Volume II.B

SALT CREEK HEIGHTS

DRAFT ENVIRONMENTAL IMPACT REPORT - TECHNICAL APPENDIX

- Tentative Subdivision Map (S-15-07)
- Rezone Application (RZ-6-07)
- Planned Development Plan (PD-11-07)

RBF CONSULTING

Appendix 15.5
Air Quality Data

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 1
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
52	Single-Family Residential	dwelling units	9.57

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2011	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2011	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2011	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Tractor/Loaders/Backhoe	7
1	Grader	6
1	Rubber Tired Dozer	6
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2011	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
1	Paving Equipment	6
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
3	Welders	8
1	Crane	6
2	Forklift	6
1	Generator Set	8
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase1.urb924

Project Name: SaltCreek1

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	108.13	23.54	26.03	0.01	133.80	1.60	134.98	27.94	1.47	29.03	2,700.15
2011 TOTALS (lbs/day mitigated)	97.72	23.54	26.03	0.01	9.33	1.60	10.50	1.95	1.47	3.03	2,700.15

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2011-4/29/2011 Active Days: 21	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Demolition 04/01/2011-05/01/2011	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 5/2/2011-6/2/2011 Active Days: 24	2.89	**23.54**	13.60	0.00	**133.80**	1.17	**134.98**	**27.94**	1.08	**29.03**	2,349.16
Mass Grading 05/02/2011-06/02/2011	2.89	23.54	13.60	0.00	133.80	1.17	134.98	27.94	1.08	29.03	2,349.16
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 6/3/2011-6/17/2011 Active Days: 11	2.89	**23.54**	13.60	0.00	86.60	1.17	87.78	18.09	1.08	19.17	2,349.16
Fine Grading 06/03/2011-06/18/2011	2.89	23.54	13.60	0.00	86.60	1.17	87.78	18.09	1.08	19.17	2,349.16
Fine Grading Dust	0.00	0.00	0.00	0.00	86.60	0.00	86.60	18.09	0.00	18.09	0.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85

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Time Slice 6/20/2011-7/5/2011 Active Days: 12	3.99	19.92	14.72	0.01	0.03	**1.60**	1.63	0.01	**1.47**	1.48	2,045.13
Asphalt 06/19/2011-07/05/2011	3.99	19.92	14.72	0.01	0.03	1.60	1.63	0.01	1.47	1.48	2,045.13
Paving Off-Gas	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.17	2.59	0.86	0.00	0.01	0.10	0.11	0.00	0.09	0.09	397.53
Paving Worker Trips	0.14	0.23	3.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	229.15
Time Slice 7/6/2011-9/26/2011 Active Days: 59	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Time Slice 9/27/2011-10/19/2011 Active Days: 17	**108.13**	17.50	**26.03**	**0.01**	0.05	1.20	1.25	0.02	1.10	1.12	**2,700.15**
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Coating 09/27/2011-11/01/2011	104.19	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	104.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Time Slice 10/20/2011-11/1/2011 Active Days: 9	104.19	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Coating 09/27/2011-11/01/2011	104.19	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	104.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74

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Phase Assumptions

Phase: Demolition 4/1/2011 - 5/1/2011 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2011 - 6/18/2011 - Type Your Description Here

Total Acres Disturbed: 17.33

Maximum Daily Acreage Disturbed: 4.33

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2011 - 6/2/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2011 - 7/5/2011 - Default Paving Description

Acres to be Paved: 4.33

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2011 - 10/19/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/27/2011 - 11/1/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/1/2011-4/29/2011 Active Days: 21	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Demolition 04/01/2011-05/01/2011	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 5/2/2011-6/2/2011 Active Days: 24	2.89	**23.54**	13.60	0.00	9.33	1.17	10.50	1.95	1.08	3.03	2,349.16
Mass Grading 05/02/2011-06/02/2011	2.89	23.54	13.60	0.00	9.33	1.17	10.50	1.95	1.08	3.03	2,349.16
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 6/3/2011-6/17/2011 Active Days: 11	2.89	**23.54**	13.60	0.00	6.04	1.17	7.21	1.26	1.08	2.34	2,349.16
Fine Grading 06/03/2011-06/18/2011	2.89	23.54	13.60	0.00	6.04	1.17	7.21	1.26	1.08	2.34	2,349.16
Fine Grading Dust	0.00	0.00	0.00	0.00	6.03	0.00	6.03	1.26	0.00	1.26	0.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85

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Time Slice 6/20/2011-7/5/2011 Active Days: 12	3.99	19.92	14.72	0.01	0.03	**1.60**	1.63	0.01	**1.47**	1.48	2,045.13
Asphalt 06/19/2011-07/05/2011	3.99	19.92	14.72	0.01	0.03	1.60	1.63	0.01	1.47	1.48	2,045.13
Paving Off-Gas	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.17	2.59	0.86	0.00	0.01	0.10	0.11	0.00	0.09	0.09	397.53
Paving Worker Trips	0.14	0.23	3.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	229.15
Time Slice 7/6/2011-9/26/2011 Active Days: 59	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Time Slice 9/27/2011-10/19/2011 Active Days: 17	97.72	17.50	**26.03**	**0.01**	0.05	1.20	1.25	0.02	1.10	1.12	**2,700.15**
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Coating 09/27/2011-11/01/2011	93.78	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	93.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Time Slice 10/20/2011-11/1/2011 Active Days: 9	93.78	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Coating 09/27/2011-11/01/2011	93.78	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	93.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2011 - 6/18/2011 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2011 - 6/2/2011 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2011 - 11/1/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

3/31/2009 2:05:10 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase1.urb924

Project Name: SaltCreek1

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	108.13	23.54	26.03	0.01	133.80	1.60	134.98	27.94	1.47	29.03	2,700.15
2011 TOTALS (lbs/day mitigated)	97.72	23.54	26.03	0.01	9.33	1.60	10.50	1.95	1.47	3.03	2,700.15

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

3/31/2009 2:05:10 PM

Time Slice 4/1/2011-4/29/2011 Active Days: 21	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Demolition 04/01/2011-05/01/2011	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 5/2/2011-6/2/2011 Active Days: 24	2.89	**23.54**	13.60	0.00	**133.80**	1.17	**134.98**	**27.94**	1.08	**29.03**	2,349.16
Mass Grading 05/02/2011-06/02/2011	2.89	23.54	13.60	0.00	133.80	1.17	134.98	27.94	1.08	29.03	2,349.16
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 6/3/2011-6/17/2011 Active Days: 11	2.89	**23.54**	13.60	0.00	86.60	1.17	87.78	18.09	1.08	19.17	2,349.16
Fine Grading 06/03/2011-06/18/2011	2.89	23.54	13.60	0.00	86.60	1.17	87.78	18.09	1.08	19.17	2,349.16
Fine Grading Dust	0.00	0.00	0.00	0.00	86.60	0.00	86.60	18.09	0.00	18.09	0.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85

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Time Slice 6/20/2011-7/5/2011 Active Days: 12	3.99	19.92	14.72	0.01	0.03	**1.60**	1.63	0.01	**1.47**	1.48	2,045.13
Asphalt 06/19/2011-07/05/2011	3.99	19.92	14.72	0.01	0.03	1.60	1.63	0.01	1.47	1.48	2,045.13
Paving Off-Gas	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.17	2.59	0.86	0.00	0.01	0.10	0.11	0.00	0.09	0.09	397.53
Paving Worker Trips	0.14	0.23	3.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	229.15
Time Slice 7/6/2011-9/26/2011 Active Days: 59	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Time Slice 9/27/2011-10/19/2011 Active Days: 17	**108.13**	17.50	**26.03**	**0.01**	0.05	1.20	1.25	0.02	1.10	1.12	**2,700.15**
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Coating 09/27/2011-11/01/2011	104.19	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	104.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Time Slice 10/20/2011-11/1/2011 Active Days: 9	104.19	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Coating 09/27/2011-11/01/2011	104.19	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	104.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74

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Phase Assumptions

Phase: Demolition 4/1/2011 - 5/1/2011 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2011 - 6/18/2011 - Type Your Description Here

Total Acres Disturbed: 17.33

Maximum Daily Acreage Disturbed: 4.33

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2011 - 6/2/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2011 - 7/5/2011 - Default Paving Description

Acres to be Paved: 4.33

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2011 - 10/19/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/27/2011 - 11/1/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/1/2011-4/29/2011 Active Days: 21	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Demolition 04/01/2011-05/01/2011	1.12	7.32	6.23	0.00	0.00	0.55	0.56	0.00	0.51	0.51	802.15
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 5/2/2011-6/2/2011 Active Days: 24	2.89	**23.54**	13.60	0.00	9.33	1.17	10.50	1.95	1.08	3.03	2,349.16
Mass Grading 05/02/2011-06/02/2011	2.89	23.54	13.60	0.00	9.33	1.17	10.50	1.95	1.08	3.03	2,349.16
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85
Time Slice 6/3/2011-6/17/2011 Active Days: 11	2.89	**23.54**	13.60	0.00	6.04	1.17	7.21	1.26	1.08	2.34	2,349.16
Fine Grading 06/03/2011-06/18/2011	2.89	23.54	13.60	0.00	6.04	1.17	7.21	1.26	1.08	2.34	2,349.16
Fine Grading Dust	0.00	0.00	0.00	0.00	6.03	0.00	6.03	1.26	0.00	1.26	0.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.10	1.65	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.85

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Time Slice 6/20/2011-7/5/2011 Active Days: 12	3.99	19.92	14.72	0.01	0.03	**1.60**	1.63	0.01	**1.47**	1.48	2,045.13
Asphalt 06/19/2011-07/05/2011	3.99	19.92	14.72	0.01	0.03	1.60	1.63	0.01	1.47	1.48	2,045.13
Paving Off-Gas	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.17	2.59	0.86	0.00	0.01	0.10	0.11	0.00	0.09	0.09	397.53
Paving Worker Trips	0.14	0.23	3.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	229.15
Time Slice 7/6/2011-9/26/2011 Active Days: 59	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Time Slice 9/27/2011-10/19/2011 Active Days: 17	97.72	17.50	**26.03**	**0.01**	0.05	1.20	1.25	0.02	1.10	1.12	**2,700.15**
Building 07/06/2011-10/19/2011	3.95	17.38	24.03	0.01	0.04	1.19	1.24	0.02	1.09	1.11	2,576.41
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.08	0.95	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	192.60
Building Worker Trips	0.48	0.76	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	762.62
Coating 09/27/2011-11/01/2011	93.78	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	93.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Time Slice 10/20/2011-11/1/2011 Active Days: 9	93.78	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Coating 09/27/2011-11/01/2011	93.78	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74
Architectural Coating	93.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.08	0.12	2.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	123.74

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2011 - 6/18/2011 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2011 - 6/2/2011 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2011 - 11/1/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase1.urb924

Project Name: SaltCreek1

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	1.59	1.27	1.33	0.00	2.08	0.08	2.17	0.44	0.07	0.51	161.32
2011 TOTALS (tons/year mitigated)	1.46	1.27	1.33	0.00	0.15	0.08	0.23	0.03	0.07	0.11	161.32
Percent Reduction	8.51	0.00	0.00	0.00	92.94	0.00	89.45	92.88	0.00	79.28	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	1.59	1.27	1.33	0.00	2.08	0.08	2.17	0.44	0.07	0.51	161.32

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Demolition 04/01/2011-05/01/2011	0.01	0.08	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.42
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.35
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Mass Grading 05/02/2011-06/02/2011	0.03	0.28	0.16	0.00	1.61	0.01	1.62	0.34	0.01	0.35	28.19
Mass Grading Dust	0.00	0.00	0.00	0.00	1.61	0.00	1.61	0.34	0.00	0.34	0.00
Mass Grading Off Road Diesel	0.03	0.28	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.97
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
Fine Grading 06/03/2011-06/18/2011	0.02	0.13	0.07	0.00	0.48	0.01	0.48	0.10	0.01	0.11	12.92
Fine Grading Dust	0.00	0.00	0.00	0.00	0.48	0.00	0.48	0.10	0.00	0.10	0.00
Fine Grading Off Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.36
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Asphalt 06/19/2011-07/05/2011	0.02	0.12	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.27
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.10	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.51
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37

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Building 07/06/2011-10/19/2011	0.15	0.66	0.91	0.00	0.00	0.05	0.05	0.00	0.04	0.04	97.90
Building Off Road Diesel	0.13	0.60	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	61.61
Building Vendor Trips	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.32
Building Worker Trips	0.02	0.03	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.98
Coating 09/27/2011-11/01/2011	1.35	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Architectural Coating	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61

Phase Assumptions

Phase: Demolition 4/1/2011 - 5/1/2011 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2011 - 6/18/2011 - Type Your Description Here

Total Acres Disturbed: 17.33

Maximum Daily Acreage Disturbed: 4.33

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2011 - 6/2/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2011 - 7/5/2011 - Default Paving Description

Acres to be Paved: 4.33

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2011 - 10/19/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/27/2011 - 11/1/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	1.46	1.27	1.33	0.00	0.15	0.08	0.23	0.03	0.07	0.11	161.32
Demolition 04/01/2011-05/01/2011	0.01	0.08	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.42
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.35
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Mass Grading 05/02/2011-06/02/2011	0.03	0.28	0.16	0.00	0.11	0.01	0.13	0.02	0.01	0.04	28.19
Mass Grading Dust	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.03	0.28	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.97
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22

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Fine Grading 06/03/2011-06/18/2011	0.02	0.13	0.07	0.00	0.03	0.01	0.04	0.01	0.01	0.01	12.92
Fine Grading Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.36
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Asphalt 06/19/2011-07/05/2011	0.02	0.12	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.27
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.10	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.51
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
Building 07/06/2011-10/19/2011	0.15	0.66	0.91	0.00	0.00	0.05	0.05	0.00	0.04	0.04	97.90
Building Off Road Diesel	0.13	0.60	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	61.61
Building Vendor Trips	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.32
Building Worker Trips	0.02	0.03	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.98
Coating 09/27/2011-11/01/2011	1.22	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Architectural Coating	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2011 - 6/18/2011 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

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PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2011 - 6/2/2011 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2011 - 11/1/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 2
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
56	Single-Family Residential	dwelling units	9.57

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2012	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2012	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2012	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	7
1	Grader	8
1	Rubber Tired Dozer	8
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2012	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
2	Paving Equipment	6
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
3	Welders	8
1	Crane	6
2	Forklift	6
1	Generator Set	8
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase2.urb924

Project Name: SaltCreek2

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	87.03	22.04	25.18	0.01	133.80	1.50	134.88	27.94	1.38	28.93	2,749.46
2012 TOTALS (lbs/day mitigated)	78.70	22.04	25.18	0.01	9.33	1.50	10.40	1.95	1.38	2.94	2,749.46

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/2/2012-5/1/2012 Active Days: 22	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Demolition 04/01/2012-05/01/2012	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.98	6.77	4.49	0.00	0.00	0.49	0.49	0.00	0.45	0.45	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 5/2/2012-6/1/2012 Active Days: 23	2.75	**22.04**	13.04	0.00	**133.80**	1.07	**134.88**	**27.94**	0.99	**28.93**	2,349.22
Mass Grading 05/02/2012-06/02/2012	2.75	22.04	13.04	0.00	133.80	1.07	134.88	27.94	0.99	28.93	2,349.22
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 6/4/2012-6/18/2012 Active Days: 11	2.75	**22.04**	13.04	0.00	93.40	1.07	94.48	19.51	0.99	20.50	2,349.22
Fine Grading 06/03/2012-06/18/2012	2.75	22.04	13.04	0.00	93.40	1.07	94.48	19.51	0.99	20.50	2,349.22
Fine Grading Dust	0.00	0.00	0.00	0.00	93.40	0.00	93.40	19.51	0.00	19.51	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91

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Time Slice 6/19/2012-7/5/2012 Active Days: 13	3.89	18.91	14.34	0.01	0.03	**1.50**	1.53	0.01	**1.38**	1.39	2,076.48
Asphalt 06/19/2012-07/05/2012	3.89	18.91	14.34	0.01	0.03	1.50	1.53	0.01	1.38	1.39	2,076.48
Paving Off-Gas	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.65	16.20	10.06	0.00	0.00	1.41	1.41	0.00	1.29	1.29	1,418.44
Paving On Road Diesel	0.17	2.50	0.84	0.00	0.02	0.09	0.11	0.00	0.08	0.09	428.75
Paving Worker Trips	0.13	0.21	3.44	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.29
Time Slice 7/6/2012-9/25/2012 Active Days: 58	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Time Slice 9/26/2012-10/19/2012 Active Days: 18	**87.03**	16.57	**25.18**	**0.01**	0.05	1.10	1.15	0.02	1.00	1.02	**2,749.46**
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Coating 09/26/2012-11/13/2012	83.34	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	83.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Time Slice 10/22/2012-11/13/2012 Active Days: 17	83.34	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Coating 09/26/2012-11/13/2012	83.34	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	83.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05

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Phase Assumptions

Phase: Demolition 4/1/2012 - 5/1/2012 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

Total Acres Disturbed: 18.67

Maximum Daily Acreage Disturbed: 4.67

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2012 - 7/5/2012 - Default Paving Description

Acres to be Paved: 4.67

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2012 - 10/19/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2012 - 11/13/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/2/2012-5/1/2012 Active Days: 22	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Demolition 04/01/2012-05/01/2012	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.98	6.77	4.49	0.00	0.00	0.49	0.49	0.00	0.45	0.45	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 5/2/2012-6/1/2012 Active Days: 23	2.75	**22.04**	13.04	0.00	9.33	1.07	10.40	1.95	0.99	2.94	2,349.22
Mass Grading 05/02/2012-06/02/2012	2.75	22.04	13.04	0.00	9.33	1.07	10.40	1.95	0.99	2.94	2,349.22
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 6/4/2012-6/18/2012 Active Days: 11	2.75	**22.04**	13.04	0.00	6.51	1.07	7.59	1.36	0.99	2.35	2,349.22
Fine Grading 06/03/2012-06/18/2012	2.75	22.04	13.04	0.00	6.51	1.07	7.59	1.36	0.99	2.35	2,349.22
Fine Grading Dust	0.00	0.00	0.00	0.00	6.51	0.00	6.51	1.36	0.00	1.36	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91

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Time Slice 6/19/2012-7/5/2012 Active Days: 13	3.89	18.91	14.34	0.01	0.03	**1.50**	1.53	0.01	**1.38**	1.39	2,076.48
Asphalt 06/19/2012-07/05/2012	3.89	18.91	14.34	0.01	0.03	1.50	1.53	0.01	1.38	1.39	2,076.48
Paving Off-Gas	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.65	16.20	10.06	0.00	0.00	1.41	1.41	0.00	1.29	1.29	1,418.44
Paving On Road Diesel	0.17	2.50	0.84	0.00	0.02	0.09	0.11	0.00	0.08	0.09	428.75
Paving Worker Trips	0.13	0.21	3.44	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.29
Time Slice 7/6/2012-9/25/2012 Active Days: 58	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Time Slice 9/26/2012-10/19/2012 Active Days: 18	78.70	16.57	**25.18**	**0.01**	0.05	1.10	1.15	0.02	1.00	1.02	**2,749.46**
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Coating 09/26/2012-11/13/2012	75.02	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	74.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Time Slice 10/22/2012-11/13/2012 Active Days: 17	75.02	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Coating 09/26/2012-11/13/2012	75.02	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	74.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2012 - 11/13/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase2.urb924

Project Name: SaltCreek2

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	87.03	22.04	25.18	0.01	133.80	1.50	134.88	27.94	1.38	28.93	2,749.46
2012 TOTALS (lbs/day mitigated)	78.70	22.04	25.18	0.01	9.33	1.50	10.40	1.95	1.38	2.94	2,749.46

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/2/2012-5/1/2012 Active Days: 22	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Demolition 04/01/2012-05/01/2012	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.98	6.77	4.49	0.00	0.00	0.49	0.49	0.00	0.45	0.45	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 5/2/2012-6/1/2012 Active Days: 23	2.75	**22.04**	13.04	0.00	**133.80**	1.07	**134.88**	**27.94**	0.99	**28.93**	2,349.22
Mass Grading 05/02/2012-06/02/2012	2.75	22.04	13.04	0.00	133.80	1.07	134.88	27.94	0.99	28.93	2,349.22
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 6/4/2012-6/18/2012 Active Days: 11	2.75	**22.04**	13.04	0.00	93.40	1.07	94.48	19.51	0.99	20.50	2,349.22
Fine Grading 06/03/2012-06/18/2012	2.75	22.04	13.04	0.00	93.40	1.07	94.48	19.51	0.99	20.50	2,349.22
Fine Grading Dust	0.00	0.00	0.00	0.00	93.40	0.00	93.40	19.51	0.00	19.51	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91

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Time Slice 6/19/2012-7/5/2012 Active Days: 13	3.89	18.91	14.34	0.01	0.03	**1.50**	1.53	0.01	**1.38**	1.39	2,076.48
Asphalt 06/19/2012-07/05/2012	3.89	18.91	14.34	0.01	0.03	1.50	1.53	0.01	1.38	1.39	2,076.48
Paving Off-Gas	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.65	16.20	10.06	0.00	0.00	1.41	1.41	0.00	1.29	1.29	1,418.44
Paving On Road Diesel	0.17	2.50	0.84	0.00	0.02	0.09	0.11	0.00	0.08	0.09	428.75
Paving Worker Trips	0.13	0.21	3.44	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.29
Time Slice 7/6/2012-9/25/2012 Active Days: 58	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Time Slice 9/26/2012-10/19/2012 Active Days: 18	**87.03**	16.57	**25.18**	**0.01**	0.05	1.10	1.15	0.02	1.00	1.02	**2,749.46**
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Coating 09/26/2012-11/13/2012	83.34	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	83.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Time Slice 10/22/2012-11/13/2012 Active Days: 17	83.34	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Coating 09/26/2012-11/13/2012	83.34	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	83.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05

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Phase Assumptions

Phase: Demolition 4/1/2012 - 5/1/2012 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

Total Acres Disturbed: 18.67

Maximum Daily Acreage Disturbed: 4.67

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2012 - 7/5/2012 - Default Paving Description

Acres to be Paved: 4.67

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2012 - 10/19/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2012 - 11/13/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

3/31/2009 2:10:00 PM

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/2/2012-5/1/2012 Active Days: 22	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Demolition 04/01/2012-05/01/2012	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.98	6.77	4.49	0.00	0.00	0.49	0.49	0.00	0.45	0.45	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 5/2/2012-6/1/2012 Active Days: 23	2.75	**22.04**	13.04	0.00	9.33	1.07	10.40	1.95	0.99	2.94	2,349.22
Mass Grading 05/02/2012-06/02/2012	2.75	22.04	13.04	0.00	9.33	1.07	10.40	1.95	0.99	2.94	2,349.22
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 6/4/2012-6/18/2012 Active Days: 11	2.75	**22.04**	13.04	0.00	6.51	1.07	7.59	1.36	0.99	2.35	2,349.22
Fine Grading 06/03/2012-06/18/2012	2.75	22.04	13.04	0.00	6.51	1.07	7.59	1.36	0.99	2.35	2,349.22
Fine Grading Dust	0.00	0.00	0.00	0.00	6.51	0.00	6.51	1.36	0.00	1.36	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91

3/31/2009 2:10:01 PM

Time Slice 6/19/2012-7/5/2012 Active Days: 13	3.89	18.91	14.34	0.01	0.03	**1.50**	1.53	0.01	**1.38**	1.39	2,076.48
Asphalt 06/19/2012-07/05/2012	3.89	18.91	14.34	0.01	0.03	1.50	1.53	0.01	1.38	1.39	2,076.48
Paving Off-Gas	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.65	16.20	10.06	0.00	0.00	1.41	1.41	0.00	1.29	1.29	1,418.44
Paving On Road Diesel	0.17	2.50	0.84	0.00	0.02	0.09	0.11	0.00	0.08	0.09	428.75
Paving Worker Trips	0.13	0.21	3.44	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.29
Time Slice 7/6/2012-9/25/2012 Active Days: 58	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Time Slice 9/26/2012-10/19/2012 Active Days: 18	78.70	16.57	**25.18**	**0.01**	0.05	1.10	1.15	0.02	1.00	1.02	**2,749.46**
Building 07/06/2012-10/19/2012	3.69	16.48	23.69	0.01	0.05	1.09	1.14	0.02	1.00	1.02	2,650.41
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.08	0.91	0.86	0.00	0.01	0.03	0.04	0.00	0.03	0.03	207.44
Building Worker Trips	0.47	0.75	12.32	0.01	0.04	0.02	0.06	0.01	0.02	0.03	821.77
Coating 09/26/2012-11/13/2012	75.02	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	74.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Time Slice 10/22/2012-11/13/2012 Active Days: 17	75.02	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Coating 09/26/2012-11/13/2012	75.02	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05
Architectural Coating	74.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.48	0.00	0.00	0.00	0.01	0.00	0.00	0.00	99.05

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2012 - 11/13/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

3/31/2009 2:10:01 PM

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase2.urb924

Project Name: SaltCreek2

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (tons/year unmitigated)	1.68	1.20	1.31	0.00	2.05	0.08	2.13	0.43	0.07	0.50	164.71
2012 TOTALS (tons/year mitigated)	1.54	1.20	1.31	0.00	0.15	0.08	0.22	0.03	0.07	0.10	164.71
Percent Reduction	8.66	0.00	0.00	0.00	92.93	0.00	89.66	92.86	0.00	80.01	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	1.68	1.20	1.31	0.00	2.05	0.08	2.13	0.43	0.07	0.50	164.71

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Demolition 04/01/2012-05/01/2012	0.01	0.08	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.82
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.70
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Mass Grading 05/02/2012-06/02/2012	0.03	0.25	0.15	0.00	1.54	0.01	1.55	0.32	0.01	0.33	27.02
Mass Grading Dust	0.00	0.00	0.00	0.00	1.54	0.00	1.54	0.32	0.00	0.32	0.00
Mass Grading Off Road Diesel	0.03	0.25	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.84
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Fine Grading 06/03/2012-06/18/2012	0.02	0.12	0.07	0.00	0.51	0.01	0.52	0.11	0.01	0.11	12.92
Fine Grading Dust	0.00	0.00	0.00	0.00	0.51	0.00	0.51	0.11	0.00	0.11	0.00
Fine Grading Off Road Diesel	0.01	0.12	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.36
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Asphalt 06/19/2012-07/05/2012	0.03	0.12	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	13.50
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.11	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	9.22
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49

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Building 07/06/2012-10/19/2012	0.14	0.63	0.90	0.00	0.00	0.04	0.04	0.00	0.04	0.04	100.72
Building Off Road Diesel	0.12	0.56	0.40	0.00	0.00	0.04	0.04	0.00	0.04	0.04	61.61
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.88
Building Worker Trips	0.02	0.03	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.23
Coating 09/26/2012-11/13/2012	1.46	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
Architectural Coating	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73

Phase Assumptions

Phase: Demolition 4/1/2012 - 5/1/2012 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

Total Acres Disturbed: 18.67

Maximum Daily Acreage Disturbed: 4.67

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2012 - 7/5/2012 - Default Paving Description

Acres to be Paved: 4.67

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2012 - 10/19/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/26/2012 - 11/13/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	1.54	1.20	1.31	0.00	0.15	0.08	0.22	0.03	0.07	0.10	164.71
Demolition 04/01/2012-05/01/2012	0.01	0.08	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.82
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.70
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Mass Grading 05/02/2012-06/02/2012	0.03	0.25	0.15	0.00	0.11	0.01	0.12	0.02	0.01	0.03	27.02
Mass Grading Dust	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.03	0.25	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.84
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17

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Fine Grading 06/03/2012-06/18/2012	0.02	0.12	0.07	0.00	0.04	0.01	0.04	0.01	0.01	0.01	12.92
Fine Grading Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.01	0.12	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.36
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Asphalt 06/19/2012-07/05/2012	0.03	0.12	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	13.50
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.11	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	9.22
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
Building 07/06/2012-10/19/2012	0.14	0.63	0.90	0.00	0.00	0.04	0.04	0.00	0.04	0.04	100.72
Building Off Road Diesel	0.12	0.56	0.40	0.00	0.00	0.04	0.04	0.00	0.04	0.04	61.61
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.88
Building Worker Trips	0.02	0.03	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.23
Coating 09/26/2012-11/13/2012	1.31	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
Architectural Coating	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

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PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2012 - 11/13/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 3
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
54	Multi-Family Residential	dwelling units	6.90

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2013	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2013	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2013	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Tractor/Loaders/Backhoe	7
1	Grader	6
1	Rubber Tired Dozer	6
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2013	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Crane	4
2	Forklift	6
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase3.urb924

Project Name: SaltCreek3

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013 TOTALS (lbs/day unmitigated)	39.18	20.65	12.51	0.01	133.80	0.99	134.79	27.94	0.91	28.85	2,349.28
2013 TOTALS (lbs/day mitigated)	35.39	20.65	12.51	0.01	9.33	0.99	10.32	1.95	0.91	2.86	2,349.28

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2013-5/1/2013 Active Days: 23	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Demolition 04/01/2013-05/01/2013	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.91	6.35	4.40	0.00	0.00	0.44	0.44	0.00	0.41	0.41	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 5/2/2013-5/31/2013 Active Days: 22	2.60	**20.65**	**12.51**	0.00	**133.80**	**0.99**	**134.79**	**27.94**	**0.91**	**28.85**	**2,349.28**
Mass Grading 05/02/2013-06/02/2013	2.60	20.65	12.51	0.00	133.80	0.99	134.79	27.94	0.91	28.85	2,349.28
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 6/3/2013-6/18/2013 Active Days: 12	2.60	**20.65**	**12.51**	0.00	16.80	**0.99**	17.79	3.51	**0.91**	4.42	**2,349.28**
Fine Grading 06/03/2013-06/18/2013	2.60	20.65	12.51	0.00	16.80	0.99	17.79	3.51	0.91	4.42	2,349.28
Fine Grading Dust	0.00	0.00	0.00	0.00	16.80	0.00	16.80	3.51	0.00	3.51	0.00
Fine Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97

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Time Slice 6/19/2013-7/5/2013 Active Days: 13	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Asphalt 06/19/2013-07/05/2013	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Paving Off-Gas	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.61	10.07	6.79	0.00	0.00	0.83	0.83	0.00	0.77	0.77	979.23
Paving On Road Diesel	0.03	0.40	0.14	0.00	0.00	0.01	0.02	0.00	0.01	0.01	77.12
Paving Worker Trips	0.09	0.15	2.47	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.44
Time Slice 7/8/2013-9/25/2013 Active Days: 58	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Time Slice 9/26/2013-10/18/2013 Active Days: 17	**39.18**	8.44	11.36	**0.01**	0.03	0.47	0.50	0.01	0.43	0.44	1,535.03
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Coating 09/26/2013-11/13/2013	37.95	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	37.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Time Slice 10/21/2013-11/13/2013 Active Days: 18	37.95	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Coating 09/26/2013-11/13/2013	37.95	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	37.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13

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Phase Assumptions

Phase: Demolition 4/1/2013 - 5/1/2013 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2013 - 6/18/2013 - Type Your Description Here

Total Acres Disturbed: 3.38

Maximum Daily Acreage Disturbed: 0.84

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2013 - 6/2/2013 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2013 - 7/5/2013 - Default Paving Description

Acres to be Paved: 0.84

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2013 - 10/19/2013 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2013 - 11/13/2013 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2013-5/1/2013 Active Days: 23	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Demolition 04/01/2013-05/01/2013	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.91	6.35	4.40	0.00	0.00	0.44	0.44	0.00	0.41	0.41	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 5/2/2013-5/31/2013 Active Days: 22	2.60	**20.65**	**12.51**	0.00	9.33	**0.99**	10.32	1.95	**0.91**	2.86	**2,349.28**
Mass Grading 05/02/2013-06/02/2013	2.60	20.65	12.51	0.00	9.33	0.99	10.32	1.95	0.91	2.86	2,349.28
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 6/3/2013-6/18/2013 Active Days: 12	2.60	**20.65**	**12.51**	0.00	1.18	**0.99**	2.16	0.25	**0.91**	1.16	**2,349.28**
Fine Grading 06/03/2013-06/18/2013	2.60	20.65	12.51	0.00	1.18	0.99	2.16	0.25	0.91	1.16	2,349.28
Fine Grading Dust	0.00	0.00	0.00	0.00	1.17	0.00	1.17	0.24	0.00	0.24	0.00
Fine Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97

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Time Slice 6/19/2013-7/5/2013 Active Days: 13	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Asphalt 06/19/2013-07/05/2013	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Paving Off-Gas	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.61	10.07	6.79	0.00	0.00	0.83	0.83	0.00	0.77	0.77	979.23
Paving On Road Diesel	0.03	0.40	0.14	0.00	0.00	0.01	0.02	0.00	0.01	0.01	77.12
Paving Worker Trips	0.09	0.15	2.47	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.44
Time Slice 7/8/2013-9/25/2013 Active Days: 58	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Time Slice 9/26/2013-10/18/2013 Active Days: 17	35.39	8.44	11.36	**0.01**	0.03	0.47	0.50	0.01	0.43	0.44	1,535.03
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Coating 09/26/2013-11/13/2013	34.16	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	34.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Time Slice 10/21/2013-11/13/2013 Active Days: 18	34.16	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Coating 09/26/2013-11/13/2013	34.16	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	34.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2013 - 6/18/2013 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2013 - 6/2/2013 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2013 - 11/13/2013 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase3.urb924

Project Name: SaltCreek3

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013 TOTALS (lbs/day unmitigated)	39.18	20.65	12.51	0.01	133.80	0.99	134.79	27.94	0.91	28.85	2,349.28
2013 TOTALS (lbs/day mitigated)	35.39	20.65	12.51	0.01	9.33	0.99	10.32	1.95	0.91	2.86	2,349.28

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2013-5/1/2013 Active Days: 23	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Demolition 04/01/2013-05/01/2013	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.91	6.35	4.40	0.00	0.00	0.44	0.44	0.00	0.41	0.41	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 5/2/2013-5/31/2013 Active Days: 22	2.60	**20.65**	**12.51**	0.00	**133.80**	**0.99**	**134.79**	**27.94**	**0.91**	**28.85**	**2,349.28**
Mass Grading 05/02/2013-06/02/2013	2.60	20.65	12.51	0.00	133.80	0.99	134.79	27.94	0.91	28.85	2,349.28
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 6/3/2013-6/18/2013 Active Days: 12	2.60	**20.65**	**12.51**	0.00	16.80	**0.99**	17.79	3.51	**0.91**	4.42	**2,349.28**
Fine Grading 06/03/2013-06/18/2013	2.60	20.65	12.51	0.00	16.80	0.99	17.79	3.51	0.91	4.42	2,349.28
Fine Grading Dust	0.00	0.00	0.00	0.00	16.80	0.00	16.80	3.51	0.00	3.51	0.00
Fine Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97

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Time Slice 6/19/2013-7/5/2013 Active Days: 13	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Asphalt 06/19/2013-07/05/2013	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Paving Off-Gas	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.61	10.07	6.79	0.00	0.00	0.83	0.83	0.00	0.77	0.77	979.23
Paving On Road Diesel	0.03	0.40	0.14	0.00	0.00	0.01	0.02	0.00	0.01	0.01	77.12
Paving Worker Trips	0.09	0.15	2.47	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.44
Time Slice 7/8/2013-9/25/2013 Active Days: 58	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Time Slice 9/26/2013-10/18/2013 Active Days: 17	**39.18**	8.44	11.36	**0.01**	0.03	0.47	0.50	0.01	0.43	0.44	1,535.03
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Coating 09/26/2013-11/13/2013	37.95	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	37.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Time Slice 10/21/2013-11/13/2013 Active Days: 18	37.95	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Coating 09/26/2013-11/13/2013	37.95	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	37.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13

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Phase Assumptions

Phase: Demolition 4/1/2013 - 5/1/2013 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2013 - 6/18/2013 - Type Your Description Here

Total Acres Disturbed: 3.38

Maximum Daily Acreage Disturbed: 0.84

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2013 - 6/2/2013 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2013 - 7/5/2013 - Default Paving Description

Acres to be Paved: 0.84

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2013 - 10/19/2013 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2013 - 11/13/2013 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2013-5/1/2013 Active Days: 23	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Demolition 04/01/2013-05/01/2013	0.97	6.43	5.81	0.00	0.00	0.44	0.45	0.00	0.41	0.41	802.27
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.91	6.35	4.40	0.00	0.00	0.44	0.44	0.00	0.41	0.41	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 5/2/2013-5/31/2013 Active Days: 22	2.60	**20.65**	**12.51**	0.00	9.33	**0.99**	10.32	1.95	**0.91**	2.86	**2,349.28**
Mass Grading 05/02/2013-06/02/2013	2.60	20.65	12.51	0.00	9.33	0.99	10.32	1.95	0.91	2.86	2,349.28
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 6/3/2013-6/18/2013 Active Days: 12	2.60	**20.65**	**12.51**	0.00	1.18	**0.99**	2.16	0.25	**0.91**	1.16	**2,349.28**
Fine Grading 06/03/2013-06/18/2013	2.60	20.65	12.51	0.00	1.18	0.99	2.16	0.25	0.91	1.16	2,349.28
Fine Grading Dust	0.00	0.00	0.00	0.00	1.17	0.00	1.17	0.24	0.00	0.24	0.00
Fine Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97

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Time Slice 6/19/2013-7/5/2013 Active Days: 13	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Asphalt 06/19/2013-07/05/2013	1.90	10.62	9.39	0.00	0.01	0.85	0.87	0.00	0.79	0.79	1,234.79
Paving Off-Gas	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.61	10.07	6.79	0.00	0.00	0.83	0.83	0.00	0.77	0.77	979.23
Paving On Road Diesel	0.03	0.40	0.14	0.00	0.00	0.01	0.02	0.00	0.01	0.01	77.12
Paving Worker Trips	0.09	0.15	2.47	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.44
Time Slice 7/8/2013-9/25/2013 Active Days: 58	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Time Slice 9/26/2013-10/18/2013 Active Days: 17	35.39	8.44	11.36	**0.01**	0.03	0.47	0.50	0.01	0.43	0.44	1,535.03
Building 07/06/2013-10/19/2013	1.23	8.40	10.73	0.01	0.03	0.47	0.49	0.01	0.43	0.44	1,489.90
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.07	0.78	0.76	0.00	0.01	0.03	0.04	0.00	0.03	0.03	200.07
Building Worker Trips	0.21	0.33	5.49	0.00	0.02	0.01	0.03	0.01	0.01	0.02	396.45
Coating 09/26/2013-11/13/2013	34.16	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	34.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Time Slice 10/21/2013-11/13/2013 Active Days: 18	34.16	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Coating 09/26/2013-11/13/2013	34.16	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13
Architectural Coating	34.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.13

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2013 - 6/18/2013 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2013 - 6/2/2013 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2013 - 11/13/2013 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase3.urb924

Project Name: SaltCreek3

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013 TOTALS (tons/year unmitigated)	0.78	0.81	0.75	0.00	1.57	0.04	1.62	0.33	0.04	0.37	113.85
2013 TOTALS (tons/year mitigated)	0.71	0.81	0.75	0.00	0.11	0.04	0.16	0.02	0.04	0.06	113.85
Percent Reduction	8.53	0.00	0.00	0.00	92.96	0.00	90.38	92.91	0.00	82.54	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013	0.78	0.81	0.75	0.00	1.57	0.04	1.62	0.33	0.04	0.37	113.85

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Demolition 04/01/2013-05/01/2013	0.01	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.00	9.23
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	8.05
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Mass Grading 05/02/2013-06/02/2013	0.03	0.23	0.14	0.00	1.47	0.01	1.48	0.31	0.01	0.32	25.84
Mass Grading Dust	0.00	0.00	0.00	0.00	1.47	0.00	1.47	0.31	0.00	0.31	0.00
Mass Grading Off Road Diesel	0.03	0.23	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Fine Grading 06/03/2013-06/18/2013	0.02	0.12	0.08	0.00	0.10	0.01	0.11	0.02	0.01	0.03	14.10
Fine Grading Dust	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.02	0.00	0.02	0.00
Fine Grading Off Road Diesel	0.02	0.12	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	13.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
Asphalt 06/19/2013-07/05/2013	0.01	0.07	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.03
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.04	0.00	0.00	0.01	0.01	0.00	0.00	0.00	6.36
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16

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Building 07/06/2013-10/19/2013	0.05	0.32	0.40	0.00	0.00	0.02	0.02	0.00	0.02	0.02	55.87
Building Off Road Diesel	0.04	0.27	0.17	0.00	0.00	0.02	0.02	0.00	0.01	0.01	33.50
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.50
Building Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.87
Coating 09/26/2013-11/13/2013	0.66	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79
Architectural Coating	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79

Phase Assumptions

Phase: Demolition 4/1/2013 - 5/1/2013 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2013 - 6/18/2013 - Type Your Description Here

Total Acres Disturbed: 3.38

Maximum Daily Acreage Disturbed: 0.84

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2013 - 6/2/2013 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2013 - 7/5/2013 - Default Paving Description

Acres to be Paved: 0.84

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2013 - 10/19/2013 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2013 - 11/13/2013 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013	0.71	0.81	0.75	0.00	0.11	0.04	0.16	0.02	0.04	0.06	113.85
Demolition 04/01/2013-05/01/2013	0.01	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.00	9.23
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	8.05
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Mass Grading 05/02/2013-06/02/2013	0.03	0.23	0.14	0.00	0.10	0.01	0.11	0.02	0.01	0.03	25.84
Mass Grading Dust	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.03	0.23	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Fine Grading 06/03/2013-06/18/2013	0.02	0.12	0.08	0.00	0.01	0.01	0.01	0.00	0.01	0.01	14.10
Fine Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.02	0.12	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	13.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61

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Asphalt 06/19/2013-07/05/2013	0.01	0.07	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.03
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.04	0.00	0.00	0.01	0.01	0.00	0.00	0.00	6.36
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16
Building 07/06/2013-10/19/2013	0.05	0.32	0.40	0.00	0.00	0.02	0.02	0.00	0.02	0.02	55.87
Building Off Road Diesel	0.04	0.27	0.17	0.00	0.00	0.02	0.02	0.00	0.01	0.01	33.50
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.50
Building Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.87
Coating 09/26/2013-11/13/2013	0.60	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79
Architectural Coating	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2013 - 6/18/2013 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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The following mitigation measures apply to Phase: Mass Grading 5/2/2013 - 6/2/2013 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2013 - 11/13/2013 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 4
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
49	Single-Family Residential	dwelling units	9.57

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2014	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2014	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2014	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Tractor/Loaders/Backhoe	7
1	Grader	6
1	Rubber Tired Dozer	6
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2014	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
1	Paving Equipment	6
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
3	Welders	8
1	Crane	6
2	Forklift	6
1	Generator Set	8
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase4.urb924

Project Name: SaltCreek4

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (lbs/day unmitigated)	101.19	19.16	21.20	0.01	133.80	1.28	134.69	27.94	1.18	28.76	2,639.47
2014 TOTALS (lbs/day mitigated)	91.38	19.16	21.20	0.01	9.33	1.28	10.22	1.95	1.18	2.77	2,639.47

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2014-5/1/2014 Active Days: 23	0.89	6.02	5.63	0.00	0.00	0.39	0.40	0.00	0.36	0.36	802.33
Demolition 04/01/2014-05/01/2014	0.89	6.02	5.63	0.00	0.00	0.39	0.40	0.00	0.36	0.36	802.33
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.05	0.08	1.30	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.03
Time Slice 5/2/2014-6/2/2014 Active Days: 22	2.46	**19.16**	12.04	0.00	**133.80**	0.89	**134.69**	**27.94**	0.82	**28.76**	2,349.34
Mass Grading 05/02/2014-06/02/2014	2.46	19.16	12.04	0.00	133.80	0.89	134.69	27.94	0.82	28.76	2,349.34
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.30	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.03
Time Slice 6/3/2014-6/18/2014 Active Days: 12	2.46	**19.16**	12.04	0.00	81.60	0.89	82.49	17.04	0.82	17.86	2,349.34
Fine Grading 06/03/2014-06/18/2014	2.46	19.16	12.04	0.00	81.60	0.89	82.49	17.04	0.82	17.86	2,349.34
Fine Grading Dust	0.00	0.00	0.00	0.00	81.60	0.00	81.60	17.04	0.00	17.04	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	1.30	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.03

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Time Slice 6/19/2014-7/4/2014 Active Days: 12	3.47	16.56	13.47	0.01	0.03	**1.28**	1.30	0.01	**1.18**	1.18	2,053.79
Asphalt 06/19/2014-07/05/2014	3.47	16.56	13.47	0.01	0.03	1.28	1.30	0.01	1.18	1.18	2,053.79
Paving Off-Gas	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.56	9.90	0.00	0.00	1.21	1.21	0.00	1.11	1.11	1,418.44
Paving On Road Diesel	0.13	1.82	0.64	0.00	0.01	0.07	0.08	0.00	0.06	0.07	405.79
Paving Worker Trips	0.11	0.18	2.93	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.56
Time Slice 7/7/2014-9/26/2014 Active Days: 60	3.03	14.15	19.71	0.01	0.04	0.87	0.91	0.01	0.80	0.81	2,522.66
Building 07/06/2014-10/19/2014	3.03	14.15	19.71	0.01	0.04	0.87	0.91	0.01	0.80	0.81	2,522.66
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.06	0.62	0.64	0.00	0.01	0.02	0.03	0.00	0.02	0.02	181.57
Building Worker Trips	0.34	0.56	9.18	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.89
Time Slice 9/29/2014-10/17/2014 Active Days: 15	**101.19**	14.24	**21.20**	**0.01**	0.05	0.87	0.92	0.02	0.80	0.81	**2,639.47**
Building 07/06/2014-10/19/2014	3.03	14.15	19.71	0.01	0.04	0.87	0.91	0.01	0.80	0.81	2,522.66
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.06	0.62	0.64	0.00	0.01	0.02	0.03	0.00	0.02	0.02	181.57
Building Worker Trips	0.34	0.56	9.18	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.89
Coating 09/27/2014-11/01/2014	98.16	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Architectural Coating	98.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Time Slice 10/20/2014-10/31/2014 Active Days: 10	98.16	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Coating 09/27/2014-11/01/2014	98.16	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Architectural Coating	98.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81

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Phase Assumptions

Phase: Demolition 4/1/2014 - 5/1/2014 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2014 - 6/18/2014 - Type Your Description Here

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 4.08

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2014 - 6/2/2014 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2014 - 7/5/2014 - Default Paving Description

Acres to be Paved: 4.08

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2014 - 10/19/2014 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/27/2014 - 11/1/2014 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/1/2014-5/1/2014 Active Days: 23	0.89	6.02	5.63	0.00	0.00	0.39	0.40	0.00	0.36	0.36	802.33
Demolition 04/01/2014-05/01/2014	0.89	6.02	5.63	0.00	0.00	0.39	0.40	0.00	0.36	0.36	802.33
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.05	0.08	1.30	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.03
Time Slice 5/2/2014-6/2/2014 Active Days: 22	2.46	**19.16**	12.04	0.00	9.33	0.89	10.22	1.95	0.82	2.77	2,349.34
Mass Grading 05/02/2014-06/02/2014	2.46	19.16	12.04	0.00	9.33	0.89	10.22	1.95	0.82	2.77	2,349.34
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.30	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.03
Time Slice 6/3/2014-6/18/2014 Active Days: 12	2.46	**19.16**	12.04	0.00	5.69	0.89	6.58	1.19	0.82	2.01	2,349.34
Fine Grading 06/03/2014-06/18/2014	2.46	19.16	12.04	0.00	5.69	0.89	6.58	1.19	0.82	2.01	2,349.34
Fine Grading Dust	0.00	0.00	0.00	0.00	5.69	0.00	5.69	1.19	0.00	1.19	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	1.30	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.03

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Time Slice 6/19/2014-7/4/2014 Active Days: 12	3.47	16.56	13.47	0.01	0.03	**1.28**	1.30	0.01	**1.18**	1.18	2,053.79
Asphalt 06/19/2014-07/05/2014	3.47	16.56	13.47	0.01	0.03	1.28	1.30	0.01	1.18	1.18	2,053.79
Paving Off-Gas	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.56	9.90	0.00	0.00	1.21	1.21	0.00	1.11	1.11	1,418.44
Paving On Road Diesel	0.13	1.82	0.64	0.00	0.01	0.07	0.08	0.00	0.06	0.07	405.79
Paving Worker Trips	0.11	0.18	2.93	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.56
Time Slice 7/7/2014-9/26/2014 Active Days: 60	3.03	14.15	19.71	0.01	0.04	0.87	0.91	0.01	0.80	0.81	2,522.66
Building 07/06/2014-10/19/2014	3.03	14.15	19.71	0.01	0.04	0.87	0.91	0.01	0.80	0.81	2,522.66
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.06	0.62	0.64	0.00	0.01	0.02	0.03	0.00	0.02	0.02	181.57
Building Worker Trips	0.34	0.56	9.18	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.89
Time Slice 9/29/2014-10/17/2014 Active Days: 15	91.38	14.24	**21.20**	**0.01**	0.05	0.87	0.92	0.02	0.80	0.81	**2,639.47**
Building 07/06/2014-10/19/2014	3.03	14.15	19.71	0.01	0.04	0.87	0.91	0.01	0.80	0.81	2,522.66
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.06	0.62	0.64	0.00	0.01	0.02	0.03	0.00	0.02	0.02	181.57
Building Worker Trips	0.34	0.56	9.18	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.89
Coating 09/27/2014-11/01/2014	88.35	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Architectural Coating	88.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Time Slice 10/20/2014-10/31/2014 Active Days: 10	88.35	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Coating 09/27/2014-11/01/2014	88.35	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81
Architectural Coating	88.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.81

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2014 - 6/18/2014 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2014 - 6/2/2014 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2014 - 11/1/2014 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

3/31/2009 2:16:38 PM

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase4.urb924

Project Name: SaltCreek4

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	101.79	22.04	23.79	0.01	133.80	1.49	134.88	27.94	1.37	28.93	2,638.43
2012 TOTALS (lbs/day mitigated)	91.98	22.04	23.79	0.01	9.33	1.49	10.40	1.95	1.37	2.94	2,638.43

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/2/2012-5/1/2012 Active Days: 22	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Demolition 04/01/2012-05/01/2012	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.98	6.77	4.49	0.00	0.00	0.49	0.49	0.00	0.45	0.45	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 5/2/2012-6/1/2012 Active Days: 23	2.75	**22.04**	13.04	0.00	**133.80**	1.07	**134.88**	**27.94**	0.99	**28.93**	2,349.22
Mass Grading 05/02/2012-06/02/2012	2.75	22.04	13.04	0.00	133.80	1.07	134.88	27.94	0.99	28.93	2,349.22
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 6/4/2012-6/18/2012 Active Days: 11	2.75	**22.04**	13.04	0.00	81.60	1.07	82.68	17.04	0.99	18.03	2,349.22
Fine Grading 06/03/2012-06/18/2012	2.75	22.04	13.04	0.00	81.60	1.07	82.68	17.04	0.99	18.03	2,349.22
Fine Grading Dust	0.00	0.00	0.00	0.00	81.60	0.00	81.60	17.04	0.00	17.04	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91

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Time Slice 6/19/2012-7/5/2012 Active Days: 13	3.75	18.59	14.23	0.01	0.02	**1.49**	1.52	0.01	**1.37**	1.38	2,022.31
Asphalt 06/19/2012-07/05/2012	3.75	18.59	14.23	0.01	0.02	1.49	1.52	0.01	1.37	1.38	2,022.31
Paving Off-Gas	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.65	16.20	10.06	0.00	0.00	1.41	1.41	0.00	1.29	1.29	1,418.44
Paving On Road Diesel	0.15	2.18	0.73	0.00	0.01	0.08	0.09	0.00	0.07	0.08	374.58
Paving Worker Trips	0.13	0.21	3.44	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.29
Time Slice 7/6/2012-9/26/2012 Active Days: 59	3.62	16.27	22.05	0.01	0.04	1.09	1.13	0.01	1.00	1.01	2,521.76
Building 07/06/2012-10/19/2012	3.62	16.27	22.05	0.01	0.04	1.09	1.13	0.01	1.00	1.01	2,521.76
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.07	0.80	0.75	0.00	0.01	0.03	0.04	0.00	0.03	0.03	181.51
Building Worker Trips	0.41	0.66	10.78	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.05
Time Slice 9/27/2012-10/19/2012 Active Days: 17	**101.79**	16.38	**23.79**	**0.01**	0.05	1.09	1.14	0.02	1.00	1.02	**2,638.43**
Building 07/06/2012-10/19/2012	3.62	16.27	22.05	0.01	0.04	1.09	1.13	0.01	1.00	1.01	2,521.76
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.07	0.80	0.75	0.00	0.01	0.03	0.04	0.00	0.03	0.03	181.51
Building Worker Trips	0.41	0.66	10.78	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.05
Coating 09/27/2012-11/01/2012	98.17	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Architectural Coating	98.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.07	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Time Slice 10/22/2012-11/1/2012 Active Days: 9	98.17	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Coating 09/27/2012-11/01/2012	98.17	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Architectural Coating	98.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.07	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67

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Phase Assumptions

Phase: Demolition 4/1/2012 - 5/1/2012 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 4.08

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2012 - 7/5/2012 - Default Paving Description

Acres to be Paved: 4.08

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2012 - 10/19/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/27/2012 - 11/1/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/2/2012-5/1/2012 Active Days: 22	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Demolition 04/01/2012-05/01/2012	1.04	6.86	6.02	0.00	0.00	0.50	0.50	0.00	0.46	0.46	802.21
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.98	6.77	4.49	0.00	0.00	0.49	0.49	0.00	0.45	0.45	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 5/2/2012-6/1/2012 Active Days: 23	2.75	**22.04**	13.04	0.00	9.33	1.07	10.40	1.95	0.99	2.94	2,349.22
Mass Grading 05/02/2012-06/02/2012	2.75	22.04	13.04	0.00	9.33	1.07	10.40	1.95	0.99	2.94	2,349.22
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 6/4/2012-6/18/2012 Active Days: 11	2.75	**22.04**	13.04	0.00	5.69	1.07	6.76	1.19	0.99	2.18	2,349.22
Fine Grading 06/03/2012-06/18/2012	2.75	22.04	13.04	0.00	5.69	1.07	6.76	1.19	0.99	2.18	2,349.22
Fine Grading Dust	0.00	0.00	0.00	0.00	5.69	0.00	5.69	1.19	0.00	1.19	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91

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Time Slice 6/19/2012-7/5/2012 Active Days: 13	3.75	18.59	14.23	0.01	0.02	**1.49**	1.52	0.01	**1.37**	1.38	2,022.31
Asphalt 06/19/2012-07/05/2012	3.75	18.59	14.23	0.01	0.02	1.49	1.52	0.01	1.37	1.38	2,022.31
Paving Off-Gas	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.65	16.20	10.06	0.00	0.00	1.41	1.41	0.00	1.29	1.29	1,418.44
Paving On Road Diesel	0.15	2.18	0.73	0.00	0.01	0.08	0.09	0.00	0.07	0.08	374.58
Paving Worker Trips	0.13	0.21	3.44	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.29
Time Slice 7/6/2012-9/26/2012 Active Days: 59	3.62	16.27	22.05	0.01	0.04	1.09	1.13	0.01	1.00	1.01	2,521.76
Building 07/06/2012-10/19/2012	3.62	16.27	22.05	0.01	0.04	1.09	1.13	0.01	1.00	1.01	2,521.76
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.07	0.80	0.75	0.00	0.01	0.03	0.04	0.00	0.03	0.03	181.51
Building Worker Trips	0.41	0.66	10.78	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.05
Time Slice 9/27/2012-10/19/2012 Active Days: 17	91.98	16.38	**23.79**	**0.01**	0.05	1.09	1.14	0.02	1.00	1.02	**2,638.43**
Building 07/06/2012-10/19/2012	3.62	16.27	22.05	0.01	0.04	1.09	1.13	0.01	1.00	1.01	2,521.76
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.07	0.80	0.75	0.00	0.01	0.03	0.04	0.00	0.03	0.03	181.51
Building Worker Trips	0.41	0.66	10.78	0.01	0.04	0.02	0.05	0.01	0.02	0.03	719.05
Coating 09/27/2012-11/01/2012	88.36	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Architectural Coating	88.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.07	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Time Slice 10/22/2012-11/1/2012 Active Days: 9	88.36	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Coating 09/27/2012-11/01/2012	88.36	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67
Architectural Coating	88.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.07	0.11	1.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.67

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2012 - 6/18/2012 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2012 - 6/2/2012 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2012 - 11/1/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

9/25/2008 7:56:47 AM

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

3/31/2009 2:17:45 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase4.urb924

Project Name: SaltCreek4

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (tons/year unmitigated)	1.41	1.03	1.11	0.00	1.96	0.06	2.02	0.41	0.05	0.47	157.55
2014 TOTALS (tons/year mitigated)	1.29	1.03	1.11	0.00	0.14	0.06	0.20	0.03	0.05	0.08	157.55
Percent Reduction	8.67	0.00	0.00	0.00	92.94	0.00	90.19	92.88	0.00	81.91	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014	1.41	1.03	1.11	0.00	1.96	0.06	2.02	0.41	0.05	0.47	157.55

3/31/2009 2:17:45 PM

Demolition 04/01/2014-05/01/2014	0.01	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.23
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.05
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Mass Grading 05/02/2014-06/02/2014	0.03	0.21	0.13	0.00	1.47	0.01	1.48	0.31	0.01	0.32	25.84
Mass Grading Dust	0.00	0.00	0.00	0.00	1.47	0.00	1.47	0.31	0.00	0.31	0.00
Mass Grading Off Road Diesel	0.03	0.21	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Fine Grading 06/03/2014-06/18/2014	0.01	0.11	0.07	0.00	0.49	0.01	0.49	0.10	0.00	0.11	14.10
Fine Grading Dust	0.00	0.00	0.00	0.00	0.49	0.00	0.49	0.10	0.00	0.10	0.00
Fine Grading Off Road Diesel	0.01	0.11	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	13.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
Asphalt 06/19/2014-07/05/2014	0.02	0.10	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.32
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.09	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.51
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38

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Building 07/06/2014-10/19/2014	0.11	0.53	0.74	0.00	0.00	0.03	0.03	0.00	0.03	0.03	94.60
Building Off Road Diesel	0.10	0.49	0.37	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.79
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.81
Building Worker Trips	0.01	0.02	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.00
Coating 09/27/2014-11/01/2014	1.23	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
Architectural Coating	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46

Phase Assumptions

Phase: Demolition 4/1/2014 - 5/1/2014 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2014 - 6/18/2014 - Type Your Description Here

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 4.08

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2014 - 6/2/2014 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2014 - 7/5/2014 - Default Paving Description

Acres to be Paved: 4.08

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2014 - 10/19/2014 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/27/2014 - 11/1/2014 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014	1.29	1.03	1.11	0.00	0.14	0.06	0.20	0.03	0.05	0.08	157.55
Demolition 04/01/2014-05/01/2014	0.01	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.23
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.05
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Mass Grading 05/02/2014-06/02/2014	0.03	0.21	0.13	0.00	0.10	0.01	0.11	0.02	0.01	0.03	25.84
Mass Grading Dust	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.03	0.21	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12

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Fine Grading 06/03/2014-06/18/2014	0.01	0.11	0.07	0.00	0.03	0.01	0.04	0.01	0.00	0.01	14.10
Fine Grading Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.01	0.11	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	13.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
Asphalt 06/19/2014-07/05/2014	0.02	0.10	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.32
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.09	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8.51
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
Building 07/06/2014-10/19/2014	0.11	0.53	0.74	0.00	0.00	0.03	0.03	0.00	0.03	0.03	94.60
Building Off Road Diesel	0.10	0.49	0.37	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.79
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.81
Building Worker Trips	0.01	0.02	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.00
Coating 09/27/2014-11/01/2014	1.10	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
Architectural Coating	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2014 - 6/18/2014 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

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PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2014 - 6/2/2014 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2014 - 11/1/2014 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 5
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
47	Single-Family Residential	dwelling units	9.57

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2015	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2015	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2015	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Tractor/Loaders/Backhoe	7
1	Grader	6
1	Rubber Tired Dozer	6
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2015	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
1	Paving Equipment	6
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
3	Welders	8
1	Crane	6
2	Forklift	6
1	Generator Set	8
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase5.urb924

Project Name: SaltCreek5

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (lbs/day unmitigated)	96.90	17.58	19.59	0.01	133.80	1.18	134.62	27.94	1.08	28.69	2,598.34
2015 TOTALS (lbs/day mitigated)	87.49	17.58	19.59	0.01	9.33	1.18	10.14	1.95	1.08	2.70	2,598.34

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2015-5/1/2015 Active Days: 23	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Demolition 04/01/2015-05/01/2015	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.79	5.49	4.25	0.00	0.00	0.35	0.35	0.00	0.33	0.33	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 5/4/2015-6/2/2015 Active Days: 22	2.30	**17.58**	11.59	0.00	**133.80**	0.81	**134.62**	**27.94**	0.75	**28.69**	2,349.40
Mass Grading 05/02/2015-06/02/2015	2.30	17.58	11.59	0.00	133.80	0.81	134.62	27.94	0.75	28.69	2,349.40
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 6/3/2015-6/18/2015 Active Days: 12	2.30	**17.58**	11.59	0.00	78.40	0.81	79.22	16.37	0.75	17.12	2,349.40
Fine Grading 06/03/2015-06/18/2015	2.30	17.58	11.59	0.00	78.40	0.81	79.22	16.37	0.75	17.12	2,349.40
Fine Grading Dust	0.00	0.00	0.00	0.00	78.40	0.00	78.40	16.37	0.00	16.37	0.00
Fine Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08

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Time Slice 6/19/2015-7/3/2015 Active Days: 11	3.35	15.47	13.11	0.01	0.03	**1.18**	1.21	0.01	**1.08**	1.09	2,073.44
Asphalt 06/19/2015-07/05/2015	3.35	15.47	13.11	0.01	0.03	1.18	1.21	0.01	1.08	1.09	2,073.44
Paving Off-Gas	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.20	13.65	9.82	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,418.44
Paving On Road Diesel	0.12	1.66	0.60	0.00	0.01	0.06	0.07	0.00	0.06	0.06	425.32
Paving Worker Trips	0.10	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.68
Time Slice 7/6/2015-9/25/2015 Active Days: 60	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Time Slice 9/28/2015-10/19/2015 Active Days: 16	**96.90**	13.13	**19.59**	**0.01**	0.05	0.80	0.85	0.02	0.74	0.75	**2,598.34**
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Coating 09/27/2015-11/01/2015	94.15	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	94.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Time Slice 10/20/2015-10/30/2015 Active Days: 9	94.15	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Coating 09/27/2015-11/01/2015	94.15	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	94.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10

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Phase Assumptions

Phase: Demolition 4/1/2015 - 5/1/2015 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2015 - 6/18/2015 - Type Your Description Here

Total Acres Disturbed: 15.67

Maximum Daily Acreage Disturbed: 3.92

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2015 - 6/2/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2015 - 7/5/2015 - Default Paving Description

Acres to be Paved: 3.92

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2015 - 10/19/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/27/2015 - 11/1/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/1/2015-5/1/2015 Active Days: 23	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Demolition 04/01/2015-05/01/2015	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.79	5.49	4.25	0.00	0.00	0.35	0.35	0.00	0.33	0.33	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 5/4/2015-6/2/2015 Active Days: 22	2.30	**17.58**	11.59	0.00	9.33	0.81	10.14	1.95	0.75	2.70	2,349.40
Mass Grading 05/02/2015-06/02/2015	2.30	17.58	11.59	0.00	9.33	0.81	10.14	1.95	0.75	2.70	2,349.40
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 6/3/2015-6/18/2015 Active Days: 12	2.30	**17.58**	11.59	0.00	5.47	0.81	6.28	1.14	0.75	1.89	2,349.40
Fine Grading 06/03/2015-06/18/2015	2.30	17.58	11.59	0.00	5.47	0.81	6.28	1.14	0.75	1.89	2,349.40
Fine Grading Dust	0.00	0.00	0.00	0.00	5.46	0.00	5.46	1.14	0.00	1.14	0.00
Fine Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08

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Time Slice 6/19/2015-7/3/2015 Active Days: 11	3.35	15.47	13.11	0.01	0.03	**1.18**	1.21	0.01	**1.08**	1.09	2,073.44
Asphalt 06/19/2015-07/05/2015	3.35	15.47	13.11	0.01	0.03	1.18	1.21	0.01	1.08	1.09	2,073.44
Paving Off-Gas	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.20	13.65	9.82	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,418.44
Paving On Road Diesel	0.12	1.66	0.60	0.00	0.01	0.06	0.07	0.00	0.06	0.06	425.32
Paving Worker Trips	0.10	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.68
Time Slice 7/6/2015-9/25/2015 Active Days: 60	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Time Slice 9/28/2015-10/19/2015 Active Days: 16	87.49	13.13	**19.59**	**0.01**	0.05	0.80	0.85	0.02	0.74	0.75	**2,598.34**
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Coating 09/27/2015-11/01/2015	84.74	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	84.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Time Slice 10/20/2015-10/30/2015 Active Days: 9	84.74	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Coating 09/27/2015-11/01/2015	84.74	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	84.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2015 - 6/18/2015 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2015 - 6/2/2015 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2015 - 11/1/2015 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase5.urb924

Project Name: SaltCreek5

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (lbs/day unmitigated)	96.90	17.58	19.59	0.01	133.80	1.18	134.62	27.94	1.08	28.69	2,598.34
2015 TOTALS (lbs/day mitigated)	87.49	17.58	19.59	0.01	9.33	1.18	10.14	1.95	1.08	2.70	2,598.34

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2015-5/1/2015 Active Days: 23	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Demolition 04/01/2015-05/01/2015	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.79	5.49	4.25	0.00	0.00	0.35	0.35	0.00	0.33	0.33	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 5/4/2015-6/2/2015 Active Days: 22	2.30	**17.58**	11.59	0.00	**133.80**	0.81	**134.62**	**27.94**	0.75	**28.69**	2,349.40
Mass Grading 05/02/2015-06/02/2015	2.30	17.58	11.59	0.00	133.80	0.81	134.62	27.94	0.75	28.69	2,349.40
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 6/3/2015-6/18/2015 Active Days: 12	2.30	**17.58**	11.59	0.00	78.40	0.81	79.22	16.37	0.75	17.12	2,349.40
Fine Grading 06/03/2015-06/18/2015	2.30	17.58	11.59	0.00	78.40	0.81	79.22	16.37	0.75	17.12	2,349.40
Fine Grading Dust	0.00	0.00	0.00	0.00	78.40	0.00	78.40	16.37	0.00	16.37	0.00
Fine Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08

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Time Slice 6/19/2015-7/3/2015 Active Days: 11	3.35	15.47	13.11	0.01	0.03	**1.18**	1.21	0.01	**1.08**	1.09	2,073.44
Asphalt 06/19/2015-07/05/2015	3.35	15.47	13.11	0.01	0.03	1.18	1.21	0.01	1.08	1.09	2,073.44
Paving Off-Gas	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.20	13.65	9.82	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,418.44
Paving On Road Diesel	0.12	1.66	0.60	0.00	0.01	0.06	0.07	0.00	0.06	0.06	425.32
Paving Worker Trips	0.10	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.68
Time Slice 7/6/2015-9/25/2015 Active Days: 60	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Time Slice 9/28/2015-10/19/2015 Active Days: 16	**96.90**	13.13	**19.59**	**0.01**	0.05	0.80	0.85	0.02	0.74	0.75	**2,598.34**
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Coating 09/27/2015-11/01/2015	94.15	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	94.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Time Slice 10/20/2015-10/30/2015 Active Days: 9	94.15	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Coating 09/27/2015-11/01/2015	94.15	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	94.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10

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Phase Assumptions

Phase: Demolition 4/1/2015 - 5/1/2015 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2015 - 6/18/2015 - Type Your Description Here

Total Acres Disturbed: 15.67

Maximum Daily Acreage Disturbed: 3.92

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2015 - 6/2/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2015 - 7/5/2015 - Default Paving Description

Acres to be Paved: 3.92

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2015 - 10/19/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/27/2015 - 11/1/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/1/2015-5/1/2015 Active Days: 23	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Demolition 04/01/2015-05/01/2015	0.83	5.56	5.45	0.00	0.00	0.36	0.36	0.00	0.33	0.33	802.38
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.79	5.49	4.25	0.00	0.00	0.35	0.35	0.00	0.33	0.33	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 5/4/2015-6/2/2015 Active Days: 22	2.30	**17.58**	11.59	0.00	9.33	0.81	10.14	1.95	0.75	2.70	2,349.40
Mass Grading 05/02/2015-06/02/2015	2.30	17.58	11.59	0.00	9.33	0.81	10.14	1.95	0.75	2.70	2,349.40
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08
Time Slice 6/3/2015-6/18/2015 Active Days: 12	2.30	**17.58**	11.59	0.00	5.47	0.81	6.28	1.14	0.75	1.89	2,349.40
Fine Grading 06/03/2015-06/18/2015	2.30	17.58	11.59	0.00	5.47	0.81	6.28	1.14	0.75	1.89	2,349.40
Fine Grading Dust	0.00	0.00	0.00	0.00	5.46	0.00	5.46	1.14	0.00	1.14	0.00
Fine Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.08

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Time Slice 6/19/2015-7/3/2015 Active Days: 11	3.35	15.47	13.11	0.01	0.03	**1.18**	1.21	0.01	**1.08**	1.09	2,073.44
Asphalt 06/19/2015-07/05/2015	3.35	15.47	13.11	0.01	0.03	1.18	1.21	0.01	1.08	1.09	2,073.44
Paving Off-Gas	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.20	13.65	9.82	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,418.44
Paving On Road Diesel	0.12	1.66	0.60	0.00	0.01	0.06	0.07	0.00	0.06	0.06	425.32
Paving Worker Trips	0.10	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.68
Time Slice 7/6/2015-9/25/2015 Active Days: 60	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Time Slice 9/28/2015-10/19/2015 Active Days: 16	87.49	13.13	**19.59**	**0.01**	0.05	0.80	0.85	0.02	0.74	0.75	**2,598.34**
Building 07/06/2015-10/19/2015	2.75	13.05	18.27	0.01	0.04	0.80	0.84	0.01	0.73	0.75	2,486.24
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.05	0.52	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	174.18
Building Worker Trips	0.30	0.49	8.09	0.01	0.03	0.02	0.05	0.01	0.01	0.03	690.86
Coating 09/27/2015-11/01/2015	84.74	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	84.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Time Slice 10/20/2015-10/30/2015 Active Days: 9	84.74	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Coating 09/27/2015-11/01/2015	84.74	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10
Architectural Coating	84.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.00	112.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2015 - 6/18/2015 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2015 - 6/2/2015 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2015 - 11/1/2015 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase5.urb924

Project Name: SaltCreek5

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (tons/year unmitigated)	1.35	0.94	1.04	0.00	1.94	0.05	2.00	0.41	0.05	0.46	156.45
2015 TOTALS (tons/year mitigated)	1.23	0.94	1.04	0.00	0.14	0.05	0.19	0.03	0.05	0.08	156.45
Percent Reduction	8.72	0.00	0.00	0.00	92.94	0.00	90.39	92.88	0.00	82.63	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015	1.35	0.94	1.04	0.00	1.94	0.05	2.00	0.41	0.05	0.46	156.45

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Demolition 04/01/2015-05/01/2015	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.23
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.05
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Mass Grading 05/02/2015-06/02/2015	0.03	0.19	0.13	0.00	1.47	0.01	1.48	0.31	0.01	0.32	25.84
Mass Grading Dust	0.00	0.00	0.00	0.00	1.47	0.00	1.47	0.31	0.00	0.31	0.00
Mass Grading Off Road Diesel	0.02	0.19	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Fine Grading 06/03/2015-06/18/2015	0.01	0.11	0.07	0.00	0.47	0.00	0.48	0.10	0.00	0.10	14.10
Fine Grading Dust	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.10	0.00	0.10	0.00
Fine Grading Off Road Diesel	0.01	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
Asphalt 06/19/2015-07/05/2015	0.02	0.09	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	11.40
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.80
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26

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Building 07/06/2015-10/19/2015	0.10	0.50	0.69	0.00	0.00	0.03	0.03	0.00	0.03	0.03	94.48
Building Off Road Diesel	0.09	0.46	0.37	0.00	0.00	0.03	0.03	0.00	0.03	0.03	61.61
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.62
Building Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.25
Coating 09/27/2015-11/01/2015	1.18	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Architectural Coating	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40

Phase Assumptions

Phase: Demolition 4/1/2015 - 5/1/2015 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2015 - 6/18/2015 - Type Your Description Here

Total Acres Disturbed: 15.67

Maximum Daily Acreage Disturbed: 3.92

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2015 - 6/2/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2015 - 7/5/2015 - Default Paving Description

Acres to be Paved: 3.92

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2015 - 10/19/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/27/2015 - 11/1/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015	1.23	0.94	1.04	0.00	0.14	0.05	0.19	0.03	0.05	0.08	156.45
Demolition 04/01/2015-05/01/2015	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.23
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.05
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Mass Grading 05/02/2015-06/02/2015	0.03	0.19	0.13	0.00	0.10	0.01	0.11	0.02	0.01	0.03	25.84
Mass Grading Dust	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.02	0.19	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12

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Fine Grading 06/03/2015-06/18/2015	0.01	0.11	0.07	0.00	0.03	0.00	0.04	0.01	0.00	0.01	14.10
Fine Grading Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.01	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
Asphalt 06/19/2015-07/05/2015	0.02	0.09	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	11.40
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.80
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26
Building 07/06/2015-10/19/2015	0.10	0.50	0.69	0.00	0.00	0.03	0.03	0.00	0.03	0.03	94.48
Building Off Road Diesel	0.09	0.46	0.37	0.00	0.00	0.03	0.03	0.00	0.03	0.03	61.61
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.62
Building Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.25
Coating 09/27/2015-11/01/2015	1.06	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Architectural Coating	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2015 - 6/18/2015 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

3/31/2009 2:22:08 PM

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2015 - 6/2/2015 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/27/2015 - 11/1/2015 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 6
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
96	Multi-Family Residential	dwelling units	6.90

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2016	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2016	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2016	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Tractor/Loaders/Backhoe	7
1	Grader	6
1	Rubber Tired Dozer	6
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2016	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
1	Paving Equipment	8
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
3	Welders	8
1	Crane	6
2	Forklift	6
1	Generator Set	8
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase6.urb924

Project Name: SaltCreek6

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2016 TOTALS (lbs/day unmitigated)	70.01	16.13	18.91	0.01	133.80	0.91	134.56	27.94	0.83	28.64	2,763.24
2016 TOTALS (lbs/day mitigated)	63.27	16.13	18.91	0.01	9.33	0.91	10.08	1.95	0.83	2.64	2,763.24

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/1/2016-4/29/2016 Active Days: 21	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Demolition 04/01/2016-05/01/2016	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.73	5.07	4.19	0.00	0.00	0.31	0.31	0.00	0.28	0.28	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 5/2/2016-6/2/2016 Active Days: 24	2.17	**16.13**	11.19	0.00	**133.80**	0.76	**134.56**	**27.94**	0.70	**28.64**	2,349.44
Mass Grading 05/02/2016-06/02/2016	2.17	16.13	11.19	0.00	133.80	0.76	134.56	27.94	0.70	28.64	2,349.44
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 6/3/2016-6/17/2016 Active Days: 11	2.17	**16.13**	11.19	0.00	30.00	0.76	30.76	6.27	0.70	6.96	2,349.44
Fine Grading 06/03/2016-06/18/2016	2.17	16.13	11.19	0.00	30.00	0.76	30.76	6.27	0.70	6.96	2,349.44
Fine Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Fine Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12

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Time Slice 6/20/2016-7/5/2016 Active Days: 12	2.22	11.89	11.09	0.00	0.01	**0.91**	0.92	0.01	**0.83**	0.84	1,614.00
Asphalt 06/19/2016-07/05/2016	2.22	11.89	11.09	0.00	0.01	0.91	0.92	0.01	0.83	0.84	1,614.00
Paving Off-Gas	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.80	11.29	8.72	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,272.04
Paving On Road Diesel	0.04	0.47	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	137.71
Paving Worker Trips	0.08	0.13	2.19	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.25
Time Slice 7/6/2016-9/23/2016 Active Days: 58	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Time Slice 9/26/2016-10/19/2016 Active Days: 18	**70.01**	12.64	**18.91**	**0.01**	0.05	0.73	0.78	0.02	0.67	0.69	**2,763.24**
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Coating 09/26/2016-11/13/2016	67.45	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	67.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Time Slice 10/20/2016-11/11/2016 Active Days: 17	67.45	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Coating 09/26/2016-11/13/2016	67.45	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	67.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36

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Phase Assumptions

Phase: Demolition 4/1/2016 - 5/1/2016 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2016 - 6/18/2016 - Type Your Description Here

Total Acres Disturbed: 6

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2016 - 6/2/2016 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2016 - 7/5/2016 - Default Paving Description

Acres to be Paved: 1.5

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2016 - 10/19/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2016 - 11/13/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/1/2016-4/29/2016 Active Days: 21	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Demolition 04/01/2016-05/01/2016	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.73	5.07	4.19	0.00	0.00	0.31	0.31	0.00	0.28	0.28	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 5/2/2016-6/2/2016 Active Days: 24	2.17	**16.13**	11.19	0.00	9.33	0.76	10.08	1.95	0.70	2.64	2,349.44
Mass Grading 05/02/2016-06/02/2016	2.17	16.13	11.19	0.00	9.33	0.76	10.08	1.95	0.70	2.64	2,349.44
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 6/3/2016-6/17/2016 Active Days: 11	2.17	**16.13**	11.19	0.00	2.10	0.76	2.85	0.44	0.70	1.13	2,349.44
Fine Grading 06/03/2016-06/18/2016	2.17	16.13	11.19	0.00	2.10	0.76	2.85	0.44	0.70	1.13	2,349.44
Fine Grading Dust	0.00	0.00	0.00	0.00	2.09	0.00	2.09	0.44	0.00	0.44	0.00
Fine Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12

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Time Slice 6/20/2016-7/5/2016 Active Days: 12	2.22	11.89	11.09	0.00	0.01	**0.91**	0.92	0.01	**0.83**	0.84	1,614.00
Asphalt 06/19/2016-07/05/2016	2.22	11.89	11.09	0.00	0.01	0.91	0.92	0.01	0.83	0.84	1,614.00
Paving Off-Gas	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.80	11.29	8.72	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,272.04
Paving On Road Diesel	0.04	0.47	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	137.71
Paving Worker Trips	0.08	0.13	2.19	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.25
Time Slice 7/6/2016-9/23/2016 Active Days: 58	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Time Slice 9/26/2016-10/19/2016 Active Days: 18	63.27	12.64	**18.91**	**0.01**	0.05	0.73	0.78	0.02	0.67	0.69	**2,763.24**
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Coating 09/26/2016-11/13/2016	60.71	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	60.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Time Slice 10/20/2016-11/11/2016 Active Days: 17	60.71	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Coating 09/26/2016-11/13/2016	60.71	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	60.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2016 - 6/18/2016 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2016 - 6/2/2016 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2016 - 11/13/2016 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

3/31/2009 2:24:54 PM

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

3/31/2009 2:25:24 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase6.urb924

Project Name: SaltCreek6

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2016 TOTALS (lbs/day unmitigated)	70.01	16.13	18.91	0.01	133.80	0.91	134.56	27.94	0.83	28.64	2,763.24
2016 TOTALS (lbs/day mitigated)	63.27	16.13	18.91	0.01	9.33	0.91	10.08	1.95	0.83	2.64	2,763.24

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

3/31/2009 2:25:24 PM

Time Slice 4/1/2016-4/29/2016 Active Days: 21	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Demolition 04/01/2016-05/01/2016	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.73	5.07	4.19	0.00	0.00	0.31	0.31	0.00	0.28	0.28	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 5/2/2016-6/2/2016 Active Days: 24	2.17	**16.13**	11.19	0.00	**133.80**	0.76	**134.56**	**27.94**	0.70	**28.64**	2,349.44
Mass Grading 05/02/2016-06/02/2016	2.17	16.13	11.19	0.00	133.80	0.76	134.56	27.94	0.70	28.64	2,349.44
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 6/3/2016-6/17/2016 Active Days: 11	2.17	**16.13**	11.19	0.00	30.00	0.76	30.76	6.27	0.70	6.96	2,349.44
Fine Grading 06/03/2016-06/18/2016	2.17	16.13	11.19	0.00	30.00	0.76	30.76	6.27	0.70	6.96	2,349.44
Fine Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Fine Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12

3/31/2009 2:25:24 PM

Time Slice 6/20/2016-7/5/2016 Active Days: 12	2.22	11.89	11.09	0.00	0.01	**0.91**	0.92	0.01	**0.83**	0.84	1,614.00
Asphalt 06/19/2016-07/05/2016	2.22	11.89	11.09	0.00	0.01	0.91	0.92	0.01	0.83	0.84	1,614.00
Paving Off-Gas	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.80	11.29	8.72	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,272.04
Paving On Road Diesel	0.04	0.47	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	137.71
Paving Worker Trips	0.08	0.13	2.19	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.25
Time Slice 7/6/2016-9/23/2016 Active Days: 58	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Time Slice 9/26/2016-10/19/2016 Active Days: 18	**70.01**	12.64	**18.91**	**0.01**	0.05	0.73	0.78	0.02	0.67	0.69	**2,763.24**
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Coating 09/26/2016-11/13/2016	67.45	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	67.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Time Slice 10/20/2016-11/11/2016 Active Days: 17	67.45	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Coating 09/26/2016-11/13/2016	67.45	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	67.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36

