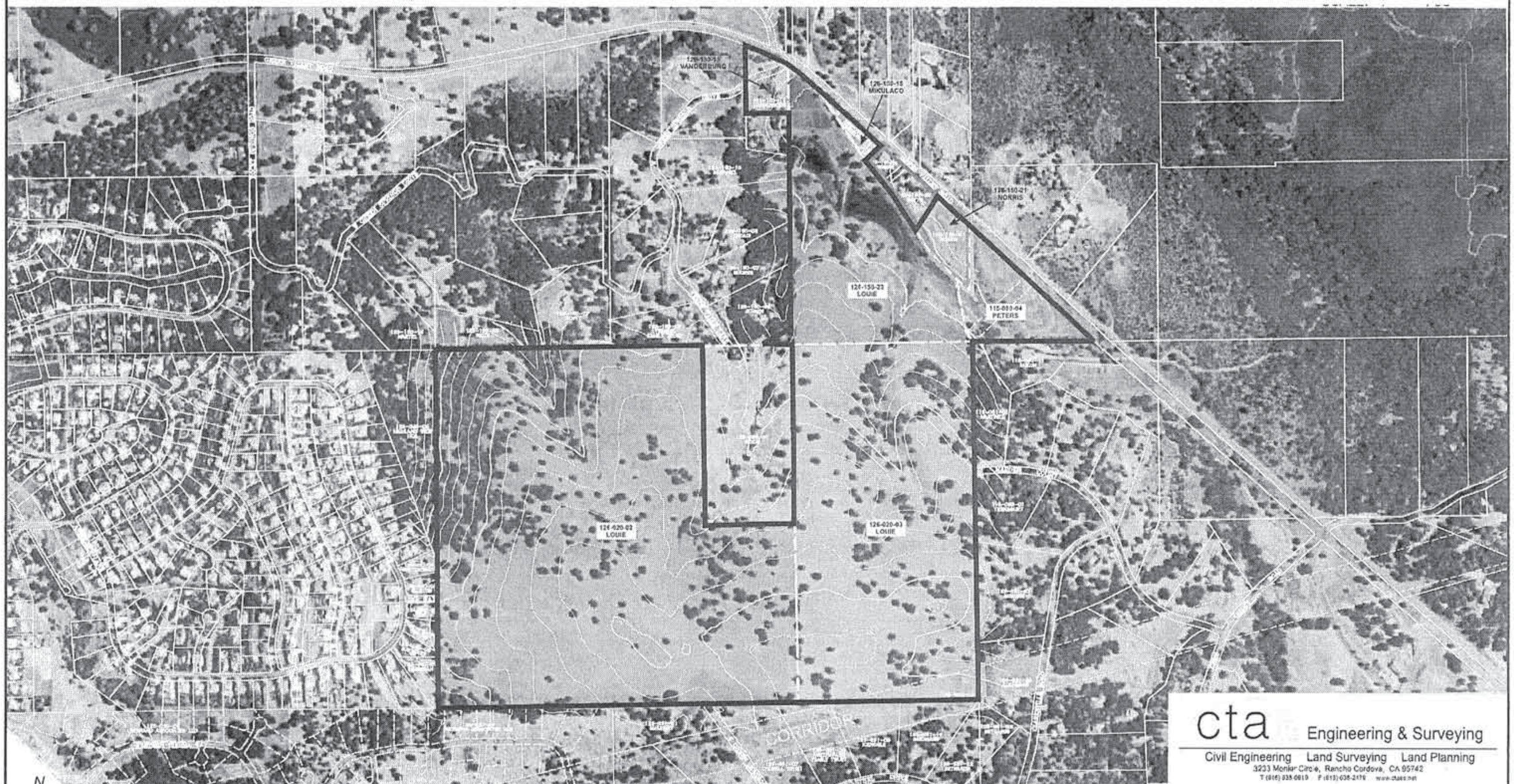
AERIAL PHOTOGRAPHS				
Date	**Provided By**	**Scale (±)**	**Type**	**Source**
1937	YCG	1" = 1667'	B&W	National Aerial Resources
1952	YCG	1" = 2000'	B&W	National Aerial Resources
1953	EDR	1" = 666'	B&W	Pacific Air
1961	EDR	1" = 666'	B&W	Cartwright
1973	EDR	1" = 666'	B&W	NASA
1984	EDR	1" = 690'	B&W	USGS
1993	EDR	1" = 666'	B&W	USGS
1998	EDR	1" = 666'	B&W	USGS
2005	EDR	1" = 604'	Color	EDR

FIGURES



BASE MAP REFERENCE: *U.S.G.S. 7.5 Minute Topographic Series, Clarksville Quadrangle, Dated 1953 (Revised 1980)*

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 April 2011	**VICINITY MAP** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	FIGURE **1**



N

0 350 700 1400

Approximate Scale: 1" = 700'

BASE MAP REFERENCE: *Dixon Ranch Project Study Area Exhibit, CTA Engineering & Surveying, January 2010*

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001	SITE PLAN	FIGURE
	April 2011	Dixon Ranch - Phase I ESA El Dorado Hills, California	2

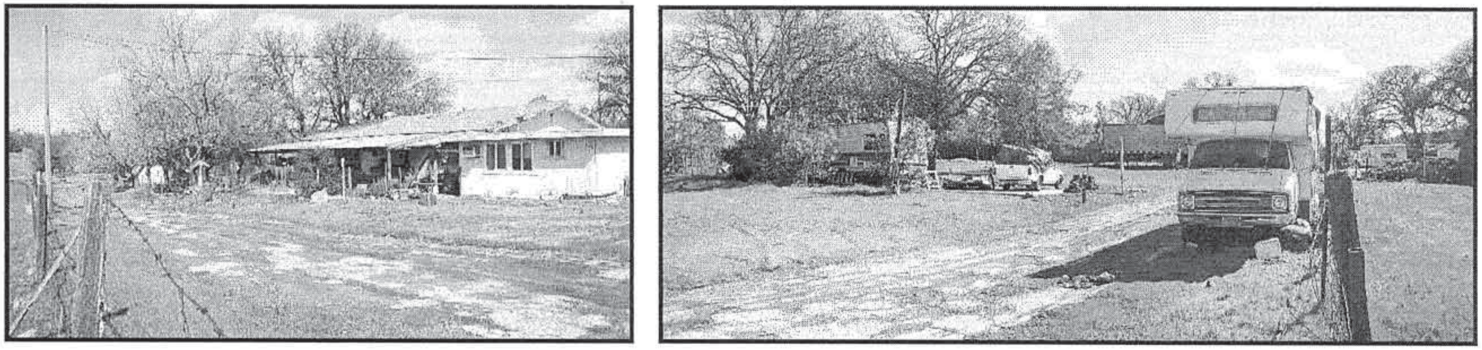


Photo 1: Duplex on Mikulaco parcel, APN 126-150-15.

Photo 2: Vacant lot comprising the Norris parcel, APN 126-150-21.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 **April 2011**	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	FIGURE **3**

Photo 3: Strawberries field on the northern portion of the Peters parcel, APN 115-080-04.

Photo 4: Landscaping equipment and storage sheds on the Peters parcel, APN 115-080-04.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 **April 2011**	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	**FIGURE** **4**

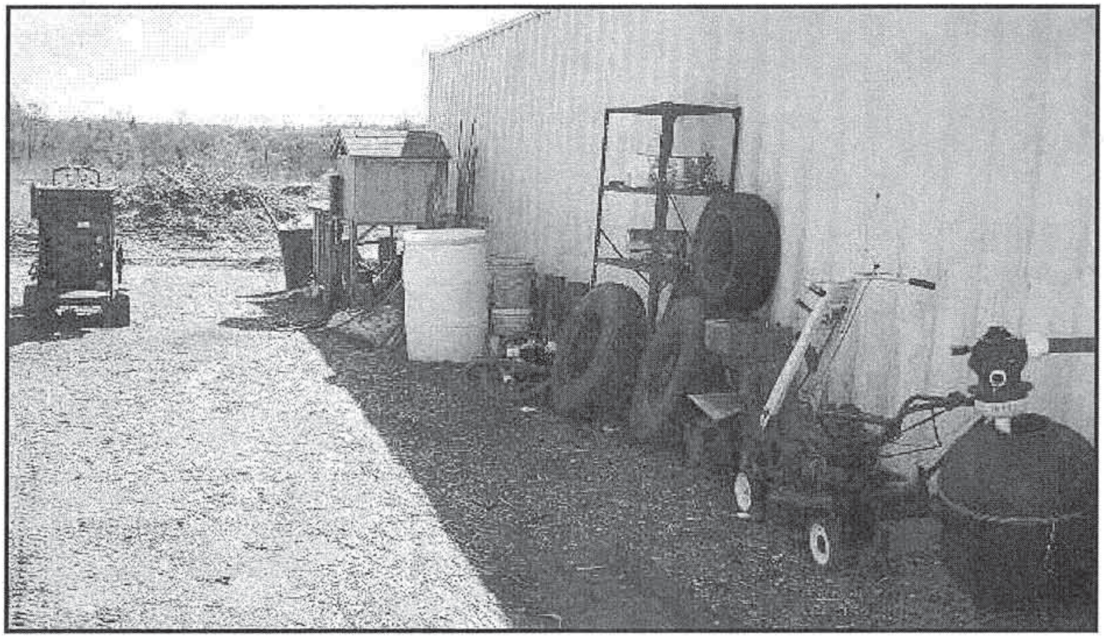


Photo 5: Paint cans, gas containers, and other containers stored on the Peters parcel, APN 115-080-04.

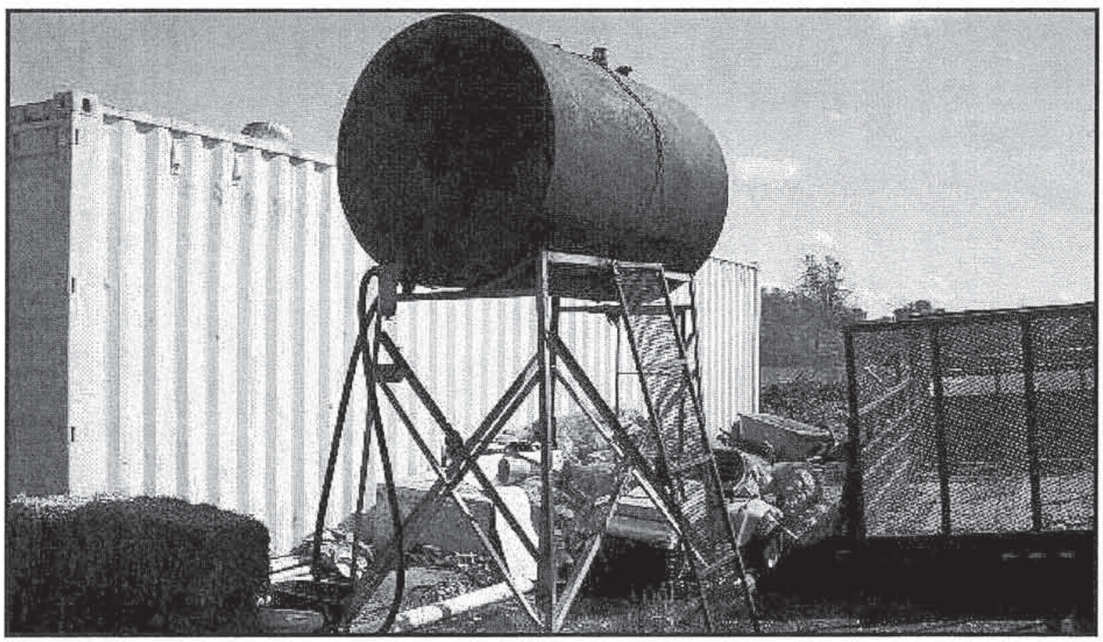


Photo 6: Aboveground diesel fuel storage tank (AST), reportedly empty, on the Peters parcel, APN 115-080-04.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 **April 2011**	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	**FIGURE** **5**

Photo 7: Soil and rock piles on the Peters parcel, APN 115-080-04.

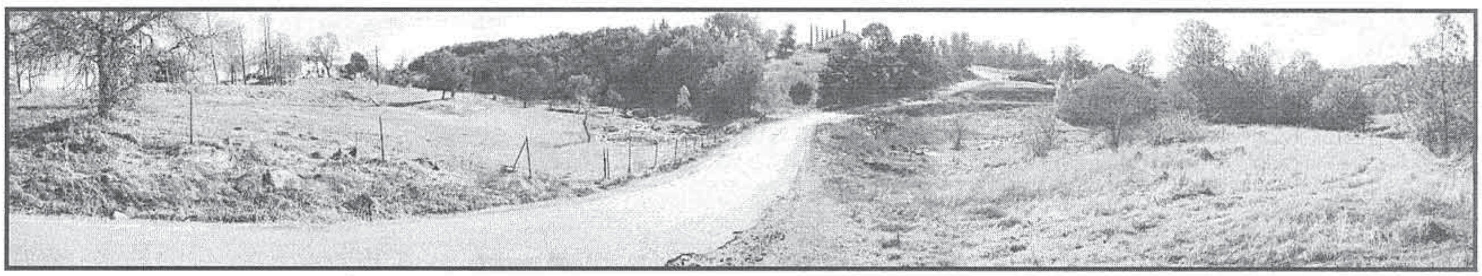


Photo 8: View of the northern and western portions of the Vanderburg parcel, APN 126-150-13.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 April 2011	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	**FIGURE** **6**

Photo 9: Strawberry field in the northernmost portion of the Louie parcel, APN 126-150-23.

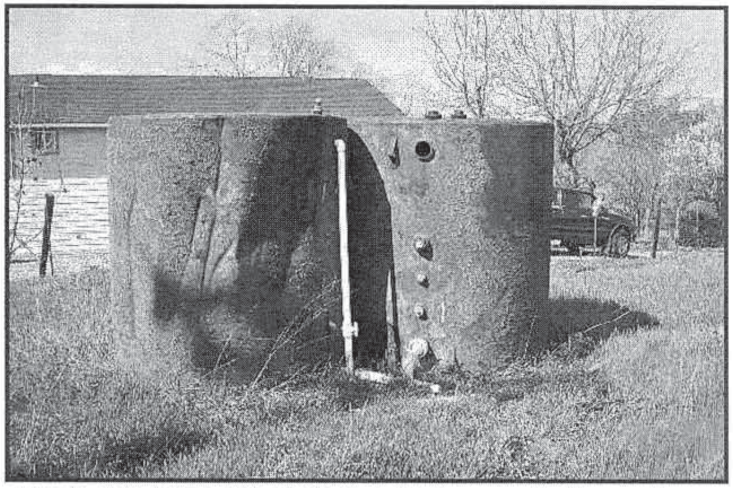


Photo 10: Former fuel storage tanks reportedly used as water irrigation tanks for the strawberry field in the northernmost portion of the Louie parcel, APN 126-150-23.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001	**SITE PHOTOGRAPHS**	FIGURE
	April 2011	**Dixon Ranch - Phase I ESA** El Dorado Hills, California	**7**

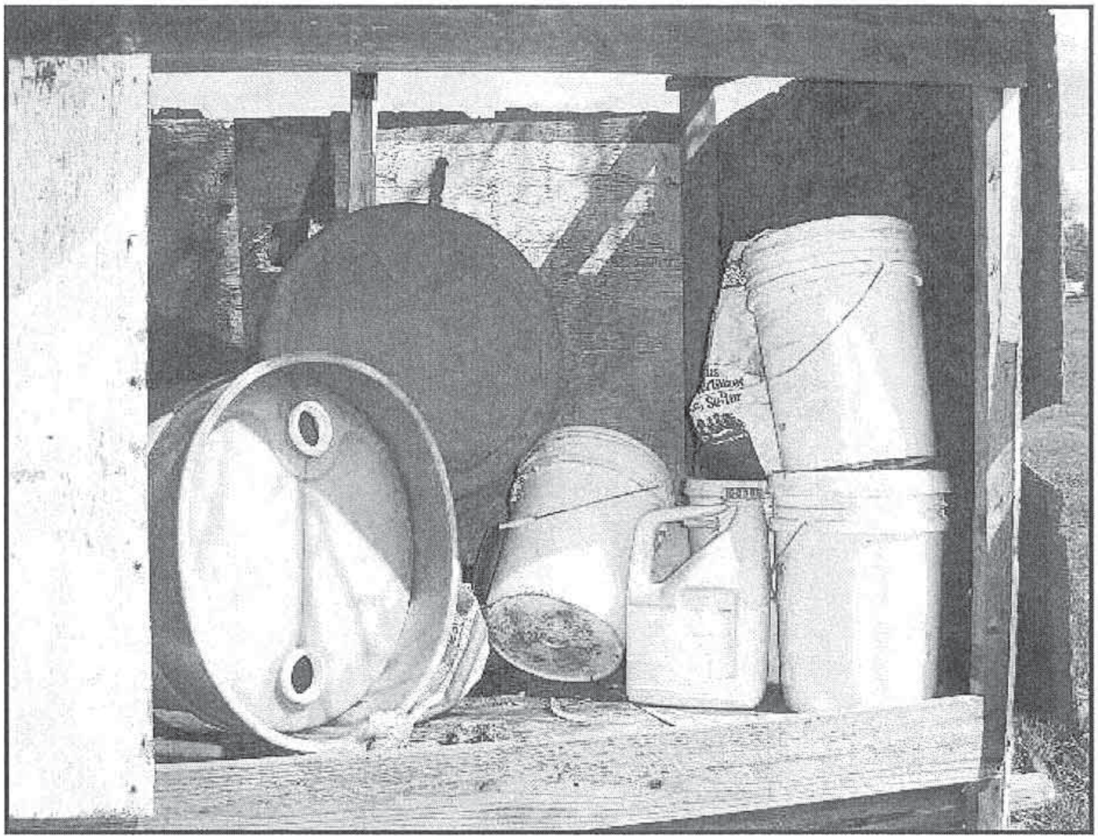


Photo 11: Shed with chemicals, fertilizers for the strawberry field in the central portion of the Louie parcel, APN 126-150-23.

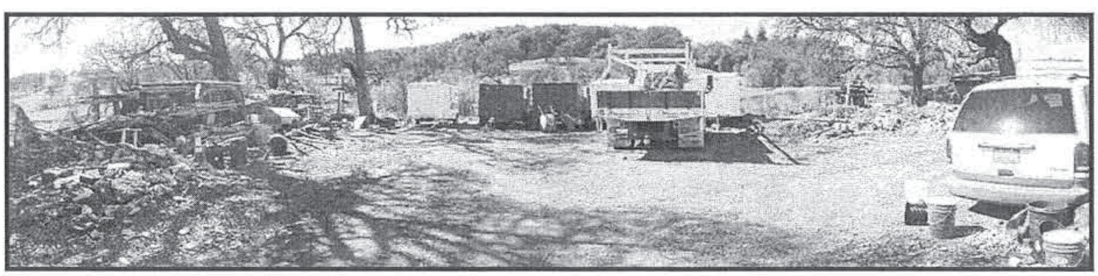


Photo 12: Landscaping storage yard in the central portion of the Louie parcel, APN 126-150-23.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001	**SITE PHOTOGRAPHS**	**FIGURE**
	April 2011	**Dixon Ranch - Phase I ESA** El Dorado Hills, California	**8**

Photo 13: Historic Dixon Ranch residence and animal sheds in the central portion of the Louie parcel, APN 126-150-23.