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Phase Assumptions

Phase: Demolition 4/1/2016 - 5/1/2016 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2016 - 6/18/2016 - Type Your Description Here

Total Acres Disturbed: 6

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2016 - 6/2/2016 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

3/31/2009 2:25:24 PM

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2016 - 7/5/2016 - Default Paving Description

Acres to be Paved: 1.5

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2016 - 10/19/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2016 - 11/13/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

3/31/2009 2:25:24 PM

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/1/2016-4/29/2016 Active Days: 21	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Demolition 04/01/2016-05/01/2016	0.77	5.14	5.29	0.00	0.00	0.31	0.31	0.00	0.28	0.29	802.42
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.73	5.07	4.19	0.00	0.00	0.31	0.31	0.00	0.28	0.28	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 5/2/2016-6/2/2016 Active Days: 24	2.17	16.13	11.19	0.00	9.33	0.76	10.08	1.95	0.70	2.64	2,349.44
Mass Grading 05/02/2016-06/02/2016	2.17	16.13	11.19	0.00	9.33	0.76	10.08	1.95	0.70	2.64	2,349.44
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12
Time Slice 6/3/2016-6/17/2016 Active Days: 11	2.17	16.13	11.19	0.00	2.10	0.76	2.85	0.44	0.70	1.13	2,349.44
Fine Grading 06/03/2016-06/18/2016	2.17	16.13	11.19	0.00	2.10	0.76	2.85	0.44	0.70	1.13	2,349.44
Fine Grading Dust	0.00	0.00	0.00	0.00	2.09	0.00	2.09	0.44	0.00	0.44	0.00
Fine Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.12

3/31/2009 2:25:24 PM

Time Slice 6/20/2016-7/5/2016 Active Days: 12	2.22	11.89	11.09	0.00	0.01	**0.91**	0.92	0.01	**0.83**	0.84	1,614.00
Asphalt 06/19/2016-07/05/2016	2.22	11.89	11.09	0.00	0.01	0.91	0.92	0.01	0.83	0.84	1,614.00
Paving Off-Gas	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.80	11.29	8.72	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,272.04
Paving On Road Diesel	0.04	0.47	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	137.71
Paving Worker Trips	0.08	0.13	2.19	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.25
Time Slice 7/6/2016-9/23/2016 Active Days: 58	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Time Slice 9/26/2016-10/19/2016 Active Days: 18	**63.27**	12.64	**18.91**	**0.01**	0.05	0.73	0.78	0.02	0.67	0.69	**2,763.24**
Building 07/06/2016-10/19/2016	2.56	12.58	18.04	0.01	0.05	0.73	0.78	0.02	0.67	0.68	2,682.88
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.09	0.93	1.06	0.00	0.01	0.04	0.05	0.00	0.03	0.04	355.80
Building Worker Trips	0.28	0.46	7.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	705.88
Coating 09/26/2016-11/13/2016	60.71	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	60.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Time Slice 10/20/2016-11/11/2016 Active Days: 17	60.71	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Coating 09/26/2016-11/13/2016	60.71	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36
Architectural Coating	60.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.86	0.00	0.00	0.00	0.01	0.00	0.00	0.00	80.36

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2016 - 6/18/2016 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2016 - 6/2/2016 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2016 - 11/13/2016 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

3/31/2009 2:25:24 PM

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

3/31/2009 2:25:46 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase6.urb924

Project Name: SaltCreek6

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2016 TOTALS (tons/year unmitigated)	1.34	0.89	1.02	0.00	1.77	0.05	1.82	0.37	0.05	0.42	162.58
2016 TOTALS (tons/year mitigated)	1.22	0.89	1.02	0.00	0.13	0.05	0.18	0.03	0.05	0.07	162.58
Percent Reduction	8.83	0.00	0.00	0.00	92.92	0.00	90.39	92.85	0.00	82.68	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2016	1.34	0.89	1.02	0.00	1.77	0.05	1.82	0.37	0.05	0.42	162.58

3/31/2009 2:25:46 PM

Demolition 04/01/2016-05/01/2016	0.01	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.35
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Mass Grading 05/02/2016-06/02/2016	0.03	0.19	0.13	0.00	1.61	0.01	1.61	0.34	0.01	0.34	28.19
Mass Grading Dust	0.00	0.00	0.00	0.00	1.61	0.00	1.61	0.34	0.00	0.34	0.00
Mass Grading Off Road Diesel	0.03	0.19	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.97
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
Fine Grading 06/03/2016-06/18/2016	0.01	0.09	0.06	0.00	0.17	0.00	0.17	0.03	0.00	0.04	12.92
Fine Grading Dust	0.00	0.00	0.00	0.00	0.17	0.00	0.17	0.03	0.00	0.03	0.00
Fine Grading Off Road Diesel	0.01	0.09	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.36
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Asphalt 06/19/2016-07/05/2016	0.01	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	9.68
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	7.63
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23

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Building 07/06/2016-10/19/2016	0.10	0.48	0.69	0.00	0.00	0.03	0.03	0.00	0.03	0.03	101.95
Building Off Road Diesel	0.08	0.43	0.36	0.00	0.00	0.03	0.03	0.00	0.02	0.02	61.61
Building Vendor Trips	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.52
Building Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.82
Coating 09/26/2016-11/13/2016	1.18	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
Architectural Coating	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41

Phase Assumptions

Phase: Demolition 4/1/2016 - 5/1/2016 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2016 - 6/18/2016 - Type Your Description Here

Total Acres Disturbed: 6

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2016 - 6/2/2016 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2016 - 7/5/2016 - Default Paving Description

Acres to be Paved: 1.5

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2016 - 10/19/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/26/2016 - 11/13/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2016	1.22	0.89	1.02	0.00	0.13	0.05	0.18	0.03	0.05	0.07	162.58
Demolition 04/01/2016-05/01/2016	0.01	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.35
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Mass Grading 05/02/2016-06/02/2016	0.03	0.19	0.13	0.00	0.11	0.01	0.12	0.02	0.01	0.03	28.19
Mass Grading Dust	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.03	0.19	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.97
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23

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Fine Grading 06/03/2016-06/18/2016	0.01	0.09	0.06	0.00	0.01	0.00	0.02	0.00	0.00	0.01	12.92
Fine Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.01	0.09	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.36
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Asphalt 06/19/2016-07/05/2016	0.01	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	9.68
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	7.63
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
Building 07/06/2016-10/19/2016	0.10	0.48	0.69	0.00	0.00	0.03	0.03	0.00	0.03	0.03	101.95
Building Off Road Diesel	0.08	0.43	0.36	0.00	0.00	0.03	0.03	0.00	0.02	0.02	61.61
Building Vendor Trips	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.52
Building Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.82
Coating 09/26/2016-11/13/2016	1.06	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
Architectural Coating	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2016 - 6/18/2016 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

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PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2016 - 6/2/2016 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2016 - 11/13/2016 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 7
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
22	Single-Family Residential	dwelling units	9.57

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2017	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2017	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2017	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Tractor/Loaders/Backhoe	7
1	Grader	6
1	Rubber Tired Dozer	6
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2017	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
1	Paving Equipment	8
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
3	Welders	8
1	Crane	6
2	Forklift	6
1	Generator Set	8
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase7.urb924

Project Name: SaltCreek7

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2017 TOTALS (lbs/day unmitigated)	34.85	14.75	13.00	0.00	133.80	0.83	134.48	27.94	0.77	28.57	2,349.48
2017 TOTALS (lbs/day mitigated)	31.58	14.75	13.00	0.00	9.33	0.83	10.01	1.95	0.77	2.57	2,349.48

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/3/2017-5/1/2017 Active Days: 21	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Demolition 04/01/2017-05/01/2017	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.68	4.70	4.13	0.00	0.00	0.27	0.27	0.00	0.25	0.25	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 5/2/2017-6/2/2017 Active Days: 24	2.06	**14.75**	10.81	0.00	**133.80**	0.68	**134.48**	**27.94**	0.62	**28.57**	**2,349.48**
Mass Grading 05/02/2017-06/02/2017	2.06	14.75	10.81	0.00	133.80	0.68	134.48	27.94	0.62	28.57	2,349.48
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 6/5/2017-6/16/2017 Active Days: 10	2.06	**14.75**	10.81	0.00	36.60	0.68	37.28	7.65	0.62	8.27	**2,349.48**
Fine Grading 06/03/2017-06/18/2017	2.06	14.75	10.81	0.00	36.60	0.68	37.28	7.65	0.62	8.27	2,349.48
Fine Grading Dust	0.00	0.00	0.00	0.00	36.60	0.00	36.60	7.64	0.00	7.64	0.00
Fine Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17

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Time Slice 6/19/2017-7/5/2017 Active Days: 13	2.18	11.21	10.87	0.00	0.02	**0.83**	0.85	0.01	**0.77**	0.77	1,644.38
Asphalt 06/19/2017-07/05/2017	2.18	11.21	10.87	0.00	0.02	0.83	0.85	0.01	0.77	0.77	1,644.38
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.58	8.67	0.00	0.00	0.81	0.81	0.00	0.75	0.75	1,272.04
Paving On Road Diesel	0.04	0.51	0.19	0.00	0.01	0.02	0.02	0.00	0.02	0.02	168.01
Paving Worker Trips	0.07	0.12	2.01	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.33
Time Slice 7/6/2017-9/25/2017 Active Days: 58	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Time Slice 9/26/2017-10/19/2017 Active Days: 18	**34.85**	10.81	**13.00**	**0.00**	0.02	0.62	0.64	0.01	0.57	0.57	2,065.42
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Coating 09/26/2017-11/13/2017	32.73	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	32.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Time Slice 10/20/2017-11/13/2017 Active Days: 17	32.73	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Coating 09/26/2017-11/13/2017	32.73	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	32.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01

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Phase Assumptions

Phase: Demolition 4/1/2017 - 5/1/2017 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2017 - 6/18/2017 - Type Your Description Here

Total Acres Disturbed: 7.33

Maximum Daily Acreage Disturbed: 1.83

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2017 - 6/2/2017 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2017 - 7/5/2017 - Default Paving Description

Acres to be Paved: 1.83

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2017 - 10/19/2017 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2017 - 11/13/2017 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/3/2017-5/1/2017 Active Days: 21	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Demolition 04/01/2017-05/01/2017	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.68	4.70	4.13	0.00	0.00	0.27	0.27	0.00	0.25	0.25	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 5/2/2017-6/2/2017 Active Days: 24	2.06	**14.75**	10.81	0.00	9.33	0.68	10.01	1.95	0.62	2.57	**2,349.48**
Mass Grading 05/02/2017-06/02/2017	2.06	14.75	10.81	0.00	9.33	0.68	10.01	1.95	0.62	2.57	2,349.48
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 6/5/2017-6/16/2017 Active Days: 10	2.06	**14.75**	10.81	0.00	2.55	0.68	3.23	0.53	0.62	1.16	**2,349.48**
Fine Grading 06/03/2017-06/18/2017	2.06	14.75	10.81	0.00	2.55	0.68	3.23	0.53	0.62	1.16	2,349.48
Fine Grading Dust	0.00	0.00	0.00	0.00	2.55	0.00	2.55	0.53	0.00	0.53	0.00
Fine Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17

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Time Slice 6/19/2017-7/5/2017 Active Days: 13	2.18	11.21	10.87	0.00	0.02	**0.83**	0.85	0.01	**0.77**	0.77	1,644.38
Asphalt 06/19/2017-07/05/2017	2.18	11.21	10.87	0.00	0.02	0.83	0.85	0.01	0.77	0.77	1,644.38
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.58	8.67	0.00	0.00	0.81	0.81	0.00	0.75	0.75	1,272.04
Paving On Road Diesel	0.04	0.51	0.19	0.00	0.01	0.02	0.02	0.00	0.02	0.02	168.01
Paving Worker Trips	0.07	0.12	2.01	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.33
Time Slice 7/6/2017-9/25/2017 Active Days: 58	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Time Slice 9/26/2017-10/19/2017 Active Days: 18	31.58	10.81	**13.00**	**0.00**	0.02	0.62	0.64	0.01	0.57	0.57	2,065.42
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Coating 09/26/2017-11/13/2017	29.46	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	29.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Time Slice 10/20/2017-11/13/2017 Active Days: 17	29.46	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Coating 09/26/2017-11/13/2017	29.46	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	29.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2017 - 6/18/2017 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2017 - 6/2/2017 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2017 - 11/13/2017 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase7.urb924

Project Name: SaltCreek7

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2017 TOTALS (lbs/day unmitigated)	34.85	14.75	13.00	0.00	133.80	0.83	134.48	27.94	0.77	28.57	2,349.48
2017 TOTALS (lbs/day mitigated)	31.58	14.75	13.00	0.00	9.33	0.83	10.01	1.95	0.77	2.57	2,349.48

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/3/2017-5/1/2017 Active Days: 21	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Demolition 04/01/2017-05/01/2017	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.68	4.70	4.13	0.00	0.00	0.27	0.27	0.00	0.25	0.25	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 5/2/2017-6/2/2017 Active Days: 24	2.06	**14.75**	10.81	0.00	**133.80**	0.68	**134.48**	**27.94**	0.62	**28.57**	**2,349.48**
Mass Grading 05/02/2017-06/02/2017	2.06	14.75	10.81	0.00	133.80	0.68	134.48	27.94	0.62	28.57	2,349.48
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 6/5/2017-6/16/2017 Active Days: 10	2.06	**14.75**	10.81	0.00	36.60	0.68	37.28	7.65	0.62	8.27	**2,349.48**
Fine Grading 06/03/2017-06/18/2017	2.06	14.75	10.81	0.00	36.60	0.68	37.28	7.65	0.62	8.27	2,349.48
Fine Grading Dust	0.00	0.00	0.00	0.00	36.60	0.00	36.60	7.64	0.00	7.64	0.00
Fine Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17

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Time Slice 6/19/2017-7/5/2017 Active Days: 13	2.18	11.21	10.87	0.00	0.02	**0.83**	0.85	0.01	**0.77**	0.77	1,644.38
Asphalt 06/19/2017-07/05/2017	2.18	11.21	10.87	0.00	0.02	0.83	0.85	0.01	0.77	0.77	1,644.38
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.58	8.67	0.00	0.00	0.81	0.81	0.00	0.75	0.75	1,272.04
Paving On Road Diesel	0.04	0.51	0.19	0.00	0.01	0.02	0.02	0.00	0.02	0.02	168.01
Paving Worker Trips	0.07	0.12	2.01	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.33
Time Slice 7/6/2017-9/25/2017 Active Days: 58	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Time Slice 9/26/2017-10/19/2017 Active Days: 18	**34.85**	10.81	**13.00**	**0.00**	0.02	0.62	0.64	0.01	0.57	0.57	2,065.42
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Coating 09/26/2017-11/13/2017	32.73	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	32.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Time Slice 10/20/2017-11/13/2017 Active Days: 17	32.73	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Coating 09/26/2017-11/13/2017	32.73	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	32.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01

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Phase Assumptions

Phase: Demolition 4/1/2017 - 5/1/2017 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2017 - 6/18/2017 - Type Your Description Here

Total Acres Disturbed: 7.33

Maximum Daily Acreage Disturbed: 1.83

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2017 - 6/2/2017 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2017 - 7/5/2017 - Default Paving Description

Acres to be Paved: 1.83

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2017 - 10/19/2017 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2017 - 11/13/2017 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

3/31/2009 2:28:11 PM

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/3/2017-5/1/2017 Active Days: 21	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Demolition 04/01/2017-05/01/2017	0.71	4.76	5.14	0.00	0.00	0.27	0.28	0.00	0.25	0.25	802.47
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.68	4.70	4.13	0.00	0.00	0.27	0.27	0.00	0.25	0.25	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 5/2/2017-6/2/2017 Active Days: 24	2.06	**14.75**	10.81	0.00	9.33	0.68	10.01	1.95	0.62	2.57	**2,349.48**
Mass Grading 05/02/2017-06/02/2017	2.06	14.75	10.81	0.00	9.33	0.68	10.01	1.95	0.62	2.57	2,349.48
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 6/5/2017-6/16/2017 Active Days: 10	2.06	**14.75**	10.81	0.00	2.55	0.68	3.23	0.53	0.62	1.16	**2,349.48**
Fine Grading 06/03/2017-06/18/2017	2.06	14.75	10.81	0.00	2.55	0.68	3.23	0.53	0.62	1.16	2,349.48
Fine Grading Dust	0.00	0.00	0.00	0.00	2.55	0.00	2.55	0.53	0.00	0.53	0.00
Fine Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17

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Time Slice 6/19/2017-7/5/2017 Active Days: 13	2.18	11.21	10.87	0.00	0.02	**0.83**	0.85	0.01	**0.77**	0.77	1,644.38
Asphalt 06/19/2017-07/05/2017	2.18	11.21	10.87	0.00	0.02	0.83	0.85	0.01	0.77	0.77	1,644.38
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.58	8.67	0.00	0.00	0.81	0.81	0.00	0.75	0.75	1,272.04
Paving On Road Diesel	0.04	0.51	0.19	0.00	0.01	0.02	0.02	0.00	0.02	0.02	168.01
Paving Worker Trips	0.07	0.12	2.01	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.33
Time Slice 7/6/2017-9/25/2017 Active Days: 58	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Time Slice 9/26/2017-10/19/2017 Active Days: 18	31.58	10.81	**13.00**	**0.00**	0.02	0.62	0.64	0.01	0.57	0.57	2,065.42
Building 07/06/2017-10/19/2017	2.12	10.79	12.62	0.00	0.02	0.62	0.64	0.01	0.57	0.57	2,026.40
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.02	0.19	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	81.54
Building Worker Trips	0.11	0.19	3.18	0.00	0.02	0.01	0.02	0.01	0.01	0.01	323.66
Coating 09/26/2017-11/13/2017	29.46	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	29.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Time Slice 10/20/2017-11/13/2017 Active Days: 17	29.46	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Coating 09/26/2017-11/13/2017	29.46	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01
Architectural Coating	29.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.01

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2017 - 6/18/2017 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2017 - 6/2/2017 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2017 - 11/13/2017 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase7.urb924

Project Name: SaltCreek7

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2017 TOTALS (tons/year unmitigated)	0.71	0.78	0.79	0.00	1.79	0.04	1.83	0.37	0.04	0.41	136.74
2017 TOTALS (tons/year mitigated)	0.65	0.78	0.79	0.00	0.13	0.04	0.17	0.03	0.04	0.07	136.74
Percent Reduction	8.07	0.00	0.00	0.00	92.98	0.00	90.79	92.95	0.00	84.01	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2017	0.71	0.78	0.79	0.00	1.79	0.04	1.83	0.37	0.04	0.41	136.74

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Demolition 04/01/2017-05/01/2017	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.35
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Mass Grading 05/02/2017-06/02/2017	0.02	0.18	0.13	0.00	1.61	0.01	1.61	0.34	0.01	0.34	28.19
Mass Grading Dust	0.00	0.00	0.00	0.00	1.61	0.00	1.61	0.34	0.00	0.34	0.00
Mass Grading Off Road Diesel	0.02	0.18	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.97
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
Fine Grading 06/03/2017-06/18/2017	0.01	0.07	0.05	0.00	0.18	0.00	0.19	0.04	0.00	0.04	11.75
Fine Grading Dust	0.00	0.00	0.00	0.00	0.18	0.00	0.18	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.24
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
Asphalt 06/19/2017-07/05/2017	0.01	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	10.69
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	8.27
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33

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Building 07/06/2017-10/19/2017	0.08	0.41	0.48	0.00	0.00	0.02	0.02	0.00	0.02	0.02	77.00
Building Off Road Diesel	0.08	0.40	0.35	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.61
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10
Building Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.30
Coating 09/26/2017-11/13/2017	0.57	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
Architectural Coating	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68

Phase Assumptions

Phase: Demolition 4/1/2017 - 5/1/2017 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/3/2017 - 6/18/2017 - Type Your Description Here

Total Acres Disturbed: 7.33

Maximum Daily Acreage Disturbed: 1.83

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2017 - 6/2/2017 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2017 - 7/5/2017 - Default Paving Description

Acres to be Paved: 1.83

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/6/2017 - 10/19/2017 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/26/2017 - 11/13/2017 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2017	0.65	0.78	0.79	0.00	0.13	0.04	0.17	0.03	0.04	0.07	136.74
Demolition 04/01/2017-05/01/2017	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.35
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Mass Grading 05/02/2017-06/02/2017	0.02	0.18	0.13	0.00	0.11	0.01	0.12	0.02	0.01	0.03	28.19
Mass Grading Dust	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.02	0.18	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.97
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23

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Fine Grading 06/03/2017-06/18/2017	0.01	0.07	0.05	0.00	0.01	0.00	0.02	0.00	0.00	0.01	11.75
Fine Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.24
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
Asphalt 06/19/2017-07/05/2017	0.01	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	10.69
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	8.27
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
Building 07/06/2017-10/19/2017	0.08	0.41	0.48	0.00	0.00	0.02	0.02	0.00	0.02	0.02	77.00
Building Off Road Diesel	0.08	0.40	0.35	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.61
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10
Building Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.30
Coating 09/26/2017-11/13/2017	0.52	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
Architectural Coating	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2017 - 6/18/2017 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

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PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2017 - 6/2/2017 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2017 - 11/13/2017 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Phase 8
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
64	Single-Family Residential	dwelling units	9.57

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2018	8 months	Demolition/Clearing, Grading, Trenching, Paving, Building

Phase 1 – Demolition/Clearing:

Year	Total Volume of All Buildings (cubic feet)	Maximum Daily Volume (cubic feet)	Duration (days)
2018	None	None	30

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saws	8
1	Rubber Tired Dozer	1

Phase 2 - Site Grading:

Year	Total Acreage Disturbed	Acreage Disturbed Daily	Duration (days)	Fugitive Dust Detail	Soil Hauling (cubic yards)	Cut/Fill (cubic yards/day)
2018	16.33	0.4	45	Low	Balanced	1,100

Mass Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Grader	6
1	Rubber Tired Dozer	6
1	Tractor/Loaders/Backhoe	7
1	Water Trucks	8

Fine Grading Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
1	Tractor/Loaders/Backhoe	7
1	Grader	8
1	Rubber Tired Dozer	6
1	Water Trucks	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2018	15	1.0

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
2	Paving Equipment	6
1	Paver	7
1	Roller	7
1	Tractor/Loader/Backhoe	7

Phase 4 – Building Construction

Duration:

3 months

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
3	Welders	8
1	Crane	6
2	Forklift	6
1	Generator Set	8
1	Tractor/Loader/Backhoe	8

Sub-Phase 5 – Architectural Coatings:

Duration – 3 weeks
Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
(URBEMIS2007 default all phases)

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

3/31/2009 2:30:37 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase8.urb924

Project Name: SaltCreek8

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2018 TOTALS (lbs/day unmitigated)	97.36	18.33	19.11	0.01	133.80	0.85	134.41	27.94	0.78	28.50	3,135.24
2018 TOTALS (lbs/day mitigated)	87.84	18.33	19.11	0.01	9.33	0.85	9.93	1.95	0.78	2.50	3,135.24

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

3/31/2009 2:30:37 PM

Time Slice 4/2/2018-5/1/2018 Active Days: 22	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Demolition 04/01/2018-05/01/2018	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.07	15.16	11.58	0.00	0.00	0.73	0.73	0.00	0.67	0.67	2,281.38
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76
Time Slice 5/2/2018-6/1/2018 Active Days: 23	1.92	13.47	10.49	0.00	**133.80**	0.60	**134.41**	**27.94**	0.55	**28.50**	2,349.52
Mass Grading 05/02/2018-06/02/2018	1.92	13.47	10.49	0.00	133.80	0.60	134.41	27.94	0.55	28.50	2,349.52
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	1.88	13.42	9.57	0.00	0.00	0.60	0.60	0.00	0.55	0.55	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.92	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.21
Time Slice 6/4/2018-6/18/2018 Active Days: 11	2.60	**18.33**	14.78	0.00	106.61	**0.85**	107.45	22.26	**0.78**	23.04	**3,135.24**
Fine Grading 06/03/2018-06/18/2018	2.60	18.33	14.78	0.00	106.61	0.85	107.45	22.26	0.78	23.04	3,135.24
Fine Grading Dust	0.00	0.00	0.00	0.00	106.60	0.00	106.60	22.26	0.00	22.26	0.00
Fine Grading Off Road Diesel	2.56	18.26	13.63	0.00	0.00	0.84	0.84	0.00	0.78	0.78	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76

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Time Slice 6/19/2018-7/5/2018 Active Days: 13	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Asphalt 06/19/2018-07/05/2018	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Paving Off-Gas	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.58	9.58	7.76	0.00	0.00	0.74	0.74	0.00	0.68	0.68	1,131.92
Paving On Road Diesel	0.11	1.31	0.51	0.00	0.02	0.05	0.06	0.01	0.04	0.05	489.34
Paving Worker Trips	0.07	0.11	1.84	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.41
Time Slice 7/6/2018-9/25/2018 Active Days: 58	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Time Slice 9/26/2018-10/19/2018 Active Days: 18	**97.36**	10.71	**19.11**	**0.01**	0.06	0.57	0.63	0.02	0.52	0.54	2,913.89
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Coating 09/26/2018-11/13/2018	95.22	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	95.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Time Slice 10/22/2018-11/13/2018 Active Days: 17	95.22	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Coating 09/26/2018-11/13/2018	95.22	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	95.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54

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Phase Assumptions

Phase: Demolition 4/1/2018 - 5/1/2018 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 6/3/2018 - 6/18/2018 - Type Your Description Here

Total Acres Disturbed: 21.33

Maximum Daily Acreage Disturbed: 5.33

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2018 - 6/2/2018 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2018 - 7/5/2018 - Default Paving Description

Acres to be Paved: 5.33

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 7/6/2018 - 10/19/2018 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2018 - 11/13/2018 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

3/31/2009 2:30:37 PM

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/2/2018-5/1/2018 Active Days: 22	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Demolition 04/01/2018-05/01/2018	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.07	15.16	11.58	0.00	0.00	0.73	0.73	0.00	0.67	0.67	2,281.38
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76
Time Slice 5/2/2018-6/1/2018 Active Days: 23	1.92	13.47	10.49	0.00	9.33	0.60	9.93	1.95	0.55	2.50	2,349.52
Mass Grading 05/02/2018-06/02/2018	1.92	13.47	10.49	0.00	9.33	0.60	9.93	1.95	0.55	2.50	2,349.52
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	1.88	13.42	9.57	0.00	0.00	0.60	0.60	0.00	0.55	0.55	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.92	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.21
Time Slice 6/4/2018-6/18/2018 Active Days: 11	2.60	**18.33**	14.78	0.00	7.43	**0.85**	8.28	1.55	**0.78**	2.33	**3,135.24**
Fine Grading 06/03/2018-06/18/2018	2.60	18.33	14.78	0.00	7.43	0.85	8.28	1.55	0.78	2.33	3,135.24
Fine Grading Dust	0.00	0.00	0.00	0.00	7.43	0.00	7.43	1.55	0.00	1.55	0.00
Fine Grading Off Road Diesel	2.56	18.26	13.63	0.00	0.00	0.84	0.84	0.00	0.78	0.78	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76

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Time Slice 6/19/2018-7/5/2018 Active Days: 13	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Asphalt 06/19/2018-07/05/2018	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Paving Off-Gas	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.58	9.58	7.76	0.00	0.00	0.74	0.74	0.00	0.68	0.68	1,131.92
Paving On Road Diesel	0.11	1.31	0.51	0.00	0.02	0.05	0.06	0.01	0.04	0.05	489.34
Paving Worker Trips	0.07	0.11	1.84	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.41
Time Slice 7/6/2018-9/25/2018 Active Days: 58	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Time Slice 9/26/2018-10/19/2018 Active Days: 18	87.84	10.71	19.11	0.01	0.06	0.57	0.63	0.02	0.52	0.54	2,913.89
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Coating 09/26/2018-11/13/2018	85.70	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	85.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Time Slice 10/22/2018-11/13/2018 Active Days: 17	85.70	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Coating 09/26/2018-11/13/2018	85.70	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	85.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2018 - 6/18/2018 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2018 - 6/2/2018 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2018 - 11/13/2018 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

3/31/2009 2:31:00 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase8.urb924

Project Name: SaltCreek8

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2018 TOTALS (lbs/day unmitigated)	97.36	18.33	19.11	0.01	133.80	0.85	134.41	27.94	0.78	28.50	3,135.24
2018 TOTALS (lbs/day mitigated)	87.84	18.33	19.11	0.01	9.33	0.85	9.93	1.95	0.78	2.50	3,135.24

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 4/2/2018-5/1/2018 Active Days: 22	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Demolition 04/01/2018-05/01/2018	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.07	15.16	11.58	0.00	0.00	0.73	0.73	0.00	0.67	0.67	2,281.38
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76
Time Slice 5/2/2018-6/1/2018 Active Days: 23	1.92	13.47	10.49	0.00	**133.80**	0.60	**134.41**	**27.94**	0.55	**28.50**	2,349.52
Mass Grading 05/02/2018-06/02/2018	1.92	13.47	10.49	0.00	133.80	0.60	134.41	27.94	0.55	28.50	2,349.52
Mass Grading Dust	0.00	0.00	0.00	0.00	133.80	0.00	133.80	27.94	0.00	27.94	0.00
Mass Grading Off Road Diesel	1.88	13.42	9.57	0.00	0.00	0.60	0.60	0.00	0.55	0.55	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.92	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.21
Time Slice 6/4/2018-6/18/2018 Active Days: 11	2.60	**18.33**	14.78	0.00	106.61	**0.85**	107.45	22.26	**0.78**	23.04	**3,135.24**
Fine Grading 06/03/2018-06/18/2018	2.60	18.33	14.78	0.00	106.61	0.85	107.45	22.26	0.78	23.04	3,135.24
Fine Grading Dust	0.00	0.00	0.00	0.00	106.60	0.00	106.60	22.26	0.00	22.26	0.00
Fine Grading Off Road Diesel	2.56	18.26	13.63	0.00	0.00	0.84	0.84	0.00	0.78	0.78	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76

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Time Slice 6/19/2018-7/5/2018 Active Days: 13	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Asphalt 06/19/2018-07/05/2018	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Paving Off-Gas	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.58	9.58	7.76	0.00	0.00	0.74	0.74	0.00	0.68	0.68	1,131.92
Paving On Road Diesel	0.11	1.31	0.51	0.00	0.02	0.05	0.06	0.01	0.04	0.05	489.34
Paving Worker Trips	0.07	0.11	1.84	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.41
Time Slice 7/6/2018-9/25/2018 Active Days: 58	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Time Slice 9/26/2018-10/19/2018 Active Days: 18	**97.36**	10.71	**19.11**	**0.01**	0.06	0.57	0.63	0.02	0.52	0.54	2,913.89
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Coating 09/26/2018-11/13/2018	95.22	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	95.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Time Slice 10/22/2018-11/13/2018 Active Days: 17	95.22	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Coating 09/26/2018-11/13/2018	95.22	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	95.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54

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Phase Assumptions

Phase: Demolition 4/1/2018 - 5/1/2018 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 6/3/2018 - 6/18/2018 - Type Your Description Here

Total Acres Disturbed: 21.33

Maximum Daily Acreage Disturbed: 5.33

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2018 - 6/2/2018 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2018 - 7/5/2018 - Default Paving Description

Acres to be Paved: 5.33

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 7/6/2018 - 10/19/2018 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/26/2018 - 11/13/2018 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 4/2/2018-5/1/2018 Active Days: 22	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Demolition 04/01/2018-05/01/2018	2.11	15.23	12.73	0.00	0.01	0.74	0.74	0.00	0.68	0.68	2,409.14
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.07	15.16	11.58	0.00	0.00	0.73	0.73	0.00	0.67	0.67	2,281.38
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76
Time Slice 5/2/2018-6/1/2018 Active Days: 23	1.92	13.47	10.49	0.00	9.33	0.60	9.93	1.95	0.55	2.50	2,349.52
Mass Grading 05/02/2018-06/02/2018	1.92	13.47	10.49	0.00	9.33	0.60	9.93	1.95	0.55	2.50	2,349.52
Mass Grading Dust	0.00	0.00	0.00	0.00	9.32	0.00	9.32	1.95	0.00	1.95	0.00
Mass Grading Off Road Diesel	1.88	13.42	9.57	0.00	0.00	0.60	0.60	0.00	0.55	0.55	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.92	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.21
Time Slice 6/4/2018-6/18/2018 Active Days: 11	2.60	**18.33**	14.78	0.00	7.43	**0.85**	8.28	1.55	**0.78**	2.33	**3,135.24**
Fine Grading 06/03/2018-06/18/2018	2.60	18.33	14.78	0.00	7.43	0.85	8.28	1.55	0.78	2.33	3,135.24
Fine Grading Dust	0.00	0.00	0.00	0.00	7.43	0.00	7.43	1.55	0.00	1.55	0.00
Fine Grading Off Road Diesel	2.56	18.26	13.63	0.00	0.00	0.84	0.84	0.00	0.78	0.78	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.76

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Time Slice 6/19/2018-7/5/2018 Active Days: 13	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Asphalt 06/19/2018-07/05/2018	2.83	11.00	10.10	0.01	0.03	0.80	0.82	0.01	0.73	0.74	1,825.67
Paving Off-Gas	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.58	9.58	7.76	0.00	0.00	0.74	0.74	0.00	0.68	0.68	1,131.92
Paving On Road Diesel	0.11	1.31	0.51	0.00	0.02	0.05	0.06	0.01	0.04	0.05	489.34
Paving Worker Trips	0.07	0.11	1.84	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.41
Time Slice 7/6/2018-9/25/2018 Active Days: 58	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Time Slice 9/26/2018-10/19/2018 Active Days: 18	87.84	10.71	**19.11**	**0.01**	0.06	0.57	0.63	0.02	0.52	0.54	2,913.89
Building 07/06/2018-10/19/2018	2.14	10.65	18.08	0.01	0.05	0.57	0.62	0.02	0.52	0.54	2,800.36
Building Off Road Diesel	1.78	9.66	9.01	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,621.20
Building Vendor Trips	0.05	0.49	0.61	0.00	0.01	0.02	0.03	0.00	0.02	0.02	237.23
Building Worker Trips	0.30	0.51	8.47	0.01	0.05	0.02	0.07	0.02	0.02	0.04	941.93
Coating 09/26/2018-11/13/2018	85.70	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	85.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Time Slice 10/22/2018-11/13/2018 Active Days: 17	85.70	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Coating 09/26/2018-11/13/2018	85.70	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54
Architectural Coating	85.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	113.54

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2018 - 6/18/2018 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2018 - 6/2/2018 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2018 - 11/13/2018 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

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ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-phase8.urb924

Project Name: SaltCreek8

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2018 TOTALS (tons/year unmitigated)	1.83	0.90	1.11	0.00	2.13	0.05	2.17	0.44	0.04	0.49	191.03
2018 TOTALS (tons/year mitigated)	1.66	0.90	1.11	0.00	0.15	0.05	0.20	0.03	0.04	0.07	191.03
Percent Reduction	9.12	0.00	0.00	0.00	92.92	0.00	90.94	92.85	0.00	84.74	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2018	1.83	0.90	1.11	0.00	2.13	0.05	2.17	0.44	0.04	0.49	191.03

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Demolition 04/01/2018-05/01/2018	0.02	0.17	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.50
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.02	0.17	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.10
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
Mass Grading 05/02/2018-06/02/2018	0.02	0.15	0.12	0.00	1.54	0.01	1.55	0.32	0.01	0.33	27.02
Mass Grading Dust	0.00	0.00	0.00	0.00	1.54	0.00	1.54	0.32	0.00	0.32	0.00
Mass Grading Off Road Diesel	0.02	0.15	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.84
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
Fine Grading 06/03/2018-06/18/2018	0.01	0.10	0.08	0.00	0.59	0.00	0.59	0.12	0.00	0.13	17.24
Fine Grading Dust	0.00	0.00	0.00	0.00	0.59	0.00	0.59	0.12	0.00	0.12	0.00
Fine Grading Off Road Diesel	0.01	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.54
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Asphalt 06/19/2018-07/05/2018	0.02	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.00	11.87
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.36
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.18
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33

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Building 07/06/2018-10/19/2018	0.08	0.40	0.69	0.00	0.00	0.02	0.02	0.00	0.02	0.02	106.41
Building Off Road Diesel	0.07	0.37	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.61
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.01
Building Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.79
Coating 09/26/2018-11/13/2018	1.67	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Architectural Coating	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99

Phase Assumptions

Phase: Demolition 4/1/2018 - 5/1/2018 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 6/3/2018 - 6/18/2018 - Type Your Description Here

Total Acres Disturbed: 21.33

Maximum Daily Acreage Disturbed: 5.33

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 5/2/2018 - 6/2/2018 - Default Fine Site Grading Description

Total Acres Disturbed: 16.33

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1100 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/19/2018 - 7/5/2018 - Default Paving Description

Acres to be Paved: 5.33

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 7/6/2018 - 10/19/2018 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/26/2018 - 11/13/2018 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2018	1.66	0.90	1.11	0.00	0.15	0.05	0.20	0.03	0.04	0.07	191.03
Demolition 04/01/2018-05/01/2018	0.02	0.17	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	26.50
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.02	0.17	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.10
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
Mass Grading 05/02/2018-06/02/2018	0.02	0.15	0.12	0.00	0.11	0.01	0.11	0.02	0.01	0.03	27.02
Mass Grading Dust	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.02	0.15	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.84
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18

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Fine Grading 06/03/2018-06/18/2018	0.01	0.10	0.08	0.00	0.04	0.00	0.05	0.01	0.00	0.01	17.24
Fine Grading Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.01	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.54
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Asphalt 06/19/2018-07/05/2018	0.02	0.07	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.00	11.87
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.36
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.18
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
Building 07/06/2018-10/19/2018	0.08	0.40	0.69	0.00	0.00	0.02	0.02	0.00	0.02	0.02	106.41
Building Off Road Diesel	0.07	0.37	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.61
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.01
Building Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.79
Coating 09/26/2018-11/13/2018	1.50	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Architectural Coating	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/3/2018 - 6/18/2018 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

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PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 5/2/2018 - 6/2/2018 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/26/2018 - 11/13/2018 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: Salt Creek – Operational
Date: March 2009

LAND USES

Amount	Land Use Type	Unit Type	Trip Rate
344	Single-Family Residential	dwelling units	9.64
96	Multi-Family Residential	dwelling units	7.96

YEAR 2019 AREA SOURCES

Natural Gas Fuel Combustion:

(URBEMIS2007 default all phases)

Hearth Fuel Combustion:

Off

Landscape Fuel Combustion:

Year of Completion	Summer Days
2019	180

Consumer Products:

(URBEMIS2007 default all phases)

Architectural Coating:

(URBEMIS2007 default all phases)

Area Source Mitigation:

Low VOC coatings (Pursuant to SCAQMD Rule 3:31)
Refer to URBEMIS2007 file output.

YEAR 2019 OPERATIONAL SOURCES

Vehicle Fleet %:

(URBEMIS2007 default all phases)

Year:

Year of Completion – 2019

Trip Characteristics:

(URBEMIS2007 Default all phases)

Temperature Data:

40 to 90 degrees Fahrenheit

Variable Starts:

(URBEMIS2007 default all phases)

Road Dust:

Paved – 100%
Unpaved – 0%

Pass By Trips (On/Off):

On

Double-Counting(On/Off):

Off

Operational Mitigation Measures:

Refer to URBEMIS2007 file output.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-operational.urb924

Project Name: SaltCreek Operations

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	30.48	5.24	20.59	0.00	0.06	0.06	6,457.14

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	35.95	35.24	359.03	0.39	68.82	13.11	40,600.88

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	66.43	40.48	379.62	0.39	68.88	13.17	47,058.02

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.39	5.03	2.14	0.00	0.01	0.01	6,426.87
Hearth							
Landscape	3.02	0.21	18.45	0.00	0.05	0.05	30.27
Consumer Products	21.53						
Architectural Coatings	5.54						
TOTALS (lbs/day, unmitigated)	30.48	5.24	20.59	0.00	0.06	0.06	6,457.14

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	25.69	24.91	255.56	0.28	48.70	9.28	28,764.47
Apartments low rise	6.09	5.74	58.89	0.06	11.22	2.14	6,628.35
City park	4.17	4.59	44.58	0.05	8.90	1.69	5,208.06
TOTALS (lbs/day, unmitigated)	35.95	35.24	359.03	0.39	68.82	13.11	40,600.88

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

3/31/2009 2:37:46 PM

Analysis Year: 2019 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	114.67	9.64	dwelling units	344.00	3,316.16	28,352.17
Apartments low rise	6.00	7.96	dwelling units	96.00	764.16	6,533.34
City park		50.00	acres	13.90	695.00	5,182.96
					4,775.32	40,068.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.6	0.0	99.7	0.3
Light Truck < 3750 lbs	24.4	0.4	94.3	5.3
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	9.2	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.8	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	40.6	59.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-operational.urb924

Project Name: SaltCreek Operations

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	27.46	5.03	2.14	0.00	0.01	0.01	6,426.87

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	38.32	53.00	390.58	0.36	68.82	13.11	35,438.83

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	65.78	58.03	392.72	0.36	68.83	13.12	41,865.70

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.39	5.03	2.14	0.00	0.01	0.01	6,426.87
Hearth							
Landscaping - No Winter Emissions							
Consumer Products	21.53						
Architectural Coatings	5.54						
TOTALS (lbs/day, unmitigated)	27.46	5.03	2.14	0.00	0.01	0.01	6,426.87

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	27.09	37.48	276.89	0.25	48.70	9.28	25,111.84
Apartments low rise	6.24	8.64	63.80	0.06	11.22	2.14	5,786.65
City park	4.99	6.88	49.89	0.05	8.90	1.69	4,540.34
TOTALS (lbs/day, unmitigated)	38.32	53.00	390.58	0.36	68.82	13.11	35,438.83

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

3/31/2009 2:37:58 PM

Analysis Year: 2019 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	114.67	9.64	dwelling units	344.00	3,316.16	28,352.17
Apartments low rise	6.00	7.96	dwelling units	96.00	764.16	6,533.34
City park		50.00	acres	13.90	695.00	5,182.96
					4,775.32	40,068.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.6	0.0	99.7	0.3
Light Truck < 3750 lbs	24.4	0.4	94.3	5.3
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	9.2	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.8	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	40.6	59.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-operational.urb924

Project Name: SaltCreek Operations

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	5.28	0.94	2.05	0.00	0.00	0.00	1,175.62

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.70	7.51	67.45	0.07	12.56	2.39	7,095.63

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	11.98	8.45	69.50	0.07	12.56	2.39	8,271.25

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.92	0.39	0.00	0.00	0.00	1,172.90
Hearth							
Landscape	0.27	0.02	1.66	0.00	0.00	0.00	2.72
Consumer Products	3.93						
Architectural Coatings	1.01						
TOTALS (tons/year, unmitigated)	5.28	0.94	2.05	0.00	0.00	0.00	1,175.62

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	4.77	5.31	47.94	0.05	8.89	1.69	5,027.31
Apartments low rise	1.12	1.22	11.05	0.01	2.05	0.39	1,158.47
City park	0.81	0.98	8.46	0.01	1.62	0.31	909.85
TOTALS (tons/year, unmitigated)	6.70	7.51	67.45	0.07	12.56	2.39	7,095.63

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

3/31/2009 2:38:09 PM

Analysis Year: 2019 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	114.67	9.64	dwelling units	344.00	3,316.16	28,352.17
Apartments low rise	6.00	7.96	dwelling units	96.00	764.16	6,533.34
City park		50.00	acres	13.90	695.00	5,182.96
					4,775.32	40,068.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.6	0.0	99.7	0.3
Light Truck < 3750 lbs	24.4	0.4	94.3	5.3
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	9.2	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.8	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	40.6	59.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

12/2/2008 9:42:40 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-existingGP.urb924

Project Name: SaltCreek Alt-Existing GP

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	50.58	7.50	15.55	0.00	0.05	0.05	9,400.27

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	66.19	68.26	672.72	0.58	102.03	19.58	60,107.96

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	116.77	75.76	688.27	0.58	102.08	19.63	69,508.23

12/2/2008 9:42:40 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.57	7.35	3.13	0.00	0.01	0.01	9,379.67
Hearth							
Landscape	1.93	0.15	12.42	0.00	0.04	0.04	20.60
Consumer Products	40.90						
Architectural Coatings	7.18						
TOTALS (lbs/day, unmitigated)	50.58	7.50	15.55	0.00	0.05	0.05	9,400.27

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	18.70	19.68	194.85	0.17	29.44	5.65	17,356.07
Apartments low rise	42.44	42.57	421.46	0.36	63.67	12.22	37,541.34
City park	5.05	6.01	56.41	0.05	8.92	1.71	5,210.55
TOTALS (lbs/day, unmitigated)	66.19	68.26	672.72	0.58	102.03	19.58	60,107.96

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

12/2/2008 9:42:40 AM

Analysis Year: 2016 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	69.67	9.57	dwelling units	209.00	2,000.13	17,100.51
Apartments low rise	39.19	6.90	dwelling units	627.00	4,326.30	36,988.57
City park		50.00	acres	13.90	695.00	5,182.96
					7,021.43	59,272.04

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

12/2/2008 9:43:10 AM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-existingGP.urb924

Project Name: SaltCreek Alt-Existing GP

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	48.65	7.35	3.13	0.00	0.01	0.01	9,379.67

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	69.71	102.45	736.58	0.53	102.03	19.58	52,634.85

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	118.36	109.80	739.71	0.53	102.04	19.59	62,014.52

12/2/2008 9:43:10 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.57	7.35	3.13	0.00	0.01	0.01	9,379.67
Hearth							
Landscaping - No Winter Emissions							
Consumer Products	40.90						
Architectural Coatings	7.18						
TOTALS (lbs/day, unmitigated)	48.65	7.35	3.13	0.00	0.01	0.01	9,379.67

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	20.10	29.55	212.76	0.15	29.44	5.65	15,200.01
Apartments low rise	43.47	63.91	460.20	0.33	63.67	12.22	32,877.77
City park	6.14	8.99	63.62	0.05	8.92	1.71	4,557.07
TOTALS (lbs/day, unmitigated)	69.71	102.45	736.58	0.53	102.03	19.58	52,634.85

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

12/2/2008 9:43:10 AM

Analysis Year: 2016 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	69.67	9.57	dwelling units	209.00	2,000.13	17,100.51
Apartments low rise	39.19	6.90	dwelling units	627.00	4,326.30	36,988.57
City park		50.00	acres	13.90	695.00	5,182.96
					7,021.43	59,272.04

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

12/2/2008 9:43:10 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

12/2/2008 9:43:29 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-existingGP.urb924

Project Name: SaltCreek Alt-Existing GP

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.04	1.35	1.69	0.00	0.00	0.00	1,713.64

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	12.30	14.54	126.65	0.10	18.62	3.57	10,515.08

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	21.34	15.89	128.34	0.10	18.62	3.57	12,228.72

12/2/2008 9:43:29 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.10	1.34	0.57	0.00	0.00	0.00	1,711.79
Hearth							
Landscape	0.17	0.01	1.12	0.00	0.00	0.00	1.85
Consumer Products	7.46						
Architectural Coatings	1.31						
TOTALS (tons/year, unmitigated)	9.04	1.35	1.69	0.00	0.00	0.00	1,713.64

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	3.50	4.19	36.65	0.03	5.37	1.03	3,036.32
Apartments low rise	7.81	9.07	79.27	0.06	11.62	2.23	6,567.59
City park	0.99	1.28	10.73	0.01	1.63	0.31	911.17
TOTALS (tons/year, unmitigated)	12.30	14.54	126.65	0.10	18.62	3.57	10,515.08

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

12/2/2008 9:43:29 AM

Analysis Year: 2016 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	69.67	9.57	dwelling units	209.00	2,000.13	17,100.51
Apartments low rise	39.19	6.90	dwelling units	627.00	4,326.30	36,988.57
City park		50.00	acres	13.90	695.00	5,182.96
					7,021.43	59,272.04

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

12/2/2008 9:43:29 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

12/2/2008 9:47:41 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-1.urb924

Project Name: SaltCreek Alt-1

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	40.83	7.37	29.73	0.00	0.08	0.08	9,064.97

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	51.02	53.45	529.05	0.45	79.94	15.35	47,134.48

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	91.85	60.82	558.78	0.45	80.02	15.43	56,199.45

12/2/2008 9:47:41 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.55	7.07	3.01	0.00	0.01	0.01	9,021.74
Hearth							
Landscape	4.67	0.30	26.72	0.00	0.07	0.07	43.23
Consumer Products	27.59						
Architectural Coatings	8.02						
TOTALS (lbs/day, unmitigated)	40.83	7.37	29.73	0.00	0.08	0.08	9,064.97

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	50.45	53.11	525.82	0.45	79.43	15.25	46,836.47
City park	0.57	0.34	3.23	0.00	0.51	0.10	298.01
TOTALS (lbs/day, unmitigated)	51.02	53.45	529.05	0.45	79.94	15.35	47,134.48

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 85 Season: Summer

12/2/2008 9:47:41 AM

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	188.00	9.57	dwelling units	564.00	5,397.48	46,146.83
City park		1.59	acres	25.00	39.75	296.44
					5,437.23	46,443.27

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

12/2/2008 9:47:41 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

12/2/2008 9:48:08 AM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-1.urb924

Project Name: SaltCreek Alt-1

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	36.16	7.07	3.01	0.00	0.01	0.01	9,021.74

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	54.59	80.25	577.79	0.41	79.94	15.35	41,278.85

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	90.75	87.32	580.80	0.41	79.95	15.36	50,300.59

12/2/2008 9:48:08 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.55	7.07	3.01	0.00	0.01	0.01	9,021.74
Hearth							
Landscaping - No Winter Emissions							
Consumer Products	27.59						
Architectural Coatings	8.02						
TOTALS (lbs/day, unmitigated)	36.16	7.07	3.01	0.00	0.01	0.01	9,021.74

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	54.24	79.74	574.15	0.41	79.43	15.25	41,018.21
City park	0.35	0.51	3.64	0.00	0.51	0.10	260.64
TOTALS (lbs/day, unmitigated)	54.59	80.25	577.79	0.41	79.94	15.35	41,278.85

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 40 Season: Winter

12/2/2008 9:48:08 AM

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	188.00	9.57	dwelling units	564.00	5,397.48	46,146.83
City park		1.59	acres	25.00	39.75	296.44
					5,437.23	46,443.27

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

12/2/2008 9:48:08 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

12/2/2008 9:48:22 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-1.urb924

Project Name: SaltCreek Alt-1

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	7.02	1.32	2.96	0.00	0.01	0.01	1,650.36

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.53	11.38	99.51	0.08	14.59	2.80	8,245.82

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	16.55	12.70	102.47	0.08	14.60	2.81	9,896.18

12/2/2008 9:48:22 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.10	1.29	0.55	0.00	0.00	0.00	1,646.47
Hearth							
Landscape	0.42	0.03	2.41	0.00	0.01	0.01	3.89
Consumer Products	5.04						
Architectural Coatings	1.46						
TOTALS (tons/year, unmitigated)	7.02	1.32	2.96	0.00	0.01	0.01	1,650.36

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	9.44	11.31	98.90	0.08	14.50	2.78	8,193.71
City park	0.09	0.07	0.61	0.00	0.09	0.02	52.11
TOTALS (tons/year, unmitigated)	9.53	11.38	99.51	0.08	14.59	2.80	8,245.82

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Season: Annual

12/2/2008 9:48:22 AM

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	188.00	9.57	dwelling units	564.00	5,397.48	46,146.83
City park		1.59	acres	25.00	39.75	296.44
					5,437.23	46,443.27

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

12/2/2008 9:48:22 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

12/2/2008 9:50:08 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-2.urb924

Project Name: SaltCreek Alt-2

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	37.46	6.76	25.94	0.00	0.07	0.07	8,339.12

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	46.43	48.87	483.86	0.42	73.10	14.03	43,099.52

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	83.89	55.63	509.80	0.42	73.17	14.10	51,438.64

12/2/2008 9:50:08 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.50	6.50	2.77	0.00	0.01	0.01	8,301.92
Hearth							
Landscape	4.19	0.26	23.17	0.00	0.06	0.06	37.20
Consumer Products	25.39						
Architectural Coatings	7.38						
TOTALS (lbs/day, unmitigated)	37.46	6.76	25.94	0.00	0.07	0.07	8,339.12

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	46.43	48.87	483.86	0.42	73.10	14.03	43,099.52
TOTALS (lbs/day, unmitigated)	46.43	48.87	483.86	0.42	73.10	14.03	43,099.52

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

12/2/2008 9:50:08 AM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	173.00	9.57	dwelling units	519.00	4,966.83	42,464.91
					4,966.83	42,464.91

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

12/2/2008 9:50:08 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

12/2/2008 9:50:32 AM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-2.urb924

Project Name: SaltCreek Alt-2

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	33.27	6.50	2.77	0.00	0.01	0.01	8,301.92

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	49.91	73.38	528.34	0.38	73.10	14.03	37,745.48

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	83.18	79.88	531.11	0.38	73.11	14.04	46,047.40

12/2/2008 9:50:32 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.50	6.50	2.77	0.00	0.01	0.01	8,301.92
Hearth							
Landscaping - No Winter Emissions							
Consumer Products	25.39						
Architectural Coatings	7.38						
TOTALS (lbs/day, unmitigated)	33.27	6.50	2.77	0.00	0.01	0.01	8,301.92

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	49.91	73.38	528.34	0.38	73.10	14.03	37,745.48
TOTALS (lbs/day, unmitigated)	49.91	73.38	528.34	0.38	73.10	14.03	37,745.48

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

12/2/2008 9:50:32 AM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	173.00	9.57	dwelling units	519.00	4,966.83	42,464.91
					4,966.83	42,464.91

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

12/2/2008 9:50:32 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

12/2/2008 9:50:54 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-2.urb924

Project Name: SaltCreek Alt-2

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.45	1.21	2.60	0.00	0.01	0.01	1,518.45

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	8.68	10.41	91.01	0.07	13.34	2.56	7,539.96

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	15.13	11.62	93.61	0.07	13.35	2.57	9,058.41

12/2/2008 9:50:54 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.09	1.19	0.51	0.00	0.00	0.00	1,515.10
Hearth							
Landscape	0.38	0.02	2.09	0.00	0.01	0.01	3.35
Consumer Products	4.63						
Architectural Coatings	1.35						
TOTALS (tons/year, unmitigated)	6.45	1.21	2.60	0.00	0.01	0.01	1,518.45

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	8.68	10.41	91.01	0.07	13.34	2.56	7,539.96
TOTALS (tons/year, unmitigated)	8.68	10.41	91.01	0.07	13.34	2.56	7,539.96

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

12/2/2008 9:50:54 AM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	173.00	9.57	dwelling units	519.00	4,966.83	42,464.91
					4,966.83	42,464.91

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

12/2/2008 9:50:54 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

12/2/2008 10:29:15 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-3.urb924

Project Name: SaltCreek Alt-3

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	25.06	4.52	17.34	0.00	0.05	0.05	5,575.48

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	31.04	32.68	323.51	0.28	48.87	9.38	28,816.05

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	56.10	37.20	340.85	0.28	48.92	9.43	34,391.53

12/2/2008 10:29:15 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.34	4.35	1.85	0.00	0.01	0.01	5,550.61
Hearth							
Landscape	2.80	0.17	15.49	0.00	0.04	0.04	24.87
Consumer Products	16.98						
Architectural Coatings	4.94						
TOTALS (lbs/day, unmitigated)	25.06	4.52	17.34	0.00	0.05	0.05	5,575.48

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	31.04	32.68	323.51	0.28	48.87	9.38	28,816.05
TOTALS (lbs/day, unmitigated)	31.04	32.68	323.51	0.28	48.87	9.38	28,816.05

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

12/2/2008 10:29:15 AM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	115.67	9.57	dwelling units	347.00	3,320.79	28,391.76
					3,320.79	28,391.76

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

12/2/2008 10:29:15 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

12/2/2008 10:29:41 AM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-3.urb924

Project Name: SaltCreek Alt-3

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	22.26	4.35	1.85	0.00	0.01	0.01	5,550.61

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	33.37	49.06	353.24	0.25	48.87	9.38	25,236.38

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	55.63	53.41	355.09	0.25	48.88	9.39	30,786.99

12/2/2008 10:29:41 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.34	4.35	1.85	0.00	0.01	0.01	5,550.61
Hearth							
Landscaping - No Winter Emissions							
Consumer Products	16.98						
Architectural Coatings	4.94						
TOTALS (lbs/day, unmitigated)	22.26	4.35	1.85	0.00	0.01	0.01	5,550.61

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	33.37	49.06	353.24	0.25	48.87	9.38	25,236.38
TOTALS (lbs/day, unmitigated)	33.37	49.06	353.24	0.25	48.87	9.38	25,236.38

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

12/2/2008 10:29:41 AM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	115.67	9.57	dwelling units	347.00	3,320.79	28,391.76
					3,320.79	28,391.76

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\SaltCreek-ALT-3.urb924

Project Name: SaltCreek Alt-3

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	4.31	0.81	1.73	0.00	0.00	0.00	1,015.23

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	5.81	6.96	60.85	0.05	8.92	1.71	5,041.17

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	10.12	7.77	62.58	0.05	8.92	1.71	6,056.40

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.79	0.34	0.00	0.00	0.00	1,012.99
Hearth							
Landscape	0.25	0.02	1.39	0.00	0.00	0.00	2.24
Consumer Products	3.10						
Architectural Coatings	0.90						
TOTALS (tons/year, unmitigated)	4.31	0.81	1.73	0.00	0.00	0.00	1,015.23

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	5.81	6.96	60.85	0.05	8.92	1.71	5,041.17
TOTALS (tons/year, unmitigated)	5.81	6.96	60.85	0.05	8.92	1.71	5,041.17

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	115.67	9.57	dwelling units	347.00	3,320.79	28,391.76
					3,320.79	28,391.76

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	0.3	99.4	0.3
Light Truck < 3750 lbs	24.4	1.2	91.8	7.0
Light Truck 3751-5750 lbs	19.8	0.5	99.0	0.5
Med Truck 5751-8500 lbs	9.2	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	72.0	28.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	45.3	54.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	0.0	85.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

SaltCreek.rts

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.247	0.434	0.542	4.790	2.219	4.922	1.044
35	0.042	0.084	0.103	0.420	0.467	1.992	0.143

Pollutant Name: Carbon Monoxide Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	2.925	5.496	5.948	11.320	15.925	26.751	5.744
35	1.570	2.652	2.436	2.477	2.847	17.444	2.406

Pollutant Name: Oxides of Nitrogen Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.327	0.737	1.374	17.964	22.231	1.414	3.094
35	0.186	0.416	0.824	6.888	10.150	1.368	1.309

Pollutant Name: Carbon Dioxide Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	948.797	1158.337	1682.743	3495.407	2475.471	260.008	1470.939
35	309.039	385.372	520.567	1702.559	2012.125	135.529	558.078

Pollutant Name: Sulfur Dioxide Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.016	0.033	0.024	0.003	0.014
35	0.003	0.004	0.005	0.016	0.019	0.002	0.005

Pollutant Name: PM2.5 Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.047	0.087	0.098	0.703	0.440	0.028	0.159
35	0.008	0.015	0.018	0.179	0.107	0.013	0.036

Pollutant Name: PM2.5 - Tire Wear Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.008	0.002	0.001	0.003
35	0.002	0.002	0.002	0.008	0.002	0.001	0.003

Pollutant Name: PM2.5 - Break Wear Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.011	0.005	0.003	0.006
35	0.005	0.005	0.005	0.011	0.005	0.003	0.006

Pollutant Name: Gasoline - mi/gal Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.279	7.390	4.974	3.433	3.425	27.880	8.078
35	28.448	22.645	16.881	17.361	17.328	52.275	24.583

Pollutant Name: Diesel - mi/gal Temperature: 60F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	28.620	29.097	19.596	3.108	4.091	0.000	6.990
35	28.620	29.097	19.596	5.656	4.091	0.000	9.055

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
*****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 60F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.057	0.090	0.120	0.305	0.129	1.094	0.118
10	0.103	0.153	0.214	0.426	0.252	1.249	0.188
20	0.189	0.271	0.392	0.654	0.478	1.557	0.321
30	0.267	0.379	0.555	0.862	0.677	1.864	0.442
40	0.337	0.475	0.703	1.050	0.850	2.168	0.552
50	0.398	0.560	0.836	1.217	0.997	2.470	0.650
60	0.451	0.631	0.952	1.347	1.118	2.676	0.732
120	0.564	0.731	1.178	1.185	1.066	2.558	0.842
180	0.454	0.615	1.069	1.262	1.131	2.411	0.743
240	0.480	0.652	1.133	1.338	1.194	2.573	0.788
300	0.507	0.688	1.197	1.411	1.255	2.731	0.831
360	0.532	0.722	1.259	1.483	1.314	2.887	0.874
420	0.557	0.756	1.320	1.552	1.371	3.041	0.916
480	0.582	0.790	1.380	1.620	1.425	3.192	0.957
540	0.606	0.822	1.440	1.686	1.478	3.340	0.997
600	0.629	0.854	1.498	1.749	1.529	3.487	1.036
660	0.652	0.885	1.554	1.811	1.577	3.630	1.075
720	0.674	0.915	1.610	1.871	1.624	3.771	1.112

Pollutant Name: Carbon Monoxide Temperature: 60F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.613	0.988	1.455	3.632	2.202	3.964	1.216
10	1.156	1.794	2.685	5.838	4.315	4.647	2.134
20	2.185	3.322	5.023	9.985	8.273	5.961	3.875
30	3.141	4.734	7.196	13.777	11.872	7.207	5.485
40	4.022	6.032	9.205	17.216	15.114	8.387	6.966
50	4.830	7.214	11.049	20.301	17.998	9.499	8.317
60	5.563	8.281	12.730	23.032	20.523	10.544	9.538
120	7.548	10.343	15.297	19.124	17.391	13.851	11.267

180	5.549	8.050	12.424	20.177	17.899	11.403	9.184
240	5.888	8.515	13.228	21.193	18.424	12.772	9.741
300	6.200	8.947	13.962	22.172	18.966	14.014	10.256
360	6.483	9.343	14.625	23.112	19.525	15.129	10.728
420	6.737	9.706	15.217	24.015	20.100	16.116	11.158
480	6.963	10.034	15.738	24.881	20.692	16.977	11.545
540	7.161	10.328	16.188	25.708	21.301	17.710	11.889
600	7.330	10.587	16.567	26.498	21.927	18.315	12.192
660	7.471	10.812	16.875	27.251	22.569	18.794	12.451
720	7.584	11.003	17.113	27.966	23.228	19.145	12.668

Pollutant Name: Oxides of Nitrogen Temperature: 60F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.193	0.286	0.873	0.404	0.559	0.185	0.397
10	0.218	0.328	0.976	0.601	0.843	0.223	0.459
20	0.263	0.402	1.157	0.949	1.341	0.289	0.568
30	0.300	0.463	1.309	1.232	1.746	0.344	0.659
40	0.330	0.511	1.431	1.451	2.060	0.389	0.730
50	0.352	0.547	1.522	1.606	2.281	0.421	0.783
60	0.366	0.570	1.583	1.696	2.410	0.443	0.817
120	0.388	0.603	1.686	1.722	2.446	0.449	0.862
180	0.401	0.621	1.700	1.715	2.437	0.445	0.875
240	0.398	0.617	1.688	1.705	2.424	0.437	0.869
300	0.394	0.610	1.669	1.691	2.405	0.426	0.860
360	0.388	0.601	1.643	1.674	2.382	0.413	0.847
420	0.380	0.590	1.611	1.653	2.354	0.398	0.831
480	0.371	0.576	1.572	1.628	2.321	0.381	0.812
540	0.361	0.560	1.526	1.600	2.284	0.361	0.790
600	0.349	0.541	1.474	1.569	2.242	0.339	0.765
660	0.335	0.521	1.414	1.534	2.195	0.315	0.737
720	0.320	0.498	1.348	1.496	2.143	0.289	0.705

Pollutant Name: Carbon Dioxide Temperature: 60F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.463	13.645	19.227	5.223	2.194	17.269	13.640
10	13.383	16.072	22.801	7.821	4.376	19.610	16.175
20	17.647	21.407	30.631	12.965	8.703	24.193	21.703
30	22.477	27.381	39.370	18.037	12.981	28.645	27.843
40	27.874	33.993	49.019	23.037	17.211	32.967	34.595
50	33.838	41.244	59.577	27.966	21.392	37.158	41.959
60	40.367	49.133	71.045	32.823	25.525	41.218	49.935
120	89.277	106.839	154.236	53.996	43.414	59.645	107.248
180	101.811	121.882	176.197	62.506	51.290	63.112	122.381
240	114.203	136.717	197.831	70.514	58.701	66.376	137.279
300	126.450	151.344	219.138	78.020	65.648	69.437	151.940
360	138.555	165.763	240.117	85.023	72.130	72.295	166.366
420	150.515	179.974	260.769	91.525	78.146	74.951	180.556
480	162.333	193.977	281.094	97.525	83.698	77.404	194.510
540	174.007	207.773	301.092	103.023	88.785	79.655	208.228
600	185.537	221.360	320.763	108.019	93.408	81.702	221.711
660	196.924	234.740	340.106	112.514	97.565	83.547	234.957

720	208.168	247.911	359.123	116.506	101.257	85.189	247.968

Pollutant Name: Sulfur Dioxide Temperature: 60F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.001	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.001	0.000	0.001	0.000
50	0.000	0.001	0.001	0.001	0.001	0.001	0.001
60	0.000	0.001	0.001	0.001	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.001	0.001	0.001
240	0.001	0.001	0.002	0.001	0.001	0.001	0.001
300	0.001	0.002	0.002	0.001	0.001	0.001	0.002
360	0.001	0.002	0.003	0.001	0.001	0.001	0.002
420	0.002	0.002	0.003	0.001	0.001	0.001	0.002
480	0.002	0.002	0.003	0.001	0.001	0.001	0.002
540	0.002	0.002	0.003	0.001	0.001	0.001	0.002
600	0.002	0.002	0.003	0.001	0.001	0.001	0.002
660	0.002	0.002	0.004	0.002	0.001	0.001	0.002
720	0.002	0.003	0.004	0.002	0.001	0.001	0.003

Pollutant Name: PM2.5 Temperature: 60F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.001	0.001	0.001	0.000	0.000	0.007	0.001
10	0.001	0.002	0.002	0.001	0.001	0.006	0.002
20	0.002	0.004	0.003	0.001	0.001	0.005	0.003
30	0.003	0.006	0.005	0.002	0.002	0.004	0.004
40	0.004	0.007	0.006	0.002	0.002	0.003	0.005
50	0.005	0.009	0.007	0.002	0.002	0.003	0.007
60	0.006	0.010	0.008	0.003	0.003	0.002	0.008
120	0.009	0.016	0.013	0.004	0.004	0.006	0.012
180	0.010	0.017	0.014	0.004	0.004	0.008	0.013
240	0.011	0.018	0.015	0.004	0.004	0.010	0.014
300	0.011	0.019	0.015	0.004	0.004	0.012	0.015
360	0.012	0.020	0.016	0.004	0.004	0.014	0.015
420	0.012	0.021	0.017	0.005	0.004	0.016	0.016
480	0.013	0.022	0.017	0.005	0.004	0.017	0.016
540	0.013	0.022	0.018	0.005	0.005	0.018	0.017
600	0.013	0.023	0.018	0.005	0.005	0.019	0.017
660	0.014	0.023	0.019	0.005	0.005	0.019	0.018
720	0.014	0.023	0.019	0.005	0.005	0.019	0.018

Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
*****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 60F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.065	0.082	0.040	0.011	0.018	0.130	0.062
10	0.121	0.151	0.073	0.020	0.033	0.242	0.115
20	0.206	0.259	0.126	0.035	0.056	0.421	0.197
30	0.266	0.334	0.163	0.045	0.072	0.551	0.254
40	0.288	0.363	0.178	0.049	0.078	0.603	0.276

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
*****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 5a: Partial Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
60	0.066	0.086	0.052	0.004	0.001	0.160	0.074

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
*****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 5b: Multi-Day Diurnal Loss Emissions
(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
60	0.005	0.007	0.004	0.000	0.000	0.015	0.006

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
*****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 6a: Partial Day Resting Loss Emissions
(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
60	0.030	0.040	0.026	0.002	0.000	0.057	0.033

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 6b: Multi-Day Resting Loss Emissions (grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
60	0.002	0.003	0.002	0.000	0.000	0.006	0.003

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 7: Estimated Travel Fractions

Pollutant Name: Temperature: ALL Relative Humidity: ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.348	0.363	0.137	0.138	0.001	0.012	1.000
%TRIP	0.330	0.350	0.230	0.074	0.000	0.016	1.000
%VEH	0.365	0.393	0.132	0.055	0.000	0.055	1.000

Title : Shasta County AQMD Subarea Winter CYr 2016 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2008/09/25 10:38:56
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Winter
Area : Shasta (SV)
****
*****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Shasta (SV) Shasta (SV) Shasta (SV)

Table 8: Evaporative Running Loss Emissions
(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 60F Relative Humidity:
ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.020	0.529	0.383	0.125	0.136	0.015	0.269
2	0.019	0.277	0.201	0.066	0.070	0.053	0.145
3	0.021	0.195	0.143	0.047	0.049	0.074	0.105
4	0.024	0.156	0.115	0.037	0.039	0.087	0.087
5	0.026	0.133	0.098	0.032	0.033	0.096	0.076
10	0.031	0.090	0.068	0.021	0.022	0.122	0.057
15	0.034	0.080	0.061	0.017	0.019	0.137	0.054
20	0.037	0.079	0.061	0.016	0.020	0.150	0.054
25	0.040	0.080	0.063	0.016	0.021	0.162	0.056
30	0.041	0.084	0.065	0.016	0.022	0.171	0.058
35	0.042	0.088	0.068	0.017	0.023	0.179	0.061
40	0.044	0.092	0.071	0.018	0.024	0.186	0.063
45	0.045	0.095	0.073	0.018	0.025	0.194	0.065
50	0.046	0.098	0.076	0.019	0.025	0.200	0.067
55	0.047	0.101	0.078	0.019	0.026	0.206	0.069
60	0.047	0.104	0.080	0.020	0.027	0.212	0.071

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 12:00:11

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 01 Eureka Way and Lower Springs Road
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	112	2.4	0.0	21.3
2. Y SB2	711	1201	745	1133	AG	10	5.7	0.0	21.3
3. Y SB3	745	1133	800	1025	AG	21	2.4	0.0	21.3
4. Y SB4	800	1025	858	906	AG	21	2.4	0.0	21.3
5. Y NB1	868	911	813	1024	AG	35	2.4	0.0	21.3
6. Y NB2	814	1024	761	1138	AG	31	5.7	0.0	21.3
7. Y NB3	761	1138	728	1205	AG	73	2.4	0.0	21.3
8. Y NB4	728	1205	700	1263	AG	73	2.4	0.0	21.3
9. Y LT1	720	1198	753	1134	AG	102	5.7	0.0	21.3
10. Y LT2	753	1134	802	1038	AG	4	5.7	0.0	21.3
11. X EB1	596	1103	682	1125	AG	630	2.4	0.0	27.4
12. X EB2	682	1125	750	1141	AG	588	5.7	0.0	27.4
13. X EB3	750	1141	826	1158	AG	690	2.4	0.0	27.4
14. X EB4	826	1158	923	1182	AG	690	2.4	0.0	27.4
15. X WB1	924	1170	832	1147	AG	519	2.4	0.0	27.4
16. X WB2	832	1147	757	1128	AG	508	5.7	0.0	27.4
17. X WB3	757	1128	687	1111	AG	512	2.4	0.0	27.4
18. X WB4	687	1111	599	1090	AG	512	2.4	0.0	27.4
19. X LT1	674	1115	753	1134	AG	42	5.7	0.0	27.4
20. X LT2	753	1134	841	1157	AG	11	5.7	0.0	27.4

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	306.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	104.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	52.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	230.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 12:00:11

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 9/25/2008 at 12:03:17

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 02 Eureka Way and Buenaventura
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	330	2.4	0.0	29.0
2. Y SB2	711	1201	745	1133	AG	167	5.7	0.0	29.0
3. Y SB3	745	1133	800	1025	AG	207	2.4	0.0	29.0
4. Y SB4	800	1025	858	906	AG	207	2.4	0.0	29.0
5. Y NB1	868	911	813	1024	AG	831	2.4	0.0	29.0
6. Y NB2	814	1024	761	1138	AG	488	5.7	0.0	29.0
7. Y NB3	761	1138	728	1205	AG	808	2.4	0.0	29.0
8. Y NB4	728	1205	700	1263	AG	808	2.4	0.0	29.0
9. Y LT1	720	1198	753	1134	AG	163	5.7	0.0	29.0
10. Y LT2	753	1134	802	1038	AG	343	5.7	0.0	29.0
11. X EB1	596	1103	682	1125	AG	1391	2.4	0.0	32.0
12. X EB2	682	1125	750	1141	AG	1071	5.7	0.0	32.0
13. X EB3	750	1141	826	1158	AG	1234	2.4	0.0	32.0
14. X EB4	826	1158	923	1182	AG	1234	2.4	0.0	32.0
15. X WB1	924	1170	832	1147	AG	858	2.4	0.0	32.0
16. X WB2	832	1147	757	1128	AG	818	5.7	0.0	32.0
17. X WB3	757	1128	687	1111	AG	1161	2.4	0.0	32.0
18. X WB4	687	1111	599	1090	AG	1161	2.4	0.0	32.0
19. X LT1	674	1115	753	1134	AG	320	5.7	0.0	32.0
20. X LT2	753	1134	841	1157	AG	40	5.7	0.0	32.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	295.	3.9	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
2. Recpt 2	121.	3.9	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3. Recpt 3	52.	3.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
4. Recpt 4	229.	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.1	0.0	0.0	0.0
2. Recpt 2	0.1	0.0	0.1	0.0
3. Recpt 3	0.0	0.0	0.0	0.0
4. Recpt 4	0.1	0.0	0.1	0.0

1

Run Ended on 9/25/2008 at 12:03:18

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 9/25/2008 at 14:35:19

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 03 Eureka-Sunset
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	3.4 PPM		
SIGTH=	5. DEGREES	TEMP=	4.4 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	6284	-181	6284	-246	AG	744	2.4	0.0	32.0
2. Link B	6284	-246	6284	-300	AG	696	5.7	0.0	32.0
3. Link C	6284	-300	6279	-453	AG	786	2.4	0.0	32.0
4. Link D	6297	-460	6298	-378	AG	1493	2.4	0.0	32.0
5. Link E	6298	-378	6298	-319	AG	1493	2.4	0.0	32.0
6. Link F	6298	-319	6297	-176	AG	1493	2.4	0.0	32.0
7. Link G	6284	-265	6300	-314	AG	48	5.7	0.0	32.0
8. Link H	6300	-314	6462	-325	AG	48	2.4	0.0	21.3
9. Link I	6523	-313	6380	-311	AG	132	2.4	0.0	21.3
10. Link J	6380	-311	6298	-301	AG	42	5.7	0.0	21.3
11. Link K	6370	-310	6284	-326	AG	90	5.7	0.0	21.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	6325	-280	1.7
2. Recpt 2	6315	-339	1.7
3. Recpt 3	6243	-327	1.7
4. Recpt 4	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	200.	3.7	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0

```
  2. Recpt 2  *  345. *   3.9 *  0.0  0.1  0.0  0.0  0.1  0.2  0.0  0.0
  3. Recpt 3  *   35. *   3.6 *  0.0  0.1  0.0  0.0  0.0  0.1  0.0  0.0
  4. Recpt 4  *  108. *   3.7 *  0.0  0.1  0.0  0.0  0.0  0.1  0.0  0.0


             *CONC/LINK
             *(PPM)
  RECEPTOR   *   9   10   11
------------*-------------------------------------------------
  1. Recpt 1  *  0.0  0.0  0.0
  2. Recpt 2  *  0.0  0.0  0.0
  3. Recpt 3  *  0.0  0.0  0.0
  4. Recpt 4  *  0.0  0.0  0.0
```

1

Run Ended on 9/25/2008 at 14:35:19

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 9/25/2008 at 14:38:20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 04 Eureka-Overhill
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	3.4 PPM		
SIGTH=	5. DEGREES	TEMP=	4.4 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	6284	-181	6284	-246	AG	753	2.4	0.0	27.4
2. Link B	6284	-246	6284	-300	AG	708	5.7	0.0	27.4
3. Link C	6284	-300	6279	-453	AG	794	2.4	0.0	27.4
4. Link D	6297	-460	6298	-378	AG	1042	2.4	0.0	27.4
5. Link E	6298	-378	6298	-319	AG	1042	2.4	0.0	27.4
6. Link F	6298	-319	6297	-176	AG	1042	2.4	0.0	27.4
7. Link G	6284	-265	6300	-314	AG	45	5.7	0.0	27.4
8. Link H	6300	-314	6462	-325	AG	45	2.4	0.0	21.3
9. Link I	6523	-313	6380	-311	AG	133	2.4	0.0	21.3
10. Link J	6380	-311	6298	-301	AG	47	5.7	0.0	21.3
11. Link K	6370	-310	6284	-326	AG	86	5.7	0.0	21.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	6325	-280	1.7
2. Recpt 2	6315	-339	1.7
3. Recpt 3	6243	-327	1.7
4. Recpt 4	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	200.	3.6	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0

```
 2. Recpt 2  *  343. *   3.8 *  0.0  0.1  0.0  0.0  0.0  0.2  0.0  0.0
 3. Recpt 3  *   36. *   3.6 *  0.0  0.1  0.0  0.0  0.0  0.1  0.0  0.0
 4. Recpt 4  *  107. *   3.6 *  0.0  0.1  0.0  0.0  0.0  0.1  0.0  0.0


            *CONC/LINK
            *(PPM)
 RECEPTOR   *   9   10   11
------------*-------------------------------------------------
 1. Recpt 1  *  0.0  0.0  0.0
 2. Recpt 2  *  0.0  0.0  0.0
 3. Recpt 3  *  0.0  0.0  0.0
 4. Recpt 4  *  0.0  0.0  0.0
```

1

Run Ended on 9/25/2008 at 14:38:20

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 9/25/2008 at 14:41:20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 05 Eureka-Almond
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	3.4 PPM		
SIGTH=	5. DEGREES	TEMP=	4.4 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	6284	-181	6284	-246	AG	827	2.4	0.0	32.0
2. Link B	6284	-246	6284	-300	AG	813	5.7	0.0	32.0
3. Link C	6284	-300	6279	-453	AG	826	2.4	0.0	32.0
4. Link D	6297	-460	6298	-378	AG	1329	2.4	0.0	32.0
5. Link E	6298	-378	6298	-319	AG	1329	2.4	0.0	32.0
6. Link F	6298	-319	6297	-176	AG	1329	2.4	0.0	32.0
7. Link G	6284	-265	6300	-314	AG	14	5.7	0.0	32.0
8. Link H	6300	-314	6462	-325	AG	14	2.4	0.0	21.3
9. Link I	6523	-313	6380	-311	AG	115	2.4	0.0	21.3
10. Link J	6380	-311	6298	-301	AG	102	5.7	0.0	21.3
11. Link K	6370	-310	6284	-326	AG	13	5.7	0.0	21.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	6325	-280	1.7
2. Recpt 2	6315	-339	1.7
3. Recpt 3	6243	-327	1.7
4. Recpt 4	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	200.	3.7	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0

```
 2. Recpt 2  *  345. *   3.8 *  0.0  0.1  0.0  0.0  0.1  0.2  0.0  0.0
 3. Recpt 3  *   35. *   3.6 *  0.0  0.1  0.0  0.0  0.0  0.1  0.0  0.0
 4. Recpt 4  *  106. *   3.7 *  0.0  0.1  0.0  0.0  0.0  0.1  0.0  0.0


            *CONC/LINK
            *(PPM)
 RECEPTOR   *   9   10   11
------------*-------------------------------------------------
 1. Recpt 1  *  0.0  0.0  0.0
 2. Recpt 2  *  0.0  0.0  0.0
 3. Recpt 3  *  0.0  0.0  0.0
 4. Recpt 4  *  0.0  0.0  0.0
```

1

Run Ended on 9/25/2008 at 14:41:20

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 9/25/2008 at 12:08:46

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 07 Eureka Way and Magnolia
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	254	2.4	0.0	21.3
2. Y SB2	711	1201	745	1133	AG	124	5.7	0.0	21.3
3. Y SB3	745	1133	800	1025	AG	160	2.4	0.0	21.3
4. Y SB4	800	1025	858	906	AG	160	2.4	0.0	21.3
5. Y NB1	868	911	813	1024	AG	68	2.4	0.0	21.3
6. Y NB2	814	1024	761	1138	AG	53	5.7	0.0	21.3
7. Y NB3	761	1138	728	1205	AG	111	2.4	0.0	21.3
8. Y NB4	728	1205	700	1263	AG	111	2.4	0.0	21.3
9. Y LT1	720	1198	753	1134	AG	130	5.7	0.0	21.3
10. Y LT2	753	1134	802	1038	AG	15	5.7	0.0	21.3
11. X EB1	596	1103	682	1125	AG	1440	2.4	0.0	27.4
12. X EB2	682	1125	750	1141	AG	1382	5.7	0.0	27.4
13. X EB3	750	1141	826	1158	AG	1512	2.4	0.0	27.4
14. X EB4	826	1158	923	1182	AG	1512	2.4	0.0	27.4
15. X WB1	924	1170	832	1147	AG	817	2.4	0.0	27.4
16. X WB2	832	1147	757	1128	AG	781	5.7	0.0	27.4
17. X WB3	757	1128	687	1111	AG	796	2.4	0.0	27.4
18. X WB4	687	1111	599	1090	AG	796	2.4	0.0	27.4
19. X LT1	674	1115	753	1134	AG	58	5.7	0.0	27.4
20. X LT2	753	1134	841	1157	AG	36	5.7	0.0	27.4

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	302.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	112.	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	1.	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	230.	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.1	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 12:08:46

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:46:27

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 08 Eureka-11th
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	3.4 PPM		
SIGTH=	5. DEGREES	TEMP=	4.4 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	6284	-181	6284	-246	AG	1074	2.4	0.0	27.4
2. Link B	6284	-246	6284	-300	AG	1065	5.7	0.0	27.4
3. Link C	6284	-300	6279	-453	AG	1070	2.4	0.0	27.4
4. Link D	6297	-460	6298	-378	AG	1335	2.4	0.0	27.4
5. Link E	6298	-378	6298	-319	AG	1335	2.4	0.0	27.4
6. Link F	6298	-319	6297	-176	AG	1335	2.4	0.0	27.4
7. Link G	6284	-265	6300	-314	AG	9	5.7	0.0	27.4
8. Link H	6300	-314	6462	-325	AG	9	2.4	0.0	21.3
9. Link I	6523	-313	6380	-311	AG	252	2.4	0.0	21.3
10. Link J	6380	-311	6298	-301	AG	247	5.7	0.0	21.3
11. Link K	6370	-310	6284	-326	AG	5	5.7	0.0	21.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	6325	-280	1.7
2. Recpt 2	6315	-339	1.7
3. Recpt 3	6243	-327	1.7
4. Recpt 4	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	201.	3.7	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0

```
  2. Recpt 2  *  343. *   3.9 *  0.1  0.1  0.0  0.0  0.1  0.2  0.0  0.0
  3. Recpt 3  *   35. *   3.7 *  0.0  0.2  0.0  0.0  0.0  0.1  0.0  0.0
  4. Recpt 4  *  106. *   3.7 *  0.0  0.2  0.0  0.0  0.0  0.1  0.0  0.0


             *CONC/LINK
             *(PPM)
  RECEPTOR   *   9   10   11
------------*-------------------------------------------------------
  1. Recpt 1  *  0.0  0.1  0.0
  2. Recpt 2  *  0.0  0.0  0.0
  3. Recpt 3  *  0.0  0.0  0.0
  4. Recpt 4  *  0.0  0.1  0.0


1

 Run Ended on  9/25/2008 at 14:46:28
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1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 12:13:23

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 09 Eureka Way and West
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	59	2.4	0.0	25.9
2. Y SB2	711	1201	745	1133	AG	7	5.7	0.0	25.9
3. Y SB3	745	1133	800	1025	AG	12	2.4	0.0	25.9
4. Y SB4	800	1025	858	906	AG	12	2.4	0.0	25.9
5. Y NB1	868	911	813	1024	AG	110	2.4	0.0	25.9
6. Y NB2	814	1024	761	1138	AG	94	5.7	0.0	25.9
7. Y NB3	761	1138	728	1205	AG	95	2.4	0.0	25.9
8. Y NB4	728	1205	700	1263	AG	95	2.4	0.0	25.9
9. Y LT1	720	1198	753	1134	AG	52	5.7	0.0	25.9
10. Y LT2	753	1134	802	1038	AG	16	5.7	0.0	25.9
11. X EB1	596	1103	682	1125	AG	1284	2.4	0.0	27.4
12. X EB2	682	1125	750	1141	AG	1283	5.7	0.0	27.4
13. X EB3	750	1141	826	1158	AG	1335	2.4	0.0	27.4
14. X EB4	826	1158	923	1182	AG	1335	2.4	0.0	27.4
15. X WB1	924	1170	832	1147	AG	1007	2.4	0.0	27.4
16. X WB2	832	1147	757	1128	AG	1002	5.7	0.0	27.4
17. X WB3	757	1128	687	1111	AG	1018	2.4	0.0	27.4
18. X WB4	687	1111	599	1090	AG	1018	2.4	0.0	27.4
19. X LT1	674	1115	753	1134	AG	1	5.7	0.0	27.4
20. X LT2	753	1134	841	1157	AG	5	5.7	0.0	27.4

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	301.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	113.	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	52.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	230.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
4. Recpt 4	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 12:13:23

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 12:19:34

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 10 Eureka Way and Court
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	400	2.4	0.0	21.3
2. Y SB2	711	1201	745	1133	AG	312	5.7	0.0	21.3
3. Y SB3	745	1133	800	1025	AG	596	2.4	0.0	21.3
4. Y SB4	800	1025	858	906	AG	596	2.4	0.0	21.3
5. Y NB1	868	911	813	1024	AG	1030	2.4	0.0	21.3
6. Y NB2	814	1024	761	1138	AG	600	5.7	0.0	21.3
7. Y NB3	761	1138	728	1205	AG	689	2.4	0.0	21.3
8. Y NB4	728	1205	700	1263	AG	689	2.4	0.0	21.3
9. Y LT1	720	1198	753	1134	AG	88	5.7	0.0	21.3
10. Y LT2	753	1134	802	1038	AG	430	5.7	0.0	21.3
11. X EB1	596	1103	682	1125	AG	1116	2.4	0.0	32.0
12. X EB2	682	1125	750	1141	AG	1027	5.7	0.0	32.0
13. X EB3	750	1141	826	1158	AG	1115	2.4	0.0	32.0
14. X EB4	826	1158	923	1182	AG	1115	2.4	0.0	32.0
15. X WB1	924	1170	832	1147	AG	1348	2.4	0.0	32.0
16. X WB2	832	1147	757	1128	AG	1064	5.7	0.0	32.0
17. X WB3	757	1128	687	1111	AG	1494	2.4	0.0	32.0
18. X WB4	687	1111	599	1090	AG	1494	2.4	0.0	32.0
19. X LT1	674	1115	753	1134	AG	89	5.7	0.0	32.0
20. X LT2	753	1134	841	1157	AG	284	5.7	0.0	32.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	294.	4.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
2. Recpt 2	117.	4.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3. Recpt 3	53.	4.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
4. Recpt 4	180.	4.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2
4. Recpt 4	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.1	0.0	0.0	0.0
2. Recpt 2	0.1	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 12:19:34

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:49:20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 11 Court-11th
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	3.4 PPM		
SIGTH=	5. DEGREES	TEMP=	4.4 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	6284	-181	6284	-246	AG	512	2.4	0.0	21.3
2. Link B	6284	-246	6284	-300	AG	475	5.7	0.0	21.3
3. Link C	6284	-300	6279	-453	AG	735	2.4	0.0	21.3
4. Link D	6297	-460	6298	-378	AG	536	2.4	0.0	21.3
5. Link E	6298	-378	6298	-319	AG	536	2.4	0.0	21.3
6. Link F	6298	-319	6297	-176	AG	536	2.4	0.0	21.3
7. Link G	6284	-265	6300	-314	AG	46	5.7	0.0	21.3
8. Link H	6300	-314	6462	-325	AG	46	2.4	0.0	21.3
9. Link I	6523	-313	6380	-311	AG	333	2.4	0.0	21.3
10. Link J	6380	-311	6298	-301	AG	73	5.7	0.0	21.3
11. Link K	6370	-310	6284	-326	AG	260	5.7	0.0	21.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	6325	-280	1.7
2. Recpt 2	6315	-339	1.7
3. Recpt 3	6243	-327	1.7
4. Recpt 4	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	200.	3.6	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0

```
  2. Recpt 2  *  339. *   3.7 *  0.0  0.1  0.0  0.0  0.0  0.1  0.0  0.0
  3. Recpt 3  *   85. *   3.7 *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
  4. Recpt 4  *  108. *   3.6 *  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.0


             *CONC/LINK
             *(PPM)
  RECEPTOR   *   9   10   11
------------*-------------------------------------------------
  1. Recpt 1  *  0.0  0.0  0.0
  2. Recpt 2  *  0.0  0.0  0.1
  3. Recpt 3  *  0.0  0.0  0.1
  4. Recpt 4  *  0.0  0.0  0.0
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1

Run Ended on 9/25/2008 at 14:49:20

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:05:09

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 13 Eureka Way and Market
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	1141	2.4	0.0	21.3
2. Y SB2	711	1201	745	1133	AG	1141	5.7	0.0	21.3
3. Y SB3	745	1133	800	1025	AG	1208	2.4	0.0	21.3
4. Y SB4	800	1025	858	906	AG	1208	2.4	0.0	21.3
5. Y NB1	868	911	813	1024	AG	0	2.4	0.0	21.3
6. Y NB2	814	1024	761	1138	AG	0	5.7	0.0	21.3
7. Y NB3	761	1138	728	1205	AG	508	2.4	0.0	21.3
8. Y NB4	728	1205	700	1263	AG	508	2.4	0.0	21.3
9. Y LT1	720	1198	753	1134	AG	0	5.7	0.0	21.3
10. Y LT2	753	1134	802	1038	AG	0	5.7	0.0	21.3
11. X EB1	596	1103	682	1125	AG	1095	2.4	0.0	22.9
12. X EB2	682	1125	750	1141	AG	587	5.7	0.0	22.9
13. X EB3	750	1141	826	1158	AG	587	2.4	0.0	22.9
14. X EB4	826	1158	923	1182	AG	587	2.4	0.0	22.9
15. X WB1	924	1170	832	1147	AG	1790	2.4	0.0	22.9
16. X WB2	832	1147	757	1128	AG	1723	5.7	0.0	22.9
17. X WB3	757	1128	687	1111	AG	1723	2.4	0.0	22.9
18. X WB4	687	1111	599	1090	AG	1723	2.4	0.0	22.9
19. X LT1	674	1115	753	1134	AG	508	5.7	0.0	22.9
20. X LT2	753	1134	841	1157	AG	67	5.7	0.0	22.9

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	308.	3.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	105.	4.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	3.	4.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	230.	3.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
2. Recpt 2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
3. Recpt 3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.1	0.0	0.1	0.0
4. Recpt 4	0.1	0.0	0.1	0.0

1

Run Ended on 9/25/2008 at 14:05:09

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:08:54

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 14 Shasta and Court
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	963	2.4	0.0	21.3
2. Y SB2	711	1201	745	1133	AG	839	5.7	0.0	21.3
3. Y SB3	745	1133	800	1025	AG	1139	2.4	0.0	21.3
4. Y SB4	800	1025	858	906	AG	1139	2.4	0.0	21.3
5. Y NB1	868	911	813	1024	AG	827	2.4	0.0	21.3
6. Y NB2	814	1024	761	1138	AG	811	5.7	0.0	21.3
7. Y NB3	761	1138	728	1205	AG	843	2.4	0.0	21.3
8. Y NB4	728	1205	700	1263	AG	843	2.4	0.0	21.3
9. Y LT1	720	1198	753	1134	AG	124	5.7	0.0	21.3
10. Y LT2	753	1134	802	1038	AG	16	5.7	0.0	21.3
11. X EB1	596	1103	682	1125	AG	262	2.4	0.0	24.4
12. X EB2	682	1125	750	1141	AG	230	5.7	0.0	24.4
13. X EB3	750	1141	826	1158	AG	354	2.4	0.0	24.4
14. X EB4	826	1158	923	1182	AG	354	2.4	0.0	24.4
15. X WB1	924	1170	832	1147	AG	1005	2.4	0.0	24.4
16. X WB2	832	1147	757	1128	AG	705	5.7	0.0	24.4
17. X WB3	757	1128	687	1111	AG	721	2.4	0.0	24.4
18. X WB4	687	1111	599	1090	AG	721	2.4	0.0	24.4
19. X LT1	674	1115	753	1134	AG	32	5.7	0.0	24.4
20. X LT2	753	1134	841	1157	AG	300	5.7	0.0	24.4

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	307.	3.9	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
2. Recpt 2	103.	3.9	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
3. Recpt 3	52.	3.9	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
4. Recpt 4	179.	3.9	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.1

1

Run Ended on 9/25/2008 at 14:08:55

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:11:57

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 15 Shasta and Market
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	1364	2.4	0.0	21.3
2. Y SB2	711	1201	745	1133	AG	1364	5.7	0.0	21.3
3. Y SB3	745	1133	800	1025	AG	1862	2.4	0.0	21.3
4. Y SB4	800	1025	858	906	AG	1862	2.4	0.0	21.3
5. Y NB1	868	911	813	1024	AG	0	2.4	0.0	21.3
6. Y NB2	814	1024	761	1138	AG	0	5.7	0.0	21.3
7. Y NB3	761	1138	728	1205	AG	0	2.4	0.0	21.3
8. Y NB4	728	1205	700	1263	AG	0	2.4	0.0	21.3
9. Y LT1	720	1198	753	1134	AG	0	5.7	0.0	21.3
10. Y LT2	753	1134	802	1038	AG	0	5.7	0.0	21.3
11. X EB1	596	1103	682	1125	AG	378	2.4	0.0	24.4
12. X EB2	682	1125	750	1141	AG	378	5.7	0.0	24.4
13. X EB3	750	1141	826	1158	AG	378	2.4	0.0	24.4
14. X EB4	826	1158	923	1182	AG	378	2.4	0.0	24.4
15. X WB1	924	1170	832	1147	AG	1410	2.4	0.0	24.4
16. X WB2	832	1147	757	1128	AG	912	5.7	0.0	24.4
17. X WB3	757	1128	687	1111	AG	912	2.4	0.0	24.4
18. X WB4	687	1111	599	1090	AG	912	2.4	0.0	24.4
19. X LT1	674	1115	753	1134	AG	0	5.7	0.0	24.4
20. X LT2	753	1134	841	1157	AG	498	5.7	0.0	24.4

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	309.	3.8	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	100.	3.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	51.	3.9	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	179.	3.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.1

1

Run Ended on 9/25/2008 at 14:11:59

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:14:56

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 21 Placer and Court
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S
BRG= WORST CASE
CLAS= 7 (G)
MIXH= 1000. M
SIGTH= 20. DEGREES
Z0= 100. CM
VD= 0.0 CM/S
VS= 0.0 CM/S
AMB= 3.4 PPM
TEMP= 15.0 DEGREE (C)
ALT= 0. (M)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	732	2.4	0.0	24.4
2. Y SB2	711	1201	745	1133	AG	714	5.7	0.0	24.4
3. Y SB3	745	1133	800	1025	AG	757	2.4	0.0	24.4
4. Y SB4	800	1025	858	906	AG	757	2.4	0.0	24.4
5. Y NB1	868	911	813	1024	AG	519	2.4	0.0	24.4
6. Y NB2	814	1024	761	1138	AG	382	5.7	0.0	24.4
7. Y NB3	761	1138	728	1205	AG	538	2.4	0.0	24.4
8. Y NB4	728	1205	700	1263	AG	538	2.4	0.0	24.4
9. Y LT1	720	1198	753	1134	AG	18	5.7	0.0	24.4
10. Y LT2	753	1134	802	1038	AG	137	5.7	0.0	24.4
11. X EB1	596	1103	682	1125	AG	836	2.4	0.0	24.4
12. X EB2	682	1125	750	1141	AG	680	5.7	0.0	24.4
13. X EB3	750	1141	826	1158	AG	698	2.4	0.0	24.4
14. X EB4	826	1158	923	1182	AG	698	2.4	0.0	24.4
15. X WB1	924	1170	832	1147	AG	805	2.4	0.0	24.4
16. X WB2	832	1147	757	1128	AG	762	5.7	0.0	24.4
17. X WB3	757	1128	687	1111	AG	899	2.4	0.0	24.4
18. X WB4	687	1111	599	1090	AG	899	2.4	0.0	24.4
19. X LT1	674	1115	753	1134	AG	156	5.7	0.0	24.4
20. X LT2	753	1134	841	1157	AG	43	5.7	0.0	24.4

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	302.	3.8	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
2. Recpt 2	109.	3.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	3.	3.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	229.	3.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.1	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 14:14:56

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:18:39

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 22 Placer and Airpark
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	14	2.4	0.0	18.3
2. Y SB2	711	1201	745	1133	AG	9	5.7	0.0	18.3
3. Y SB3	745	1133	800	1025	AG	134	2.4	0.0	18.3
4. Y SB4	800	1025	858	906	AG	134	2.4	0.0	18.3
5. Y NB1	868	911	813	1024	AG	623	2.4	0.0	18.3
6. Y NB2	814	1024	761	1138	AG	256	5.7	0.0	18.3
7. Y NB3	761	1138	728	1205	AG	262	2.4	0.0	18.3
8. Y NB4	728	1205	700	1263	AG	262	2.4	0.0	18.3
9. Y LT1	720	1198	753	1134	AG	5	5.7	0.0	18.3
10. Y LT2	753	1134	802	1038	AG	367	5.7	0.0	18.3
11. X EB1	596	1103	682	1125	AG	711	2.4	0.0	18.3
12. X EB2	682	1125	750	1141	AG	705	5.7	0.0	18.3
13. X EB3	750	1141	826	1158	AG	710	2.4	0.0	18.3
14. X EB4	826	1158	923	1182	AG	710	2.4	0.0	18.3
15. X WB1	924	1170	832	1147	AG	1233	2.4	0.0	18.3
16. X WB2	832	1147	757	1128	AG	1108	5.7	0.0	18.3
17. X WB3	757	1128	687	1111	AG	1475	2.4	0.0	18.3
18. X WB4	687	1111	599	1090	AG	1475	2.4	0.0	18.3
19. X LT1	674	1115	753	1134	AG	6	5.7	0.0	18.3
20. X LT2	753	1134	841	1157	AG	125	5.7	0.0	18.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	293.	3.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
2. Recpt 2	118.	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	51.	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	179.	3.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
4. Recpt 4	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.1	0.0	0.0	0.0
2. Recpt 2	0.1	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 14:18:39

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:22:40

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 24 Placer and Buenaventura
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	3.4 PPM		
SIGTH=	20. DEGREES	TEMP=	15.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	820	2.4	0.0	27.4
2. Y SB2	711	1201	745	1133	AG	584	5.7	0.0	27.4
3. Y SB3	745	1133	800	1025	AG	891	2.4	0.0	27.4
4. Y SB4	800	1025	858	906	AG	891	2.4	0.0	27.4
5. Y NB1	868	911	813	1024	AG	620	2.4	0.0	27.4
6. Y NB2	814	1024	761	1138	AG	383	5.7	0.0	27.4
7. Y NB3	761	1138	728	1205	AG	483	2.4	0.0	27.4
8. Y NB4	728	1205	700	1263	AG	483	2.4	0.0	27.4
9. Y LT1	720	1198	753	1134	AG	236	5.7	0.0	27.4
10. Y LT2	753	1134	802	1038	AG	237	5.7	0.0	27.4
11. X EB1	596	1103	682	1125	AG	535	2.4	0.0	27.4
12. X EB2	682	1125	750	1141	AG	435	5.7	0.0	27.4
13. X EB3	750	1141	826	1158	AG	671	2.4	0.0	27.4
14. X EB4	826	1158	923	1182	AG	671	2.4	0.0	27.4
15. X WB1	924	1170	832	1147	AG	1283	2.4	0.0	27.4
16. X WB2	832	1147	757	1128	AG	978	5.7	0.0	27.4
17. X WB3	757	1128	687	1111	AG	1213	2.4	0.0	27.4
18. X WB4	687	1111	599	1090	AG	1213	2.4	0.0	27.4
19. X LT1	674	1115	753	1134	AG	100	5.7	0.0	27.4
20. X LT2	753	1134	841	1157	AG	307	5.7	0.0	27.4

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	307.	3.9	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
2. Recpt 2	104.	3.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	52.	3.9	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
4. Recpt 4	179.	3.9	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
4. Recpt 4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.1

1

Run Ended on 9/25/2008 at 14:22:41

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:25:49

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 25 Lakeside and Buenaventura
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	926	2.4	0.0	27.4
2. Y SB2	711	1201	745	1133	AG	914	5.7	0.0	27.4
3. Y SB3	745	1133	800	1025	AG	917	2.4	0.0	27.4
4. Y SB4	800	1025	858	906	AG	917	2.4	0.0	27.4
5. Y NB1	868	911	813	1024	AG	671	2.4	0.0	27.4
6. Y NB2	814	1024	761	1138	AG	626	5.7	0.0	27.4
7. Y NB3	761	1138	728	1205	AG	701	2.4	0.0	27.4
8. Y NB4	728	1205	700	1263	AG	701	2.4	0.0	27.4
9. Y LT1	720	1198	753	1134	AG	12	5.7	0.0	27.4
10. Y LT2	753	1134	802	1038	AG	45	5.7	0.0	27.4
11. X EB1	596	1103	682	1125	AG	105	2.4	0.0	18.3
12. X EB2	682	1125	750	1141	AG	30	5.7	0.0	18.3
13. X EB3	750	1141	826	1158	AG	42	2.4	0.0	18.3
14. X EB4	826	1158	923	1182	AG	42	2.4	0.0	18.3
15. X WB1	924	1170	832	1147	AG	30	2.4	0.0	18.3
16. X WB2	832	1147	757	1128	AG	27	5.7	0.0	18.3
17. X WB3	757	1128	687	1111	AG	72	2.4	0.0	18.3
18. X WB4	687	1111	599	1090	AG	72	2.4	0.0	18.3
19. X LT1	674	1115	753	1134	AG	75	5.7	0.0	18.3
20. X LT2	753	1134	841	1157	AG	3	5.7	0.0	18.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	305.	3.7	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
2. Recpt 2	119.	3.7	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
3. Recpt 3	3.	3.7	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	178.	3.6	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 14:25:50

1 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 9/25/2008 at 14:28:22

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 26 SR-299 and Project Driveway
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.4 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	684	1256	711	1201	AG	71	2.4	0.0	27.4
2. Y SB2	711	1201	745	1133	AG	5	5.7	0.0	27.4
3. Y SB3	745	1133	800	1025	AG	5	2.4	0.0	27.4
4. Y SB4	800	1025	858	906	AG	5	2.4	0.0	27.4
5. Y NB1	868	911	813	1024	AG	0	2.4	0.0	27.4
6. Y NB2	814	1024	761	1138	AG	0	5.7	0.0	27.4
7. Y NB3	761	1138	728	1205	AG	9	2.4	0.0	27.4
8. Y NB4	728	1205	700	1263	AG	9	2.4	0.0	27.4
9. Y LT1	720	1198	753	1134	AG	66	5.7	0.0	27.4
10. Y LT2	753	1134	802	1038	AG	0	5.7	0.0	27.4
11. X EB1	596	1103	682	1125	AG	642	2.4	0.0	18.3
12. X EB2	682	1125	750	1141	AG	633	5.7	0.0	18.3
13. X EB3	750	1141	826	1158	AG	699	2.4	0.0	18.3
14. X EB4	826	1158	923	1182	AG	699	2.4	0.0	18.3
15. X WB1	924	1170	832	1147	AG	736	2.4	0.0	18.3
16. X WB2	832	1147	757	1128	AG	736	5.7	0.0	18.3
17. X WB3	757	1128	687	1111	AG	736	2.4	0.0	18.3
18. X WB4	687	1111	599	1090	AG	736	2.4	0.0	18.3
19. X LT1	674	1115	753	1134	AG	9	5.7	0.0	18.3
20. X LT2	753	1134	841	1157	AG	0	5.7	0.0	18.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	805	1099	1.8
2. Recpt 2	691	1157	1.8
3. Recpt 3	729	1093	1.8
4. Recpt 4	778	1179	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) 1	2	3	4	5	6	7	8
1. Recpt 1	303.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	104.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	51.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	229.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 9	10	11	12	13	14	15	16
1. Recpt 1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
2. Recpt 2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
3. Recpt 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4. Recpt 4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) 17	18	19	20
1. Recpt 1	0.0	0.0	0.0	0.0
2. Recpt 2	0.0	0.0	0.0	0.0
3. Recpt 3	0.0	0.0	0.0	0.0
4. Recpt 4	0.0	0.0	0.0	0.0

1

Run Ended on 9/25/2008 at 14:28:22

Construction Emissions

Year 2011

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	1	101	0.0026	0.0144	3.636	0.0000936	0.000518
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 58

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Generator Set	61.0	0.0016	0.0089	8	1	61.0	0.0016	0.0089	14.152	0.0003712	0.002065
Welders	119.1	0.0095	0.0031	8	3	357.3	0.0285	0.0093	82.8936	0.006612	0.002158
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	212.0248	0.0156832	0.010405

Total Emissions for Year 2011 Construction	323.79	0.02	0.03

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2012

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	8	1	123.9	0.0032	0.0157	11.8944	0.0003072	0.001507
Rubber Tired Dozer	264.9	0.0069	0.0326	8	1	264.9	0.0069	0.0326	25.4304	0.0006624	0.00313
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	53.6772	0.001404	0.006823

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	2	202	0.0052	0.0288	7.272	0.0001872	0.001037
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 58

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Generator Set	61.0	0.0016	0.0089	8	1	61.0	0.0016	0.0089	14.152	0.0003712	0.002065
Welders	119.1	0.0095	0.0031	8	3	357.3	0.0285	0.0093	82.8936	0.006612	0.002158
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	212.0248	0.0156832	0.010405

Total Emissions for Year 2012Construction	333.12	0.02	0.03

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2013

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	1	101	0.0026	0.0144	3.636	0.0000936	0.000518
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 56

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	114.9792	0.0087	0.006183

Total Emissions for Year 2013 Construction	226.75	0.01	0.03

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2014

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	1	101	0.0026	0.0144	3.636	0.0000936	0.000518
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 58

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Generator Set	61.0	0.0016	0.0089	8	1	61.0	0.0016	0.0089	14.152	0.0003712	0.002065
Welders	119.1	0.0095	0.0031	8	3	357.3	0.0285	0.0093	82.8936	0.006612	0.002158
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	212.0248	0.0156832	0.010405

Total Emissions for Year 2014 Construction	323.79	0.02	0.03

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2015

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	1	101	0.0026	0.0144	3.636	0.0000936	0.000518
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 58

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Generator Set	61.0	0.0016	0.0089	8	1	61.0	0.0016	0.0089	14.152	0.0003712	0.002065
Welders	119.1	0.0095	0.0031	8	3	357.3	0.0285	0.0093	82.8936	0.006612	0.002158
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	212.0248	0.0156832	0.010405

Total Emissions for Year 2015 Construction	323.79	0.02	0.03

Notes:
Construction Equipment Emission Factor Source: Provided by SCAQMD.
Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2016

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	1	101	0.0026	0.0144	3.636	0.0000936	0.000518
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 58

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Generator Set	61.0	0.0016	0.0089	8	1	61.0	0.0016	0.0089	14.152	0.0003712	0.002065
Welders	119.1	0.0095	0.0031	8	3	357.3	0.0285	0.0093	82.8936	0.006612	0.002158
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	212.0248	0.0156832	0.010405

Total Emissions for Year 2016 Construction	323.79	0.02	0.03

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2017

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	1	101	0.0026	0.0144	3.636	0.0000936	0.000518
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 58

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Generator Set	61.0	0.0016	0.0089	8	1	61.0	0.0016	0.0089	14.152	0.0003712	0.002065
Welders	119.1	0.0095	0.0031	8	3	357.3	0.0285	0.0093	82.8936	0.006612	0.002158
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	212.0248	0.0156832	0.010405

Total Emissions for Year 2017 Construction	323.79	0.02	0.03

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2016

Demolition

Duration (days): 21

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	6	2	103.4	0.0028	0.0164	6.5142	0.0001764	0.001033
Concrete/Industrial Saw	74.1	0.0019	0.0121	8	1	74.1	0.0019	0.0121	6.2244	0.0001596	0.001016
Rubber Tired Dozer	264.9	0.0069	0.0326	1	1	264.9	0.0069	0.0326	2.78145	0.00007245	0.000342
								Total Emissions for Demolition	15.52005	0.00040845	0.002392

Mass Grading

Duration (days): 24

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Fine Grading

Duration (days): 11

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Grader	123.9	0.0032	0.0157	6	1	123.9	0.0032	0.0157	8.9208	0.0002304	0.00113
Rubber Tired Dozer	264.9	0.0069	0.0326	6	1	264.9	0.0069	0.0326	19.0728	0.0004968	0.002347
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	4.3428	0.0001176	0.000689
Water Truck	125.1	0.0033	0.0156	8	1	125.1	0.0033	0.0156	12.0096	0.0003168	0.001498
								Total Emissions for Mass Grading	44.346	0.0011616	0.005664

Paving

Duration (days): 12

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Cement and Mortar Mixers	7.2	0.0002	0.0009	6	4	28.8	0.0008	0.0036	1.0368	0.0000288	0.00013
Paving Equipment	101	0.0026	0.0144	6	1	101	0.0026	0.0144	3.636	0.0000936	0.000518
Paver	69.2	0.0018	0.0148	7	1	69.2	0.0018	0.0148	2.9064	0.0000756	0.000622
Tractors/Loaders/Backhoes	51.7	0.0014	0.0082	7	1	51.7	0.0014	0.0082	2.1714	0.0000588	0.000344
Roller	59	0.0015	0.108	7	1	59	0.0015	0.108	2.478	0.000063	0.004536
								Total Emissions for Paving	7.5558	0.0001974	0.005502

Building Construction

Duration (days): 58

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	N_2O	CH_4			CO_2	N_2O	CH_4	CO_2	N_2O	CH_4
Crane	180.1	0.0047	0.0164	4	1	180.1	0.0047	0.0164	20.8916	0.0005452	0.001902
Forklift	56.1	0.0015	0.0067	6	2	112.2	0.003	0.0134	19.5228	0.000522	0.002332
Generator Set	61.0	0.0016	0.0089	8	1	61.0	0.0016	0.0089	14.152	0.0003712	0.002065
Welders	119.1	0.0095	0.0031	8	3	357.3	0.0285	0.0093	82.8936	0.006612	0.002158
Tractor/Loader/Backhoe	321.4	0.0329	0.0084	8	1	321.4	0.0329	0.0084	74.5648	0.0076328	0.001949
								Total Emissions for Building Construction	212.0248	0.0156832	0.010405

Total Emissions for Year 2016 Construction	323.79	0.02	0.03

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Emissions From Natural Gas Consumed By Land Uses

Land Use	*Amount*	Cubic feet per unit/square feet/customer per month	*CO* 2.00E+01	*ROG* 5.30E+00	*NO_X* *Residential* 8.00E+01	*NO_X* *Non-Residential* 1.20E+02	*SO_X* negligible	*PM_{10}* 2.00E-01	*CO_2* 1.2E-07	*N_2O* 2.20E-12	*CH_4* 2.30E-12
Residential											
Single Family Units	344	6665	1.53	0.41	6.11	9.17	--	0.02	0.00	0.00	0.00
Multi-Family Units	96	4011.5	0.26	0.07	1.03	1.54	--	0.00	0.00	0.00	0.00
NonResidential											
Indutsrial		241611	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Hotel/Motel		4.8	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Retail/Shopping Center		2.9	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Office		2	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Blank			0.00	0.00	0.00		--	0.00	0.00	0.00	0.00
TOTAL - pounds per day	--	--	**1.79E+00**	**4.73E-01**	**7.14E+00**	**1.07E+01**	--	**1.79E-02**	**0.00**	**0.00**	**0.00**
TOTAL - tons per year	--	--	**3.26E-01**	**8.63E-02**	**1.30E+00**	**1.95E+00**	--	**3.26E-03**	**0.0000**	**0.0000**	**0.0000**

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993, Table A9-12.

Emissions From Electricity Consumed By Land Uses

Land Use	*Amount*	kilowatt-hours per year[1]	*CO* 2.00E-04	*ROG* 1.00E-05	*NO_X* 1.15E-03	*SO_X* 1.20E-04	*PM_{10}* 4.00E-05	*CO_2* 0.772	*N_2O* 6.59E-06	*CH_4* 4.04E-05
Residential (Dwelling Units)	440	5626.5	1.36	0.07	7.80	0.81	0.27	5,236.19	0.04	0.27
Food Store (SF)		53.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restaurant (SF)		47.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hospitals (SF)		21.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail (SF)		13.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
College/University (SF)		11.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High School (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elementary School (SF)		5.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Office (SF)		12.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hotel/Motel (SF)		9.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehouse (SF)		4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blank			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL - pounds per day	--	--	**1.36E-03**	**6.78E-02**	**7.80E+00**	**8.14E-01**	**2.71E-01**	**5,236.19**	**0.04**	**0.27**
TOTAL - tons per year	--	--	**2.48E-04**	**1.24E-02**	**1.42E+00**	**1.49E-01**	**4.95E-02**	**955.60**	**0.01**	**0.05**

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993, Table A9-11.

Source for greenhouse gas emissions rates:

U.S. Energy Information Administration, *Domestic Electricity Emissions Factors 1999-2002*, October 2007. http://www.eia.doe.gov/oiaf/1605/techassist.html

Water Consumption Indirect Emissions

	Acre Feet per year	Electricity Usage kwh/year		CO	ROG	NO_x	SO_x	PM_{10}	CO_2	N_2O	CH_4
				2.00E-04	1.00E-05	1.15E-03	1.20E-04	4.00E-05	0.772	6.59E-06	4.04E-05
Project Demand	385	1,472,240	pounds/yr	2.94E+02	1.47E+01	1.69E+03	1.77E+02	5.89E+01	1.14E+05	9.70E+00	5.94E+01
			Tons/yr	1.47E-01	7.36E-03	8.47E-01	8.83E-02	2.94E-02	5.68E+02	4.85E-03	2.97E-02

Energy Factor 3,824 kWh/acre-foot

Domestic Electricity Emission Factors, 1999-2002

Region	Emission Inventory[a]			Emission Reductions (metric tons CO2e/MWh)	
	CO2 (metric tons/MWh)	CH4 (kg/MWh)	N2O (kg/MWh)	Avoided Emissions[b]	Indirect Emissions[c]
(1) New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire and Maine	0.466	0.02647	0.00616	0.744	0.793
(2) New Jersey, Delaware, Pennsylvania, Maryland, West Virginia, Ohio, Indiana and Michigan	0.782	0.01404	0.01281	0.900	1.002
(3) Illinois and Wisconsin	0.638	0.01231	0.01048	0.900	1.151
(4) Missouri, Kentucky, Virginia, Arkansas, Tennessee, North Carolina, South Carolina, Louisiana, Mississippi, Alabama and Georgia	0.690	0.02556	0.01283	0.900	1.005
(5) Florida	0.678	0.02437	0.00856	0.788	0.840
(6) Texas	0.730	0.01351	0.00774	0.782	0.833
(7) Oklahoma and Kansas	0.867	0.01315	0.01236	0.900	0.990
(8) North Dakota, South Dakota, Nebraska, Minnesota and Iowa	0.875	0.01392	0.01414	0.900	1.160
(9) Colorado, Utah, Nevada, Wyoming and Montana	0.909	0.01158	0.01377	0.900	1.009
(10) New Mexico and Arizona	0.658	0.00762	0.00941	0.900	0.970
(11) Oregon, Washington and Idaho	0.147	0.01345	0.00337	0.781	0.833
(12) California	0.350	0.01831	0.00299	0.618	0.659
(13) Hawaii	0.858	0.03443	0.00777	0.849	0.905
(14) Alaska	0.749	0.01163	0.00461	0.859	0.916
(15) U.S. Territories	0.858	0.03443	0.00777	0.849	0.905
U.S. Average	0.676	0.01815	0.01053	0.900	0.959

[a] Emission Inventory Electricity Emission Factors based on average emissions intensity of total electric sector generation for specified state-based region, including transmission and distribution (T&D) losses incurred in delivering electricity to point of use.

[b] Avoided Emissions Benchmark Emission Factors based on average emissions intensity of fossil-fired generation for specified state-based region, but no higher than 0.9 metric tons of CO2 equivalent per MWh. Note that the Avoided Emissions Benchmark does not include (T&D) losses.

[c] Indirect Emission Reductions Emission Factors for reduced purchases of electricity based on average emissions intensity of fossil-fired generation for specified state-based region, including transmission and distribution (T&D) losses incurred in delivering electricity to point of use.

Source: U.S. Energy Information Administration, October, 2007

Appendix 15.6
Biological Resources Assessments

SALT CREEK ESTATE HEIGHTS PROJECT

Biological Resources Report

Prepared for
City of Redding

On behalf of
Sierra Pacific Industries

April 2009

SALT CREEK HEIGHTS PROJECT

Biological Resources Report

Prepared for
City of Redding

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Biological Resources Report

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SALT CREEK HEIGHTS PROJECT
Biological Resources Report

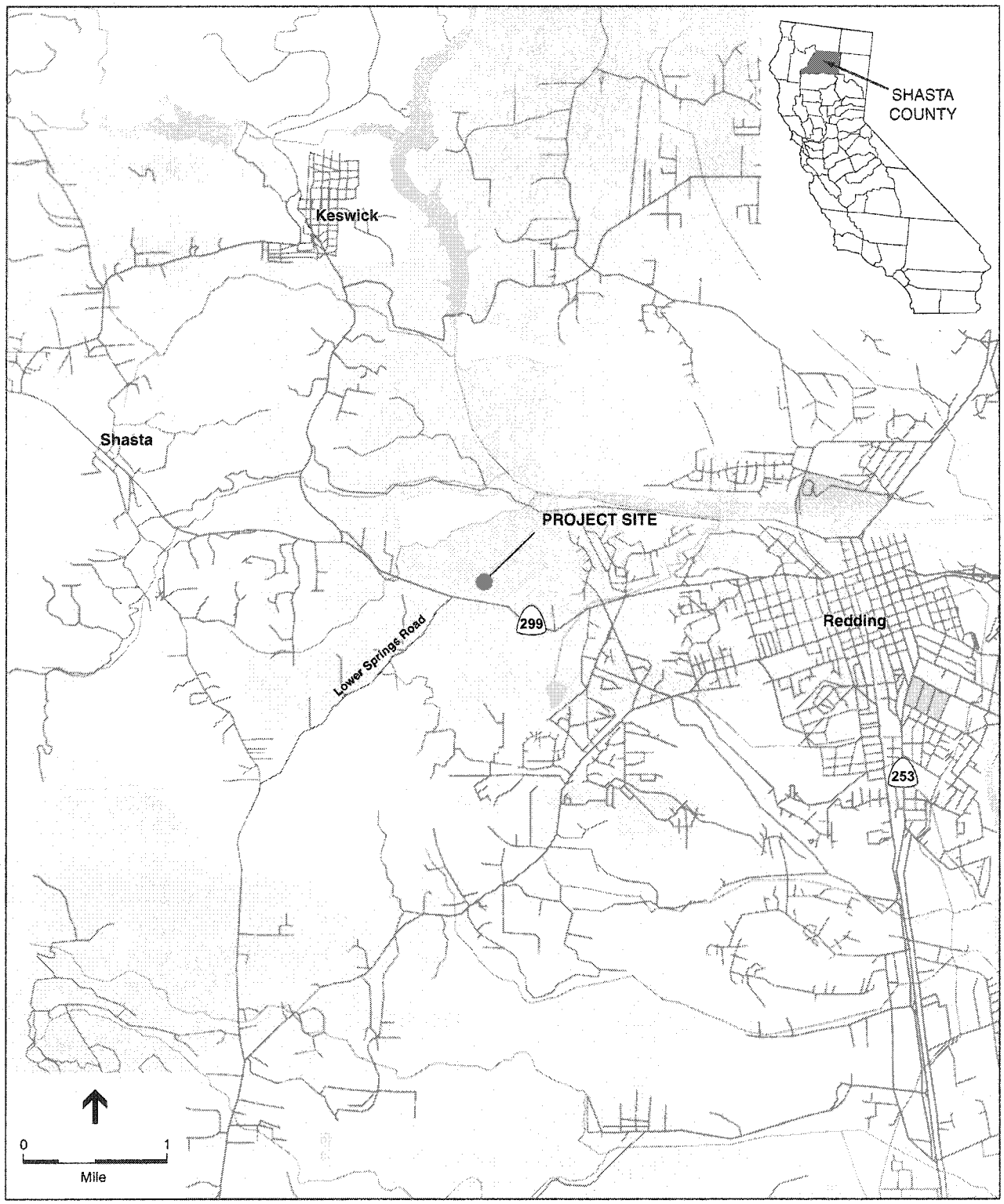
Introduction

This Biological Resources Report has been prepared to identify biological resources (including special status species and habitats) within the proposed Salt Creek Heights residential development (project) area that could be affected by development. The first step in identifying potential constraints is becoming familiar with the environmental setting (existing conditions) of the project area. California Environmental Quality Act (CEQA) *Guidelines* Section 15125 requires a "description of the environment in the vicinity of the project, from both a local and regional perspective." ESA's approach to the project was to familiarize the project team with the approximately 294-acre parcel in the western portion of the City of Redding in Shasta County, California (**Figure 1**). In order to create a reference point for assessing the biological constraints of the proposed project, this document includes information about the regional, local, and regulatory setting pertaining to the proposed project.

Existing Environment

As described above, the project area is located within the western portion of the City of Redding in Shasta County. This location corresponds to Township 32N, Range 5W, Sections 28, 32, and 33 of the Redding U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS, 1980), latitude 040° 35' 13.0", longitude 122° 26' 38.0" (**Figure 2**). The project area is approximately 294 acres in size with electric utility corridors crossing the study area. Study area topography varies from a nearly flat terrace at the center of the site, to moderately steep to very-steep canyons.

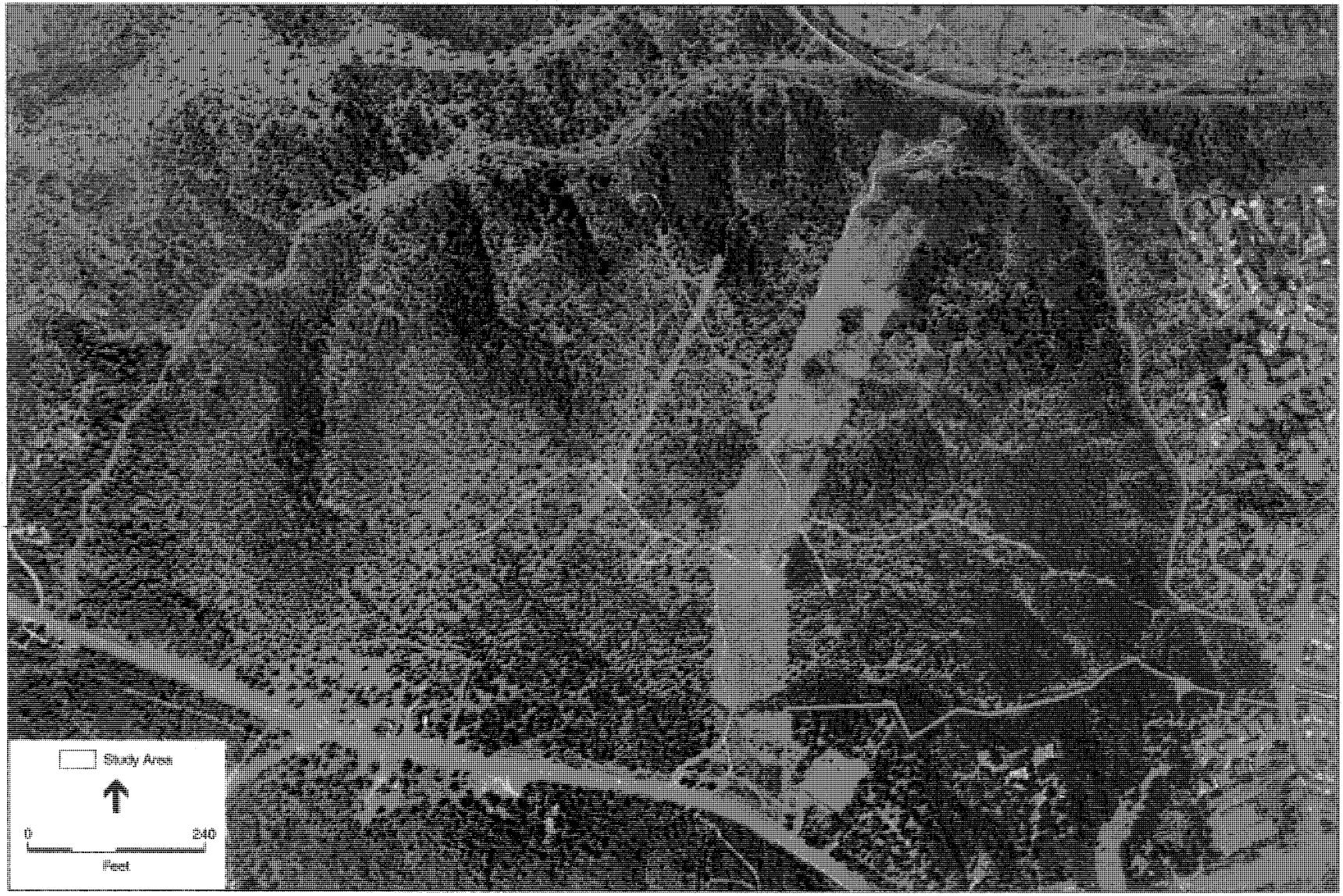
The study area is located in the Northern California Interior Coast Ranges ecological region, Tehama Terraces subsection (USDA, 1997). The Northern California Interior Coast Ranges consists of mountains, hills, and terraces in the northern Coast Ranges of California and north end of the Sacramento Valley. The study area is located in the northern portion of the Northern California Interior Coast Ranges, in the Tehama Terraces. The Tehama Terraces consists of a dissected plain between the hills to the west and the western margin of the Central Valley. Elevation within the project area ranges from 520 to 740 feet above mean sea level. The climate is hot and subhumid with 39 inches of average annual precipitation. Mean maximum temperature is approximately 76 degrees Fahrenheit (° F) and mean minimum temperature is approximately 52° F (Western Regional Climate Center, 2007).



SOURCE: DeLorme Street Atlas USA, 2001; and ESA, 2007

Salt Creek Heights Biological Resources Report . 206134

Figure 1
Regional Locator Map



SOURCE: Globexplorer, 2006; SPI, 2007; and ESA, 2007

Figure 2
Study Area

Land-use immediately surrounding the project area is characterized by low density developed areas. The only current land use within the study area is electric utility corridors, with several utility maintenance roads crossing the study area.

Within the study area, terrain varies from a nearly flat terrace at the center of the site, to moderately steep to very-steep canyons. At the landscape level, the topography consists of incised canyons that slope to the northeast towards the Sacramento River. The hydrology in the study area has been highly altered due to past mining activities.

Habitats occurring within and adjacent to the study area include annual grassland, mixed chaparral, blue oak woodland, open water, riparian wetland, and seasonal wetland.

Data Sources and Study Methods

Biological resources within the project area were identified by ESA biologists through field reconnaissance, a review of pertinent literature, and database queries. The primary sources of data referenced for this report included the following:

- "Federal Endangered and Threatened Species that may be Affected by Projects in the *Redding, California* 7.5-Minute Topographic Quadrangles" (U.S. Fish and Wildlife Service [USFWS], 2007);
- California Natural Diversity Database (CNDDB), (California Department of Fish and Game [CDFG], 2007);
- *Threatened and Endangered Plants List* (CDFG, 2006a)
- *Threatened and Endangered Animals List* (CDFG, 2006b);
- *Ecological Subregions of California* (Miles and Goudey, 1997).
- *Salt Creek Heights Wetland Delineation Report* (ESA, 2007)

Plant communities and wildlife habitats were identified using aerial photo interpretation and field reconnaissance. Prior to field inspection, species characteristics and habitat requirements were reviewed to aid in field recognition of suitable habitats and visual identification. Existing literature and databases for the region were also reviewed prior to field surveys to identify which biological resources would likely be encountered.

A delineation of potential wetlands and stream channels within the project area was conducted by ESA Biologists Joshua Boldt, Sara Castellanos, Jamie Galos, LeChi Huynh, and Kiffanie Stahle on August 1, 2, 8, and 9, and September 27, 2007. The delineation used the "Routine Determination Method" as described in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) in conjunction with the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps, 2006). In addition, ESA biologists Sara Castellanos and LeChi Huynh conducted a reconnaissance-level survey of the project area on September 6, 2007, to identify upland habitats and the potential for the site to support special-status species. The survey consisted of walking meandering transects and mapping the vegetative communities at the site. All areas within the project area were evaluated for the potential to support

regionally occurring special-status species and the presence of any other biologically sensitive resources. Based on the information collected, ESA identified specific biological constraints that may be encountered by site development. These constraints are described in this document.

Plant Communities and Wildlife Habitats

Plant communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. The vegetative community descriptions and nomenclature generally follows the classification system provided in Sawyer and Keeler-Wolfe's *A Manual of California Vegetation* (1995). Communities in the project area include annual grassland, mixed chaparral, blue oak woodland, blue oak-gray pine, riparian wetland, and seasonal wetland (**Figure 3**).

These plant communities can be generally correlated to habitats for wildlife. The wildlife habitats identified in this section were described using the California Department of Fish and Game's (CDFG's) *A Guide to Wildlife Habitats* (Mayer and Laudenslayer, 1988). As described previously, the plant communities and corresponding wildlife habitat types that occur in the study were mapped by ESA biologists using photo interpretation and field verification. The results of this delineation are presented in Figure 3 and **Table 1.**

TABLE 1
PLANT COMMUNITIES AND JURISDICTIONAL WETLANDS WITHIN THE PROJECT AREA

Community Type	Dominant Plant Species*	Approximate Acres	Percent of the Project area
Blue Oak Woodland (BOW)	blue oak, live oak	145.82	49.56%
Blue Oak-Gray Pine Woodland (BOP)	blue oak, gray pine	3.94	1.34%
Urban/Disturbed	barren, man-made structures	28.47	9.68%
Mixed Chaparral (MCH)	white-leaf manzanita, common manzanita	112.28	38.16%
Palustrine Forested (Riparian)	willow, buttonwillow	3.65	1.24%
Palustrine Emergent (Seasonal Wetland)	spikerush, curly dock, perennial rye grass	0.08	0.03%
	Total	294.23	100.00%

NOTE: * See below for scientific nomenclature.
SOURCE: ESA, 2007

Blue Oak Series/Blue Oak Woodland

This plant community occurs throughout the study area and is dominated by blue oak (*Quercus douglasii*), with interior live oak (*Quercus wislizenii*) and grey pine (*Pinus sabiniana*). Shrub species associated with this mixed woodland community include poison oak (*Toxicodendron diversilobum*), white-leaf manzanita (*Arctostaphylos viscida* spp. *viscida*), and common manzanita (*Arctostaphylos manzanita*). The understory of this plant community is dominated by annual grass species. Blue oak woodlands provide cover and food for small mammals. Mammal species that may occur in wooded areas include the California ground squirrel (*Spermophilus beecheyi*), California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Peromyscus maniculatus*), broad-footed mole (*Scapanus latimanus*), and black-tailed jackrabbit (*Lepus californicus*).

SOURCE: Globexplorer, 2006; SPI, 2007; and ESA, 2007

Figure 3
Habitats within the Study Area

Trees in this woodland provide nesting and foraging habitat for migrating and resident birds. Raptors that may utilize this habitat include the American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and Cooper's hawk (*Accipiter cooperii*). Additional bird species that have the potential to use this habitat include Anna's hummingbird (*Calypte anna*), oak titmouse (*Baeolophus inornatus*), loggerhead shrike (*Lanius ludovicianus*), and the spotted towhee (*Pipilo maculatus*).

Blue oak woodland habitat is dry in nature and probably does not support many reptile or amphibian species. It may provide suitable foraging sites and cover for the common kingsnake (*Lampropeltis getulus*), Pacific gopher snake (*Pituophis melanoleucus catenifer*), striped racer (*Masticophis lateralis*), and western fence lizard (*Sceloporus occidentalis*).

Foothill Pine Series/Blue Oak-Gray Pine Woodland

Blue oak-gray pine woodland occurs in the northwest corner of the project area. Blue oak trees and gray pine trees comprise this habitat though blue oaks tend to dominate the canopy. The annual grassland species that dominate the understory include yellow star-thistle (*Centaurea solstitialis*), wild oats (*Avena barbata*), and perennial rye grass (*Lolium perenne*).

The wildlife species associated with this habitat are very similar to those described above in the blue oak woodland habitat.

Urban/Disturbed

The urban/disturbed portion of the project area is characterized by graded/barren land, dirt roadways, paved roads, houses, and man-made structures. Ruderal vegetation occurs along roadsides. This vegetation type is subjected to ongoing or past disturbances (e.g., vehicle use, mowing, herbicide application). The majority of plant species that occur in these disturbed areas are various annual grasses and forbs of Eurasian origin, many of which also occur in the grasslands. Common plants in urban areas include annual grasses, prickly lettuce (*Lactuca* serriola), shortpod mustard (*Hirschfeldia incana*), milk thistle (*Silybum marianum*), radish (*Raphanus sativus*), and bristly ox-tongue (*Picris echioides*). There are also a few natives that are adapted to grow in these disturbed sites such as turkey mullein (*Eremocarpus setigerus*), hayfield tarweed (*Hemizonia congesta*), and California poppy (*Eschscholzia californica*). These areas provide limited opportunities for wildlife.

Mixed Chaparral

This plant community is the dominant plant community within the study area. The dominant shrub species in this community are poison oak, white-leaf manzanita, common manzanita, and buck brush (*Ceanothus cuneatus* var. *cuneatus*). The understory of this plant community is dominated by annual grass species.

No wildlife species are restricted to this habitat, however many wildlife species utilize this habitat including Anna's hummingbird, brush mouse (*Peromyscus boylii*), California quail (*Callipepla californica*), ring-necked snake (*Diadophis punctatus*), sage sparrow (*Amphispiza belli*), spotted towhee, and the wrentit (*Chamaea fasciata*).

Palustrine Forested

Palustrine forested habitats in the study area are present along the larger channels and are dominated almost exclusively by willow (*Salix* spp.) and buttonwillow (*Cephalanthus occidentalis* var. *californicus*) in the overstory. The understory is comprised of freshwater marsh species including rushes (*Juncus* spp.) and flat-leaved parsley (*Torilis arvensis*).

Palustrine forested habitat provides cover and food for small mammals. Mammal species that may occur in these areas include California myotis (*Myotis californicus*), brush rabbit (*Sylvilagus bachmani*), raccoon (*Procyon lotor*), California vole, and black bear (*Ursus americanus*).

Trees in this habitat provide nesting and foraging habitat for migrating and resident birds. Bird species that have the potential to use this habitat include great egret (*Ardea alba*), great blue heron (*Ardea herodias*), and belted kingfisher *(Ceryle alcyon*). Palustrine forested habitat also supports numerous reptile or amphibian species including the Pacific chorus frog (*Hyla regilla*).

Palustrine Emergent

Palustrine emergent habitats are ephemeral wetlands that pond or remain flooded for extended periods during a portion of the year, often the wet season, then may dry in spring or early summer. These features are typically associated with constructed drainage features or disturbed areas. Palustrine emergent habitats in the study area occur in shallow depressions and are dominated by native and non-native species. Common wetland species in these features include spikerush (*Eleocharis macrostachya*), curly dock (*Rumex crispus*) and perennial ryegrass.

Palustrine emergent habitat may support a diversity of birds, invertebrates, amphibians, and a few reptiles which may use the wetland for foraging, cover, and/or breeding. Common wildlife species that may use seasonal wetlands include common garter snake (*Thamnophis sirtalis*), Pacific chorus frog, and black phoebe (*Sayornis nigricans*).

Sensitive Natural Communities

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, structurally complex, or is in other ways of special concern to local, state, or federal agencies. CEQA identifies the elimination or substantial degradation of such communities as a significant impact. CDFG tracks sensitive natural communities in the CNDDB. Riparian habitat within the project area is considered a sensitive natural community.

Wetlands and Other Waters of the U.S.

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. The federal government defines wetlands in Section 404 of the Clean Water Act as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life

in saturated soil conditions" (33 CFR 328.3[b] and 40 CFR 230.3). Under normal circumstances, the federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other waters of the U.S (see definition below for "other waters of the U.S."). The U.S. Army Corps of Engineers (Corps) is the responsible agency for regulating wetlands under Section 404 of the Clean Water Act, while the Environmental Protection Agency (EPA) has overall responsibility for the Act. CDFG does not normally have direct jurisdiction over wetlands unless they are subject to jurisdiction under Streambed Alteration Agreements or they support state-listed endangered species; however, CDFG has trust responsibility for wildlife and habitats pursuant to California law.

"Other waters of the U.S." refers to those hydric features that are regulated by the Clean Water Act but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes.

A delineation of the project area was conducted by ESA Biologists Joshua Boldt, Sara Castellanos, Jamie Galos, LeChi Huynh, and Kiffanie Stahle on August 1, 2, 8, and 9, and September 27, 2007. The delineation used the "Routine Determination Method" as described in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), hereafter called the "1987 Manual." The 1987 Manual was used in conjunction with the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps, 2006), hereafter called the "Arid West Supplement." For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed. Approximately 3.84 acres and 32,144.7 linear feet of other waters of the U.S., and 3.73 acres of wetlands were identified in the study area, for a total of 7.57 acres of jurisdictional waters of the U.S. These features were verified by the U.S. Army Corps of Engineers as being subject to jurisdiction under the Clean Water Act on January 6, 2009.

Riparian wetlands (approximately 3.65 acres) in the study area are present along the larger channels and are dominated almost exclusively by willow (*Salix* spp.) and buttonwillow (*Cephalanthus occidentalis* var. *californicus*) in the overstory. The understory is comprised of freshwater marsh species including rushes (*Juncus* spp.) and flat-leaved parsley (*Torilis arvensis*).

Seasonal wetlands (approximately 0.08 acres) in the study area occur in shallow depressions and are dominated by native and non-native species. Common wetland species in these features include spikerush (*Eleocharis macrostachya*), curly dock (*Rumex crispus*) and perennial ryegrass (*Lolium perenne*).

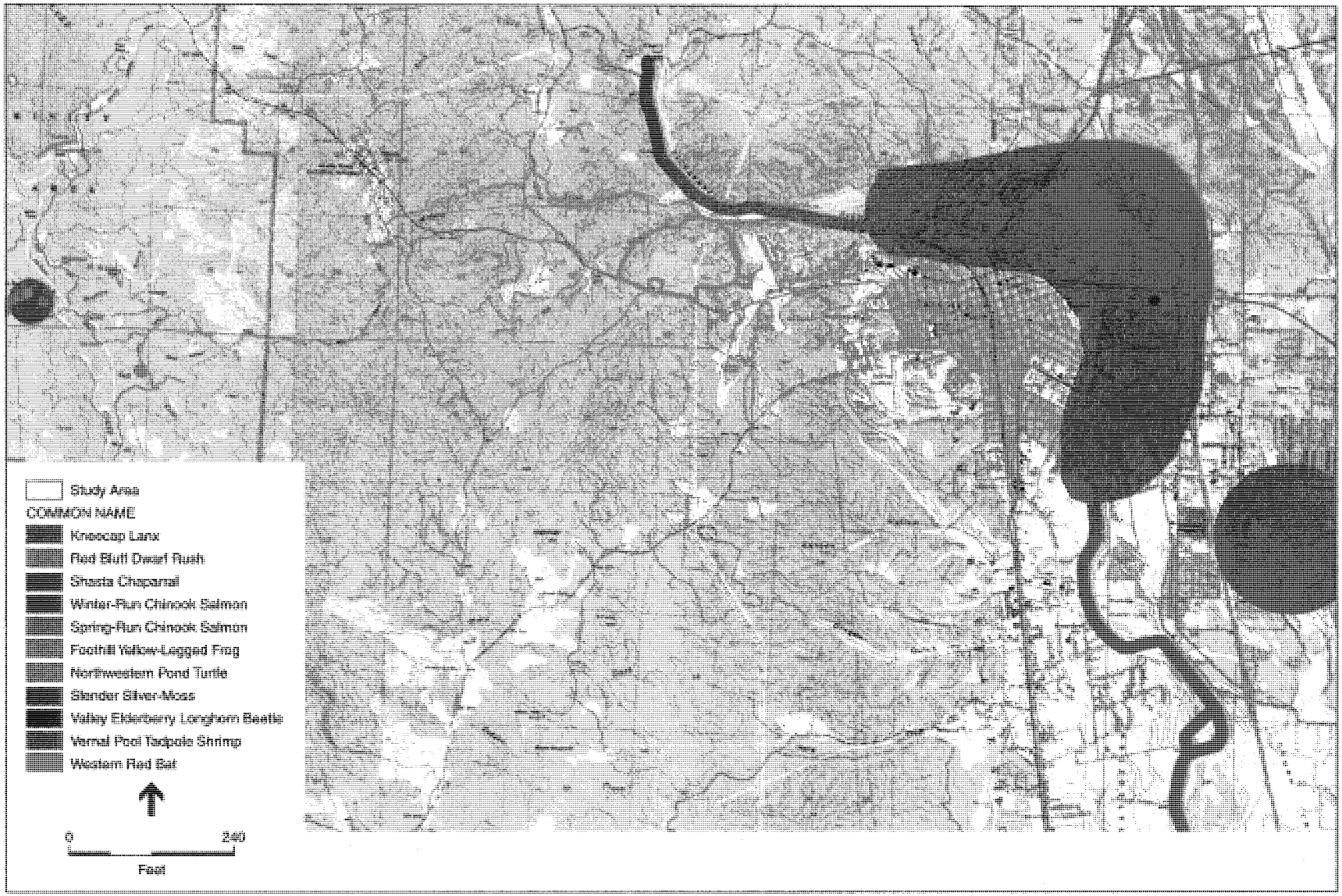
Riverine habitat is present in small portions of the study area. Some areas of the banks support species common to freshwater emergent wetlands or riparian areas including cattail (*Typha spp.*) and willow. These areas are mapped as riverine only when they are present within the defined bed and bank of the river channel.

Special-Status Species

Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to collectively as "special-status species" in this report following a convention that has developed in practice but has no official sanction. The various categories encompassed by the term, and the legal status of each, are discussed in the Regulatory Setting section of this report. For the purposes of this assessment, the term "special-status" includes:

- Species that are federally listed or proposed under the Federal Endangered Species Act (50 CFR 17.11-17.12);
- Species that are candidates for listing under the Federal Endangered Species Act (61 FR 7596-7613);
- Species that are state listed or proposed under the California Endangered Species Act (14 CCR 670.5);
- Species listed by the USFWS or CDFG as a species of concern (USFWS), rare (CDFG), or of special concern (CDFG);
- Fully protected animals as defined by the State of California (CDFG Code Section 3511, 4700, and 5050);
- Species that meet the definition of threatened, endangered, or rare under CEQA (CEQA Guidelines Section 15380);
- Plants listed as rare or endangered under the California Native Plant Protection Act (State of California CDFG Code Section 1900 *et seq.*); and
- Plants listed by the California Native Plant Society (CNPS) as rare, threatened, or endangered (List 1A and List 2 status plants in CNPS 2007).

A list of special-status plant and animal species that have the potential to occur within the vicinity of the project area was compiled based on data in the CNDDB (CDFG, 2007), CNPS literature (CNPS, 2007), and the U.S. Fish and Wildlife Service List of Federal Endangered and Threatened Species that may be Affected by Projects in the "Redding, CA" 7.5' Quadrangle (USFWS, 2007). **Figure 4** identifies CNDDB occurrences within the vicinity of the project area. Conclusions regarding habitat suitability and species occurrence are based on a reconnaissance-level area assessment conducted by ESA biologists, as well as existing literature and databases described previously. **Appendix A** lists special status plants and animals with the potential to occur within the project area. Additionally, Appendix A also indicates each species potential to be impacted by the proposed development.



SOURCE: USGS, 1980; CDFG, 2007; SPI, 2007; and ESA, 2007

Figure 4
CNDDB Regional Occurrences

ESA identified 22 species with unlikely potential to be impacted by the proposed development, 16 species with a low potential to be impacted by the proposed development, and four species with a medium potential to be impacted by the proposed development. The "Potential for Impact" category is defined as follows:

- **Unlikely:** The project site and/or immediate area do not support suitable habitat for a particular species, and therefore the project is unlikely to impact this species.
- **Low Potential:** Project site and/or immediate area only provide limited habitat for a particular species that is likely avoided by proposed development. In addition, the known range for a particular species may be outside of the immediate project area.
- **Medium Potential:** The project site and/or immediate area provide suitable habitat for a particular species, and proposed development may impact this species. Mitigation will likely avoid potential impacts.
- **High Potential:** The project site and/or immediate area provide ideal habitat conditions for a particular species and/or known populations occur in immediate the area. Proposed development will directly impact habitat associated with this species.

Regulatory Setting

Federal Endangered Species Act

USFWS administers the federal Endangered Species Act (16 USC [U.S. Code] Section 153 *et seq.*) and thereby has jurisdiction over federally listed threatened, endangered, and proposed species. Projects that may result in "take" of a listed species must consult with USFWS. Federal agencies that propose a project that may affect a listed species are required to consult with USFWS under Section 7 of the federal Endangered Species Act. If it is determined that a federally listed species may be adversely affected by the federal action, USFWS will issue a biological opinion to the federal agency that describes minimization and avoidance measures that must be implemented as part of the federal action. Projects that do not have a federal nexus must apply for a take permit under Section 10 of the Act. Section 10 of the Act requires that the project applicant prepare a habitat conservation plan as part of the permit application.

For the project area, consultation with USFWS would be necessary if a proposed action may affect suitable habitat for a federally listed species. This consultation would proceed under Section 7 of the Endangered Species Act if a federal action was part of the proposed action (such as the Corps granting a Section 404 permit for the project) or through Section 10 of the Act if no such nexus were available.

California Endangered Species Act

CDFG administers the California Endangered Species Act of 1984 (State of California, CDFG Code Section 2080), which regulates the listing and "take" of endangered and threatened species. A "take" may be permitted by CDFG through implementing a management agreement. Under the State laws, CDFG is empowered to review projects for their potential impacts to listed species and their habitats.

CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species. California candidate species are afforded the same level of protection as listed species. California also designates Species of Special Concern, which are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species, but may be added to official lists in the future.

CEQA Guidelines Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the federal Endangered Species Act and the section of the CDFG Code dealing with rare or endangered plants or animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a "candidate species" that has not yet been listed by either USFWS or CDFG. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted. Examples of species that may be considered under CEQA Section 15380 include some vascular plants.

Other Statutes, Codes, and Policies Affording Limited Species Protection

Vascular plants listed as rare or endangered by the California Native Plant Society (CNPS) (CNPS, 2007), but which have no designated status or protection under federal or state endangered species legislation, are defined as follows:

List 1A: Plants Believed Extinct.

List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.

List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.

List 3: Plants About Which More Information is Needed - A Review List.

List 4: Plants of Limited Distribution - A Watch List.

In general, plants appearing on CNPS List 1 or 2 are considered to meet CEQA's Section 15380 criteria. Effects to these species would therefore be considered "significant," requiring mitigation.

Clean Water Act: Section 404

Wetlands and other waters of the U.S. (as previously defined) are subject to jurisdiction by the Corps and EPA under Section 404 of the Clean Water Act. Wet areas that are not regulated through this

act would include stock watering ponds, agricultural ditches created in upland areas, and isolated wetlands that do not have a hydrologic link to other waters of the U.S. either through surface or subsurface flow. The discharge of fill into a jurisdictional feature requires a permit from the Corps. The Corps has the option to issue a permit on a case-by-case basis (individual permit) or at a program level (general permit). Nationwide permits (NWPs) are an example of general permits; they cover specific activities that generally have minimal environmental effects. Activities covered under a particular NWP must fulfill several general and specific conditions, as defined by the NWP. If a proposed project cannot meet these conditions, an individual permit may be required.

California Fish and Game Code: Sections 1601 to 1616

CDFG regulates the modification of streams, rivers, and lakes under Sections 1601–1616 of the CDFG Code (State of California, 2006). Modification includes diverting, obstructing, or changing the natural flow or bed, channel, or bank of a regulated feature. While most of the features regulated by the CDFG Code meet the definition of other waters of the U.S., the Code may regulate some ephemeral features that do not have all the criteria to qualify as other waters of the U.S. A project proponent that proposes an activity that may modify a feature regulated by the CDFG Code must notify CDFG before project construction. CDFG will then decide whether to enter into a Streambed Alteration Agreement with the project applicant under section 1601 (public and private entities).

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act (MBTA, 16 USC Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668) protect certain species of birds from direct take. The MBTA protects migrant bird species from take through setting hunting limits and seasons and protecting occupied nests and eggs. The Bald and Golden Eagle Protection Act prohibits the take or commerce of any part of these species. USFWS administers both acts and reviews federal agency actions that may affect species protected by the acts.

City of Redding Municipal Code

Tree Preservation Ordinance

The city of Redding's Municipal Code includes a tree preservation ordinance to promote the preservation of a healthy tree population.

> **Chapter 18.45:** "It is the intent of this chapter to promote the preservation of a healthy tree population and to enhance the tree canopy through out the community by means consistent with the reasonable use of private property". This is to be accomplisher through 1) the preservation of existing native and nonnative trees where feasible; 2) the replacement or transplanting or trees removed where appropriate; and 3) the planting of new trees in locations, number, and kind compatible with local conditions."

River/Creek Corridor Development Ordinance

The city of Redding's Municipal Code includes a river/creek corridor development ordinance to "provide adequate buffers between creek corridors and adjacent development to protect this valuable community resource as a natural, scenic, and recreational amenity."

> **Chapter 18.48:** The provisions of this chapter apply directly to Salt Creek and any of its adjoining waterways identified for protection in the general plan. The buffer zone for Salt Creek is 25 feet of riparian habitat and 50 feet from the top of the bank as diagrammed in figure 3.3 of the Natural Resources Element of the City of Redding's General Plan. "No structure, parking access, parking space, paved area, fence, swimming pool, structure or other improvements shall be constructed within a buffer area except the installation of approved public facility infrastructure" The buffer area shall remain in a natural state and shall not be landscaped. Where drainage devices or improvements are desired, they shall be placed in inconspicuous locations and constructed from earth-toned concrete, rock, and/or native vegetation.

Potential Constraints and Recommended Measures

The biological resources constraints criteria are based on policies and guidelines established by USFWS (through the federal Endangered Species Act), Corps (Section 404 of the Clean Water Act), CDFG (through the California Endangered Species Act and Streambed Alteration Agreement), and CEQA. The constraints evaluation is intended to assist a decision maker in responding to Section IV of a standard CEQA checklist (as presented in Appendix G of the CEQA Guidelines). This study identifies constraints as low, medium, and high. In many cases, the difference between a medium constraint and a high constraint is the difficulty in obtaining the appropriate permits and whether mitigation would be considered feasible. Both NEPA (National Environmental Policy Act) and CEQA define the key concept of mitigation as follows:

A. Avoiding the impact altogether by not taking a certain action or parts of an action.

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

C. Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

E. Compensating for the impact by replacing or providing substitute resources or environments.

When species are listed as threatened or endangered, and a project would result in the hypothetical loss of individuals, mitigation must be pursued through a process that eventually creates a Habitat Conservation Plan (HCP). There is no a priori guarantee that an HCP will result in a permit. The HCP process was developed through amendments to the state and federal Endangered Species Acts to allow landowners and managers to mitigate impacts even though protected species would be taken. Even when technically feasible, an HCP can be lengthy and expensive. For this reason, the need to prepare an HCP would be considered a high constraint. This constraint level may be reduced to "medium" if a potential federal nexus can be identified which would allow the proposed

action to proceed under Section 7 of the federal Endangered Species Act, a much less timely and complex process.

As described previously, areas with wetlands or other waters of the U.S. may be subject to permitting under the Clean Water Act and the State Fish and Game Code. As with endangered species permitting, wetland permitting can be an extensive process if the total area of fill is more than 0.5 acre. The discharge of fill into more than 0.5 acre of wetlands would be assigned to a "high constraint" category.

"Medium constraints" include areas of known or potential locations of plant or animal species (individuals or populations) designated by the state or federal government as candidates for endangered or threatened status, or species with a "species of concern" designation at the state level, where adequate mitigation is considered feasible. Medium constraints are also sensitive plant communities that may be addressed under certain policies, such as trees related to the City of Redding Tree Preservation Ordinance. Lastly, impacts to wetlands that are less than 0.5 acre are considered a medium constraint, for the application process with the Corps is typically through the Nationwide Permit program.

"Low constraints" are areas with vegetative communities which are not protected (typically common and widespread throughout the state or are severely degraded and have little to no potential to support listed, candidate, or special concern species). In the project area, this criterion would apply to disturbed areas.

Described below in detail are the specific constraints of the project area, as well as recommended mitigation and minimization measures. Many of the constraints described below are based on the potential for the proposed development to remove or modify existing habitats, including wetlands and other waters of the U.S. AutoCad drawings of the proposed project were obtained from Sharrah Dunlap Sawyer, Inc. (SDS) and then analyzed using ArcMap. Impacts to existing habitats within the project area were determined from these plans. Potential impacts to habitats present in the project area are summarized in **Tables 2** and **3** and **Figure 5**. Photographs of the various habitats in the vicinity of the project area are shown in **Appendix B**.

TABLE 2
POTENTIALLY IMPACTED PLANT COMMUNITIES

Community Type	Acres Impact	Percent Affected[1]
Blue Oak Woodland (BOW)	30.60	21%
Blue Oak-Gray Pine Woodland (BOP)	0.26	7%
Urban/Disturbed	2.68	9%
Mixed Chaparral (MCH)	80.35	72%
Palustrine Forested (Riparian)[2]	0.11	3%
Palustrine Emergent (Seasonal Wetland)[2]	0.00	0%
Total	**114.00**	**38%**

NOTES:
[1] Percent of habitat impacted within study area, by habitat type.
[2] See Table 3 for a tabulation of the individual wetlands affected.

SOURCE: SDS, 2009 and ESA, 2009

SOURCE: GlobeXplorer, 2006; SDS, 2009; and ESA, 2007 / 2008

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Figure 5
Potentially Affected Habitat

TABLE 3
POTENTIALLY IMPACTED WETLANDS AND OTHER WATERS OF THE U.S.

Wetlands	Acres
R-5 (Riparian Wetland)	0.090
R-7 (Riparian Wetland)	0.024
Total Wet	**0.114**
Other Waters of the U.S.	**Acres**
ED-2	0.013
ED-3	0.021
ED-6	0.005
ED-9	0.002
ED-10	0.031
ED-15	0.001
ED-31	0.003
ED-32	0.001
ED-42	0.002
ED-43	0.001
ED-62	0.009
ID-1	0.041
PD-2	0.007
PD-3	0.006
Total Other Waters of the U.S.	**0.143**
Total	**0.257**

SOURCE: SDS, 2009 and ESA, 2009

The above habitat types would be directly affected by project construction activities, including vegetation removal, grading, and construction of roadways, utilities, and building pads. Adjacent habitat would also be affected through fuels treatments as described in **Appendix C**.

Constraint 1

Oak woodland within the project area provides potential nesting and foraging habitat for special status raptors. Site development may impact these species during the breeding season. This potential impact is considered a medium constraint.

The project area contains oak woodland habitat. This habitat type provides suitable nesting habitat for raptor species including red-tailed hawk (*Buteo jamaicensis*), sharp-shinned hawk (*Accipiter striatus*), and Cooper's hawk *(Accipiter cooperii*).

Mitigation Measure 1

If construction activities take place during the raptor breeding season (April 1 through July 31), a pre-construction survey for nesting raptors shall be conducted by a qualified biologist within the 30 days prior to construction activities to establish the status of these species in the project area. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site shall be resurveyed.

Should active nests be identified by these surveys, the nest sites shall be protected from all construction activities within 500 feet of the nest site until the young have fledged. Construction activities that must occur within 500 feet of an active nest site shall not take place without prior consultation with CDFG.

Constraint 2

The project area contains eight blue elderberry shrubs (*Sambucus mexicanus*) clustered in two locations. The blue elderberry shrub is the host plant for the federally-listed valley elderberry longhorn beetle (VELB). Site development may affect these shrubs. This potential impact is considered a medium constraint.

Proposed project activities that take place at least 100 feet from suitable elderberry shrubs would have no effect to this species. If proposed project activities occur within 100 feet of a suitable elderberry shrub, direct or indirect impacts to VELB may occur. The USFWS describes direct and indirect impacts as activities occurring within 20 feet and 100 feet, respectively, of the dripline of elderberry shrubs meeting the definition of VELB habitat. Eight elderberry shrubs occur in or near the project area and could be directly or indirectly impacted by implementation of the proposed project.

Mitigation Measure 2

Elderberry shrubs will be avoided where possible. The project proponent will ensure that elderberry shrubs within 100 feet of the proposed project shall conform to the following guidelines for avoidance of impacts and take as defined under the Endangered Species Act for the valley elderberry longhorn beetle (VELB). These guidelines comply with habitat creation and mitigation measures described in the USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS, 1999) and the *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office* (USFWS, 1996).

1. For all shrubs that can be avoided by construction activities, a 100-foot buffer surrounding the plant shall be maintained at all times. The buffer shall be fenced with temporary fencing and flagging. Signs shall be placed along the fencing every 50 feet that state the following: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The above sign shall be readable from a distance of 20 feet and maintained through the duration of construction. Work crews shall be briefed on the status of the beetle, the need to protect its host plant (elderberries), requirements to avoid damaging elderberry shrubs, and possible penalties for not complying with identified avoidance and minimization measures. In addition, construction workers should be made aware of the habitat needs of VELB and the location of protection areas on the site (USFWS, 1999).
2. For indirectly affected shrubs, a 20-foot buffer shall be fenced with temporary fencing and flagging and maintained throughout construction. Signs shall be placed along the fencing as described above, and work crews will be briefed as described above. The project

proponent shall restore any damage occurring within 100 feet of elderberry shrubs that are not removed by the project during construction. Erosion control will be provided and the area will be revegetated with appropriate native plants. No insecticides, herbicides, fertilizers, or other chemical shall be used within 100 feet of any elderberry shrub with one or more stems measuring 1inch or greater in diameter at ground level. A written description of planned restoration, protection, and maintenance of buffer areas post-construction shall be provided.

3. For any directly affected shrubs, the project proponent shall provide compensatory mitigation by either: 1) purchasing credits for all required compensation from the USFWS-approved Conservation Bank, 2) transplanting the shrubs onto the Conservation Bank property and purchasing credits for any remaining mitigation requirements using mitigation ratios described in USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS, 1999), or 3) transplanting the shrubs onto the Conservation Bank property and planting additional seedlings for any remaining mitigation requirements using mitigation ratios described in USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS, 1999). Each credit purchased from the Conservation Bank will provide compensatory mitigation for five elderberry stems and five associated native plant species. If the shrubs are relocated to the Conservation Bank property, all Conservation Guidelines described by USFWS (1999) for elderberry transplants shall be implemented, and the project proponent's contractor shall coordinate with the Conservation Bank to replant the shrubs.

Constraint 3

Construction activities within the project area may result in the temporary and permanent fill of other waters of the U.S. and wetlands. This potential fill is considered a medium constraint.

The proposed development would directly impact up to 0.257 acre of wetlands and other waters of the U.S. Potential impacts to wetlands and other waters of the U.S. are summarized in Table 3. As described previously, the Corps has verified these features as being under the jurisdiction of Section 404 of the Clean Water Act. In addition, the Regional Water Quality Control Board (RWQCB) regulates these features under Section 401 of the Clean Water Act.

Mitigation Measure 3

Prior to construction, the project applicant shall obtain a Section 404 permit from the Corps. Based on the area projected to be impacted, the proposed project may qualify for NWP No. 39. In addition, the project applicant shall obtain a Section 401 water quality certification from RWQCB.

Fill of wetland areas shall be minimized wherever possible. In addition, temporary construction fencing and straw waddles shall be erected between wetlands and mass grading sites to reduce the potential of incidental fill.

Constraint 4

Construction activities in the project area could result in the removal of trees with a diameter at breast height (DBH) of 6 inches or greater from the blue oak woodland and blue oak-gray pine

woodland habitat found in the project area. The removal of these oak woodlands is considered a medium constraint.

Chapter 18.45 of the city of Redding's Municipal Code aims to accomplish preservation of both native and non-native trees, the replacement or transplantation of trees where appropriate, and the planting of new trees in locations, number, and kind compatible with local conditions. Under the provisions of this chapter damage and destruction to protected trees must be minimized.

Mitigation Measure 4

The project proponent shall obtain a permit if the project will trench, grade, or place fill within the dripline of any native oak or landmark tree.

Constraint 5

Fish species listed for protection under the Federal Endangered Species Act (FESA) that are known to occur in the Sacramento River in the vicinity of the proposed project include winter-run Chinook salmon, spring-run Chinook salmon, and Central Valley steelhead. Federal species of concern also occur in the vicinity of the proposed project including Central Valley fall and late fall-run Chinook. Based on recent observations of rearing young of the year Central Valley steelhead by ECORP biologists within Gold Run Creek in the vicinity of the project site, presence for the drainage should be assumed (in addition to Salt Creek). Salt Creek is proposed to be avoided by all project activities. However, Gold Run Creek is proposed to have an access road crossing that may impact these anadromous salmonids. As a result, mitigation should be included that restricts in channel work to specific dates (summer) when the channel is likely dry and does not provide rearing opportunities.

Adult Chinook salmon (spring, fall, late-fall, and winter-run) migrate from the Pacific Ocean upstream within the Sacramento River. The river reach associated with the proposed project serves as an upper reach terminus of the migratory corridor for adult upstream migration. Winter run spawn in the mainstem Sacramento, and would not likely use stream channels in the project area. In addition, stream channel habitat in the project area is not suitable for spring run Chinook. Steelhead and fall-run Chinook are the most likely andromous fish species to seasonally occur within stream channels in the project area.