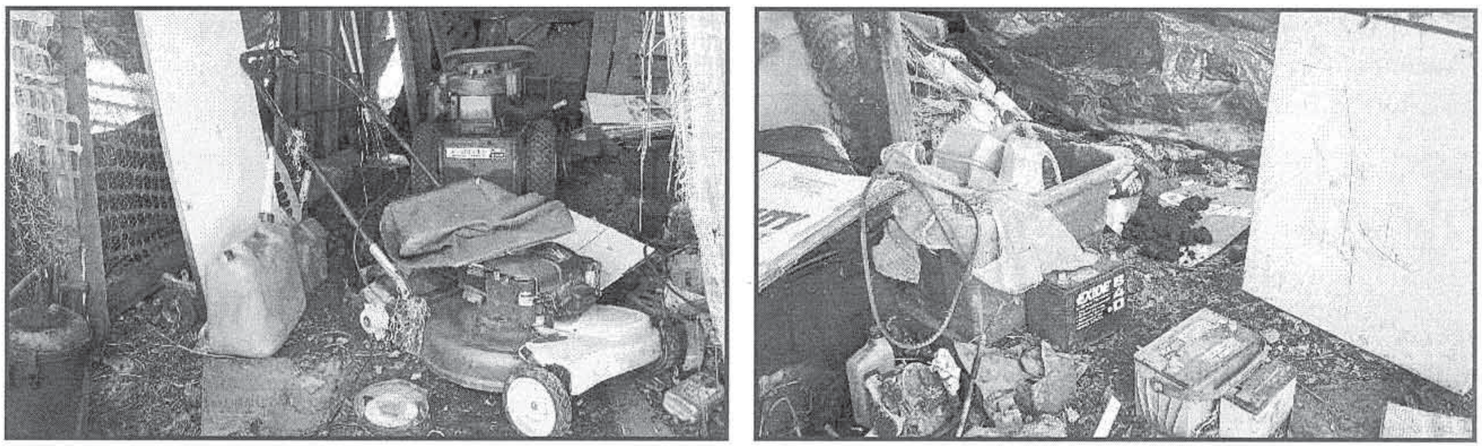


Photo 14: Historic Dixon Ranch barn, interior view (batteries, vehicles, lawnmower, etc), in the central portion of the Louie parcel, APN 126-150-23.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 **April 2011**	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	**FIGURE** **9**

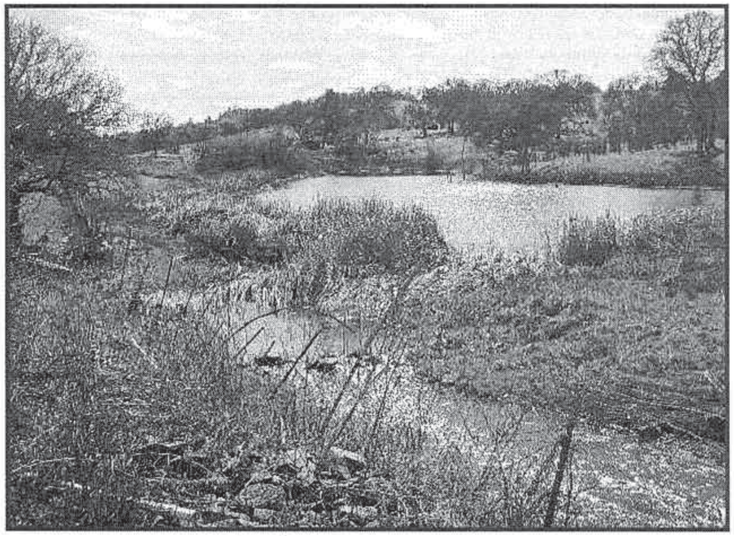


Photo 15: Ponds and creek in the central portion of the Louie parcel, APN 126-150-23.

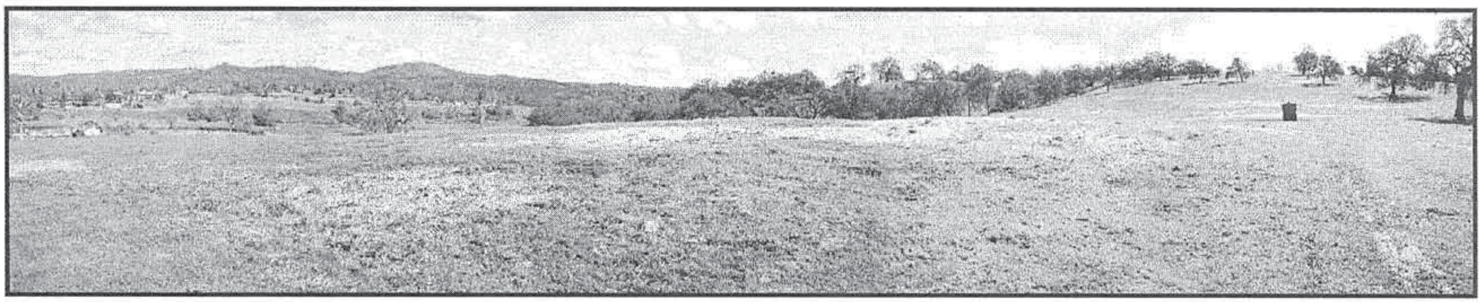


Photo 16: Northeast Louie parcel, APN 126-150-23 (view east to south).

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001	SITE PHOTOGRAPHS	FIGURE
	April 2011	Dixon Ranch - Phase I ESA El Dorado Hills, California	10

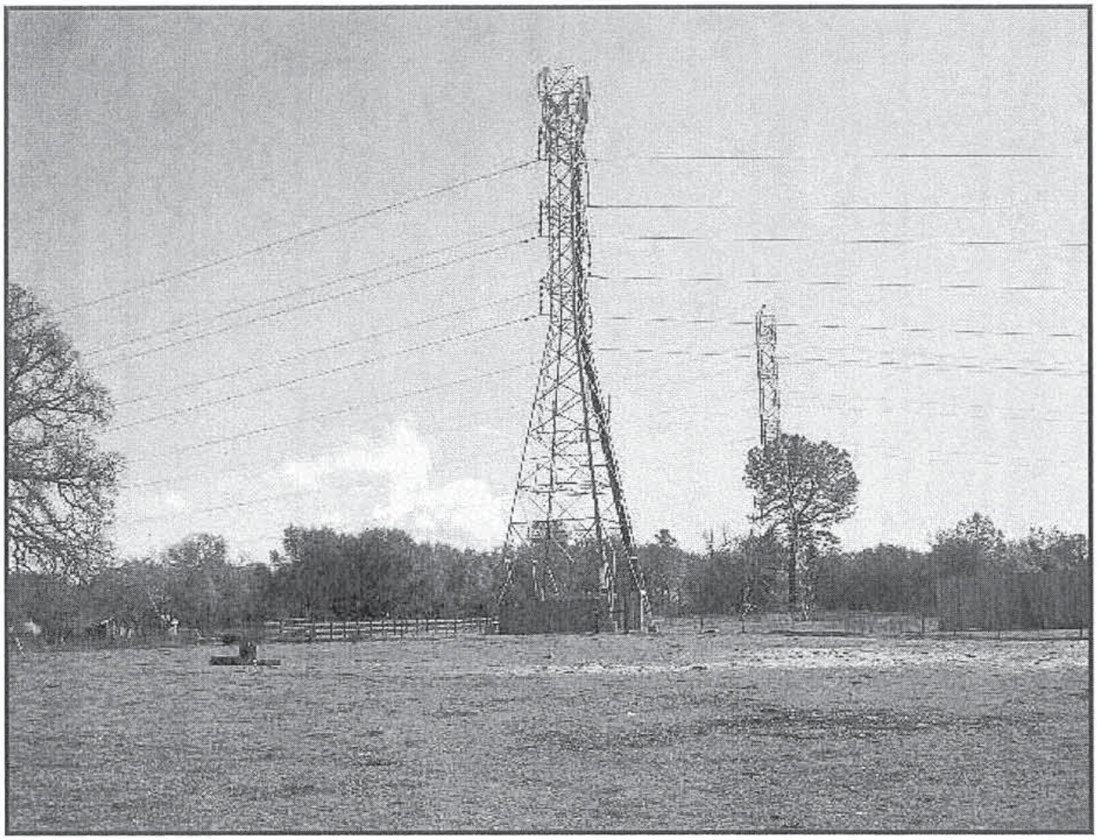


Photo 17: Overhead power line and tower at the southern boundary of the Louie parcel APN 126-020-03.

Photo 18: Southeast Louie parcel, APN 126-020-03 (view north to east).

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 **April 2011**	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	**FIGURE** **11**

Photo 19: Cattle corral at the boundary btw the southeast Louie parcel, APN 126-020-03, and southwest Louie parcel, APN 126-020-02.

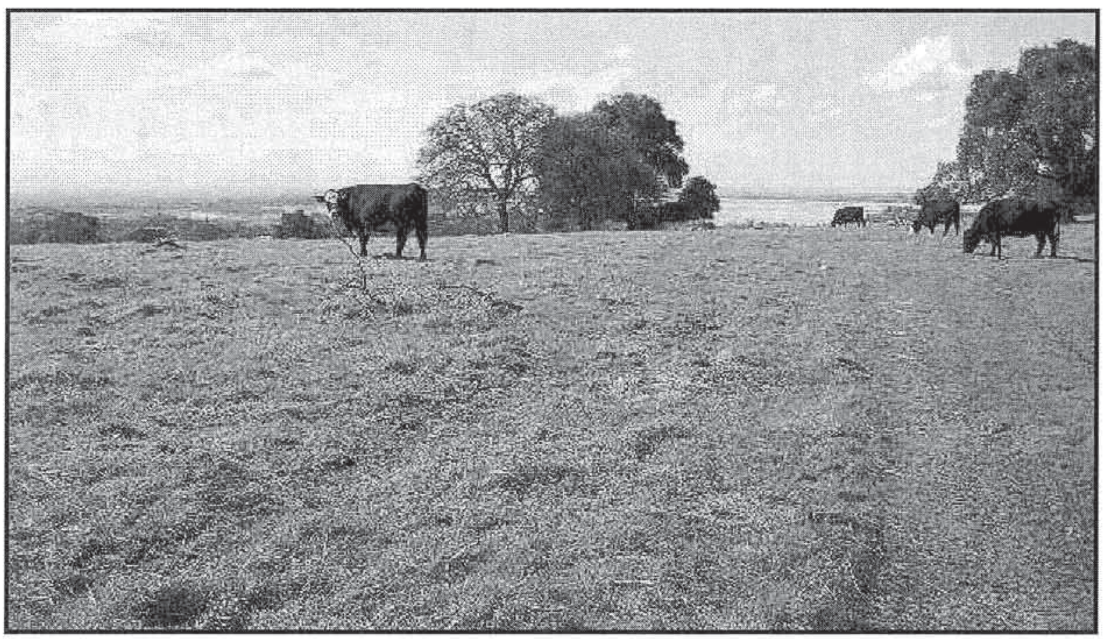


Photo 20: Cattle observed grazing the southwest Louie parcel, APN 126-020-02, (view west, Folsom Lake in background).

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 **April 2011**	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	**FIGURE** **12**

Photo 21: Grazing land in the southwest Louie parcel, APN 126-020-02. View to east, southeast

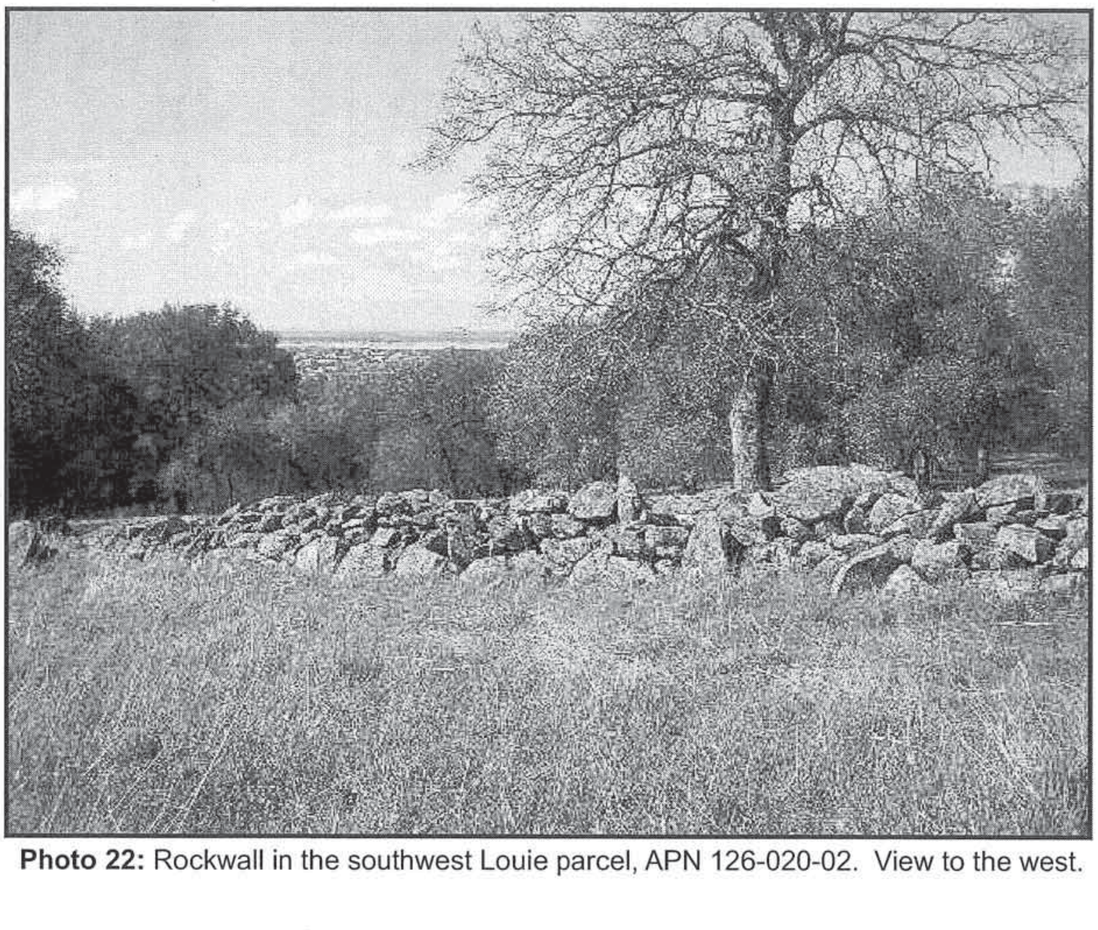


Photo 22: Rockwall in the southwest Louie parcel, APN 126-020-02. View to the west.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E11047.001 April 2011	**SITE PHOTOGRAPHS** **Dixon Ranch - Phase I ESA** El Dorado Hills, California	**FIGURE** **13**

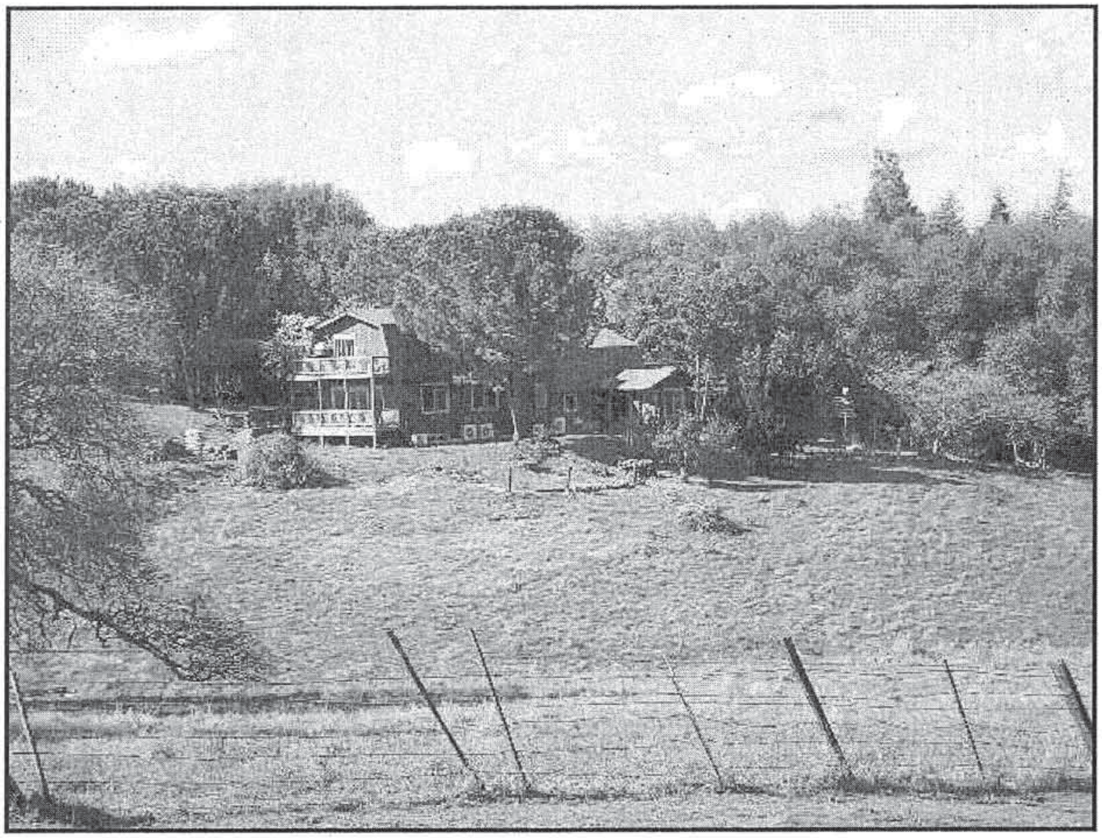


Photo 23: Dixon property bisecting the southeast and southwest Louie parcels. View to west.

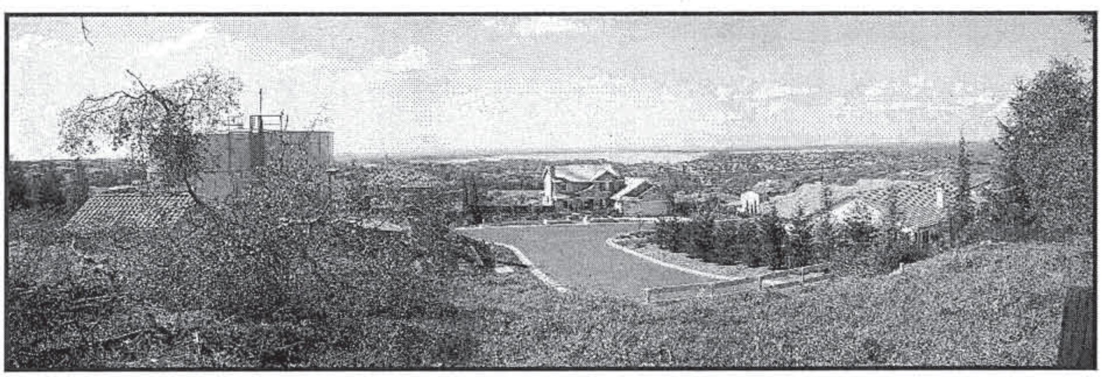


Photo 24: Adjacent residential subdivision to the west.