The adult upstream migration for Chinook typically occurs during the winter, spring, fall, and late-fall. The seasonal timing of adult upstream migration corresponds with the seasonal designation for each Evolutionary Significant Unit (ESU) of Chinook salmon. Juvenile Chinook salmon are present in greatest abundance during the spring (April - June) and during the winter (November - January; February - March). Adult steelhead typically migrate upstream within the Sacramento River during the winter (November - January) to upstream spawning areas (tributaries). Juvenile steelhead can remain in freshwater streams from one to three years before entering the ocean.

In addition to the direct effects to Gold Run Creek, the proximity of project activities to Salt Creek presents the possibility of secondary effects to suitable habitat. Deterioration of habitat could result from the introduction of non-native invasive plant species, decreases in water quality due to erosion

or sedimentation, changes in surface or subsurface hydrology, and human intrusion. These effects are considered a medium constraint.

Mitigation Measure 5

To ensure no significant effect to anadromous salmonids from the proposed project, all in channel work should be restricted to July 1st through September 15th , a period when upstream migration/spawning is not likely to occur. Gold Run Creek is a relatively permanent stream that dries up in the summer months and does not likely provide rearing opportunities during this period. Project designs should include a bottomless/conspan culvert design that would not impede any potential fish movement/migration upon project completion. These measures, in addition to requiring proper BMP's would reduce potential effects to a less than significant level.

Best Management Practices (BMPs) and proposed development setbacks from intermittent channels will reduce indirect impacts to other waters of the U.S. that could occur as a result of sedimentation and siltation from construction activities. BMPs shall be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. The performance and effectiveness of these BMPs shall be determined either by visual means, where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where the verification of containment reduction or elimination (inadvertent petroleum release) is required to determine adequacy of the measure. BMPs to be implemented as part of this mitigation measure shall include, but are not limited to, the following measures:

- BMPs for temporary erosion control (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed for disturbed areas, stockpiled soil, and along culverts and drainage ditches on the site and in downstream offsite areas that may be affected by construction activities. Requirements for the placement and monitoring of the BMPs shall become part of the contractor's project specifications. Performance and adequacy of the measures shall be determined visually by site construction management and verified by the project proponent as appropriate.
- Dirt and debris shall be swept from paved areas in the construction zone on a daily basis as necessary to remove excessive accumulations of silt, mud or other debris. Sweeping and dust removal shall be implemented by the contractor and oversight of these operations the responsibility of the construction site superintendent.
- Grass or other vegetative cover shall be established on bare soils within the construction site as soon as possible after disturbance. If grass is chosen, a native seed mix shall be used. At minimum, vegetative application shall be completed by September 15th to allow for plant establishment. No disturbed surfaces or stockpile areas will be left without erosion control measures in place during the period of October 1 through April 30. The application, schedule, and maintenance of the vegetative cover shall be the responsibility of the contractor and requirements to establish a vegetative cover shall be included in the construction contractor's project specifications.
- If discharges of sediment or hazardous substances to drainage ways are observed, construction shall be halted until the source of contamination is identified and remediated. Visual indications of such contamination include an oily sheen or coating on water, and noticeable turbidity (lack of clarity) in the water.

Constraint 6

In addition to the blue oak woodland loss addressed above, site development will result in the loss of habitats common to Shasta County, including mixed chaparral and disturbed habitats. This loss is considered a low constraint.

The loss of mixed chaparral and disturbed habitat in the project area does not constitute a significant impact to sensitive resources; therefore, no mitigation is necessary.

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Appendix A

Potentially Impacted Special-Status Species in the Project Area

ESA

APPENDIX A
POTENTIALLY IMPACTED SPECIAL-STATUS SPECIES IN THE PROJECT AREA

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Project to Impact
Mammals			
Martes pennanti (pacifica) DPS Pacific fisher	FC/CSC/--	Inhabits mixed conifer and Douglas fir forests, and red fir, lodgepole pine, and mixed evergreen/broad leaf forest. Dens in cavities near the tops of large trees, hollow logs, talus, and crevices in rock outcrops.	**Unlikely**-Suitable habitat is not present within the vicinity of the project area.
Corynorhinus townsendii Towndsend's big-eared bat	--/CSC/--	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Low**-Trees along the creeks and streams in project area may provide suitable roosting habitat. These habitats will be avoided by proposed development.
Myotis yumanensis Yuma myotis	--/--/--	Often found near reservoirs. Roosts in buildings, trees, mines, caves, bridges, and rock crevices. Maternity colonies active May through July.	**Low**-Minimal suitable roosting habitat occurs within proposed development area. Proposed development will avoid streams and water sources.
Antrozous pallidus pallid bat	--/CSC/--	Occurs at low elevations. Uses caves, crevices, mines, buildings, some bridges, and hollow trees for day roosts, and more open spaces for nighttime roosts. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging.	**Low**-Trees and open spaces may provide foraging and roosting habitat. These habitats will be avoided by proposed development.
Corynorhinus townsendii Townsend's big-eared bat	--/CSC/--	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Low-** Trees along creeks and streams in project area may provide suitable roosting habitat. These habitats will be avoided by proposed development.
Euderma maculatum spotted bat	--/CSC/--	Roosts primarily in crevices in cliff faces. Primarily feeds on moths. Maternity colonies active April through July.	**Unlikely.** Suitable habitat is not present within the vicinity of the project area.
Birds			
Haliaeetus leucocephalus bald eagle	FT/FPS/--	Nests in large trees with open branches along lake and river margins, usually within one mile of water.	**Low-** Proposed development is south of the Sacramento River and will not affect foraging or nesting habitat near the river.
Strix occidentalis caurina northern spotted owl	FT/--/--	Prefers large tracts of old growth forest. Nest in cavities or platforms in large trees in nests built by other animals.	**Unlikely-** Suitable habitat not present within the vicinity of the project area.
Pandion haliaetus osprey	--/CSC/--	Builds large platform stick nests near fish-bearing water. Feeds primarily on fish in open waters of lakes, estuaries, bays, reservoirs, and within the surf zone.	**Low-** Proposed development is south of the Sacramento River and will not affect foraging or nesting habitat near the river.
Agelaius tricolor tricolored blackbird	--/CSC/--	Prefers freshwater marshes dominated by cattails and bulrushes but also utilize upland and agricultural areas.	**Unlikely-** Suitable habitat not present within the vicinity of the project area.
Riparia riparia bank swallow	--/CT/--	Banks of rivers, creeks, lakes, and seashores; nests in excavated dirt tunnels near the top of steep banks.	**Unlikely-** Preferred nesting habitat is not present within the vicinity of the project area. Some foraging opportunities may exist along the Sacramento River, but will not be impacted by the proposed project.

APPENDIX A
POTENTIALLY IMPACTED SPECIAL-STATUS SPECIES IN THE PROJECT AREA

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Project to Impact
Reptiles			
Emys (=Clemmys) marmorata marmorata northwestern pond turtle	--/CSC/--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	**Low-** Some suitable habitat present within the project area, however proposed development will avoid the Sacramento River and most streams to minimize possible impacts to water quality, banks, beds, and surrounding aquatic vegetation.
Amphibians			
Rana aurora draytonii California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes containing emergent vegetation where there is an absence or low occurrence of predators.	**Low-** Some suitable habitat present within the project area, however proposed development will avoid wetlands and most streams. Adjacent foraging habitat may be disturbed by construction activities.
Rana boylii foothill yellow-legged frog	--/CSC/--	Breeds in shaded stream habitats with rocky substrate, usually below 6,000 feet in elevation. Absent or infrequent when introduced predators are present.	**Low-** Some suitable habitat present within the project area, however proposed development will avoid wetlands and most streams. Adjacent foraging habitat may be disturbed by construction activities.
Ascaphus truei western tailed frog	--/CSC/--	Restricted to perennial montane streams in montane hardwood-conifer, redwood, Douglas fir and ponderosa pine habitats. Tadpoles require water below 15 degrees C.	**Unlikely-** Suitable habitat not present within the vicinity of the project area.
Fish			
Hypomesus transpacificus delta smelt	FT/CT/--	Open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisan Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	**Unlikely-** Suitable habitat not present within the vicinity of the project area. BMPs will be designed to prevent downstream sedimentation.
Oncorhynchus tshawytscha chinook salmon, spring-run, Central Valley ESU	FT/--/--	Occurs in the Sacramento River watershed and spawns in a few select tributaries with flowing water, cool temperatures, and suitably sized cobble.	**Low-**Proposed development will occur south of the Sacramento River and away from most streams to avoid impacts to water quality, banks, and stream beds. BMPs will be designed to prevent downstream sedimentation.
Oncorhynchus tshawytscha chinook salmon, winter run	FE/CE/--	This ESU enters the Sacramento River December to May; spawning peaks May to June. Upstream movement occurs more quickly than in spring run population. Young move to rearing areas in and through the Sacramento River, Delta, and San Pablo and San Francisco Bays.	**Low-**Proposed development will occur south of the Sacramento River and away from most streams to avoid impacts to water quality, banks, and stream beds. BMPs will be designed to prevent downstream sedimentation.
Acipenser medirostris green sturgeon	FT/CSC/--	Spawns in the Klamath River and Sacramento River Watersheds. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**Low-**Proposed development will occur south of the Sacramento River and away from most streams to avoid impacts to water quality, banks, and stream beds. BMPs will be designed to prevent downstream sedimentation.

APPENDIX A
POTENTIALLY IMPACTED SPECIAL-STATUS SPECIES IN THE PROJECT AREA

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Project to Impact
Oncorhynchus mykiss steelhead, Central Valley ESU	FT/--/--	This ESU enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	**Low**-Proposed development will occur south of the Sacramento River and away from most streams to avoid impacts to water quality, banks, and stream beds. BMPs will be designed to prevent downstream sedimentation.
Invertebrates			
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/--/--	Breeds and forages exclusively on elderberry shrubs (Sambucus mexicana) typically associated with riparian forests, riparian woodlands, elderberry savannas, and other Central Valley habitats. Occurs only in the Central Valley of California.	**Medium**- Elderberry shrubs are present in two clusters within the project area. Some shrubs may be affected by development.
Branchinecta lynchi vernal pool fairy shrimp	FT/--/--	Entire life cycle in small ephemeral pools and pool basins found in grass and mud bottom swales, and basalt flow depression pools in unplowed grasslands. Lies dormant in dry pool sediments.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Lepidurus packardi vernal pool tadpole shrimp	FE/--/--	Inhabits vernal pools containing clear to highly turbid water that range from very small to very large in size. Lies dormant in dry pool sediments.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Anthicus antiochensis Antioch Dunes anthicid beetle	--/--/--	Known only from the Antioch dunes.	**Unlikely**-Species range is outside of project area.
Anthicus sacramento Sacramento anthicid beetle	--/--/--	Restricted to sand dune areas of the Sacramento-San Joaquin Delta. Uses sand slip faces among bamboo and willow.	**Unlikely**-Species range is outside of project area.
Lanx patelloides kneecap lanx	--/--/--	Endemic to Upper Sacramento River System. Breathe entirely through mantel, and are very sensitive to polluted water. Prefers fast, cold, well-oxygenated water and cobble-boulder substrate.	**Unlikely**-Proposed development will occur south of the Sacramento River. BMPs will be designed to prevent downstream sedimentation
Monadenia troglodytes Shasta sideband snail	--/--/--	Associated with limestone terrain in Shasta and Siskiyou Counties.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Trilobopsis roperi Shasta chaparral	--/--/--	Usually found within 100 m of lightly to deeply shaded limestone rockslides, draws, or caves with a cover of shrubs or oaks. Endemic to Shasta Co., CA.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Vascular Plants			
Orcuttia tenius slender orcutt grass	FT/CE/1B	Occurs in vernal pools. 35-1760 m in elevation. Blooms Apr-Jun.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	--/--/1B	Occurs in chaparral, valley and foothill grassland, cismontane woodlands, and vernal pools. Elevation 35-1020 m. Blooms Mar-May.	**Medium**-Development will take place on or near suitable habitat. Suitable habitats outside of development area may help to minimize potential impacts. Previous rare plant surveys did not detect species (Enplan, 2006).

APPENDIX A
POTENTIALLY IMPACTED SPECIAL-STATUS SPECIES IN THE PROJECT AREA

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Project to Impact
Legenere limosa legenere	–/–/1B	Occurs in vernal pools, many historical occurrences are extirpated. Found at 1-880 m elevation. Blooms Apr-Jun.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Anomobryum julaceum slender silver-moss	--/--/2.2	Broadleafed upland forest, lower montane coniferous forest, north coast coniferous forest. Moss which grows on damp rocks and soil; usually seen on roadcuts. 100-1000 m.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Carex scoparia pointed broom sedge	--/--/2.2	Wet, open places in Great Basin scrubs. Found at elevations 130-1000m and blooms in May.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Carex vulpinoidea fox sedge	--/--/2.2	Perennial herb occurring in freshwater marshes and swamps, and in riparian woodland. Found at elevations 30-1200 meters and blooms May-June.	**Low**-Proposed development will avoid wetland habitats and riparian corridors along channels and streams within the project vicinity.
Castilleja rubicundula ssp. rubicundula pink creamsacs	--/--/1B	Annual herb occurring in open areas of chaparral, in cismontane woodland, in meadows and seeps, and on serpentinite substrate in valley and foothill grassland. Found at 20-900 m elevation. Blooms April-June.	**Medium**-Development will take place on or near suitable habitat. Some suitable habitat within or in the vicinity of the project area that will not be disturbed by development may minimize impacts of development. Previous rare plant surveys did not detect species (Enplan, 2006).
Clarkia borealis ssp. borealis northern clarkia	--/--/1B	Chaparral, cismontane woodlands, and lower montane coniferous forests. 400-1340 m. Blooms June-Sept.	**Medium**-Development will occur on or near suitable habitat. Adjacent suitable habitats not affected by development may support some individuals. Previous rare plant surveys did not detect species (Enplan, 2006).
Cryptantha crinita silky cryptantha	--/--/1B	In gravely stream beds within cismontane woodlands, valley foothill grasslands, lower montane coniferous forests, riparian forests, and riparian woodlands. Found at 85-1215 m elevation. Blooms April-May.	**Low**-Proposed development will avoid areas with streams to minimize possible impact to riparian areas.
Lathyrus sulphureus var. argillaceus dubious pea	--/--/3	Perennial herb occurring in cismontane woodland and lower and upper montane coniferous forest. Found at 150-305 m elevation. Blooms in April.	**Unlikely**-Species does not occur within project area.
Potamogeton epihydrus ssp. *nuttallii* Nuttall's pondweed	--/--/2.2	Shallow water, ponds, lakes, streams, irrigation ditches. 400-2110m. Blooms July-August.	**Low**-Proposed development will not occur near most streams within the project area.
Sagittaria sanfordii Sanford's arrowhead	--/--/1B	Found in assorted freshwater habitats including marshes, swamps and seasonal drainages at 0-650 m in elevation. Blooms May-Oct.	**Unlikely**-Proposed development will avoid wetlands and streams in the project area.
Sedum paradisum Canyon Creek stonecrop	--/--/1B	Rock faces, in crevices of exposed granite. 1060-1860 m elevation. Blooms May-June.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.
Agrostis hendersonii Henderson's bent grass	--/--/3.2	Annual herb occurring in valley and foothill grassland in mesic areas, and in vernal pools. 70-305 m elevation. Blooms Apr-May.	**Unlikely**- Suitable habitat not present within the vicinity of the project area.

APPENDIX A
POTENTIALLY IMPACTED SPECIAL-STATUS SPECIES IN THE PROJECT AREA

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Project to Impact

SOURCE: CDFG 2007, CNPS 2007, USFWS 2007.

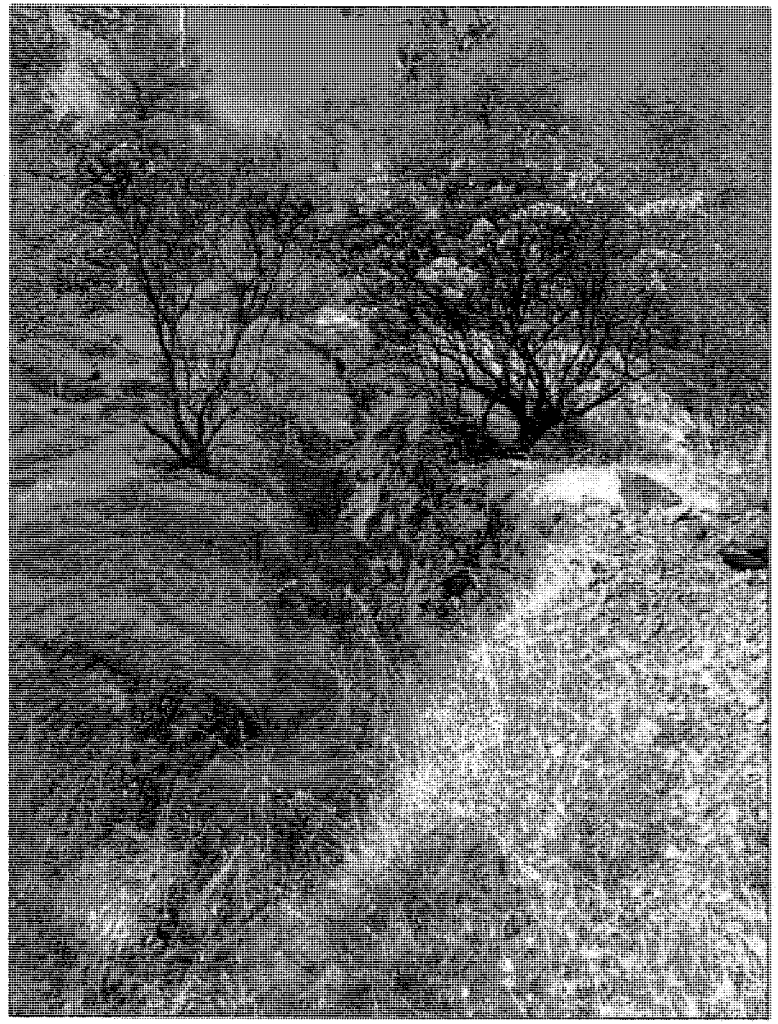
NOTES:
Status Codes
Federal (U.S. Fish and Wildlife Service):
FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FC = Candidate for Federal Listing

State (California Department of Fish and Game):
CE = Listed as Endangered by the State of California
CT = Listed as Threatened by the State of California
CSC = California species of special concern
FPS = California Fully protected bird species

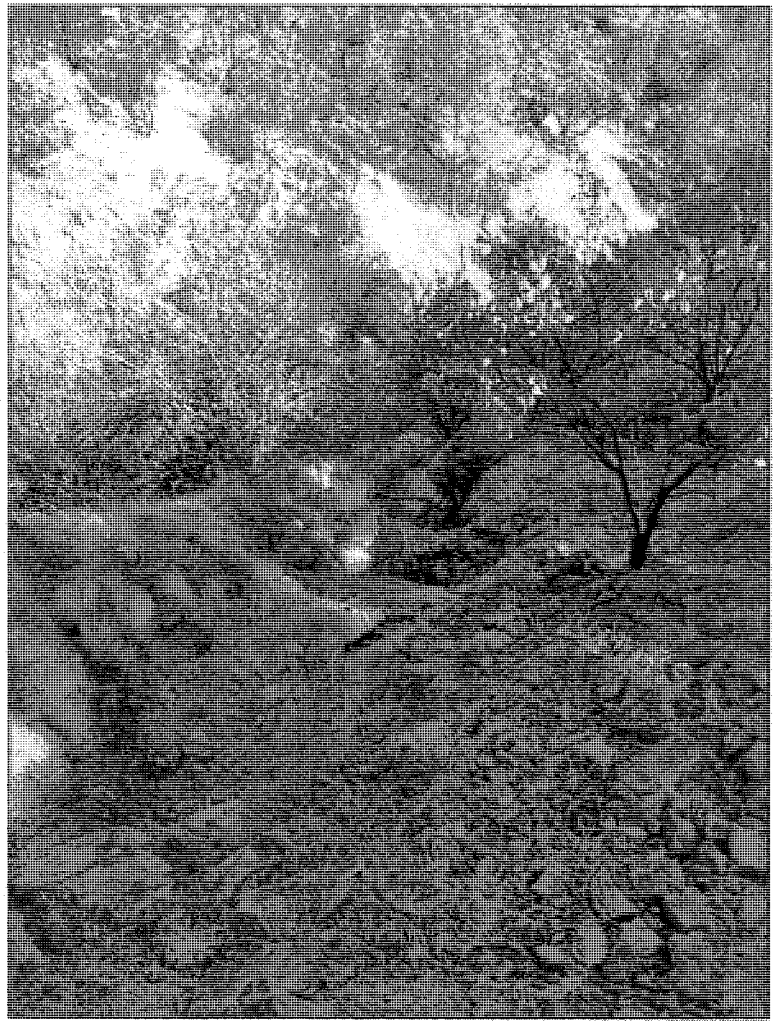
California Native Plant Society (CNPS):
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California but more common elsewhere
List 3 = Plants about which more information is needed
CNPS Code Extensions
.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% occurrences threatened)
.3 = Not very endangered in California (less than 20% of occurrences threatened or no current threats known)

Appendix B
Project Site Photographs

ESA



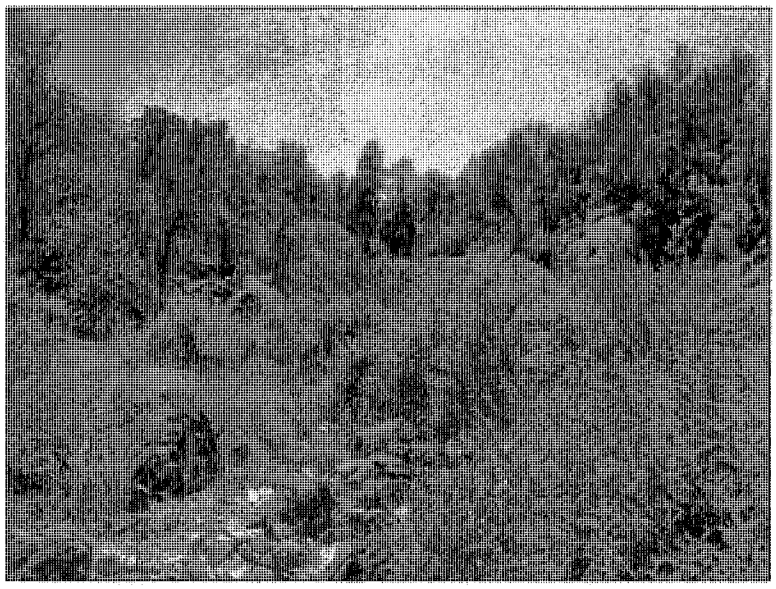
PHOTOGRAPH 1. Typical Ephemeral Channel



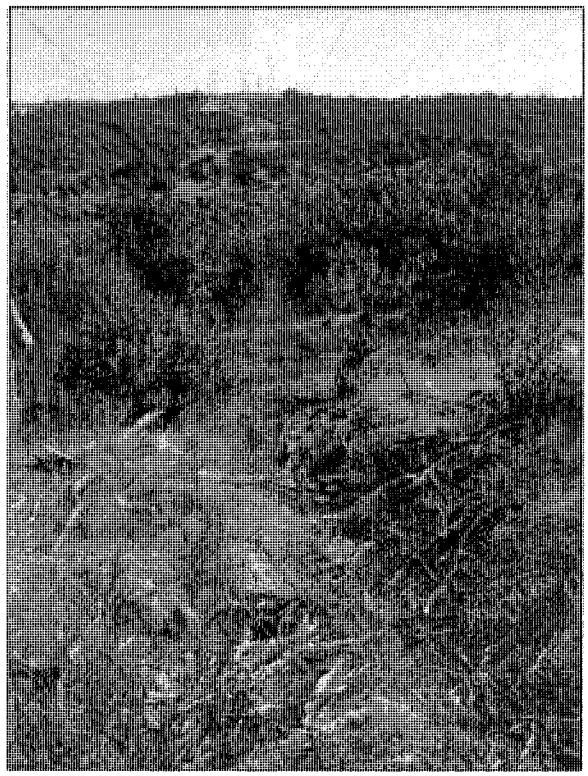
PHOTOGRAPH 2. Typical Ephemeral Channel

SOURCE: ESA, 2007

Appendix B-1
Project Site Photographs



PHOTOGRAPH 3. Typical Riparian Habitat



PHOTOGRAPH 4. Typical Upland Habitat

SOURCE: ESA, 2007

Appendix B-2
Project Site Photographs

Appendix C
Additional Biological Resource Analysis

ESA

ESA Land Management

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memorandum

date January 12, 2009

to Mr. Gary Blanc
Sierra Pacific Industries

Mr. Zach Bonnin
Associate Planner
Development Services Department- Planning Division
City of Redding

from Erich Fischer
Director, Biological Resources and Land Management

subject Additional Biological Resource Analysis for Salt Creek Heights Project

This memo provides additional biological resource analysis for the proposed Salt Creek Heights Project located in Redding, California per a request by the City of Redding (City). This additional analysis addresses the potential effects of proposed fuels reduction activities as well as the potential for the project to "interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites" (2008 CEQA Guidelines, Appendix G). In addition, incidental sighting by ESA and ENPLAN staff of elderberry shrubs (*Sambucus* spp.) in the project area are depicted in Figure 1. The City had also requested analysis of impacts associated with grading the "out-building pads" within the project study area; that analysis was already completed and is included in the *Salt Creek Heights Project Biological Resources Report* (ESA, 2007).

Fuels Management Effects

Fuels management activities are proposed for the project to protect residences and structures from wildfire. Fuels focused for treatment on the project site include shrubs and small trees. The proposed fuels reduction activities would occur within 200 feet of all structures in the project study area. It is anticipated that fuels would be reduced through both mechanized and not mechanized (hand) treatments. Mechanized treatment may take the form of a tracked excavator with a brush masticator attachment. Hand treatments would be completed by chainsaw and chipper. Proposed management activities would be divided into two treatment zones:

> **Zone 1:** This zone shall include the area within 100 feet of residences. Within Zone 1, 90 percent to 100 percent of the existing brush/shrubs shall be removed. Trees 6 inches in diameter at breast height (dbh) and greater shall be saved except where approved subdivision improvements will be located. Saved tress will be limbed to 8 feet above grade. At the time of building construction additional fuel-load reduction may be required consistent with Zone 1 standards based on the actual location of the structure to provide a 100-foot setback of the structure from the Zone 2 clearance area.

Zone 2: This zone encompasses all areas within 100 feet of Zone 1. Vegetation shall be removed so that crown closure of brush/shrubs and trees is reduced to 50 percent. Where crown closure of existing vegetation is already 50 percent, no additional treatment would occur. As with Zone 1, trees 6 inches in dbh or greater shall be saved. Saved tress will be limbed to 8 feet above grade.

Proposed treatment areas are depicted in Figure 1. These areas are generalized and may be adjusted slightly to accommodate the final dimensions and placement of structures. In addition, certain restrictions have been placed upon the prescriptions to protect water quality and riparian habitat. These include buffers surrounding Salt Creek and other jurisdictional features on the project site. The buffer recommended for mechanized treatments near Salt Creek is greater than the City's Zoning Ordinance setback requirements because of the local steepness of slope in the area. A larger buffer along Salt Creek would help insure that this feature is not adversely affected by sediment discharges or reductions in riparian habitat.

- No vegetation removal or very selective removal (as required by the Fire Marshal) shall occur within 50 feet from the riparian edge or 100 feet from top of bank, whichever is greater, from Salt Creek.
- No vegetation removal or very selective removal (as required by the Fire Marshal) shall occur within 25 feet of the ordinary high water mark of any other jurisdictional feature (as depicted in Figure 1).

Should it be determined that selective removal is required within these buffer areas for fire protection, all vegetation trimming and removal shall be performed by using hand tools to prevent additional damage to riparian vegetation and soil compaction from the use of heavy equipment or vehicles. Trees shall be cut to retain at least six inches of stump height above ground level to reduce the potential for erosion. All slash materials (limbs, branches and other woody debris) resulting from trimming and removal activities should be removed from the buffer area by hand and properly disposed at an appropriate off-site location.

Based on these conditions, the proposed fuel reduction activities may affect approximately 91 acres of upland habitat within the study area. A more detailed break-down of these impacts is provided in Table 1 and Figure 1.

TABLE 1
HABITATS AFFECTED BY FUEL REDUCTION ACTIVTIES

Habitat Type	Acres
Zone 1 Impacts	
Blue Oak Woodland	31.0
Blue Oak-Foothill Pine	1.2
Disturbed	3.1
Mixed Chaparral	9.7
Total	**45.0**
Zone 2 Impacts	
Blue Oak Woodland	33.0
Blue Oak-Foothill Pine	1.3
Disturbed	5.3
Mixed Chaparral	6.7
Total	**46.3**

SOURCE: Sharrah Dunlap Sawyer, 2009 and ESA, 2009

As described in the *Salt Creek Heights Project Biological Resources Report* (ESA, 2007), most of the project site is composed of the Blue Oak Woodland (50%) and Mixed Chaparral (38%) habitat types. These habitat types would also be most affected by the proposed fuels treatments. Other, more biologically sensitive habitat types,

such as riparian and seasonal wetland, would be largely unaffected by the proposed activities. In addition, the proposed treatment prescriptions would preserve habitat components that are important to many species of wildlife, such as large diameter (at least 6 inches dbh) oaks and pines as well maintaining 50 percent canopy closure within the Zone 2 treatment areas. The treatments would also likely have some beneficial effects; through treating areas around structures, it substantially reduces the potential for human-caused ignitions *within* the study area affecting untreated habitat (including riparian habitat) within and adjacent to the study area.

Nevertheless, the proposed fuel treatments could adversely impacts biological resources, including nesting raptors, valley elderberry longhorn beetle (VELB) habitat (elderberry shrubs), and fisheries in Salt Creek. Nesting raptors may be disturbed by vegetation removal activities and abandon active nest sites. Elderberry shrubs that provide suitable habitat for the federally listed VELB may be incidentally removed by the proposed treatments. Fish, including salmonids, may be affected by sediments discharged from the areas disturbed by the fuel treatments. These potential effects are very similar to those described as Constraints 1, 2 and 5, respectively, in the *Salt Creek Heights Project Biological Resources Report* (ESA, 2007). As such, these potential impacts may be mitigated to a less than significant level through applying Mitigation Measures 1, 2, and 5 to the treatment areas. No additional mitigation would be required.

Effects to Biological Linkages

The proposed project also has the potential to affect local movements of fish and wildlife. As described previously, Salt Creek provides suitable fisheries habitat. However, it is unlikely that the proposed project would adversely affect migrating salmonids, as no project activities would directly affect Salt Creek, and salmonids that may occur in Gold Run Creek would be avoided based upon mitigation included in ESA's Adendum to the Biological Resources Report:

> "To ensure no significant effect to anadromous salmonids from the proposed project, all in channel work should be restricted to July 1st through September 15th, a period when upstream migration/spawning is not likely to occur. Gold Run Creek is a relatively permanent stream that dries up in the summer months and does not likely provide rearing opportunities during this period. Project designs should include a bottomless/conspan culvert design that would not impede any potential fish movement/migration upon project completion. These measures, in addition to requiring proper BMP's would reduce potential effects to a less than significant level."

Terrestrial wildlife, including Columbian black-tailed deer (*Odocoileus hemionus columbianus*), may also be affected by the proposed project through impeding or displacing seasonal movements. The project site is situated on the west end of the City of Redding. State Route 299 (Eureka Way) is south of the project and residential developments are to the east and south. The Sacramento River is the north, and Salt Creek flows along the northwest boundary. Topography of the site is steep along its northern portion; these slopes are typically covered by blue oak woodlands.

Blue oak woodlands provide shelter for deer, while the mixed chaparral provides suitable forage. The forage quality of the site will likely improve post fuel treatments as new, young shrubs germinate (Sommer et al., 2007). Forage quality in this area (Cascade-North Sierra Nevada Unit) is a limiting factor for deer (CDFG, 1998). Therefore, deer may use the site for both foraging and loafing, especially post-project. Based on the surrounding topography and land uses, it is likely that deer use Salt Creek for most north-south movements through the site, from the Sacramento River to major blocks of open space habitat to the southwest. Because this habitat would be protected from project activities, it is not anticipated that the seasonal movements of deer would be impacted by the proposed project. No mitigation is required.

References

CDFG. 1998. Report to the Fish and Game Commission: An Assessment of Mule and Black-tailed Deer Habitats and Populations in California. California Department of Fish and Game, Wildlife Management Division, Sacramento, CA.

ESA, 2007. Salt Creek Heights Project Biological Resources Report. Sacramento, CA.

Sommer, M.L., R.L. Barboza, R.A. Botta, E.B. Kleinfelter, M.E. Schauss and J.R. Thompson. 2007. Habitat Guidelines for Mule Deer: California Woodland Chaparral Ecoregion. Mule Deer Working Group, Western Association of Fish and Wildlife Agencies.

SOURCE: ENPLAN, 2006; SDS, 2008; and ESA, 2008

Salt Creek Heights Biological Resources Report . 206134

Figure 1
Fuel Treatment Impact Areas

SALT CREEK HEIGHTS RESIDENTIAL SUBDIVISION TREE EVALUATION PLAN

By Cedric D. Twight
Registered Professional Forester #2469
September, 2007

Purpose and Scope

On behalf of Sierra Pacific Industries (SPI), Cedric Twight (RPF #2469) conducted a tree survey and prepared this tree evaluation plan for the Residential Subdivision project (project). The project would develop approximately 273 acres with a variety of multi-family and single-family residential units, City Park and access roadways, trails, and designated open space. The purpose of this report is to document tree resources in the project area and consider and evaluate the relative beneficial qualities of the groups and individual trees within the project area in order that the proposed development satisfies the goals of the Tree Management Ordinance 18.45. The Redding Tree Management Ordinance recognizes the benefits and constraints relating the preservation and maintenance of trees within the City of Redding. Ordinance 18.45.010 states that the goals that reflect the balance that needs to be struck in order to achieve the following goals:

A. Protect and enhance the aesthetic qualities of the community provided by native and nonnative trees;
B. Promote a healthy and attractive urban landscape as the community grows;
C. Recognize the importance of trees as a visual and physical buffer;
D. Preserve the city's valuable natural features;
E. Require the replacement of trees that are removed, where appropriate;
F. Establish a program for the planting of trees in new developments;
G. Protect trees on undeveloped properties until such time as a development plan/building permit is approved.

The proposed project encompasses approximately 279 acres and is located within the western periphery of the Redding City (**Figure 1**). The site is bordered on the north and west by Salt Creek, the East by Gold Run Creek and by Highway 299 west, on the south side. This corresponds to Township 32 North, Range 5 West Sections 28, 32, and 33 of the Mount Diablo Baseline Meridian; within the U.S. Geological Survey (USGS) "Redding, CA" 7.5' Quadrangle.

City of Redding Tree Management

The Tree Evaluation for this project is required to meet City Ordinance 18.45.070. The application for a discretionary project shall also be considered an application for tree removal in those instances where trees will be affected by the development. A qualified professional shall provide an overall qualitative evaluation of trees on the site. The Evaluation criteria may include:

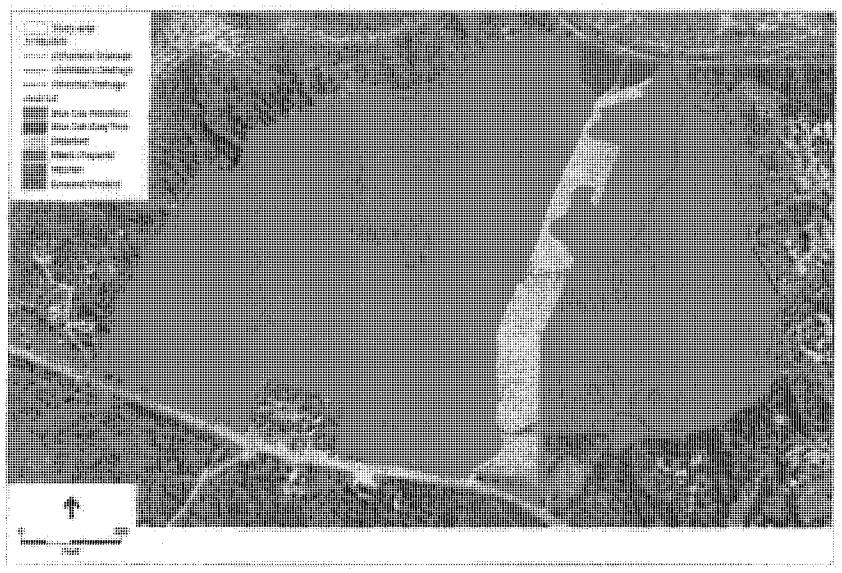
i. Species;
ii. Size (estimated or measured diameter and height);
iii. Health and vigor, including external signs of defect or disease;
iv. Aesthetic quality as determined by shape, branching and color;
v. Ecological quality as determined by evidence of wildlife use, grove size, adjacency to water or connectivity to other habitats;
vi. Potential hazards posed by dead branches or tops, lean or defect;
vii. Location relative to existing or potential development and the ability to provide sufficient growing space;
viii. Other considerations including local significance and functional role as a buffer between land uses.

Tree Identification and Evaluation

Initial plant community mapping was provided by ESA as part of their Biological Assessment of the site (Figure 3). Cedric Twight, Sierra Pacific Industries, Registered Professional Forester #2469 evaluated the study area to delineate candidate trees or groups of candidate trees for retention within the

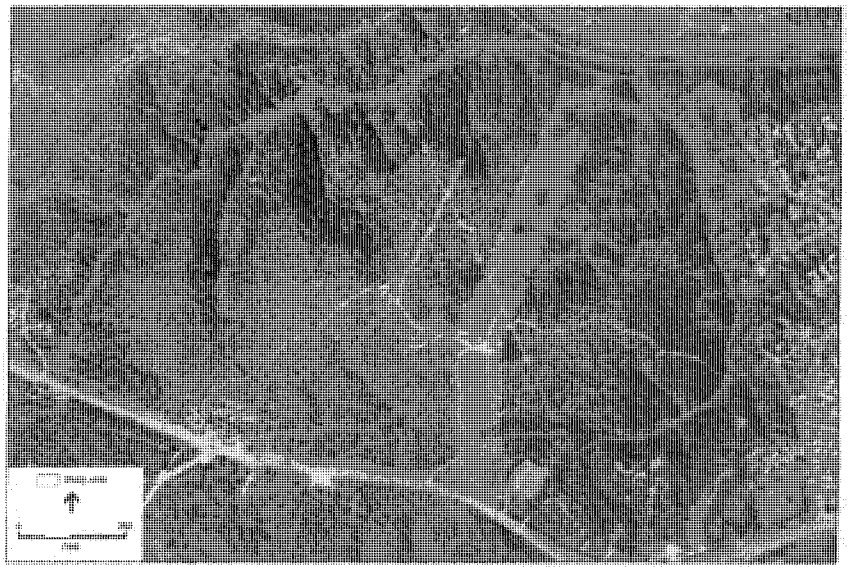
project area. A current aerial photograph of the project area that shows the outline of the project area was provided by ESA (Figure 2-2). The candidate tree evaluation utilized aerial photo interpretation and by walking meandering transects throughout the project area and interpreting the tree survey results.

Site reconnaissance and tree inventory plots within and outside of the areas of impact were completed on August 1 and 21, and September 5, 2007.



Salt Creek Estates Biological Resources Report

Figure 3
Habitats within the Study Area



Salt Creek Estates Biological Resources Report

Figure 2
Study Area

Survey Methods

Variable radius plots were located both randomly and systematically with a random start, within the project area. At each plot individual tree data was recorded including: Basal area, tree overstory canopy cover, brush understory canopy cover, tree species, tree diameter, brush species composition, and slope gradient. Tree Basal Area was determined using a Spiegel Relaskop using a Basal Area Factor of five, because of the relatively small diameter of the trees present on the site. Canopy cover percentages are ocular estimates of the surrounding vegetation at plot center. Tree diameters were either measured using a diameter tape or are ocular estimates to the nearest inch. Tree heights were either measured using a clinometer or are ocular estimates to the nearest 1foot. Individual tree data was collected for those trees that were measured "in" with the Spiegel Relaskop. The general condition of the tree and its components (root collar, trunk, limbs, foliage) were assessed and an overall vigor ("Condition") assigned. The "Condition" of the tree is defined as follows:

Excellent: Tree is without any visible deficiencies. Tree is in excellent health and is structurally sound, with little evidence of dieback and good overall annual growth. The tree shows no sign of disease, decay, or mistletoe infestation. The tree has a balanced branching structure.

Good: Tree has no major deficiencies but may have minor defects such as minor dieback or overcrowding. Tree is in good health and is structurally sound. Minor defects are not detrimental to overall health of tree.

Fair: Tree has no major deficiencies but many minor defects. Tree is in average health and may have some structural deficiencies such as decay and numerous dead limbs. Overall health and integrity of the tree is not adversely affected at present, but the tree may have limited growth, and unbalanced or asymmetrical form. Deficiencies may be detrimental to long-term health of tree.

Poor: Tree has major deficiencies that are detrimental to health of tree, including major decay in the trunk or main limbs, extensive dieback, sparse foliage, extreme overcrowding, and unbalanced or asymmetrical form.

Each plot location was referenced with a Global Positioning System (GPS). The plot data was collected in order to assess and characterize the condition of the tree cover types occupying the project area.

Survey Results

A total of 32 plots were inventoried within the project area. The individual plot information is attached in Appendix A.

Tree Evaluation Summary

Where the residential development is proposed there is very sparse tree canopy coverage (approximately 13%), a brush canopy of approximately 57% and very few individual trees greater than 12 inches in diameter at breast height (DBH). The more open canopy condition within the area of impact contrasts with the unaffected area which has an average tree canopy of 30% and a brush canopy of 55%. The more open stand condition is probably the result of soil conditions that restrict the availability of water in the summer months. In many cases the droughty conditions are the result of shallow soils that are perched above an impermeable layer (cemented gravels or parent rock), which physically restrict the effective rooting depth of plants and make water sources deep in the soil profile unavailable. The soils in the area to develop reflect this shallow soil depth. The Natural Resource Conservation Service soil survey shows the area

containing Red Bluff Very Gravelly Loam and Goulding Very Stony loam, having a depth to restrictive layer of 30-40" and 16-20" respectively. These shallow soils combined with the hot summer climate, limit the tree productivity potential at this site. The majority of trees impacted by the proposed development are Blue oaks with an average diameter at breast height of nine inches and an average height of 22 feet. The average condition of the trees affected are 65% "good"; 25% "fair", and 10% "poor".

The project design provides for avoidance of the majority of the Blue oak trees through the use of clustering of the residences. The proposed strategy of clustering homes where the Blue oak tree canopy is the sparsest will minimize the removal of individual oak trees while maintaining the continuity of existing oak woodland stands, including the avoidance of impacts to areas near watercourses that contain riparian habitat. Riparian zones increase the complexity of adjacent habitats due to their micro-climate differences and plant species diversity. The retained oak woodland stands, which are on the steeper slopes leading to the streams have a greater mix of tree species than the impacted areas. Areas having high tree species richness provide a variety of foliage complexity, which has a positive correlation with the abundance of common breeding bird species (R.A. Wilson, P. Manley, and B.R. Noon). The project design thereby protects the most complex portions of the physical environment, which is important since the more complex the physical environment the more complex the plant and animal communities (J.P. Kimmins). Additionally, the oak woodland area being protected is essentially one large area situated along major stream drainages. The size and configuration of the retained Blue oak woodlands will provide corridors of habitat that will reduce the potential effects of habitat fragmentation and provide migration corridors to other developed and undeveloped areas adjacent to the project. The Planner's Guide to Oak Woodlands suggests that one large stand of trees is better than many small patches and connectivity between habitat areas that reduce habitat fragmentation should be emphasized (Giusti, McCreary, Standiford).

The proposed compensation for the direct impact to the tree cover within the foot print of the proposed development is to designate the Blue oak woodland habitat avoided as Greenway Reserve. The retained Blue oak woodlands could be managed for its recreational and wildlife habitat opportunities in conjunction with fuels management. In addition the developer proposes to plant trees within the neighborhoods; per City of Redding Standards, that are created as part of the proposed development. The trees will be planted for their aesthetics, to moderate temperatures, and provide forage and habitat for wildlife. The planting effort would attempt to replace the approximate 13% tree canopy cover that currently exists where the footprint of the development is situated, albeit in a different configuration due to grading at the project site. The plantings would occur mainly in common areas, along streets, and within the city park.

The project proposes clustering of high density multi-family and single family residential units in areas having the fewest individual blue oak trees and provide for the retention of the Blue oak woodland stands with the highest complexity. This design/tree management strategy of retaining the best areas of Blue oak woodland in conjunction with the replanting of replacement trees within the developed areas, in a manner that meets or exceeds the existing tree canopy coverage, will meet the aesthetic, temperature moderation and wildlife habitat objectives that the City of Redding Tree Management Ordinance strives to achieve.

References

J.P. Kimmins, 1987, Forest Ecology, pg 380Macmillan Publishing Company.

Gregory Giusti, Doug McCreary, Richard Standiford; 2005, A Planner's Guide for Oak Woodlands; University of California Agriculture and Natural Resources Publication 3491, second edition 2005;

Randolph A. Wilson, Patricia Manley, and Barry R. Noon; Covariance Patterns Among Birds and Vegetation in a California Oak Woodland, pg 135. Gen. Tech. Rep. PSW-126. March 1991. USDA Forest Service, Pacific Southwest Research Station, P.O. Box 245, Berkeley CA 94701

NRCS Web Soil Survey; Custom Soil Report: Salt Creek Heights; June 2008

APPENDIX A - PLOT DATA

Plot	Basal Area	Tree Count	Species	Diameter at Breast Height (DBH)	Height	Condition	Slope Percent	Tree Canopy	Brush Canopy
1	5	1	Blue Oak	10	24	Good	2%	15%	25%
2	15	1	Blue Oak	5	15	fair	8%	20%	85%
		2	Blue Oak	6	22	fair			
		3	Blue Oak	13	26	good			
3	15	1	Blue Oak	8	23	fair	9%	15%	50%
		2	Blue Oak	10	27	good			
		3	Blue Oak	13	27	good			
4	10	1	M-Blue Oak	3	11	fair	5%	20%	40%
				2	11	fair			
5	10	1	Blue Oak	11	27	good	8%	15%	80%
		2	Blue Oak	8	18	good			
6	35	1	Blue Oak	10	28	good	44%	40%	70%
		2	Blue Oak	6	20	fair			
		3	Blue Oak	10	32	good			
		4	Blue Oak	5	17	fair			
		5	Blue Oak	17	37	poor			
		6	Blue Oak	12	29	good			
		7	Blue Oak	7	18	good			
7	15	1	Blue Oak	10	25	fair	50%	10%	30%
		2	Blue Oak	3	11	good			
		3	Blue Oak	6	25	good			
8	35	1	Blue Oak	10	27	good	10%	35%	20%
		2	M-Live Oak	7	33	fair			
				12		fair			
				10		fair			
				6		fair			
		3	Live Oak	12	32	poor			
		4	Black Oak	24	42	poor			
9	140	1	Blue Oak	6	23	poor	44%	40%	70%
		2	Blue Oak	8	24	poor			
		3	Blue Oak	10	24	fair			
		4	Blue Oak	10	28	fair			
		5	Gray Pine	17	95	good			
		6	Gray Pine	25	115	good			
		7	Cottonwood	28	75	fair			
10	25	1	Blue Oak	4	18	fair	60%	15%	80%
		2	Blue Oak	4	16	fair			
		3	Blue Oak	10	24	good			
		4	Blue Oak	8	20	fair			
		5	Blue Oak	3	14	fair			

Plot	Basal Area	Tree Count	Species	Diameter at Breast Height (DBH)	Height	Condition	Slope Percent	Tree Canopy	Brush Canopy
11	40	1	Black Oak	14	35	fair	60%	50%	20%
		2	Blue Oak	10	25	fair			
		3	Blue Oak	4	15	fair			
		4	Black Oak	12	30	good			
		5	Blue Oak	4	17	fair			
		6	Live Oak	6	25	good			
		7	Gray Pine	12	58	good			
		8	Black Oak	15	45	good			
12	35	1	Blue Oak	13	27	good	2%	10%	65%
		2	Blue Oak	10	20	good			
		3	Blue Oak	12	22	fair			
		4	Blue Oak	10	12	poor			
13	20	1	Blue Oak	13	27	good	2%	10%	65%
		2	Blue Oak	10	20	good			
		3	Blue Oak	12	22	fair			
		4	Blue Oak	10	12	poor			
14	20	1	M-Blue Oak	6	23	good	2%	15%	60%
				10	23	good			
		2	Blue Oak	8	25	fair			
		3	Blue Oak	10	25	poor			
15	20	1	Blue Oak	12	28	good	2%	10%	25%
		2	Blue Oak	10	20	fair			
		3	Blue Oak	14	28	good			
		4	Blue Oak	10	25	good			
16	15	1	Blue Oak	4	18	fair	2%	10%	30%
		2	Blue Oak	8	22	fair			
		3	Blue Oak	8	18	good			
17	15	1	Blue Oak	7	25	fair	12%	10%	80%
		2	Blue Oak	5	12	good			
		3	Blue Oak	13	30	fair			
18	30	1	Blue Oak	8	25	good	20%	40%	80%
		2	Blue Oak	8	22	good			
		3	Blue Oak	6	20	good			
		4	Blue Oak	11	32	good			
		5	Blue Oak	8	27	good			
		6	Blue Oak	6	23	good			
19	15	1	Blue Oak	12	28	good	2%	10%	30%
		2	Blue Oak	11	30	good			
		3	Blue Oak	14	34	good			
20	5	1	Blue Oak	18	30	poor	5%	10%	60%
21	20	1	Blue Oak	12	25	good	13%	30%	70%
		2	Blue Oak	16	30	fair			
		3	Blue Oak	12	30	good			
		4	Blue Oak	10	25	good			

Plot	Basal Area	Tree Count	Species	Diameter at Breast Height (DBH)	Height	Condition	Slope Percent	Tree Canopy	Brush Canopy
22	40	1	M-Blue Oak	6	19	good	15%	20%	35%
				6	12	fair			
		2	Blue Oak	12	20	poor			
		3	Blue Oak	6	13	fair			
		4	Blue Oak	12	28	good			
		5	Blue Oak	4	10	good			
		6	Blue Oak	6	16	good			
23	55	1	M-Live Oak	6	25	fair	13%	45%	50%
				6	24	good			
		2	Blue Oak	6	20	fair			
		3	Blue Oak	6	25	fair			
		4	Blue Oak	12	33	fair			
		5	Blue Oak	4	12	fair			
		6	Blue Oak	4	13	fair			
		7	Blue Oak	6	25	good			
		8	Blue Oak	14	47	fair			
		9	Blue Oak	6	28	good			
		10	Blue Oak	6	22	poor			
24	35	1	Blue Oak	6	17	good	10%	20%	30%
		2	Blue Oak	6	18	good			
		3	Blue Oak	4	15	fair			
		4	Blue Oak	10	22	good			
		5	Blue Oak	14	33	good			
		6	Blue Oak	8	26	good			
		7	Blue Oak	5	13	fair			
25	20	1	Blue Oak	14	40	good	8%	30%	70%
		2	Blue Oak	12	36	good			
		3	Blue Oak	6	25	good			
		4	Blue Oak	6	24	fair			
26	20	1	Blue Oak	8	20	good	5%	10%	90%
		2	Blue Oak	8	22	good			
		3	Blue Oak	6	28	good			
		4	Live Oak	14	25	good			
27	10	1	Black Oak	4	15	good	10%	15%	10%
		2	Black Oak	6	28	good			
28	25	1	Black Oak	20	42	fair	10%	15%	60%
		2	M-Black Oak	8	30	poor			
				10	30	poor			
				8	30	poor			
				12	30	poor			
29	30	1	Live Oak	6	20	good	5%	50%	60%
		2	Blue Oak	10	30	good			
		3	Live Oak	12	32	good			
		4	Live Oak	10	25	good			
		5	Blue Oak	2	12	fair			
		6	Live Oak	6	30	good			

Plot	Basal Area	Tree Count	Species	Diameter at Breast Height (DBH)	Height	Condition	Slope Percent	Tree Canopy	Brush Canopy
30	20	1	M-Blue Oak	6	20	good	12%	10%	90%
				4	18	good			
		2	Blue Oak	6	23	good			
31	5	1	Blue Oak	14	30	good	15%	15%	50%
32	25	1	M-Blue Oak	8	25	fair	25%	30%	80%
				12	25	fair			
		2	Blue Oak	10	35	good			
		3	Blue Oak	12	30	good			
		4	Blue Oak	17	35	good			
Average of all Plots		127		9	26		15%	22%	55%

M = multi-trunk individual

Addendum to the Tree Evaluation for the Salt Creek Heights Subdivision

The following is in response to the City of Redding's request for mapping of individual candidate trees or groups of trees in accordance with Section 18.45.070 of the City of Redding Tree Management Ordinance, that lend themselves to retention, have a high likelihood for long term survival within the developed area, are strategically situated to provide aesthetic benefits to the proposed project and would provide a buffer to land use areas adjacent to the project site. The areas that met these criteria are listed below.

- Road A from State Route (SR) 299 to Road C.
- Road B from SR 299 to Road O.
- Buenaventura Boulevard from Lot 279 to the edge of the 20% slopes at lot 332.
- Road O from Lot 310 to Road N.
- Road N from Road O to Lot 270.
- Road A at the north terminus of Road O.
- Road E adjacent to the open space at Road F.
- All cul-de-sac bulbs that abut open space.

The area from east of Road A and south of Road C was considered for evaluation however the area conducive to retention of trees; below road C and outside of the high density neighborhood, is generally on slopes >20% and trees in this area will be retained following construction activities.

The areas of proposed development outside the listed areas generally have a tree canopy that is evenly disbursed with trees of similar and diminutive stature. Fieldwork within these areas did not identify any candidate trees or groups of trees warranting retention due to their exceptional characteristics.

The fieldwork to support this effort involved a comprehensive survey of the project foot print. The tree survey for the selected areas identified the location and size of the trees >4" DBH, on slopes <20%, in and adjacent to the areas indicated above. Tree diameters were measured at breast height with either a diameter tape or estimated ocularly. Tree diameters were measured to the nearest inch while the tree heights were either estimated ocularly or measured using a clinometer to the nearest five foot height interval. The trees measured have an average diameter of 8 inches DBH and an average height of 25 feet. The individual tree locations were captured using a GPS receiver and mapped using the Atlas Geographic Information System.

The results of this survey indicate that while there are numerous trees within these areas, the trees are generally similar in size and stature. There were however 88 trees 14" DBH and larger identified during the tree survey. Some of these individual trees exhibit form and vigor that could be considered candidate specimens for retention. Individual candidate trees include three relatively large Ponderosa pine trees (21", 26", and 28" DBH) and a scattering of individual Blue oak trees adjacent to Highway 299W (see attached maps). Ponderosa Pine trees are not unique to the region however they are generally found above 1,500 feet elevation so these specimens provide a stark contrast in this oak woodland environment. The remaining hardwood trees having diameters larger than 14" DBH by themselves, many of which are Blue oaks, would not be considered good candidate trees for retention, since their form and structure is not especially outstanding. A different view can be taken when considering some of these larger diameter trees, as part of a larger group.

Conclusion and Recommendation

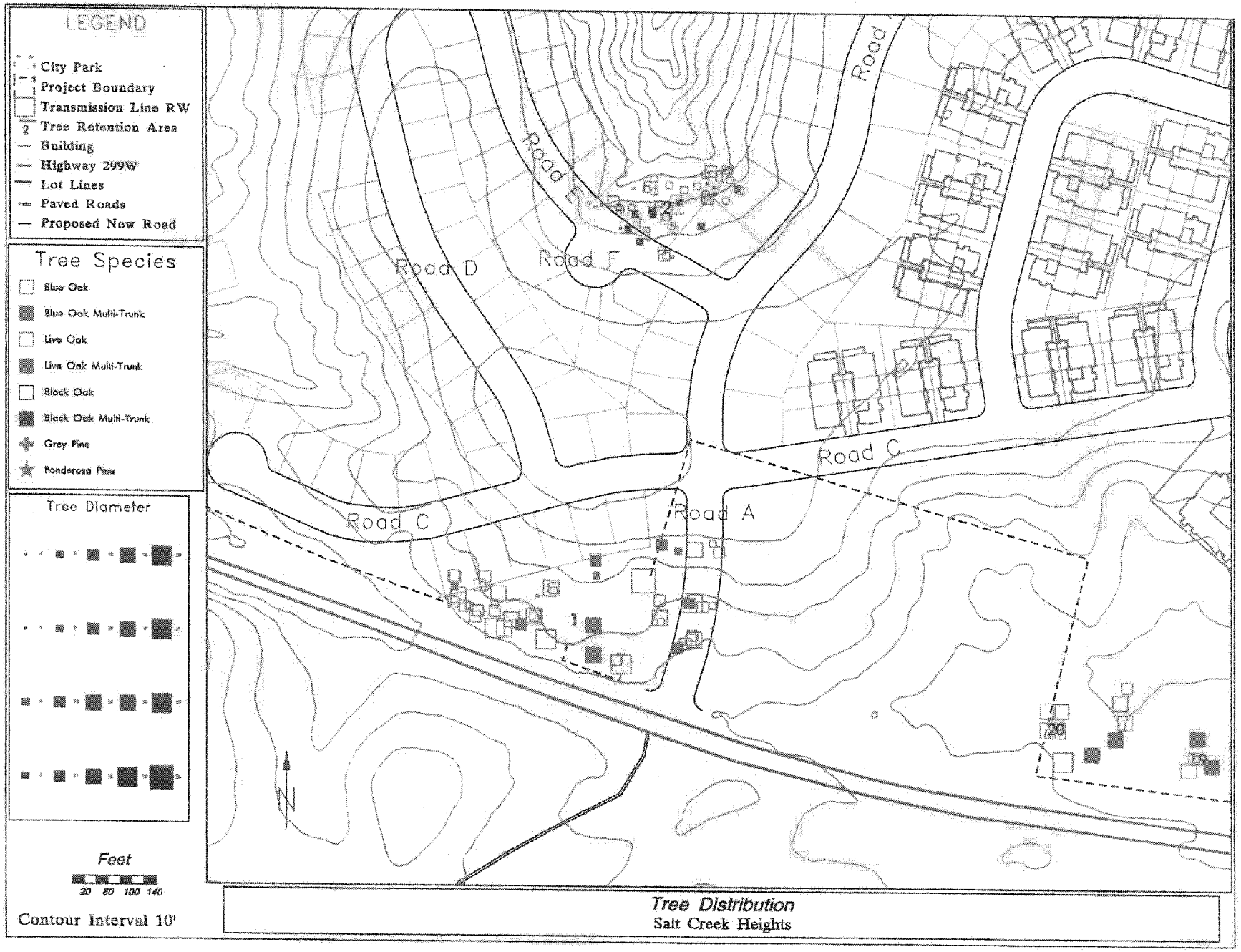
Many of the larger individual trees within the areas that are conducive for supporting tree retention are not by themselves compelling candidates. However when these larger individual trees are view as a group with the smaller trees, the mix of large and small oaks have a more compelling aesthetic quality worthy of consideration for retention. Grouping these hardwood trees in retention areas would also help protect the retained trees in the near term by limiting their exposure to mechanical damage during construction since only the periphery of the group will be at risk of impact not all sides of each individual tree. Retaining groups instead of individuals will also help avoid losing the trees in the long-term since the grouped retention trees will not require additional plantings to create a desirable aesthetic thus avoiding irrigation. Irrigation of Blue oaks can cause unwanted mortality, due to fungal attack of the truck and roots due to overly saturated soil conditions. Because the vast majority of trees to be retained are Blue oaks this is an important consideration.

Viewing these areas with an eye toward retaining groups of oak trees instead of individuals, with consideration of the foot print of the proposed project, the proposed roadways and the proximity to other adjacent land uses 20 tree groups and 8 individual specimen trees have been identified for retention. The attached maps indicate the suggested perimeter of the 20 groups of trees suggested for retention. The retained groups and individual trees will preserve 69% of the 89 trees larger than 14"DBH in these select areas. It should also be noted that of the 273 acre site, 148 acres will be placed in an open space easement and all trees not affected by the necessary Defensible Space Fire Clearances will be retained.

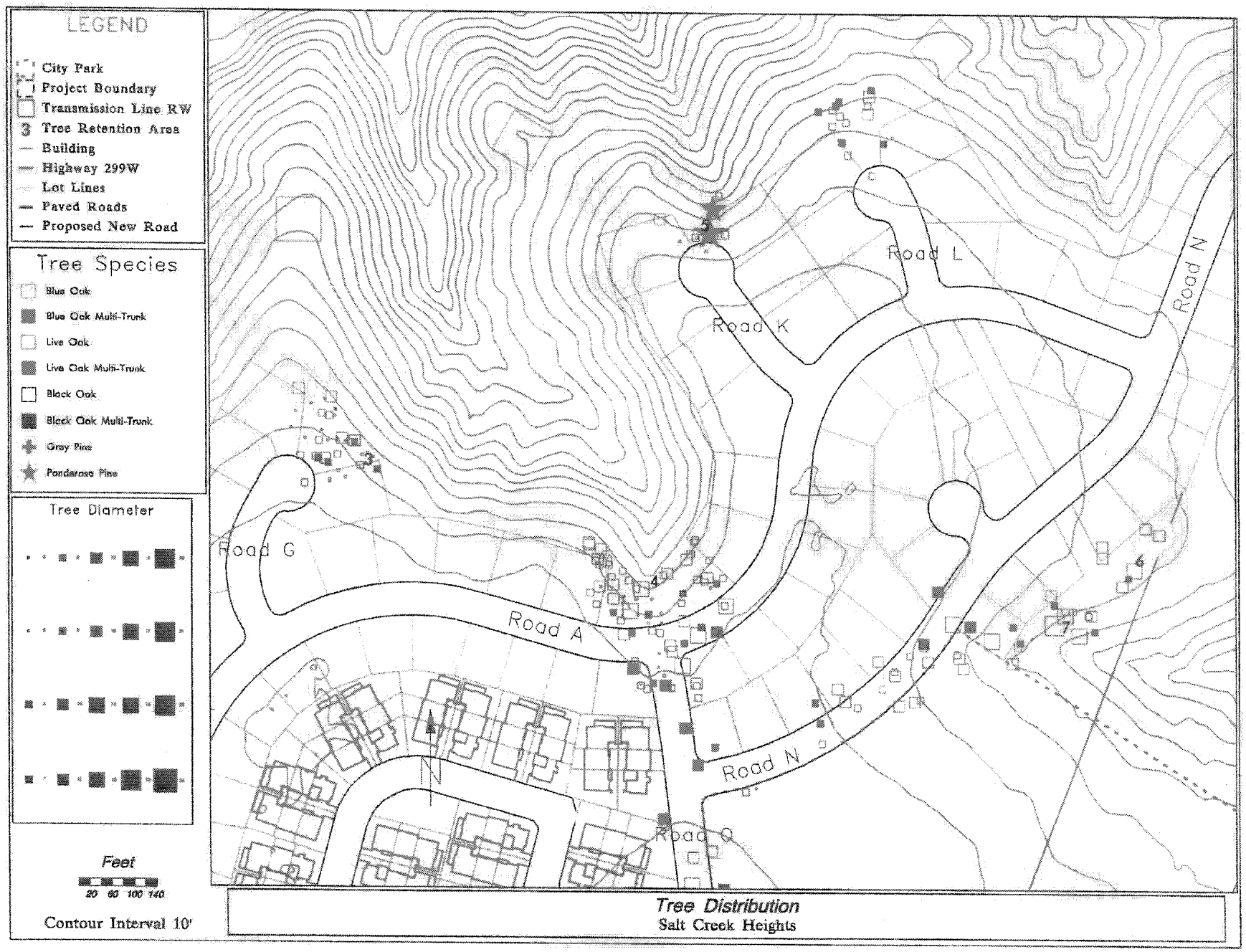
Construction and Post Construction Tree Management

The retention areas will be mechanically masticated to remove the brush understory. This activity will occur prior to any grading activities. This activity will improve the vigor of the retained trees by reducing vegetative competition, improve the aesthetics of the groups by removing the decadent understory vegetation and make the group less susceptible to mortality caused by wildland fire. Following the mastication of the brush and prior to grading activities these proposed retention groups will be identified on the ground by the consulting Registered Professional Forester (RPF) using plastic flagging of a color yet to be determined. The retention areas will then be fenced off using plastic, high visibility, 4' tall "safety" fencing. The fencing will follow the flagged tree retention perimeter, which will be established approximately six feet from the edge of the crowns of the peripheral trees in the group. The sides of the retention areas that abut slopes >20%, which are away from proposed improvements will not be fenced since grading equipment will be far removed from that edge of the retention area.

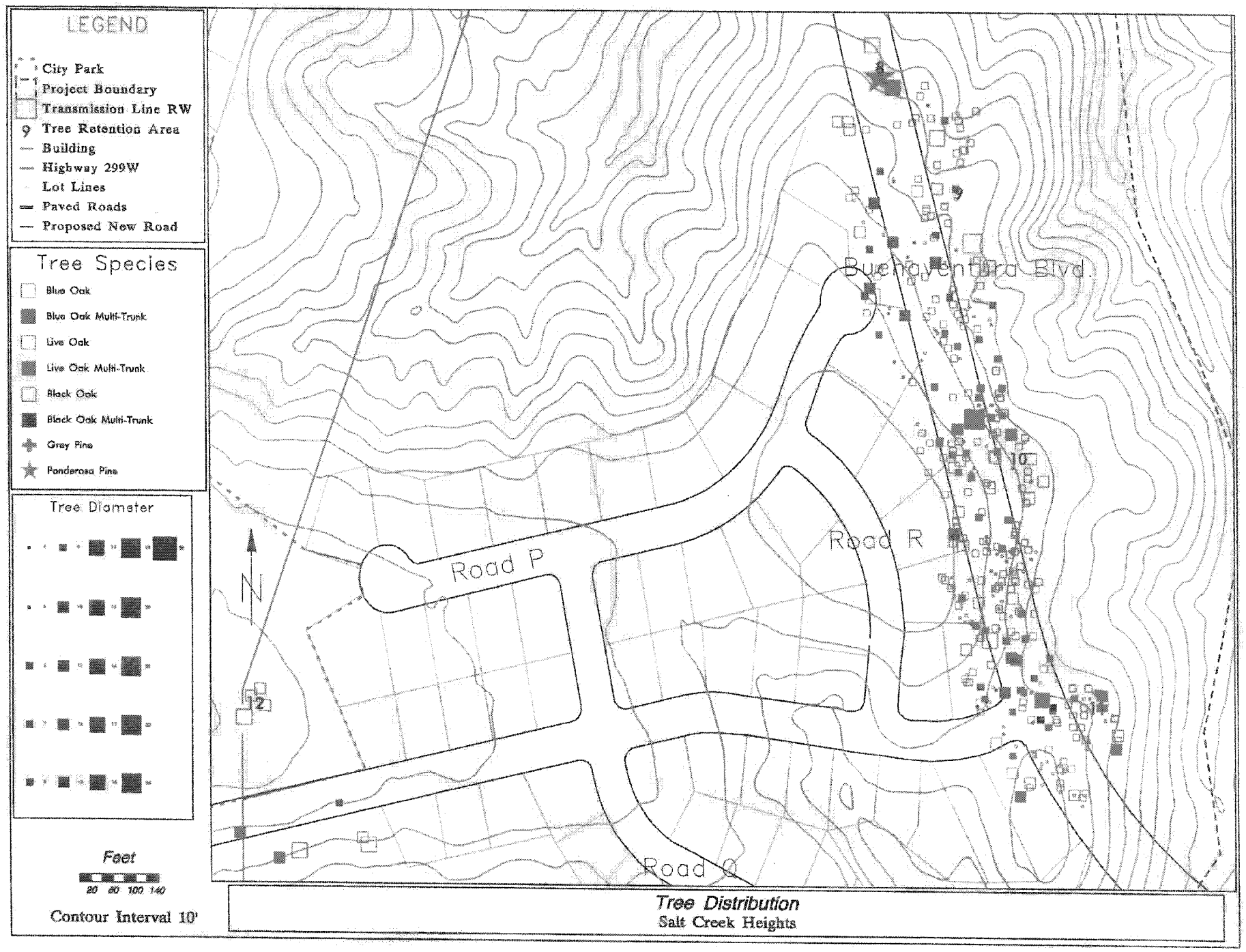
Given the location of the retention areas, the mastication of the understory, and the grading equipment exclusion, these tree retention groups should survive the ground disturbance caused by the construction of the project and enhance the aesthetics of the project site for many years to come. The retention of these oaks will be in addition to the horticultural tree plantings associated with common area, along roadways and in the public park.



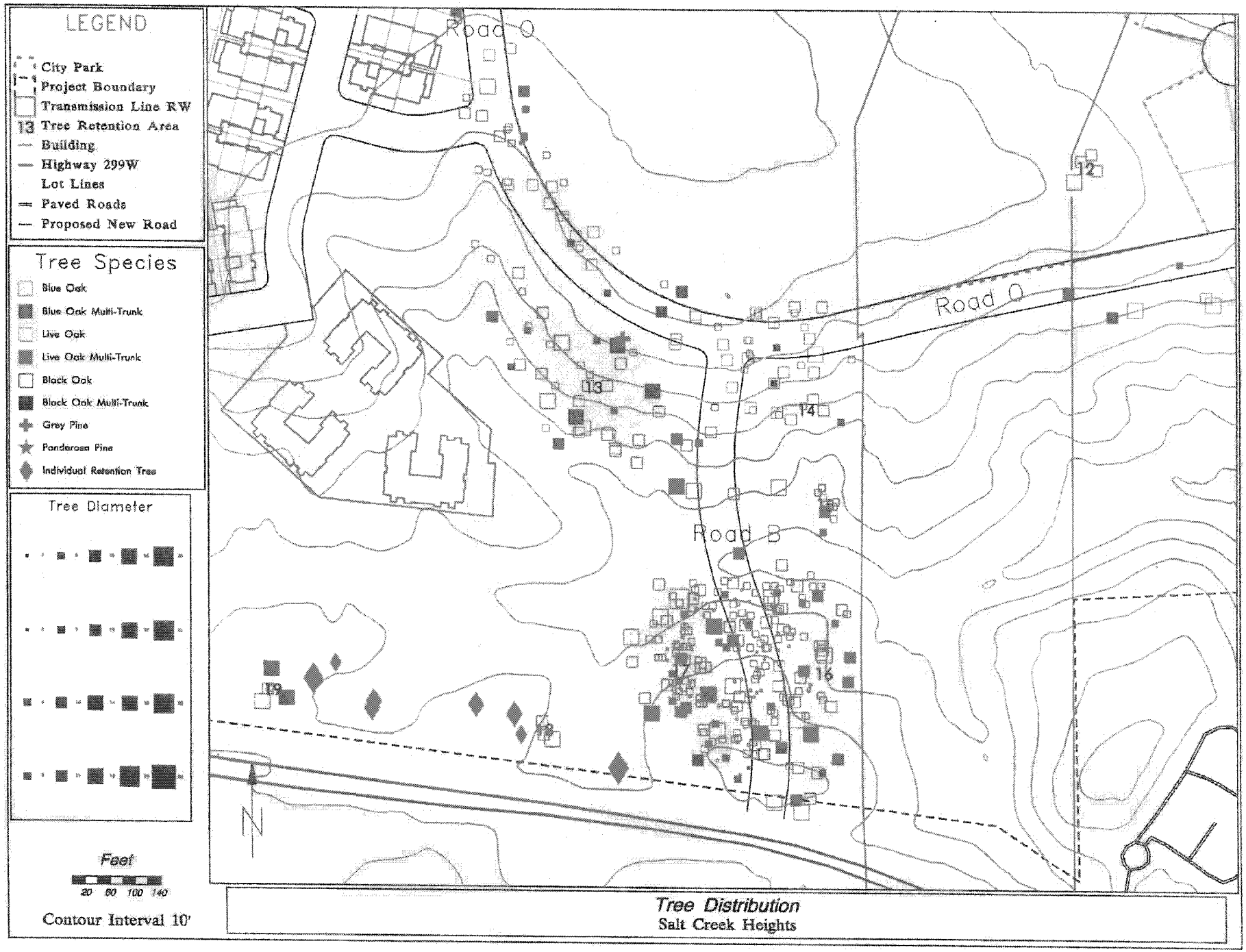
Tree Distribution
Salt Creek Heights



Tree Distribution
Salt Creek Heights



Tree Distribution
Salt Creek Heights



Tree Distribution
Salt Creek Heights

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

REPLY TO
ATTENTION OF

January 6, 2009

Regulatory Division (SPK-2007-2130)

Gary Blanc
Sierra Pacific Industries
P.O. Box 496014
Redding, California 96049

Dear Mr. Blanc:

We are responding to your consultant's request for an approved jurisdictional determination for the Salt Creek Heights Project. This approximately 272-acre site is located in Section 33, Township 32, Range 5, MDB&M, Latitude 40.589 North, Longitude -122.441 West, City of Redding, Shasta County, California.

Based on available information, we concur with the estimate of waters of the United States, as depicted on the Salt Creek Heights, 206134, Appendix B Jurisdictional Features map, dated May 16, 2008, drawing prepared by ESA Associates. Approximately 7.57 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act, since they are adjacent to or tributary to Salt Creek, a tributary to the Sacramento River.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331.

A Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDS-O, 1455 Market Street, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

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 determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. 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 complete our customer survey at *http://www.spk.usace.army.mil/customer_survey.html*. Your passcode is "conigliaro".

Please refer to identification number SPK-2007-2130 in any correspondence concerning this project. If you have any questions, please contact Matthew Rabbe at our Redding Field Office, 152 Hartnell Avenue, email *matt.r.rabbe@usace.army.mil*, or telephone (530)223-9538. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Matthew P. Kelley
Chief, Redding Regulatory Office

Enclosure:

Copy furnished without enclosure:

Andrew Jensen, Regional Water Quality Control Board, 415 Knollcrest Drive, Suite 100, Redding, California 96002
Dave Smith, U.S. EPA Region 9, 75 Hawthorne Street, San Francisco, California 94105
Jamie Gallos, 8950 Cal Center Dr., Building 3, Suite 300, Sacramento, California 95826

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Gary Blanc	File No.: SPK-2007-2130	Date: January 6, 2009

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
x	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/inet/functions/cw/cecwo/reg* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the DISTRICT engineer. Your objections must be received by the DISTRICT engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the DISTRICT engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the DISTRICT engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION (not district) engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION engineer within 60 days of the date of this notice. Exception: JD appeals based on new information must be submitted to the DISTRICT engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **DISTRICT ENGINEER** Sacramento District, Corps of Engineers Attn: Matthew Rabbe, Project Manager, Regulatory Division 152 Hartnell Avenue (530)223-9538, FAX (530)223-9539 (Use this address for submittals to the **DISTRICT** ENGINEER)	If you only have questions regarding the appeal process you may also contact: **DIVISION ENGINEER** Army Engineer Division, South Pacific, CESPD-CM-O Attn: Tom Cavanaugh, Administrative Appeal Review Officer, Army Corps of Engineers , CESPD-PDS-O, 1455 Market Street, San Francisco, CA 94103-1399 (415-503-6574, FAX 415-503-6646) (Use this address for submittals to the **DIVISION** ENGINEER)

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

SALT CREEK HEIGHTS PROJECT

Wetland Delineation Report

Prepared for
U.S. Army Corps of Engineers
Sacramento District, Redding Office

October 2007

On behalf of
Sierra Pacific Industries

ESA

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206134

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Wetland Delineation Report

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SECTION 1.0
Summary

On behalf of Sierra Pacific Industries, in August 2007, Environmental Science Associates (ESA) conducted a wetland delineation for the proposed Salt Creek Heights project located in Shasta County, California. This wetland delineation report describes those features within the study area that may be considered waters of the United States (U.S.), and are therefore subject to Section 404 of the Clean Water Act (CWA). Delineated wetlands and other waters of the U.S. will be assessed as part of a multi-disciplinary constraints analysis for use in project planning.

The proposed project is located on a 294-acre parcel in the western portion of the City of Redding. This parcel is currently undeveloped; with several utility maintenance roads crossing the study area.

Approximately 3.82 acres and 31,718 linear feet of jurisdictional other waters of the U.S. and 3.73 acres of wetlands were identified in the study area, for a total of 7.55 acres of potentially jurisdictional waters of the U.S. A summary of waters of the U.S. and wetland mapping, calculated acreages, total area, and linear lengths of drainages is provided in Section 4.0, Results.

This report documents wetland and channel boundary delineation and best professional judgment of ESA investigators. All conclusions presented should be considered preliminary and subject to change pending official review and verification in writing by the U.S. Army Corps of Engineers (Corps).

SECTION 2.0
Introduction

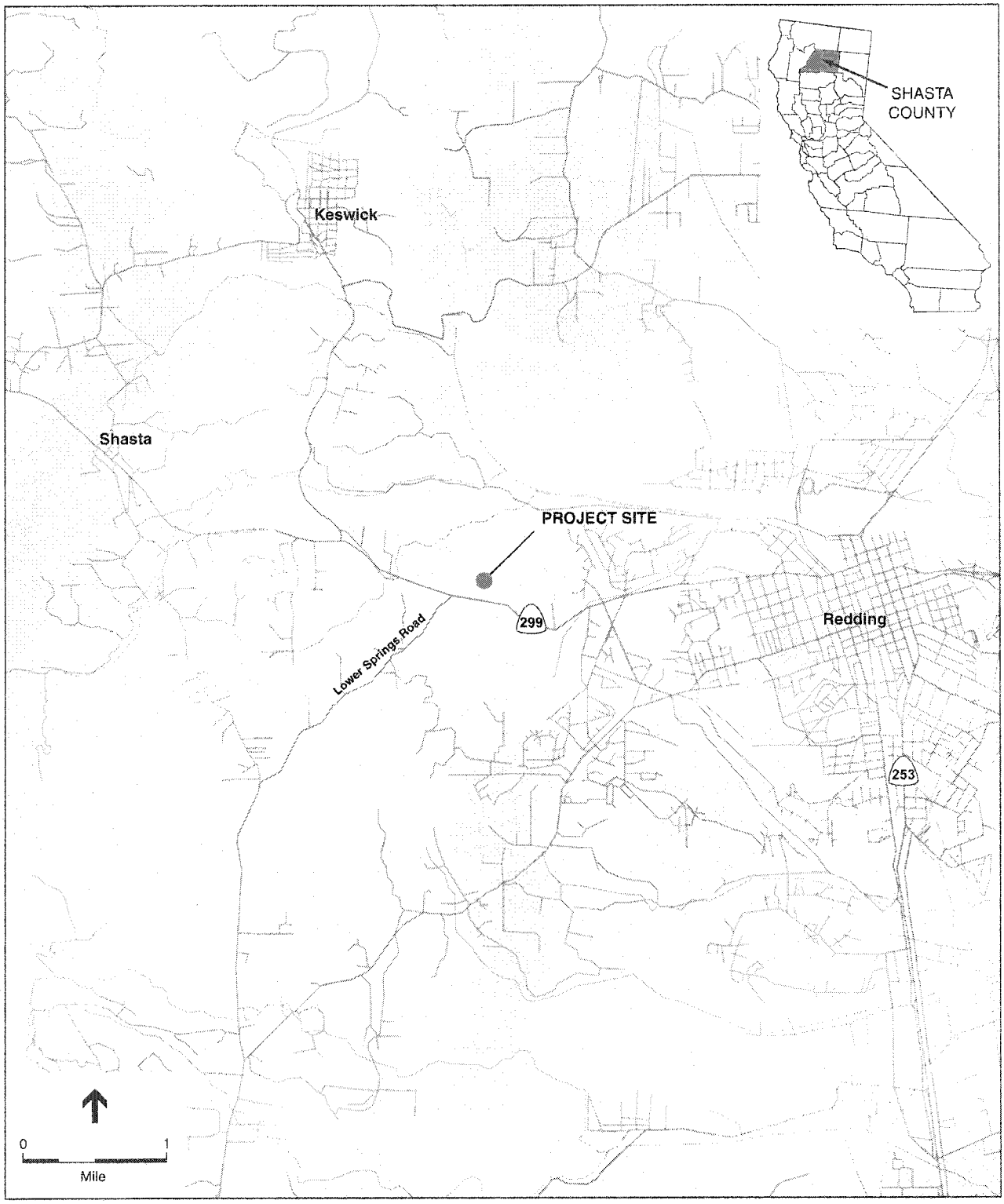
2.1 Study Area

The study area is located in the City of Redding, California in Shasta County (Figures 2-1 and 2-2). The study area is within Township 32N, Range 5W, Sections 28, 32, and 33 of the Redding U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS, 1980). Elevation of the study area ranges from approximately 520 to 740 feet above mean sea level (msl). Study area topography varies from a nearly flat terrace at the center of the site, to moderately steep to very-steep canyons.

The only current land use within the study area is electric utility corridors. Habitats occurring within and adjacent to the study area include annual grassland, mixed chaparral, blue oak woodland, open water, riparian wetland, and seasonal wetland.

2.2 Purpose of Assessment

The purpose of this investigation is to describe and delineate all waters of the U.S. within the study area that are subject to Section 404 of the CWA. If necessary, information from this report may be used in preparing permit applications for future actions proposed in the study area. This report will be reviewed by the Corps to verify their jurisdiction over wetlands and other waters of the U.S.



SOURCE: DeLorme Street Atlas USA, 2001; and ESA, 2007

Salt Creek Heights Wetland Delineation . 206134

Figure 2-1
Regional Locator Map

SOURCE: Globexplorer, 2006; SPI, 2007; and ESA, 2007

Salt Creek Heights Wetland Delineation . 206134

Figure 2-2
Study Area

SECTION 3
Methodology

3.1 Definitions

The federal government defines "waters of the United States" in 33 CFR (Code of Federal Regulations) 328.3 as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    c. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of the above waters;
6. The territorial seas;
7. Wetlands adjacent to the above waters (other than waters that are themselves wetlands). Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.
8. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA.

The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Under normal circumstances, the definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands may include freshwater marsh, seasonal wetlands, and vernal pool complexes that are adjacent to perennial waters of the U.S.

"Other waters of the U.S." refers to those hydric features that are regulated by the CWA but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high water mark. The term "ordinary high water mark" refers to that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Examples of other waters of the U.S. may include rivers, creeks, ponds, and lakes.

In January 2001, the U.S. Supreme Court issued a decision in the case of the Solid Waste Agency of Northern Cook County vs. U.S. Army Corps of Engineers that altered the Corps' regulatory authority over wetlands that are isolated from navigable waters[1].

On June 5, 2007 the EPA and the USACE released guidance on the definitions of jurisdictional waters of the U.S. in response to Rapanos v. United States and Carabell v. United States. According to this guidance the USACE and the EPA will take jurisdiction over the following waters:

1. Traditional navigable waters, which is defined as all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. Wetlands adjacent to traditional navigable waters; including adjacent wetlands that do not have a continuous surface connection to traditional navigable waters;
3. Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months);
4. Wetlands adjacent to non-navigable tributaries as defined above; that have a continuous surface connection to such tributaries (e.g. they are not separated by uplands, a berm, dike, or similar feature).

[1] Since the SWANCC decision, waters covered solely by this definition by virtue of their use as habitat by migratory birds are no longer considered "waters of the United States." The Supreme Court's opinion did not specifically address what other connections with interstate commerce might support the assertion of CWA jurisdiction over "nonnavigable, isolated, intrastate waters" under this definition, and the Corp is recommending case by case consideration. A factor that may be relevant to this consideration includes, but is not limited to, the following: Jurisdiction of isolated, intrastate, and nonnavigable waters may be possible if their use, degradation, or destruction could affect other "waters of the United States," thus establishing a significant nexus between the water in question and other "waters of the United States" (Corps, undated memorandum).

The EPA and the USACE decide jurisdiction over the following waters, based on a fact-specific analysis to determine if there is a significant nexus, as defined below, to a traditional navigable water:

1. Non-navigable tributaries that are not relatively permanent;
2. Wetlands adjacent to non-navigable tributaries that are not relatively permanent;
3. Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

The EPA and the USACE generally do not assert jurisdiction over the following features:

1. Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow);
2. Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The EPA and the USACE have defined the significant nexus standard as follows:

1. A significant nexus analysis assesses the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters;
2. Significant nexus includes consideration of hydrologic and ecologic factors including:
    a. Volume, duration, and frequency of flow, including consideration of certain physical characteristics of the tributary,
    b. Proximity to the traditional navigable water,
    c. Size of the watershed,
    d. Average annual rainfall,
    e. Average annual winter snow pack,
    f. Potential of tributaries to carry pollutants and flood waters to traditional navigable waters,
    g. Provision of aquatic habitat that supports a traditional navigable water,
    h. Potential of wetlands to trap and filter pollutants or store flood waters, and
    i. Maintenance of water quality in traditional navigable waters.

3.2 Pre-field Review

Prior to conducting the field investigation, the following background tasks were performed:

- Review of Redding, CA USGS 7.5-minute topographic quadrangle map;
- Review of color aerial photography for vegetative, topographic, and hydrologic signatures;
- Review of the Soil Survey of Shasta County, California, (Soil Conservation Service [SCS], 1972), for information about soils and geomorphology; and
- Review of the National Hydric Soils List for California, Shasta County (Natural Resources Conservation Service [NRCS], 2007) to determine if any soils mapped within the study area are considered hydric at the level of soil series;

3.3 Field Investigation

A wetland delineation was conducted within the study area by ESA biologists Joshua Boldt, Sara Castellanos, Jamie Galos, LeChi Huynh, and Kiffanie Stahle on August 1, 2, 8, 9, and September 27, 2007. The delineation used the "Routine Determination Method" as described in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), hereafter called the "1987 Manual." The 1987 Manual was used in conjunction with the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps, 2006), hereafter called the "Arid West Supplement." For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed.

Three positive wetland parameters must normally be present for an area to be wetland: 1) a dominance of wetland vegetation, 2) presence of hydric soils, and 3) presence of wetland hydrology. Presence or absence of positive indicators for wetland vegetation, soils and hydrology was assessed per the 1987 Manual and Arid West Supplement guidelines. Data points were taken within suspected wetlands and a paired point taken (where applicable) in nearby uplands. Data points were recorded on Arid West wetland delineation forms, which are provided as Appendix A.

At each data point, a visual assessment of the dominant plant species within a 6-foot radius was made. Dominant species were assessed using the recommended "50/20" rule per the Arid West Supplement. Plants were identified to species using the *Jepson Manual: Higher Plants of California* (Hickman, 1993). The *National List of Plant Species that Occur in Wetlands* (Reed, 1988) was used to determine the wetland indicator status of all plants. Soils at each data point were characterized by texture; color was described using Munsell soil color charts (Kollmorgen Instruments Corporation, 1990).

Presence of wetland hydrology was determined at each data point by presence of one or more of the following primary and/or secondary indicators, per guidance of the Arid West Supplement. These indicators include: visual observation of inundation, observation of soil saturation within 12 inches of the surface, oxidized root channels, biotic crust, sediment deposits, flow or drift accumulations at channel margins, channel flow marks in beds, scouring, surface cracking, water staining, and topography ("wetland drainage patterns"). Evidence of wetland hydrologic characteristics in channels consisted of primary visual observations, focusing on drainage patterns, drift lines, sediment deposits, and watermarks within the channel.

3.3.1 Methodology for Drainages

Drainages with obvious bed and banks were characterized by noting vegetation, geomorphology (e.g., incision) and hydrologic characteristics, and by measuring representative channel bank cross-sections to obtain average bankfull width (i.e., ordinary high water mark).

3.4 Mapping and Acreage Calculations

All features including data collection points, wetland boundaries, and channel courses were recorded using a Global Positioning System (GPS) unit (Trimble GeoXT) with real-time differential correction and an instrument-rated mapping accuracy of +/- 3 meters, or were delineated on aerial photography using Geographic Information System (GIS) software (ArcGIS 9.1). Wetland boundaries were demarcated in the field using GPS by walking the margin of the wetland. Channels were delineated using GIS software, aerial photography, and topographic data.

In the office, GPS data were downloaded and mapped using GIS software on an overlay of both topography and geo-referenced aerial photography. GPS-determined wetland boundaries and data points were visually confirmed. Channel width was recorded in the field. Linear length of each channel was obtained by ArcGIS, and multiplied by the channel's average width to obtain acreage. Acreage of wetland polygons was determined by ArcGIS.

SECTION 4
Results

4.1 Soils

The *Shasta County Area California Soil Survey* (NRCS, 2006) shows five soil units occurring within the study area (Figure 4-1). Only one of these soils is listed on the national hydric soils list for Shasta County, California when occurring in depressions (NRCS, 2007). A brief description of each soil unit is provided below.

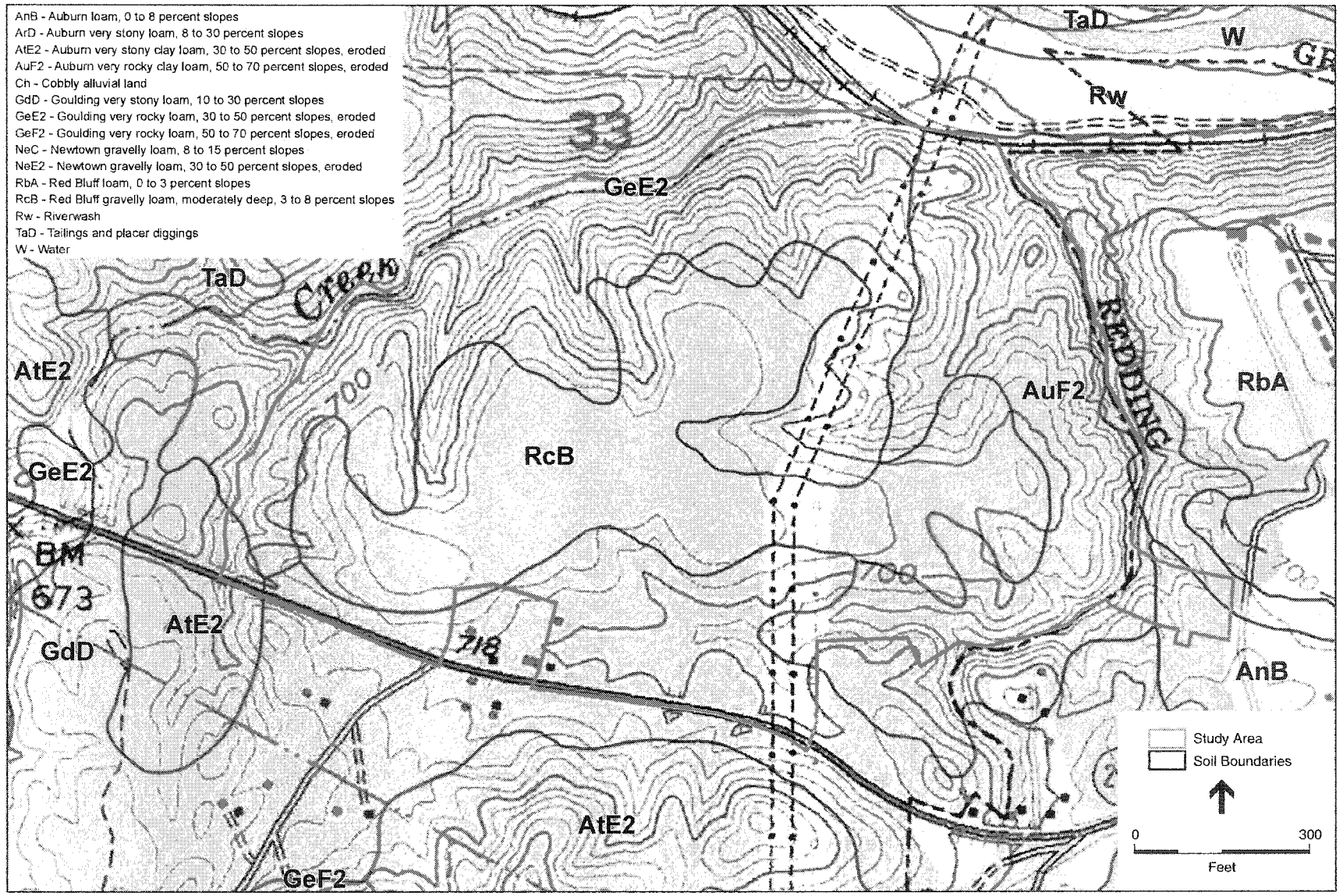
Auburn loam, 0 to 8 percent slopes (AnB) soil is a well drained soil that occurs on mountains. This soil is developed from residuum weathered from metavolcanics. The surface layer is brown clay loam to a depth of approximately 27 inches. The underlying layer is bedrock that reaches a depth up to 31 inches. Inclusions in this soils unit is Stonyford soils. Permeability and surface runoff is moderate. This soil is considered not considered hydric. The vegetation in uncultivated areas is primarily annual grasses and forbs with scattered stands of oak, digger pine, and brush.

Auburn very stony clay loam, 30 to 50 percent slopes, eroded (AtE2) soil is the same as described above for Auburn loam, 0 to 8 percent slopes (AnB), but this soil has been severely eroded though water runoff. This soil is not considered hydric.

Auburn very rocky clay loam, 50 to 70 percent slopes, eroded (AuF2) soil is the same as described above for Auburn loam, 0 to 8 percent slopes (AnB), but this soil the surface layer is only 20 to 24 inches. This soil is not considered hydric.

Goulding very stony loam, 10 to 30 percent slopes (GdD) soil is a somewhat excessively drained soil that occurs on mountains. This soil is developed from residuum weathered from greenstone. The surface layer is brown stony loam to a depth of approximately 5 inches. From 5 to 16 inches is a brown gravelly loam. The underlying layer is unweathered bedrock that reaches a depth up to 20 inches. Inclusions in this soils unit are Auburn and Diamond Springs soils. This soil has moderate permeability and surface runoff is medium to very rapid. This soil is considered not considered hydric. The vegetation in uncultivated areas is primarily annual grasses and forbs with scattered stands of oak, digger pine, and brush.

Goulding very rocky loam, 30 to 50 percent slopes, eroded (GeE2) soil is the same as described above for Goulding very stony loam, 30 to 50 percent slopes, eroded (GeE2), but this soil has a surface layer that is brown rocky loam to a depth of approximately 5 inches and has been severely eroded due to water runoff. This soil is not considered hydric.



SOURCE: USGS, 1992; NRCS, 2007; SPI, 2007; and ESA, 2007

Salt Creek Heights Wetland Delineation . 206134

Figure 4-1

Soils in the Study Area

Newtown gravelly loam, 8 to 15 percent slopes (NeC) soil is a well drained soil that occurs on gently sloping to very steeply sloping old terraces. This soil is developed from alluvium. The surface layer is brown gravelly loam to a depth of 8 inches. It is mottled very pale brown from 8 to 18 inches. The underlying layer is brown light clay with common medium distinct yellowish red mottles to a depth of 35 inches. The soil is pale brown silty clay loam with common distinct dark brown mottles from 35 to 65 inches. Below the underlying layer the soil is pale brown light silty clay loam with common medium reddish brown mottles. Inclusions in this soils unit are Perkins and Red bluff soils. Permeability is slow and surface runoff is medium to rapid. This soil is not considered hydric. The vegetation in uncultivated areas includes blue oak, live oak, digger pine, manzanita, and annual grasses and forbs.

Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes (RcB) soil is a moderately well drained soil that occurs on hills and terraces. These soils are in areas that are gently rolling. This soil is developed from old mixed alluvium. The surface layer is a reddish brown gravelly loam to a depth of approximately 6 inches. From 6 to 24 inches is a reddish brown gravelly clay loam. From 24 to 30 inches is a red gravelly clay loam. The underlying layer is a duripan to a depth of 40 inches. Inclusions in this soils unit are Newtown, Perkins, Redding soils. Permeability is moderately slow and surface runoff is slow to medium. This soil is considered hydric in depressions. The vegetation in uncultivated areas is blue oak, live oak, manzanita, softchess, wild oats and annual forbs.

4.2 Field Investigation

4.2.1 Study Area Setting

The study area is located in the Northern California Interior Coast Ranges ecological region, Tehama Terraces subsection (U.S. Forest Service [USFS], 1998). The Northern California Interior Coast Ranges consists of mountains, hills, and terraces in the northern Coast Ranges of California and north end of the Sacramento Valley. The study area is located in the northern portion of the Northern California Interior Coast Ranges, in the Tehama Terraces. The Tehama Terraces consists of a dissected plain between the hills to the west and the western margin of the Central Valley. The climate is hot and subhumid. Average annual precipitation is 39 inches. Mean maximum temperature is approximately 76 degrees Fahrenheit (° F) and mean minimum temperature is approximately 52° F (Western Regional Climate Center, 2007).

Within the study area, terrain varies from a nearly flat terrace at the center of the site, to moderately steep to very-steep canyons. Site elevation ranges from approximately 520 to 740 feet above msl. At the landscape level, the topography consists of incised canyons that slope to the northeast towards the Sacramento River. The hydrology in the study area has been highly altered due to past mining activities.

The majority of the study area is adjacent to existing low density developed areas. Within the study area plant communities include annual grassland, mixed chaparral, blue oak woodland, riparian wetland, seasonal wetland, and open water.

4.2.2 Study Area Plant Communities and Habitats

Plant communities are assemblages of plant species that occur together in the same area, which are defined by species composition and relative abundance. Upland plant communities and habitats within the study area include annual grassland, blue oak woodland, and mixed chaparral. Plant communities and habitats associated with aquatic settings include riparian wetland, freshwater emergent wetland, and seasonal wetland.

Upland Plant Communities and Habitats

Annual Grassland

This plant community is present primarily on the terrace portions of the study area and as an understory in the blue oak woodland community described below. The California annual grassland series is dominated by nonnative Mediterranean annual grasses such as Italian ryegrass (*Lolium multiflorum*), wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), and foxtail barley (*Hordeum murinum* ssp. *leporinum*). An assemblage of native and nonnative forbs was noted in the grassland area including filaree (*Erodium botrys*), and clover (*Trifolium* spp.). Cover is typically dense and vegetation ranges from a few inches to 4 to 5 feet in height depending on the species and time of year.

Mixed Chaparral

This plant community is the dominant plant community within the study area. The dominant shrub species in this community are poison oak (*Toxicodendron diversilobum*), white-leaf manzanita (*Arctostaphylos viscida* spp. *viscida*), common manzanita (*Arctostaphylos manzanita*), and buck brush (*Ceanothus cuneatus* var. *cuneatus*). The understory of this plant community is dominated by annual grass species.

Blue Oak Woodland

This plant community is dominated by blue oak (*Quercus douglasii*), with interior live oak (*Quercus wislizenii*) and grey pine (*Pinus sabiniana*). Shrub species associated with this mixed woodland community include poison oak (*Toxicodendron diversilobum*), white-leaf manzanita (*Arctostaphylos viscida* spp. *viscida*), and common manzanita (*Arctostaphylos manzanita*). The understory of this plant community is dominated by annual grass species.

Aquatic Plant Communities and Habitats

Riparian Wetland

Riparian wetlands in the study area are present along the larger channels and are dominated almost exclusively by willow (*Salix* spp.) and buttonwillow (*Cephalanthus occidentalis* var. *californicus*) in the overstory. The understory is comprised of freshwater marsh species including rushes (*Juncus* spp.) and flat-leaved parsley (*Torilis arvensis*).

Seasonal Wetland

Seasonal wetlands are ephemeral wetlands that pond or remain flooded for extended periods during a portion of the year, often the wet season, then may dry in spring or early summer. These features are typically associated with constructed drainage features or disturbed areas. Seasonal

wetlands in the study area occur in shallow depressions and are dominated by native and non-native species. Common wetland species in these features include spikerush (*Eleocharis macrostachya*), curly dock (*Rumex crispus*) and perennial ryegrass (*Lolium perenne*).

Riverine

Riverine habitat is present in small portions of the study area. Some areas of the banks support species common to freshwater emergent wetlands or riparian areas including cattail (*Typha spp.*) and willow. These areas are mapped as riverine only when they are present within the defined bed and bank of the river channel.

4.2.3 Site Hydrology Overview

The study area terrain varies from a nearly flat terrace at the center of the site, to moderately steep to very-steep canyons that drain in all directions. In portions of the site the natural hydrology is interrupted by unimproved roadways. The study area generally drains northwest towards the Sacramento River.

The majority of the study area is drained by surface percolation, overland sheet flow, ephemeral and intermittent drainages that convey flow to larger drainages. The study area contains two large drainages, Gold Run and Salt Creeks, which are at the edges of the study area. In general, these drainage are fed primarily by surface water derived from direct precipitation and input from intermittent and ephemeral drainages. Additionally, due to the high level of erosion within the project area there are several non-jurisdictional swales and gullies present. These non-jurisdictional swales and gullies are primarily present in the canyons and along roadways where overland sheet flow is high.

The wetlands occurring in the study area are varied in their hydrology. Riparian and freshwater emergent wetlands are either adjacent to or within perennial water features (drainages) and receive water from the water table and storm events. Seasonal wetlands are found in low-lying areas where drainage is restricted, and they derive hydrology from surface sources typically associated with precipitation events and/or groundwater from perched water tables restricted by hardpan soil layers.

4.2.4 Jurisdictional Waters of the U.S.

A total of 7.55 acres of potential jurisdictional features occur within the 294-acre study area. Jurisdictional features include eleven (3.73 acres) wetlands and 68 (3.82 acres and 31,718 linear feet) other waters of the U.S. Wetlands within the study area include 3.65 acres of riparian wetland and 0.08 acres of seasonal wetlands. Other waters of the U.S. within the study area include 0.35 acres (2,012 linear feet) of perennial stream, 2.22 acres (9,086 linear feet) of intermittent stream and 1.26 acres (20,619 linear feet) of ephemeral stream.

The locations and extent of potentially jurisdictional features are depicted in the oversize map in Appendix B as well as in Figure 4-2. Wetland determination data point sheets are provided as Appendix A. Representative site photographs of wetland and upland communities are provided as Appendix C. A list of plants observed during the survey can be found in Appendix D. A summary of potentially jurisdictional features and their extent (including average width and linear feet for drainages) within the project site is presented in Table 4-1.

TABLE 4-1
POTENTIAL JURISDICTIONAL FEATURES WITHIN THE SALT CREEK HEIGHTS STUDY AREA

Map ID	Type of Jurisdictional Feature	Average Width (ft.)	Linear Feet	Feet^2	Acres
Wetland					
R-1	PFO - riparian	n/a	n/a	19,558.44	0.45
R-2	PFO - riparian	n/a	n/a	1,916.64	0.04
R-3	PFO - riparian	n/a	n/a	10,802.88	0.25
R-4	PFO - riparian	n/a	n/a	8,668.44	0.20
R-5	PFO - riparian	n/a	n/a	82,110.60	1.89
R-6	PFO - riparian	n/a	n/a	8,319.96	0.19
R-7	PFO - riparian	n/a	n/a	7,840.80	0.18
R-8	PFO - riparian	n/a	n/a	13,068.00	0.30
SW-1	PEM – seasonal wetland	n/a	n/a	392.04	0.01
SW-2	PEM – seasonal wetland	n/a	n/a	217.80	0.01
SW-3	PEM – seasonal wetland	n/a	n/a	2,744.28	0.06
	Wetland Subtotal:	–	–	**155,639.88**	**3.73**
Perennial Drainage					
PD-1	Perennial drainage – Other Waters	8.0	1,615.83	12,926.66	0.30
PD-2	Perennial drainage – Other Waters	6.0	190.19	1,141.13	0.03
PD-3	Perennial drainage – Other Waters	6.0	206.29	1,237.76	0.03
	Perennial Subtotal:	–	**2,012.31**	**15,305.55**	**0.35**
Intermittent Drainage					
ID-1	Intermittent drainage – Other Waters	4.0	2,496.54	15,192.22	0.35
ID-2	Intermittent drainage – Other Waters	5.0	1,406.30	7,031.49	0.16
ID-3	Intermittent drainage – Other Waters	10.0	5,183.34	74,343.81	1.71
	Intermittent Subtotal:	–	**9,086.17**	**96,567.52**	**2.22**
Ephemeral Drainage					
ED-1	Ephemeral drainage – Other Waters	2.0	144.96	289.91	0.01
ED-2	Ephemeral drainage – Other Waters	3.0	1,394.45	4,397.06	0.10
ED-3	Ephemeral drainage – Other Waters	3.5	660.03	2,362.30	0.05
ED-4	Ephemeral drainage – Other Waters	2.0	174.39	348.78	0.01
ED-5	Ephemeral drainage – Other Waters	1.0	189.19	189.19	0.00
ED-6	Ephemeral drainage – Other Waters	3.0	253.89	761.67	0.02
ED-7	Ephemeral drainage – Other Waters	1.5	175.84	263.76	0.01
ED-8	Ephemeral drainage – Other Waters	2.0	225.15	450.29	0.01

TABLE 4-1
POTENTIAL JURISDICTIONAL FEATURES WITHIN THE SALT CREEK HEIGHTS STUDY AREA

Map ID	Type of Jurisdictional Feature	Average Width (ft.)	Linear Feet	Feet^2	Acres
ED-9	Ephemeral drainage – Other Waters	1.5	146.73	220.09	0.01
ED-10	Ephemeral drainage – Other Waters	3.5	830.31	2,906.09	0.07
ED-11	Ephemeral drainage – Other Waters	2.0	194.46	388.92	0.01
ED-12	Ephemeral drainage – Other Waters	2.0	72.94	145.88	0.00
ED-13	Ephemeral drainage – Other Waters	2.5	327.37	818.42	0.02
ED-14	Ephemeral drainage – Other Waters	2.5	124.35	310.88	0.01
ED-15	Ephemeral drainage – Other Waters	2.0	339.31	678.61	0.02
ED-16	Ephemeral drainage – Other Waters	2.0	411.43	822.86	0.02
ED-17	Ephemeral drainage – Other Waters	2.0	471.83	943.67	0.02
ED-18	Ephemeral drainage – Other Waters	3.0	642.96	1,928.88	0.04
ED-19	Ephemeral drainage – Other Waters	2.5	88.08	220.21	0.01
ED-20	Ephemeral drainage – Other Waters	2.5	90.11	225.27	0.01
ED-21	Ephemeral drainage – Other Waters	1.0	260.31	260.31	0.01
ED-22	Ephemeral drainage – Other Waters	1.5	394.49	591.74	0.01
ED-23	Ephemeral drainage – Other Waters	1.0	80.48	80.48	0.00
ED-24	Ephemeral drainage – Other Waters	1.0	61.86	61.86	0.00
ED-25	Ephemeral drainage – Other Waters	1.0	215.42	215.42	0.01
ED-26	Ephemeral drainage – Other Waters	3.0	376.57	1,129.72	0.03
ED-27	Ephemeral drainage – Other Waters	3.0	355.92	1.067.75	0.03
ED-28	Ephemeral drainage – Other Waters	1.5	358.86	538.29	0.01
ED-29	Ephemeral drainage – Other Waters	1.0	84.20	84.20	0.00
ED-30	Ephemeral drainage – Other Waters	1.0	131.93	131.93	0.00
ED-31	Ephemeral drainage – Other Waters	2.5	1,137.39	2,843.48	0.07
ED-32	Ephemeral drainage – Other Waters	1.0	124.24	124.24	0.00
ED-33	Ephemeral drainage – Other Waters	1.0	104.63	104.63	0.00
ED-34	Ephemeral drainage – Other Waters	1.0	75.62	75.62	0.00
ED-35	Ephemeral drainage – Other Waters	1.0	49.01	49.01	0.00
ED-36	Ephemeral drainage – Other Waters	1.0	163.85	163.85	0.00
ED-37	Ephemeral drainage – Other Waters	1.0	159.75	159.75	0.00
ED-38	Ephemeral drainage – Other Waters	1.0	265.64	265.64	0.01
ED-39	Ephemeral drainage – Other Waters	4.0	308.04	1,232.17	0.03
ED-40	Ephemeral drainage – Other Waters	1.0	287.35	356.14	0.01

TABLE 4-1
POTENTIAL JURISDICTIONAL FEATURES WITHIN THE SALT CREEK HEIGHTS STUDY AREA

Map ID	Type of Jurisdictional Feature	Average Width (ft.)	Linear Feet	Feet^2	Acres
ED-41	Ephemeral drainage – Other Waters	3.0	82.28	246.84	0.01
ED-42	Ephemeral drainage – Other Waters	3.0	1,821.06	5,463.17	0.13
ED-43	Ephemeral drainage – Other Waters	2.0	171.68	343.36	0.01
ED-44	Ephemeral drainage – Other Waters	2.0	21.61	43.23	0.00
ED-45	Ephemeral drainage – Other Waters	2.0	172.74	345.49	0.01
ED-46	Ephemeral drainage – Other Waters	3.0	1,491.04	4,473.11	0.10
ED-47	Ephemeral drainage – Other Waters	1.0	152.65	152.65	0.00
ED-48	Ephemeral drainage – Other Waters	1.5	161.66	242.49	0.01
ED-49	Ephemeral drainage – Other Waters	1.0	114.96	114.96	0.00
ED-50	Ephemeral drainage – Other Waters	2.0	114.44	228.89	0.01
ED-51	Ephemeral drainage – Other Waters	3.0	246.05	738.16	0.02
ED-52	Ephemeral drainage – Other Waters	1.5	334.99	502.49	0.01
ED-53	Ephemeral drainage – Other Waters	5.0	684.92	3,424.61	0.08
ED-54	Ephemeral drainage – Other Waters	2.5	516.22	1,290.54	0.03
ED-55	Ephemeral drainage – Other Waters	4.0	429.39	1,717.54	0.04
ED-56	Ephemeral drainage – Other Waters	2.5	128.86	322.15	0.01
ED-57	Ephemeral drainage – Other Waters	5.0	582.65	2,913.26	0.07
ED-58	Ephemeral drainage – Other Waters	3.0	526.80	1,580.40	0.04
ED-59	Ephemeral drainage – Other Waters	4.0	163.31	653.25	0.02
ED-60	Ephemeral drainage – Other Waters	3.0	224.57	673.71	0.02
ED-61	Ephemeral drainage – Other Waters	**2.0**	**237.94**	**475.88**	**0.01**
ED-62	Ephemeral drainage – Other Waters	**2.0**	**286.00**	**572.00**	**0.01**
	Ephemeral Subtotal:	**–**	**20,619.16**	**54,727.11**	**1.26**
	Other Waters Subtotal:	**–**	**31,717.64**	**166,600.17**	**3.82**
TOTAL AREA OF JURISDICTIONAL FEATURES:		**–**	**–**	**322,240.05**	**7.55**

NOTES: PEM = palustrine emergent; PFO = palustrine forested; n/a = not applicable.

Jurisdictional Wetlands

The wetland delineation survey identified nine wetland features within the study area. The majority of these features are hydrologically connected via surface or groundwater flow to navigable waterways, either directly or through a network of drainages.

SOURCE: GlobeXplorer, 2006; SPI, 2007; and ESA, 2007

Salt Creek Heights Wetland Delineation . 206134

Figure 4-2
Overview of Potentially Jurisdictional Waters of the U.S.

Riparian Wetland

Eight riparian wetlands (R-1 though R-8) (3.65 acres) were identified in the study area. These wetlands are within or are supported by the perennial drainage channel and are dominated by strongly hydrophytic plants including willows. Riparian wetlands are classified as a palustrine forested wetland using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et. al, 1979). The boundaries of riparian wetlands were easily determined based on abrupt changes in vegetation composition and topography.

Seasonal Wetland

Three seasonal wetlands were identified in the study area (SW-1 though SW-3) (0.08 acre). These wetlands are dominated by strongly to weakly hydrophytic species and supported primarily by direct precipitation. Seasonal wetlands are classified as seasonal palustrine emergent using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et. al, 1979). The boundaries of seasonal wetlands were easily determined based on abrupt changes in vegetation composition and topography.

Other Waters of the United States

Perennial Drainage

According to the Corps, perennial channels are streams, or stream portions, that flow continuously during the calendar year. Three perennial channels (PD-1 to PD-3) were identified in the study area. The extent of these channels within the study area is 0.35 acres (2,013 linear feet).

Intermittent Drainage

According to the Corps, an intermittent channel has flowing water during certain times of the year, when groundwater influences stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. Three intermittent channels (ID-1 though ID-3) were identified in the study area. The extent of these channels within the study area is 2.22 acres (9,086 linear feet).

Ephemeral Drainage

According to the Corps, an ephemeral drainage has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow. Sixty-two ephemeral channels (ED-1 though ED-62) were identified in the study area. The extent of these channels within the study area is 1.26 acres (20,619linear feet).

4.2.5 Conclusions

A total of 7.55 acres of potential jurisdictional features occur within the study area including approximately 3.73 acres of wetlands, 3.82 acres of other waters of the U.S., and 31,717 linear feet of other waters of the U.S. The estimated acreages and linear lengths of the individual features are shown in Table 4-1.

This report documents the wetland boundary delineation and best professional judgment of ESA investigators. All conclusions presented should be considered preliminary and subject to change pending official review and verification in writing by the Corps.

SECTION 5
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Appendix A
Wetland Delineation Sheets

ESA

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Salt Creek Estates City/County: Redding/Shasta Co. Sampling Date: 8/1/07

Applicant/Owner: Sierra Pacific Industries State: CA Sampling Point: DP-1

Investigator(s): Kiffanie Stahle and Sara Castellanos Section, Township, Range: T32N, R5W, Sec. 28, 32, and 33

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): C - Mediterranean California Lat: -122.438417 Long: 40.584874 Datum: NAD 27

Soil Map Unit Name: AuF2 - Auburn very rocky clay loam, 50 to 70 percent slopes, eroded NWI classification: None

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 ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus xiphiodes*	70	Yes	OBL
2. *Rumex crispus*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ___ % % 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: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	30	x 2 =	60
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		130 (B)

Prevalence Index = B/A = 1.30

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DP-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[1]	Loc[2]	Texture[3]	Remarks
0-4	10YR 4/3	70	7.5 YR 5/8	30	C	M	pebbly sandy loam	
4-12	10YR 4/4	90	10YR 5/8	10	C	M	pebbly loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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 Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ◯

Remarks: Leaves and other decomposing organic matter at 3 inches deep

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: Salt Creek Estates City/County: Redding/Shasta Co. Sampling Date: 8/1/07

Applicant/Owner: Sierra Pacific Industries State: CA Sampling Point: DP-2

Investigator(s): Kiffanie Stahle and Sara Castellanos Section, Township, Range: T32N, R5W, Sec. 28, 32, and 33

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): C - Mediterranean California Lat: -122.438477 Long: 40.584837 Datum: NAD 27

Soil Map Unit Name: AuF2 - Auburn very rocky clay loam, 50 to 70 percent slopes, eroded NWI classification: None

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 ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◯	No ◉	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Quercus berberidifolia*	15	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1. *Bromus diandrus*	30	Yes	Not Listed
2. *Hordeum pusillum*	30	Yes	FACU
3. *Hordeum hystrix*	35	Yes	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	35	x 3 =	105
FACU species	30	x 4 =	120
UPL species	45	x 5 =	225
Column Totals:	110 (A)		450 (B)

Prevalence Index = B/A = 4.09

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DP-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 %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 4/3	100					Rocky loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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 Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]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: Salt Creek Estates City/County: Redding/Shasta Co. Sampling Date: 8/1/07

Applicant/Owner: Sierra Pacific Industries State: CA Sampling Point: DP-3

Investigator(s): Kiffanie Stahle and Sara Castellanos Section, Township, Range: T32N, R5W, Sec. 28, 32, and 33

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): C - Mediterranean California Lat: -122.440523 Long: 40.584929 Datum: NAD 27

Soil Map Unit Name: GdD - Goulding very stony loam, 10 to 30 percent slopes NWI classification: None

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 ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus douglasii*	20	Yes	Not Listed
2.			
3.			
4.			
Total Cover:	20 %		
Sapling/Shrub Stratum			
1. *Cephalanthus occidentalis var. californicus*	40	Yes	OBL
2. *Salix spp.*	5	Yes	FACW
3.			
4.			
5.			
Total Cover:	45 %		
Herb Stratum			
1. *Torilis arvensis*	50	Yes	Not Listed
2. *Juncus spp.*	50	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ___ % % Cover of Biotic Crust ___ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	55	x 2 =	110
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	70	x 5 =	350
Column Totals:	165 (A)		500 (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DP-3

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[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 4/4	90	10 YR 5/8	10	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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 Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]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: Salt Creek Estates City/County: Redding/Shasta Co. Sampling Date: 8/1/07

Applicant/Owner: Sierra Pacific Industries State: CA Sampling Point: DP-4

Investigator(s): Kiffanie Stahle and Sara Castellanos Section, Township, Range: T32N, R5W, Sec. 28, 32, and 33

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): C - Mediterranean California Lat: -122.442396 Long: 40.585077 Datum: NAD 27

Soil Map Unit Name: GdD - Goulding very stony loam, 10 to 30 percent slopes NWI classification: None

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 ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eleocharis macrostachya*	15	Yes	OBL
2. *Eremocarpus setigerus*	10	Yes	Not Listed
3. *Rumex crispus*	5	Yes	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	30 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 75 % % 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:	66.7 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	5	x 2 =	10
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	30 (A)		75 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DP-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 %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 4/4	95	10 YR 4/2	5	C	M	Pebbly loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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 Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]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: Salt Creek Estates City/County: Redding/Shasta Co. Sampling Date: 8/1/07

Applicant/Owner: Sierra Pacific Industries State: CA Sampling Point: DP-5

Investigator(s): Kiffanie Stahle and Sara Castellanos Section, Township, Range: T32N, R5W, Sec. 28, 32, and 33

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): C - Mediterranean California Lat: -122.442426 Long: 40.585123 Datum: NAD 27

Soil Map Unit Name: GdD - Goulding very stony loam, 10 to 30 percent slopes NWI classification: None

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 ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◉	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum hystrix*	35	Yes	FAC
2. *Hordeum pusillum*	35	Yes	FACU
3. *Bromus diandrus*	30	Yes	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	35	x 3 =	105
FACU species	35	x 4 =	140
UPL species	30	x 5 =	150
Column Totals:	100 (A)		395 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DP-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 %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 4/4	100					Rocky clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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 Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]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 Features Map

ESA

ESA Land Management

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memorandum

date 5/15/08

to Mr. Matt Rabbe
U.S. Army Corps of Engineers
Regulatory Project Manager
152 Hartnell Avenue
Redding, CA 96002

from Jamie Galos
ESA Biologist/Project Manager

subject Salt Creek Heights Project Wetland Delineation

Dear Mr. Rabbe,

Based on our verification site visit conducted on Wednesday, May 7 2008 at the Salt Creek Heights Project study area, I have revised the previous wetland delineation map (submitted to your office in October of 2007) per your requested modifications to potential jurisdictional water features. Attached you will find the revised map (Appendix B Jurisdictional Features) which now includes approximately 3.84 acres and 32,144.7 linear feet of other waters of the U.S., and 3.73 acres of wetlands, for a total of 7.57 acres of potential jurisdictional waters of the U.S. identified within the study area. A summary of these feature areas and linear lengths are included in **Table 1** below. Requested modifications included the addition of ephemeral channel ED-63 as a direct tributary to the relatively permanent waterway (RPW) ID-1. A small seasonal wetland (SW-4) adjacent with ED-63 was also added to the delineation map. Other modifications to the map included the reclassification of channel ED-2 to channel ID-1 further up stream, as well as connecting all segments of channels ED-2 and ID-1 through riparian wetland features, thus eliminating channel E-1 from the map (as it is renamed as E-2).

Based on the recent Rapanos guidance, a summary of surface drainage areas associated with all non-RPW's and associated wetlands is included in **Table 2** below for assistance with the required Jurisdictional Determination (JD) form. **Figure 1** shows each drainage area associated with the potentially jurisdictional non-RPW's. Substrates of ephemeral channels onsite are characterized by a coble and/or bedrock mixed with sediments. They contain no aquatic/wetland vegetation and are highly erosive, exhibiting flow only during rainfall events.

TABLE 1
POTENTIAL JURISDICTIONAL FEATURES WITHIN THE SALT CREEK HEIGHTS STUDY AREA

Map ID	Type of Jurisdictional Feature	Average Width (ft.)	Linear Feet	Feet^2	Acres
Wetland					
R-1	PFO - riparian	n/a	n/a	19,272.79	0.44
R-2	PFO - riparian	n/a	n/a	19,19.77	0.04
R-3	PFO - riparian	n/a	n/a	10,788.14	0.25
R-4	PFO - riparian	n/a	n/a	8,663.14	0.20
R-5	PFO - riparian	n/a	n/a	88,859.79	2.04
R-6	PFO - riparian	n/a	n/a	8,328.66	0.19
R-7	PFO - riparian	n/a	n/a	8,026.98	0.18
R-8	PFO - riparian	n/a	n/a	12,939.52	0.30
SW-1	PEM – seasonal wetland	n/a	n/a	376.62	0.01
SW-2	PEM – seasonal wetland	n/a	n/a	233.96	>0.01
SW-3	PEM – seasonal wetland	n/a	n/a	2,750.13	0.06
SW-4	PEM – seasonal wetland	n/a	n/a	116.00	>0.01
	Wetland Subtotal:	–	–	**162,275.51**	**3.73**
Perennial Drainage					
PD-1	Perennial drainage – Other Waters	8.0	1,615.83	12,926.66	0.30
PD-2	Perennial drainage – Other Waters	6.0	190.19	1,141.13	0.03
PD-3	Perennial drainage – Other Waters	6.0	206.29	1,237.76	0.03
	Perennial Subtotal:	–	**2,012.31**	**15,305.55**	**0.35**
Intermittent Drainage					
ID-1	Intermittent drainage – Other Waters	4.0	3,490.28	18,062.44	0.41
ID-2	Intermittent drainage – Other Waters	5.0	1,406.30	7,031.49	0.16
ID-3	Intermittent drainage – Other Waters	10.0	5,183.34	74,343.81	1.71
	Intermittent Subtotal:	–	**10,079.91**	**99,437.74**	**2.28**
Ephemeral Drainage					
ED-2	Ephemeral drainage – Other Waters	3.0	748.21	2,245.06	0.05
ED-3	Ephemeral drainage – Other Waters	3.5	660.03	2,362.30	0.05
ED-4	Ephemeral drainage – Other Waters	2.0	174.39	348.78	0.01
ED-5	Ephemeral drainage – Other Waters	1.0	189.19	189.19	0.00
ED-6	Ephemeral drainage – Other Waters	3.0	253.89	761.67	0.02
ED-7	Ephemeral drainage – Other Waters	1.5	175.84	263.76	0.01
ED-8	Ephemeral drainage – Other Waters	2.0	225.15	450.29	0.01

TABLE 1
POTENTIAL JURISDICTIONAL FEATURES WITHIN THE SALT CREEK HEIGHTS STUDY AREA

Map ID	Type of Jurisdictional Feature	Average Width (ft.)	Linear Feet	Feet^2	Acres
ED-9	Ephemeral drainage – Other Waters	1.5	146.73	220.09	0.01
ED-10	Ephemeral drainage – Other Waters	3.5	830.31	2,906.09	0.07
ED-11	Ephemeral drainage – Other Waters	2.0	194.46	388.92	0.01
ED-12	Ephemeral drainage – Other Waters	2.0	72.94	145.88	0.00
ED-13	Ephemeral drainage – Other Waters	2.5	327.37	818.42	0.02
ED-14	Ephemeral drainage – Other Waters	2.5	124.35	310.88	0.01
ED-15	Ephemeral drainage – Other Waters	2.0	339.31	678.61	0.02
ED-16	Ephemeral drainage – Other Waters	2.0	411.43	822.86	0.02
ED-17	Ephemeral drainage – Other Waters	2.0	471.83	943.67	0.02
ED-18	Ephemeral drainage – Other Waters	3.0	642.96	1,928.88	0.04
ED-19	Ephemeral drainage – Other Waters	2.5	88.08	220.21	0.01
ED-20	Ephemeral drainage – Other Waters	2.5	90.11	225.27	0.01
ED-21	Ephemeral drainage – Other Waters	1.0	260.31	260.31	0.01
ED-22	Ephemeral drainage – Other Waters	1.5	394.49	591.74	0.01
ED-23	Ephemeral drainage – Other Waters	1.0	80.48	80.48	0.00
ED-24	Ephemeral drainage – Other Waters	1.0	61.86	61.86	0.00
ED-25	Ephemeral drainage – Other Waters	1.0	215.42	215.42	0.01
ED-26	Ephemeral drainage – Other Waters	3.0	376.57	1,129.72	0.03
ED-27	Ephemeral drainage – Other Waters	3.0	355.92	1.067.75	0.03
ED-28	Ephemeral drainage – Other Waters	1.5	358.86	538.29	0.01
ED-29	Ephemeral drainage – Other Waters	1.0	84.20	84.20	0.00
ED-30	Ephemeral drainage – Other Waters	1.0	131.93	131.93	0.00
ED-31	Ephemeral drainage – Other Waters	2.5	1,137.39	2,843.48	0.07
ED-32	Ephemeral drainage – Other Waters	1.0	124.24	124.24	0.00
ED-33	Ephemeral drainage – Other Waters	1.0	104.63	104.63	0.00
ED-34	Ephemeral drainage – Other Waters	1.0	75.62	75.62	0.00
ED-35	Ephemeral drainage – Other Waters	1.0	49.01	49.01	0.00
ED-36	Ephemeral drainage – Other Waters	1.0	163.85	163.85	0.00
ED-37	Ephemeral drainage – Other Waters	1.0	159.75	159.75	0.00
ED-38	Ephemeral drainage – Other Waters	1.0	265.64	265.64	0.01
ED-39	Ephemeral drainage – Other Waters	4.0	308.04	1,232.17	0.03
ED-40	Ephemeral drainage – Other Waters	1.0	287.35	356.14	0.01

TABLE 1
POTENTIAL JURISDICTIONAL FEATURES WITHIN THE SALT CREEK HEIGHTS STUDY AREA

Map ID	Type of Jurisdictional Feature	Average Width (ft.)	Linear Feet	Feet^2	Acres
ED-41	Ephemeral drainage – Other Waters	3.0	82.28	246.84	0.01
ED-42	Ephemeral drainage – Other Waters	3.0	1,821.06	5,463.17	0.13
ED-43	Ephemeral drainage – Other Waters	2.0	171.68	343.36	0.01
ED-44	Ephemeral drainage – Other Waters	2.0	21.61	43.23	0.00
ED-45	Ephemeral drainage – Other Waters	2.0	172.74	345.49	0.01
ED-46	Ephemeral drainage – Other Waters	3.0	1,491.04	4,473.11	0.10
ED-47	Ephemeral drainage – Other Waters	1.0	152.65	152.65	0.00
ED-48	Ephemeral drainage – Other Waters	1.5	161.66	242.49	0.01
ED-49	Ephemeral drainage – Other Waters	1.0	114.96	114.96	0.00
ED-50	Ephemeral drainage – Other Waters	2.0	114.44	228.89	0.01
ED-51	Ephemeral drainage – Other Waters	3.0	246.05	738.16	0.02
ED-52	Ephemeral drainage – Other Waters	1.5	334.99	502.49	0.01
ED-53	Ephemeral drainage – Other Waters	5.0	684.92	3,424.61	0.08
ED-54	Ephemeral drainage – Other Waters	2.5	516.22	1,290.54	0.03
ED-55	Ephemeral drainage – Other Waters	4.0	429.39	1,717.54	0.04
ED-56	Ephemeral drainage – Other Waters	2.5	128.86	322.15	0.01
ED-57	Ephemeral drainage – Other Waters	5.0	582.65	2,913.26	0.07
ED-58	Ephemeral drainage – Other Waters	3.0	526.80	1,580.40	0.04
ED-59	Ephemeral drainage – Other Waters	4.0	163.31	653.25	0.02
ED-60	Ephemeral drainage – Other Waters	3.0	224.57	673.71	0.02
ED-61	Ephemeral drainage – Other Waters	2.0	237.94	475.88	0.01
ED-62	Ephemeral drainage – Other Waters	2.0	286.00	572.00	0.01
ED-63	Ephemeral drainage – Other Waters	2.0	224.56	449.12	0.01
	Ephemeral Subtotal:	–	**20,052.52**	**52,734.32**	**1.21**
	Other Waters Subtotal:	–	**32,144.74**	**167,477.60**	**3.84**
TOTAL AREA OF JURISDICTIONAL FEATURES:		–	–	**329,753.11**	**7.57**

NOTES: PEM = palustrine emergent; PFO = palustrine forested; n/a = not applicable.

TABLE 2
SURFACE DRAINAGE AREAS WITHIN THE SALT CREEK HEIGHTS STUDY AREA VICINITY

Surface Drainage Area	Non-RPW's and Associated Wetlands within Surface Drainage Area	Acres Drained	Connected RPW
A	ED-39 through ED-61, SW-3	188.10	Salt Creek (ID-3)
B	ED-18 through ED-38	52.7	Gold Run Creek (PD-1)
C	ED-1 through ED-17, ED-62, E-63, R-1, SW-2, SW-4	132.01	Gold Run Creek (PD-1)

SOURCE: GlobeXplorer, 2006; SPI, 2007; and ESA, 2007

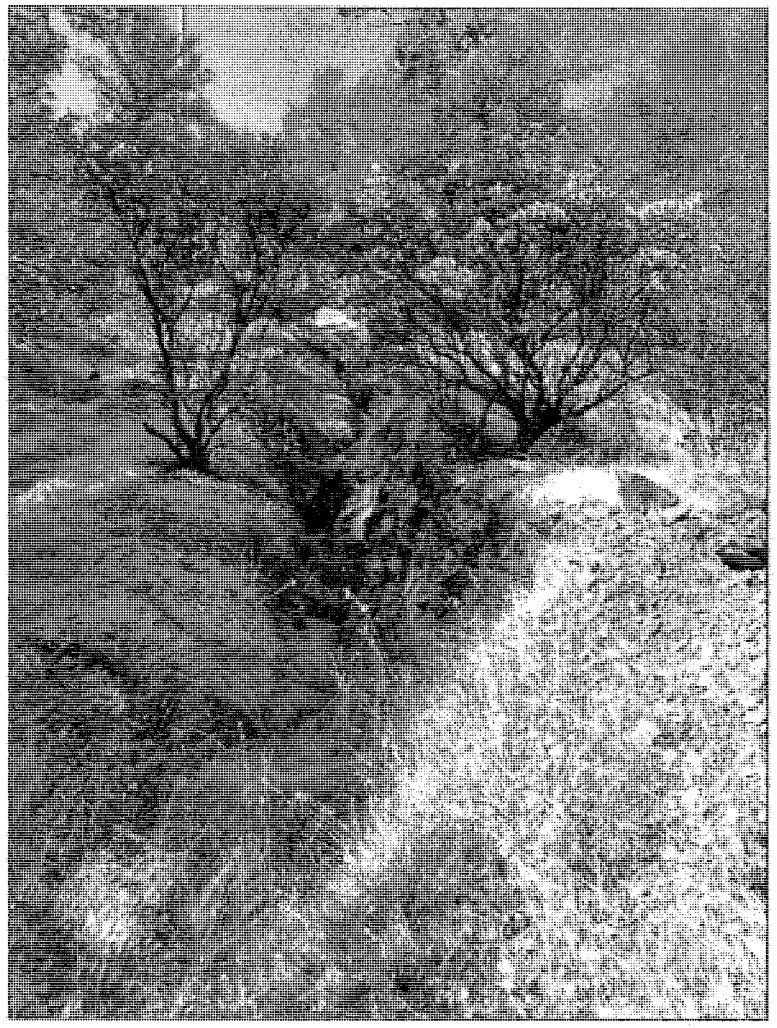
Salt Creek Estates . 206134

Figure 1

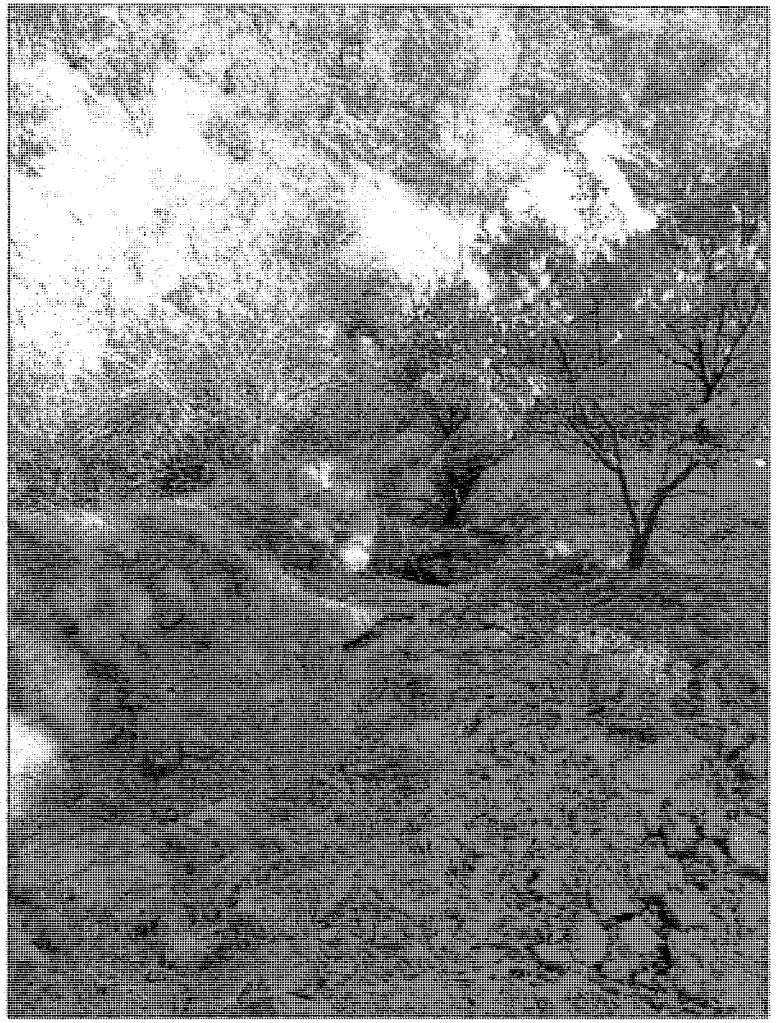
Potentially Jursidictional Features

Appendix C
Project Site Photographs

ESA



PHOTOGRAPH 1. Typical Ephemeral Channel



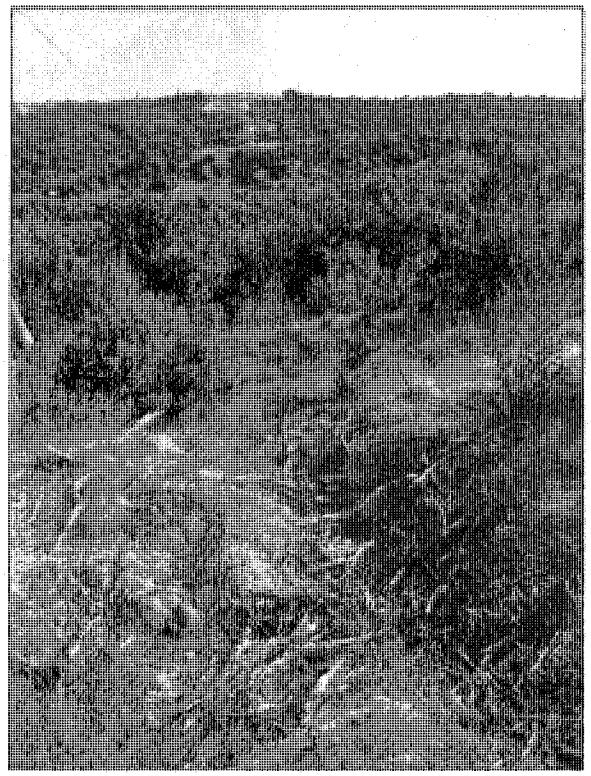
PHOTOGRAPH 2. Typical Ephemeral Channel

SOURCE: ESA, 2007

Appendix C-1

Project Site Photographs

PHOTOGRAPH 3. Typical Riparian Habitat



PHOTOGRAPH 4. Typical Upland Habitat

SOURCE: ESA, 2007

Appendix C-2

Project Site Photographs

Appendix D

Plant Species Observed During Surveys for the Salt Creek Heights Project

ESA

APPENDIX D

Plant Species Observed During Surveys for the Salt Creek Heights Project

PLANT SPECIES OBSERVED DURING SURVEYS FOR THE SALT CREEK HEIGHTS PROJECT

Scientific Name	Common Name	Family	Wetland Indicator Status*
Ailanthus altissima	Tree of Heaven	Simaroubaceae	FACU
Anthoxanthum aristatum	Vernal grass	Poaceae	NL
Arctostaphylos manzanita	Common manzanita	Ericaceae	NL
Arctostaphylos viscida spp. *viscida*	White-leaf manzanita	Ericaceae	NL
Artemisia douglasiana	Mugwort	Asteraceae	FACW
Avena fatua	Wild oat	Poaceae	NL
Bromus diandrus	Ripgut grass	Poaceae	NL
Bromus hordeaceus	Soft chess	Poaceae	FACU
Ceanothus cuneatus var. *cuneatus*	Buck brush	Rhamnaceae	NL
Cephalanthus occidentalis var. *californicus*	Buttonwillow	Rubiaceae	OBL
Cercis occidentalis	Redbud	Fabaceae	UPL
Chlorogalum angustifolium	Soap plant	Liliaceae	NL
Eleocharis macrostachya	Spikerush	Cyperaceae	OBL
Eremocarpus setigerus	Turkey mullein	Euphorbiaceae	NL
Eriogonum nudum	Nude buckwheat	Polygonaceae	NL
Erodium botrys	Filaree	Geraniaceae	NL
Fraxinus dipetala	California Ash	Oleaceae	NL

PLANT SPECIES OBSERVED DURING SURVEYS FOR THE SALT CREEK HEIGHTS PROJECT

Scientific Name	Common Name	Family	Wetland Indicator Status*
Geranium molle	Geranium	Geraniaceae	NL
Heteromeles arbutifolia	Toyon	Rosaceae	NL
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	Poaceae	FAC
Hordeum murinum ssp. *leporinum*	Foxtail barley	Poaceae	NI
Juncus xiphioides	Rush	Juncaceae	OBL
Lolium multiflorum	Italian ryegrass	Poaceae	NL
Lolium perenne	Perennial ryegrass	Poaceae	FAC
Lotus purshianus var. *purshianus*	Spanish lotus	Fabaceae	NL
Montia fontana	Water chickweed	Portulacaceae	OBL
Pinus ponderosa	Ponderosa pine	Pinaceae	FACU
Pinus sabiniana	Grey Pine	Pinaceae	NL
Populus fremontii	Fremont cottonwood	Salicaceae	FACW
Quercus berberidifolia	Scrub oak	Fagaceae	NL
Quercus douglasii	Blue Oak	Fagaceae	NL
Quercus garryana	Oregon White Oak	Fagaceae	NL
Quercus wislizenii	Interior Live Oak	Fagaceae	NL
Rhamnus tomentella	Hoary Coffeeberry	Rhamnaceae	NL
Rubus discolor	Himalayan blackberry	Rosaceae	FACW*
Rumex crispus	Curly dock	Polygonaceae	FACW
Salix sp.	Willow	Salicaceae	FACW-OBL
Sambucus mexicana	Blue elderberry	Caprifoliaceae	FAC
Styrax redivivus	Snowdrop bush	Styracaceae	NL
Torilis arvensis	Flat-leaved parsley	Apiaceae	NL
Toxicodendron diversilobum	Poison oak	Aancardiaceae	NL
Trifolium sp.	Clover	Fabaceae	NL

PLANT SPECIES OBSERVED DURING SURVEYS FOR THE SALT CREEK HEIGHTS PROJECT

Scientific Name	Common Name	Family	Wetland Indicator Status*
Typha angustifolia	Narrow-leaf cattail	Typhaceae	OBL
Typha latifolia	Broad-leaf cattail	Typhaceae	OBL
Vitis californica	Wild grape	Vitaceae	FACW

*Wetland Indicator Status (Reed, 1988)
OBL - Obligate Wetland
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Obligate Upland
NI - No Indicator
NL - Not Listed
NO - Does Not Occur in Region
(*) - Indicator assigned is tentative

Appendix 15.7
Cultural Resources Survey

Cultural Resources Survey
For The Salt Creek Heights Residential Subdivision
In Redding, Shasta County, California

Prepared for:

Gary Blanc
Sierra Pacific Industries
P.O. Box 496014
Redding, CA 96049-6014

For reference by:

City of Redding
U.S. Army Corps of Engineers

Revised
February 2009
278-06

ENPLAN
Environmental Scientists and Planners
www.enplan.com

SUMMARY OF FINDINGS

This report details the results of a cultural resources inventory survey conducted for the proposed Salt Creek Heights residential development project on ±273 acres in the City of Redding, Shasta County, California, at Township 32 North, Range 5 West, within portions of Sections 32 and 33 (Figures 1 and Figure 2).

All work associated with this survey was conducted by ENPLAN from May 2006 to September 2007 and from September 2008 to January 2009. Identification of cultural resources was undertaken in accordance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR Part 800). Initial work on the project in 2006 was focused on inventorying the cultural resources within the project proposed footprint. This work was completed in 2007 with a final report submitted to Sierra Pacific Industries on October 24, 2007. Additional development areas were identified in 2008. These areas were required for vegetation clearance and to meet the requirements of Section 404 of the Clean Water Act and an associated permit from U.S. Army Corps of Engineers (ACOE). This report incorporates the results of the October 2007 report and those of the 2008 field studies.

Records indicate that three archaeological surveys had been previously conducted in portions of the project area; however, no cultural resources were recorded as a result of these surveys. Records also indicate that 16 previous surveys have been conducted within 0.5 miles of the project area, resulting in the recordation of three prehistoric and ten historic archaeological sites.

As a result of the current ENPLAN survey, nineteen cultural resources were discovered (Figure 7) which can be divided into six groups. Prehistoric resources include the Wheel-Rut Scatter site and several prehistoric isolates. Historic resources include the Eureka Tellurian Gold Mining Complex (ETGMC) including a variety of historic mining-related locales and features, encompassing the entire project area; the Shack Site, consisting of a mixed temporal scatter of historic and contemporary material; nine historic trash scatters; and two residential structures.

The Wheel-Rut Scatter and five prehistoric isolates, the ETGMC, the Shack Site, and nine historic refuse dumps, were recorded within the project area as a result of work conducted by ENPLAN. The Wheel-Rut Scatter, prehistoric isolates, the ETGMC, the Shack Site, historic trash scatters, and two structures have all been evaluated and determined not significant. As such, these sites are not considered "Historic Properties or "Historical Resources;" therefore, the proposed Salt Creek Heights residential project will have no effect on sites or structures eligible for or included on the National Register of Historic Places or California Register of Historical Resources.

This report satisfies the requirements for CEQA, and, if the ACOE forwards this determination of "No Historic Properties Effected" to the SHPO, and if the SHPO concurs with this determination, then the ACOE will be in compliance with 36 CFR 800 regulations. ENPLAN recommends, however, that strict adherence to California Health and Safety Codes Section 7050.5 and 5097.98 of the Public Resources Code (as

amended by AB 2641) be followed in the event that human remains are encountered as a result of project developments.

We also recommend that the following stipulations be included as a condition of project approval by City of Redding, and the ACOE, and that these stipulations be included on all project construction/design plans:

A) *If any human remains are encountered during any phase of construction, all earth-disturbing work shall stop within 50 feet of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary.*

B) *If any previously unevaluated cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, etc.) are encountered, all earth-disturbing work shall stop within 50 feet of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary. This stipulation does not apply to those cultural resources evaluated and determined not Historical Resources/Historic Properties in this report.*

In the event that project plans change to include areas not surveyed, additional archaeological reconnaissance may be required.

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INTRODUCTION

Project Location, Regulatory Setting, and Qualifications

This report details the results of a cultural resources inventory survey conducted for the proposed Salt Creek Heights residential development project. The ±273-acre site is located in the City of Redding, Shasta County, California, in Township 32 North, Range 5 West, within portions of Sections 32 and 33. The project area is north of Highway 299 between Iron Mountain Road and Buenaventura Boulevard and is bounded to the west and north by Salt Creek and to the east by Gold Run Creek (Figures 1 and 2). The project area is within Shasta County Assessor's Parcels (APNs) 204-030-036 and 204-030-023.

The proposed project has the potential to cause adverse effects to cultural resources that may be located within the project's Area of Potential Effects (APE). A good faith effort was therefore made to identify cultural resources within and immediately adjacent to the project area. All work associated with this study was conducted in compliance with the California Environmental Quality Act (CEQA) and its implementing regulations. Additionally, the project has the potential to affect waters of the United States and thus, the project proponent must meet the requirements of Section 404 of the Clean Water Act. A permit from the U.S. Army Corps of Engineers (ACOE) Sacramento District will be required. Due to the ACOE component and the requirements of the ACOE, this project is considered a "federal undertaking" and the portion of the project area subjected to CEQA cultural resources study was also conducted in compliance with Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR Part 800). For those areas of the project subject to the ACOE jurisdiction, the federal APE will be defined by the ACOE during the Section 404 consultation process.

Sierra Pacific Industries contracted with ENPLAN to conduct the cultural resources studies for the project. ENPLAN is an environmental consulting firm with over 25 years of experience with projects throughout northern California. ENPLAN's cultural resources studies are conducted in accordance with accepted professional archaeological standards, and in compliance with all applicable state and federal codes, acts, regulations, and orders relating to cultural resources, where applicable. Work associated with this project was performed by the following: Chris Dalu (BA, Anthropology)—ENPLAN Staff Archaeologist and Project Manager, and Georganne McMaster (AS), Gary Scholze (BA, Anthropology), Tiffany Tuttle (MA, Anthropology), and Evan Wiant (BA in progress)—ENPLAN Archaeological Technicians. All work was peer-reviewed by Wayne Wiant (MA, Anthropology)—ENPLAN Senior Archaeologist.

Project Description

The proposed project entails subdivision of the ±273-acre site and construction of approximately 440 residential units. Work would involve varying degrees of ground disturbances across the project site. The conceptual subdivision plan includes low-, medium-, and high-density residential housing, a neighborhood park, roads, and improved and unimproved open space. Ground disturbances would vary and be based

on project engineering and existing topography. Based on the known project-specific impacts available for this study, a reasonable level of anticipated impacts could be determined for two areas within the project site. The large, level, central portion of the project area with slopes less than 20 degrees is slated for residential housing and would be subjected to extensive grading (Figure 3). This area encompasses approximately 60 percent of the total study area. Disturbances would likely include initial clearing and grubbing; grading to smooth out topography and create building pads and road corridors; trenching to install storm drains, sewers, and other utilities; and landscaping. Maximum depths associated with storm drain and utility trenches would likely range from two to eight feet. Minimal cuts should be required for this area, as the development footprint stays primarily within this semi-level ridge-top area, avoiding the steeper hillsides and drainages. The remaining portion of the project area, "Undeveloped Area" (UA), which includes slopes greater than 20 degrees and the area along Salt and Gold Run creeks, is proposed as unimproved open space. Work in this area would be limited to vegetation thinning for fire prevention (which would extend up to 200 feet from the planned structures) and use of some of the existing seasonal drainages to capture storm-water runoff. Initially, a number of foot trails were proposed along Salt Creek and from the development through the UA to the Sacramento River Trail system. These trails have been dropped from the project.

Project APE

For CEQA, the APE is generally the area of direct effect. The Section 106 APE for a federal undertaking is defined as the area that may be directly or indirectly affected by the proposed federal undertaking. Federal undertaking APEs can include a horizontal APE (elements of the project which would affect cultural sites situated on the surface of the project site), vertical APE (those which could affect buried cultural resources) and view-shed APE (associated with visual impacts to surrounding historic structures or the view of an historic landscape). Despite the fact that the current proposal includes no improvements in the UA, leaving it as open space, the horizontal APE is expected to include the entire ±273-acre area for both NEPA and CEQA purposes(Figure 6). The Salt Creek Heights project has a limited potential to affect the view-shed of two surrounding elements of the built environment. Two structures adjacent to State Highway 299 will have a new access road constructed between them. Although it is unlikely that these structures are eligible resources, they were included in the APE and evaluated. The project site itself is not an historic landscape that can be viewed from the surrounding area. The current view of the project area is one of a dense, brush fields crisscrossed by power line corridors (Figure 6).

Geologically, the area is one of deflation, with all portions of the project subjected to erosion and down-cutting for at least the last fifty thousand years (Lanphere et. al. 2004, Strand 1962). The addition of historic mining has furthered this process. Deflation and erosional activity minimize the potential for buried cultural resources to occur in the study area. Any buried cultural deposit that might have existed would have been exposed by this erosive action. Thus, the Salt Creek Heights project has minimal potential for buried resources and should not require a vertical APE. Final

determination of the Salt Creek Heights project APE would require ACOE and the State Historic Preservation Officer (SHPO) confirmation.

Archival/Map Research, Correspondence, and Results

ENPLAN consulted the following sources to obtain information concerning known archaeological sites and historic activities that have occurred within and/or adjacent to the study area: Northeastern Information Center of the California Historical Resources Information System at California State University, Chico (NE/CHRIS); the Native American Heritage Commission (NAHC); the Shasta County Historical Society; the local Native American community; various maps on file at ENPLAN; and records on file at BLM Redding and at <http://www.glorecords.blm.gov/>. Archival research results are described below.

The records search was conducted by NE/CHRIS staff on May 17, 2006, and covered an approximate 0.5-mile radius around the project area; the size and scope of the search area was determined to be sufficient based on the results. Research included reviewing maps and records for archaeological surveys, sites, and other cultural resources in this portion of Shasta County, and also the following documents on file at NE/CHRIS: *National Register of Historic Places—Listed Properties and Determined Eligible Properties* (1988, Computer Listings 1966 through 7-2000 by National Park Service); the *California Register of Historical Resources* (2006); *California Points of Historical Interest* (1992); *California Historical Landmarks* (1996); *USGS Redding 1:125,000 quad map* (1900); and the *Directory of Properties in the Historic Property Data File for Shasta County* (2006). Results are outlined below.

NE/CHRIS records indicate that three archaeological surveys (Elliot and Bayham 1989; Jensen 1987, 1993) have been previously conducted within the project area; however, no cultural resources were recorded as a result. In addition, 16 previous surveys (Cook 1991; Dalu et al. 2005, 2006; Dotta 1981a, 1981b; Furry 2003; Hamusek et al. 1990; Jensen 1975, 2004; Matzat 1990; Ritter 1983, 1990, 1991, 1993; Vaughan 1986, 2005) have been conducted within 0.5 miles of the project area. One prehistoric site, CA-SHA-550, a lithic scatter consisting of five flakes, was recorded in 1974 immediately adjacent to the project area along Highway 299. This site was located on a small knoll, which was subsequently removed by highway construction. Two other prehistoric sites, CA-SHA-1450/H and 45-004111, were recorded within a 0.5-mile radius. CA-SHA-1450/H is a multi-component site covering a large area (137,500 m^2) just north of the Sacramento River where it bends to the east, adjacent to the project boundary. The prehistoric components of this site are lithic scatters located on two terraces above the river. Prehistoric site 45-004111 is another lithic scatter, located approximately 0.4 miles southeast of the project area. Records also indicate that a total of ten historic archaeological sites have been recorded within 0.5 miles of the project area. These sites consist of ditch segments (including Clear Creek Ditch and the Stanford Trail Ditch), a segment of the Shasta to Red Bluff Road, a mine shaft at the Minneshasta Mine, a cabin pad, mining camp, dam, and bridge, as well as tailings, rock walls, and refuse deposits.

ENPLAN sent Request for Comment letters on May 11, 2006, to the following: the Native American Heritage Commission (NAHC); President, Shasta Historical Society; James Hayward, Sr., Cultural Resources Compliance, Redding Rancheria Tribal Office; Bob Burns, Wintu Education and Cultural Council; John Castro, Cultural Liaison, United Tribe of Northern California, Inc.; Caleen Sisk-Franco, Tribal Chair, Winnemem Wintu Tribe; Wintu Tribe of Northern California; Carol Sinclair; Loretta Root; and Carol Y. Bowen.

The NAHC responded by fax on May 16, 2006, and stated that a search of the sacred lands files failed to indicate the presence of Native American cultural resources in the immediate project area. Carol Sinclair responded by phone on May 22, 2006, and indicated that the area near Salt Creek and Iron Mountain is considered sensitive; she requested to be contacted if any cultural resources were identified. Bob Burns of the Wintu Cultural Council responded by phone on May 23, 2006, and indicated that he is not concerned and does not anticipate cultural resources within the project area and/or APE as the area has been highly disturbed by historic activities. James Hayward, Sr., of the Redding Rancheria, responded by letter on May 15, 2006, indicating that he had concerns regarding ethnographic Wintu encampments along the west side of the Sacramento River. A second, more detailed letter was sent to Hayward on May 17, 2006, describing this project, inviting him for a site visit, and requesting feedback regarding the treatment of artifacts. This letter specifies that ENPLAN will send him a copy of the final approved report for his files. Follow up e-mails and phone calls to Mr. Hayward as recently as December 8, 2008, had not as yet garnered a request from him for a field visit. The original letter and written responses are included in Appendix A. No other responses were received.

Map research was conducted utilizing the following maps that are on file at the Redding BLM office and/or Shasta Historical Society: the *Map of Major P. B. Reading's Mexican Grant on the Sacramento River* (1854); *USGS Topographic Map: Redding* (1901); the *Shasta County Mineral Map* (Weigel 1908); the 1912 *Map of the County of Shasta* (Weigel 1912) and its update by Hornbeck (2001); the USGS 15-minute quadrangle of Redding, Calif. (1944); and the USGS 7.5-minute quadrangle of Redding, California (1957, photo-revised 1969). According to all map sources, the project area is generally bounded by the railroad to the north, Salt Creek to the north and northwest, an unnamed drainage along most of the eastern border (which also defines the Redding City Boundary at this point), and Highway 299 to the south. Weigel's 1908 map shows the Gold Leaf Tram trending SW/NE through the center of the project area. All maps show a road connecting Redding to Shasta just south of the project area; this is modern-day Highway 299. Several structures appear on the USGS 1901 map near the confluence of Salt Creek and the Sacramento River. One of those structures is still visible on the 1944 USGS quad, but it does not appear on the 1957 USGS quad map. In addition, there are a number of structures along Highway 299 visible on the 1944 and 1957 quad maps.

There are no Government Land Office (GLO) records available for the project area; this land was within Major P. B. Reading's Rancho Buenaventura and was therefore never within GLO jurisdiction. The map of Reading's grant (1854) does not show the parcels that now make up the project area, but Weigel's mineral map (1908)

names Eureka Tellurium Co. as the owner of the mineral rights in the project area (Figure 5). On Weigel's 1912 map, it appears that E. H. Johnson owned the whole of the project area, and the 2001 update of this map by Hornbeck shows that Eureka Tellurium owned the western portion of the project area and notes J. Von Balvern as the owner of the eastern portion.

Based on the results of archival research, comment solicitation, previous surveys adjacent to the study area, and the environmental context (described below), the sensitivity level for the project area is considered moderate for the presence of prehistoric cultural resources and very high for the presence of historic cultural resources.

PROJECT AREA CONTEXT

Environment

Regionally, the project area is located at the juncture of the northwestern end of the Sacramento Valley within California's Great Central Valley and the foothills of the southern extent of the Klamath Mountains. Elevations in the project area range from about 520 to 740 feet above sea level. The central portion of the project area is a nearly flat plateau that is surrounded by moderately steep- to steep-sloped canyons. Geologically, Quaternary Pleistocene Nonmarine sedimentary deposits are underlain by Devonian and pre-Devonian metavolcanics (including Balakala rhyolite and other igneous and meta-igneous rocks), which are underlain by Devonian Marine deposits, including Copley greenstone (Strand 1962).

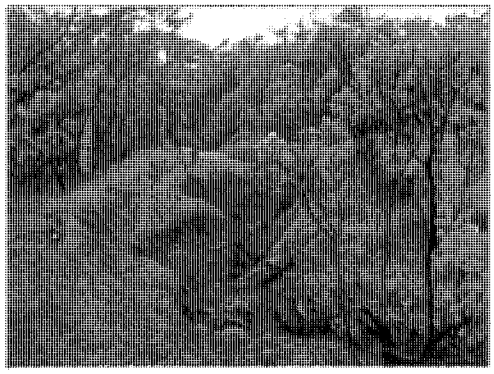
Salt Creek approximates the western and northern boundaries of the project study area and an unnamed tributary, referred to as Gold Run Creek in Lee (2006), approximates the eastern and southern boundary. Both creeks drain into the Sacramento River approximately 100 feet north of the study area boundary. Captured between these two drainages, the project site sits atop a plateau whose periphery is incised by a number of seasonal drainages tributary to the two larger streams. The area supports a blue oak/gray pine woodland, a climax community found on well-drained sites with shallow soils. Blue oak is the dominant tree species and gray pines are scattered throughout the community, being most dense in the northwestern corner of the site. Black oaks, interior live oaks, knobcone pine, and ponderosa pine are also present on east and north-facing slopes. A very dense shrub layer is present throughout much of the site. Common shrub species include whiteleaf manzanita, poison oak, toyon, buckbrush, mountain-mahogany, and other species. An herbaceous understory occurs in small openings and in disturbed areas such as adjacent to onsite roads (ENPLAN 2004, 2005).

Historic land uses in the project vicinity consisted primarily of mining activities during the 1860s to early 1900s. As a result of these activities, ridge tops, hillsides, stream terraces, and stream beds have been widely altered.

Contemporary and recent land use in the project vicinity is focused on residential and commercial development. Current disturbance to the project site includes three power line corridors ranging from 40 to 500 feet wide, numerous unimproved roads, off-

road vehicle traffic, extensive illegal dumping, numerous homeless camps, fire-wood cutting, and vegetation clearing.

Contemporary Trash and Road



Erosion on Power Line Access Road

Remains of Homeless Camp

Ethnographic

Kroeber (1925) and DuBois (1935) are primary sources of ethnographic information relevant to the study area, while LaPena (1978) and Moratto (1984) provide summaries of ethnographic and historic information. The following discussion is derived primarily from these sources.

At the time of European-American contact (1830-1840), the project area appears to have been inhabited by the *Elpom* Wintu, also referred to as the Keswick Wintu. The Wintu belong to the family of Penutian speakers, a linguistic stock whose members are found throughout California within four main language families including Wintuan, Maiduan, Yokutsan, and Utian (Moratto 1984). Wintuan language subgroups consist of Wintu (Northern Wintuan), Nomlaki (Central Wintuan) and Patwin (Southern Wintuan) (Kroeber 1925). The Wintu were further divided into nine major groups based upon their geographic location, including the *Elpom* Wintu (DuBois 1935).

The Wintu subsistence/settlement strategy was similar to many other California groups, and was based on seasonal transhumance and the exploitation of vegetal resources, fish, and game. Wintu diet/subsistence focused on three predictable resources—acorns, deer and salmon—all of which were of high nutritional value, easily stored, and dependably available on a seasonal basis. The Wintu lived in permanent

villages during the winter, subsisting mainly on stored foods. In the spring and summer months, they occupied resource procurement camps (in brush shelters) usually located no more than three to four days' walk from the main village. Food resources were periodically returned to the base camp for storage, which was guarded by old people and small children unable to participate in the gathering rounds (DuBois 1935 LaPena 1978).

It is estimated that the Wintu arrived in the Sacramento Valley approximately 1,000 to 1,200 years ago, resulting in the displacement of Hokan-speaking peoples from the area (Moratto 1984). Pre-contact population estimates for the Wintu are 14,250. In 1910, there were an estimated 395 Wintu remaining. It is estimated that approximately 75 percent of the Wintu populations living along the Sacramento River were lost to malaria and influenza epidemics brought about by the arrival of European-American trappers and settlers in the middle 1800s (LaPena 1978).

Prehistoric

The earliest systematic archaeological investigations in northern California were conducted during the 1930s and 1940s and were associated with the construction of Shasta Dam. Smith and Weymouth (1952) recorded a large number of prehistoric midden sites along Squaw Creek and the Sacramento, Pit, and McCloud Rivers, with artifact assemblages suggesting that habitation of the sites by the Penutian-speaking Wintu occurred by about 1,000 years ago. Later work at Squaw Creek suggested occupation of the area began before 6,500 years ago, and the artifact assemblages suggest that Hokan-speaking peoples inhabited these sites prior to Wintu occupation (Sundahl 1992).

Archaeological investigations in northern California at Clear Lake near Borax Lake provide clear evidence that the region was first colonized at the end of the Pleistocene and associated with the "Western Clovis Tradition" (Willig and Aikens 1988), dating around 13,500 years ago (Fiedel 1999, 2000). It has still not been determined whether these early Californians were present in the northern Sacramento Valley at that time.

It has been postulated that these earlier cultures utilized a different subsistence/settlement strategy from that of the ethnographic Wintu populations. Ethnographic Wintu villages are concentrated along the Sacramento River and its tributaries, as the Wintu subsistence strategy was intensively focused on riverine resources. The Hokan peoples who inhabited the area before proto-Wintu groups arrived are believed to have been seasonally-mobile hunter-gatherers, and village sites from this time period are primarily located along tributaries to the Sacramento River in riparian and upland areas. The paleo-Indian cultures that existed prior to these Hokan peoples are believed to have been primarily big game hunters. It is outside the scope of this study to reconstruct the paleo-environment of this time period, and is difficult to predict where these groups may have settled in the general project vicinity (Chartkoff and Chartkoff 1984).

Historic

The first known recorded historic use of the region by European-Americans occurred during the late 1820s and early 1830s when the trapping expeditions of Jedediah Strong Smith, Peter Skene Ogden, and the Hudson Bay Company entered the Sacramento Valley (Petersen 1965). Euroamerican settlement and population in the northern Sacramento Valley increased as a result of the acquisition of the Rancho Buenaventura land grant by Pierson B. Reading in 1846 and gold mining which began in 1849; the Homestead Act of 1862; the arrival of the Central Pacific Railroad in 1872 and the copper mining boom that began in the 1880s; and the Central Valley Project of 1935. These transforming events resulted in population increases within Shasta County in excess of 100 percent from 1850-1860, 1870-1880, and 1930-1940 (Shasta County Planning Department 1975).