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APPENDICES

APPENDIX A

Phase I ESA Questionnaires
Telephone Conversation Records
EDR Environmental Lien Search Report

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT ________ DATE 3/21/11 TIME 10:20

COMPANY NAME EDC Ag. Commissioner

TELEPHONE NO. 530 621-5520 FAX NO. ________

MAILING ADDRESS ________

PROJECT NAME AND NUMBER E11047.001

NOTES Strawberry Fields (GV Road)

Peters - 115-080-04

Louie - 126-150-23

(CUPA) → Leigh Ann →

Dept. of Ag - ~~State~~ EDC of CA; fee; 1 week
Public Records Request → APN
→ 3 yrs - 4 yrs
→ no legacy; round up
→ 3 yrs no pesticides; to be organic

Recorded by Laurie Israel

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Phase I Environmental Site Assessment

Site Name: **Vanderburg APN 126-150-13 (northern portion only)**
Location: **1768 Green Valley Road, El Dorado County, California**

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482 or Email to laurie5565@yahoo.com)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	Yes	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	No	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	No	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	No	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	No	Unknown
6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	No	Unknown

Phase I Environmental Site Assessment

7. Is there currently, or has there been previously, any stained soil on the *property*? Yes No Unknown

8. Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*? Yes ~~No~~ Unknown

ON YOUR PROPERTY OLD GAS TANKS I HAVE CALLED TH COUNTY ABOUT BEF

9. Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*? Yes No Unknown

10. Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors? Yes No Unknown

11. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency? Yes No Unknown

12. Are you aware of any floor drains or sumps on the property? Yes No Unknown

13. Have any *hazardous substances* or *petroleum products,* unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*? Yes No Unknown

14. Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs? Yes No Unknown

15. Do you have any knowledge of *environmental liens* with respect to the *property*? Yes No Unknown

16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	No	Unknown
17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	No	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	No	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	No	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): LEE VANDERBURG	**(SIGNATURE):**
TITLE:	**ADDRESS:** 1768 GREEN VALLEY EL DORADO HILLS 95762
FIRM:	**DATE:**
PHONE NUMBER: 916 933-0214	**FAX NUMBER:**
RELATIONSHIP TO SITE: Owner ______	**or Owner's Representative** ______

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Ron Mikulaco DATE 3/1/11 TIME 1:40

COMPANY NAME APN 126-150-15

TELEPHONE NO. (916) 715-0070 FAX NO.

MAILING ADDRESS 1838 + 1840 Green Valley Road

PROJECT NAME AND NUMBER E11047.001

NOTES Eldoradoeclipse@yahoo.com

Ron Mikulaco (916) 715-0070 lives onsite, duplex
- strawberry patch, 40 yrs
- septic, onsite, well (?) 1838 & 1840 Green Valley Road

Strawberries → leased
→ organic farming; sun + water
→ one domestic 250' deep
→ Perc test in 2002,
→ 2, 1000-gal septic tanks
→ duplex R5; tenant in other
→ park + use bathroom is ok

Em Q 3/1/11

Recorded by Laurie Israel

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ph 916.933.0633 fx 916.933.6482
www.youngdahl.net
YOUNGDAHL CONSULTING GROUP INC. 25 YEARS

Phase I Environmental Site Assessment

Site Name: Mikulaco APN 126-150-15
Location: 1838 & 1840 Green Valley Road, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482 or Email to laurie5565@yahoo.com)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	Yes	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	No	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	No	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	No	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	No	Unknown
6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	No	Unknown

Phase I Environmental Site Assessment

7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	No	Unknown
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	No	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	No	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	No	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	No	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	No	Unknown
13.	Have any *hazardous substances* or *petroleum products,* unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	No	Unknown
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	No	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	No	Unknown

Phase I Environmental Site Assessment

16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	No	Unknown
17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	No	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	No	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	No	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): Ron Mikelson	**(SIGNATURE):**
TITLE: Owner	**ADDRESS:**
FIRM:	**DATE:** 3/2/2011
PHONE NUMBER: 9167150070	**FAX NUMBER:**
RELATIONSHIP TO SITE: Owner X	**or Owner's Representative** ______

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Richard Kingensmith DATE 3/1/11 TIME 2:15

COMPANY NAME: Louie APN

TELEPHONE NO. (530)417-3240 FAX NO.

MAILING ADDRESS

PROJECT NAME AND NUMBER E11047.001

NOTES

Richard Klingensmith - onsite trailers drugs(?) (~~4th~~) (530) 417-3240

(has key to gate)

- asked to leave but is still onsite
- → 65-70 yrs old
- well at old Dixon house + ~~septic~~
- dug a pit to install septic, next to trailer
- has an outhouse onsite / port-a-potty
- teaches tennis
- sublet for horses onsite

3/1 - No answer, lm on vm Rich

Recorded by Laurie Israel

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TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Fay Louie DATE ______ TIME ______

COMPANY NAME

TELEPHONE NO. ______ FAX NO. ______

MAILING ADDRESS

PROJECT NAME AND NUMBER E11047.001

NOTES

Richard & Klingin-Smith caretaker for Louie

Southside of lake (bigger) there is a house
~~one~~ two earthan dams (vacant, old)
Fay Louie, stawberries, leased grazing, (Trailer 2)
Bay Area; Trust owner leased to M. Peters

Dixon Family in rectangle in middle live onsite
3200 Verde Valle Rd
Ms. Kim Dixon
Joyce (mother) + Bill live / Have historical info
Home onsite, slaughterhouse

Recorded by Laurie Israel

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Phase I Environmental Site Assessment

Site Name: Louie APNs 126-150-23, 126-020-02, & 126-020-03
Location: Green Valley Road, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482 or Email to laurie5565@yahoo.com)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	Yes	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	No	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	No	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	No	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	No	Unknown
6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	No	Unknown

Phase I Environmental Site Assessment

7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	No	Unknown
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes 2 TANKS BY STRAWBERRIES	No	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	No	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	No	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	No	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	No	Unknown
13.	Have any *hazardous substances* or *petroleum products,* unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	No	Unknown
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	No	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	No	Unknown

Phase I Environmental Site Assessment

16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	No	Unknown
17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	No	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	No	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	No	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): RICH KLINGENSMITH	**(SIGNATURE):** RK
TITLE: CARETAKER	**ADDRESS:** 1856 GREEN VALLEY ROAD
FIRM:	**DATE:**
PHONE NUMBER: 530 417 3240	**FAX NUMBER:**
RELATIONSHIP TO SITE: Owner ______	**or Owner's Representative** ✓

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Bill Norris DATE 3/1/11 TIME 2pm

COMPANY NAME APN 126-150-21

TELEPHONE NO. (916) 939-0813 FAX NO.

MAILING ADDRESS 363 Kipps Lane
EDH 95762

PROJECT NAME AND NUMBER E 11047.001

NOTES

Bill Norris (916) (939-0813) + Phyllis (No address) (Not in proj yet)
(ok to visit) - graded, no structure
- not that friendly
- 5-6 years
- Well, 20-gal/min,
- Compaction, bldg site for home
- Well was already in when purchased

Recorded by Laurie Israel

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Phase I Environmental Site Assessment

Site Name: Norris APN 126-150-21
Location: Green Valley Road, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482 or Email to laurie5565@yahoo.com)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	Yes	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	No	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	No	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	No	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	No	Unknown
6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	No	Unknown

Phase I Environmental Site Assessment

7. Is there currently, or has there been previously, any stained soil on the *property*? — Yes / No / Unknown

8. Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*? — Yes / No / Unknown

9. Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*? — Yes / No / Unknown

10. Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors? — Yes / No / Unknown

11. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency? — Yes / No / Unknown

12. Are you aware of any floor drains or sumps on the property? — Yes / No / Unknown

13. Have any *hazardous substances* or *petroleum products,* unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*? — Yes / No / Unknown

14. Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs? — Yes / No / Unknown

15. Do you have any knowledge of *environmental liens* with respect to the *property*? — Yes / No / Unknown

Phase I Environmental Site Assessment

16. Have you been informed of the past or current existence of environmental violations with respect to the *property*? — Yes **No** Unknown

17. Do you have any knowledge of any *environmental site assessments* of the *property*? — Yes **No** Unknown

18. Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*? — Yes **No** Unknown

19. Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity? — Yes **No** Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by: William J Norris

NAME (PRINT): William J. Norris (SIGNATURE): [signature]

TITLE: Owner ADDRESS: 363 Kypps Ln.

FIRM: DATE: Mar. 4 - 11 EDH

PHONE NUMBER: FAX NUMBER:

RELATIONSHIP TO SITE: Owner ______ or Owner's Representative ______

1 of 2

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Mike Peters DATE 3/31 TIME

COMPANY NAME APN 115-080-04

TELEPHONE NO. (772) 237-2999 FAX NO. Em/ iamsassy@aol.com

Florida #

MAILING ADDRESS

PROJECT NAME AND NUMBER E11047.001

NOTES

Mike Peters (772) 237-2999 (Florida)

Em iamsassymb@aol.com

Storage unit, AST, Well

Leasing to landscaper for mat'ls stg

Subleasing to strawberry grower

→ End dumps on Peters triangle parcel from ??

Fay Louie purchased in ~ 2003 all 3 parcels, 1 from Dixons, 2 from Mike Peters (2 eastern most) (western)

subleased

leased old house

Subleased to Ron, cattle grazer

paved & fenced

N. Tip Strawberry field @ Vanderburg

R. Klingensmith

moved to trailer

asked to leave

EDH Landscape Stg of vehicles

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Mike Peters DATE 3/31/11 TIME 11:00

COMPANY NAME

TELEPHONE NO. 772-237-2999 FAX NO.

MAILING ADDRESS

PROJECT NAME AND NUMBER E11047.00

NOTES Purchased property 15 years ago

→ when purchased 15yrs ago, 30-40 ft covered NOA w/ pool spoils
4 yrs ago; ag permit for pool spoils w/ rocks, ag dump site
- 3 months, pool spoils dumped after permit expired
- County ES - Notice to , Lien on 10 acres
- Reduced sale $50K
- County wanted compaction tests
Mr. Peter - Fuel tank owned by him, spill system
tenant: is kat litter, only filled 1-2x
500 gal gasoline 1x
diesel 1x
- tank empty for 6 years
- no spills
Erik Landscaping in Cameron Park - tenant
Sold land to Fay Louie -

Recorded by Laurie Israel

f:\wp51\reports\lbi\foncnt.rpt

YOUNGDAHL CONSULTING GROUP, INC.
Building Innovative Solutions
1234 Glenhaven Court, El Dorado Hills, Ca 95762
5750 Arabian Lane, Loomis, Ca 95650
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net
Youngdahl Consulting Group Inc. 25 Years

Phase I Environmental Site Assessment

Site Name: **Peters APN 115-080-04**
Location: **Green Valley Road, El Dorado County, California**

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482 or Email to laurie5565@yahoo.com)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	Yes	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	No	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	No	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	No	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	No	Unknown
6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	No	Unknown

Phase I Environmental Site Assessment

7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	No	Unknown
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	No	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	No	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	No	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	No	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	No	Unknown
13.	Have any *hazardous substances* or *petroleum products,* unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	No	Unknown
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	No	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	No	Unknown

16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	No	Unknown
17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	No	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	No	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	No	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): Michael J. Peters	**(SIGNATURE):** Mike J. Peters
TITLE: Owner/with Wife	**ADDRESS:** 3956 SW Heinlin ST.
FIRM: Self	**DATE:** 3-20-11
PHONE NUMBER: 772-237-2999	**FAX NUMBER:** Same.
RELATIONSHIP TO SITE: Owner _____	**or Owner's Representative** _____

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT ______________ DATE 3/21/11 TIME 10:20

COMPANY NAME EDC Ag. Commissioner

TELEPHONE NO. 530 621-5520 FAX NO. __________

MAILING ADDRESS ______________

PROJECT NAME AND NUMBER E11047.001

NOTES Strawberry Fields (GV Road)

Peters - 115-080-04

Louie - 126-150-23

(CUPA) → Leigh Ann →

EDC

Dept. of Ag - ~~State~~ of CA; fee; 1 week

Public Records Request → APN

→ 3 yrs - 4 yrs

→ no legacy; round up

→ 3 yrs no pesticides; to be organic

Recorded by Laurie Israel

f:\wp51\reports\lbi\foncnt.rpt

Dixon Ranch
Green Valley Road
El Dorado Hills, CA 95762

Inquiry Number: 3002996.7
March 09, 2011

The EDR Environmental LienSearch™ Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

The EDR Environmental LienSearch™ Report

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

The EDR Environmental LienSearch™ Report

TARGET PROPERTY INFORMATION

ADDRESS

Green Valley Road
Dixon Ranch
El Dorado Hills, CA 95762

RESEARCH SOURCE

Source 1:

El Dorado county recorder
El Dorado, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	Deed
Title is vested in:	Michael J Peters & Betty L Peters
Title received from:	Placer Foreclosure Inc
Deed Dated	12/31/2008
Deed Recorded:	7/20/2009
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	115-080-04
Legal Description:	see exhibit
Legal Current Owner:	Michael J Peters & Betty L Peters
Property Identifiers:	115-080-04
Comments:	see exhibit

Deed 2:

Type of Deed:	Deed
Title is vested in:	Louie Helm living trust
Title received from:	Jenny louie Helm
Deed Dated	11/15/2003
Deed Recorded:	1/7/2004
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA

The EDR Environmental LienSearch™ Report

Land Record Comments:	see exhibit
Miscellaneous Comments:	126-020-02 old APN 067-051-09

Legal Description: see exhibit

Legal Current Owner: Louie Helm living Trust

Property Identifiers: 126-020-02

Comments: see exhibit

Deed 3:

Type of Deed:	Deed
Title is vested in:	Louie Helm living trust
Title received from:	Jenny Louie Helm
Deed Dated	11/15/2003
Deed Recorded:	1/7/2004
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	126-020-03, 126-150-23 old apn- 067-051-10

Legal Description: see exhibit

Legal Current Owner: Louie Helm living trust

Property Identifiers: 126-020-03, 126-150-23

Comments: see exhibit

Deed 4:

Type of Deed:	Deed
Title is vested in:	Macon L Vanderburg & Marian Vanderburg
Title received from:	Macon L Vanderburg & Marian Vanderburg
Deed Dated	12/9/1991
Deed Recorded:	12/17/1991
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	126-150-13 old-067-420-13

Legal Description:	see exhibit
Legal Current Owner:	Macon L Vanderburg & Marian Vanderburg
Property Identifiers:	126-150-13
Comments:	see exhibit

Deed 5:

Type of Deed:	Deed
Title is vested in:	Ronald P Mikulaco
Title received from:	Michael J Peters
Deed Dated	1/6/2006
Deed Recorded:	1/18/2006
Book:	na
Page:	na
Volume:	NA
Instrument:	na
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	126-150-15 old-067-420-15
Legal Description:	see exhibit
Legal Current Owner:	Ronald P Mikulaco
Property Identifiers:	126-150-15
Comments:	see exhibit

Deed 6:

Type of Deed:	Deed
Title is vested in:	The Louis S & Joyce E Sherman Revocable Trust
Title received from:	The Louis S & Joyce E Sherman
Deed Dated	5/3/1995
Deed Recorded:	10/7/2003
Book:	NA
Page:	na
Volume:	NA
Instrument:	na
Docket:	na
Land Record Comments:	see exhibit
Miscellaneous Comments:	126-150-21 old-067-420-21
Legal Description:	see exhibit
Legal Current Owner:	The Louis S & Joyce E Sherman Revocable Trust

The EDR Environmental LienSearch™ Report

Property Identifiers: 126-150-21

Comments: see exhibit

ENVIRONMENTAL LIEN

Environmental Lien:	Found	☐	Not Found	☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs:	Found	☐	Not Found	☒

Deed Exhibit 1

RECORDING REQUESTED BY

PLACER TITLE COMPANY

AND WHEN RECORDED MAIL TO*

MICHAEL J. PETERS AND BETTY L. PETERS
10 HEATHER LANE #214
LAHAINA, HI 96761

El Dorado, County Recorder
William Schultz Co Recorder Office
DOC- 2009-0036055-00
Acct 6-PLACER TITLE CO
Monday, JUL 20, 2009 14:37:22
Ttl Pd $15.00 Nbr-0001189650
JLB/C1/1-3

LOAN: **PETERS** OTHER: **204-26323** FILE: **PFI-087903 JAN**
INVESTOR LOAN #: A.P. NO. **115-080-04-100**

TRUSTEE'S DEED UPON SALE

DOCUMENTARY TRANSFER TAX IS COMPUTED ON FULL VALUE LESS LIENS AND
ENCUMBRANCES REMAINING AT TIME OF SALE **$0.00**
AMOUNT OF CONSIDERATION **$523,422.66** R&T 11926
AMOUNT OF UNPAID DEBT **$523,422.66**
GRANTEE IS IDENTIFIED AS THE BENEFICIARY.

Declarant's Signature or Agent Determining Tax

PLACER FORECLOSURE, INC

Declarant's Name

PLACER FORECLOSURE INC. , Trustee, (whereas so designated in the Deed of Trust herein under more particularly described or as duly appointed Trustee), does hereby GRANT and CONVEY to **MICHAEL J. PETERS AND BETTY L. PETERS** (herein called Grantee), but without covenant or warranty, express or implied, all right, title and interest conveyed to and now held by it as Trustee under the Deed of Trust in and to the property situated in the **UNINCORPORATED AREA OF THE** County of **EL DORADO**, State of California, described as follows:

SEE EXHIBIT "A", ATTACHED HERETO AND MADE A PART HEREOF.

APN: 115-080-04-100

This conveyance is made in compliance with the terms and provisions of the Deed of Trust executed by **JAMES AZIZ AND AIMAD NEKRAWESH** and recorded on **06/09/2005**, in Book Page Instrument Number **2005-0047055-00** of Official records, in the office of the Recorder of **EL DORADO** County, California, under the authority and powers vested in the Trustee designated in the Deed of Trust or as the duly appointed Trustee, default having occurred under the Deed of Trust and pursuant to the Notice of Default and Election to Sell under the Deed of Trust recorded **09/04/2008**, in Book Page Instrument Number **2008-0043501** of Official records, Trustee having complied with all applicable statutory requirements of the State of California and performed all duties required by the Deed of Trust including sending of a Notice of Default and Election to SELL within 10 days after its recording and a Notice of Sale at least 20 days prior to the Sale Date by certified mail, postage pre-paid to each person entitled to notice in compliance with California Civil Code 2924b.

Notice of Trustee's Sale was published once a week for three consecutive weeks commencing **12/10/2008** in **MOUNTAIN DEMOCRAT**, a newspaper, and at least 20 days before the date fixed therein for sale a copy of the Notice of Trustee's Sale was posted in a conspicuous place on the property described above and in one public place in the city where the sale was to be held. At the time and place fixed in said notice, Trustee did, by public

* Mail tax bill to the above

036055 TRUSTEE'S DEED UPON SALE

LOAN: PETERS **OTHER: 204-26323** **FILE: PFI-087903 JAN**
INVESTOR LOAN #: **A.P. NUMBER 115-080-04-100**

announcement, and in said provided, postpone the sale from time to time thereafter and did sell the property described above on **12/31/2008** at public auction to the Grantee herein, Grantee being the highest qualified bidder therefor, for **$523,422.66** cash, lawful money of the United States, or by the satisfaction of the indebtedness then secured by said Deed of Trust.

In WITNESS WHEREOF, **PLACER FORECLOSURE INC.** , as the Trustee, has this day, **12/31/2008** caused its name to be hereunto affixed by its officer thereunto duly authorized by its Corporation By-Laws.

PLACER FORECLOSURE INC., , as said Trustee

By ______________________
RON ROBBINS, PRESIDENT
PLACER FORECLOSURE, INC., TRUSTEE

By ______________________

STATE OF CALIFORNIA
COUNTY OF **PLACER**

On **12/31/2008** before me, Julie Clarke-Butcher a Notary Public personally appeared **RON ROBBINS, PRESIDENT**, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

JULIE CLARKE-BUTCHER
COMM. #1747348
NOTARY PUBLIC • CALIFORNIA
PLACER COUNTY
Comm. Exp. MAY 27, 2011

Signature ______________________
JULIE CLARKE-BUTCHER

(Seal)

036055

EXHIBIT "A" - LEGAL DESCRIPTION

PARCEL NO. ONE:

ALL THAT PORTION OF LOT 2 OF THE NORTHWEST 1/4 OF SECTION 19, TOWNSHIP 10 NORTH, RANGE 9 EAST, M.D.B.&M., MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE WEST QUARTER CORNER OF SAID SECTION 19 AND RUNNING ALONG THE WESTERLY BOUNDARY OF SAID SECTION 19, NORTH 00 DEGREES 28' 45" WEST 877.82 FEET TO A POINT ON THE SOUTHERLY BOUNDARY OF THE GREEN VALLEY ROAD; THENCE ALONG THE SOUTHERLY BOUNDARY OF SAID ROAD SOUTH 48 DEGREES 11' 49" EAST 1298.00 FEET TO A POINT ON THE SOUTHERLY BOUNDARY OF SAID LOT 2; THENCE LEAVING SAID ROAD AND ALONG THE SOUTHERLY BOUNDARY OF SAID LOT 2, SOUTH 89 DEGREES 15 MINUTES 00 SECONDS WEST 961.59 FEET TO THE POINT OF BEGINNING.

PARCEL NO. TWO:

ALL THAT PORTION OF THE NORTHEAST 1/4 OF SECTION 24, TOWNSHIP 10 NORTH, RANGE 8 EAST, M.D.M. DESCRIBED AS FOLLOWS:

BEGINNING AT A 2 INCH DIAMETER CAPPED IRON PIPE STAMPED RCE 13409, MARKING THE EAST 1/4 CORNER OF SAID SECTION 24; THENCE FROM SAID POINT OF BEGINNING ALONG THE EASTERLY LINE OF SAID SECTION 24, NORTH 00 DEGREES 24 MINUTES 00 SECONDS WEST 342.10 FEET TO A 1 1/2 INCH DIAMETER CAPPED IRON PIPE SET AT THE SOUTHEASTERLY CORNER OF PARCEL 2 OF THAT CERTAIN PARCEL MAP ON FILE IN THE OFFICE OF THE RECORDER OF THE COUNTY OF EL DORADO, CALIFORNIA, IN BOOK 41 OF PARCEL MAPS, AT PAGE 3; THENCE ALONG THE SOUTHERLY LINE OF SAID PARCEL 2 NORTH 46 DEGREES 07 MINUTES 20 SECONDS WEST 12.01 TO A 3/4 INCH DIAMETER CAPPED IRON PIPE AND CONTINUING NORTH 46 DEGREES 07 MINUTES 20 SECONDS WEST 150.32 FEET; THENCE LEAVING SAID SOUTHERLY LINE SOUTH 10 DEGREES 26 MINUTES 38 SECONDS EAST 394.74 FEET; THENCE SOUTH 35 DEGREES 46 MINUTES 15 SECONDS EAST 81.84 FEET TO THE POINT OF BEGINNING.

PARCEL NO ONE AND PARCEL NO. TWO, ALSO SHOWN AS TRACT 1 ON THAT CERTAIN RECORD OF SURVEY FILED ON MAY 23, 2001, IN THE OFFICE OF THE COUNTY RECORDER OF EL DORADO COUNTY, IN BOOK 24 OF SURVEYS, AT PAGE 138.

ASSESSOR PARCEL NO. 115-080-04-100

07/20/2009,20090036055

Deed Exhibit 2

RECORDING REQUESTED BY:

JENNY LOUIE-HELM

MAIL DEED TO:

JENNY LOUIE-HELM
46995 Ocotillo Court
Fremont, CA 94539-7204

MAIL TAX STMTS TO:

FAY LOUIE
P.O. BOX 14485
Fremont, Ca 94539-1185

El Dorado, County Recorder
William Schultz Co Recorder Office
DOC- 2004-0001131-00
Check Number 3580
Wednesday, JAN 07, 2004 08:57:24
Ttl Pd $10.00 Nbr-0000531240
AKB/C2/1-2

APN: 067-051-09-100
Address: Unimproved land in El Dorado Hills, CA (16.7% int)
7073 – 9th Avenue, El Dorado Hills

--------------------SPACE ABOVE THIS LINE FOR RECORDER'S USE--------------------

PCOS FILED

GRANT DEED

The undersigned grantor(s) declare(s):

Documentary transfer tax is $ NONE (Transfer to grantor revocable trust)
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
( ) Unincorporated area: ( ) City of ____________________
(X) Realty not sold

FOR NO CONSIDERATION, JENNY LOUIE-HELM (a.k.a. JENNY LOUIE), a married woman as her sole and separate property (who acquired title as a single woman),

hereby GRANT(S) to VERNE D. HELM and JENNY LOUIE-HELM as Trustees of the LOUIE-HELM LIVING TRUST (created by a Declaration of Trust dated November 15, 2003),

the real property situated in the Unincorporated Area of El Dorado Hills, County of El Dorado, State of California, and being more particularly described as follows:

PARCEL NO.1:

The West half of the Southeast quarter and the East half of the Southwest quarter of Section 24, Township 10 North, Range 8 East, MDB&M.

EXCEPTING THEREFROM the East half of the Northwest quarter of the Southeast quarter of Section 24, Township 10, North, Range 8 East, MDB&M.

PARCEL NO. 2:

All that portion of the Southwest quarter of the Northeast quarter of Section 24, Township 10 North, Range 8 East, M.D.B.&M., more particularly described as follows:

COMMENCING at the Southeast corner of the Southwest quarter of the Northeast quarter of said Section 24 and thence running North 120 feet to stake No. 1; thence running Southwesterly 240 feet to stake No.2; thence 240 feet East to the point of commencement.

Dated: November 15, 2003

Jenny Louie-Helm
JENNY LOUIE-HELM
(a.k.a. JENNY LOUIE)

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) SS
COUNTY OF ALAMEDA)

On November 15, 2003, before me, the undersigned, a Notary Public in and for said State, personally appeared JENNY LOUIE-HELM, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature Wallis W. Lim
Wallis W. Lim, Notary Public

PC01 WALLIS W. LIM
COMM. #1434700
NOTARY PUBLIC-CALIFORNIA
SAN FRANCISCO COUNTY
My Comm. Expires Aug. 12, 2007 PC01

Deed Exhibit 3

RECORDING REQUESTED BY:

JENNY LOUIE-HELM

MAIL DEED TO:

JENNY LOUIE-HELM
46995 Ocotillo Court
Fremont, CA 94539-7204

El Dorado, County Recorder
William Schultz Co Recorder Office
DOC- 2004-0001132-00
Check Number 3580
Wednesday, JAN 07, 2004 08:57:24
Ttl Pd $10.00 Nbr-0000531241
AKB/C2/1-2

MAIL TAX STMTS TO:

FAY LOUIE
P.O. BOX 14485
Fremont, Ca 94539-1185

APN: 067-420-14-100 and 067-051-10-100
Address: land in El Dorado County, CA (16.7% int)

--------------------SPACE ABOVE THIS LINE FOR RECORDER'S USE---------------------

PCOS FILED

GRANT DEED

The undersigned grantor(s) declare(s):

Documentary transfer tax is $ NONE (Transfer to grantor revocable trust)
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
( ) Unincorporated area: ( ) City of ____________________
(X) Realty not sold

FOR NO CONSIDERATION, JENNY LOUIE-HELM (a.k.a. JENNY HELM), a married woman as her sole and separate property (who acquired title as a single woman),

hereby GRANT(S) to VERNE D. HELM and JENNY LOUIE-HELM as Trustees of the LOUIE-HELM LIVING TRUST (created by a Declaration of Trust dated November 15, 2003),

the real property situated in the Unincorporated Area of El Dorado Hills, County of El Dorado, State of California, and being more particularly described as follows:

PARCEL ONE:

ALL THAT PORTION OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 24, TOWNSHIP 10 NORTH, RANGE 8 EAST, M.D.B.& M., LYING SOUTHWESTERLY OF GREEN VALLEY ROAD, AS SAID ROAD EXISTED ON JUNE 1, 1950

001132

EXCEPT ANY PORTION THEREOF LYING WITHIN THAT PARCEL OF LAND DESCRIBED IN THE DEED TO THE COUNTY OF EL DORADO, DATED NOVEMBER 14, 1960 IN BOOK 531 OF OFFICIAL RECORDS, PAGE 15, EL DORADO COUNTY RECORDS.

Parcel Number: 067-420-14-100
Address: 1856 Green Valley Road, El Dorado Hills, CA

PARCEL TWO:

THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 24, TOWNSHIP 10 NORTH, RANGE 8 EAST, M.D.B. & M

Parcel Number: 067-051-10-100
Address: Unimproved Land in El Dorado Hills, CA

Dated: November 15, 2003

Jenny Louie-Helm
JENNY LOUIE-HELM
(a.k.a. JENNY HELM)

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) SS
COUNTY OF ALAMEDA)

On November 15, 2003, before me, the undersigned, a Notary Public in and for said State, personally appeared JENNY LOUIE-HELM, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature Wallis W. Lim
Wallis W. Lim, Notary Public

PC01
WALLIS W. LIM
COMM. #1434700
NOTARY PUBLIC-CALIFORNIA
SAN FRANCISCO COUNTY
My Comm. Expires Aug. 12, 2007
PC01

01/07/2004,20040001132

Deed Exhibit 4

72999

RECORDING REQUESTED BY

INTER-COUNTY TITLE CO.

AND WHEN RECORDED MAIL TO

Name Mr. & Mrs. M. Vanderburg
Street Address 1768 Green Valley Rd.
City & State El Dorado Hills, CA 95630

RECORDED AT THE REQUEST OF
Inter-County Title Co.
91 DEC 17 AM 9:08
COUNTY RECORDER-CLERK

5

(1)

SPACE ABOVE THIS LINE FOR RECORDER'S USE

FCOS FILED

The undersigned grantor(s) declare(s):
Documentary transfer tax is $ 0.00
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.

APN No. ~~067-420-13~~

Grant Deed

ORDER NO. ~~174783-MJK~~

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,
MACON L. VANDERBURG AND MARIAN VANDERBURG, husband and wife who acquired title as LEE VANDERBURG and MARIAN VANDERBURG, husband and wife, as joint tenants

hereby GRANT(S) to
MACON L. VANDERBURG AND MARIAN VANDERBURG, husband and wife as joint tenants

the following described real property in the unincorporated area
County of El Dorado, State of California:

All that portion of the West half of the Northeast quarter of Section 24, Township 10 North, Range 8 East, M.D.B.&M., more particularly described as follows:

BEGINNING at the Northeast corner of said West half of the Northeast quarter from which the North quarter corner of said Section 24 bears South 89° 50' 27" West 1331.01 feet; thence from said point of beginning South 0° 05' 32" West 1239.60 feet to a point; thence North 82° 52' 31" West 312.35 feet; thence North 0° 05' 32" East 1200.00 feet to the North line of said Section; and thence North 89° 50' 27" East 310.00 feet to the point of beginning.

SAVING AND EXCEPTING THEREFROM, any portion thereof lying North of the centerline of Green Valley Road.

Dated December 9, 1991

Macon L. Vanderburg

Macon L. Vanderburg

Marian Vanderburg

Marian Vanderburg

STATE OF CALIFORNIA
COUNTY OF El Dorado } SS
on December 9, 1991 before me, the undersigned, a Notary Public in and for said State, personally appeared Macon L Vanderburg + Marian Vanderburg
~~personally known to me, or~~ proved to me on the basis of satisfactory evidence, to be the person S whose name S are subscribed to the within instrument and acknowledged that they executed the same.
WITNESS my hand and official seal.

Signature Marilyn J Kitt
Marilyn J. Kitt

OFFICIAL SEAL
MARILYN J. KITT
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
My Comm. Expires Feb. 10, 1992

CT-1D

Mail Tax Statements to Return Address Above

BOOK 3684 PAGE 201

Deed Exhibit 5

RECORDING REQUESTED BY

PLACER TITLE COMPANY

Escrow Number: 205-10511-BAS

AND WHEN RECORDED MAIL TO

RONALD P. MIKULAO
1840 Green Valley Rd.
El Dorado Hills, CA 95762

El Dorado, County Recorder
William Schultz Co Recorder Office
DOC- 2006-0003566-00
Acct 6-PLACER TITLE CO
Wednesday, JAN 18, 2006 14:30:00
Ttl Pd $10.00 Nbr-0000822060
CLG/C1/1-2

SPACE ABOVE THIS LINE FOR RECORDER'S USE

GRANT DEED

The undersigned grantor(s) declare(s): THIS DEED IS GIVEN IN CONNECTION WITH THAT CERTAIN UNRECORDED LEASE OPTION AGREEMENT DATED MAY 19, 2003.
Documentary transfer tax is $0.00 City Transfer Tax: $0.00 11911
(X) computed on full value of property conveyed, or
() computed on full value less value of liens and encumbrances remaining at time of sale.

PCOS FILED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, **MICHAEL J. PETERS, A MARRIED MAN, AS HIS SOLE AND SEPARATE PROPERTY**

Hereby GRANT(S) to MICHAEL J. PETERS, A MARRIED MAN AS HIS SOLE AND SEPARATE **PROPERTY AND RONALD P. MIKULAO, AN UNMARRIED MAN, AS TENANTS IN COMMON**

THE LAND DESCRIBED HEREIN IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF EL DORADO, UNINCORPORATED AREA, AND IS DESCRIBED AS FOLLOWS:

ALL THAT PORTION OF THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 24, TOWNSHIP 10 NORTH, RANGE 8 EAST, M.D.B.&M., DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHEASTERLY LINE OF THE GREEN VALLEY ROAD, AS SAID ROAD EXISTED ON JUNE 1, 1950, FROM WHICH THE NORTHEAST CORNER OF SAID SECTION 24 BEARS NORTH 48 DEGREES 10' 20" EAST 462.79 FEET; NORTH 0 DEGREES 10' 20" WEST 976.29 FEET AND NORTH 89 DEGREES 33' EAST 422.11 FEET; THENCE FROM SAID POINT OF BEGINNING, NORTH 48 DEGREES 10' 20" EAST 160.00 FEET, MORE OR LESS, TO THE MOST SOUTHERLY CORNER OF THAT PARCEL OF LAND CONVEYED TO THE COUNTY OF EL DORADO BY DEED RECORDED IN BOOK 531 AT PAGE 15, OFFICIAL RECORDS OF EL DORADO COUNTY; THENCE ALONG THE SOUTHWESTERLY LINE OF SAID LAST NAMED PARCEL NORTH 47 DEGREES 59' 52" WEST 611.31 FEET TO THE POINT IN THE GREEN VALLEY ROAD AS SAID ROAD EXISTED ON JUNE 1, 1950; THENCE ALONG SAID ROAD, SOUTHEASTERLY 600.0 FEET MORE OR LESS, TO THE POINT OF BEGINNING.

ASSESSORS PARCEL NO.: 067-420-15-100

Dated: January 06, 2006

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SHOWN, MAIL AS DIRECTED ABOVE

SAME AS ABOVE

Name Street Address City & State

003566

SIGNATURE PAGE FOR GRANT DEED

By: Michael J. Peters
MICHAEL J. PETERS

STATE OF ~~CALIFORNIA~~ Hawaii,
COUNTY OF Maui

On January 13 2006 before me, Vicki Kinkella, Notary Public,
personally appeared Michael J. Peters

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument

WITNESS my hand and official seal.

Signature:
Commission Expiration Date:

VICKI KINKELLA
My commission expires 6/27/08

VICKI KINKELLA NOTARY PUBLIC STATE OF HAWAII

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SHOWN, MAIL AS DIRECTED ABOVE

SAME AS ABOVE

Name	Street Address	City & State

O:\Grantdeed.doc (4/2002)

01/18/2006,20060003566

Deed Exhibit 6

RECORDING REQUESTED BY:)
)
LOUIS S. SHERMAN)
JOYCE E. SHERMAN)
1880 Green Valley Road)
El Dorado Hlls, CA 95762)
)
WHEN RECORDED, MAIL TO:)
SAME AS ABOVE)
MAIL TAX STATEMENTS TO:)
SAME AS ABOVE

El Dorado, County Recorder
William Schultz Co Recorder Office
DOC- 2003-0103611-00
Check Number 4751
Tuesday, OCT 07, 2003 08:07:11
Ttl Pd $10.00 Nbr-0000495095
AKB/C2/1-2

SPACE FOR RECORDER'S USE

PCOS FILED

THIS FORM FURNISHED BY LIVING TRUST DOCUMENTS

QUITCLAIM DEED

NOTICE: NO CONSIDERATION. DOCUMENTARY TAX = 0. R & T 11911 (GIFT)

We, LOUIS S. SHERMAN and JOYCE E. SHERMAN, do hereby remise, release and forever quitclaim unto LOUIS S. SHERMAN and JOYCE E. SHERMAN, Trustees of THE LOUIS S. and JOYCE E. SHERMAN REVOCABLE LIVING TRUST, whose trustee(s) and successor trustee(s) are also named in that instrument known as the CERTIFIED ABSTRACT OF TRUST AGREEMENT of said trust agreement, further identified as EXHIBIT "A", attached hereto and made a part hereof, the following described real property in the County of El Dorado, State of California:

A PORTION OF THE NORTHEAST 1/4 OF SECTION 24, TOWNSHIP 10 NORTH, RANGE 8 EAST M.D.B.& M. DESCRIBED AS FOLLOWS:

PARCEL 1, AS SHOWN ON THE PARCEL MAP, FILED AUGUST 21, 1989 IN BOOK 41, OF PARCEL MAPS AT PAGE 3, EL DORADO COUNTY RECORDS.

APN: 067-420-21-1-0

TRUST DATED: MAY 3, 1995

Louis Sherman
LOUIS S. SHERMAN

Joyce E Sherman
JOYCE E. SHERMAN

State of California) ss.
County of El Dorado)

ON October 1, 2003, BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, PERSONALLY APPEARED LOUIS S. SHERMAN and JOYCE E. SHERMAN, PERSONALLY KNOWN TO ME OR PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSONS WHOSE NAMES ARE SUBSCRIBED TO THIS INSTRUMENT AND ACKNOWLEDGE THAT THEY EXECUTED THE SAME IN THEIR AUTHORIZED CAPACITY, AND THAT BY THEIR SIGNATURES ON THE INSTRUMENT THE PERSONS, OR THE ENTITY UPON BEHALF OF WHICH THE PERSONS ACTED, EXECUTED THE INSTRUMENT.