The following historic summary was based on research provided by Barbara Woodrum, M.A. Historic Archaeology and local historian:

> The project area is located in the northwest corner of Pierson B. Reading's Mexican land grant, in Sections 32 and 33 as laid out in Magee's post-1868 survey of the Rancho Buenaventura (Magee no date). Land that was not sold in Reading's lifetime was sold after his death in 1868. In 1877, Edward Frisbie and James Haggin bought a large tract in the northern part of Reading's grant. Frisbie was a Redding land developer and banker, and he and other investors developed the original town of Redding on this part of the Rancho. Because the Reading grant was never in the public domain, no government patents were issued within its boundaries, and no mineral surveys were filed with the Government Land Office. Lots were sold to individual owners, often to speculators, and many Redding properties changed hands repeatedly as investors strove to capitalize on the rising real estate market.
>
> By 1890, the project area, as it essentially is today, was purchased by Peter J. Scherer for the Eureka Tellurium Consolidated Mining Group, also known as Telluride Consolidated (Crawford 1896:356-357; Wiegel 1908). The boundaries of the Eureka Tellurium Gold Mining Co. property in Sections 32 and 33 of T31N R5W were essentially the same as the boundaries of the current project parcel. The parcel has remained intact under various ownerships from 1890 to the present day (Figures 5).
>
> Scherer was already the principal owner of the company's patented mines in Section 29 (Crawford 1896:356-357). Scherer was also the executor of the estate of the previous owner of the project parcel, Mary P. Scherer, who may have been his wife. According to Peter Scherer's 1890 deed, the property lay within the Reading Grant. As described by the deed, the "Scherer tract" was on the west. On the southwest and south were the Redding and Shasta Wagon Road (now Highway 299W) and the Nicolet tract (a 7½-acre parcel on the north side of the road). On the southeast were the land of the Ottawa Mill & Mining Co., and the land of "Pradel and Darlot." On the east was Gold Run [Creek]. On the north

were the Sacramento River and the California & Oregon Railroad right-of-way. The northwest boundary was the Reading Grant Line, which followed Salt Creek in this vicinity (Shasta County Book of Deeds 176:216:220). Scherer paid $27,000 for the property.

According to voter registration records of 1892 and 1896, Peter J. Scherer lived in Redding. He was born in Germany about 1838 and was naturalized as a United States citizen in Shasta County in 1862. In 1896, he reported his occupation as blacksmith.

The State Mineralogist's report for 1896 states that the ETGM Co. property contained 292 acres and showed a high percentage of gold-bearing telluride, but the gold proved difficult to extract (Crawford 1896:356-357). By 1905, the Eureka Tellurium Gold Mining Co. was in debt to Charles Shively and was bankrupt in this year, after Shively received a court judgment against the company. The property was sold at public auction in 1907, to Shively as the highest bidder (Shasta County Book of Deeds 96:510-515). The boundaries as described in Shively's 1907 deed are the same as the description in Peter Scherer's earlier 1890 deed.

By 1912, E. H. Johnson was the owner of the project parcel. [Because the property boundaries, as shown on Wiegel's 1908 and 1912 county maps, are distorted and lack detail, it was initially thought that by 1912 the ETGM Co. parcel had been divided, with E. H. Johnson on the west side and W. E. F. Van Balvern and C. Ferraro as property owners on the east side of the property. However, further map and archival research shows that E. H. Johnson owned all of the former ETGM Co. land in 1912; lands of Van Balvern and Ferraro were east of Gold Run Creek outside the project area]. No information regarding Johnson was found in Shasta County records and it is possible he was an absentee owner. By the mid-twentieth century, the former ETGM Co. property belonged to Antonio and Balbina Alverez (Shasta County Land Survey Book ND 13:21; Metsker 1959).

The Eureka Tellurium Group consisted of four mining claims along Salt Creek and the Sacramento River in Section 29 of Township 32 North, Range 5 West. These were the Telluride, the Cleveland, the Shaefer, and the Herbert. Although these mining claims were located in the 1850s, the mining group achieved only a small production, around 1901 (Lydon 1974:115). In 1894, according to the State Mineralogist's report for that year, the Telluride mine had a 10-stamp mill, 850 pounds of stamps, 8-foot apron plates, and two Woodbury concentrators (Crawford 1894:248). By 1890, the Telluride had five men working under the supervision of owner Peter J. Sherer. The percentage of gold in the ore was high, but proved difficult to extract. However, optimism prevailed and by this year the mining group had expanded its land holdings to 292 acres, including the project property in Sections 32 and 33 (Crawford 1896:356-357). A tramway—shown on the Weigel 1908 map—may have been built across

Eureka Tellurium land about this time, although none of the available State Mineralogist's reports mention the tramway.

Nearby, the Minneshasta claim—south of the Shasta Wagon Road (now Highway 299W) in the SE ¼ of Section 32 and the SW ¼ of Section 33—was intermittently active from the 1890s to the 1920s (Lydon 1974:121). Also south of the road was the Gold Leaf Consolidated Group (also known as the Crown Deep, or the Miller). Southwest of the Gold Leaf Quartz Mine (mostly in Section 5 of Township 31 North, Range 5 West) was a cluster of undeveloped mining claims in the Monte Cristo Consolidated Mining Group and the Arizona Group (Wiegel 1908). The existence of these numerous claims suggests that the area was expected to be profitable. The Gold Leaf tramway linked the Gold Leaf and Minneshasta mines and ran northeast across the Eureka Tellurium Group's land (Wiegel 1908). The tram may have been planned to serve the Arizona Group and the Monte Cristo Group as well.

Charles Hornbeck, of the Shasta Historical Society and retired engineer for CH2M Hill, has mapped what he believes is the tramline route. He notes that according to Wiegel's 1908 map, the tramline did not extend all the way to the railroad on the north. Instead, he believes that it ended at the bluff above the rail line, where he believes small ore cars were lowered on an incline, to a bunker adjacent to the tracks (personal communication, January 2009; see also Figure 5). Remains of a headwork structure and associated debris are visible here according to Hornbeck.

It is possible that quartz rock was mined south of the project area, carried by tram to the railroad, and then sent farther upriver to use as flux in the copper smelters. Quartz ore was an important product of played-out quartz mines. At this time, the mines at Quartz Hill in the Buckeye Mining District were the primary source of the highly siliceous ore used for flux at the Keswick smelters in the first years of the twentieth century (Kett 1947:119). Kett's comprehensive history of the Mountain Copper Company (Kett 1947) does not note the Eureka Tellurium Group as a source of flux for the smelters at Keswick. It is true, however, that individual miners also quarried suitable ore and brought it by wagon to the rail line, to be carried to the copper smelters, and the Keswick smelter probably accepted flux material from numerous sources.

However, Hornbeck believes that the Gold Leaf tram operation was a small local one, with the purpose of processing ore and extracting the gold at the stamp mill site on Salt Creek. Hornbeck hypothesizes that there may have been a plan to expand the tramline as the Arizona and Monte Cristo Groups began to pay.

Instead, the Gold Leaf tramline operation proved to be short-lived. The Eureka Tellurium Consolidated Group was bankrupt by 1905 and all its land in the project area was sold at Sheriff's auction. At this time, the

Eureka Tellurium was in debt to Charles Shively and as the owners did not have funds to satisfy the debt, the "lands, tenements and real property"—a property of 290.37 acres—was sold for $24,443.40. Charles Shively was the highest bidder (Shasta County Book of Deeds 96:510-511). Shively was a young miner, aged 25 at the time of the 1900 Federal Census, but little more information was found regarding Shively. The last owner of record of the Eureka Tellurium was John J. Bartosh, et al., of Redding (Lydon 1974:115).

After the Sheriff's sale, the Wiegel map of 1908 shows that the eastern half of the project area was owned by "Von Balven." County records show that this was W. E. F. Van Balveren. Van Balveren deeded several parcels of land, including this one, to his wife, Elsie, in 1911 (Shasta County Book of Deeds 109:377). Wiegel's map for 1908 shows the western half of the project area still in the possession of Eureka Tellurium, although according to the Sheriff's deed of 1905, the land had already been sold.

Almost nothing else was found in Shasta County Records or reference works regarding the principals of the mining claims discussed above. Only J. J. Bartosh was found in the 1926 *Redding Telephone Directory*, as the proprietor of a cigar store on Yuba Street.

By the time County Surveyor Wiegel published his *Map of Shasta County* in 1912, Eureka Tellurium no longer owned any part of the project area. Instead, ownership was split between three individuals. E. H. Johnson was the owner of the western portion. Information regarding E. H. Johnson was not found in available Shasta County Records, but further research would show when Johnson acquired this part of the project parcel. C. Ferrero had a smaller parcel on the east (Wiegel 1912). Carlo Ferrero registered to vote in Shasta County in 1926, giving his occupation as farmer. Possibly he was living and farming on his property in Section 33. "Von Balven" is marked on the 1912 Wiegel map as owning the easternmost segment bounded on the east by Gold Run Creek, and the Van Balveren couple were the owners by 1908 as described above. Previously, the Van Balveren's lived in Buckeye as recorded in the Federal Census for 1900.

By 1951, all of the project area belonged to Antonio and Balbina Alverez (Shasta County Land Survey Book 13:21, Metsker 1959).

FIELD METHODS

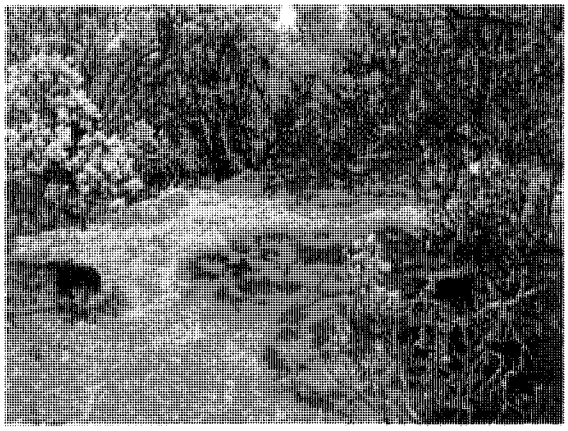
Field Survey

Chris Dalu, ENPLAN staff archaeologist and field director, and Gary Scholze, Georganne McMaster, and Tiffany Tuttle, ENPLAN archaeological technicians, conducted the majority of the pedestrian survey on seven separate visits between June 8 and September 27, 2006. Early on in the study Chris Dalu, in an attempt to relocate

the Gold Leaf Tram and site CA-SHA-550 and to examine proposed foot trail routes in the Undeveloped Area, conducted intuitive surveys along some trail routes, the Gold Leaf Tram corridor and Salt and Gold Run Creeks. He carried out his portions of the pedestrian survey on June 8 and 9, 2006. Mr. Dalu was unable to relocate CA-SHA-550 or remnants of the tram. Additional survey and site recordation was completed by Evan Wiant, ENPLAN archaeological technician, and Wayne Wiant, ENPLAN senior archaeologist, between September 2008 and January 2009. Barbara Woodrum, M.A. Historic Archaeology, documented the two structures at 4466 and 4504 Eureka Way in January 2009.

The objective of this cultural resources survey was to identify and record all cultural resources within the project's APE. In 93 percent of the area, an intensive-level pedestrian survey was completed. Approximately three percent received general coverage and four percent received a cursory examination. All identified cultural resources were recorded. Figure 4 shows the area examined during the field survey.

Taking into consideration the results of previous surveys conducted within the project vicinity, in addition to the project area's terrain, dense vegetation, and background context, an intensive survey was utilized wherever possible. Under this methodology, surveyors walked systematic meandering transects spaced at 15- to 20-meter intervals. Meandering was employed in all cases in order to view exposed soils visible from linear transect routes and to weave through vegetation. Ten percent of the project area contained steep slopes and/or dense vegetation, or both. Because of these environmental restrictions, a more general survey strategy was employed in a approximately a third of these areas. This strategy employed meandering transects spaced at 20- to 30-meter intervals. Lateral surface visibility was poor in these areas, hampered primarily by dense manzanita and irregular topography. In four percent of the project area, only a cursory level of examination could be achieved. These areas had very steep slopes and very dense vegetation. Survey in these areas was almost impossible and transects were completed through them where passage could be obtained (Figure 4).



Typical project terrain.

Throughout the survey area, ground surface visibility ranged from 0 to 90 percent, averaging about 25 percent due to vegetation and duff. Visibility was improved by clearing various sized patches of soil along survey routes and examining exposed areas along stream terraces and beds, ridge tops, roads, ditches, foot trails, transmission line corridors, areas subjected to past mining and brush clearing, and where vegetation cover was sparse. In addition, rodent activity was moderate within much of the project area, resulting in increased soil exposure. All exposed soil visible along survey transects was checked for signs of soil discoloration and/or cultural

resources, and soil stratigraphy was closely examined in stream cuts, road cuts, and large rodent burrows.

Throughout the project APE, extensive disturbance of the project site was noted. Numerous dirt roads and trails have been cut throughout the area for site access, off-road vehicle use, wood cutting, illegal dumping, and transmission corridor access. Both historic and recent debris scatters occur throughout the project area, with the greatest concentration occurring in the central portion of the APE along existing dirt roads. A wide variety of this material has been scavenged to furnish homeless camps and for target practice. Recent trash from homeless occupants has been mixed with earlier scatters. Other modern disturbances include the use of heavy equipment to clear brush and other areas, older road alignments, and the creation of new roads and fire breaks for fire suppression. These activities may have damaged many of the historic and prehistoric sites and features within the APE.

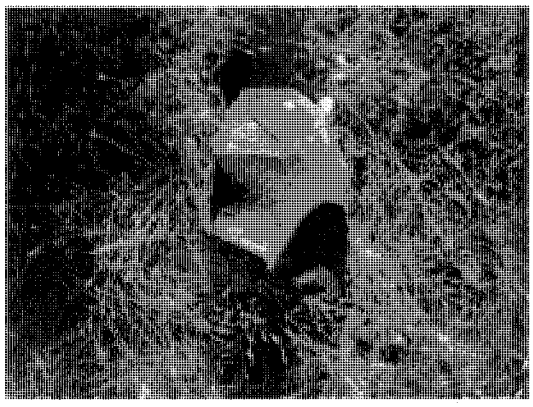
When cultural resources were encountered during the pedestrian survey, the entire vicinity within 15 meters of the discovery was intensively examined. This included exposing soil as necessary using a hoe, boot heel, handpick, and/or trowel. At the time of the survey, GPS coordinates of most cultural resources were recorded by use of a Garmin and/or Magellan WAAS-enabled GPS unit. When possible, recorded locations were verified by use of topographic and aerial maps viewed in ESRI GIS ArcEditor 9.1. During the pedestrian survey, descriptions of identified cultural resources were gathered to facilitate completion of primary records for each site or feature. In most cases, resources were photographed.

During the fall of 2004, ENPLAN acquired a sizeable amount of LiDAR imagery, which enabled us to generate project area maps with hillshade raster models. These maps allowed us to verify some of the locations of ground features discovered as a result of our survey and to clarify the boundaries on some.

Despite the visibility constraints and disturbances, this survey represents a good-faith effort to locate any archaeological sites or significant cultural resources present on the surface of the project areas studied.

Pedestrian Survey Results

As a result of the above survey of the Project APE, one historic mining site, one prehistoric site, nine trash dump/scatters, one sheet metal scatter, two residences and five prehistoric isolates were discovered (Figure 7). Prehistoric resources include the Wheel-Rut Scatter and prehistoric flake isolates. Historic resources can be divided into four resource types: (1) the Eureka Tellurium Gold Mining Complex; (2) trash/dump scatters; (3) the Shack Site (a sheet metal scatter and building); and (4) two buildings at 4466 and 4504 Eureka



CR#87, Prehistoric isolate (7/6/06)

Way. The locations of cultural resources are shown in Figure 7 and descriptions are provided in Appendix B—Site Records.

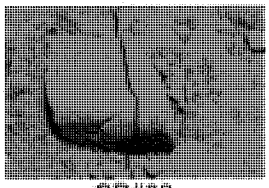
Prehistoric Cultural Resources

Wheel-Rut Scatter

Site Recording

One prehistoric site, the Wheel-Rut Scatter, was recorded in the central portion of the project area, extending approximately 130 meters along a road. This site consists of several grey chert and greenstone lithic artifacts found within a road bed, including five cores, five flakes, and one possible hammerstone. The artifacts located were found in the road, some of them partly buried. The road is incised to a depth of approximately ten to thirty centimeters below the adjacent ground surface. Two artifacts, a hammerstone and core, were found immediately adjacent to one another and were recorded with a single GPS point and cultural resource number (CR No. 88).

Surface Artifact Photos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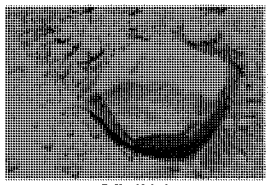
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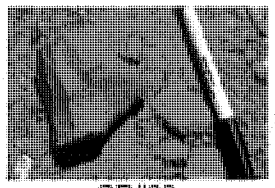
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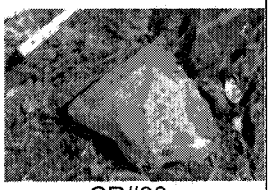
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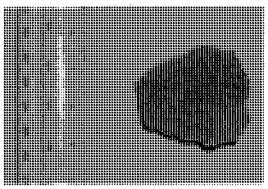
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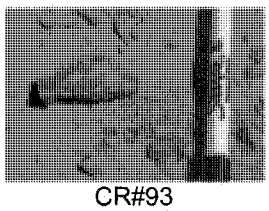
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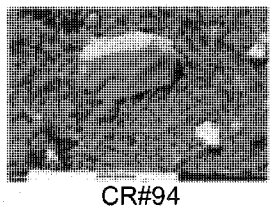
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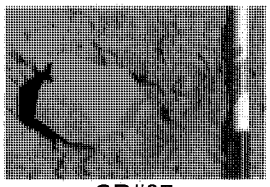
CR#96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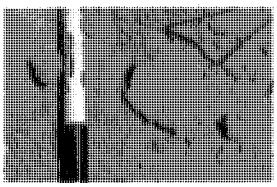
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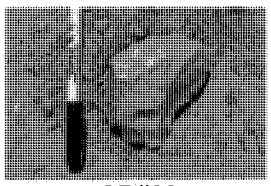

CR#99

Surface Artifact Data

CR#	Loc	Age	Cat	Descrip	F/W	Mat	Q	L	W	Th
88	WPT 069	Prehistoric	possible hammerstone		f	granitic	1	79	69	34
88	WPT 069	Prehistoric	core		w	greenstone	1	98	61	48
89	WPT 077	Prehistoric	core		w	grey chert	1	62	62	30
90	WPT 078	Prehistoric	core	EMP	f	greenstone	1	98	97	62
92	WPT 081	Prehistoric	flake	ECR	w	grey chert	1	41	38	10
93	WPT 075	Prehistoric	flake	ECR	w	grey chert	1	43	20	12
94	WPT 076	Prehistoric	flake	LCR	w	greenstone	1	52	35	25
96	WPT 071	Prehistoric	flake	LCR	f	greenstone	1	46	23	4
97	WPT 074	Prehistoric	core		w	grey chert	1	55	48	45
98	WPT 073	Prehistoric	flake	ECR	f	greenstone	1	40	38	15
99	WPT 072	Prehistoric	core		w	greenstone	1	95	66	45

Abbreviations: **CR#**-Cultural Resource Number; **Loc**-Location; **Cat**-Category; **F/W**-Fragment/Whole; **Mat**-Material; **Q**-Quantity; **L**-Length(mm); **W**-Width(mm), **Th**-Thickness(mm); **EMP**-Edge Modified Piece; **ECR**-Early Core Reduction; **LCR**-Late Core Reduction.

A concentration, consisting of five artifacts (CR Nos. 93, 94, 97-99), is located near the center of the site within the roadbed. Three artifacts (CR Nos. 89, 90, 92) were located starting approximately 60 meters further northeast, also within the road bed. Two more artifacts (CR Nos. 88, 96) are located approximately 40 meters to the southwest of the central concentration. Initially, a stone slab thought to be a possible metate (initially designated CR No. 95), and a triangular stone that was thought to have been ground were also identified in this area. However, lab analysis concluded that these pieces were neither groundstone nor culturally modified artifacts.

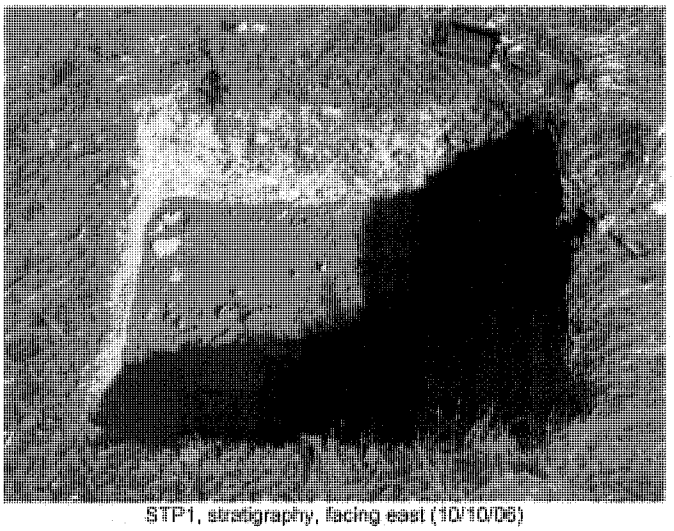
An intensive survey covering 15 meters to either side of the road was performed, and only one artifact was located outside of the road bed. This was a single flake, located atop a berm approximately five meters to the north of the road. There are signs that the road may have been graded in the past. Examination of the road cut indicated that there was no obvious deposit at the site, as there was no sign of soil discoloration or midden.

The Wheel-Rut Scatter appears, from all evidence, to be a highly disturbed lithic scatter containing a limited array of artifacts (12) and no temporal indicators. A site of this type would have limited research value and would not be considered an important resource under Section 106 or CEQA unless it had an intact cultural deposit containing additional artifacts with good integrity. To clarify this issue, Extended Phase I testing was performed at this site to determine whether or not a subsurface deposit was present. Excavations at the site are described below.

Extended Phase I Testing

Wiant, McMaster, and Tuttle performed Extended Phase I testing on the prehistoric site on October 11, 2006, in order to determine the presence of and possible extent of a subsurface deposit. The site is located within an access road. Evidence of past grading remains in the form of push piles or berms along the shoulders of the road. The vicinity had been cleared of brush within the last 20-30 years. The soil matrix includes cobbles of toolstone (chert and greenstone), some of which have been battered and broken in the process of grading and using the access road.

A total of seven shovel test probes (STPs) measuring 50 by 50 cm were excavated in arbitrary 10 cm levels following the ground contour to a depth of 20 cm (Figure 8). All excavated soils were screened through ¼-inch mesh. Artifacts found on the surface and within each level were collected and bagged separately, and labeled by provenience. A total of seven flakes, one possible groundstone fragment, and one historic artifact were collected and taken to the lab for further analysis. Two fragments of historic or modern glass were noted but not collected. Stratigraphy within the STP units was weakly present. All STP units were located in what appeared to be undisturbed areas within three meters of the graded access road. STP placement attempted to avoid berms caused by blading, but soils still demonstrated evidence of disturbance. In approximately half of the STP units, the uppermost soil horizon was a very thin (1-3 cm in depth), dark brown, organic soil with a high density of rootlets. While this stratum was absent from units 5-7, all units exhibited a much thicker horizon (extending to an average of ±12 cm in depth within all units) of loosely-consolidated, reddish-brown soil, underlain by more compact red soil (starting at ±12 cm and continuing to the bottom of the units). Thickness of the strata varied between units, but it appeared that the loosely-consolidated layer was composed of a mixture of the darker, more organic topsoil and the red subsoil, and that its light, loose, powdery texture was a result of past disturbance, most likely caused by grading and brushing activities along the road. Evidence of bioturbation was present in the form of roots, bulbs, and krotovina throughout all levels of the units. The lowest soil layer, below 12 cm, appeared to represent a fairly undisturbed natural soil horizon.



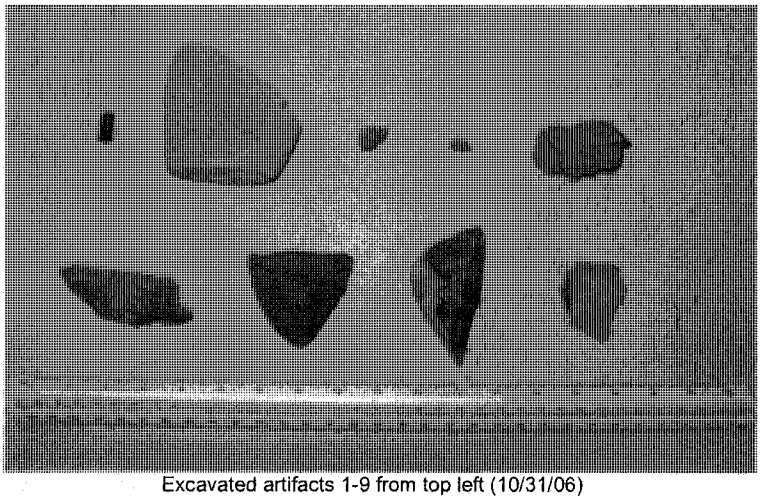
STP1, stratigraphy, facing east (10/10/06)

Nothing observed during the investigation indicated that the site contains a cultural deposit. The majority of the artifacts recorded (7) came from the upper disturbed portions of the excavations with at least one of the remaining flakes located close to the contact between this layer and the underlying natural soil.

A datum was established and its location was recorded using a MobileMapper GPS unit. The location of the southeast corner of each of the STPs was measured using a laser rangefinder and the units were then backfilled. The site was revisited on October 31, 2006. At this time, the datum was marked with a survey cap mounted on rebar, stamped with the text "ENPLAN/BASEMAPPING CONTROL POINT/278.06/10-10-06," which was then covered with a small rock cairn. In addition, all the prehistoric artifacts were reburied in the NE corner of STP 4 while still in their labeled plastic bags, with a 2006 penny placed on top of the bags.

Artifact Analysis

Fourteen items were recovered from the Extended Phase I excavations including one contemporary item and thirteen lithics. On the surface of STP 1, a highly oxidized .22 caliber shell (artifact No.1) with a "Super X" logo stamped onto the end was collected. Online research indicates that .22 caliber Western Super X bullets were first marketed in 1940 (www.goantiques.com), and Winchester still makes Super X bullets in this caliber with the same logo.


Excavated artifacts 1-9 from top left (10/31/06)

The one possible groundstone fragment was cleaned with a dry brush; all other prehistoric artifacts collected during testing were washed and dried. These were examined closely, and lab analysis determined that five of the possible artifacts collected were not cultural resources. The remaining eight prehistoric artifacts were typed, measured, and described, and the results are tabulated below:

Excavated Artifacts

Artifact #	Type	Condition	Description (form, material, etc.)	Dimensions (cm)			Provenience	
				L	W	Th	Unit	Level
1	.22 caliber shell	C	N/A	-	-	-	STP1	surface
2	Possible groundstone	F	Granitic	6.5	6	3.1	STP 2	0-10 cm
3	Possible ECR flake	C	Grey Chert, 30% cortex	1.9	1.9	0.3	STP 2	0-10 cm
4	Possible LCR flake	C	Greenstone, 5% cortex on left and right medial edges	0.9	0.9	0.1	STP 2	10-20 cm
5	ECR flake	C	Metavolcanic, 20% cortex, patinated	4	3.5	1.5	STP 3	surface

Excavated Artifacts

Artifact #	Type	Condition	Description (form, material, etc.)	Dimensions (cm)			Provenience	
				L	W	Th	Unit	Level
6	Possible ECR flake	C	Greenstone, 45% cortex	6.5	3	1.45	STP 3	0-10 cm
7	ECR flake	C	Grey Chert, 40% cortex	5	4.6	2.7	STP 5	10-20 cm
8	ECR flake	F	Metavolcanic, 50% cortex, patinated	6.75	4	2.9	STP 6	0-10 cm
9	LCR Flake	C	Grey Chert, 10% cortex, heavily patinated	4.35	3	1.1	STP 6	0-10 cm

Type: ECR=Early Core Reduction, LCR=Late Core Reduction **Condition:** F=Fragmentary, C=Complete

Aside from one small fragment of possible groundstone, the remaining artifacts excavated during Extended Phase I testing were flakes. Five flakes were from early core reduction and two were from late core reduction activities. The majority of flakes were found within the upper level of the STP units. Because there is naturally occurring toolstone in the soil matrix, which had been broken during previous ground disturbances in the area, several of the items collected as possible flakes were eventually determined to be the result of mechanical disturbance at the site and not culturally modified.

Stratigraphy within the STP units demonstrated that the soils in the area had been thoroughly disturbed to a depth of approximately 12 cm, and, as a result, there is no horizontal or vertical integrity at the site. There is no temporal control within the site, due to this fact and the lack of dateable artifacts or toolstone. In addition, the scatter is so sparse, little additional information would be obtained by more work at this site.

Prehistoric Isolates

In addition to the Wheel-Rut site, there were five prehistoric isolates (CR Nos. 86, 87, 100-102) found within the project area, including two greenstone cores, a greenstone flake, a grey chert flake, and a possible chert tool. Most isolates are located within or adjacent to roads. The locations of these isolates are shown on Figure 7.

Historic Cultural Resources

There were four classes of historic resources noted within the project APE during the inventory: the Eureka Tellurium Mine; trash/dump scatters; the Shack Site (a sheet metal scatter and building); and two post-1940s residences.

Eureka Tellurium Gold Mine Complex

ENPLAN's archival research revealed that the project is located in an area historically owned by the Eureka Tellurium Gold Mining Company. The project parcel's boundary has remained unchanged since February 1890 when Peter J. Scherer purchased it for the Eureka Tellurium Gold Mining Company. This area has likely been a mining site since the 1850s when it was part of the original Rancho Buenaventura

land grant owned by Pierson B. Reading. The earliest activity, based on historical information, was placer mining along Salt and Gold Run Creeks and their tributaries. This is verified by the numerous tailing piles identified along these drainages during the archaeological survey. Although little datable material were associated with the placer mining features at the site, the fact that some of them are disturbed or overlain by lode mining features supports an earlier date for them. Historically, the lode mining at the site is associated with the Eureka Tellurium Gold Mining Company between 1901 and 1905. However, historic records suggest that this area was subjected to later extraction of quartz for flux in the local copper smelters at the turn of the century and may have been further worked during the depression. Unfortunately, dating of the various features and locales at the site has been a major problem during its recordation. One of the most marked issues at the site is the exceptional lack of historic trash associated with these mining areas. In part this may be due to the canvassing of the area by local collectors. Recent excavations were noted at three locations and some of the holes and back-dirt piles noted at some of the mining areas may be the result of earlier investigations by collectors as well. In addition, many portions of the site have been contaminated by contemporary use by homeless individuals who appear to have occupied the site off and on for at least the last thirty to forty years. Thirty-plus homeless camps of various ages, some still occupied, and associated trash scatters were noted during the survey.

The pedestrian survey resulted in the identification of numerous locales/features associated with the historic-era mining. These locales are grouped as follows: placer mining areas (PM), lode mining areas (LM), ditch systems (DS), trails (TR), roads (RD), and isolated mining features (i.e., stand alone features or structures). Within placer and lode mining areas the following classes of features are present: mine tailings, prospect pits, ditches, roads, terraces, trails, adits, concrete features, and rock alignments. Most areas contain some combination of these features (Figure 7). Each resource or group of resources was identified with GPS points and assigned a name/number that reflected the main mining activity present (e.g., PM, LM).

Placer Mining Areas

Although there are numerous signs of placer mining along all of the drainages within the project APE, there are ten well-developed placer mining areas comprised of placer tailings and other features (PM 1- 10) (see Figure 7). The majority of these are concentrated at the head of side drainages leading to Salt and Gold Run creeks. These sites are focused on alluvial (gravel) deposits that comprise the upper 10 to 30 feet of the terrace on top of the plateau (Strand 1962). Most were fed water by a ditch (DS 1) that encircles the top of the plateau. Lateral ditches from this ditch were directed into each of the drainages to facilitate mining. Placer mining areas include various combinations historic features including ditch segments, road segments, stone berms, terraces, tailings piles of rounded cobbles, trail segments, and prospect pits. Associated refuse was absent in most cases, making dating impossible. Placer mining areas range in size from 0.2 to 24 acres. Historic refuse is absent from most of these locales with PM 1 having a limited amount, most not dateable.

PM 1. PM 1 is most complex of the ten areas. It is located along Salt Creek in the northwestern portion of the parcel. The area consists of Salt Creek and three of its major tributary drainages and their respective tributaries. Each of the three major tributary drainages as well as Salt Creek have been mined along their entire lengths. PM 1 is a complex of sluicing features which includes a deep N/S cut into the alluvial deposits at the top of the bluff (600+ feet long); segments of ditches; stone features; large cobble berms; four prospecting pits, one (30' diameter by 6' deep); two trails; rock bridge abutments; retaining walls; platforms; and a round stone feature. This feature, whose function is unknown, consists of a circle of stacked rock built within the southeast corner of a rectangular rock alignment. A shallow ditch runs parallel to the eastern wall, possibly to provide drainage. There is a small prospect pit just to the north of the feature. Three dateable artifacts in the vicinity—a coffee can, and fragments of two bottles—date to 1960-70, 1894-1920, and post-1932, respectively. The major mining features at PM 1 are at the top of the side drainage to Salt Creek and at its confluence with Salt Creek. The Salt Creek Trail, a contemporary and historic trail, crosses through the placer tailings along Salt Creek. This trail once crossed the side drainage on a bridge for which the rock abutments are still present. A connecting historic period trail, with rock retaining walls, is present up the east side of the tributary stream. This mining area contains very little historic trash with the majority of the garbage on the site related to use by hikers on the Salt Creek Trail and by homeless individuals.

PM 2. The area is located in the north-central portion of the parcel. It contains a mining face; large rock berm; possibly used as a dam and reservoir; as well as placer mining and tailings leading down the drainage below the dam.

PM 3. This area is located along Gold Run Creek in the northeastern part of the parcel. The area consists of a terrace on the creek bank which is filled with holes and covered with tailing and dirt piles.

PM 4. PM 4 is located in the eastern-central portion of the project area. It consists of the conjunction of two small drainages, both mined. A lateral ditch from DS 1 leads to the top of the easternmost drainage. A trail segment traverses the eastern edge of this location.

PM 5. This area is in the north-central section of the parcel. It consists of a rock berm, several ditches, and tailings. A portion of RD 2 bounds the northern side of this feature.

PM 6. Along a drainage in the southeastern portion of the parcel, this area contains large amounts of tailings and several pits. A ditch from DS 1 leads to the top of the drainage.

PMs 7, 8, and 10. These areas consist mainly of drainages lined with varying amounts of cobble tailings. At PM 7 there is a small terrace with a stone retaining wall at the juncture of two side drainages to Gold Run Creek. At PM 8 there are three prospect pits adjacent to the placer mining area.

PM 9. This area is located in the center of the parcel and contains several ditches from DS 1, a large prospect hole, a small rock berm, and large amounts of

tailings. For details on this and the other 9 placer mining areas, see the site record for the Eureka Tellurian Gold Mining Complex in Appendix B.

Lode Mining Areas

Lode mining areas consist of five locales with numerous prospect pits (LMs 1, 3, 4, and 5) and a lode mining area (LM 2) consisting of two adits, a concrete foundation, two light trash scatter, and tailings piles of angular shale/greenstone and quartz. All are concentrated on quartz veins in the bedrock under-laying the alluvial deposits or exposed in drainage channels. Minor amounts of placer mining can be found in adjacent drainages.

Four of these areas (LM 1, 3, 4, and 5) consist mainly of prospect pits "glory holes". Each is focused along the tops of ridges between drains on the edge of the plateau (Figure 7). These areas range in size from 0.5 to 12 acres. They contain numerous pits (20-50) ranging in size from 35' x 35' to 3' x 3'. A very small amount of tailings are in association with these areas indicating that material removed from these features was taken somewhere else for processing. Although ditches lie up-ridge from the prospect pits, there is no indication that water was diverted to these areas. LM 3 and LM 4 contain prospect pits only. LM 5, in addition to mining pits, has two small stone features that are constructed across small drainages. They are three to five feet long and only one cobble layer deep. Their function is unknown.

In addition to placer tailings, LM 1 has a few short segments of ditches within its boundaries. Portions of the Salt Creek Trail and DS 1 cut through LM 1 as well. There is no indication that water was diverted from DS 1 to facilitate mining at LM 1. One interesting aspect of LM 1 is the remains of wooden debris and a ladder at the bottom of a large pit. These wooden remains are constructed with milled lumber and modern #8 and #16 penny nails. These remains show little deterioration and do not appear to be associated with turn of the century mining. This debris may indicate that this prospect pit represents a later period of mining activity or depression-era reworking of this locale.

LM 2 is more complex than the four other lode mining areas and contains a much broader range of resources including two adits; extensive shale tailing piles (few cobbles); constructed terraces; concrete footings, slabs and anchors; excavations and prospect pits; trail, ditch and road segments; and a light scatter of historic trash. A variety of contemporary debris is also present due to the use of the area by the homeless. This mining area covers 6.5 acres and starts at the upper end of a tributary to Salt Creek where a RD 1 enters the drainage (Figure 7). One of the adits, two terraces, an apple tree, and the road are located in this area. RD 1 has been cut and converted to a power line access road at this point but still can be followed down the east side of the drainage toward Salt Creek and the LM 2 lode mining area there. Some minor placer tailing piles are located along the creek with a number of prospect pits located on the ridge to the east. One of these pits has a light trash scatter in association with metal fragments; brown, aqua, amethyst, and clear glass fragments; a bucket; white ceramics; bricks and a wash pan.

The majority of the LM 2's features are situated at Salt Creek. This area (2.6-acres) contains an adit; a group of concrete footings, foundations, and a slab that has been interpreted as the site of a stamp mill (Charles Hornbeck personal communication 2006); an extensive tailing area; seven constructed terraces; excavations; ditch and road segments; and a number of undetermined features. A light trash scatter containing glass and ceramic wares, cans, flatware, bricks, and various pieces of metal debris is located in the northwest portion of this locus.

Ditch Systems

Throughout the project there are numerous mining ditch segments. Most tend to cluster near the edges of the bluff or along ridge sides. The majority lead into or are within placer mining areas at the heads of the drainages or along them. Where possible, ditches were distinguished from historic roads and trails, although they can be difficult to differentiate when overgrown or eroded. Many have deteriorated or filled in and are difficult to trace, while others have been incorporated into the area's natural watershed drainages and roads. In general, linear features that maintained a flat grade or followed contours were defined as ditches. Ditch segments are not associated with any diagnostic refuse. Ditch segments longer than 50 feet are shown on Figure 7 as blue lines. Shorter segments are shown as points. Except for the system of ditches situated on the plateau, ditches are incorporated into the discussion and records for the mining areas they reside in. The extensive system on the plateau (DS 1, Figure 9) is treated separately here because it is not associated with any one mining area but supports all of them.

DS 1 is a large system of interconnected ditches with a larger main ditch that follows the edge of the plateau and feeds a series of smaller ditches that carry water to the placer mining areas (Figure 9). The majority of ditches measure 2 to 3 feet wide and 6 to 12 inches deep. The main ditch which circles the plateau perimeter is 4 to 6 feet wide and up to 2 feet deep. The source of water for the system is unknown. The plateau itself is not large enough to supply adequate water for mining and it is likely that water was taken from a larger source to the south. There is no evidence of this connector on the Salt Creek Heights parcel nor on adjacent properties. More than 50 percent of DS 1 system has been destroyed through the construction of roads, power lines, brush clearing, fire suppression activities, and natural erosion.

Trails

There is one stand-alone historic trail within the Eureka Tellurium Gold Mining Complex. The Salt Creek Trail extends along the south side of Salt Creek from the Sacramento River up Salt Creek approximately one mile where it then crosses Salt Creek and heads west out of the parcel. This trail passes through PM 1 and LM 2 and connects to three other trails which go up side drainages through these complexes. The trail varies in width from two to four feet with rock retaining walls located along its route to maintain the grade through steep terrain. In PM 1, it once crossed over a bridge (exhibited by the remaining stacked rock abutments). This trail is currently used

by hikers to access the Sacramento Trail system and this activity has increased the erosion of some parts of the trail. Approximately 25 percent of the trail still retains elements of its historic use. A number of other trail segments associated with PM 1, PM 4, and LM 2 were documented.

Roads

Three historic road segments (RDs 1-3) were encountered during the pedestrian survey. Two segments start on the plateau where they diverge from an existing dirt road. This dirt road may have been a southern extension of these historic features but extensive traffic by vehicles and erosion has destroyed any indication of its historic use. One of these historic segments, RD 1, heads north down and around a ridge into LM 2 where it crosses a drainage just below one of the adits in the LM 2 complex. From here it continues north toward Salt Creek. Various portions of this segment have been altered by erosion and its conversion to a power line access road. RD 1 is the only feature identified that may comes close to following the 1908 mapped alignment of the Gold Leaf Tram. The grade on this road, however, seems too steep for a rail line. The other road segment, RD 2, continues northeast across the plateau toward PM 2. This segment is terminated by a power line corridor. RD 3, starts near the upper end of Gold Run Creek and climbs northeast up the side of the plateau where it is terminated at the intersection of a number of contemporary dirt roads (see Figure 7). Charles Hornbeck has suggested that this may be a segment of the Gold Leaf Tram grade (Hornbeck personal communication 2009). All three of these features are approximately six to eight feet wide. There are a number of other features within LM 2 which may be road segments but they cannot be clearly defined as roads.

Isolated Mining Features

There are a total of 22 mining-related isolated features that are not tied to any of the developed mining areas associated with the Eureka Tellurium Gold Mining Complex. These include seven isolated prospect pits, three small tailings piles, a trail segment, five isolated ditch points, two undetermined concrete slabs, and four mining areas (i.e., combination of excavations and tailings). None of these isolated features were associated with any refuse that would allow for their dating.

Trash Dumps/Scatters

There are a total of nine historic debris concentrations (Sites TS 01-09, see Figure 7). These resources are predominately located in the south-central portion of the project area, close to either Highway 299 or interior access roads. Scatters 02, 03, and 04 are directly behind private residences and may be associated with domestic/household trash disposal. Unfortunately, the grading of these residential lots to construct the houses, out-buildings, and roads has mixed later materials into and disturbed various portions of these scatters. The remaining scatters are not near any residences nor do historic maps or records indicate that any existed on the parcels near

these scatters. None of these scatters can be clearly associated with a particular household and all appear to be the result of convenience dumping. Most are situated adjacent to existing access roads. None have any appreciable depth, with TS 09 being the deepest at twelve inches. As extensive modern commercial and household refuse dumps and vagrant camps are evident throughout the project area, dumping has obviously been a continuing activity in the area. In addition, many of these dumps have been scavenged by homeless people to furnish their camps and by gun enthusiasts for target practice. Many of the earlier scatters have been contaminated by later dumping. TS 07 is the least contaminated and consists of household items including Fiesta Ware (1930s), Japanese porcelain (1911-12), sanitary cans, and various glass fragments(1930-1960). Within this mix, however, are two post-1980s soda/beer cans.

The nine scatters identified and recorded were adequately isolated from later dumping activities to be defined as discreet entities. These refuse dumps appear to primarily date to between the 1940s and 1970s, the majority reflecting the later date. Dating of these features was based on their content and the fact that they most likely represented one-time dumping events. Therefore, it was assumed that the most recent items in the refuse scatter represent when the material was dumped and its age. For example, TS 01 has a collection of sanitary cans, evaporated milk cans, and steel-side/aluminum-top, pop-top 16 oz. beer cans. The latest datable items are the beer cans which date to between 1963 and 1965. TS 01 is dated to the mid-1960s. A site record was prepared for each identified scatter. For more detail on each, refer to the site records in Appendix B. One additional point should be noted: given the extensive historic mining in the area (1850-1920), it is of interest that there are no dumps associated with this period.

Historic Trash Isolates

As noted above, defined scatters of historic trash were recorded as sites TS 01-09. However, the entire parcel is covered with trash scatters from various dumping episodes and homeless camps. Ninety percent of this material is post-1960s, but within this parcel-wide scatter there are isolated items (i.e., cans, glass, and ceramic fragments) that may represent use or dumping episodes at the site as early as the 1920s. Unfortunately, due to their mixing with later material, the origins of the various items cannot be determined. Therefore, GPS points were not taken for these items and they were not documented.

Shack Site (sheet metal scatter)

The Shack Site is a large scatter of various sized pieces of sheet metal scattered over 1.5 acres. It consists of a large terrace, a smaller secondary terrace, large amounts of metal debris, two trash scatters, a road or trail segment, and a shack that appears to have been built from materials scavenged from the site. The main terrace is approximately 50 feet by 30 feet and is shored at the bottom with rock. Immediately below the main terrace is a smaller terrace which runs the length of the main terrace but is only about seven feet wide. The entire area is scattered with large amounts of rusted

sheet metal as well as modern trash. A concentration of modern trash (post 1970s) lies below the shack along the trail/road segment. Several trails of indeterminate age run across the site.

The shack is constructed of a frame made of scavenged wood and oak branches covered with scrap metal collected from the surrounding area. The shack's age is not known but nails used in its construction were of modern design, making it probable that it was constructed in the recent past, likely by homeless persons.

A large can dump containing a wide range of debris is located across the drainage below the shack. The dump contains debris (sanitary cans, aluminum fish tins, brown and clear bottle fragments and C and D cell batteries). The date of the site's use is unknown. The terraces, trail/road, and sheet metal may represent an early use of the site, possibly associated with the earlier mining. The shack and trash scatters may reflect a later occupation dating from the 1950s to the 1980s or later.

As previously noted, the vast majority of recorded historic resources within the project area have few if any diagnostic artifacts associated with them, and those that do, such as LM 2, often do not provide clear dates for these features. Many of the dateable materials found within the project area are from the 1930s-1970s, and indicate that the original mining claims established at the end of the nineteenth century may have been reworked in later years. However, use of the area by vagrants and for household dumping has complicated attempts to date features using associated debris. It is difficult, if not impossible, to determine whether refuse was deposited by individuals who were working the mining claims, or by later individuals whose activities were not associated with mining. Some refuse has been collected and reused by homeless persons, while numerous other pieces have been utilized for target practice, further complicating the issue. In addition, in many areas refuse appears to be conspicuously absent. This may be the result of past trash clean-up events, which Bob Gallegos, the owner of the Old Mill House restaurant, stated he had observed at an unspecified times in the past (personal communication, June 2006). As a result of all these factors, dating of the various components of the project site is not definitive.

Buildings

Two structures may be potentially impacted by the proposed Salt Creek Heights project (Figure 6). The house at 4504 Eureka Way is within the project site but will not be directly affected by the proposed project. The house at 4466 is not within the project area nor will it be directly affected. However, current project plans propose to construct an access road between the two structures. Because of the potential for this road to impact these structures' historical setting, if either is determined to be a "Historical Resources" or "Historic Properties," these two structures were documented and evaluated.

The house and garage at 4504 is owned by Sierra Pacific industries and according to their Shasta County Assessors records was constructed possibly in the 1940s. Assessor records note that it was first assessed in 1954 and included a 528 square foot house with an enclosed porch. Records indicate that the structure was

completely remolded in 1982 with the house expanded to 750 square feet and a 950 square foot detached garage added. It is currently a single-story home with 4' x 8' press-board siding, horizontal slider aluminum windows, and a gable roof with composition shingles. See Appendix B for further details.

The house at 4466 is a modest frame dwelling; it appears to be at least 50 years old and probably dates to the1940s. The basic rectangular structure has a low end-gabled roof. The entrance is oriented toward the east, with what appears to be a modern replacement door. The building retains what may be its original, wide horizontal wood shiplap siding on the south end facing the road and on the east wall. The roof is covered with deteriorated composition shingle. There is a brick interior chimney within the main structure. A porch on the east side runs most of the length of the main structure, covered by an extension of the roof that is supported by 4" x 4" timbers. A shed addition on the west side of the building runs the length of the original structure and is clad in vertical board siding. The roof on this side has been extended to cover the addition. A small addition on the east side of the house is located toward the north end of the building. The level of the roof over this addition is stepped down 1-2 feet below the main roof. This addition is clad in plywood paneling and contains a small covered porch area with the roof supported by 4 x 4s. The rest of this addition appears to be a storage area fitted with plywood panel doors. Two windows on the south side of the house, facing the road, appear to be original wood-framed, double-hung, two-over-two windows. Windows on the east and west are modern aluminum sliders, fitted into new openings. What may have been earlier window openings on the west side have been boarded up. The building is painted with flaking green paint that appears to be decades old (Appendix B).

DETERMINATION OF ELIGIBILITY

In order for cultural resources to be eligible for listing in the National Register of Historic Places (NRHP), they must possess integrity of location, design, setting, materials, workmanship, feeling and association, and must (a) be associated with significant events, or (b) be associated with the lives of persons significant in our past, or (c) embody distinctive design/construction, or (d) have yielded, or may be likely to yield, information important in prehistory or history. Cultural resources determined eligible for listing on NRHP are therein referred to as "Historic Properties."

To be eligible for listing in the California Register of Historical Resources (CRHR), a cultural resource must possess the above characteristics, with additional attention focused on California and local history and prehistory. The criteria for listing cultural resources on the California Register are consistent with those developed for the National Register of Historic Places, but they have been modified for state use in order to include a range of historical resources which better reflect the history of California. In order for a cultural/historical resource to be eligible for listing in the California Register, it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. In addition, it must be significant at the local, state, or national level, under one or more of the following four criteria: (1) it is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural

heritage of California or the United States; (2) it is associated with the lives of persons important to local, California, or national history; (3) it embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or (4) it has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation. Cultural resources determined eligible for the CRHR are therein referred to as "Historical Resources."

In the event that cultural resources are determined to be Historic Properties/Historical Resources, a determination of this project's/undertaking's effects on those Historic Properties is required.

The following NRHP evaluations are subject to review and concurrence by the associated lead federal agency's archaeologist as required by that agency, and by the California State Historic Preservation Officer (SHPO), as required by Section 106 (36 CFR Part 800).

Eligibility of Prehistoric Resources

Ritter (2006) has described a number of prehistoric, non-obsidian, core-flake technology sites exhibiting rock coatings (patination) on flake scars. The Wheel-Rut Scatter fits this description. This type of site is commonly found within the foothills of the upper Sacramento Valley, and is believed to represent proto-Hokan use, rather than later proto-Wintu occupation. Ritter concludes that these sites are special-use locales associated with permanent settlements, and likely include a variety of plant- and animal-product related activities, as well as lithic material prospecting and stone tool workshops (Ritter 2006:32). This type of resource usually is eligible for listing to the National and California registers under criterion (d) and (4) respectively (have yielded, or may be likely to yield, information important in prehistory or history).

While Ritter concludes that information regarding regional, non-obsidian, core-flake industries may be obtained from these kinds of sites, the Wheel-Rut Scatter has no dateable elements, contains a very limited range of artifacts, has no subsurface deposit (surface only) and is too disturbed for it to address any meaningful research topics of national, regional, or local importance. It does not, therefore, qualify under National Register criterion (d) nor the California Register criterion (4) or any of the other register criteria. The scatter's location within a graded access road, as well as stratigraphic evidence of soil disturbance to a depth of 12 cm or more, indicate that this site does not possess the integrity necessary to be considered an eligible site. Further, the broken, native tool stone located within the road bed and native soil matrix adds an additional contamination to the site's constituency. Many of the cultural items identified at the site were later discarded after analysis determined them to be native materials that had been broken by mechanical means (i.e., road grading). Therefore the Wheel-Rut Scatter does not meet the criteria to be considered a "Historical Resource" or "Historic Property."

All remaining prehistoric resources, due to their nature as isolated artifacts, are not considered sites eligible for listing as "Historical Resources" or "Historic Properties."

Eligibility of Historic Resources

Historic resources recorded within the project area include the Eureka Tellurium Gold Mining Complex, a number of historic trash scatters (TS 01-09), the Shack Site, and two post-1940s buildings.

Trash Scatters TS 01-09

The historic trash scatters (TS 01-09) located within the project area are the result of convenience dumping. They all appear to date post-1950 with most post-1960 or later. TS 02, 03, and 04 are adjacent to the two houses on the project site and may be associated with trash disposal by their residents. The remaining scatters have no clear association with a particular household and appear to be the result of one-time convenience dumping. All but one (TS 07) have amounts of contamination from later dumping episodes (i.e., mixed time periods) or have been disturbed as a result of continuing use (i.e., vagrants, trash clean-up efforts, utility corridor maintenance, etc.). As a result, these dumps cannot be associated with a significant person or event in national, California, or local history. They do not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values. Their integrity has been compromised. None of them have the potential to yield important scientific information. Therefore, they are not considered eligible for inclusion on the NRHP or CRHR. They are not "Historical Resources" or "Historic Properties." As noted above historic trash isolates were not recorded and due to their nature and lack of integrity of association and location are also not considered eligible resources.

The Shack Site

The Shack Site appears to be a mixing of two separate periods of use. The sheet metal scatter, trail/road, and terraces suggest an earlier utilization while the shack and trash scatters clearly indicate a use after 1970, most likely by homeless people. None of the refuse located at the site provides for an earlier date and the site may represent the remains of a post-1970s homeless camp.

As with the trash scatters, this site cannot be associated with a significant person or event in national, California, or local history. It does not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possesses high artistic values. Its integrity is questionable. It has not yielded or is likely to have the potential to yield important scientific information. Therefore, it also is not considered eligible for inclusion on the NRHP or CRHR and is not considered a "Historical Resource" or "Historic Property."

Eureka Tellurium Mining Complex

Eureka Tellurium Gold Mining Complex is the site of a number of episodes of late nineteenth and early twentieth century gold mining. These episodes likely include post-1850s placer mining, early-1900s lode mining, and possible reworking of the site for

extraction of quartz for flux in the local copper smelters at the turn of the century. The site was likely reworked during the depression era. Activity areas and features at the site included ten placer mining areas, five lode mining areas; ditches, trails/roads, rock alignments and retaining structures, concrete features, terraces, tailings, prospect pits and other mining related features. All are common features associated with the commercial aspect of mining and can be found at the numerous mining areas throughout western Shasta County. Lacking at the site are indicators of residential occupation. There are only a few features which may represent living areas (e.g., terraces, rock foundations) and only one contain household refuse which confirm this type of use. There is, in fact, a general lack of historic trash (1850-1910) associated with these mining areas. In part, this may be due to the scouring of the area by local collectors. Recent excavations were noted at three locations, and some of the holes and back-dirt piles observed at some of the mining areas may be the result of earlier investigations by collectors. This general absence of dateable refuse has led to considerable difficulty in dating the various features and locales at the site. In addition, later convenience dumping and use of the site by vagrants/homeless people with established camp sites, created additional trash scatters, disturbed existing scatters and features at the site, and generally contaminated many of the earlier historic period resources.

The site's constituents and features (e.g., PM, LM, Salt Creek Trail, Roads, Trails, tailings) represent historic period structures and features which are commonplace throughout western Shasta County, have moderate to poor integrity, and have few associated dateable artifacts. The site is contaminated by late period temporal features (i.e., roads, structures, camps, and power lines) and refuse (i.e., cans, bottles, appliances, clothing, shoes, and car parts). The site cannot, based on historic research, be associated directly with significant events or persons who have contributed to local, regional, or national history or cultural heritage. The commonplace nature of its constituents and poor integrity precludes it from embodying the distinct characteristics of a type, period, region, or method of construction, or representing the work of a master, or possessing high artistic values. This mining complex is not unique in Shasta County and is far from being a good example of its type. There are a number of sites directly adjacent to the Eureka Tellurium Gold Mining Complex on private and federal land with a wider variety of structures, features, and artifacts, and with better integrity and temporal association. Site CA-SHA-1450 (Vaughan 1986) lies directly north of the project site. It represents the same time period as the Eureka Tellurium Complex. This resource (CA-SHA-1450) has a far wider range of features and structures, with better integrity of setting and design. It contains a large collection of temporally sensitive artifacts and does not have the contamination caused by dumping and homeless use noted at the project site. It also has federal protection under Sections 106 and 110 of the NHPA (36 CFR Part 800).

Investigations to date at the site have not identified any components that would yield important historical information and the limited range of features and artifacts at the site, coupled with its loss of integrity, greatly limit its potential to yield information important to the history of the local area, California, or the nation. Although there is always the potential for buried deposits at some site loci, these if they existed, likely

would not yield any significant information that is not already in the historical record or contained in deposits at other similar sites. The Eureka Tellurium Gold Mining Complex does not appear to meet the definition of "Historical Resources" or "Historic Properties."

Based on the findings of the current study, the Eureka Tellurium Gold Mining Complex is not considered a resource eligible for listing on either the National Register of Historic Places or the California Register of Historical Resources. As such, it is not considered a "Historical Resource" under CEQA or a "Historic Property" under Section 106 of the NHPA.

Buildings at 4504 and 4466 Eureka Way

The houses at 4466 and 4504 Eureka Way do not appear eligible for listing on the National or California registers under any of the applicable criteria. Under Criterion a/1, although may be associated with the late 1930s Depression Era and early 1940s expansion of the City of Redding, they are not significant contributors to those events, nor are they associated with any persons important in history (Criterion b/2). Under Criterion c/3, these residences are typical example of a common resource type—inexpensive modest housing on the outskirts of a small rural Northern California town, many of which can be seen today in older residential areas on the west side of Redding. They are not the work of a master, nor do they possess high artistic values. Both are lacking in integrity, with significant modern alterations, and in poor condition. Neither of these structures meets register criteria as "Historical Resource" or "Historic Property."

DETERMINATION OF EFFECT

Since none of the documented sites identified within the Salt Creek Heights project meet the register criteria to be considered "Historical Resources" or "Historic Properties," the proposed project/undertaking will have **no effect** on sites or structures eligible for listing on the National Register of Historic Places or California Register of Historical Resources. It should be noted that the majority of the proposed development is restricted to the plateau in areas with slopes less than 20%. Sites TS 01-09, the Wheel-Rut Site and approximately fifty percent of the DS 1 ditch system RD 1and 2 will be removed by the construction of this residential development. The remaining portion of the project area, "Undeveloped Area" (UA), which includes slopes greater than 20 degrees and the area along Salt and Gold Run creeks, is proposed as unimproved open space. Work in this area will be limited to vegetation thinning for fire prevention purposes up to 200 feet from the planned structures and uses of some of the existing seasonal drainages to capture storm-water runoff. The ninety percent of Eureka Tellurium Gold Mining Complex, the Shack Site, and the structures at 4466 and 4504 Eureka Way will not be impacted by the Salt Creek Heights residential development.

CONCLUSIONS AND RECOMMENDATIONS

The Wheel-Rut Scatter, five prehistoric isolates, ten historic refuse dumps, Shack Site, Eureka Tellurium Gold Mining Complex, and two buildings were recorded within

the project area as a result of work conducted by ENPLAN. All these resources have been assessed and evaluated as not eligible for inclusion in the NRHP or CRHR. Therefore, the Salt Creek Heights Project will have no effect on cultural resources eligible for listing in NRHP or CRHR.

This report satisfies the requirements for CEQA, and, if the ACOE forwards this determination of "No Historic Properties Effected" to the SHPO, and if the SHPO concurs with this determination, then the ACOE will be in compliance with 36 CFR 800 regulations. ENPLAN recommends, however, that strict adherence to California Health and Safety Codes Section 7050.5 and 5097.98 of the Public Resources Code (as amended by AB 2641) be followed in the event that human remains are encountered as a result of project developments. We also recommend that the following stipulations be included as a condition of project approval by Shasta County, and the ACOE, and that these stipulations be included on all project construction/design plans:

A) *If any human remains are encountered during any phase of construction, all earth-disturbing work shall stop within 50 feet of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary.*

B) *If any previously unevaluated cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, etc.) are encountered, all earth-disturbing work shall stop within 50 feet of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary. This stipulation does not apply to those cultural resources evaluated and determined not Historical Resources/Historic Properties in this report.*

In the event that project plans change to include areas not surveyed, additional archaeological reconnaissance may be required.

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REPORT FIGURES

1. Project Vicinity
2. Project Location
3. Preliminary Development Plan
4. Survey Area and Coverage
5. Georeferenced Historic Mineral Map
6. Project Aerial and APE
7. Cultural Resource Survey Results
8. Extended Phase I Shovel Test Probe (STP) Units
9. DS 1 Ditch System

APPENDIX A: CORRESPONDENCE

1. Request for Comment letter sent to the Native American Heritage Commission (NAHC), Native American groups/individuals, and local historical society, May 11, 2006.
2. Written responses from James Hayward, Sr., (5/15/06), the Native American Heritage Commission (5/16/06), and the Shasta Historical Society (6/12/06).
3. Excerpt from second letter written to James Hayward, Sr., dealing with only the Salt Creek Heights project area (referred to as the Camage Estates Residential Subdivision), May 17, 2006.
4. Phone Response from Carol Sinclair May 22, 2006.
5. Phone Response from Bob Burns May 23, 2006.
6. Follow up phone calls to James Hayward December 8, 2008 and January 9, 2009.

APPENDIX B: SITE RECORDS

- Wheel-Rut Scatter
- Eureka Tellurian Mining Complex
- Shack Site
- TS 01
- TS 02
- TS 03
- TS 04
- TS 05
- TS 06
- TS 07
- TS 08
- TS 09
- Building Record 4466 Eureka Way
- Building Record 4504 Eureka Way

ENPLAN

278-06
May 11, 2006

REQUEST FOR COMMENT

TO: Native American Heritage Commission
President, Shasta Historical Society
James Hayward, Sr., Cultural Resources
Compliance, Redding Rancheria Tribal Office
Bob Burns, Wintu Education and Cultural Council
Chairman, Wintu Tribe & Toyon-Wintu Center
Carol Sinclair
Loretta Root
Carol Bowen
Chairman, United Tribe of No. Calif., Inc.
John Castro, Cultural Liaison, United Tribe of No. Calif., Inc.
Caleen Sisk-Franco, Tribal Chair, Winnemem Wintu Tribe
Wintu Tribe of Northern California

FROM: Chris Dalu, Staff Archaeologist CD

SUBJECT: Proposed Camage Estates Residential Subdivision, ±265 Acres, City of Redding, Shasta County, ~~T31~~ 32N, R5W, portions of Sections 32 and 33.

Sierra Pacific Industries proposes a residential development project on ±265 acres within the City of Redding. The proposed project area is located in City of Redding, Shasta County, Township 32 North, Range 4 West, portions of Sections 32 and 33 (USGS Redding) as shown on the attached map.

ENPLAN is conducting the necessary records search and comment solicitation pursuant to the California Environmental Quality Act (CEQA) as required by the City of Redding and Section 106 as required by the US Corps of Engineers.

Accordingly, we would greatly appreciate any comments, concerns, or information you might be able to provide regarding the potential effects of this project on cultural resources in the area. You may respond verbally by phone (221-0440 ext. 112), by letter, by fax (221-6963), or by e-mail (cdalu@enplan.com). Should we not receive a response from you within 21 days, we will assume that you have no comments or concerns; however, we will contact you to assure you've received this letter if we have not had confirmation within the last two months of your receiving our comment solicitations.

Thank You.
Enclosure

May 15 2006,

To Chris Dalu.

Thank you for notifying the Redding Rancheria about this project called the Camage Estates Residential Subdivision. This project could possibly effect some sites on or near this area as we know historically as Wintu encampments and sacred burials that dotted the west side of the Sacramento. Would it be possible to have a site visit on this project in order to alleviate any possibilities of inadvertent discovery. Please contact me at 242-4543 directly to let me know if this is a possibility.
Thank you, James Hayward Sr.
Cultural Resource Program Manager
Redding Rancheria Tribe

2000 Redding Rancheria Rd. Redding, CA 96001 Tribal Office: 530-225-8979 Fax: 530-241-1879

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

May 16, 2006

Chris Dalu, Staff Archaeologist
ENPLAN

Sent by Fax: 530-221-6963
Number of Pages: 4

Re: Proposed Camage Estates Residential Subdivision, Shasta County.

Dear Mr. Dalu:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Shasta County
May 16, 2006

Carol Y. Bowen
1797 Shasta Street
Anderson , CA 96007
(530) 365-0940
Wintun

Pit River Tribe Environmental Office
Sharon Elmore, Cultural Information Officer
37014 Main Street
Burney , CA 96013
ajumawi@frontier.net
(530) 335-5062, Ext. 2
Pit River
Wintun

Carol Sinclair
9253 Chaparral Dr.
Redding , CA 96001
530-242-1374
Wintu

Pit River Tribe of California
Jessica Jim, Chairperson
37118 Main Street
Burney , CA 96013
(530) 335-5421
(530) 335-3140 Fax
Pit River
Achumawi - Atsugewi
Wintun

Matthew Root
16117 North St.
Keswick , CA 96001
530-247-7351
Wintu

Pit River Tribe of California
Alexis Barry, Tribal Administrator
37118 Main Street
Burney , CA 96013
(530) 335-5421
(530) 335-3140 Fax
Pit River
Achomawi - Atsugewi
Wintun

Loretta Root
5620 Kofford Lane
Redding , CA 96001
530-229-9203
Wintu

Pit River Tribe of California
Michelle Berditschevsky, Environmental Coordinator
37118 Main Street
Burney , CA 96013
(530) 335-5062
Pit River
Achomawi - Atsugewi
Wintun

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural for the proposed * Camage Estates Residential Subdivision, Shasta County.

Native American Contacts
Shasta County
May 16, 2006

Redding Rancheria
Tracy Edwards, Chief Executive Officer
2000 Redding Rancheria Road Wintu
Redding , CA 96001 Pit River
hope@reddingrancheria.com Yana
(530) 225-8979
Fax: (530) 241-1879

United Tribe of Northern Calif., Inc., Wintu, Wintun, Wintoon
Gloria Gomes, Vice Chair
20059 Parocast Wintu
Redding , CA 96003 Wintun
(530) 275-1915 Wintoon

Redding Rancheria
Barbara Murphy, Chair
2000 Redding Rancheria Road Wintu
Redding , CA 96001 Pit River
hopew@redding-rancheria. Yana
(530) 225-8979
(530) 241-1879 - Fax

United Tribe of Northern Calif., Inc., Wintu, Wintun, Wintoon
John Castro
20059 Parocast Wintu
Redding , CA 96003 Wintun
(530) 275-1915 Wintoon

Redding Rancheria Cultural Resources
James Hayward
2000 Redding Rancheria Road Wintu
Redding , CA 96001 Pit River
(530) 225-8979 Yana
Fax: (530) 241-1879

United Tribe of Northern Calif., Inc., Wintu, Wintun, Wintoon
Gene Lovely
1905 Oregon Ave. Wintu
Shasta Lake , CA 96019 Wintun
(530) 275-9531 Wintoon

Redding Rancheria Cultural Resources
Richard Blackford
2000 Redding Rancheria Road Wintu
Redding , CA 96001 Pit River
(530) 225-8979 Yana
Fax: (530) 241-1879

United Tribe of Northern Calif., Inc., Wintu, Wintun, Wintoon
Debbie Lovely, Tribal Coordinator
2809 Riverside Dr. Wintu
Sacramento , CA 95818 Wintun
(916) 947-4370 Wintoon

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural for the proposed
* Camage Estates Residential Subdivision, Shasta County.

Native American Contacts
Shasta County
May 16, 2006

United Tribe of Northern Calif., Inc., Wintu, Wintun, Wintoon
Velara Bowdsher, Tribal Chair
13527 Adams Ln. Wintu
Redding , CA 96002 Wintun
(530) 222-6654 Wintoon

Winnemem Wintu Tribe
Caleen Sisk-Franco, Tribal Chair
14840 Bear Mountain Road Wintu
Redding , CA 96003
winnemem@msn.com
(530) 275-2737
(530) 275-4193 FAX

Wintu Educational and Cultural Council
Robert Burns
12138 Lake Blvd. Wintu
Redding , CA 96003
(530) 246-3313

Wintu Tribe of Northern California
2675 Bechelli Lane Wintu
Redding , CA 96001
wintu_tribe@hotmail.com
(530) 226-8088

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural for the proposed * Carnage Estates Residential Subdivision, Shasta County.

SHASTA HISTORICAL SOCIETY

1449 MARKET STREET • REDDING, CALIFORNIA 96001-1026 • (530) 243-3720

DATE: 6/12/06

278-06

TO: Mr. Chris Dalu
ENPLAN

FAX #: (530) 221-6963

FROM: Marie Carr-Fitzgerald
President, Shasta Historical Society

RE: Camage Estates (T31N, R5W, Sections 32 & 33)

We have no concerns relative to historic sites within the project area~~s~~, although you will most likely find evidence of historic mining. Please advise us if you identify a potentially significant historic site, and perhaps we can help you with additional research.

tv
(for MC-F)

278-06

ENPLAN

278-06, 284-014, 304-02
May 23, 2006

James Hayward Sr.
Cultural Resource Program Manager
Redding Rancheria

James,

Thank you for maintaining correspondence with ENPLAN and providing your time and knowledge for the benefit of helping in our efforts to identify and preserve cultural resources. As I mentioned in our past phone conversation, I would gladly meet with you anytime to discuss any of our projects or any matters you would like to speak or know of. I can make myself available to you during business hours, in the evening, or on the weekends, so long as you give me a couple of days advance so I can plan it. I am also available to meet at your office (I have still never been to the Win River Casino or Redding Rancheria) to discuss matters or provide and explain any maps to you and you are more than welcome to come to our office anytime. Also, please feel free to contact me directly on my cell phone at 530-604-9903, as you will speak directly to me unless I am not available, in which case please leave a message. It is important to me to maintain open relations with you regarding our projects and the archaeological investigations we complete, and also to obtain your concurrence and blessings on any determinations and recommendations we make.

This letter will address your most recent concerns regarding the proposed Camage Estates Residential Subdivision south of Salt Creek and west of the Sacramento River. The letter will also address the status of two other surveys/studies that ENPLAN is in the process of completing and that I would like to consult with you on. The final part of this letter will serve as a conclusion and also provide important requirements about entering private property with me. I will try to be brief, but at the same time I want to be as clear and complete as possible with respect to all of the above.

Project #1
Proposed Camage Estates Residential Subdivision, 278-06
I completely agree with you that this area is extremely sensitive for the presence of Native American and Wintu cultural resources and sites. I plan to visit the project area over the next couple of weeks before bringing out my field crew for the survey. Perhaps you would like to join me during this visit? I have surveyed in the past a large parcel to the north across Salt Creek, historically called Gold Hill. In that case, no Native

American sites were identified, although an isolated scraper and a couple of isolated basalt flakes were identified. In my opinion, the reason we did not identify more prehistoric cultural resources at Gold Hill was because of the extensive disturbances that took place as a result of 1850s placer gold mining, the 1870 railroad and grade (which used a lot of the native soil in the area to build up the tall grade on the south side of the river), and later (1890s) load mining – mostly for the quartz, which was used as flux at the copper smelter at Keswick.

With regards to the proposed Camage Estates project area, I would unfortunately expect the same topographical disturbances as a result of mining and the railroad. Sadly, the disturbances at Camage may even be more extensive. This is because our earlier archival research indicates that the following took place, historically, in the project area: 1) placer gold mining in the 1850s along the River and the Creeks; 2) the construction of the railroad grade along the Sacramento River in the 1870s; 3) dredge-mining that occurred on the Sacramento River, Salt Creek, and Middle Creek in the later 1860s through 1870s; 4) the construction of the Gold Leaf Tramway and the presence of two load-mining companies working the project area for quartz and gold in the late 1890s; and, 5) residential or commercial development on the hill near the river by 1901.

Finally, I do share a concern with you that Native American and Wintu burials could be located within the project area, but in the same respect, I have found that many of the places on this side of the River in the vicinity actually have some pretty difficult and unfavorable soil to bury people within, and many of the ridges and hilltops have little soil and are bedrock or harpan. Please do not get me wrong, I do not use this as the only guideline, but I do take the soil depth, rocks and bedrock into account. When I survey the project area and spend time with the land, I get a much better feel for the land and its soils. I would guess you know what I mean here.

Please let me know when you would like to meet to discuss further this project or walk the land. I anticipate having a final report on this in June sometime, and I will rpovide a copy for your review. I believe you have the project area map for this site.

Project #2
Proposed North Fork Ranch Development Project, 284-01

We began this project about two years ago as a proposed 3000-acre mixed-use development project. In April 2004, I began compiling information for the NFR Constraints Analysis report (a private report for our client), and at that time I consulted Richard Blackford, in addition to Bob Burns, Carol Sinclair and a few others. All three responded to our request and provided relevant information, and Bob and Richard requested to be informed of any findings. This portion of the letter will serve to report our findings to you instead of Richard, because you and Richard indicated that you are to represent the Rancheria in these matters.

Since the time of our initial contact, our work has been expanded to include the preparation of a cultural resources report in compliance with CEQA and Section 106. I

278-06

Communications Log

5/22/06 10:57 am

Call received from Carol Sinclair, stating that the Camage Estates project, because it was near Salt Creek and Iron Mountain, is in a sensitive area. She has requested to be contacted in case and significant sites are found, and in that case she would like a copy of the final report.

5/23/06

Call received from Bob Burns, who indicated that he is not too concerned about the project, as he doesn't expect to find burials hers, and the area has been highly disturbed by historic activities.

Appendix 15.8
Preliminary Soils Report

Preliminary Soil Report for Environmental Impact Report

Salt Creek Heights
Proposed Subdivision
Redding, California

Prepared for:

RBF Consulting
2101 Arena Boulevard, Suite 250
Sacramento, California 95834

SHN Consulting Engineers & Geologists, Inc.

350 Hartnell Ave., Suite B
Redding, CA 96002
(530) 221-5424

December 2008
SHN 508071
RBF 60-100416

CONSULTING ENGINEERS & GEOLOGISTS, INC.
350 Hartnell Avenue, Suite B • Redding, CA 96002 • 530-221-5424 • FAX 530-221-0135

SHN Reference: 508071
RBF Job No.: 60-100416

December 5, 2008

Mr. Bruce Grove
RBF Consulting
2101 Arena Boulevard, Suite 250
Sacramento, CA 95834-2303

Subject: Preliminary Soil Report, Proposed Subdivision, Salt Creek Heights, Redding, California

Dear Mr. Grove:

The enclosed report documents the results of our investigation for the proposed Salt Creek Heights subdivision in Redding, California. The purpose of this report is to provide preliminary soil data, based on our observations of surface features and exposures, in order to evaluate potential impacts of site conditions on the proposed project. In the report we discuss geologic and geotechnical site characteristics and anticipated risks for observed site conditions and features. We are also providing preliminary recommendations for site grading, seismic design criteria, and design and construction of foundations for the proposed structures, based on our observations and experience within similar geologic conditions.

Thank you for the opportunity to assist you with this project. If you have any questions, please feel free to contact us at (530) 221-5424.

Sincerely,

SHN Consulting Engineers & Geologists

Richard L. Quine, PhD, P.E., C.E.G.
Senior Engineer

RLQ:llc

SHN Reference: 508071
RBF Job No. 60-100416

Geotechnical Investigation Report

Proposed Salt Creek Heights Subdivision
Redding, California

Prepared for:

RBF Consulting
Sacramento, CA

REGISTERED PROFESSIONAL ENGINEER
RICHARD LYLE QUINN
No. 66659
Exp. 6/2009
CIVIL
STATE OF CALIFORNIA

Prepared by:

Consulting Engineers & Geologists, Inc.
350 Hartnell Ave., Suite B
Redding, CA 96002
(530) 221-5424

December 2008

QA/QC:_____

J:\08\508071 Salt Creek Heights\GEOrpt Salt Creek EIR.doc

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Acronyms

pcf	pounds per cubic foot
psf	pounds per square foot
AP	Alquist-Priolo Earthquake Fault Zoning Act
ASTM	American Society of Testing and Materials
CBC	California Building Code
CDMG	California Division of Mines and Geology
CGS	California Geological Survey
CRR	Cyclic Resistance Ratio
CSR	Cyclic Stress Ratio
FER	Fault Evaluation Report
PMB	Processed Miscellaneous Base
SE	Sand Equivalent
SHN	SHN Consulting Engineers & Geologists, Inc.
SPT	Standard Penetration Test
UBC	Uniform Building Code
USGS	United States Geological Survey

1.0 Introduction

This report documents the results of the preliminary geotechnical evaluation conducted by SHN Consulting Engineers & Geologists, Inc. (SHN) during June through August, 2008, for the proposed Environmental Impact Report for the Salt Creek Heights subdivision in west Redding, California. The project is located in Township 32N, Range 5W, within sections 32 and 33. The site location is shown in Figure 1 on the Redding sheet of the U.S. Geological Survey 7.5-minute topographic map.

Based on the tentative map for the subdivision, the total area encompassed by the project is approximately 273 acres. Approximately one-third of the total project area will be graded for building sites, including approximately 38 acres of fill, and 54 acres of cut. The housing units will include a variety of single family homes, custom homes, and apartment complexes. Some of the building lots will include retaining walls to separate fill areas from greenbelt areas. A public park is proposed centrally within the subdivision.

This report provides preliminary soil data, based on our observations of surface features and exposures, which can be used to evaluate potential impacts of site conditions on the proposed project. Conclusions regarding the risk of adverse effects from geologic hazards are discussed. Recommendations for site grading, seismic design criteria, and design and construction of foundations for the proposed structures, are provided herein; however, the recommendations should be considered preliminary because subsurface investigations were not performed within the project area. The preliminary recommendations are based on our observations during field reconnaissance and experience within similar geologic conditions.

Our work was performed in general accordance with purchase order No. 5431, dated June 17, 2008. The conclusions and recommendations contained in this report are subject to the limitations presented herein.

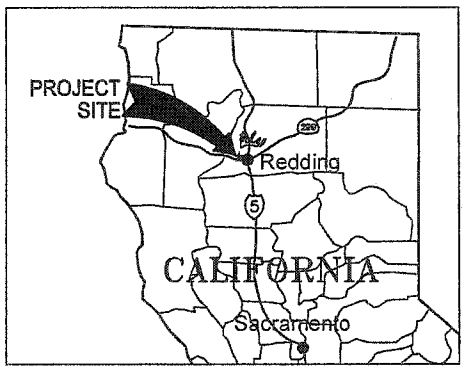
2.0 Project Research

SHN reviewed available printed resources at the Boggs Collection of the Shasta County Library and at the Shasta Historical Society. While there was abundant material on the mining activities within western Shasta County, very few of the documents referred specifically to mining activity within the Salt Creek Heights project area. The "Mines and Mineral Resources of California" by Lydon and O'Brien, 1974, provided brief comments about the mining activity in the project vicinity.

Aerial photographs were available and reviewed at the California Geological Survey Redding office. Aerial photographs of the project area (stereo pairs) were dated 1992 and 1999, taken by WAC Corporation. These photographs were viewed with a stereoscope to look for surficial morphology and patterns that may warrant further studies. The photographs were at a scale of 1-inch equals 2000-feet.

Soil information for the project area was reviewed from the Soil Survey of Shasta County Area, prepared by the Soil Conservation Service (currently named the Natural Resources Conservation Service) in 1974. The soil materials present at the site are summarized in the "Site Conditions" section of this report.

LOCATION MAP



N

SCALE:1"=2000'

SHN Consulting Engineers & Geologists, Inc.	RBF Consulting Salt Creek Heights EIR Redding, California	Project Location SHN 508071
	August 2008 / Salt Creek Figure 1	Figure 1

P:\2008\508071-Salt-Creek\dwg

3.0 Geologic Setting

3.1 Regional Geology

The project site is situated at the boundary between the eastern Paleozoic subprovince of the Klamath Mountains geologic province and the Great Valley geologic province of northern California.

The eastern Paleozoic subprovince of the Klamath Mountains province is characterized by interbedded metasedimentary and metavolcanic rocks ranging in age from Middle Devonian to Late Triassic (Lydon and O'Brien, 1974). The total stratigraphic thickness of this sequence is estimated to be 11,000 feet. The oldest rocks exposed within the eastern Paleozoic subprovince belong to the Copley Greenstone that consists of massive amphibolites derived from interlayered volcanic flows, tuffs, agglomerates, and tuffaceous shale.

The Great Valley Physiographic province is about 400 miles long and opens up further south of the project to a maximum width of about 50 miles. The Sacramento Valley, which forms the northern portion of the province, is about 150 miles long and 40 miles wide (Hinds, 1952). According to Hackel (1966), "The Great Valley is a large elongate northwest-trending asymmetric structural trough that has been filled with a tremendously thick sequence of sediments ranging from Jurassic to recent." Sediment thicknesses of up to 10 miles are reported within the Sacramento Valley; however, in the project area, being at the northern margin of the valley, those thicknesses have been projected to be less than one mile. Sediments within the Great Valley consist of both marine and continental deposits.

3.2 Local Geology

Two geologic formations are exposed within the project area. Well-indurated bedrock exposed at the project site consisted of meta-volcanic rock belonging to the Copley Greenstone Formation. The Copley Greenstone is overlain by a relatively thin veneer of the Red Bluff Formation that was deposited over much of the northern portion of the Great Valley geologic province during Pleistocene geologic time.

The Copley Greenstone is estimated to be middle Devonian in geologic age, and consists of keratophyric and spilitic pillow lavas and pyroclastic rocks. The Copley Greenstone is the oldest formation exposed within the city of Redding, and is generally moderately weathered and fractured within the near-surface exposures. The Copely Greenstone is locally suitable for decorative stone, although the durability of the stone is poor within the more highly-weathered rock near the ground surface.

The Red Bluff Formation is a flat lying, well consolidated lithological unit of Pleistocene geologic age, and generally consists of boulders, cobbles, and gravel within a matrix of sand and clay. The gravel, cobble, and clay content vary locally, but the stiff consistency of the clay matrix is prominent throughout the materials encountered. The formation is distinguished from alluvial soils within the great valley by its degree of cementation and iron staining. In some exposures along the Sacramento River downstream of the project area, the bluffs are near vertical for as high as 100 feet,

indicative of the characteristic cementation. The cobbles and gravel are predominantly subrounded in particle shape.

Erosion processes have created relatively steeply incised drainages cut into the Copley Greenstone. The subject property is bounded by these drainages, namely Salt Creek on the west and Druse Creek (also referred to as Gold Run Creek in previous studies) on the east. The Red Bluff Formation is only exposed within the higher elevations of the project where is hasn't been eroded.