WITNESS BY MY HAND AND OFFICIAL SEAL.

JEFFREY D. ASTON
COMM. # 1371176
NOTARY PUBLIC-CALIFORNIA
SACRAMENTO COUNTY
COMM. EXP. AUG. 20, 2006
MGC1

NOTARY PUBLIC
My Commission Expires: 8-20-2006

JEFFREY D. ASTON
COMM. # 1371176
NOTARY PUBLIC-CALIFORNIA
SACRAMENTO COUNTY
COMM. EXP. AUG. 20, 2006
MGC1

1036111

EXHIBIT "A"
CERTIFIED ABSTRACT OF TRUST AGREEMENT
LOUIS S. SHERMAN and JOYCE E. SHERMAN

State of California)
) ss.
County of El Dorado)

The UNDERSIGNED, being duly sworn, deposes and certifies:

1. Declaration of Trust is entitled **THE LOUIS S. and JOYCE E. SHERMAN REVOCABLE LIVING TRUST.**

Settlor and Trustee: **LOUIS S. SHERMAN**
Settlor and Trustee: **JOYCE E. SHERMAN**
Co-successor Trustee: **MARY SALVADOR**
Co-successor Trustee: **KATHRYN E. HOUSER**
Co-successor Trustee: **THOMAS A. WOLD**

Settlors and Trustees executed a Declaration of Trust and that said Declaration of Trust is not of record in any court.

2. That the present beneficiaries under the terms of said Declaration of Trust are the Settlors so long as one or both are living and the Settlor's children or other as designated in the Declaration of Trust.

3. That the power and authority of the trustees with respect to the trust property include, by way of illustration, the following:

A. To exercise without notice, hearing, confirmation or approval of any Court, each and every power enumerated in the trustee's powers of the settlors' Domicile State's Probate Code laws in effect at the date of this agreement unless otherwise stated in this Declaration of Trust.

B. To sell, convey, exchange, partition, divide, lease, pledge for security, and exercise all the rights, powers and privileges which an absolute owner of the same property would have regarding any property, which in his or her discretion the Trustee chooses to receive subject to this Declaration of Trust and subject to the settlors' Domicile State's laws with respect to community property and quasi-community property.

4. Settlors are empowered to designate trustees and Successor trustees, and have appointed **MARY SALVADOR, KATHRYN E. HOUSER** and **THOMAS A. WOLD**, as co-successor trustees, and should any of the named co-successor trustees become unable because of death, incapacity, or any other cause to serve before the natural termination of all the trust(s), then the remaining shall serve as the co-successor trustees or the remaining successor trustee.

However, should the above succession become unable to serve as trustee because of death, incapacity or any other cause, a trustee shall be chosen by the majority of beneficiaries by right of representation, if applicable. The issue of any deceased beneficiary shall collectively have only one (1) vote with a parent or legal guardian voting for minor beneficiaries.

The Settlors reserve the right to appoint other trustees or Successor trustees and to remove any trustee or trustees from office at any time while they both shall live. Unless otherwise stated in writing by the Settlors, the trustees and successor trustees of the Declaration of Trust shall be considered to be those mentioned above.

"END OF EXHIBIT A"

10/07/2003,20030103611

APPENDIX B

EDR Radius Map Report with GeoCheck®
EDR Aerial Photo Decade Package
EDR Historical Topographic Map Report
EDR–City Directory Abstract
EDR Certified Sanborn Map Report (No Coverage)

Dixon Ranch
Green Valley Road
El Dorado Hills, CA 95762

Inquiry Number: 3002996.2s
March 01, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

FORM-PRM-ASH

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

GREEN VALLEY ROAD
EL DORADO HILLS, CA 95762

COORDINATES

Latitude (North):	38.705900 - 38° 42' 21.2"
Longitude (West):	121.047200 - 121° 2' 49.9"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	669805.8
UTM Y (Meters):	4285743.5
Elevation:	1124 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	38121-F1 CLARKSVILLE, CA
Most Recent Revision:	1980

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2006, 2005
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL........................ National Priority List

EXECUTIVE SUMMARY

Proposed NPL________________ Proposed National Priority List Sites
NPL LIENS__________________ Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL________________ National Priority List Deletions

Federal CERCLIS list

CERCLIS____________________ Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY__________ Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP________________ CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS__________________ Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF_________________ RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG__________________ RCRA - Large Quantity Generators
RCRA-SQG__________________ RCRA - Small Quantity Generators
RCRA-CESQG________________ RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS__________ Engineering Controls Sites List
US INST CONTROL__________ Sites with Institutional Controls

Federal ERNS list

ERNS______________________ Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE__________________ State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF____________________ Solid Waste Information System

State and tribal leaking storage tank lists

LUST______________________ Geotracker's Leaking Underground Fuel Tank Report
SLIC______________________ Statewide SLIC Cases
INDIAN LUST_______________ Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST_______________________ Active UST Facilities

AST........................ Aboveground Petroleum Storage Tank Facilities
INDIAN UST................. Underground Storage Tanks on Indian Land
FEMA UST................... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP........................ Voluntary Cleanup Program Properties
INDIAN VCP................. Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS............. A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9............ Torres Martinez Reservation Illegal Dump Site Locations
ODI........................ Open Dump Inventory
WMUDS/SWAT................. Waste Management Unit Database
SWRCY...................... Recycler Database
HAULERS.................... Registered Waste Tire Haulers Listing
INDIAN ODI................. Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..................... Clandestine Drug Labs
HIST Cal-Sites............. Historical Calsites Database
SCH........................ School Property Evaluation Program
Toxic Pits................. Toxic Pits Cleanup Act Sites
CDL........................ Clandestine Drug Labs
US HIST CDL................ National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST................. Facility Inventory Database
HIST UST................... Hazardous Substance Storage Container Database
SWEEPS UST................. SWEEPS UST Listing

Local Land Records

LIENS 2.................... CERCLA Lien Information
LUCIS...................... Land Use Control Information System
LIENS...................... Environmental Liens Listing
DEED....................... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS...................... Hazardous Materials Information Reporting System
CHMIRS..................... California Hazardous Material Incident Report System
LDS........................ Land Disposal Sites Listing
MCS........................ Military Cleanup Sites Listing

Other Ascertainable Records

RCRA-NonGen................ RCRA - Non Generators

DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
CA BOND EXP. PLAN	Bond Expenditure Plan
WDS	Waste Discharge System
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
FINANCIAL ASSURANCE	Financial Assurance Information Listing
PCB TRANSFORMER	PCB Transformer Registration Database
PROC	Certified Processors Database
MWMP	Medical Waste Management Program Listing
COAL ASH DOE	Sleam-Electric Plan Operation Data

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 11/08/2010 has revealed that there is 1 ENVIROSTOR site within approximately 1.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SANFORD RANCH Status: Refer: Other Agency	2321 GREENVALLEY ROAD	ESE 1/2 - 1 (0.932 mi.)	4	8

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

NPDES: A listing of NPDES permits, including stormwater.

A review of the NPDES list, as provided by EDR, and dated 11/22/2010 has revealed that there are 2 NPDES sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SCOTT RESIDENCE	2070 W GREEN SPRINGS RD	N 1/4 - 1/2 (0.413 mi.)	2	7
1801 GREENVALLEY RD	1801 GREENVALLEY RD	NNE 1/4 - 1/2 (0.499 mi.)	3	8

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency

A review of the HAZNET list, as provided by EDR, and dated 12/31/2009 has revealed that there is 1 HAZNET site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
1X RAMOS ENVIRONMENTAL	3141 VERDE VALLE LANE	NNW 1/8 - 1/4 (0.221 mi.)	1	7

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 13 records.

Site Name	Database(s)
GREEN VALLEY RD WIDENING COUNTY LI	NPDES
US HWY 50 HOV LANES PHASE 1	NPDES
GREEN VALLEY RD INTERS IMPROV AT S	NPDES
ED HILLS VILLAGE MINI STORAGE	NPDES
BELL RANCH	NPDES
SILVER SPRINGS BASS LAKE RD RC ALI	NPDES
GREEN VALLEY MARKETPLACE	NPDES
VILLA LAGO AT THE PROMONTORY	NPDES
RIDGEVIEW VILLAVE EST UNIT 3	NPDES
HOLIDAY INN	NPDES
SILVA VALLEY PARKWAY WATER MAIN PR	NPDES
LATROBE RD EL DORADO HILLS BLVD U	NPDES
LOTUS ROAD SPOILS PILE	NPDES

OVERVIEW MAP - 3002996.2s

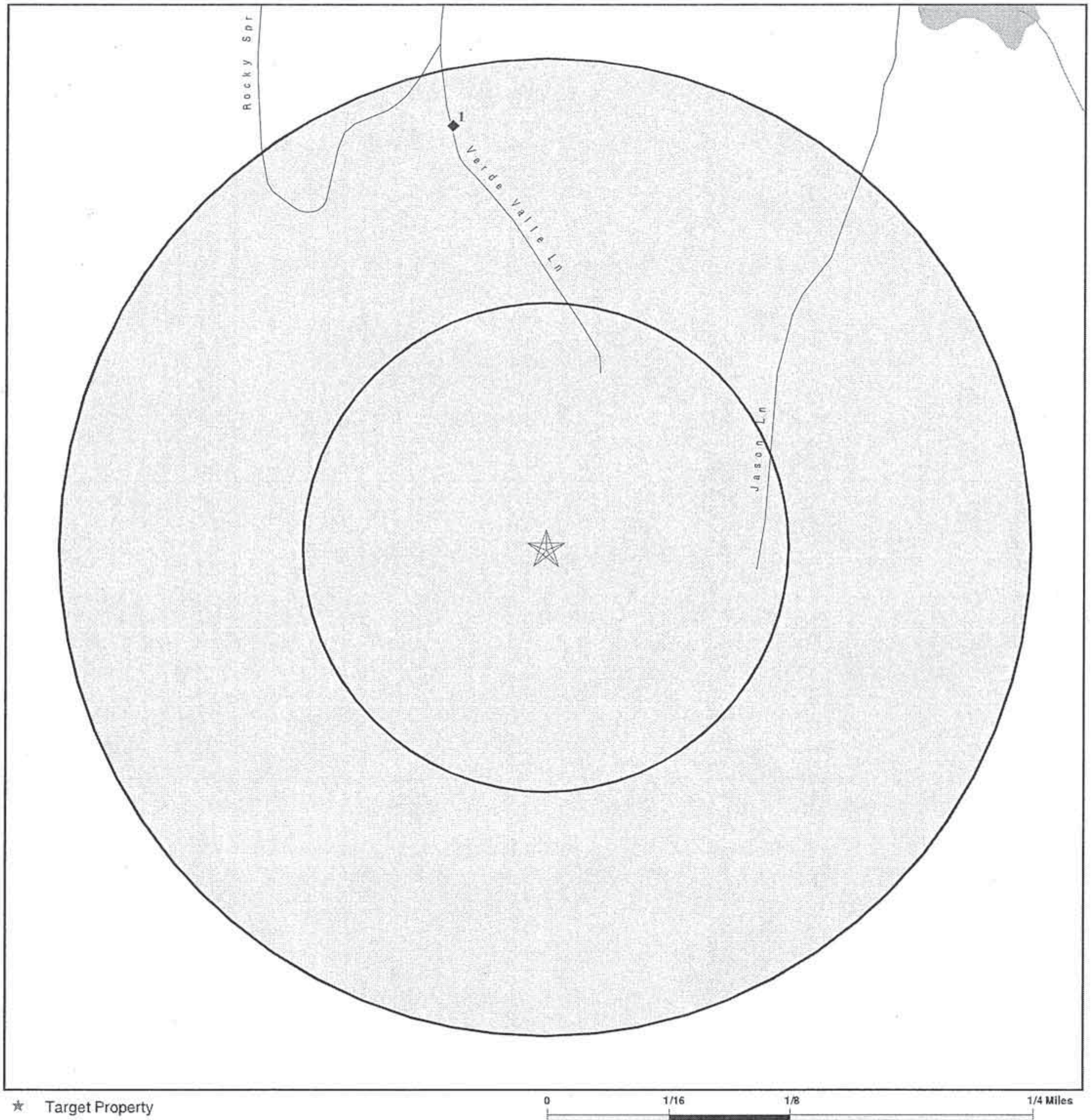
0 1/2 1 2 Miles

- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Dixon Ranch	CLIENT:	Youngdahl Consulting Group
ADDRESS:	Green Valley Road El Dorado Hills CA 95762	CONTACT:	Laurie Israel
		INQUIRY #:	3002996.2s
LAT/LONG:	38.7059 / 121.0472	DATE:	March 01, 2011 3:51 pm

DETAIL MAP - 3002996.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Dixon Ranch ADDRESS: Green Valley Road El Dorado Hills CA 95762 LAT/LONG: 38.7059 / 121.0472	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY #: 3002996.2s DATE: March 01, 2011 3:52 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.500	0	0	0	0	0	0
Proposed NPL		1.500	0	0	0	0	0	0
NPL LIENS		0.500	0	0	0	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.500	0	0	0	0	0	0
Federal CERCLIS list								
CERCLIS		1.000	0	0	0	0	NR	0
FEDERAL FACILITY		1.500	0	0	0	0	0	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		1.000	0	0	0	0	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.500	0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		1.000	0	0	0	0	NR	0
Federal RCRA generators list								
RCRA-LQG		0.750	0	0	0	0	NR	0
RCRA-SQG		0.750	0	0	0	0	NR	0
RCRA-CESQG		0.750	0	0	0	0	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		1.000	0	0	0	0	NR	0
US INST CONTROL		1.000	0	0	0	0	NR	0
Federal ERNS list								
ERNS		0.500	0	0	0	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE		1.500	0	0	0	0	0	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR		1.500	0	0	0	1	0	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		1.000	0	0	0	0	NR	0
State and tribal leaking storage tank lists								
LUST		1.000	0	0	0	0	NR	0
SLIC		1.000	0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST		1.000	0	0	0	0	NR	0
State and tribal registered storage tank lists								
UST		0.750	0	0	0	0	NR	0
AST		0.750	0	0	0	0	NR	0
INDIAN UST		0.750	0	0	0	0	NR	0
FEMA UST		0.750	0	0	0	0	NR	0
State and tribal voluntary cleanup sites								
VCP		1.000	0	0	0	0	NR	0
INDIAN VCP		1.000	0	0	0	0	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		1.000	0	0	0	0	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		1.000	0	0	0	0	NR	0
ODI		1.000	0	0	0	0	NR	0
WMUDS/SWAT		1.000	0	0	0	0	NR	0
SWRCY		1.000	0	0	0	0	NR	0
HAULERS		0.500	0	0	0	NR	NR	0
INDIAN ODI		1.000	0	0	0	0	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		0.500	0	0	0	NR	NR	0
HIST Cal-Sites		1.500	0	0	0	0	0	0
SCH		0.750	0	0	0	0	NR	0
Toxic Pits		1.500	0	0	0	0	0	0
CDL		0.500	0	0	0	NR	NR	0
US HIST CDL		0.500	0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST		0.750	0	0	0	0	NR	0
HIST UST		0.750	0	0	0	0	NR	0
SWEEPS UST		0.750	0	0	0	0	NR	0
Local Land Records								
LIENS 2		0.500	0	0	0	NR	NR	0
LUCIS		1.000	0	0	0	0	NR	0
LIENS		0.500	0	0	0	NR	NR	0
DEED		1.000	0	0	0	0	NR	0
Records of Emergency Release Reports								
HMIRS		0.500	0	0	0	NR	NR	0
CHMIRS		0.500	0	0	0	NR	NR	0
LDS		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS		0.500	0	0	0	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.750	0	0	0	0	NR	0
DOT OPS		0.500	0	0	0	NR	NR	0
DOD		1.500	0	0	0	0	0	0
FUDS		1.500	0	0	0	0	0	0
CONSENT		1.500	0	0	0	0	0	0
ROD		1.500	0	0	0	0	0	0
UMTRA		1.000	0	0	0	0	NR	0
MINES		0.750	0	0	0	0	NR	0
TRIS		0.500	0	0	0	NR	NR	0
TSCA		0.500	0	0	0	NR	NR	0
FTTS		0.500	0	0	0	NR	NR	0
HIST FTTS		0.500	0	0	0	NR	NR	0
SSTS		0.500	0	0	0	NR	NR	0
ICIS		0.500	0	0	0	NR	NR	0
PADS		0.500	0	0	0	NR	NR	0
MLTS		0.500	0	0	0	NR	NR	0
RADINFO		0.500	0	0	0	NR	NR	0
FINDS		0.500	0	0	0	NR	NR	0
RAATS		0.500	0	0	0	NR	NR	0
CA BOND EXP. PLAN		1.500	0	0	0	0	0	0
WDS		0.500	0	0	0	NR	NR	0
NPDES		0.500	0	0	2	NR	NR	2
Cortese		1.000	0	0	0	0	NR	0
HIST CORTESE		0.500	0	0	0	NR	NR	0
Notify 65		1.500	0	0	0	0	0	0
DRYCLEANERS		0.750	0	0	0	0	NR	0
WIP		0.750	0	0	0	0	NR	0
HAZNET		0.500	0	1	0	NR	NR	1
EMI		0.500	0	0	0	NR	NR	0
INDIAN RESERV		1.500	0	0	0	0	0	0
SCRD DRYCLEANERS		1.000	0	0	0	0	NR	0
HWP		1.500	0	0	0	0	0	0
HWT		0.750	0	0	0	0	NR	0
COAL ASH EPA		1.000	0	0	0	0	NR	0
FINANCIAL ASSURANCE		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		0.500	0	0	0	NR	NR	0
PROC		1.000	0	0	0	0	NR	0
MWMP		0.750	0	0	0	0	NR	0
COAL ASH DOE		0.500	0	0	0	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.500	0	0	0	0	0	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
1 **NNW** **1/8-1/4** **0.221 mi.** **1167 ft.**	**1X RAMOS ENVIRONMENTAL** **3141 VERDE VALLE LANE** **EL DORADO HILLS, CA 95762**	**HAZNET**	**S103947582** **N/A**

Relative: **Lower**

Actual: **1101 ft.**

HAZNET:

Gepaid:	CAC001072096
Contact:	CORPORATION
Telephone:	0000000000
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	3141 VERDE VALLE LANE
Mailing City,St,Zip:	EL DORADO HILLS, CA 957620000
Gen County:	9
TSD EPA ID:	CAD044003556
TSD County:	Yolo
Waste Category:	Oil/water separation sludge
Disposal Method:	Transfer Station
Tons:	.1042
Facility County:	9

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
2 **North** **1/4-1/2** **0.413 mi.** **2180 ft.**	**SCOTT RESIDENCE** **2070 W GREEN SPRINGS RD** **EL DORADO, CA 95762**	**NPDES**	**S109457645** **N/A**

Relative: **Lower**

Actual: **1004 ft.**

NPDES:

Npdes Number:	Not reported
Facility Status:	Active
Agency Id:	484849
Region:	5S
Regulatory Measure Id:	351921
Order No:	99-08DWQ
Regulatory Measure Type:	Storm water construction
Place Id:	725940
WDID:	5S09C353342
Program Type:	CONSTW
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	9/9/2008 2:47:05 PM
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Seth W Scott
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported

Map ID Direction Distance Elevation	Site	MAP FINDINGS	Database(s)	EDR ID Number EPA ID Number

3
NNE
1/4-1/2
0.499 mi.
2637 ft.

1801 GREENVALLEY RD
1801 GREENVALLEY RD
EL DORADO, CA 95762

NPDES **S109434188**
N/A

Relative:
Lower

Actual:
977 ft.

NPDES:

Npdes Number:	Not reported
Facility Status:	Terminated
Agency Id:	180404
Region:	5S
Regulatory Measure Id:	267306
Order No:	99-08DWQ
Regulatory Measure Type:	Storm water construction
Place Id:	608112
WDID:	5S09C335530
Program Type:	CONSTW
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	7/19/2005
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	5/6/2008
Discharge Name:	Albert Romo
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported

4
ESE
1/2-1
0.932 mi.
4918 ft.

SANFORD RANCH
2321 GREENVALLEY ROAD
RESCUE, CA 95672

ENVIROSTOR **S102860834**
N/A

Relative:
Lower

Actual:
1084 ft.

ENVIROSTOR:

Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	1
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Sacramento
Facility ID:	9020002
Site Code:	Not reported
Assembly:	4
Senate:	1
Special Program:	* Rural County Survey Program
Status:	Refer: Other Agency
Status Date:	11/16/1994
Restricted Use:	NO
Site Mgmt. Req.:	NONE SPECIFIED
Funding:	Not reported
Latitude:	38.701549497435103
Longitude:	-121.027323027469
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	Not reported
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

SANFORD RANCH (Continued) **S102860834**

Alias Name:	Not reported
Alias Type:	Not reported
Completed Info:	
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 13 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
EL DORADO	S109444947	GREEN VALLEY RD WIDENING COUNTY LI	GREEN VALLEY RD	95762	NPDES
EL DORADO HILLS	S109463627	US HWY 50 HOV LANES PHASE 1	HWY 50 EL DORADO HILLS TO BASS	95762	NPDES
EL DORADO HILLS	S109444945	GREEN VALLEY RD INTERS IMPROV AT S	GREEN VALLEY RD AT SILVA VALLE	95762	NPDES
EL DORADO HILLS	S109442495	ED HILLS VILLAGE MINI STORAGE	GREEN VALLEY / HIDDEN ACRES	95762	NPDES
EL DORADO HILLS	S109437259	BELL RANCH	MORRISON ROAD		NPDES
EL DORADO HILLS	S109458351	SILVER SPRINGS BASS LAKE RD RC ALI	S OF GREEN VALLEY RD N OF HILL		NPDES
EL DORADO HILLS	S109444943	GREEN VALLEY MARKETPLACE	NE OF INT FRANCISCO DR / GRE	95672	NPDES
EL DORADO HILLS	S109464231	VILLA LAGO AT THE PROMONTORY	SE OF SOFIA PKWY / GREEN VAL	95762	NPDES
EL DORADO HILLS	S109456000	RIDGEVIEW VILLAVE EST UNIT 3	N OF HWY 50 S OF GREEN VALLEY	95762	NPDES
EL DORADO HILLS	S109446025	HOLIDAY INN	SOUTH OF HWY 50 / EAST OF PO	95762	NPDES
EL DORADO HILLS	S109458327	SILVA VALLEY PARKWAY WATER MAIN PR	SILVA VALLEY PARKWAY BTW GREEN	95762	NPDES
EL DORADO HILLS	S109448325	LATROBE RD EL DORADO HILLS BLVD U	ROUTE U S 50 INT AT EL DORADO	95762	NPDES
PLACERVILLE	S109449169	LOTUS ROAD SPOILS PILE	EAST OF LOTUS ROAD NORTH OF GR	95672	NPDES

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 01/13/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 01/13/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 01/13/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 11/30/2010
Date Data Arrived at EDR: 12/30/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 57

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPAa??s Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/11/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/28/2010
Date Data Arrived at EDR: 12/01/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 86

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 05/25/2010
Date Data Arrived at EDR: 06/02/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 124

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 07/09/2010
Date Data Arrived at EDR: 07/09/2010
Date Made Active in Reports: 08/17/2010
Number of Days to Update: 39

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/07/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 11/08/2010
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/08/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 11/08/2010
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/08/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System
Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/22/2010
Date Data Arrived at EDR: 11/23/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 63

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 12/22/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 05/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 12/16/2010
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 12/16/2010
Date Data Arrived at EDR: 12/16/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 02/04/2011
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/16/2010
Date Data Arrived at EDR: 12/16/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 02/04/2011
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 12/16/2010
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 02/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 02/07/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/12/2010
Date Data Arrived at EDR: 11/12/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 77

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/03/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/16/2010
Date Data Arrived at EDR: 11/19/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 70

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/04/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 08/27/2010
Date Data Arrived at EDR: 08/30/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 02/16/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 11/19/2010
Date Data Arrived at EDR: 11/19/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/04/2009
Date Data Arrived at EDR: 05/04/2010
Date Made Active in Reports: 07/07/2010
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/04/2010
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/16/2010
Date Data Arrived at EDR: 12/16/2010
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 35

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 02/04/2011
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/12/2010
Date Data Arrived at EDR: 11/12/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 77

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/19/2010
Date Data Arrived at EDR: 11/19/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 70

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/16/2010
Date Data Arrived at EDR: 11/19/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 70

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 12/02/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 57

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/03/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/10/2010
Date Data Arrived at EDR: 12/01/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 58

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/11/2010
Date Data Arrived at EDR: 02/11/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 60

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 08/27/2010
Date Data Arrived at EDR: 08/30/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 02/16/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/03/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 11/08/2010
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/08/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 01/05/2010
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/24/2010
Date Data Arrived at EDR: 06/25/2010
Date Made Active in Reports: 08/17/2010
Number of Days to Update: 53

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/30/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 12/22/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 11/18/2010
Date Data Arrived at EDR: 12/23/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/23/2010
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 11/22/2010
Date Data Arrived at EDR: 11/23/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 63

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/08/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/03/2010
Date Data Arrived at EDR: 12/30/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 48

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 12/08/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 11/08/2010
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/08/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 08/19/2010
Date Data Arrived at EDR: 08/23/2010
Date Made Active in Reports: 09/29/2010
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 11/09/2010
Date Data Arrived at EDR: 11/16/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 12/08/2010
Date Data Arrived at EDR: 12/09/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 47

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/14/2010
Date Data Arrived at EDR: 12/14/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 42

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/14/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 51

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/05/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/21/2010
Date Made Active in Reports: 08/20/2010
Number of Days to Update: 30

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 12/16/2010
Date Data Arrived at EDR: 12/16/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 40

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 02/04/2011
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 12/16/2010
Date Data Arrived at EDR: 12/16/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 02/04/2011
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 10/13/2010
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/11/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/13/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 10/01/2010
Date Data Arrived at EDR: 10/29/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 91

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 02/03/2011
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 22

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 02/03/2011
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/29/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/04/2010
Date Data Arrived at EDR: 09/09/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/29/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 01/13/2010
Date Made Active in Reports: 02/18/2010
Number of Days to Update: 36

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/29/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 04/24/2010
Date Data Arrived at EDR: 04/29/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 18

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 12/23/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/18/2010	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 04/06/2010	Telephone: 301-415-7169
Date Made Active in Reports: 05/27/2010	Last EDR Contact: 12/13/2010
Number of Days to Update: 51	Next Scheduled EDR Contact: 03/28/2011
	Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/13/2011	Telephone: 202-343-9775
Date Made Active in Reports: 02/16/2011	Last EDR Contact: 01/13/2011
Number of Days to Update: 34	Next Scheduled EDR Contact: 04/25/2011
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010	Source: EPA
Date Data Arrived at EDR: 04/16/2010	Telephone: (415) 947-8000
Date Made Active in Reports: 05/27/2010	Last EDR Contact: 12/10/2010
Number of Days to Update: 41	Next Scheduled EDR Contact: 03/28/2011
	Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2007	Source: EPA/NTIS
Date Data Arrived at EDR: 02/25/2010	Telephone: 800-424-9346
Date Made Active in Reports: 05/12/2010	Last EDR Contact: 03/01/2011
Number of Days to Update: 76	Next Scheduled EDR Contact: 06/13/2011
	Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/22/2010
Date Data Arrived at EDR: 11/23/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 66

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 01/04/2011
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 20

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 01/05/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES].

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/22/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/15/2010
Date Data Arrived at EDR: 09/16/2010
Date Made Active in Reports: 09/29/2010
Number of Days to Update: 13

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 12/13/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/07/2010
Date Made Active in Reports: 08/12/2010
Number of Days to Update: 36

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/19/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 10/18/2010
Number of Days to Update: 19

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/30/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 05/09/2011
Data Release Frequency: Varies

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 11/17/2010
Date Data Arrived at EDR: 12/23/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/23/2010
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 12/09/2010
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 39

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/14/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/18/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 11/09/2009
Date Data Arrived at EDR: 12/18/2009
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/21/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/17/2011
Date Data Arrived at EDR: 01/18/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 10

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/18/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/09/2010
Date Data Arrived at EDR: 08/11/2010
Date Made Active in Reports: 08/20/2010
Number of Days to Update: 9

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 02/21/2011
Data Release Frequency: Quarterly

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 09/27/2010
Date Data Arrived at EDR: 09/28/2010
Date Made Active in Reports: 10/18/2010
Number of Days to Update: 20

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 06/01/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 02/04/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: N/A

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/04/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/06/2011
Date Data Arrived at EDR: 01/07/2011
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 18

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/06/2011
Date Data Arrived at EDR: 01/07/2011
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 13

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/22/2010
Date Data Arrived at EDR: 11/23/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 63

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 01/14/2011
Date Data Arrived at EDR: 01/18/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 10

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/22/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/28/2010
Date Data Arrived at EDR: 12/14/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 42

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/25/2010
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 11/17/2010
Number of Days to Update: 21

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/24/2011
Next Scheduled EDR Contact: 05/09/2011
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 02/18/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 02/09/2010
Date Data Arrived at EDR: 02/12/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 20

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/25/2010
Next Scheduled EDR Contact: 05/09/2011
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 10/26/2010
Date Data Arrived at EDR: 11/01/2010
Date Made Active in Reports: 11/18/2010
Number of Days to Update: 17

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/24/2011
Next Scheduled EDR Contact: 05/06/2011
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/22/2010
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 11/18/2010
Number of Days to Update: 22

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/28/2010
Date Data Arrived at EDR: 11/16/2010
Date Made Active in Reports: 11/18/2010
Number of Days to Update: 2

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 07/09/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 22

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: No Update Planned

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/03/2010
Date Data Arrived at EDR: 11/19/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 70

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/03/2010
Date Data Arrived at EDR: 11/19/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 70

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/03/2010
Date Data Arrived at EDR: 11/19/2010
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 62

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/15/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/13/2010
Date Data Arrived at EDR: 09/14/2010
Date Made Active in Reports: 09/29/2010
Number of Days to Update: 15

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 12/13/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 12/08/2010
Date Data Arrived at EDR: 12/09/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 50

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/09/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 12/08/2010
Date Data Arrived at EDR: 12/09/2010
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 42

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/09/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/03/2010
Date Data Arrived at EDR: 01/20/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 8

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/03/2010
Date Data Arrived at EDR: 01/20/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 8

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 12/08/2010
Date Data Arrived at EDR: 12/09/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 50

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/09/2010
Date Data Arrived at EDR: 09/15/2010
Date Made Active in Reports: 09/29/2010
Number of Days to Update: 14

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/21/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2010
Date Data Arrived at EDR: 11/16/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 70

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/31/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 12/21/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 12/14/2010
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 37

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/29/2010
Date Data Arrived at EDR: 01/04/2011
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 16

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/23/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 11/22/2010
Date Data Arrived at EDR: 11/23/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 66

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/17/2010
Date Data Arrived at EDR: 12/20/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 39

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/17/2010
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 05/29/2009
Date Data Arrived at EDR: 06/01/2009
Date Made Active in Reports: 06/15/2009
Number of Days to Update: 14

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/31/2009
Date Data Arrived at EDR: 08/31/2009
Date Made Active in Reports: 09/18/2009
Number of Days to Update: 18

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/08/2010
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 42

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 12/08/2010
Date Data Arrived at EDR: 12/29/2010
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 22

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/07/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/13/2010
Date Data Arrived at EDR: 12/14/2010
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 37

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 12/13/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 10/26/2010
Date Data Arrived at EDR: 11/30/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 59

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 10/05/2009
Date Made Active in Reports: 10/13/2009
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 12/20/2010
Date Made Active in Reports: 01/20/2011
Number of Days to Update: 31

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/20/2010
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 10/05/2010
Date Data Arrived at EDR: 10/15/2010
Date Made Active in Reports: 11/18/2010
Number of Days to Update: 34

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/25/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/22/2010
Date Made Active in Reports: 08/26/2010
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/28/2010
Date Data Arrived at EDR: 11/09/2010
Date Made Active in Reports: 12/17/2010
Number of Days to Update: 38

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/09/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 02/18/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/19/2010
Date Made Active in Reports: 08/26/2010
Number of Days to Update: 38

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/06/2010
Date Made Active in Reports: 07/26/2010
Number of Days to Update: 20

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/16/2010
Next Scheduled EDR Contact: 04/04/2011
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

DIXON RANCH
GREEN VALLEY ROAD
EL DORADO HILLS, CA 95762

TARGET PROPERTY COORDINATES

Latitude (North):	38.70590 - 38˚ 42' 21.2"
Longitude (West):	121.0472 - 121˚ 2' 49.9"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	669805.8
UTM Y (Meters):	4285743.5
Elevation:	1124 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38121-F1 CLARKSVILLE, CA
Most Recent Revision:	1980

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

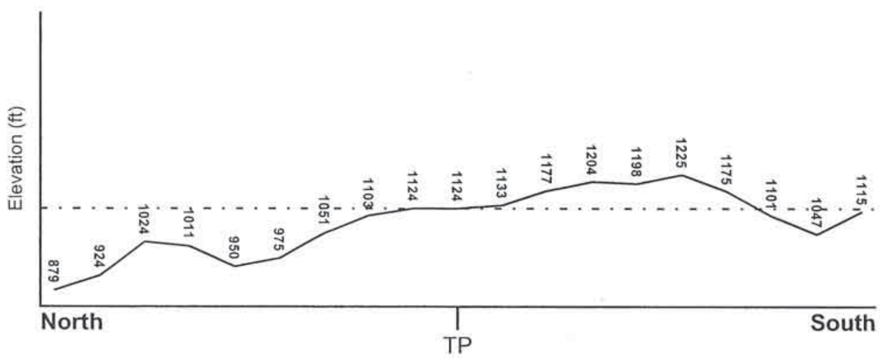
TOPOGRAPHIC INFORMATION

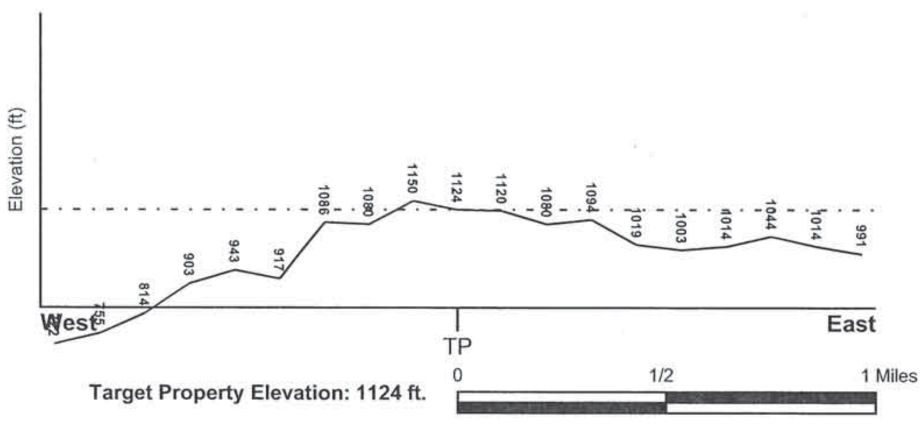
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General North

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 1124 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
EL DORADO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06017C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
CLARKSVILLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

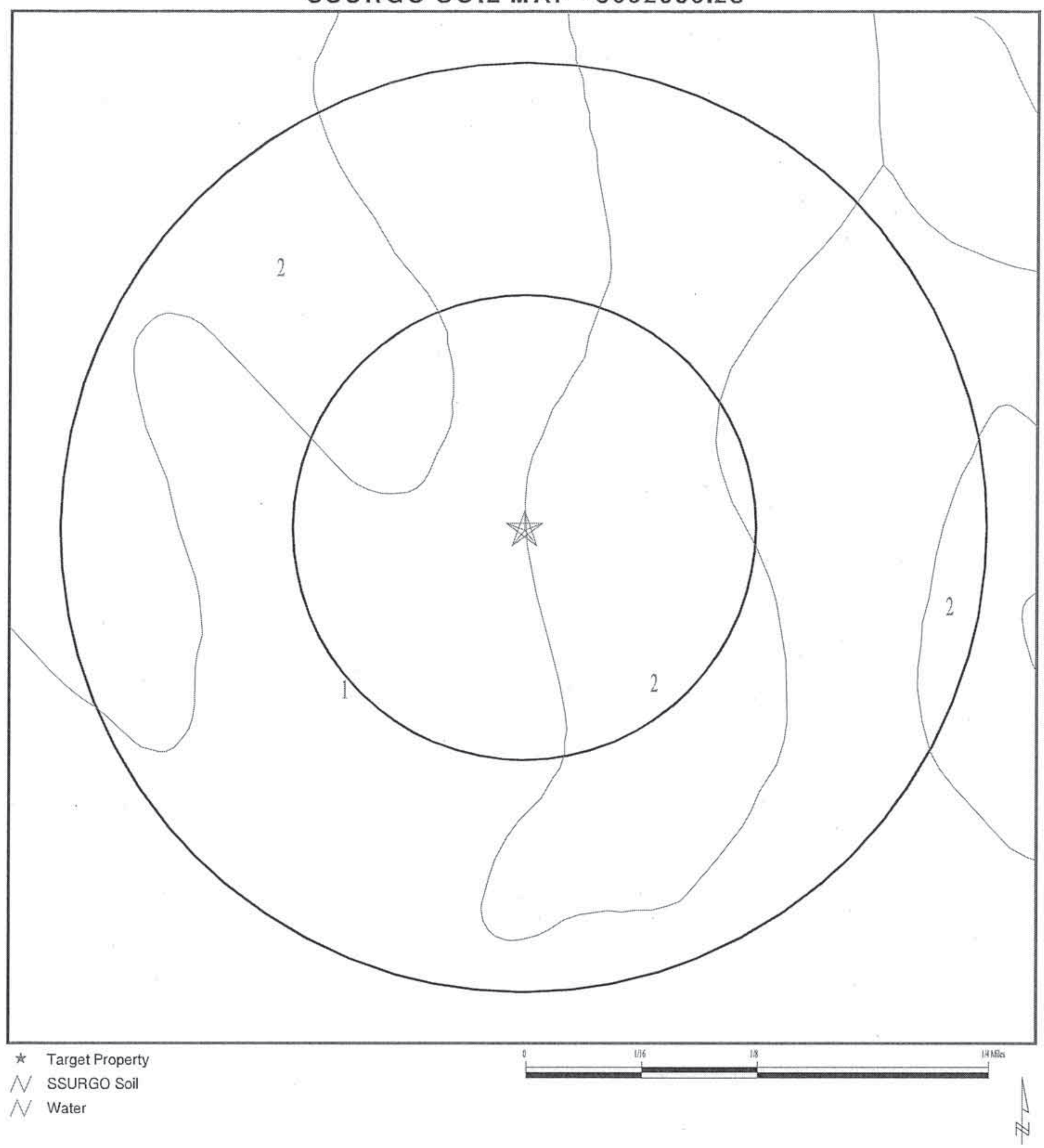
Era:	Mesozoic
System:	Jurassic
Series:	Jurassic
Code:	Jg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Jurassic granitic rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3002996.2s