3.3 Tectonic Setting

The project site is located in an area with moderate historical seismic activity. Seismic activity within the project vicinity can come from various sources; continental faulting, subduction of continental plates, and volcanic activity.

Historical earthquakes within the local area have not been assigned to known faults. The closest active fault to the site is approximately 53 miles east of the project area. The State of California designates faults as active based on the recency of movement that can be substantiated for a fault. Active faults are designated based on evidence of rupture within the Holocene (within the last 11,000 years) period.

Based on our review of available geologic studies, no faults are known to pass through the project site. Lineaments or other features indicative of potential faults were not observed from aerial photographs. A number of regional and local faults traverse the project region. The most significant of these faults is the potentially active Battle Creek fault, located about 17 miles south of the site (Jennings, 1994). The Battle Creek Fault Zone consists of several northeast-trending normal faults that dip toward the south, and show evidence of rupture in Pleistocene geologic time (Smith, 1984).

In addition to the continental faulting noted above, the project area rests above the Cascadia subduction zone. West of the site, off the coast of California, the oceanic crust of the Gorda plate is being subducted beneath the continental crust of the Pacific Plate, in an area known as the Gorda Escarpment. The descending ramp caused by that subduction, called the Cascadia Subduction Zone, extends beneath the project area at a depth of about 20 to 25 miles. That ramp is capable of storing elastic stress that periodically causes earthquakes that could affect the project area.

4.0 Site Conditions

SHN conducted a site reconnaissance throughout the project area to delineate geologic formations, and to search for geologic hazards such as landslides and historic mining activity. A summary of site conditions and surface features observed during our field work is provided in this section.

4.1 Surface Conditions

The site topography consists of a relatively flat to gently sloped terrace, surrounded by moderately steep to steep slopes into drainages and stream channels. The majority of proposed grading for the project is within the gently sloped terrace areas in the higher elevations of the project. Some custom home building lots are proposed within the moderately sloped areas surrounding the main terraces. Numerous ephemeral drainages flow into the intermittent Salt Creek and Druse Creek channels that bound the project area. All of the drainage channels and creeks were dry during our site reconnaissance activities (Summer 2008).

Vegetation consists mainly of grasses, Manzanita, oak, and a few pine trees. The dense chaparral vegetation made reconnaissance difficult in some areas.

4.2 Soil Materials

A study of the soil survey for Shasta County, published by the Natural Resources Conservation Service (SCS, 1974), was conducted for the project area. The boundaries of the soil survey map units within the project area can be reviewed in Appendix A. Five soil types were mapped within the project area. A list of soil survey Map Unit Names within the project area is provided in Table 1 along with generalized soil descriptions for each unit. Additional maps of the soil types, properties, and detailed descriptions are included in Appendix A.

Table 1
Soil Survey Map Units

Map Unit No.	Soil Type Name	Description and Maximum Depth in Inches
AtE2	Auburn very stony clay loam	Residuum weathered from metavolcanics, 30 inches to lithic bedrock
AuF2	Auburn very rocky clay loam	Rock outcrops and residuum weathered from metavolcanics, 0 to 20 inches to lithic bedrock
GdD	Goulding very stony loam	Residuum weathered from metavolcanics, 16 to 20 inches to lithic bedrock
GeE2	Goulding very rocky loam	Rock outcrops and residuum weathered from metavolcanics, 0 to 20 inches to lithic bedrock
RcB	Red Bluff gravelly loam	Gravelly clay loam to 30 to 40 inches, becoming indurated (cemented) at greater depth

For the purposes intended for this report, the two Auburn series and the two Goulding series soil types may all be combined into one soil type for simplification. These soil units will be referred to as weathered Copley Greenstone. The main variability within these metavolcanic soil units is the degree and depth of weathering. The metavolcanic rock exposed at the ground surface is generally soft to moderately hard rock, and is highly fractured. The thin soil mantle over the top of the rock is a result of weathering in place of the parent rock material (residuum).

The Red Bluff gravelly loam would be classified as clayey gravel with sand, based on visual-manual soil classification techniques in accordance with American Society for Testing and Materials (ASTM) procedure D2488. The maximum thickness of the Red Bluff gravels is estimated to be approximately 50 to 60 feet within the project area. Based on the surface exposures, the Red Bluff gravel material may contain up to about 25 percent oversize (greater than 4") material (cobbles and boulders). A maximum particle size of approximately 24 inches was measured.

SHN was able to observe the contact between the Red Bluff Formation and the underlying Copley Greenstone in sufficient locations to map the extents of the two distinct soil and rock materials across the site. Approximately 40 waypoints were marked in the field with a handheld Global Positioning System unit where the contact was observable. The contact was easily observed in drainage channels and roads around the site. Also, we were able to observe the change in material type within disturbed surface features.

As can be observed in Figure 2, the majority of grading for residential building lots is proposed within the clayey sand, gravel, and cobbles of the Red Bluff Formation. All of the custom home building sites, however, are located in the weathered rock of the Copley Greenstone.

4.3 Evidence of Mining Activity

Potential mineral resources of the Red Bluff Formation include sand, gravel, gold, and brick clay. Evidence of placer mining for gold within the clayey gravels and cobbles was observed in areas of the project.

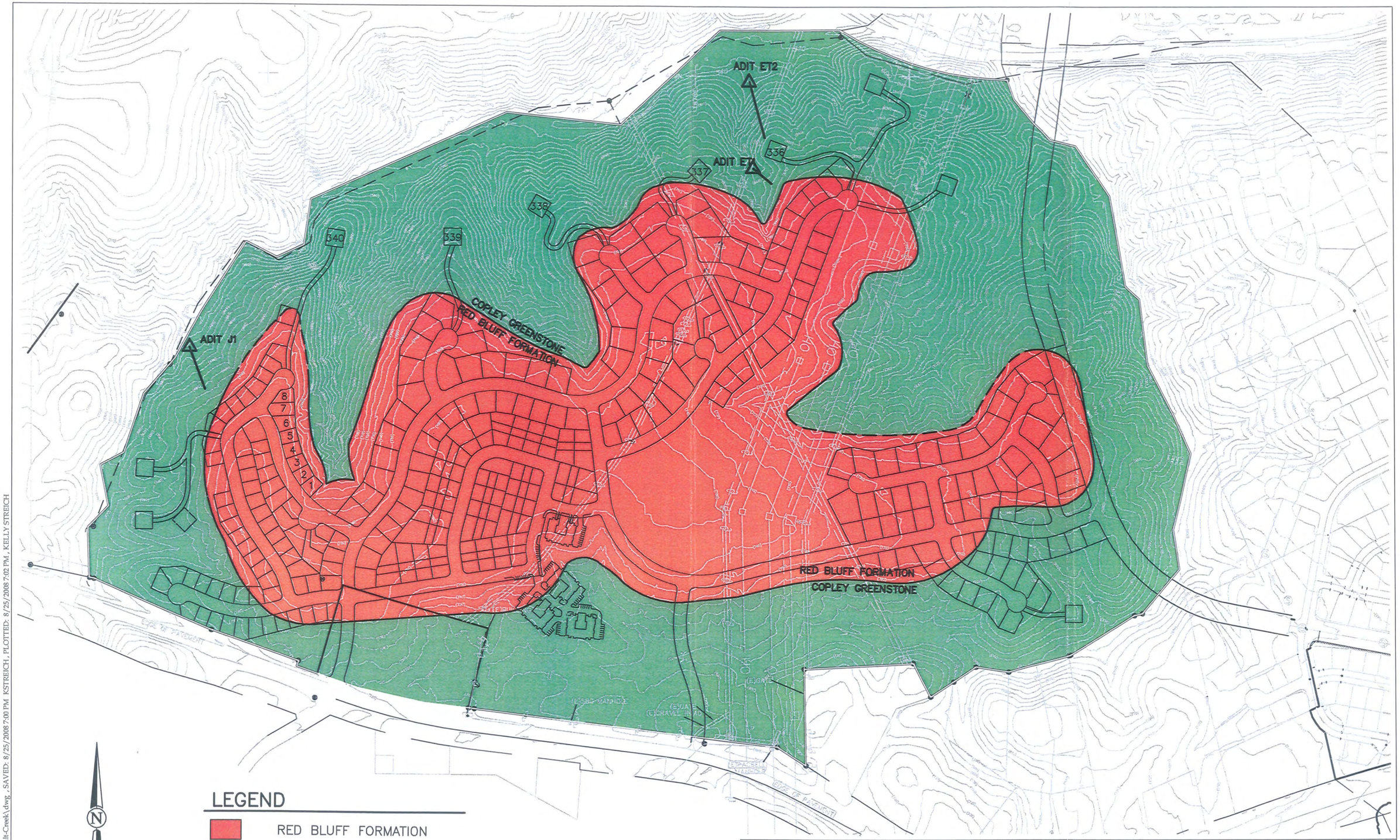
Evidence of placer mining for gold was observed in various areas of the project area. The most significant area of placer mining within the area to be graded was observed at the western portion of the project area northeast of building lots 1 through 8. The tailings left behind from these mining operations consist of cobbles that are piled at the angle of repose.

Drainage ditches for water diversion were observed in various locations around the site, such as near the driveway to building lot 337. These ditches are generally less than 4 feet in depth, and less than 10 feet in width.

Potential mineral resources of the Copley Greenstone include gold, talc, tungsten, minor massive sulfide ore, and dimension stone. Evidence of mining activity that we observed within the Copley Greenstone included lode gold mine adits and numerous mined pits of small size. The adits appear to expose drift mining methods, which are relatively horizontal mine tunnels, or they are sometimes advanced at a slight incline so that removal of material can be assisted by gravity.

Named lode gold mines within the project area include the Jefferson Mine, and the Eureka Tellurium mine (also named Telluride Consolidated during some time of its operation). The Mountain Top Mine is also located adjacent to the project area on the southwest side.

One adit was located for the Jefferson Mine, referenced as Adit J1 on Figure 2. References on the mining operations for this mine were not located during our research. The mine tunnel appears to be straight and horizontal, with a strike of 160 degrees (azimuth clockwise from north). The indurated rock above the ceiling of the adit at the entrance is approximately 3 feet in thickness, and



SHN Consulting Engineers & Geologists, Inc.

RBF Consulting
Salt Creek Heights EIR
Redding, California

Soil and Geology Map
SHN 508071

August 2008 | Salt Creek Figure 2 | Figure 2

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increases to an overburden of at least 20 feet thick at a distance of 80 feet from the adit. Standing water was visible within the mine tunnel.

The Eureka Tellurium mine was first mined in the 1850s, and was a small operation in 1901. Several adits are reported to have been mined, one of which is 520 feet long (Lydon and O'Brien, 1974). The Eureka Tellurium mine is mapped on the geology map of the Redding Quadrangle (Hollister, 1965) adjacent to building lot 338. We did not encounter mine adits at this location. We believe that two adits located in the northwest area of the property along Salt Creek pertain to this mine, where shown in Figure 2, designated as Adits ET1 and ET2. It is possible that ET1 is an air vent that connects to ET2. The entrance to ET1 appears to be sloped at an angle of 30 degrees downward, but it may have been filled with waste rock to create the inclined ground at the close of operations. The rock at the ceiling of Adit ET1 has a predominant joint or bedding that dips approximately parallel to the direction of the opening. The inside of this load mine adit is not visible or accessible since the height of the opening is approximately 1 foot; however, it appears to strike at an angle of 130 degrees (azimuth clockwise from north).

Adit ET2 appears to be straight and horizontal, with a strike of 165 degrees (azimuth clockwise from north). The indurated rock above the ceiling of Adit ET2 at the entrance is approximately 6 feet in thickness, and increases to an overburden of at least 20 feet within a horizontal distance of 50 feet from the adit. Standing water was visible within the mine tunnel.

The coordinates of the mine adits that were found in the field are listed in Table 2. These coordinates are based on a handheld global positioning system unit, and should have an accuracy within about 20 feet.

Table 2
Gold Lode Mine Adit Locations

Adit No.	Latitude (degrees)	West Longitude (degrees)
J1	40° 35′ 19.7″	122° 26′ 56.0″
ET1	40° 35′ 28.2″	122° 26′ 22.0″
ET2	40° 35′ 32.1″	122° 26′ 22.2″

We do not feel it is necessary to enter the mine adits J1 and ET2 to explore deep within them. First of all, their location in relation to the proposed grading as detailed in the tentative map, is sufficiently separated by hard rock overburden to limit adverse effects to the proposed grading. Secondly, the lode gold mines are drift mined, and would therefore continue horizontally into the hill. The risk of subsidence at the ground surface if the tunnels were to collapse is very low due to the mines being in hard rock with more than adequate overburden materials to bridge around failed tunnel sections. Based on the lack of abundant waste rock around the mine adits, it appears that the mine workings are not extensive.

The actual strike and dip of the mine tunnel at Adit J1 is unclear, and exploration deeper into the tunnel is not possible because of the small opening. Probing during future subsurface exploration is recommended to determine the strike and dip of the mine tunnel.

4.4 Groundwater

The observed soil materials of the Red Bluff formation are dry and hard, may be cemented, and are relatively impervious to water infiltration. The rock materials of the Copley Greenstone are also relatively impervious to water infiltration; however, secondary permeability within rock fractures and joints will allow water to slowly infiltrate. Water seeps were not observed at any point across the project area except within the mine adits at the base of the slopes along Salt Creek. The water within the mine adits was stagnant.

5.0 Evaluation and Discussion of Potential Geologic Hazards

The California Environmental Quality Act (CEQA) requires that the soil and geologic conditions be evaluated to determine whether such conditions would expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death. To provide a basis for evaluation of issues related to soils and geologic conditions, following is a discussion of potential geologic hazards that may exist at the project site. A focused summary of the required CEQA evaluations related to soils, geology, and mineral resources is included in Appendix B.

5.1 Subsidence from Mining Features

The risk of subsidence at the ground surface if the lode gold mine tunnels were to collapse is very low due to the mines being in hard rock with adequate overburden materials to bridge around failed tunnel sections. Identified building sites do not overly known underground workings.

5.2 Surface Fault Rupture

There are no known active faults that cross the project site, and we found no evidence in our research or site reconnaissance that a previously unrecognized active fault may be present. Recognized active faults are located greater than 50 miles from the project site. The risk of surface fault rupture beneath the proposed structures is considered negligible.

5.3 Seismic Ground Shaking

Ground motions that could affect the Salt Creek Heights project area were estimated by an evaluation of the historical earthquake activity near the Redding area and through probabilistic seismic hazard analyses.

5.3.1 Historical Seismicity

Ground motions that could affect the project were estimated by an evaluation of the historic seismicity of the area. Available earthquake catalogs were searched for earthquake events in the vicinity of Redding within the last 150 years. A total of 7 earthquake records were identified that had a magnitude greater than Magnitude 5.0 (M5.0) within a 60-mile radius around the site, which distance is generally considered the maximum range of strong ground motion from an earthquake event.

The nearest earthquake event larger than magnitude M5.0 occurred 3 miles northwest of the project site in 1998. This earthquake had a moment magnitude of M5.4, and likely resulted in the largest historical ground motion at the site. Based on the Sadigh et al. (1997) attenuation relationship, the estimated peak ground acceleration at the project site may have reached 0.21g during the 1998 earthquake. This earthquake has not been assigned to a known fault. The Fault Map of California (CDMG, 1994) shows a small fault trace in the general vicinity of the epicenter, but the fault is not named.

The largest magnitude earthquakes within 60 miles of the site had an estimated magnitude of 5.9M that occurred in 1915 and 1919 about 33 miles east of the project site. A summary of the historical earthquakes that have been recorded with magnitudes exceeding M5.0 are summarized in Table 3. Earthquakes prior to 1950 are of estimated magnitude based on physical observations of those who experienced the events.

Table 3
Historical Earthquakes in the Project Vicinity

Date	Magnitude	Distance from Site (miles)
11/26/1998	5.4	3
01/04/1919	5.9	33
02/22/1915	5.9	33
07/23/1920	5.7	33
03/20/1950	5.5	52
04/30/2008	5.4	58
02/08/1940	5.7	60

5.3.2 Probabilistic Seismic Hazard Analysis

A probabilistic seismic hazard analysis was performed for the Salt Creek Heights Subdivision to evaluate the ground motions that could affect the proposed structures. The probabilistic analysis begins with identification and definition of earthquake sources. Uncertainties in the size, location, and rate of recurrence of earthquakes are considered. A uniform hazard response spectrum is then developed that represents the aggregate effect of seismic hazard from the identified sources.

Probabilistic evaluations of horizontal strong ground motion that could affect the site were performed using the computer program FRISKSP (Blake, 2000). FRISKSP uses three-dimensional faults as earthquake sources to make probabilistic estimations of peak acceleration and uniform hazard spectra.

The peak ground accelerations, velocity, displacement, and response spectral values during an earthquake are attenuated due to energy losses with further distance from the seismic source. Many different attenuation models have been developed from recorded strong motion earthquake records. Attenuation relationships are specific to certain earthquake source types, locations, and other conditions. A recently updated attenuation relationship was used in the current analyses to evaluate the ground motions at the site due to potential earthquake events on nearby faults. The attenuation relationship presented by Sadigh et al (1997) was used, which was developed using

recorded data from shallow earthquakes in California, and earthquake magnitudes up to M8 (moment magnitude). The relationship for rock sites was used based on the thin depth of soil at the project site. The uncertainty in the attenuation relationship is also considered in the probabilistic analysis.

A total of 4 active or potentially active seismic sources were identified within a 60-mile radius of the project site. The seismic recurrence rate and magnitudes for each source are based on data from the California Geological Survey, provided within FRISKSP.

The resulting peak ground accelerations from the probabilistic seismic hazard analyses are presented in Table 4. A damping ratio of 5 percent was used to compute the ground acceleration values. Based on a review of the probabilistic seismic hazard maps for the State of California (CDMG/CGS, 1996), the peak ground acceleration within rock at the project site with a 10 percent probability of exceedance in 50 years is 0.16g. The reason for the discrepancy between the CDMG mapped value and our probabilistic seismic hazard evaluation may be due to differences in attenuation relationships and source characteristics that were assumed for the analyses.

Table 4
Probabilistic Ground Motion Data (PGA)

Attenuation Relation or Source	Probabilistic Exposure Period (years)	Probability of Exceedance (%)	Approximate Return Period (years)	Estimated Peak Horizontal Ground Acceleration (g)
Sadigh et al (1997)	50	10	475	0.08
CDMG 1996 Seismic Hazard Maps	50	10	475	0.16
Sadigh et al (1997)	100	10	949	0.10

The uniform acceleration hazard response spectra, along with miscellaneous seismic hazard data and results that were determined from the probabilistic seismic hazard analysis for the Salt Creek Heights subdivision are presented in Appendix C.

5.4 Liquefaction and Associated Effects

Liquefaction is described as the sudden loss of soil shear strength due to a rapid increase of soil pore water pressures caused by cyclic loading from a seismic event. During shaking, pore water pressure builds up until shear strength is significantly reduced. In simple terms, it means that a liquefied soil acts more like a fluid than a solid when shaken during an earthquake. The potential adverse effects of liquefaction include local and regional ground settlement, ground cracking and expulsion of water and sand, the partial or complete loss of bearing and confining forces used to support loads, amplification of seismic shaking, and lateral spreading.

In order for liquefaction to occur, the following are needed:

- Granular soils (sand or silty sand, sandy silt, and some gravels);
- a high groundwater table
- a low density of the granular soils (usually associated with young geologic age).

Qualitatively, only one of these conditions (granular soils) is present in minor quantities within the observed subsurface material (granular soil). A shallow groundwater table is not anticipated, and the great majority of materials are well consolidated (not loose). In our opinion, the granular soil materials encountered during our field investigation have a very low risk of liquefaction.

If quantitative liquefaction analyses were necessary, they would need to be based on site specific sampler penetration resistance tests in machine drilled borings. Penetration resistance indicates the existing relative density of the subsurface sand and gravel deposits, which can then be evaluated for liquefaction potential based on the anticipated ground motions. In our opinion, quantitative evaluations of liquefaction analyses are not necessary for the project during future subsurface exploration due to the lack of conditions necessary for liquefaction to occur. Due to the large quantity of coarse gravel and cobbles in the soil at the project site, penetration tests would not be reliable, since they are only applicable to coarse sand to finer soils.

The risk of adverse effects to the proposed project from secondary effects of liquefaction, such as lateral spreading or coseismic settlement occurring during a large earthquake event, is negligible based on the low potential for liquefaction to occur.

5.5 Expansive Soil

High plasticity clay soil is generally not anticipated within the project area. Based on a review of the soil survey for Shasta County, the plasticity index of the weathered metavolcanics may be as high as 15 percent, with a liquid limit of 35 percent. The plasticity index of the Red Bluff gravelly loam was rated at 10 percent, with a liquid limit of 28 percent.

Based on our experience with the Red Bluff formation soil within the adjacent subdivision on the east side of the Salt Creek Heights subdivision, the plasticity index of the clayey gravel soil materials was less than 10. It should be noted that plasticity indices of as high as 25 have been encountered within the Red Bluff formation on other projects within the Redding area.

Generally, the site soil materials contain a larger percentage of sand and gravel material than clay, which reduces the potential for expansion and shrinkage. Medium plastic clays were observed within the Red Bluff formation soil exposed at the ground surface. The clay material is anticipated to have low to moderate expansive characteristics, although we anticipate a low potential for adverse affects based on the performance of the Red Bluff Formation soil material on similar projects in west Redding area, and the high sand and gravel content of the native soil.

5.6 Volcanism

The nearest volcanic activity within the last few hundred years is at Mount Lassen. Mount Lassen is located about 50 miles east of the project area, and has erupted numerous times since the beginning of Holocene time. The most recent eruptions occurred between 1914 to 1917. These eruptions caused local devastation within the national park.

Mount Shasta is the next closest volcano, located approximately 58 miles to the north of the project area. Mount Shasta last erupted in 1786. It is our opinion that the risk of damage to the project site from volcanic eruptions and debris is low.

5.7 Consolidation

The native, undisturbed soil materials are well consolidated, and we anticipate that consolidation of soil underlying the fill materials will be negligible except for some relatively immediate settlement that may occur during construction. The structural fill itself, however, may consolidate over an extended period of time following construction. The estimated consolidation of the structural fill material, assuming native soil materials are utilized and compacted in accordance with the recommendations for structural fill, may be assumed to be approximately 1 percent of the fill thickness. We anticipate the majority of fill settlement will occur during the first year following placement. Differential settlement of fill material may occur due to the limitations of existing compaction methods.

6.0 Construction and Design Considerations

Based on the results of our field and laboratory investigations, it is our opinion that the project site can be developed as proposed, provided that our recommendations are followed, and that noted conditions and risks are acknowledged.

The primary geotechnical site consideration for the current geotechnical investigation is the stability of proposed grading on sloping ground, the potential for consolidation of fill graded areas, and the high cobble content of the native soil that is proposed for use as structural fill material. The construction considerations presented below include recommendations on how to deal with these issues in addition to others.

The geotechnical design criteria presented within this section is preliminary and should not be used for final design of the subdivision. Subsurface exploration must be performed prior to making final geotechnical design recommendations.

6.1 CBC Seismic Design Parameters for the Site

For design of structures subjected to seismic loads, a soil site class of type "C", or very dense soil, may be used for all of the proposed building lots in accordance with Section 1613.5.2 of the 2007 California Building Code. The site class was based on the materials observed within road cuts and drainages during the field reconnaissance activities. In our opinion, the proposed fill depths for the project will not be substantial enough to downgrade the site class to type "D".

The mapped spectral accelerations (Site Class B) for short periods of 0.2-seconds and at 1-second period ground motion are 0.74 and 0.28, respectively. These values should be corrected for site class "C" soil at the project site to obtain structural design values for seismic loading, except as noted in the following paragraph.

For the custom home building lots located around the perimeter of the graded area as shown on the tentative map of November, 2007, a seismic site class of type "B" may be used for evaluation of seismic loading on structures. No correction of the mapped spectral accelerations is necessary for these sites.

6.2 Closure of Mine Adits

For purposes of public safety, we recommend that the mine adits be closed to prevent entry. The following methods of closure are provided as suggestions to provide ideas for further evaluation. The closure method should be reviewed by the city of Redding and construction monitored by a qualified engineer or engineering geologist to verify that a safe closure of the mine adit is obtained.

One option may be to fill the entrance with soil and rock materials. The surrounding rock materials are highly fractured and it may be possible to break and collapse the overhanging rock at the adit opening using heavy equipment. This should be followed by placement of compacted fill material over the collapsed rock to match surrounding grades. Some imported rock and soil materials, from other portions of the project, may be needed.

At Adit ET1, the strike and dip of the mine tunnel should first be determined prior to development of a closure method. This will require either rock coring over the apparent alignment to determine the strike and dip of the tunnel, or excavation of the adit sufficient enough to visually observe the inside of the tunnel. Once the strike and dip have been determined the adit may be closed. If the dip is determined to be horizontal, the above closure methods may be used for this adit. If the dip of the tunnel is inclined more than 10 percent gradient, a different closure method will likely need to be developed, dependent upon the slope of the tunnel.

It is possible that additional mine adits are present within the side slopes along Salt Creek. If additional adits are discovered during site clearing, SHN should be contacted to allow us to evaluate the site conditions surrounding the adit, and provide additional evaluations of risk of adverse affects to the proposed project.

6.3 Site Preparation and Grading

All grading and earthwork should be performed in accordance with the local grading ordinances. We understand that significant fill placement (greater than 10 feet) is proposed for the project.

We anticipate that removal of organic soil within the areas to be graded will require stripping of 3 inches or less within the grassland areas of the proposed grading area. Grubbing to greater depths will be required within the oak and chaparral wooded areas. The resulting voids from the removed roots must be filled with structural fill material.

At the down-gradient toe of areas of proposed fill, we recommend that a keyway trench with a minimum width of 8 feet be excavated; sloping inward towards the hill at a slope of approximately 2 percent, along the length of the proposed fill areas. The purpose of the keyway is to stabilize the proposed structural fill upon the existing sloping grades, and allow for placement of fill in relatively horizontal lifts. As the fill is proceeding up in elevation, we recommend that the native soil at the inboard side of the fill area be notched such that a stepped contact between the native soil and structural fill materials is created.

The standard grading practice for areas to receive fill material is to scarify, moisture condition, and compact the subgrade prior to structural fill placement. The scarification may stir up large cobbles, however, that would require removal prior to compaction. Due to the large quantity of cobbles and boulders within the majority of area to be graded, we instead recommend to proof-roll the subgrade. The subgrade surface should be proof-rolled using heavy equipment equipped with pneumatic tires, as approved by the project soils engineer. The proof-rolling should be accomplished under the observation of the soils engineer with the soil damp or moist (not wet or dry), and a firm, non-yielding surface should be evident during the proof-rolling. If a yielding surface is observed (pumping, weaving under wheel loads), additionally excavate the yielding area, and replace the over excavated material with approved structural fill in a manner that will result in a stable subgrade surface under the proof-rolling, following the over-excavation and replacement.

To avoid adverse affects to the proposed residential structures due to differential consolidation, the variation in thickness of fill material should not change abruptly, and should have a maximum change of 1 foot within a distance of 10 feet horizontally. If this maximum rate of change in thickness is not feasible, the native ground should be over-excavated and replaced such that the variability of thickness beneath the proposed structures is reduced below the recommended maximum.

During grading, the soil should be kept in a moist condition to limit shrinkage of the medium plastic clay. If the soil is allowed to dry out (desiccation cracks visible), we recommend that the soil be scarified, moisture conditioned, and re-compacted prior to construction of structural improvements.

Mining ditches or eroded channels, where encountered within the proposed grading area, should be cleaned of loose soil and debris, and widened sufficiently to run a soil compactor through the channel, prior to receiving new fill materials

Tailings left behind from historical placer mining, where present in proposed grading areas, should be excavated and mixed 50% -- 50% with fine-grained site soils by blading in a mixing area. The resulting blended materials should be placed as fill in non-structural areas (not beneath utilities, roads, or buildings). It is recommended they be placed in the bottom of such fill areas so that the coarse materials do not interfere with future landscaping.

6.4 Structural Fill

The following recommendations for structural fill are applicable for fill placement and compaction where fill is necessary to achieve design grades, to replace over-excavated soil material, or for areas where utility trenches or voids are backfilled.

Structural fill material should preferably consist of granular materials. However, non-plastic or low plasticity material (Liquid Limit less than 35, Plasticity Index less than 15) containing no organic material or debris, and no individual particles over 4 inches across, can also be used. For clayey sands used as structural fill, the plasticity index may exceed 15, up to a maximum of 30, provided that the sand and gravel content (material retained on a No. 4 sieve) is greater than 50 percent. Native soil materials encountered during our field investigation would qualify for use as structural fill, provided that oversize particles greater than 4 inches in dimension are removed prior to compaction. The oversize cobbles do not allow compaction of structural fill because the compactor will ride on top of the cobbles and not compress the surrounding soil.

Structural fill should be placed and compacted to a minimum of 90 percent of the maximum relative dry density as determined by the current ASTM D1557 test method. Within the top two feet of finished grade beneath roadways or foundations, the minimum relative compactions should be 95 percent. Where the proposed fill depth will exceed 8 feet in thickness, we recommend a minimum relative compaction of 95 percent for the entire fill section. We recommend that granular fill be moisture conditioned to within 0 to 4 percent above the optimum moisture content, prior to compaction. Fill material should be placed in thin lifts not exceeding 8 inches in loose (pre-un-compacted), thickness.

Asphalt pavement base rock, and the upper 8 inches of subgrade beneath the base rock material, should be placed to design grades and compacted to a minimum of 95 percent of the maximum relative dry density as determined by the current ASTM D1557 test method. We recommend that pavement subgrade and base rock fill be moisture conditioned to within 0 to 2 percent above the optimum moisture content, prior to compaction.

6.5 Slope Grading

We recommend that all cut and fill slopes should be designed and graded to be no steeper than 2 horizontal to 1 vertical (2H:1V), with an exception of cut slopes within the native, undisturbed Copley Greenstone material. Cuts up to 15 feet in height within the Copley Greenstone material may be made at a slope inclination of 1H:1V. Steeper slopes (e.g. ½:1) in this material may be possible, based on site investigations by an engineering geologist.

The overall stability of the proposed grading, including potential failure beneath retaining walls, must be evaluated at critical cross sections as determined by a soils engineer. The design

parameters for the soil should be determined based on subsurface exploration at the proposed wall locations, and material testing of the fill materials.

The building setbacks from descending fill slopes should be a minimum of one-third of the fill height. The setback distance should be measured from the base of foundations, horizontally to daylight on the slope face. Foundations may be deepened to achieve the minimum setback requirement.

Buildings should be setback from the toe of cuts a minimum of one-half of the cut slope height. The setback does not need to exceed 8 feet where the cut is within native, undisturbed, Red Bluff or Copley Greenstone formation material. A curb should be provided between the cut slope and building structure to intercept raveling rocks from the slope face over time.

6.6 Foundations

Foundations should be sized, embedded, and reinforced to at least the minimum standards presented in the current edition of the California Building Code (CBC). The anticipated design parameters presents below are preliminary, and must be verified by subsurface exploration prior to use of the parameters in design of foundations.

We anticipate that foundations for residential structures, walls or other project features will have an allowable bearing pressure of 2,000 to 4,000 pounds per square foot (psf) for dead load plus live loads, depending upon the material type present at the foundation grades. The lower end of the range would apply for foundations founded within the clayey gravel soil of the Red Bluff Formation and structural fill materials. The higher end of the range would apply where foundations are founded within the Copley Greenstone lithified rock material.

The allowable bearing pressures discussed above include a factor of safety of 3, and are a net value; therefore, the weight of the foundation extending below the subgrade level may be neglected from the dead loads. The allowable bearing values may be increased by one-third as allowed by the CBC under short-term effects of temporary dynamic loading.

Resistance to lateral loads may be provided by frictional resistance between the bottom of concrete foundations and the underlying soils, and by passive soil pressure against the sides of the foundations. For concrete foundations resting on native soil materials, a sliding friction coefficient of 0.35 is anticipated for the footing/soil contact. Based on our preliminary evaluations and experience with the soil materials present at the project site, we anticipate that a lateral passive pressure can be represented by an equivalent fluid weighing 300 pounds per cubic foot (pcf) in conjunction with the frictional resistance discussed above. Lateral passive pressure can be calculated where structural footings bear laterally against competent undisturbed native soils, or structural fill. The upper 6 inches of soil at the ground surface should be neglected for passive resistance. The estimated lateral resistance parameters are ultimate values; therefore, a suitable factor of safety would need to be applied to these values for design purposes.

The ground surface should be sloped away from the foundations, or other design measures should be implemented to provide positive surface water drainage away from structure foundations for a minimum distance of 8 feet. The ground surface should not exceed a gradient of 10 percent,

however, for a distance of at least 8 feet beyond the foundations unless overall stability analyses show a low risk of slope deformation (e.g. factor of safety greater than 1.4).

For light post foundations or other pole type structures with pier foundations and overturning moments, a lateral bearing of 300 pounds per square foot per foot of depth is anticipated for use with the non-constrained formula of Section 1805.7.2.1 of the 2007 CBC.

6.7 Slabs-on-Grade

Where no new structural fill is to be placed beneath slab areas, the exposed soil subgrade surface should first be prepared to receive the slab and sub-slab materials by compaction or proof-rolling as recommended above for site preparation.

All slabs supported by either the ground or by foundations should be designed by a civil engineer to support the anticipated loading conditions but at a minimum should be at least 4 inches thick. Reinforcement should be designed to meet pertinent code, shrinkage and temperature requirements. Reinforcement should be placed at mid-thickness of the slab with provisions to ensure it stays in that position during construction and concrete placement.

Concrete slabs can become damp from upward transmission of soil moisture. Where moisture could cause adverse conditions to equipment, we recommend that the slabs be underlain by a polyethylene membrane at least six mils in thickness. This membrane should overlie a capillary break consisting of a 4-inch layer of gravel (No. 4 U.S. Sieve minimum, up to 1 inch maximum). The capillary break provides a layer with relatively large, inter-granular, void spaces, which inhibit capillary rise of ground moisture or "wicking."

It has been common practice to cover the membrane with a few inches of sand, to protect the membrane during construction, and to aid in concrete curing. However, some designers consider the sand layer to be a potential source of moisture that can adversely affect the slab, either from the water present in the sand during construction, or from surface water or groundwater gaining access to the sand layer above the membrane. We understand that the American Concrete Institute has produced recommendations or guidelines with respect to this issue. Whether or not a sand layer is placed above the membrane, the membrane should be protected against tearing or puncture during construction.

6.8 Utility Trenches

All temporary excavations must comply with applicable local, state, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the responsibility of the contractor, who should be solely responsible for the means, methods, and sequencing of construction operations so that a safe working environment is maintained.

The potential for very difficult excavation should be anticipated for excavations within the insitu Copley Greenstone rock. The level of cementation of the Red Bluff clayey gravel is generally not restrictive to large excavators.

Groundwater is not likely to be encountered within the depths of typical trench excavations (8 feet or less), unless construction occurs during the wet season of the year (October to May). If encountered, the contractor should install measures to divert groundwater, or channel groundwater to flow towards collection points to be removed from the trench and disposed of at an approved area. If groundwater is encountered, we anticipate a low seepage inflow rate due to the clay matrix within the native soil material.

Pipe zone backfill (i.e., material placed from the trench bottom to a minimum of 6 inches over the pipeline crown) should consist of imported soil having a Sand Equivalent (SE) of no less than 30 and having a particle size no greater than ½-inch in maximum dimension. On-site soils are not likely to meet this recommendation. Trench zone backfill (i.e., material placed between the pipe zone backfill and finished subgrade) may consist of on-site soil that meets the material requirements previously provided for structural fill with 100 percent passing the 2-inch sieve.

If imported material is used for pipe or trench zone backfill, we recommend it consist of fine-grained sand. In general, use of coarse-grained sand and/or gravel is not recommended due to the potential for soil migration into and water seepage along trenches backfilled with this type of material.

Recommendations provided above for pipe zone backfill are minimum requirements only. More stringent material specifications may be required to fulfill local codes and/or bedding requirements for specific types of pipe. We recommend the project Civil Engineer develop these material specifications based on planned pipe types, bedding conditions, and other factors beyond the scope of this investigation.

6.9 Site Drainage

The site development should incorporate adequate drainage of surface waters and, thereby, minimize infiltration into the subsurface soils. Grading around the structures should be performed so that the ground drains away from the structures for a minimum of 8 feet at a minimum gradient of 4 percent, or a minimum of 2 percent if covered with relatively impervious pavement or concrete. Flows from rain gutter downspouts should be extended within non-perforated piping to discharge water away from and down-gradient of building structures.

7.0 Limitations

This report has been prepared for the specific application to the issues related to the environmental impact report for the proposed subdivision as discussed herein. SHN has not performed subsurface exploration at the project site, and the conclusions and recommendations presented herein are therefore preliminary. SHN prepared the findings, conclusions, and recommendations presented herein in accordance with generally accepted geotechnical engineering practices at the time and location that this report was prepared. No other warranty, express or implied, is made.

Soil and rock materials are typically not homogeneous in type, strength, and other geotechnical properties, and can vary between points of observation and exploration. In addition, groundwater and soil moisture conditions can vary seasonally and for other reasons. SHN does not and cannot have a complete knowledge of the subsurface conditions underlying a site. The conclusions and

recommendations presented in this report are based upon the findings at the points of observation, interpolation and extrapolation of information between and beyond the points of observation, and are subject to confirmation of the conditions revealed by construction. The recommendations provided in this report are based on the assumption that an adequate program of subsurface exploration and laboratory testing will be conducted by our firm prior to the construction of each phase.

Findings of this report are valid as of the date of issuance; however, changes in condition of a property can and will occur with the passage of time. Furthermore, changes in applicable or appropriate standards occur whether they result from legislation or advancement in technology. Accordingly, findings of this report may be invalidated wholly or partially by changes outside of SHN's control. This report is subject to SHN's review and remains valid for a period of four years, unless SHN issues a written opinion of its continued applicability thereafter. If the scope of the proposed construction, including the proposed loads, grades, or structural locations, changes from that described in this report, our recommendations should also be reviewed.

The scope of SHN's geotechnical services did not include any assessment for the presence or absence of any hazardous/toxic substances in the soil, ground water, surface water, or atmosphere, or the presence of any environmentally sensitive habitats or culturally significant areas.

8.0 References

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Appendix A

NRCS Soil Types and Maps

United States Department of Agriculture

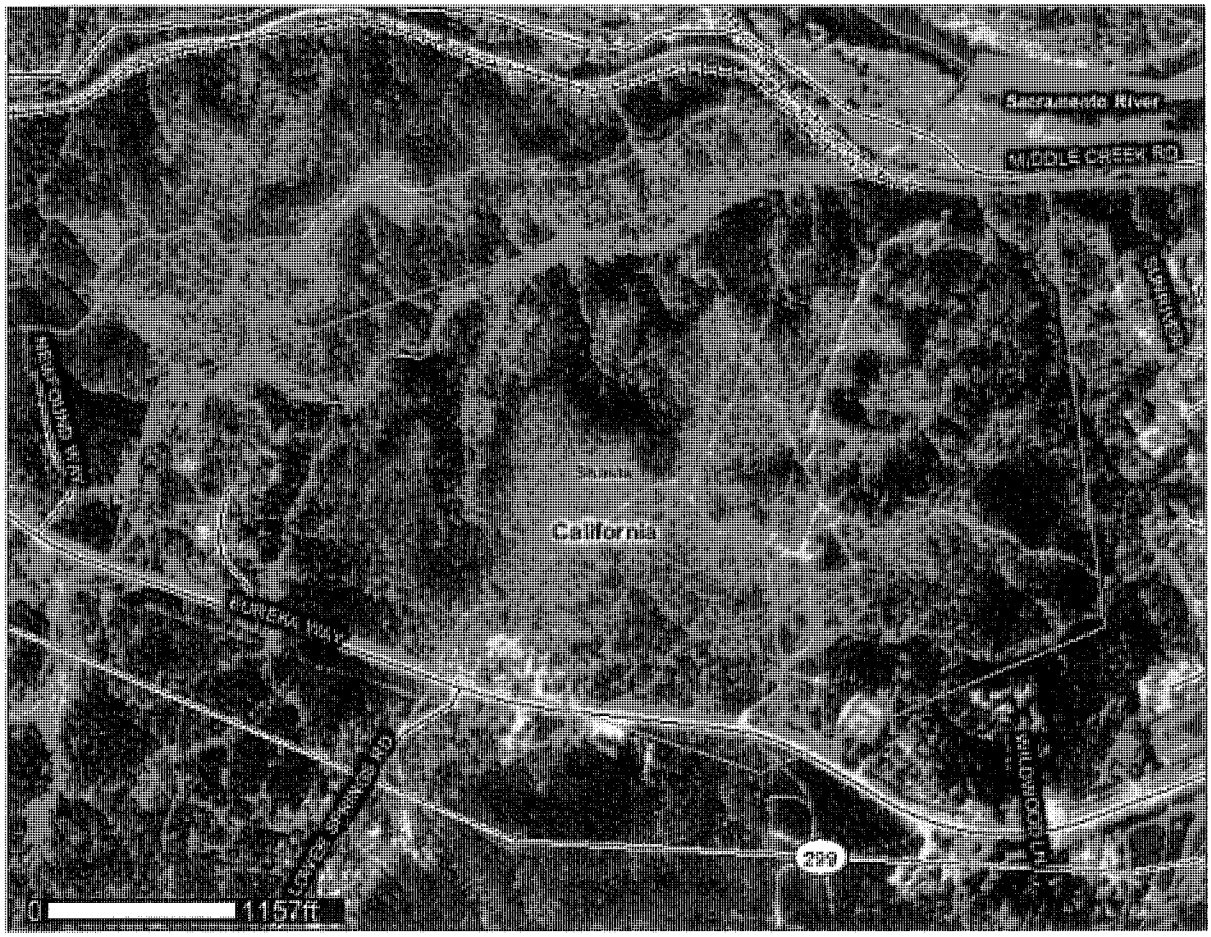
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Shasta County Area, California

Salt Creek Heights



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

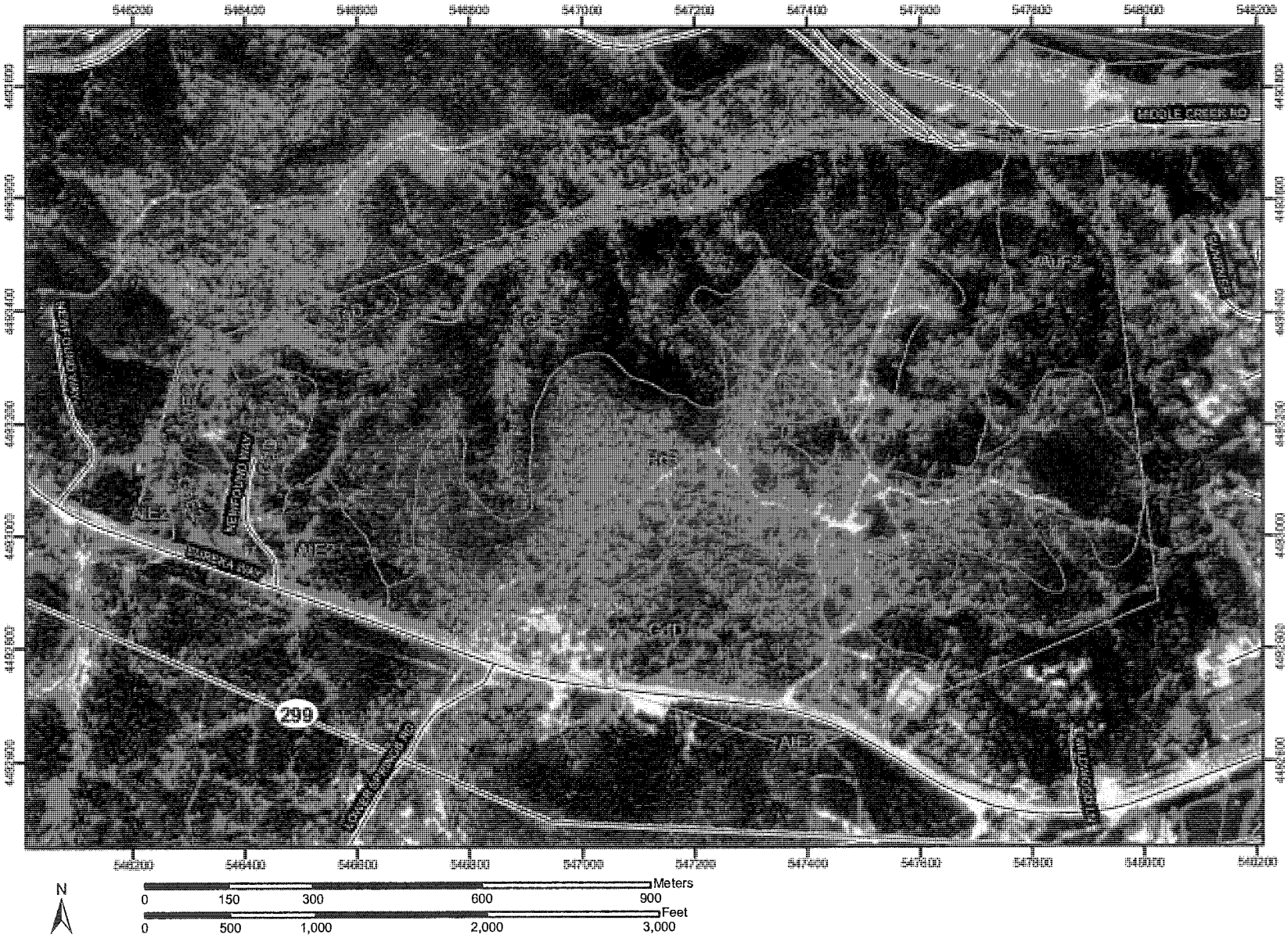
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

Municipalities

- Cities
- Urban Areas

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails

Roads

- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shasta County Area, California
Survey Area Data: Version 6, May 21, 2008

Date(s) aerial images were photographed: 8/11/1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Shasta County Area, California (CA607)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AtE2	Auburn very stony clay loam, 30 to 50 percent slopes, eroded	15.4	4.5%
AuF2	Auburn very rocky clay loam, 50 to 70 percent slopes, eroded	43.7	12.7%
GdD	Goulding very stony loam, 10 to 30 percent slopes	59.5	17.3%
GeE2	Goulding very rocky loam, 30 to 50 percent slopes, eroded	122.3	35.6%
RcB	Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	99.6	29.0%
Rw	Riverwash	0.0	0.0%
TaD	Tailings and placer diggings	2.6	0.8%
Totals for Area of Interest (AOI)		343.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with

some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Shasta County Area, California Version date:5/21/2008 10:26:30 AM

AtE2—Auburn very stony clay loam, 30 to 50 percent slopes, eroded

Map Unit Setting

Elevation: 300 to 2,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 175 to 275 days

Map Unit Composition

Auburn and similar soils: 85 percent
Minor components: 15 percent

Description of Auburn

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from metavolcanics

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: 27 to 31 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: SHALLOW LOAMY (R015XD093CA)

Typical profile

0 to 5 inches: Very stony clay loam
5 to 27 inches: Gravelly clay loam
27 to 31 inches: Unweathered bedrock

Minor Components

Stonyford

Percent of map unit: 8 percent

Unnamed

Percent of map unit: 7 percent

AuF2—Auburn very rocky clay loam, 50 to 70 percent slopes, eroded

Map Unit Setting

Elevation: 120 to 3,000 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 55 to 63 degrees F
Frost-free period: 175 to 275 days

Map Unit Composition

Auburn and similar soils: 75 percent
Rock outcrop: 15 percent
Minor components: 10 percent

Description of Auburn

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from metavolcanics

Properties and qualities

Slope: 50 to 70 percent
Depth to restrictive feature: 20 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: SHALLOW LOAMY (R015XD093CA)

Typical profile

0 to 5 inches: Clay loam
5 to 20 inches: Gravelly clay loam
20 to 24 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from metavolcanics

Properties and qualities

Slope: 50 to 70 percent

Depth to restrictive feature: 0 to 4 inches to lithic bedrock
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to very high (0.01 to 19.98 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups
Land capability (nonirrigated): 8s

Typical profile
0 to 4 inches: Unweathered bedrock

Minor Components

Stonyford
Percent of map unit: 5 percent

Unnamed
Percent of map unit: 5 percent

GdD—Goulding very stony loam, 10 to 30 percent slopes

Map Unit Setting
Elevation: 1,500 to 5,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 150 to 250 days

Map Unit Composition
Goulding and similar soils: 85 percent
Minor components: 15 percent

Description of Goulding

Setting
Landform: Mountains
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from greenstone

Properties and qualities
Slope: 10 to 30 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: 16 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Land capability (nonirrigated): 6s
Ecological site: SHALLOW LOAMY (R018XD076CA)

Typical profile

0 to 5 inches: Very stony loam
5 to 16 inches: Gravelly loam
16 to 20 inches: Unweathered bedrock

Minor Components

Auburn

Percent of map unit: 10 percent

Diamond springs

Percent of map unit: 5 percent

GeE2—Goulding very rocky loam, 30 to 50 percent slopes, eroded

Map Unit Setting

Elevation: 1,500 to 5,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 150 to 250 days

Map Unit Composition

Goulding and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Description of Goulding

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from greenstone

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 16 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.1 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: SHALLOW LOAMY (R018XD076CA)

Typical profile

0 to 5 inches: Very stony loam
5 to 16 inches: Gravelly loam
16 to 20 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Landform: Mountains
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from greenstone

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 0 to 4 inches to lithic bedrock
Drainage class: Excessively drained

Interpretive groups

Land capability (nonirrigated): 8s

Minor Components

Auburn

Percent of map unit: 10 percent

Diamond springs

Percent of map unit: 5 percent

RcB—Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes

Map Unit Setting

Elevation: 100 to 1,500 feet
Mean annual precipitation: 14 to 25 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 230 to 320 days

Map Unit Composition

Red bluff and similar soils: 85 percent
Minor components: 15 percent

Description of Red Bluff

Setting

Landform: Terraces
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 30 to 40 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water capacity: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3e
Ecological site: ACID TERRACE (R017XD089CA)

Typical profile

0 to 6 inches: Gravelly loam
6 to 24 inches: Gravelly clay loam
24 to 30 inches: Gravelly clay loam
30 to 40 inches: Indurated

Minor Components

Perkins

Percent of map unit: 5 percent

Newtown

Percent of map unit: 5 percent

Redding

Percent of map unit: 4 percent

Unnamed

Percent of map unit: 1 percent
Landform: Depressions

Rw—Riverwash

Map Unit Setting

Elevation: 700 to 2,900 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Riverwash: 100 percent

Description of Riverwash

Setting

Landform: Drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Gravelly alluvium

Properties and qualities

Slope: 0 to 5 percent
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Available water capacity: Very low (about 1.2 inches)

Interpretive groups

Land capability (nonirrigated): 8

Typical profile

0 to 6 inches: Very gravelly sand
6 to 60 inches: Stratified very gravelly coarse sand to gravelly sand

TaD—Tailings and placer diggings

Map Unit Composition

Tailings and placer: 95 percent
Minor components: 5 percent

Description of Tailings And Placer

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mine spoil or earthy fill

Interpretive groups

Land capability (nonirrigated): 8s

Typical profile

0 to 60 inches: Variable

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Flood plains

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Plasticity Index (Salt Creek Heights EIR)

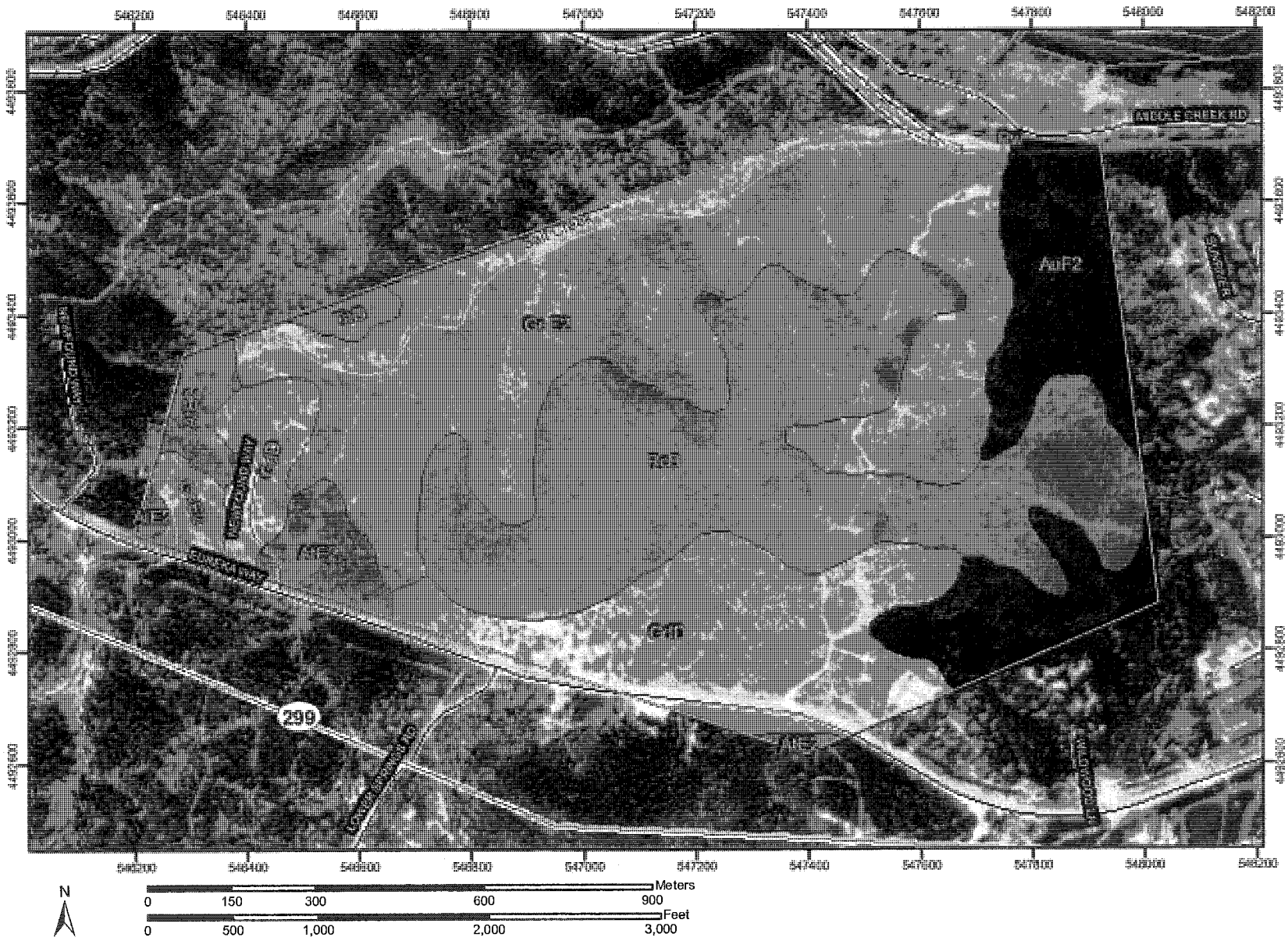
Plasticity index (PI) is one of the standard Atterberg limits used to indicate the plasticity characteristics of a soil. It is defined as the numerical difference between the liquid limit and plastic limit of the soil. It is the range of water content in which a soil exhibits the characteristics of a plastic solid.

The plastic limit is the water content that corresponds to an arbitrary limit between the plastic and semisolid states of a soil. The liquid limit is the water content, on a percent by weight basis, of the soil (passing #40 sieve) at which the soil changes from a plastic to a liquid state.

Soils that have a high plasticity index have a wide range of moisture content in which the soil performs as a plastic material. Highly and moderately plastic clays have large PI values. Plasticity index is used in classifying soils in the Unified and AASHTO classification systems.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—Plasticity Index (Salt Creek Heights EIR)



Custom Soil Resource Report
Legend—Plasticity Index (Salt Creek Heights EIR)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Soil Ratings

<= 0

> 0 AND <= 7.5

> 7.5 AND <= 10

> 10 AND <= 15

Not rated or not available

Political Features

Municipalities

Cities

Urban Areas

Water Features

Oceans

Streams and Canals

Transportation

Rails

Roads

Interstate Highways

US Routes

State Highways

Local Roads

Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shasta County Area, California
Survey Area Data: Version 6, May 21, 2008

Date(s) aerial images were photographed: 8/11/1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Plasticity Index (Salt Creek Heights EIR)

Plasticity Index— Summary by Map Unit — Shasta County Area, California				
Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
AtE2	Auburn very stony clay loam, 30 to 50 percent slopes, eroded	10.0	15.4	4.5%
AuF2	Auburn very rocky clay loam, 50 to 70 percent slopes, eroded	15.0	43.7	12.7%
GdD	Goulding very stony loam, 10 to 30 percent slopes	7.5	59.5	17.3%
GeE2	Goulding very rocky loam, 30 to 50 percent slopes, eroded	7.5	122.3	35.6%
RcB	Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	10.0	99.6	29.0%
Rw	Riverwash	0.0	0.0	0.0%
TaD	Tailings and placer diggings		2.6	0.8%
Totals for Area of Interest (AOI)			343.1	100.0%

Rating Options—Plasticity Index (Salt Creek Heights EIR)

Units of Measure: percent

Aggregation Method: Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-

break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie.

The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Interpret Nulls as Zero: No

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

Layer Options: Surface Layer

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

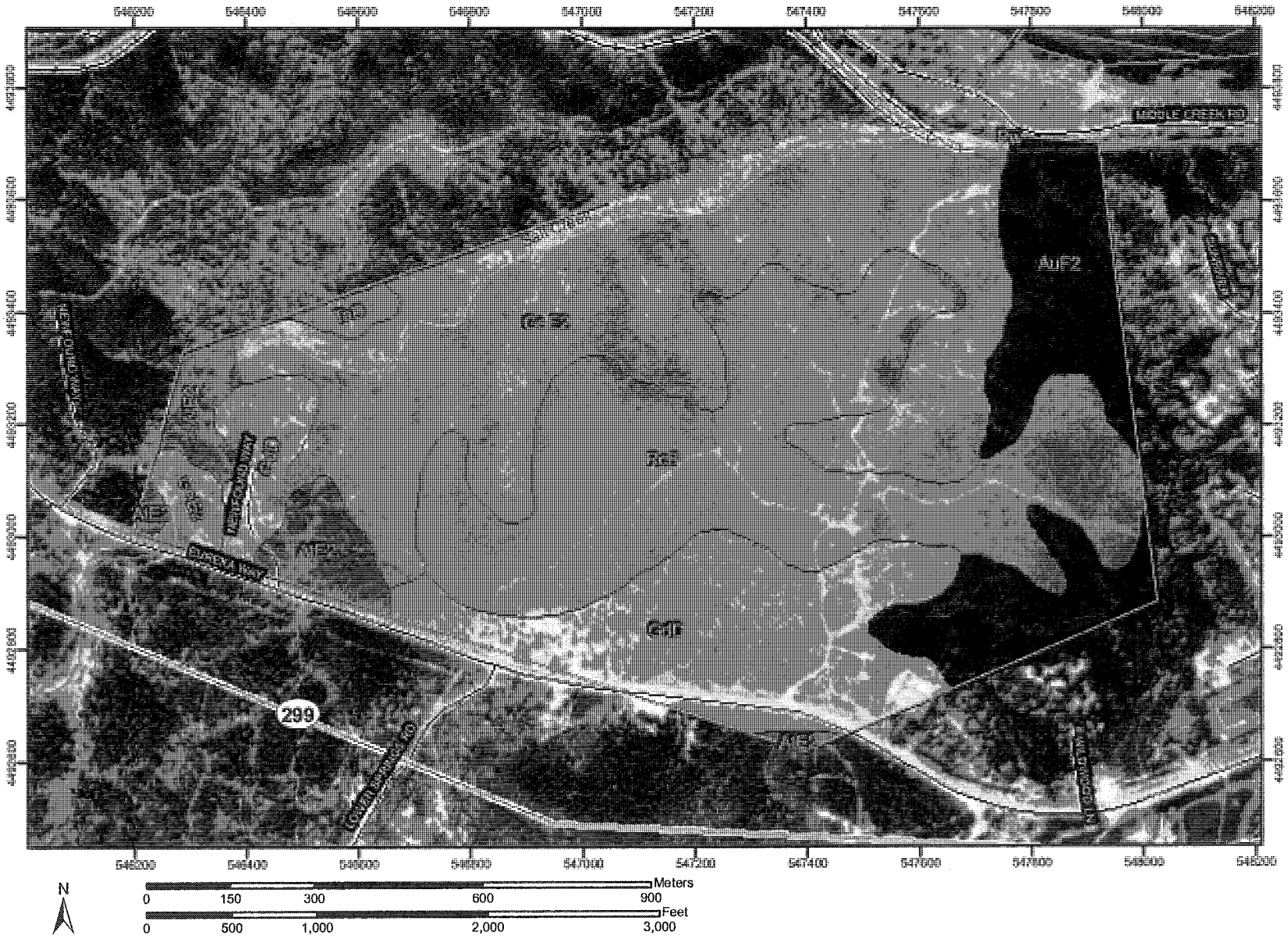
Liquid Limit (Salt Creek Heights EIR)

Liquid limit (LL) is one of the standard Atterberg limits used to indicate the plasticity characteristics of a soil. It is the water content, on a percent by weight basis, of the soil (passing #40 sieve) at which the soil changes from a plastic to a liquid state. Generally, the amount of clay- and silt-size particles, the organic matter content, and the type of minerals determine the liquid limit. Soils that have a high liquid limit have the capacity to hold a lot of water while maintaining a plastic or semisolid state.

Liquid limit is used in classifying soils in the Unified and AASHTO classification systems.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—Liquid Limit (Salt Creek Heights EIR)



Custom Soil Resource Report
Legend—Liquid Limit (Salt Creek Heights EIR)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Soil Ratings

<= 0

> 0 AND <= 27.5

> 27.5 AND <= 30

> 30 AND <= 32.5

> 32.5 AND <= 35

Not rated or not available

Political Features

Municipalities

Cities

Urban Areas

Water Features

Oceans

Streams and Canals

Transportation

Rails

Roads

Interstate Highways

US Routes

State Highways

Local Roads

Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

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Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shasta County Area, California
Survey Area Data: Version 6, May 21, 2008

Date(s) aerial images were photographed: 8/11/1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Liquid Limit (Salt Creek Heights EIR)

Liquid Limit— Summary by Map Unit — Shasta County Area, California				
Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
AtE2	Auburn very stony clay loam, 30 to 50 percent slopes, eroded	32.5	15.4	4.5%
AuF2	Auburn very rocky clay loam, 50 to 70 percent slopes, eroded	35.0	43.7	12.7%
GdD	Goulding very stony loam, 10 to 30 percent slopes	30.0	59.5	17.3%
GeE2	Goulding very rocky loam, 30 to 50 percent slopes, eroded	30.0	122.3	35.6%
RcB	Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	27.5	99.6	29.0%
Rw	Riverwash	0.0	0.0	0.0%
TaD	Tailings and placer diggings		2.6	0.8%
Totals for Area of Interest (AOI)			343.1	100.0%

Rating Options—Liquid Limit (Salt Creek Heights EIR)

Units of Measure: percent

Aggregation Method: Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-

break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie.

The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Interpret Nulls as Zero: No

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

Layer Options: Surface Layer

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

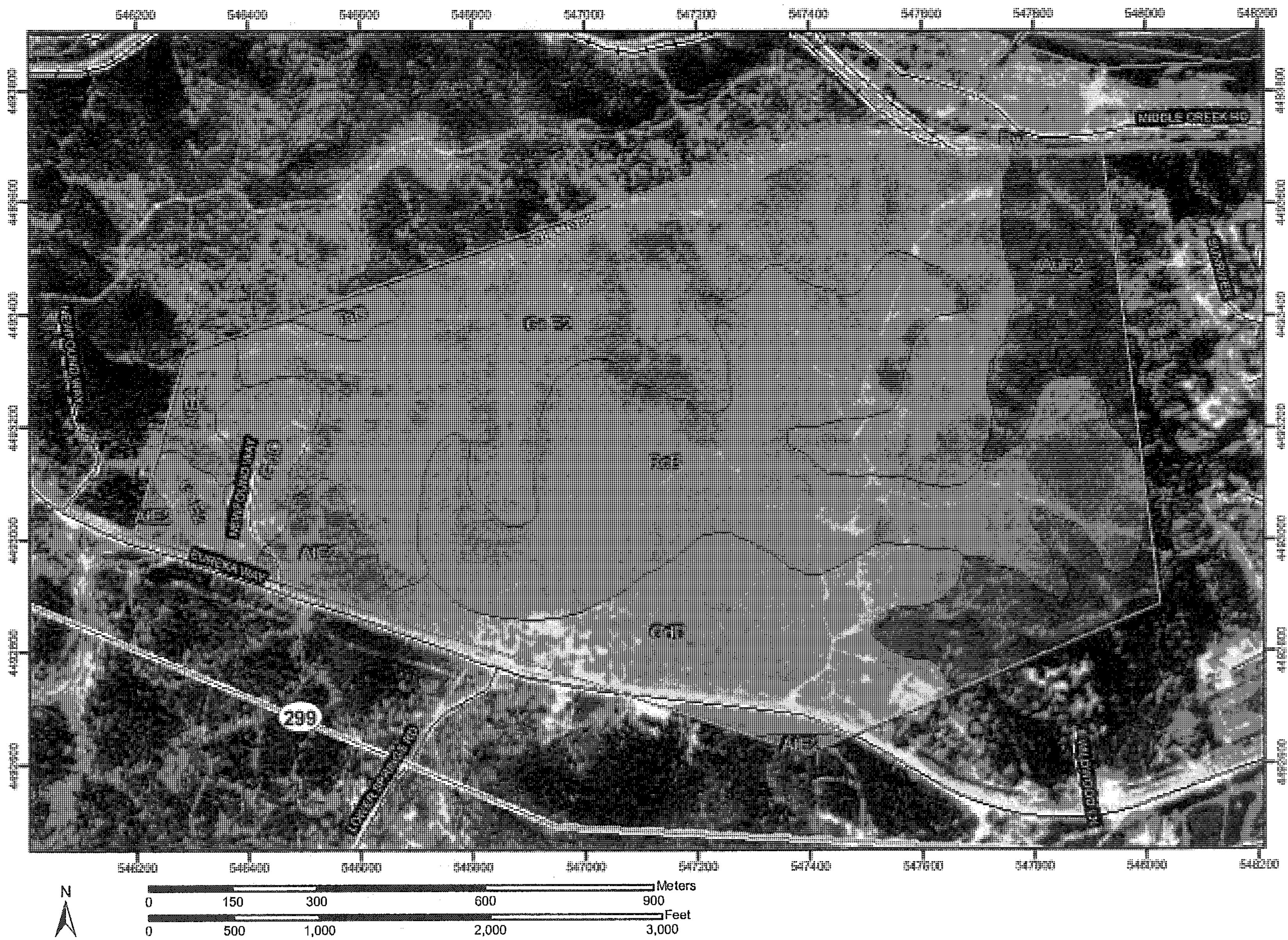
Unified Soil Classification (Surface) (Salt Creek Heights EIR)

The Unified soil classification system classifies mineral and organic mineral soils for engineering purposes on the basis of particle-size characteristics, liquid limit, and plasticity index. It identifies three major soil divisions: (i) coarse-grained soils having less than 50 percent, by weight, particles smaller than 0.074 mm in diameter; (ii) fine-grained soils having 50 percent or more, by weight, particles smaller than 0.074 mm in diameter; and (iii) highly organic soils that demonstrate certain organic characteristics. These divisions are further subdivided into a total of 15 basic soil groups. The major soil divisions and basic soil groups are determined on the basis of estimated or measured values for grain-size distribution and Atterberg limits. ASTM D 2487 shows the criteria chart used for classifying soil in the Unified system and the 15 basic soil groups of the system and the plasticity chart for the Unified system.

The various groupings of this classification correlate in a general way with the engineering behavior of soils. This correlation provides a useful first step in any field or laboratory investigation for engineering purposes. It can serve to make some general interpretations relating to probable performance of the soil for engineering uses.

For each soil horizon in the database one or more Unified soil classifications may be listed. One is marked as the representative or most commonly occurring. The representative classification is shown here for the surface layer of the soil.

Custom Soil Resource Report
Map—Unified Soil Classification (Surface) (Salt Creek Heights EIR)



Custom Soil Resource Report
Legend—Unified Soil Classification (Surface) (Salt Creek Heights EIR)

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- CH
- CL
- CL-A (proposed)
- CL-K (proposed)
- CL-ML
- CL-O (proposed)
- CL-T (proposed)
- GC
- GC-GM
- GM
- GP
- GP-GC
- GP-GM
- GW
- GW-GC
- GW-GM
- MH
- MH-A (proposed)
- MH-K (proposed)
- MH-O (proposed)
- MH-T (proposed)
- ML
- ML-A (proposed)
- ML-K (proposed)
- ML-O (proposed)
- ML-T (proposed)
- OH
- OH-T (proposed)
- OL
- PT
- SC
- SC-SM
- SM
- SP
- SP-SC
- SP-SM
- SW
- SW-SC
- SW-SM
- Not rated or not available

Political Features

Municipalities

- Cities
- Urban Areas

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails

Roads

- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shasta County Area, California
Survey Area Data: Version 6, May 21, 2008

Date(s) aerial images were photographed: 8/11/1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Unified Soil Classification (Surface) (Salt Creek Heights EIR)

Unified Soil Classification (Surface)— Summary by Map Unit — Shasta County Area, California				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
AtE2	Auburn very stony clay loam, 30 to 50 percent slopes, eroded	GC	15.4	4.5%
AuF2	Auburn very rocky clay loam, 50 to 70 percent slopes, eroded	CL	43.7	12.7%
GdD	Goulding very stony loam, 10 to 30 percent slopes	GC-GM	59.5	17.3%
GeE2	Goulding very rocky loam, 30 to 50 percent slopes, eroded	GC-GM	122.3	35.6%
RcB	Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	GC	99.6	29.0%
Rw	Riverwash	GW	0.0	0.0%
TaD	Tailings and placer diggings		2.6	0.8%
Totals for Area of Interest (AOI)			343.1	100.0%

Rating Options—Unified Soil Classification (Surface) (Salt Creek Heights EIR)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Layer Options: Surface Layer

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://soils.usda.gov/

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Appendix B

CEQA Checklist and Analyses

CEQA CHECKLIST

GEOLOGY AND SOILS

A) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

> **1)** Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Analysis: No Impact

There are no Alquist-Priolo special study zones that cross the project site based on a review of Special Publication 42. The nearest potentially active fault is the Battle Creek fault, located approximately 17 miles south of the project area (Jennings, 1994). We found no evidence in our research or site reconnaissance that a previously unrecognized active fault may be present. Recognized active faults are located greater than 50 miles from the project site. The risk of surface fault rupture beneath the proposed structure is considered negligible.

> **2)** Strong seismic ground shaking?

Analysis: Less than Significant

The peak ground acceleration for the project area for an earthquake with a 10 percent probability of exceedance within a 50-year exposure period is between 0.1g and 0.2g. This is moderately low compared to elsewhere in California where there is a much higher density of active fault zones. The hazard of strong seismic ground shaking is not significantly different than other properties within the City of Redding. Soil material is relatively thin overlying lithified rock materials within the project area; therefore, the risk of amplification or resonance of seismic ground motions is low. Design of the residential structures will be performed in accordance with the latest edition of the California Building Code.

> **3)** Seismic-related ground failure, including liquefaction?

Analysis: No Impact

The project area is underlain by lithified bedrock and cemented, well consolidated Pleistocene geologic formations. In our opinion, quantitative evaluations of liquefaction analyses are not necessary for the project during future subsurface exploration due to the lack of conditions necessary for liquefaction to occur. The risk of adverse effects to the proposed project from secondary seismic effects, such as lateral spreading or coseismic settlement occurring during a large earthquake event, is negligible.

4) Landslides?

Analysis: Less than Significant

Based on our observations during the field reconnaissance, the risk of significant landslides occurring within the project area is low for the natural ground conditions. Slope surfaces are generally smooth and planar, except where erosion has taken place, or where past mining activities have modified the landscape.

The highest potential for landsliding would be within the back yards of the proposed building lots where fill materials are placed upon the existing sloping ground. Methods for keying the fill materials into the native soil materials are discussed within the preliminary soil report. Also, a maximum fill slope inclination of 2 horizontal to 1 vertical (2H:1V) is recommended, which presents a low risk of slope failure based on the material types.

B) Would the project result in substantial soil erosion or the loss of topsoil?

Analysis: Less than Significant with Mitigation

The residual weathered metavolcanics are listed in the SCS soil survey as having a moderate to high hazard of erosion. Numerous eroded channels that have exposed the underlying indurated greenstone were observed during our site reconnaissance. These channels are generally outside of the proposed graded area. Storm drainage into these channels has a low risk of further erosion due to the soil already having entirely eroded, inasmuch as the flow quantity is similar to pre-existing conditions.

The hazard of erosion within the clayey gravel and cobbles of the Red Bluff Formation is described as slight to moderate for areas greater than 3 percent slope, and none to slight for areas less than 3 percent slope. Concentrated runoff within this material is discouraged. Sheet flow is anticipated to have a low hazard of erosion.

If freshly graded areas are not protected, they could be susceptible to erosion and sediment transport from the project area. Construction activities will incorporate erosion control techniques common to projects within the Redding area. Readers interested in a discussion of detailed erosion control techniques and methods may review the Shasta County Erosion Control Study (CH2M Hill, 1980) and Erosion and Sediment Control Handbook (Goldman, 1986). The Shasta County Erosion Control Study presents a set of guidelines for the preparation of an erosion and sedimentation control plan for a particular project. Also included are detailed appendices describing the use of these guidelines and specific control methods.

C) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Analysis: Less than Significant

In our opinion, the soil and rock material underlying the project area pertain to the most competent supportive soil material types that are exposed within the City of Redding. The risk of lateral spreading, subsidence, liquefaction or collapse of the soil materials is negligible.

The risk of subsidence of the materials overlying gold lode mine tunnels is low. All of the tunnels that we encountered were within the lithified rock of the Copley Greenstone formation. The tunnels are subject to potential localized caving, but the thickness of overburden is generally deemed sufficient to bridge the overburden stresses across the tunnel section. Recommendations for setback of structures from the mine adits, and closure of the tunnels, are included within the preliminary soil report.

D) Would the project be located on expansive soil, as defined in the California Building Code, creating substantial risks to life or property?

Analysis: Less than Significant

The clay material within the weathered metavolcanics and clayey gravel material is of low to moderate plasticity. While the clay has the potential to be moderately expansive, as a whole the risk of adverse affects from expansive properties of the clayey material is low due to the high percentage of gravel material within the soil.

E) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Analysis: No Impact

The proposed development will include sewer facilities connected with the City of Redding system. The well consolidated clayey soil, and the well-indurated bedrock material, are both considered to have a very low to moderately low capacity to transmit water, and would not perform well for on-site septic disposal systems in their natural state.

MINERAL RESOURCES

A) Would the project result in the loss of availablility of a known mineral resource that would be of value to the region and the residents of the state?

Analysis: No Impact

Lode gold mining has occurred in past, but is not considered a viable resource as the yield has historically been low within the Copley Greenstone formation. Auriferous veins in the Copley Greenstone are usually narrow and of poor grade (Lydon, 1974).

Sand and gravel materials are available within the Red Bluff clayey gravel, but require extensive processing to clean the material of the clay. Sand and gravel material are more economically processed from alluvial deposits along streams and rivers in the Redding area.

The greenstone bedrock material has been used as dimension stone in some areas of the county; however, in the exposures that we observed, the rock was highly fractured, and in our opinion would provide a poor source for dimension stone unless recovered from deeper rock materials.

The potential for placer mining is limited under the current environmental rules and regulations for the State of California. It is unlikely that this area would be developed for placer mining.

B) Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Analysis: No Impact

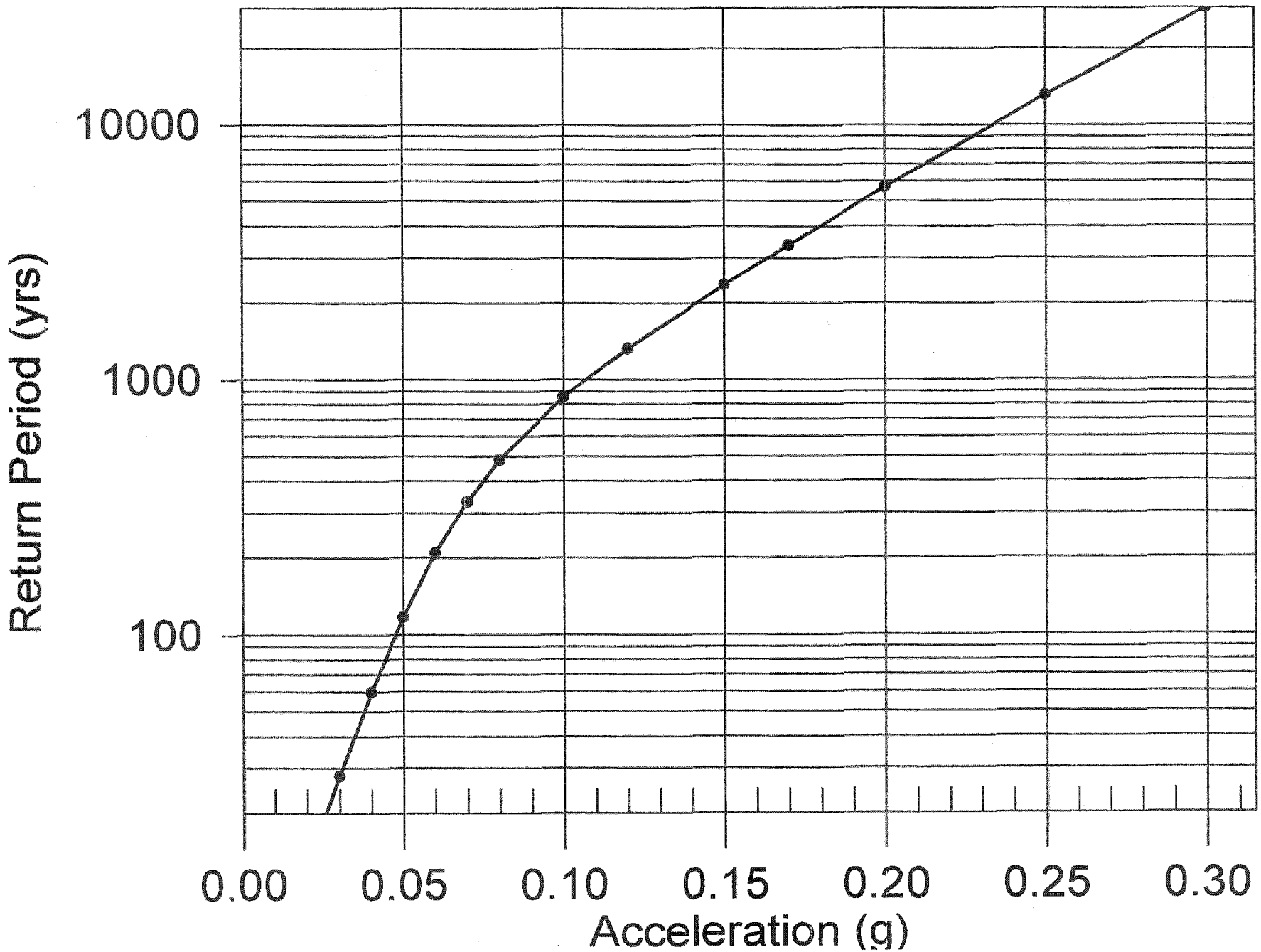
The project area has not been designated as a critical mineral resource for the city or county general plans. Mining of the Red Bluff or Copley Greenstone formations is not occurring elsewhere in Shasta County.