SITE NAME: Dixon Ranch ADDRESS: Green Valley Road El Dorado Hills CA 95762 LAT/LONG: 38.7059 / 121.0472	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY #: 3002996.2s DATE: March 01, 2011 3:53 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: AUBURN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 48 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	14 inches	silt loam	Not reported	Not reported	Max: Min:	Max: Min:
2	14 inches	18 inches	unweathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 2

Soil Component Name: AUBURN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 48 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	14 inches	silt loam	Not reported	Not reported	Max: Min:	Max: Min:
2	14 inches	18 inches	unweathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

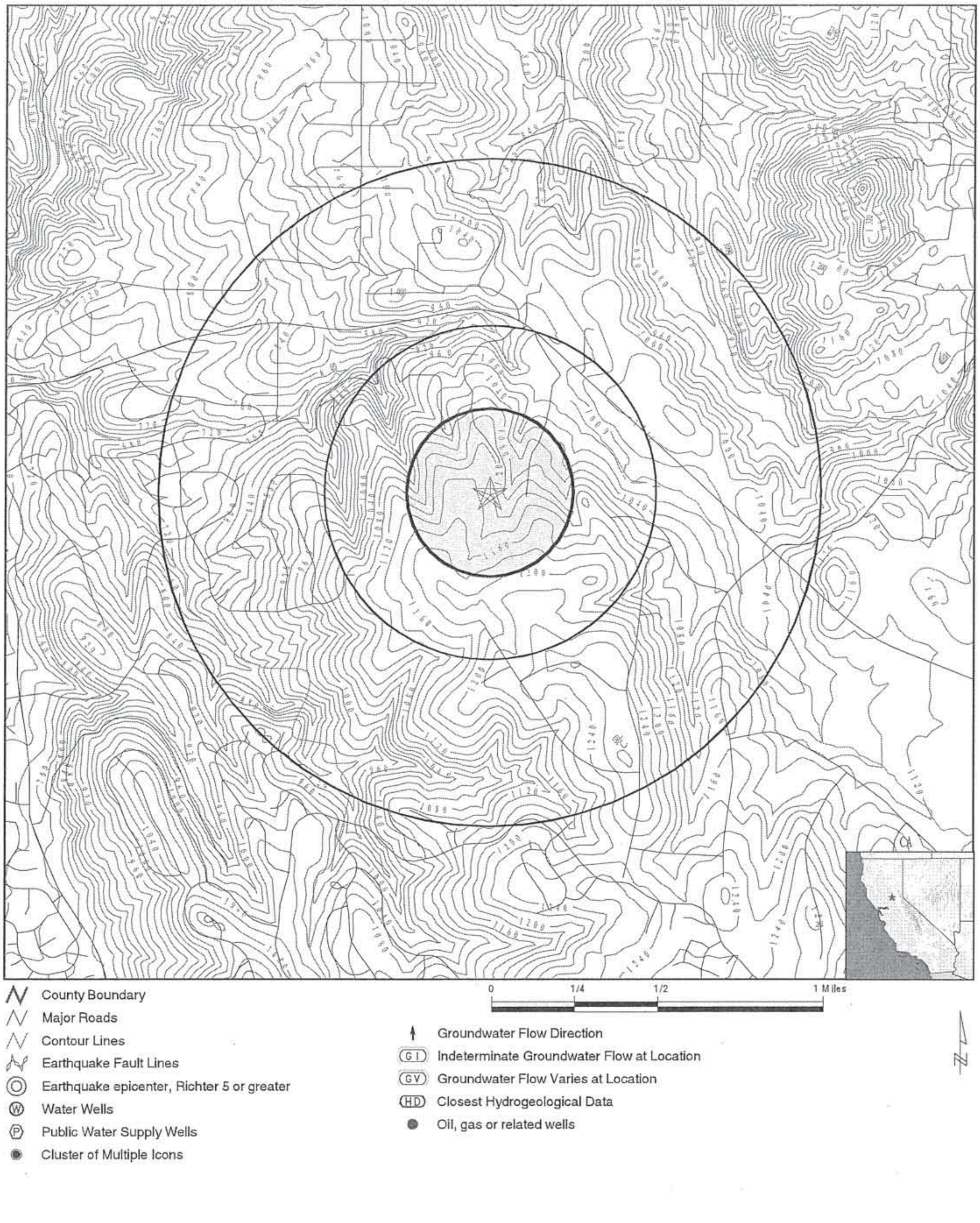
Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 3002996.2s



SITE NAME:	Dixon Ranch	CLIENT:	Youngdahl Consulting Group
ADDRESS:	Green Valley Road El Dorado Hills CA 95762	CONTACT:	Laurie Israel
		INQUIRY #:	3002996.2s
LAT/LONG:	38.7059 / 121.0472	DATE:	March 01, 2011 3:53 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95762	29	3

Federal EPA Radon Zone for EL DORADO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for EL DORADO COUNTY, CA

Number of sites tested: 27

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.844 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	3.400 pCi/L	50%	50%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

Dixon Ranch
Green Valley Road
El Dorado Hills, CA 95762

Inquiry Number: 3002996.5
March 04, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

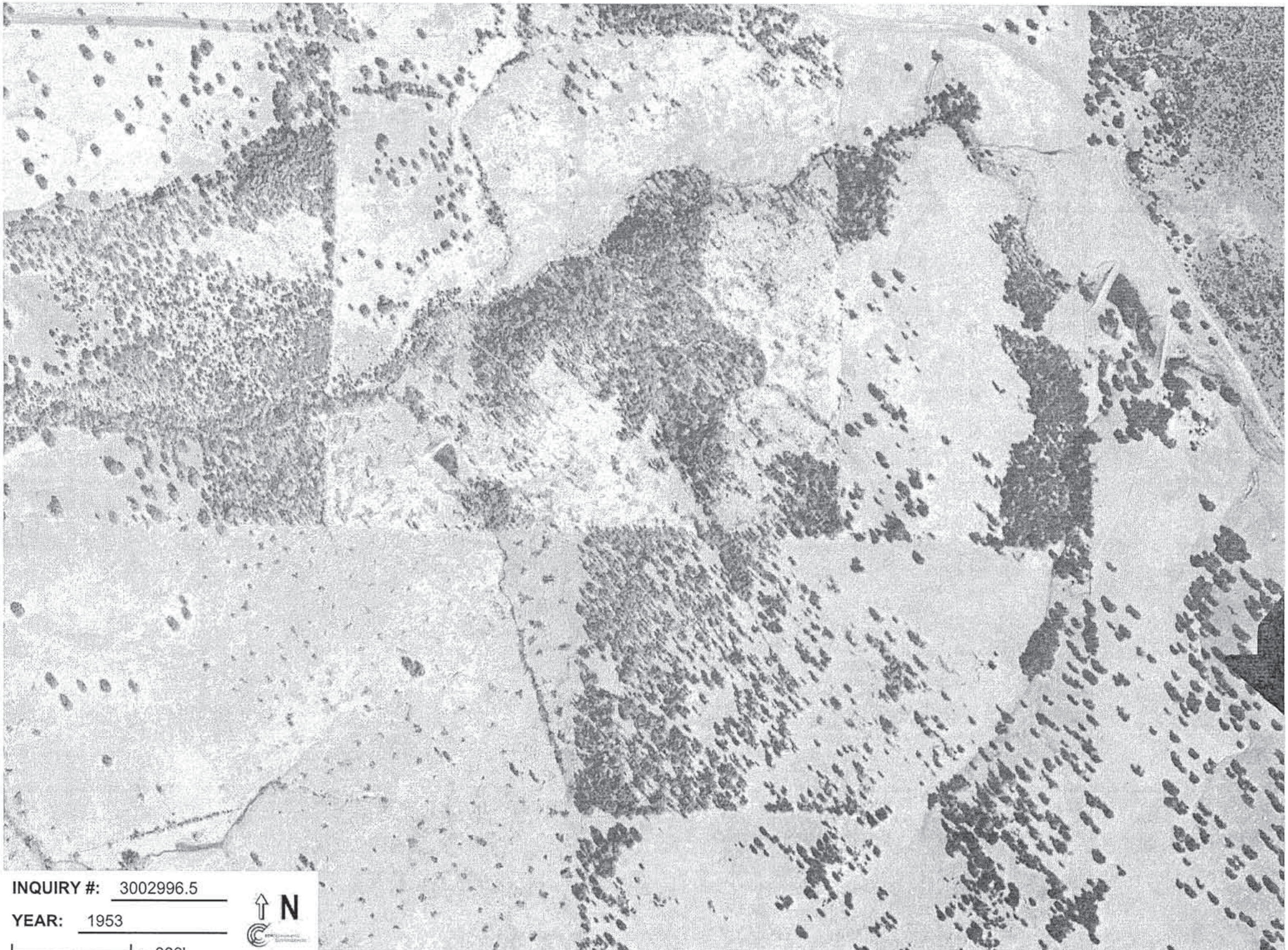
When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:
Aerial Photography March 04, 2011

Target Property:
Green Valley Road
El Dorado Hills, CA 95762

Year	***Scale***	***Details***	***Source***
1953	Aerial Photograph. Scale: 1"=666'	Flight Year: 1953 Best Copy Available from original source	Pacific Air
1961	Aerial Photograph. Scale: 1"=666'	Flight Year: 1961	Cartwright
1973	Aerial Photograph. Scale: 1"=666'	Flight Year: 1973	NASA
1984	Aerial Photograph. Scale: 1"=690'	Flight Year: 1984	USGS
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS
2005	Aerial Photograph. Scale: 1"=604'	Flight Year: 2005	EDR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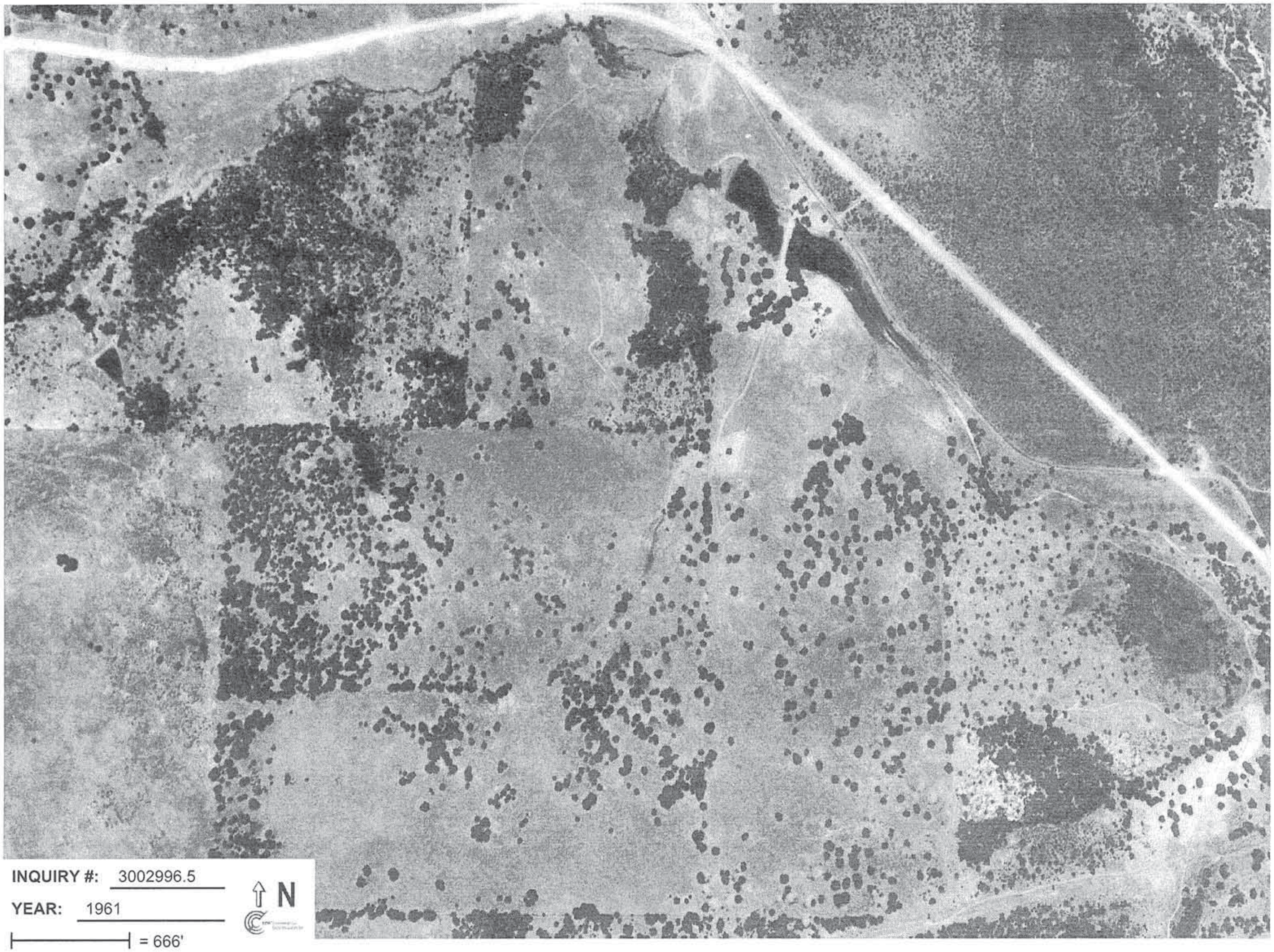
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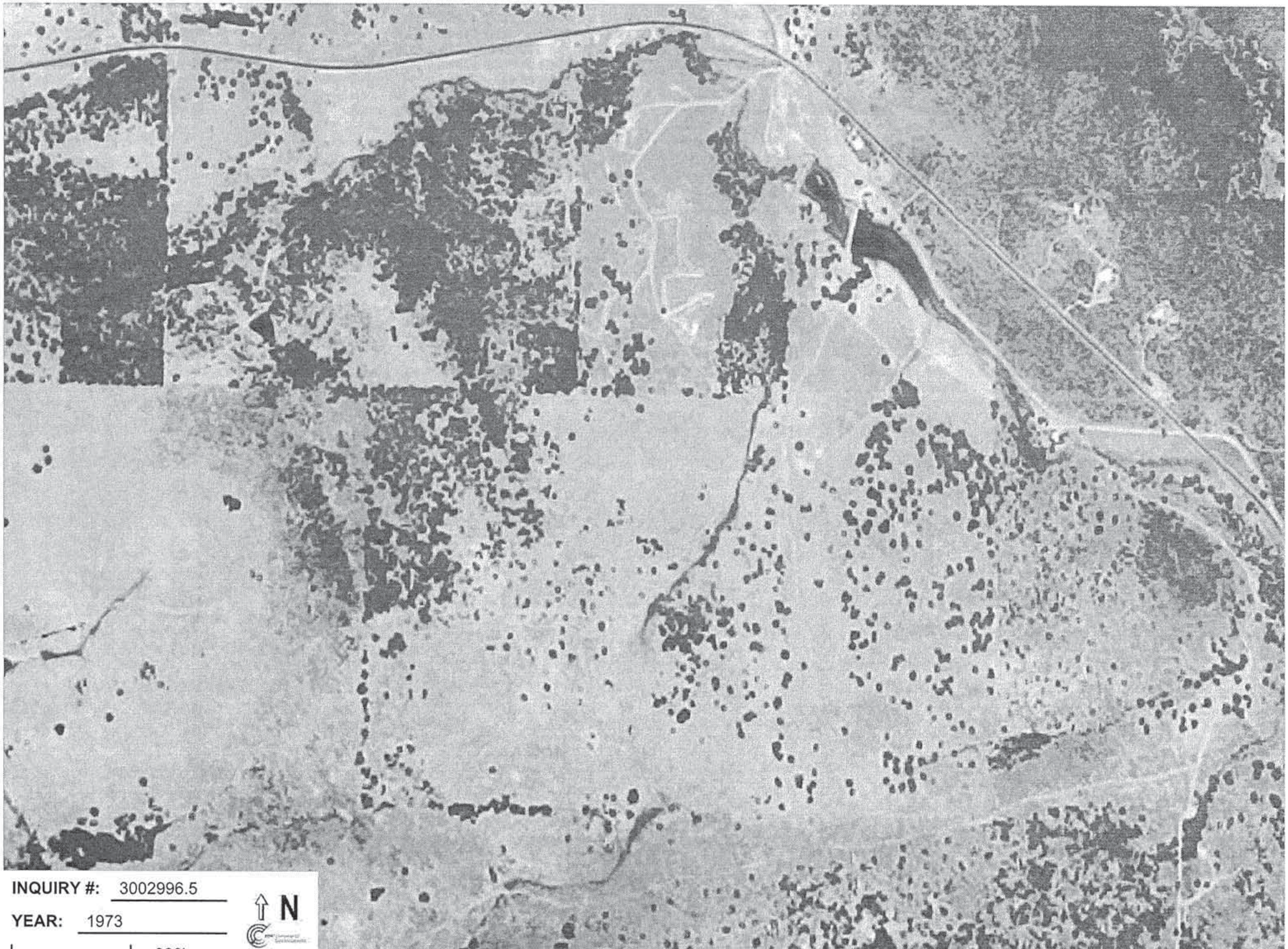
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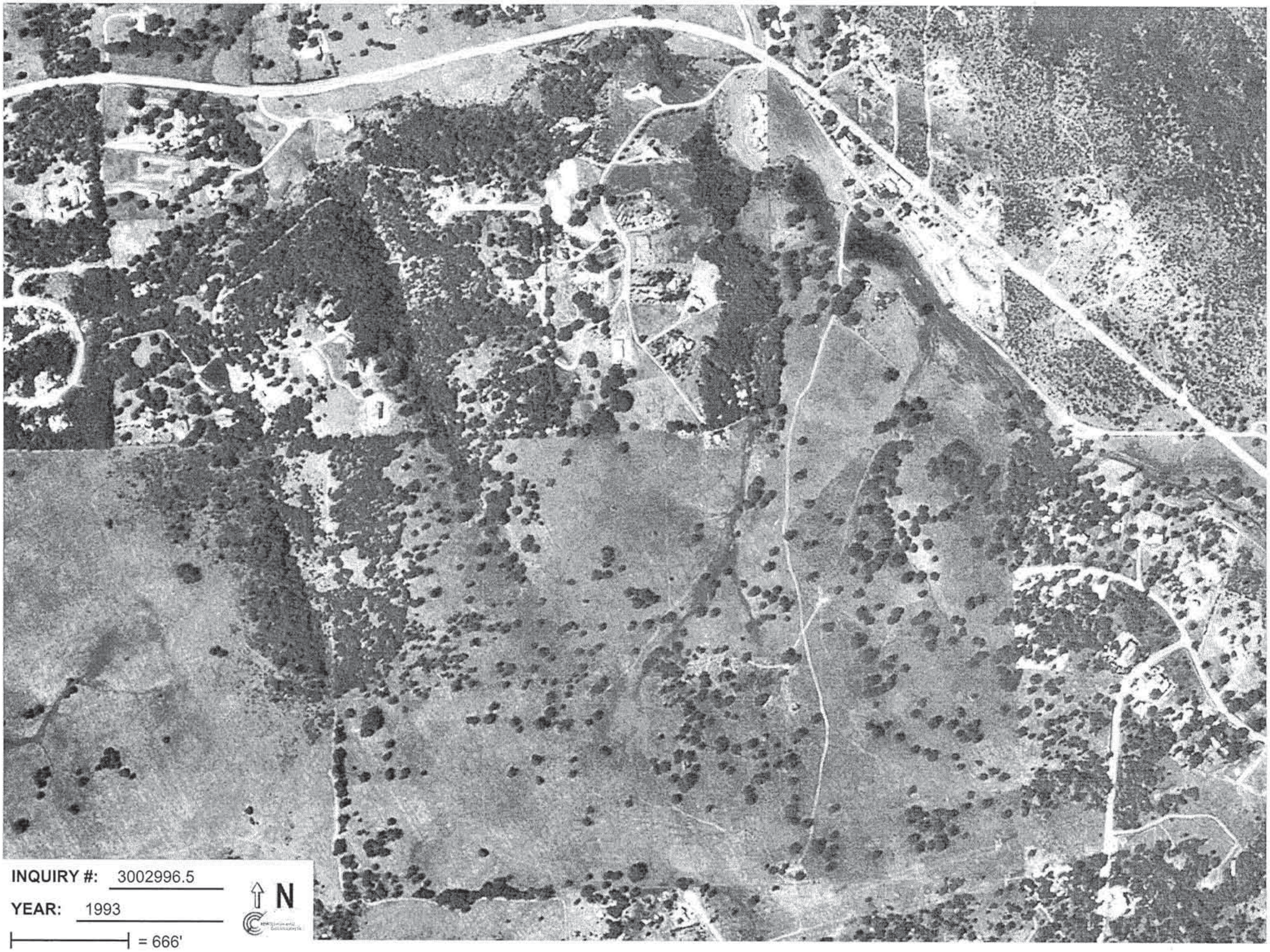
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YEAR: 1993
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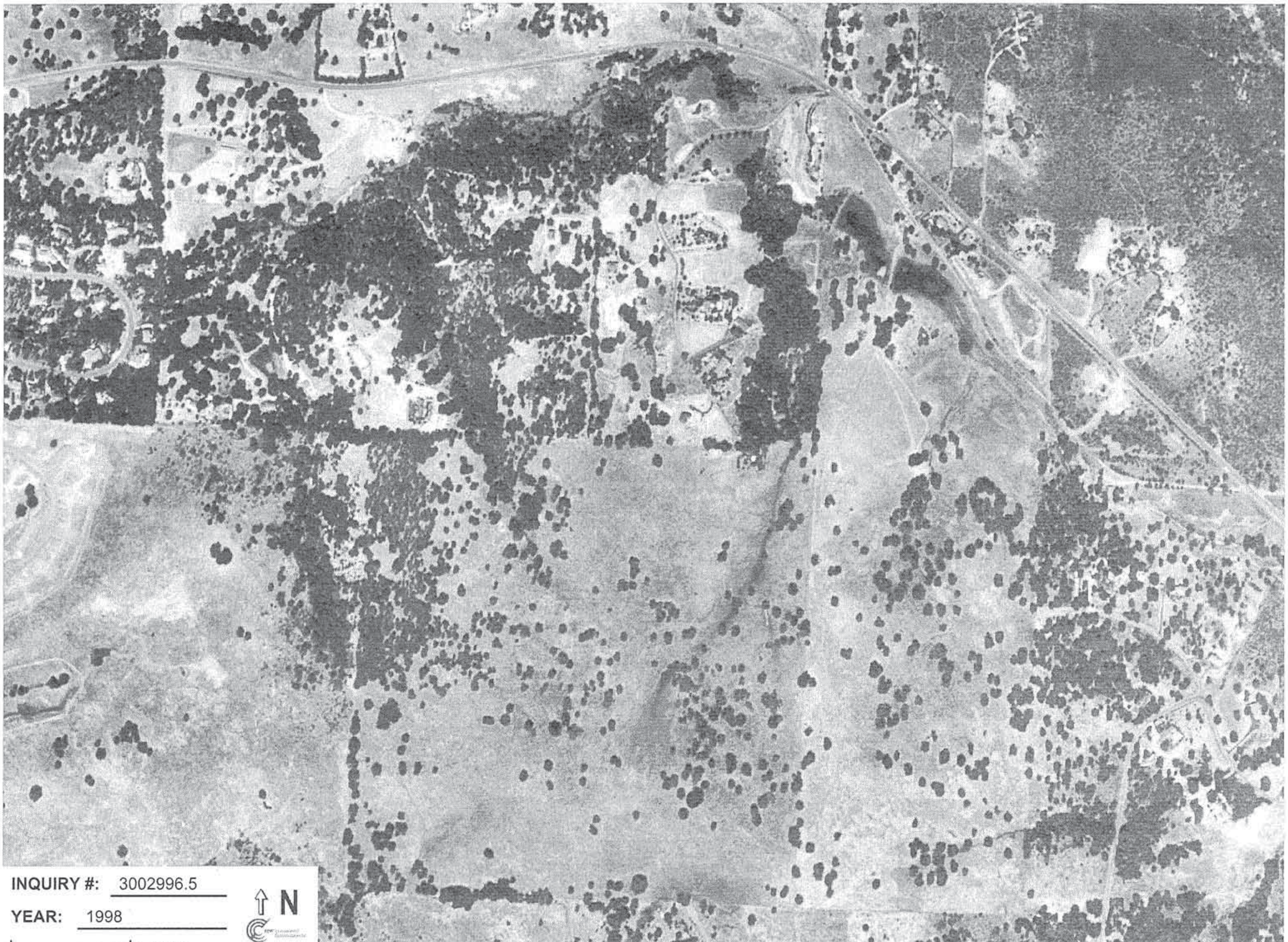

INQUIRY #: 3002996.5
YEAR: 1998
= 666'
N


INQUIRY #: 3002996.5
YEAR: 2005
= 604'
N

Dixon Ranch
Green Valley Road
El Dorado Hills, CA 95762

Inquiry Number: 3002996.4
March 01, 2011

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

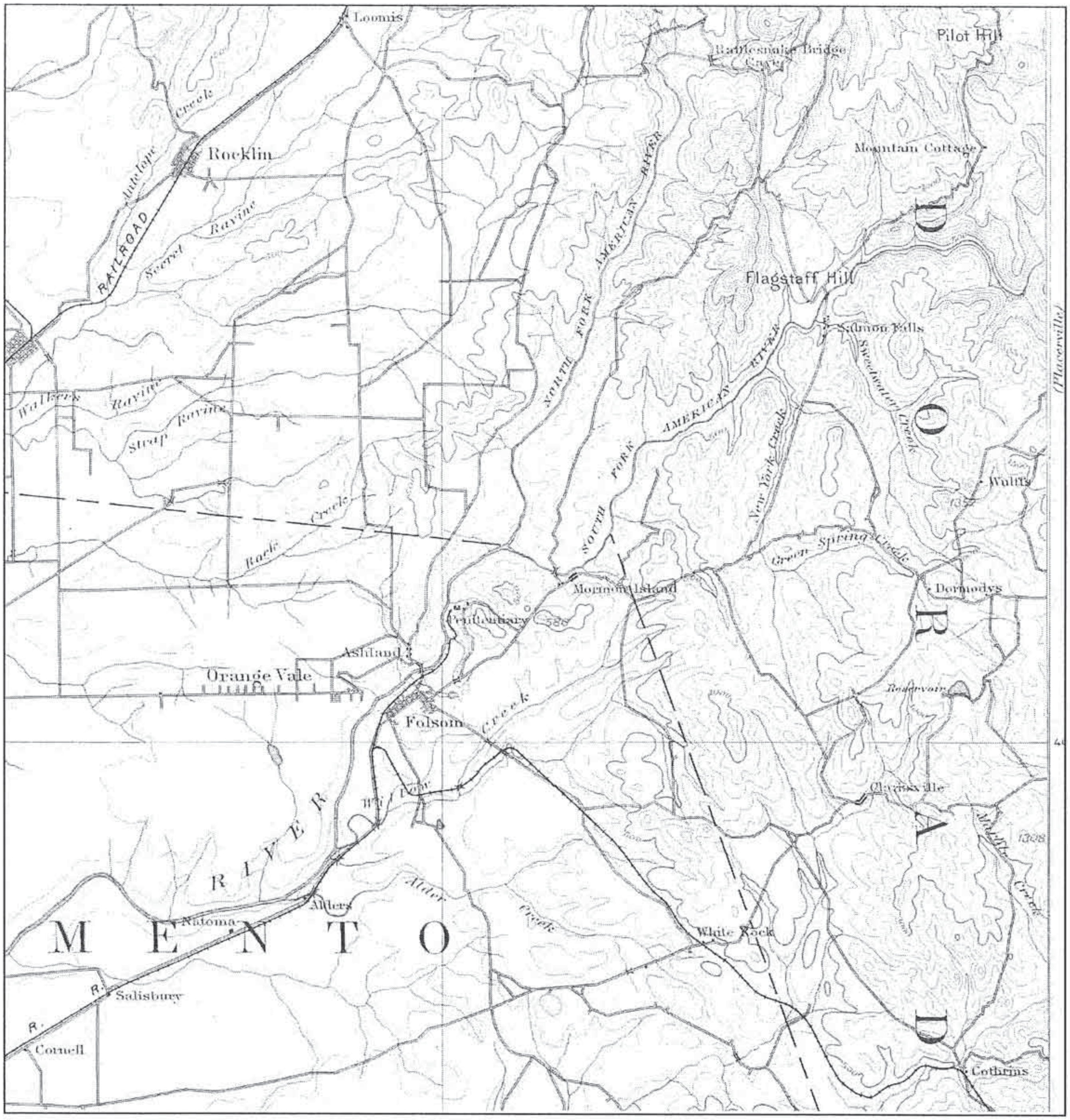
440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map

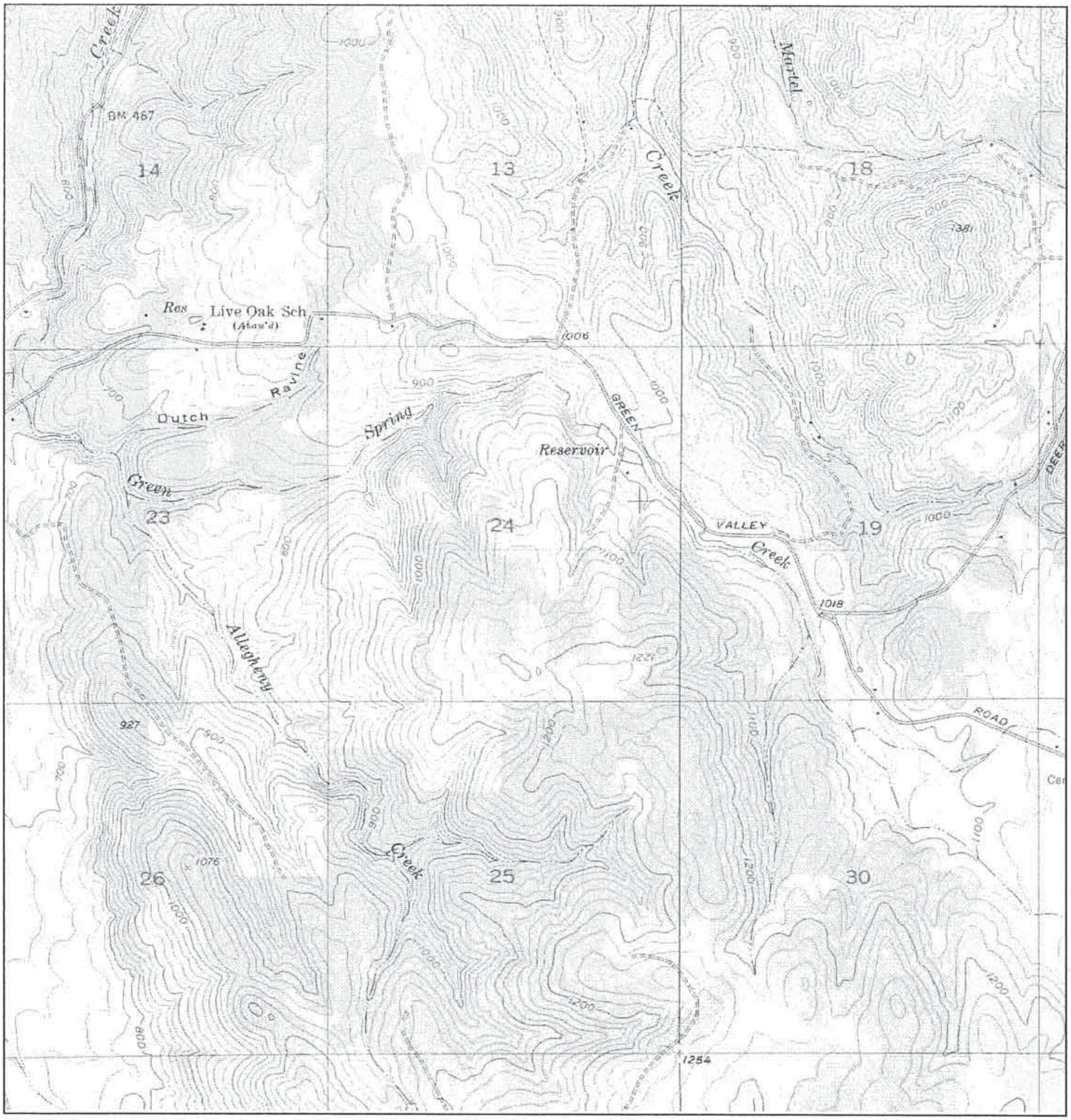


N ↑	TARGET QUAD NAME: SACRAMENTO MAP YEAR: 1893 SERIES: 30 SCALE: 1:125000	SITE NAME: Dixon Ranch ADDRESS: Green Valley Road El Dorado Hills, CA 95762 LAT/LONG: 38.7059 / -121.0472	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 3002996.4 RESEARCH DATE: 03/01/2011

Historical Topographic Map

N ↑	TARGET QUAD NAME: FOLSOM MAP YEAR: 1944 SERIES: 15 SCALE: 1:62500	SITE NAME: Dixon Ranch ADDRESS: Green Valley Road El Dorado Hills, CA 95762 LAT/LONG: 38.7059 / -121.0472	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 3002996.4 RESEARCH DATE: 03/01/2011

Historical Topographic Map



N TARGET QUAD NAME: CLARKSVILLE MAP YEAR: 1953 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Dixon Ranch ADDRESS: Green Valley Road El Dorado Hills, CA 95762 LAT/LONG: 38.7059 / -121.0472	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 3002996.4 RESEARCH DATE: 03/01/2011

Historical Topographic Map

N ↑	TARGET QUAD NAME: CLARKSVILLE MAP YEAR: 1973 PHOTOREVISED:1953 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Dixon Ranch ADDRESS: Green Valley Road El Dorado Hills, CA 95762 LAT/LONG: 38.7059 / -121.0472	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 3002996.4 RESEARCH DATE: 03/01/2011

Dixon Ranch
Green Valley Road
El Dorado Hills, CA 95762

Inquiry Number: 3002996.6
March 04, 2011

The EDR-City Directory Abstract

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

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SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	*Source*	*TP*	*Adjoining*	*Text Abstract*	*Source Image*
2008	Haines Criss-Cross Directory	-	X	X	-
1996	Haines Criss-Cross Directory	-	X	X	-
1989	Haines Criss-Cross Directory	-	-	-	-
1982	Haines Criss-Cross Directory	-	-	-	-
1976	Haines Criss-Cross Directory	-	-	-	-

EXECUTIVE SUMMARY

SELECTED ADDRESSES

The following addresses were selected by the client, for EDR to research. An "X" indicates where information was identified.

Address	***Type***	***Findings***
1768 Green Valley Road	Client Entered	X
1838 Green Valley Road	Client Entered	X
1840 Green Valley Road	Client Entered	
3200 Verde Valle Road	Client Entered	X

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

Green Valley Road
El Dorado Hills, CA 95762

FINDINGS DETAIL

Target Property research detail.

No Addresses Found

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

Green Valley Road

1768 Green Valley Road

Year	Uses	Source
2008	Residential	Haines Criss-Cross Directory
1996	Residential	Haines Criss-Cross Directory

1838 Green Valley Road

Year	Uses	Source
1996	No Return	Haines Criss-Cross Directory

1851 Green Valley Road

Year	Uses	Source
2008	Residential	Haines Criss-Cross Directory
1996	Residential	Haines Criss-Cross Directory

1870 Green Valley Road

Year	Uses	Source
2008	Residential	Haines Criss-Cross Directory
1996	Residential	Haines Criss-Cross Directory

Verde Valle Road

3200 Verde Valle Road

Year	Uses	Source
2008	No Return	Haines Criss-Cross Directory

FINDINGS

STREET NOT IDENTIFIED IN RESEARCH SOURCE

The following Streets were researched for this report, and the Streets were not identified in the research source.

Street Researched	Street Not Identified in Research Source
Verde Valle Road	1989, 1982, 1976

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
Green Valley Road	2008, 1996, 1989, 1982, 1976

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
1768 Green Valley Road	1989, 1982, 1976
1838 Green Valley Road	2008, 1989, 1982, 1976
1840 Green Valley Road	2008, 1996, 1989, 1982, 1976
1851 Green Valley Road	1989, 1982, 1976
1870 Green Valley Road	1989, 1982, 1976
3200 Verde Valle Road	1996

Dixon Ranch
Green Valley Road
El Dorado Hills, CA 95762

Inquiry Number: 3002996.3
March 01, 2011

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

3/01/11

Site Name:	Client Name:
Dixon Ranch	Youngdahl Consulting Group
Green Valley Road	1234 Glenhaven Court
El Dorado Hills, CA 95762	El Dorado Hills, CA 95762
EDR Inquiry # 3002996.3	Contact: Laurie Israel

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Youngdahl Consulting Group were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name:	Dixon Ranch
Address:	Green Valley Road
City, State, Zip:	El Dorado Hills, CA 95762
Cross Street:	
P.O. #	NA
Project:	E11047.001
Certification #	7054-4FA4-A822

Sanborn® Library search results
Certification # 7054-4FA4-A822

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1866™

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