Appendix C

Seismic Hazard Data

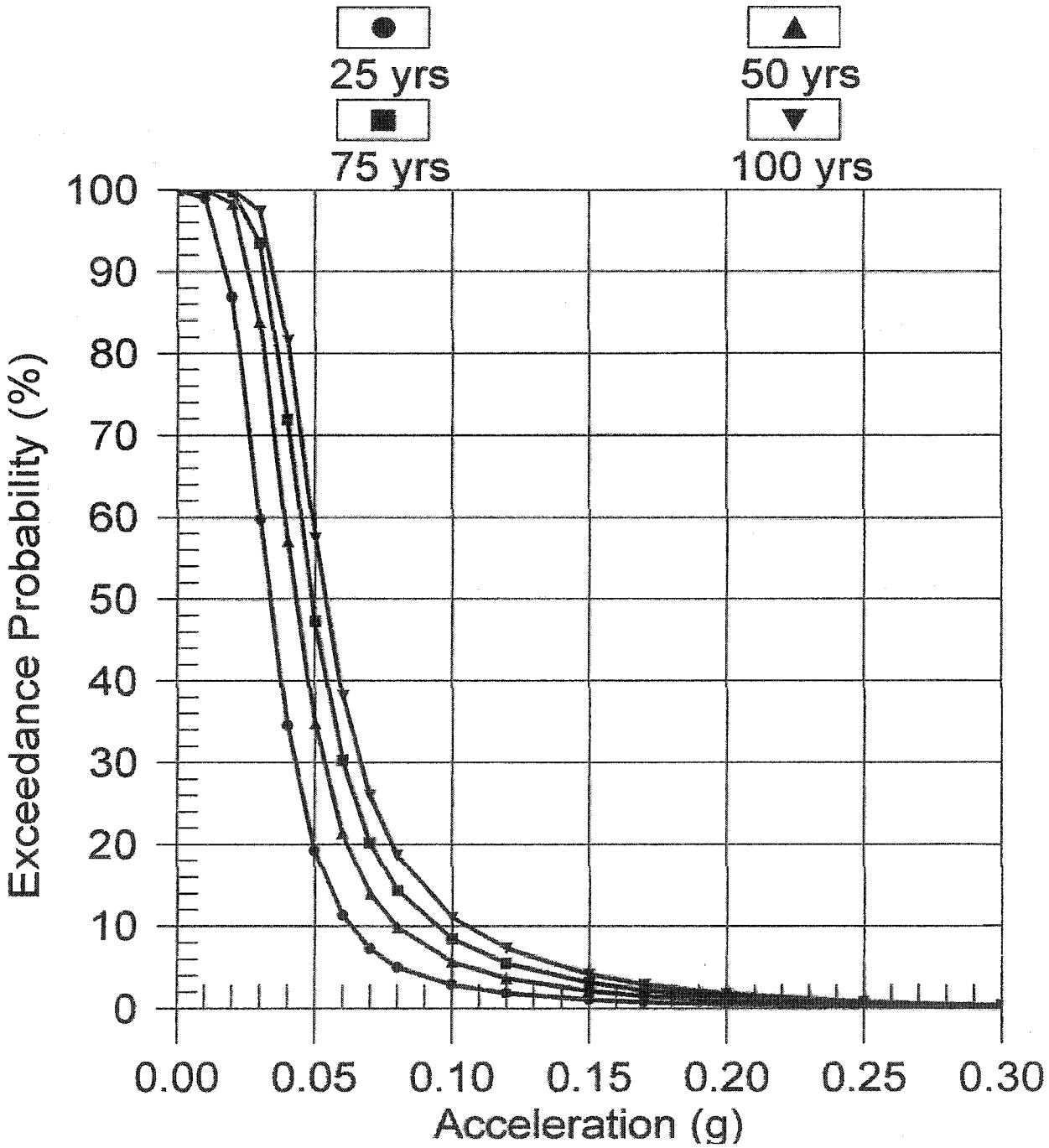
Salt Creek EIR, Redding, CA

Attenuation: Sadigh et al. (1997)



Salt Creek EIR

Attenuation: Sadigh e al. (1997)



Appendix 15.9
Preliminary Storm Drain Analysis

SHARRAH DUNLAP SAWYER, INC.
Civil Engineering | Structural Engineering | Landscape Architecture | Planning | Surveying | Project Presentation Graphics
3161 Bechelli Lane, Suite 100, Redding, CA 96002 530.221.1792 voice 530.221.8369 fax info@sdsengineering.com

August 27, 2007
Job No. 05.0386.002

Mr. David Braithwaite
Development Services Department
City of Redding
777 Cypress Avenue
Redding, CA 96001

Re: Salt Creek Heights Detention Requirements

Dear Mr. Braithwaite:

We have completed a preliminary storm drain analysis for the proposed Salt Creek Heights project and determined the development will create an increase in the peak flows of both Salt Creek and Gold Run Creek. Per your email on April 18, 2007 it is apparent that avoiding detention is a favorable option. With this in mind we have examined the adjacent properties and determined that the increased peak flow will have no adverse effects. Therefore, we are requesting an exception to City Council Policy Number 1806 be granted for the Salt Creek Heights Subdivision.

The project area was divided into two drainage basins, BSALT and BGOLD. In the pre-developed model both basins are 100 percent open oak/woodland. The proposed subdivision consists of single family residential, multifamily residential and a park area with over 60 percent of each basin remaining undeveloped. With this development the Salt Creek Basin will experience an increase in the peak 10-, 25- and 100-year flows of 6, 4 and 2 percent, respectively. The Gold Run Creek Basin will experience higher increases of 29, 26, and 21 percent in the 10-, 25- and 100-year peak flows, respectively. Table 1 below summarizes the pre- and post development peak flows for both basins.

TABLE 1 Peak Design Flow (in cfs)

BASIN ID	10-YEAR PEAK FLOW		25-YEAR PEAK FLOW		100-YEAR PEAK FLOW	
	PRE	POST	PRE	POST	PRE	POST
BSALT	193	205	258	268	401	409
BGOLD	157	203	212	268	340	413

Both Salt Creek and Gold Run Creek flow through steep terrain with 25 to 40 foot high slopes. The attached exhibits show the adjacent property to each creek and the areas of slopes greater than 20 percent on each side of the bank. The southern banks of Gold Run Creek are defined by 20 percent slopes for over 100 feet south of the creek flowline. The proposed Matrix

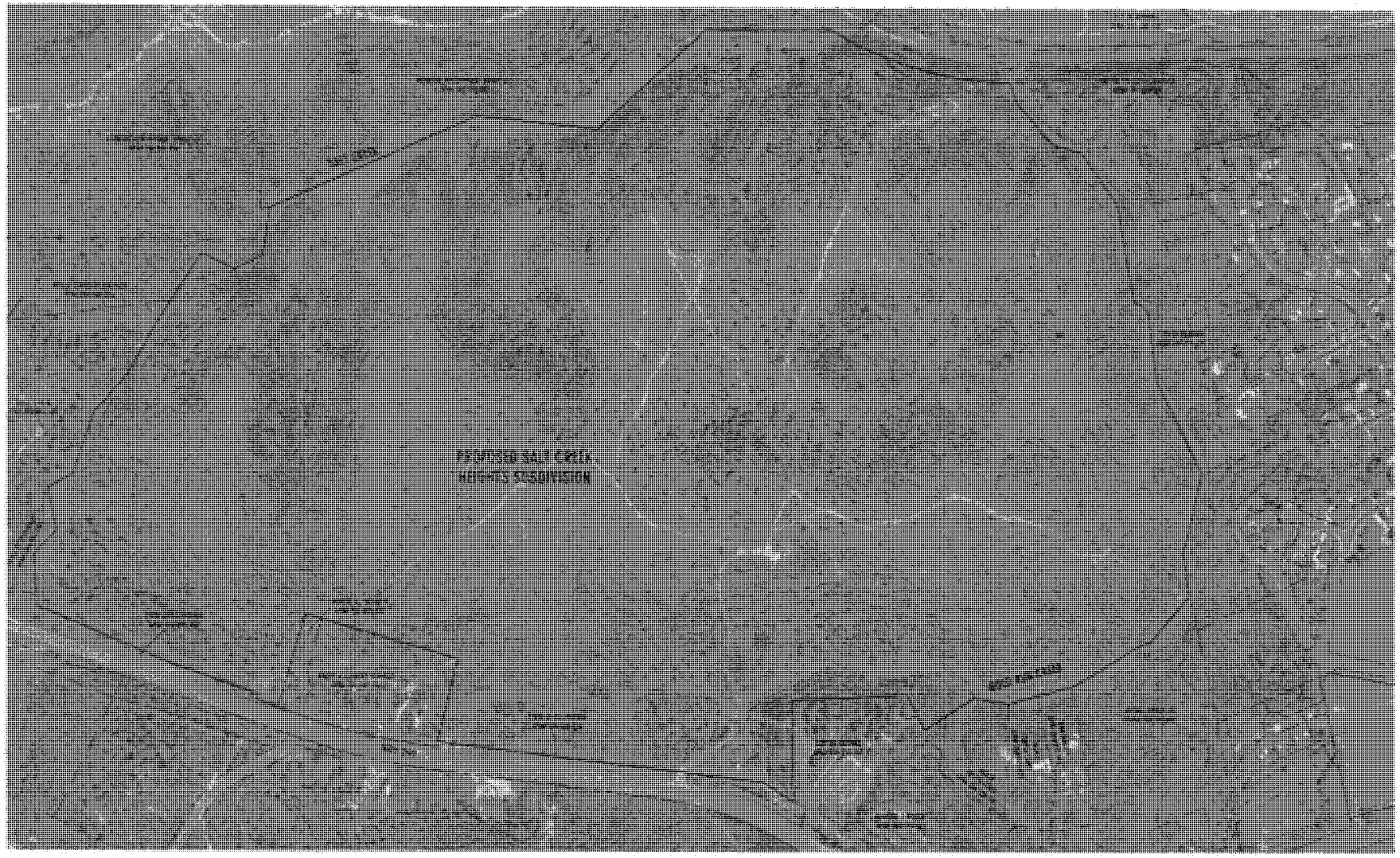
Subdivision by others features an open space easement along Gold Run Creek greater than 100 feet wide. As seen in the aerial exhibits there are no existing or proposed structures within 200 feet of either creek.

In our opinion, there will be no adverse effects due to construction of Salt Creek Heights Subdivision considering cumulative impacts on the adjacent properties in the watershed. With the increase in peak storm water flow of both creeks, the developer will obtain a drainage release from the adjacent property owners pursuant to the requirements of an exception to City Council Policy 1806. If you have any further questions, please feel free to contact Ashley Corey or myself at 221-1792.

Best Regards,

Kristen Reagan, P.E.
CE 68387

Enc: Salt Creek Heights Slope Exhibit
Salt Creek Heights Aerial Exhibit



SALT CREEK HEIGHTS
AERIAL EXHIBIT

PREPARED FOR:

CITY OF REDDING CALIFORNIA

PREPARED BY:

SHARRAH DUNLAP SAWYER, INC.
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Landscape Architecture • Surveying • Presentation Graphics
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05.0366 | August 30, 2007

N

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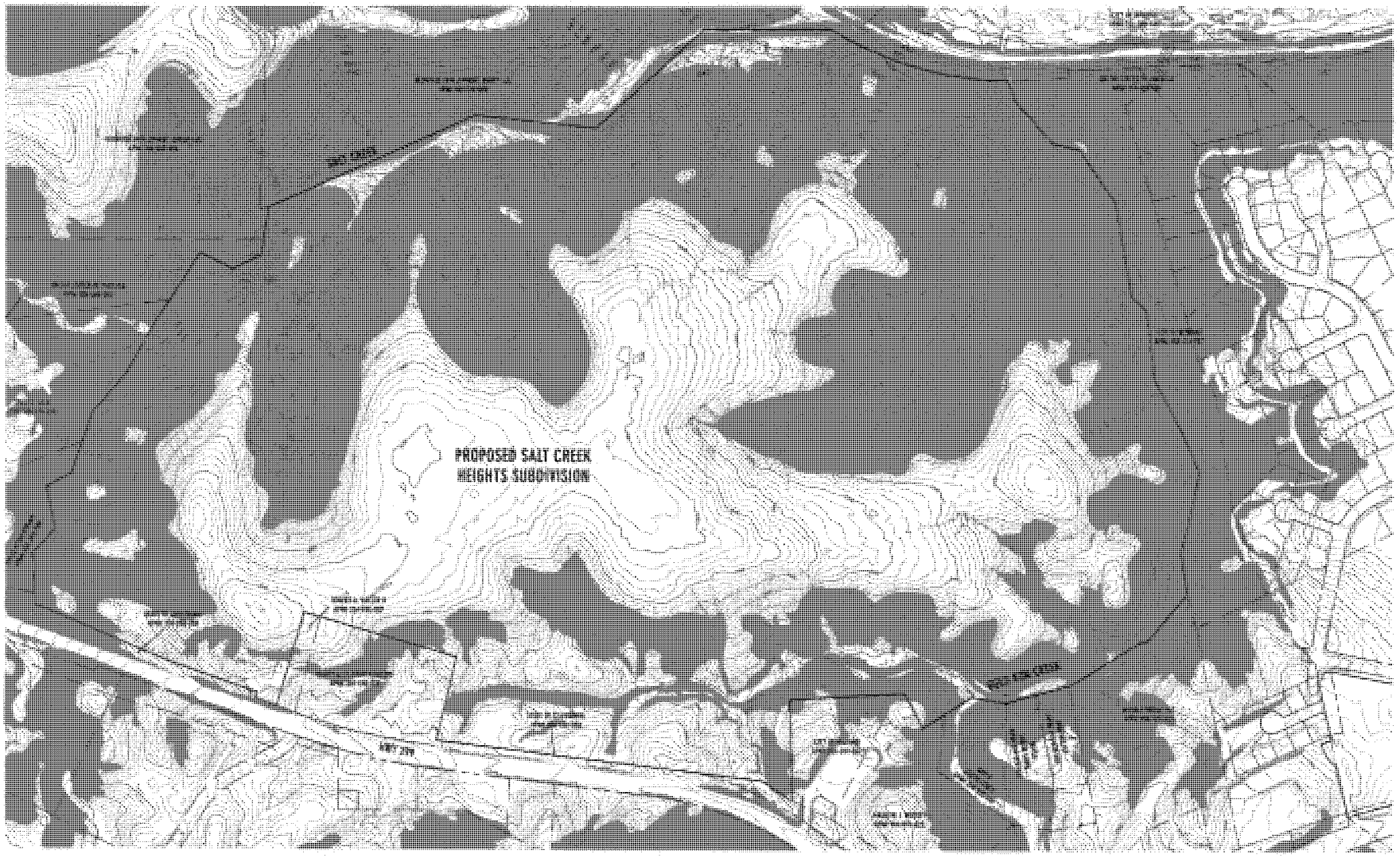
1 INCH = 200 FEET



SALT CREEK HEIGHTS
SLOPE EXHIBIT
20% AND GREATER

LEGEND

- 20% SLOPE, AND GREATER
- WETLANDS

PREPARED FOR:

CITY OF REDDING CALIFORNIA

PREPARED BY:

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05.0386 | August 30, 2007

N

200 0 200 400

1 INCH = 200 FEET

Appendix 15.10
SB-610 Water Supply Assessment

Water Supply Assessment
(Senate Bill 610)

SALT CREEK HEIGHTS DEVELOPMENT

PREPARED FOR:

City of Redding Water Utility

PREPARED BY:

RBF CONSULTING

June 9, 2009

JN 60-100416

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List of References

- City of Redding Water Utility 2005 Urban Water Management Plan
- California Groundwater Bulletin 118 – Sacramento River Hydrologic Region – Redding Groundwater Basin, Enterprise Subbasin
- Coordinated AB 3030 Groundwater Management Plan for the Redding Groundwater Basin

I. Introduction

Salt Creek Heights Development (Project) is a proposed residential development planned on 272 acres in the City of Redding, California. Development is planned to include 440 residential dwelling units ranging from single family homes to apartment units, and a 13.9 acre sports park. Figure 1 shows the regional vicinity of the Project in Shasta County, at the upper end of the Central Valley of northern California. The Project is located along the north side of Eureka Way (SR-299) and near the western limit of the City of Redding. Figure 2 illustrates the Project boundary.

The Project site was shown in the sphere of influence of the City of Redding in the City's 2000 – 2020 General Plan. Currently the Project resides in the service area of Shasta Community Services District (SDCD). However, the Local Agency Formation Commission (LAFCO) is currently reviewing a request to transfer service from SDCD to the City of Redding Water Utility (RWU). Therefore, this water supply assessment is based on RWU serving as water purveyor to the Project.

II. Purpose of Report

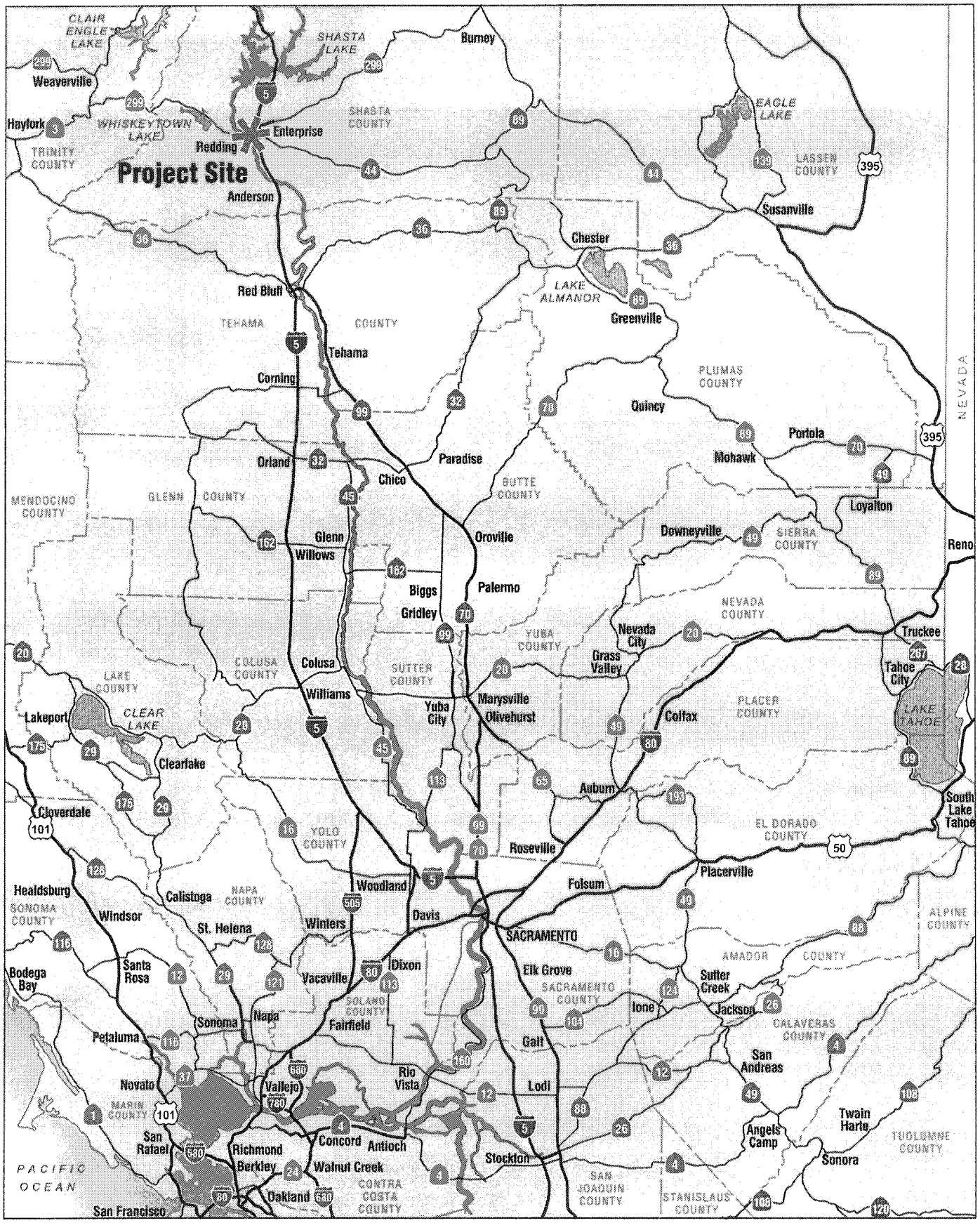
The purpose for this report is summarized in Water Code Section 10910.

Law

> Water Code section 10910 requires a city or county that determines a project is subject to the California Environmental Quality Act to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment, except as otherwise specified. The bill requires the assessment to include, among other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts.
>
> The bill prescribes a timeframe within which a public water system is required to submit the assessment to the city or county and authorizes the city or county to seek a writ of mandamus to compel the public water system to comply with requirements relating to the submission of the assessment.
>
> The bill requires the public water system, or the city or county, as applicable, if that entity concludes that water supplies are, or will be, insufficient, to submit the plans for acquiring additional water supplies.
>
> The bill requires the city or county to include the water supply assessment and certain other information in any environmental document prepared for the project pursuant to the act.

This report is prepared as a technical study in support of the Environmental Impact Report (EIR) being prepared for the Salt Creek Heights Development under the California Environmental Quality Act (CEQA). The EIR will address the impact related to re-zoning the Project site and construction of a residential subdivision according to the tentative tract map provided as Figure 3 of this report.

Under Water Code section 10910, this report identifies City of Redding Water Utility as the proposed water purveyor, and assesses the past, current and future water supply and agency planning to verify sufficient water is available in support of the Salt Creek Heights Development.



RBF CONSULTING

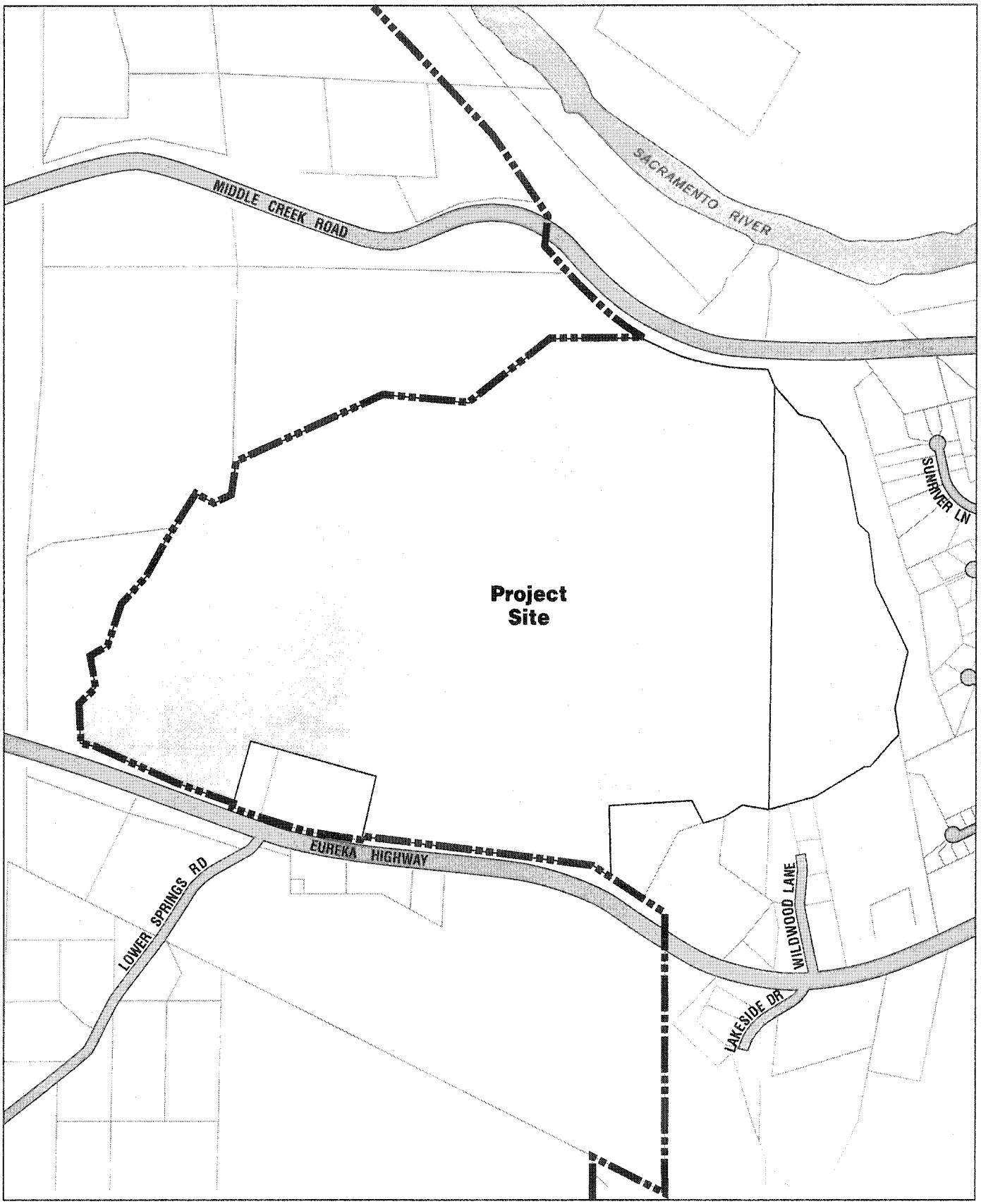
Not to scale

1/29/09 JN 60-100416-15334 MAS

SALT CREEK HEIGHTS DEVELOPMENT

Regional Vicinity

Figure 1



RBF CONSULTING

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APPROXIMATE

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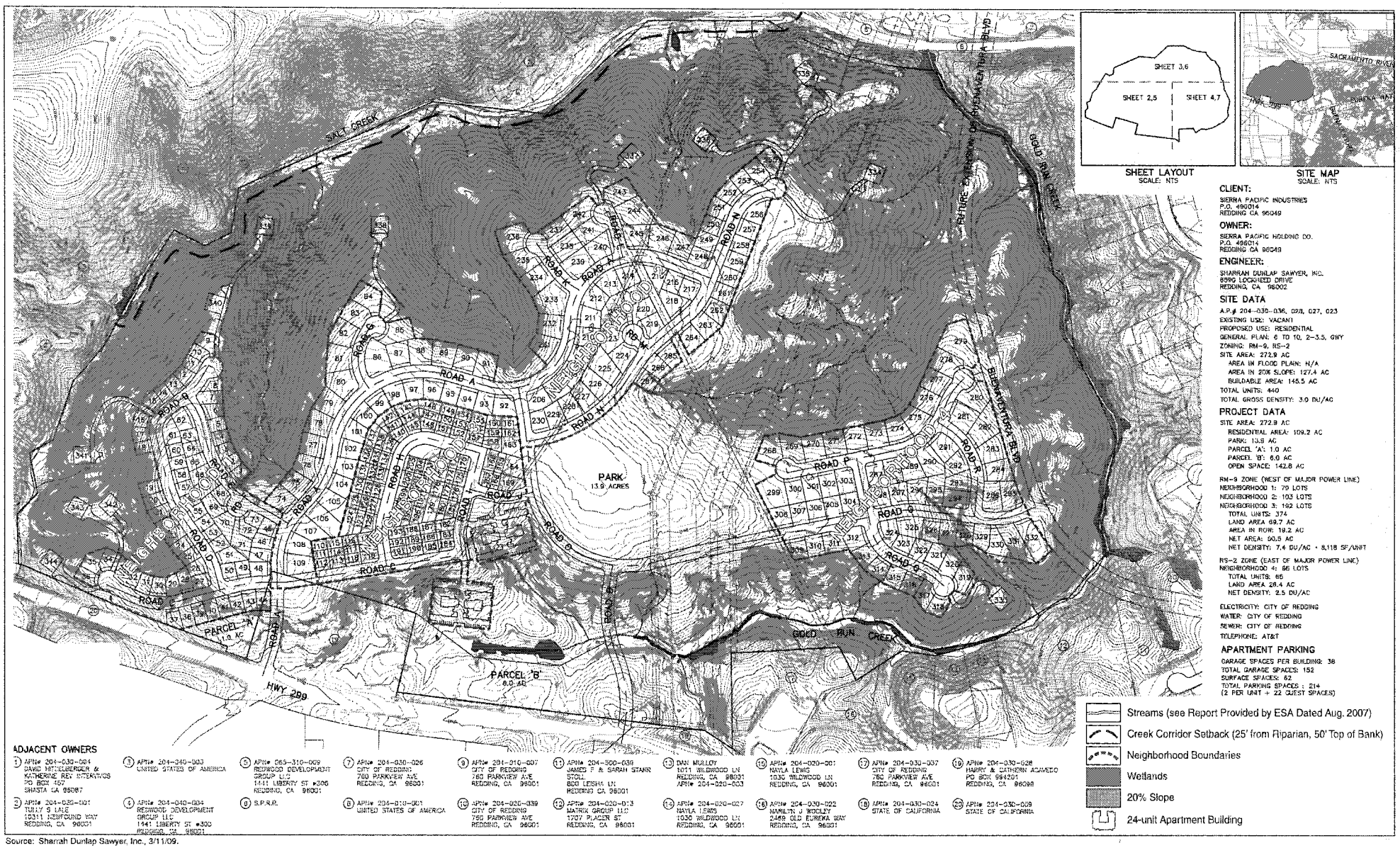
SALT CREEK HEIGHTS DEVELOPMENT

Site Vicinity

Figure 2



Source: Sharrah Dunlap Sawyer, Inc., 3/11/09.

RBF CONSULTING

0 400' APPROXIMATE

3/25/09 JN 83-100416-15334 MAS

Subdivision Tentative Map

Figure 3

III. Project Description

Salt Creek Heights is a proposed residential development on 272 acres in the western General Plan Area of the City of Redding. The development is proposed to include single-family residential, residential cluster and apartment type units with garden courts and a 13.9 acres sports park. Under the City of Redding 2000 – 2020 General Plan the Project site is designated for "Residential, 6 to 10 units per acre", "Residential, 2 to 3.5 units per acre" and "Greenway" (natural areas of slope or floodplain).

Similarly the Project site is zoned as "RS-2" which allows for residential development of density up to 3.5 dwelling units per acre, "RS-9" allowing for residential mixed housing of 9 units per acre and open space. Proposed zoning for the Project would add "PD" (Planned Development Overlay District) to the existing zoning to provide development flexibility for a mixed-use neighborhood.

Table 1 summarizes the proposed land use of the Project. See Figure 3 for the proposed tentative map for the Salt Creek Heights development.

Table 1 – Land Use

Land Use	Acreage (ac)	Units (du)
Residential - Single Family		248
Residential - Cluster SFR		96
Residential - Apartment		96
Subtotal	258.1	440
Park	13.9	-
TOTAL	**272 ac**	**440 du**

IV. Identification of Public Water System

Law

> 10910. (b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

City of Redding Water Utility (RWU) is the proposed water purveyor to the Salt Creek Heights development. The City of Redding Water Utility was formed in 1937. In 1941, RWU expanded its service area by merging with the former California Water Service Company system. RWU service area has grown to 88 square miles, in order to serve a population of approximately nearly 87,000.[1].

RWU anticipated future water demands in its 2005 Urban Water Management Plan (UWMP). The UWMP did not specifically reference the Salt Creek Heights development in determining future water demands. Instead, future demands were anticipated by more general approach reflected in Table 11 of the UWMP for the year 2025, approximating growth at 2,500 AF every 5 years (equivalent to an annual increase of 500 AF).

[1] City of Redding 2005 Urban Water Management Plan

V. Project Applicability

Law

> 10910. (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.
>
> 10912. For the purposes of this part, the following terms have the following meanings:
> (a) "Project" means any of the following:
> (1) A proposed residential development of more than 500 dwelling units.
> (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
> (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
> (4) A proposed hotel or motel, or both, having more than 500 rooms.
> (5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
> (6) A mixed-use project that includes one or more of the projects specified in this subdivision.
> (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

Salt Creek Heights is a residential development of 440 dwelling units and 13.9 acres of park area. As such the development qualifies as a "Project" under Water Code Section 10912(a)(7), since the water demand associated with the 13.9 acre park is considered equivalent to, or greater than, water demand required for 60 dwelling units.

VI. Schedule

Law

> 10910. (g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.
>
> (2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.
>
> (3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public water system to comply with the requirements of this part relating to the submission of the water supply assessment.

City of Redding Water Utility is the proposed water purveyor, and lead agency in preparing and reviewing the Project's Environmental Impact Report. No official request was made by the proposed developer / land owner of Salt Creek Heights to the City. Instead, this report is prepared to expedite / facilitate California Environmental Quality Act review and approvals.

VII. Estimated Water Demand

Existing Demand

The Project site is undeveloped land that was used many years ago for mining purposes. Current uses of the site include access roadways for an electrical utility corridor and maintenance roads. There is no existing water use on-site.

Proposed Demand

Calculation of the water demand for the proposed development is based on water duty factors from the City of Redding's 2000 Water Master Plan and the proposed land use plan of Table 1.

Table 2 estimates the Project's annual water demand at 385 AF/yr.

Table 2
Salt Creek Heights Demand Estimate

Land Use	Acreage	Units	Demand Factor		Avg Day	Annual Demand	
	(ac)	(du)	Value [1]	[ ]	(gpd)	(MG/yr)	(AF/yr)
Residential - Single Family		248	800	gpd/du	198,400	72	222
Residential - Cluster SFR		96	600	gpd/du	57,600	21	65
Residential - Apartment		96	400	gpd/du	38,400	14	43
Subtotal	258.1	440			294,400	107	330
Park	13.9	-	4	AFY/ac	49,618	18	55.6
TOTAL	**272**	**440**	**-**	**-**	**344,018**	**126**	**385**

[1] Residential demand based on Single Family Residential demand (rounded) per Table 3-2 of City of Redding.

2000 Water Master Plan, and reduction in demand to account for cluster and apartment type uses.

VIII. Urban Water Management Plan (UWMP) Review

Law

> 10910. (c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).
>
> (2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).
>
> (3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available 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
> the public water system's existing and planned future uses, including agricultural and manufacturing uses.
>
> (4) 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.

City of Redding Water Utility (RWU) produced a 2005 Urban Water Management Plan (2005 UWMP) according to Water Code 10610 describing the agency's past, present and future means of supplying water to its customers.

Supply System

RWU operates a water distribution system supplied by surface water from the Sacramento River via the Foothill Water Treatment Plant, Whiskeytown Lake via the Buckeye Water Treatment Plant, and groundwater from the Redding Groundwater Basin from fourteen (14) wells. Water distributed by RWU serves residential, commercial, industrial, institutional and irrigation demands.

Project Identification

Salt Creek Heights was not identified in City of Redding Water Utility's 2005 UWMP. The UWMP projects annual increases in demand of approximately 500 AF. The Salt Creek Heights development represents an increase in demand of 385 AF that could be developed over multiple year period.

Water Use

City of Redding Water Utility summarized its past, current and projected future water use in Table 11 of its 2005 UWMP. The table has been recreated for this report as Table 3, and includes a breakdown of water demand by use sectors.

Table 3
Past , Current and Projected Water Use

Water Use Sectors	1995	2000	2005	2010	2015	2020	2025
Single family residential	12,175	13,522	15,291	16,602	17,961	19,326	20,922
Multi-family residential	286	484	543	589	637	685	741
Commercial / Institutional	7,314	7,734	8,760	9,565	10,405	11,245	12,225
Industrial	436	670	752	821	924	996	1,080
Governmental	523	641	727	795	843	915	999
Landscape	16	25	27	28	30	33	33
Total	**20,750**	**23,076**	**26,100**	**28,400**	**30,800**	**33,200**	**36,000**

Unit of Measure: Acre-feet per year - rounding may occur

Source: City of Redding 2000 Water Master Plan Table 3-5 Demand Projection Summary; DWR Water

Water Supply

RWU has contractual water supply in the form of surface water contracts with the U.S. Bureau of Reclamation. In addition, RWU has estimates its maximum groundwater basin supply to be 19,000 AF per year. Table 4 is based on the 2005 UWMP and summarizes the current and projected supply sources and amounts for RWU under normal year conditions.

Table 4
Current and Projected Water Supplies - Contractual and GW Supply

Water Supply Sources	2005	2010	2015	2020	2025
USBR Redding Contract 14-06-200-2871A	21,000	21,000	21,000	21,000	21,000
USBR Buckeye Contract 14-06-200-5272A	6,140	6,140	6,140	6,140	6,140
Subtotal (USBR Contracts)	***27,140***	***27,140***	***27,140***	***27,140***	***27,140***
Redding Groundwater Basin	19,000	19,000	19,000	19,000	19,000
Transfers	0	0	0	0	0
Other	0	0	0	0	0
Total	**46,140**	**46,140**	**46,140**	**46,140**	**46,140**

Units of Measure: Acre-feet per year

* Current annual pumping capacity - 2005. City does not pump year-round.

Normal and Dry-Year Supply Reliability

City of Redding Water Utility's water supply has proven highly reliable through the years. Reduction in surface water supply poses the greatest potential impact to annual deliveries. The Sacramento River Contract with the United States Bureau of Reclamation (USBR or Bureau) can be reduced by up to 25-percent of the average quantity taken by the City (measured for the previous 3-year period). Similarly, the Buckeye Contract with the Bureau by up to a 25-percent reduction to average (measured for the previous 5-year period).

From 1964 to 2005 water supply was only reduced twice; in 1992 and 2002. Based on historical data the City of Redding Water Utility considers the following cutbacks in delivery most probable:

- No reduction – 3 out of 4 years
- 25-percent reduction – 1 out of 10 years

City of Redding's water supply sources are diversified by having surface water and groundwater to meet demands. The Redding Groundwater Basin is a reliable source that RWU can utilize more extensively in critical dry years. Water quality imposes the main potential constraint on groundwater supply. Elevation of iron and manganese levels in groundwater has been observed. If water quality were to continue to worsen, the RWU would respond by either construction of well-site or regional treatment facilities.

Section 7 of the 2005 UWMP studies the water service reliability of RWU. Provided in the document are tables summarizing normal, single dry and multiple dry year conditions from 2005 to 2025. The tables are recreated for this Water Supply Assessment and reflect some modifications. As shown in Tables 4 and 5, the City of Redding has supply of up to 46,140 AF annually. During single and multiple dry year periods the most severe reduction of water supply would result from 25-percent reduction to both the Redding (Sacramento River) and Buckeye Contracts by the Bureau. In the event of such a reduction, the annual water supply to the City of Redding would drop to 39,355 AF. For thorough evaluation of the worst-case water supply scenarios in the future, 39,355 AF is reflected in Tables 6 to 10. The use of this value is consistent with a supply percentage of 85-percent of a normal year.

Table 5 is projected normal year supply and demand from 2010 to 2025.

Table 5
Projected Normal Year Supply and Demand

	2010	2015	2020	2025
Supply totals	46,140	46,140	46,140	46,140
% of Normal Year	100%	100%	100%	100%
Demand totals	28,400	30,800	33,200	36,000
% of Year 2005	109%	118%	127%	138%
Surplus	17,740	15,340	12,940	10,140

Units of Measure: Acre-feet per year

2005 Demand - Normal Year	26,100 AF

Table 6 is projected single dry year water supply and demand from 2010 to 2025.

Table 6
Projected Single Dry Year Water Supply and Demand

	2010	2015	2020	2025
Supply totals [1]	39,355	39,355	39,355	39,355
% of Normal Year (per Table 5)	85%	85%	85%	85%
Demand totals	28,400	30,800	33,200	36,000
% of Year 2005 (per Table 5)	109%	118%	127%	138%
Surplus	10,955	8,555	6,155	3,355

Units of Measure: Acre-feet per year
[1] Dry year supply is based on 25-percent reduction to both USBR contracts (Redding and Buckeye)

Table 7 is projection of multiple dry year conditions from 2006 to 2010.

Table 7
Projected Multiple Dry Year Period Water Supply and Demand (2006 - 2010)

	2006	2007	2008	2009	2010
Supply totals [1]	39,355	39,355	39,355	39,355	39,355
% of Normal Year (per Table 5)	85%	85%	85%	85%	85%
Demand totals	26,492	26,889	27,292	27,701	28,400
% of Year 2005 (per Table 5)	102%	103%	105%	106%	109%
Surplus	12,863	12,466	12,063	11,654	10,955

Units of Measure: Acre-feet per year
[1] Dry year supply is based on 25-percent reduction to both USBR contracts (Redding and Buckeye)

Table 8 is projection of multiple dry year conditions from 2011 to 2015.

Table 8
Projected Multiple Dry Year Period Water Supply and Demand (2011 - 2015)

	2011	2012	2013	2014	2015
Supply totals [1]	39,355	39,355	39,355	39,355	39,355
% of Normal Year (per Table 5)	85%	85%	85%	85%	85%
Demand totals	28,826	29,258	29,697	30,142	30,800
% of Normal Year (per Table 5)	110%	112%	114%	115%	118%
Surplus	10,529	10,097	9,658	9,213	8,555

Units of Measure: Acre-feet per year
[1] Dry year supply is based on 25-percent reduction to both USBR contracts (Redding and Buckeye)

Table 9 is projection of multiple dry year conditions from 2016 to 2020.

Table 9
Projected Multiple Dry Year Period Water Supply and Demand (2016 - 2020)

	2016	2017	2018	2019	2020
Supply totals [1]	39,355	39,355	39,355	39,355	39,355
% of Normal Year (per Table 5)	85%	85%	85%	85%	85%
Demand totals	31,262	31,731	32,207	32,690	33,200
% of Normal Year (per Table 5)	120%	122%	123%	125%	127%
Surplus	8,093	7,624	7,148	6,665	6,155

Units of Measure: Acre-feet per year
[1] Dry year supply is based on 25-percent reduction to both USBR contracts (Redding and Buckeye)

Table 10 is projection of multiple dry year conditions from 2021 to 2025.

Table 10
Projected Multiple Dry Year Period Water Supply and Demand (2021 - 2025)

	2021	2022	2023	2024	2025
Supply totals [1]	39,355	39,355	39,355	39,355	39,355
% of Normal Year (per Table 5)	85%	85%	85%	85%	85%
Demand totals	33,698	34,203	34,716	35,237	36,000
% of Normal Year (per Table 5)	129%	131%	133%	135%	138%
Surplus	5,657	5,152	4,639	4,118	3,355

Units of Measure: Acre-feet per year
[1] Dry year supply is based on 25-percent reduction to both USBR contracts (Redding and Buckeye)

IX. Water Supply Entitlements, Water Rights or Service Contracts

Law

> 10910. (d) (1) The assessment required by this section shall 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, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the 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, or the city or county if either is required to comply with this part pursuant to subdivision (b), 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.

Surface Water

The City of Redding receives water from the Sacramento River through an agreement with the United States Bureau of Reclamation (Bureau). The contractual right with the Bureau allows the City of Redding surface water supply up to a maximum of 21,000 AF annually. In 2005, the City of Redding completed a contract renewal with the Bureau which extends the contractual right through March 31, 2045.

Additionally, the City of Redding has a contract with the Bureau for surface water supply diversion from Whiskeytown Lake. The contract allows the City of Redding a maximum annually delivery of 6,140 AF, and was also renewed with the Bureau through March 31, 2045.

Groundwater

Groundwater from the Redding Groundwater Basin is used by RWU to meet supplement surface water supplies in meeting customer demands. RWU has fourteen (14) wells and draws and average of 8,000 AF per year, and has a maximum considered (per 2005 UWMP) groundwater production of 19,000 AF per year. The wells range in depth from 170 to 600 feet.

X. Groundwater – Basin Description, PWS Pumping, and Sufficiency Analysis

Law

10910. (f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

Groundwater Basin Description[2]

The Redding Groundwater Basin is an unadjudicated basin underlying the City of Redding and its surrounding area in Shasta County. Composing the Redding Groundwater Basin are the Anderson Subbasin, Enterprise Subbasin, and Millville Subbasin. City of Redding Water Utility draws groundwater from the Enterprise Subbasin.

The Enterprise Subbasin is bounded by the Sacramento River to the west and southwest, Klamath Mountains to the north and Little Cow Creek and Cow Creek to the east. Natural recharge of the basin aquifer is through infiltration of streamflows and precipitation.

[2] California Groundwater Bulletin 118 – Redding Groundwater Basin

Groundwater Production

Average groundwater production by City of Redding Water Utility is approximately 8,000 acre-feet per year from 2000 to 2004. Annual groundwater production from is summarized in Table 11.

Table 11
Amount of Groundwater Pumped

Basin Name	2000	2001	2002	2003	2004
Redding Groundwater Basin 5-6:04 (Enterprise Subbasin)	7,105	7,656	8,324	8,634	8,610
% of Total Water Supply	30%	30%	30%	32%	30%

Units of Measure: Acre-feet/Year

Source: DWR Water System Statistic Report Summary; DWR Water System Statistics.xls 2000 - 2004.

Table 12 reflects the projected groundwater production from 2005 to 2025.

Table 12
Amount of Groundwater Projected to be Pumped

Basin Name	2005	2010	2015	2020	2025
Redding Groundwater Basin	7,830	8,520	9,240	9,960	10,800
% of Total Water Supply	30%	30%	30%	30%	30%

Units of Measure: Acre-feet per year

Source: Groundwater as a % of total water supply derived from Table 11 - projected water use of the 2005 UWMP

The 2005 UWMP provides the following in regards to estimation of basin capacity / safe yield:

> "The California Department of Water Resources (DWR) estimates that 53,200 acre-feet are pumped each year from the Redding Groundwater Basin for urban and agricultural uses. Although the safe yield has not been determined, DWR suggests the potential yield is greater than current usage."

Groundwater Management Plan

The City of Redding Water Utility is a member of the Redding Area Water Council (RAWC). In 1998, the RAWC and Shasta County Water Agency prepared a Groundwater Management Plan for the Redding Groundwater Basin. The document is titled the *AB3030 Groundwater Management Plan for the Redding Groundwater Basin*, and is provided as attachment to this report.

Groundwater Quality

Water quality is high in the Redding Groundwater Basin. Recently, higher levels of iron and manganese have been present in groundwater. The City of Redding Water Utility will construct well-site or regional treatment facilities to ensure water quality meets requirements through the General Plan planning horizon.

Groundwater Level Trends[3]

Based on Bulletin 118 from the California Department of Water Resources (DWR) the groundwater basin has undergone declines of around 5 to 10 feet during dry-year conditions. Further evaluation of groundwater level data depicts seasonal fluctuations of 5 to 10 feet for semi-confined wells and 10 to 15 feet for normal and dry years, with the full capability to replenish itself during normal and wetter years.

[3] California Groundwater Bulletin 118 – Redding Groundwater Basin

State of the Basin

The Redding Groundwater Basin is not adjudicated. Management practices to be followed for the basin are provided in the *AB3030 Groundwater Management Plan for the Redding Groundwater Basin.* Although a safe yield has not been determined for the basin, California DWR estimates the basin capacity is not exceeded.[4]

XI. Primary Issue for Assessment - Conclusion

(1) The City of Redding Water Utility (RWU) has been identified as the public water supplier for the Project.

(2) Water demand for the Salt Creek Heights development is not specifically identified in RWU's 2005 Urban Water Management Plan; however, RWU has diversified supply sources and is committed to taking the necessary steps to ensure reliable water supply in support of future development, including the Salt Creek Heights Development.

(3) The calculated water demand for the Project is 385 AFY (total water use),

(4) The City of Redding Water Utility proposes to deliver water to the Project from an expansion of their existing distribution system which is supplied with surface water and groundwater,

(5) City of Redding Water Utility continues to jointly participate with the Redding Area Water Council to plan and develop production facilities to meet individual and cumulative development in Shasta County.

Therefore, the City of Redding Water Utility concludes that sufficient water supply exists from the City's surface water and groundwater supplies to support the demands of the Salt Creek Heights development under normal, single dry and multiple dry year conditions for the next 20 years.

References

1. City of Redding 2005 Urban Water Management Plan
2. California Groundwater Bulletin 118 – Sacramento River Hydrologic Region – Redding Groundwater Basin, Enterprise Subbasin (5-6.04)
3. Coordinated AB 3030 Groundwater Management Plan for the Redding Groundwater Basin
4. City of Redding General Plan 2020
5. City of Redding 2000 Water Master Plan

[4] 2005 UWMP City of Redding, Page 15.

City of Redding 2005 Urban Water Management Plan

City of Redding
2005 Urban Water Management Plan
Contact Sheet

Date plan submitted to the Department of Water Resources: **March 2006**

Name of person preparing this plan: **Pamela Clackler, Management Analyst**
Redding Municipal Utilities - Administration

Phone: **(530) 224-6032**

Fax: **(530) 224-6071**

E-mail address: **pclackler@ci.redding.ca.us**

The Water supplier is a: **Municipality**

The Water supplier is a: **Retailer**

Utility services provided by the water supplier include: **Water**

Is This Agency a Bureau of Reclamation Contractor? **Yes**

Is This Agency a State Water Project Contractor? **No**

City of Redding

2005

Urban Water Management Plan

March 7, 2006

Prepared for the California State Department of Water Resources

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FIGURE 1 Map of California

FIGURE 2 City of Redding Water System

INTRODUCTION

Since the amount of potable water in the State of California is a limited resource and is subject to ever increasing demand, conservation, and efficient management of existing water supplies should be practiced in order to curtail water use. In addition to protecting the State's water resources, lower water consumption decreases the need to expand water supplies and preserves other natural resources, specifically lakes, rivers, and streams left in their natural states. Energy saved while operating water pumps less, is also a benefit of water conservation. Furthermore, a conservation program that reduces the amount of water used in the household can decrease the volume of water discharged as waste, thus lowering the energy requirements and cost of wastewater treatment.

In pursuit of the benefits of water conservation, the California Legislature approved in September 1983 Assembly Bill 797, (The Water Management Planning Act, amended in 1990, 1991, 1993, 1994, 1995, 2000, 2001, and 2002), which initiated a statewide effort to conserve water by requiring "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare and adopt, in accordance with prescribed requirements, an urban water management plan."

The City of Redding Urban Water Management Plan has been developed to comply with the intent of Assembly Bill 797, Division 6, Part 2.6 of the California Water Code. It is the City's intent that implementation of this plan will result in an increase in public conservation awareness and enhance the efficiency of water use.

SECTION 1 – AGENCY COORDINATION

(Water Code Section 10620 - 10621)

Coordination within the City

The City of Redding Urban Water Management Plan (UWMP) has been developed to comply with the intent of Assembly Bill 797, Division 6, Part 2.6 of the California Water Code. It is the City's intent that implementation of this plan will result in an increase in public conservation awareness and enhance the efficiency of water use. The UWMP is filed with the State Department of Water Resources in years ending in five and zero.

The City of Redding is a full-service City that provides Electric, Solid Waste, Storm Drain, Wastewater, and Water services in addition to Engineering, Planning and other municipal services. The Urban Water Management Plan contains elements that may affect other departments or require input from them; therefore, other City departments were contacted for assistance in the completion of this plan or asked to comment on the draft.

Planning Documents

In addition to consulting with other City Departments, the following sources were utilized in the preparation of this document:

City of Redding 2005 Urban Water Management Plan
City of Redding 2000 Water Master Water Plan
City of Redding Watershed Survey
City of Redding General Plan Document
City of Redding Municipal Code
City of Redding Water Utility Proforma
City of Redding 2004 Consumer Confidence Report
The Redding Metro Report
City of Redding 2004 Federal Water Management (Conservation) Plan
California Urban Water Conservation Council Annual Report
Department of Water Resources Public Water Systems Statistics
Redding Area Water Council Groundwater Management Plan
Miscellaneous Water Utility Documents
DWR 2005 Urban Water Management Plan Guidebook

Interagency Coordination

In developing an Urban Water Management Plan, the City of Redding Water Utility has asked for assistance and solicited comments from local water suppliers, public agencies and non-profits, citizens' groups, and other interested stakeholders. All water sources are shared in common with other urban and agricultural interests in the area and as such, their participation in the process is a valuable tool in addressing the water needs of the Redding area.

Table 1 identifies those agencies referenced above and their level of involvement in the urban water management planning process.

Appendix A lists contact information for agencies listed in Table 1.

Table 1
Coordination and Public Involvement

Agency	Participated in UWMP Development	Contacted for Assistance	Sent Copy of Draft	Commented on Draft	Attended Public Meeting	Sent Notice of Intent to Adopt	Not Involved/No Information
CITY OF REDDING							
Assistant City Manager			X				
Community Services			X	X			
Development Services		X	X				
Engineering		X	X				
Industrial Waste		X	X				
Redding Electric Utility			X				
Storm Drain Utility		X	X				
Wastewater Utility		X	X	X			
Water Utility	X	X	X	X	X		
WATER SUPPLIERS							
Anderson Cottonwood Irrigation District			X				
Bella Vista Water District			X				
Centerville CSD			X				
City of Anderson			X				
City of Shasta Lake			X				
Clear Creek CSD			X				
Mountain Gate CSD			X				
Shasta CSD			X				
Shasta County Water Agency			X				
OTHER STAKEHOLDERS							

McConnell Foundation			X				
Pace Engineering			X				
Sierra Pacific Industries			X				
Turtle Bay Exploration Park			X				
Wheelabrator Shasta Energy Company			X				
Greater Redding Chamber of Commerce			X				
Shasta Builders Exchange			X				
Shasta EDC			X				
CITIZENS GROUPS							
Sacramento Watersheds Action Group			X				
Western Shasta Resource Conservation District			X				
Shasta Conservation Council			X				
GOVERNMENT AGENCIES							
United States Bureau of Reclamation			X				
Department of Water Resources		X	X	X			
Department of Health Services			X	X			
Public Library			X				
Private Citizens			X				

CSD – Community Services District

Source: Contact List Appendix A

Resource Maximization & Import Minimization

The City of Redding Water Utility is a member of The Redding Area Water Council (RAWC) and the Water Resource Managers of Shasta County (WRMS). A number of other agencies listed in Table 1 are members as well. The City, along with other agencies, developed a

Coordinated AB 3030 Groundwater Management Plan that includes a hydrological model with which the groundwater basin can be modeled to determine future yield and the feasibility of conjunctive use.

SECTION 2 – CONTENTS OF THE PLAN

(Water Code Section 10631 – a-k)

Step 1

Appropriate level of planning for size of agency

All elements required by the Urban Water Management Planning Act are discussed in this document and, where available, historical information is included.

Step 2

Service Area Information with 20 year projections

A variety of demographic factors affect water use and factors such as climate, population density, land use, and pressure zones are discussed below.

City Service Area

The City of Redding lies along the banks of the Sacramento River about 150 miles north of Sacramento and 100 miles south of the Oregon border in the County of Shasta in Northern California. It sits at the far northern end of the Sacramento Valley where the foothills meet the Cascade Mountain Range. Mountains to the north, east and west surround Redding, which has an average elevation of approximately 550 feet MSL. *Figure 1 (right and on page 53) shows the physical location of Redding and Shasta County.* The City of Redding is one of three incorporated cities within the county and serves as the county seat.

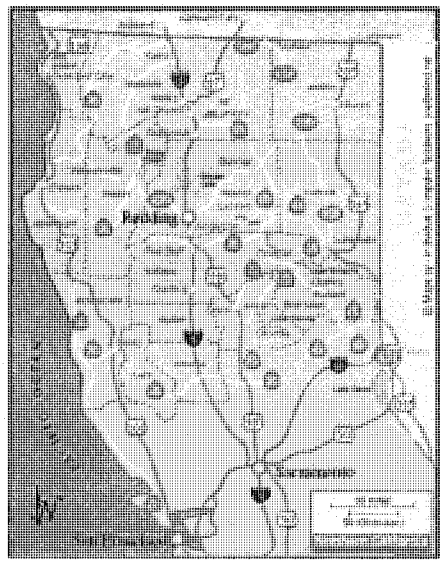

Figure 1

The City of Redding began building its own water system in 1937 and was granted a water permit by the State Board of Health on December 31, 1937. In 1941, the City purchased the California Water Service Company, which had served portions of the City, and integrated components of both operations into a citywide distribution system. The City of Redding currently serves water to both City and county residents as per the Local Agency Formation Commission (LAFCO) guidelines. Total service area is approximately 88 square miles and total population served is approximately 87,000. Some areas of the City are served by neighboring water districts. *Figure 2 (Page 54) shows the City's water service area as well as neighboring districts.*

Current and Projected Population

Table 2 identifies current and future populations

Table 2
Population Projections

	2005	2010	2015	2020	2025
Service Area Population	84,956	92,609	100,357	108,326	117,274

Source: City of Redding Water Master Plan 2000 – Table 3-5; Page 3-14 Demand Projection Summary; growth rate assumed to be between 1.5% and 1.8% annually.

Climate

The Redding area has hot, dry summers and cool, rainy winters typical of a Mediterranean-type climate. Summer temperatures over 100 Degrees (F) occur and subfreezing winter temperatures are common. Average annual precipitation is approximately 40.41 inches and occurs mostly during winter months. About 75-90% of the total rainfall falls between November 1st and April 30th. Relative humidity is generally low to moderate.

Average wind velocity is 7.0 miles per hour. The predominant wind direction is from North Northwest.

Table 3
Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Total Precipitation (inches)	7.54	6.04	6.60	2.90	1.29	.77	.63	.87	2.00	2.20	4.74	4.84	40.41
Avg. max temp (F)	57.1	61.1	65.8	72.6	83.8	93.0	99.8	97.4	90.4	79.3	61.0	56.0	76.44
Avg. min temp (F)	38.0	40.4	43.2	46.4	54.8	62.9	68.3	66.3	60.7	52.9	41.6	37.8	51.11
Average ETo	1.55	2.24	3.72	5.10	6.82	7.80	8.68	7.75	5.70	4.03	2.10	1.55	57.04

Source: (1) National Weather Service, Redding, California (047296), 1971 – 2000; data obtained from www.wrcc.dri.edu – Climate Summary; (2) California Irrigation Management Information System (CIMIS), Reference Evapotranspiration (Eto) Zones, data obtained from Information Center, ET overview, link to map CIMIS – ET Overview http://www.cimis.water.ca.gov/cimis/infoEtoOverview.jsp

Population Density/Land Use

Redding was founded in 1872 and incorporated in 1887 at the northern terminus of the California and Oregon Railroad. The City's early growth was stimulated by the railroad and by the move of the county seat from Shasta in 1884. Mining played a major role in the economic life of Redding around the turn of the century, but it declined as the twentieth century

progressed. In 1938, the beginning of the construction of Shasta Dam provided another stimulus to growth in Redding. The construction boom after World War II boosted the lumber industry, which became the mainstay of Redding's economy. In more recent years, retail trade, construction, and tourism have become more significant activities as the lumber industry has declined. Redding has become a major regional center for shopping, health care, education, and government. As a result of this, the Redding area has become one of the faster-growing areas in California.

Pressure Zones

Figure 2 (Page 54) shows the City's water service area and all applicable pressure zones located within. The existing service area ranges in altitude from 430 feet to 1,000 feet and contains pressures from 36 pounds per square inch (psi) to 166 psi. Seven pressure zones divide the service area to prevent excessively high or low pressures. Division of the service area into these pressure zones indirectly conserves water by reducing pressures in the zones, thereby reducing not only the flows through faucets and irrigation equipment when they are opened, but leaks as well. In areas where the maximum pressure exceeds 80 psi, pressure regulators are installed at each house to control maximum pressure to residence.

Pressure Zone Limits

Table 4
Pressure Zone Limits

ZONE	HIGHEST POINT				LOWEST POINT			
	Elevation (feet)		PSI		Elevation (feet)		PSI	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future
Foothill	610	610	55	55	460	460	120	120
Hill 900	815	820	47	45	540	540	166	166
Hilltop/Dana	680	680	48	48	530	530	112	112
Buckeye	875	850	39	45	600	580	154	162
Summit City	1000	995	43	45	760	760	147	147
Cascade	610	590	36	45	430	430	113	113
Enterprise	580	580	54	54	460	460	106	106

Source: City of Redding Water Master Plan 1982

Step 3

Water Sources – General

The City of Redding has three primary sources of water to supply its municipal water system:

1. Surface water is drawn from the Sacramento River at Pump Station 1 located one-quarter mile upstream from Diestelhorst Bridge. The river pump station, consisting of 5 large pumps, can pump 24 million gallons per day (MGD) of raw water to the Foothill Water Treatment Plant.

2. Surface water is drawn from Whiskeytown Lake via the Spring Creek Conduit. The water is gravity fed to the Buckeye Water Treatment Plant where up to 7 MGD of water is treated and sent into the distribution system.

Together, these surface water sources account for 6.4 billion gallons of water per year or approximately 70% of our total supply.

3. Groundwater is pumped by wells located over the Redding Groundwater Basin. The City's wells are operated during the warmer months – typically May through September – when demand is high. The active wells in the Enterprise (south east) and Cascade (south central) areas of the City have capacities of approximately 15.0 and .5 MGD, respectively. Together these wells provide the City with 2.8 billion gallons of water per year, approximately 30% of the City's total supply.

Figure 2 (Page 54) shows the location of these supply sources for the City of Redding.

Table 5
Current and Projected Water Supplies – Contractual Supply

Water Supply Sources	2005	2010	2015	2020	2025
USBR Redding Contract 14-06-200-2871A	21,000	21,000	21,000	21,000	21,000
USBR Buckeye Contract 14-06-200-5272A	6,140	6,140	6,140	6,140	6,140
Redding Groundwater Basin*	19,000	19,000	19,000	19,000	19,000
Transfers	0	0	0	0	0
Other	0	0	0	0	0
Total	46,140	46,140	46,140	46,140	46,140

Units of Measure: Acre-feet per year

*Current annual pumping capacity - 2005; City does currently not pump year-round.

Source: City of Redding Water Master Plan Table 4-6 Annual Supply and Maximum Daily Capacity

Step 3

Water Sources – Groundwater

The Redding Groundwater Basin, identified in DWR Bulletin 118 as a class B, provides the City of Redding with approximately 8,000 acre-feet of water per year through 14 wells. These wells range in depth from 170 feet to 600 feet. The well water is of very high quality and only minimal treatment and disinfection is necessary before the water enters the distribution system. Treatment is for elevated levels of iron and manganese; levels which fall within normal range for standards set by the federal government and the California Department of Health Services, but at levels which may cause taste and odor problems.

The City uses its wells to supplement its surface water production primarily during periods of high water demand, namely between May and September. Current well production is approximately 8,000 acre-feet per year, less than one-half of minimum safe yield as determined by the United States Bureau of Reclamation. The return flow of groundwater to the river from the City's wastewater treatment facilities contributes to water supplies for downstream users.

The City of Redding is a member of the Redding Area Water Council (RAWC), a consortium of water purveyors that operate in Shasta County. In 1998, the Shasta County Water Agency, on behalf of the Redding Area Water Council prepared a comprehensive Groundwater Management Plan for the Redding Groundwater Basin, an unadjudicated basin. *Appendix B is a copy of the Coordinated AB3030 Groundwater Management Plan for the Redding*

Groundwater Basin.

Table 6
Amount of Groundwater Pumped

Basin Name	2000	2001	2002	2003	2004
Redding Groundwater Basin – 5-6.04	7,105	7,656	8,324	8,634	8,610
% of Total Water Supply	30%	30%	30%	32%	30%
Units of Measure: Acre-feet/Year					

Source: DWR Water System Statistic Report Summary; DWR Water System Statistics.xls 2000 - 2004

Table 7
Amount of Groundwater Projected to be Pumped

Basin Name	2005	2010	2015	2020	2025
Redding Groundwater Basin	7,830	8,520	9,240	9,960	10,800
% of Total Water Supply	30%	30%	30%	30%	30%
Units of Measure: Acre-feet per year					

Source: Groundwater as a % of total water supply derived from Table 11 - projected water use

Step 4

Reliability of Supply

Water Rights

The City has a substantial water right for diversion from the Sacramento River. These rights date back to 1886 with the acquisition of the California Water Service Company. Such rights have culminated in an agreement with the United States Bureau of Reclamation (Bureau) for additional project water made available since the construction of Shasta Dam and ancillary facilities. The contractual right allows for a maximum annual diversion of 21,000 acre-feet at a maximum rate of 75 cubic feet per second, (48.4 MGD). The Bureau reserves the right to reduce the supply by 25% when a critical year condition is declared for Shasta Reservoir. Recently completed contract negotiations with the Bureau resulted in a forty year extension of the City's settlement contract through March 31, 2045.

The City also has another agreement with the Bureau for project water to serve the Buckeye area. This contract allows for a maximum annual diversion from the Whiskeytown Lake of 6,140 acre-feet. A maximum rate of withdrawal is not specified in this contract. Recently completed contract negotiations with the Bureau resulted in a forty year extension of the City's contract through March 31, 2045.

The City also has inherent rights to use ground water located within the Redding Groundwater Basin which is deemed to be approximately 510 square miles in size and which can provide a considerable augmented supply. Such rights are currently unregulated; however, local water purveyors and other interested agencies have funded a comprehensive groundwater study in order to quantify the region's groundwater supply through hydraulic modeling. The basic yield is better in the southeastern portion of the system toward the Redding Municipal Airport.

The California Department of Water Resources (DWR) estimates that 53,200 acre-feet are pumped each year from the Redding Groundwater Basin for urban and agricultural uses. Although a safe yield has not been determined, DWR suggests the potential yield is greater than current usage.

Water Supply Reliability and Future Growth

The *Public Facilities Element* of the General Plan Policy Document establishes goals with regard to the development of infrastructure within the City's planning area. These goals are intended to insure that water supply and supply capacity are able to meet the demands for future growth. *See Appendix C City of Redding General Plan, Public Facilities Element.*

The *Natural Resource Element* of the General Plan Policy Document combines overlapping topics as related to the *Open Space Element* and the *Conservation Element*, both of which are required to be included in the General Plan Document.

Natural resources contribute to the City's economy and are important elements of Redding's quality of life. Both responsible management and protection of these resources are needed. The General Plan Document seeks to balance the need to accommodate growth with the need for the conservation, protection, and enhancement of the area's natural resources. The *Natural Resource Element* establishes goals and policies with regard to surface and groundwater resources. These goals are intended to insure that the City can maintain excellent water quality and an adequate water supply to meet future growth demands. *See Appendix D City of Redding General Plan, Natural Resource Element.*

Plans to Assure a Reliable Water Supply

Expected increases in maximum day water demand will make it necessary to expand the City's existing water supply capacity. To meet the projected demand, new wells will be constructed to supplement the City's current groundwater supply. These wells will provide a reliable supply in the area in which the City is growing and allow the supply system to be less dependent on the Sacramento River source. The City has completed a 4 million gallon storage reservoir at the Buckeye Water Treatment Plant, which will enhance the City's ability to supply water to the Buckeye zone. The City is also in the pre-design stage to expand the Buckeye Water Treatment Plant from 7 MGD to 14 MGD. The expected completion date is December 2007.

The City will be upgrading the current Foothill Water Treatment Plant to improve pre-treatment as required by new regulations and will be studying the feasibility of either expanding the Foothill Water Treatment Plant or constructing a new treatment facility to meet future demand. Issue of expansion will be discussed in the Water Utility's next Water Master Plan in 2009.

Water conservation measures already mentioned in addition to those outlined under Water Demand Management Measures could reduce overall future consumption as well as maximum day demand (MDD), thereby eliminating or postponing the need to construct new facilities in order to increase capacity to meet the potential MDD. However, there are a few other alternatives to expanding the supply system that can be explored.

The following is a summary of options available for meeting anticipated water demand associated with future growth:

1. Drilling additional wells: three wells at 2,000 gallons per minute (gpm) per well; 9,600 acre-feet per year.

2. Transfer agreements with other agencies: Anderson Cottonwood Irrigation District (ACID); 1,000 acre-feet per year.
3. Development and implementation of policies that require new development to install landscape with low water requirements: achieve a 10% reduction in outdoor water use; up to 3,000 acre-feet per year.

Reliability Comparison

Buckeye Contract & Redding Contract

The Sacramento River Contract supply can be reduced by up to 25% of the average quantity taken by the City during the previous 3-years, at the Bureau's discretion, when a critical-year condition is declared for Shasta Reservoir. The Buckeye Contract can be reduced by up to 25% of the average quantity taken by the City during the previous 5 years. A critical year designation is made when existing supply and projected river in-flows are at or below certain trigger points that limit the Central Valley Project's (CVP) ability to meet the current system demands. From 1964 to present, the supply has been reduced twice - in 1992 and in 2002 - by 25% under this condition. However, under the terms of the Central Valley Project Improvement Act (CVPIA), future cutbacks are forecast to be more frequent and more severe because of increasing demands on the CVP overall and requirements for allocation of CVP yield to environmental water uses. Based on historical data and long-term average conditions, the Sacramento River Contract and Buckeye Contract cutbacks would be as follows:

In 3 out of 4 years – no reduction
In 1 out of 10 years – 25% reduction

Table 8
Supply Reliability

Water Source	Average/Normal Water Year 2004	Single Dry Water Year (25%)	Multiple Dry Water Years		
			Year 1 1985	Year 2 1987	Year 3 1989
Sacramento River	21,000	18,314	21,000	21,000	21,000
Whiskeytown Lake	6,140	4,237	6,140	6,140	6,140
Redding Groundwater Basin	19,000	19,000	19,000	19,000	19,000
Total	46,140	41,551	46,140	46,140	46,140

Unit of Measure: Acre-feet per year

Source: Sacramento River - Redding Contract 14-06-200-2871 A-R-1 Constraints on the Availability of Water 5. (a) Whiskeytown Lake - Bureau of Reclamation M&I Water Shortage Policy - Central Valley Project; CVO Office Sacramento - Inflow Data - Whiskeytown and Shasta Lake

Table 9
Basis of Water Year Data

Water Year Type	Base Year(s)	Historical Sequence
Normal Water Year	2004	1963 - 2004

Single-Dry Water Year	2002	1963 - 2004
Multiple-Dry Water Year	1985, 1987, 1989	1963 - 2004

Table 10
Factors Resulting in Inconsistency of Supply

Name of Supply	Legal	Environmental	Water Quality	Climatic
Sacramento River	X			
Whiskeytown Lake	X			
Redding Groundwater Basin			X	

Unit of Measure: None

Source: City of Redding Water Utility Staff

For surface water sources, the City of Redding's water contracts with the Bureau are subject to legal constraints mentioned above. The Redding Groundwater Basin has proven to be an extremely reliable source of water and supplies the City with additional water during times of high water usage. The quality of the water has been consistently good with elevated levels of iron and manganese being the only problem. Should the quality of groundwater deteriorate, the City would look into well-site treatment facilities or a regional treatment facility in order to address water quality issues. On-site treatment facilities would be an economically more feasible alternative; however, a regional treatment facility would remain an option.

Step 5

Transfer and Exchange Opportunities

Short Term

The City has inter-ties with three nearby water districts and two neighboring cities and transfers of water can be obtained from these water suppliers to meet a short-term deficiency.

Long Term

No long-term transfer opportunities exist at this time.

Step 6

Water Use by Customer Type – Past, Current and Future

Water demand over the last 25 years has increased greatly due to expansion of the service area and development inside the City. One noteworthy expansion was the annexation of the Enterprise area in November of 1976. About 20,000 people were added to the service area. Once annexation occurred, per capita water consumption substantially decreased. This was because the Enterprise region of the City was primarily residential with relatively small irrigation and landscaping water demands.

In order to determine the future needs of a water system, it is first necessary to establish the limits of the service area and to estimate the population for that area at various times in the

future. The future water service area for Redding, shown on *in Figure 2 (Page 57),* was determined mainly by constraints such as outlying water district boundaries; Redding's contract boundaries with the United States Bureau of Reclamation; natural boundaries such as rivers, ridges, and other topographical features; the City's General Plan; and engineering considerations such as pressure limits and supply limitations. It contains the Sacramento River contract service area, the Buckeye contract service area, and some areas that have recently been annexed to the City. Any expansion beyond these limits would generally be an encroachment into another water agency's jurisdiction where, in many cases, water system facilities already exist. Because expansion beyond the forecasted service boundary is unlikely, population growth and development inside the service area should be the factors that will determine future consumption.

Methodology for estimating future water demands is explained in Section 3-13 of the 2000 Water Master Plan:

"Future water demands for the water service area were projected from 2000 to full build-out of the Redding Urban area. Future demands are estimated using a "single coefficient" water demand model, based on population growth and the average per capita and per connection water use. The future water demand is estimated using projected values of the City population to determine the number of water service connections and future water demand, based on current average per capita and per-service-connection water use. The City has had a relatively constant proportional mix of both service connection types and total water use by user type, which supports this method of demand projection."

Among the planning assumptions used to determine future demand:

- The long-term growth rate for water service connections will approximate overall population growth. In other words, population and housing growth are proxy measures for growth of all water user types (residential, commercial, public, etc.)

- Growth in the Redding Urban area through 2025 will vary between 1.5% and 1.8% per year, resulting in a water service area population of 117,274.

- The average person per household (pph) remains steady at 2.36 pph per the General Plan. The ratio of population to water service connections remains generally constant at 3.2 persons per connection.

- Average annual daily per capita demand is 274 gallons per person per day.

Therefore, total demand projections are based on population growth and average per capita water demand. Water use by customer type is calculated based on constant proportions.

Table 11
Past, Current and Projected Water Use

Water Use Sectors	1995	2000	2005	2010	2015	2020	2025
Single family residential	12,175	13,522	15,291	16,602	17,961	19,326	20,922
Multi-family residential	286	484	543	589	637	685	741
Commercial/Institutional	7,314	7,734	8,760	9,565	10,405	11,245	12,225
Industrial	436	670	752	821	924	996	1080
Governmental	523	641	727	795	843	915	999
Landscape	16	25	27	28	30	33	33
Total	20,750	23,076	26,100	28,400	30,800	33,200	36,000

Unit of Measure: Acre-feet per year – rounding may occur

Source: City of Redding 2000 Water Master Plan Table 3-5 Demand Projection Summary; DWR Water System Statistics 1995, 2000, 2004; increase in water use is assumed to approximate population growth; rounding occurs.

The City's hot, dry summers create a pattern of annual water use that is highlighted by extremely large jumps in consumption during the months of May through October. Increase in landscape watering in residential areas and the use of seasonal recreational facilities are the primary reasons for monthly fluctuation in demand.

Table 12
Monthly Water Consumption by Customer Type – Year 2004

Customer	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Single Family Residential	542	465	627	1,031	1,301	1,880	2,404	2,653	2,227	3,657	744	631	18,162
Multi-Family Residential	36	32	32	37	186	236	260	269	263	222	163	159	1895
Commercial & Institutional	486	314	535	640	497	707	845	891	815	710	504	357	7,301
Industrial	9	10	11	15	15	21	24	25	23	20	12	9	194
Government	21	29	5	8	84	119	154	245	187	129	57	62	1,100
Landscape	1	1	1	1	1	2	3	2	2	2	1	1	18
Total	1,095	851	1,211	1,732	2,084	2,965	3,690	4,085	3,517	4,740	1,481	1,219	28,670

Unit of Measure: Acre-f per month

Source: DWR Water System Statistics 2004.

The City of Redding has emergency service inter-ties with five neighboring agencies; however, as a rule, the City does not sell water to another agency except in emergency situations. The provisions of the City's agreements with neighboring agencies specify that the transfer of water would occur only in an emergency situation, not for reasons due to shortage of water supply. The agreement benefits the City as well should the City need to buy water in the event of an emergency.

Table 13
Sales to Other Agencies

Water Distributed	2000	2005	2010	2015	2020	2025
Bella Vista Water	0	0	0	0	0	0
Centerville	0	0	0	0	0	0
City of Anderson	0	0	0	0	0	0
City of Shasta Lake	0	0	0	0	0	0
Shasta Community Services District	0	0	0	0	0	0
Total	0	0	0	0	0	0

Unit of Measure: Acre-feet per year

Source: City of Redding 2000 Water Master Plan Table 4-4 Emergency Supply Inter-ties

Table 14
Additional Water Uses and Losses

Water Use	2000	2005	2010	2015	2020	2025
Unaccounted For System Losses	1,252	1,305	1,420	1,540	1,660	1,800
Recycle	0	0	0	0	0	0
Total	1,252	1,305	1,420	1,540	1,660	1,800

Unit of Measure: Acre-feet per year

Source: DWR Water System Statistics 2000.

Table 15
Total Water Use

Water Use	2000	2005	2010	2015	2020	2025
M & I Sales	23,076	26,100	28,400	30,800	33,200	36,000
Unaccounted For System Losses	1,252	1,305	1,420	1,540	1,660	1,800
Sales to Other Agencies	0	0	0	0	0	0
Total	24,328	27,405	29,820	32,340	34,860	37,800

Unit of Measure: Acre-feet per year

Source: DWR Water System Statistics 2000.

Table 16
Number of Connections by Customer Type

Customer Type	1995	2000	2005	2010	2015	2020	2025
Single family residential	18,878	19,766	20,754	22,582	24,491	26,399	27,995
Multi-family residential	457	620	651	709	768	828	884
Commercial/Institutional	3,485	3,497	3,672	3,995	4,333	4,671	5,651
Industrial	431	765	803	874	948	1,022	1,106
Government	199	192	201	219	238	256	338
Landscape/recreation	19	18	19	21	22	24	26
Total	23,469	24,858	26,100	28,400	30,800	33,200	36,000

Unit of Measure: number of customers by class – rounding may occur

Source: City of Redding 2000 Water Master Plan Table 3-5 Demand Projection Summary; DWR Water System Statistics 1995, 2000, 2005; increase in number of customers per type is assumed to approximate population growth.

The General Plan identifies land use designations within major categories. Water use can be identified in the following categories.

Residential Sector

The single largest sector of customers is the Residential Sector. This includes both Single Family and Multi Family designations. There are eight residential categories identified in the General Plan and these provide for a full range of housing types for City inhabitants.

Commercial Sector

The General Plan includes eight commercial land use designations: Limited Office, General Office, Neighborhood Commercial, Shopping Center, Regional Commercial, General Commercial, Mixed Use Core and Heavy Commercial. These land-use designations range from small, neighborhood-serving commercial projects to commercial projects that are regional in scale. There is a mix of commercial customers, ranging from markets, restaurants, insurance offices, beauty shops, and gas stations to office buildings, outlet and regional shopping centers, and high-volume restaurants and other facilities serving both the permanent and visitor population.

Industrial Sector

The General Plan includes two industrial designations: General Industry and Heavy Industry. The Industrial land use classifications allow different types of warehousing, manufacturing, or processing businesses to be located in appropriate areas by accommodating a variety of manufacturing and employment activities ranging from small, employee-intensive businesses to large, capital-intensive businesses.

Institutional/Governmental Sector

The City has a relatively stable institutional/governmental sector. Redding has become a major regional center for government (federal, state, and local), healthcare, and education. This sector will keep pace with the growth of the city.

Landscape/Recreational Sector

This sector is comprised of community parks and golf courses. Landscape and Recreational customer demand is expected to increase in proportion to the growing population.

Step 7

Demand Management Measures

The Central Valley Project Improvement Act (CVPIA) of 1992, Public law 102-575, Section 3045(e), requires that the City of Redding prepare and implement a Water Conservation Plan. The City's plan was submitted to the United States Bureau of Reclamation (USBR) in 1994 and subsequently approved. A required update was just accepted by the Bureau in December 2004. This plan requires yearly annual updates, which detail the ongoing progress the Utility is making towards full implementation of the plan. The Water Conservation Plan is an essential element of the City's contractual obligations with the USBR and the City is required to complete the California Urban Water Conservation Council (CUWCC) annual report, which includes a section titled Survey of Best Management Practices. This report, completed annually by signatories to the California Urban Water Conservation Council Memorandum of Understanding (September 1991) and by USBR contractors defines implementation requirements for Municipal and Industrial BMPs or Demand Management Measures. For the purpose of responding to the Urban Water Management Planning Act, the City will submit the relevant sections excerpted from the City's 2004 Water Conservation Plan update, which addresses all of the BMP targets listed in the CUWCC Memorandum of Understanding.

Municipal and Industrial Water Conservation Programs

See Appendix E for BMP information.

Agricultural Water Conservation Programs

The City of Redding is a Municipal and Industrial supplier of water and has no agricultural water accounts.

Step 8

Evaluation of DMMs Not Implemented

See Appendix E for BMP implementation information.

Step 9

Planned Water Supply Projects and Programs

Long Term Additional Water Supply Options

Expected increases in water demand will make it necessary to expand the City's existing water supply. To meet the projected demand, several new wells on the east side of the City are scheduled for construction. These wells will provide a reliable supply in the area in which the City is growing and allow the supply system to be less dependent on the Sacramento River source. The City also has 28 million dollars worth of capital projects scheduled in the next ten years, which will increase the City's capacity to accommodate growth and allow us to respond should a water shortage occur.

Water conservation measures already mentioned should reduce future consumption and postpone the addition of new supply sources. To meet future long-term water demand beyond 2020, the City is negotiating with Anderson Cottonwood Irrigation District for water transfers or water futures.

Table 17
Future Water Supply Projects

Project Name	Project Start Date	Project Completion Date	Normal-year AF to agency	Single-Dry AF/year to Agency	Multiple-Dry AF/years to Agency		
					Year 1	Year 2	Year 3
Well # 14	07/01/06	2007	3,000	3,000	3,000	3,000	3,000
Well # 15	07/01/07	2008	3,000	3,000	3,000	3,000	3,000
Well # 16	07/01/08	2009	3,000	3,000	3,000	3,000	3,000
Well # 17	07/01/11	2012	3,000	3,000	3,000	3,000	3,000
Total			12,000	12,000	12,000	12,000	12,000

Unit of Measure: Acre-feet per year

Source: *City of Redding Water Utility Water Master Plan and 10-year Financial Plan*

Step 10

Development of Desalinated Water

The City of Redding is located in the Sacramento Valley approximately 150 miles from the Pacific Ocean; therefore there is no opportunity to use desalinated water as a future water supply. In addition, there is no brackish water in the Redding Groundwater Basin and both the Sacramento River and Whiskeytown Lake are both fresh water sources.

Step 11

Current or Projected Wholesale Water Supplies

The City of Redding does not purchase water from any wholesale water suppliers.

SECTION 3 – DETERMINATION OF DMM IMPLEMENTATION

(Water Code Section 10631.5)

As a Bureau of Reclamation Contractor, the City of Redding is required to develop and implement a Federal Water Management Plan that includes Best Management Practices (BMPs) developed by the California Urban Water Conservation Council. These BMPs detail water conservation measures to be undertaken by water purveyors and an annual report of progress implementation measures is required. In lieu of reporting Demand Side Management Measures implementation as required by this Plan, the City of Redding is submitting its BMP implementation data in its place, as is allowed by law. *See Appendix F for the California Urban Water Conservation Council annual 2004 report.*

SECTION 4 - WATER SHORTAGE CONTINGENCY PLAN

(Water Code Section 10632)

A water emergency plan, as distinguished from a water conservation plan, lists stricter measures that would be carried out only during times of severe water shortage. Since the City has extensive surface water rights and groundwater to draw from, severe water shortages have never been experienced, and the likelihood of a future water deficiency is highly improbable. The diversification of the City's supply system into both ground and surface water also helps the City from being dependent on one type of supply. If for some reason a water shortage was to occur, it is not likely that both surface and ground water supplies would become unreliable. The City does, however, require both voluntary and mandatory actions in the event of a water shortage.

The City also has inter-ties with three nearby water districts and two neighboring cities and transfers of water can be obtained from these water suppliers to meet a short-term deficiency. The City does, however, recognize the need to prepare for a water shortage or a water emergency and has adopted, by way of ordinance, a Drought Management Plan as outlined in the appropriate section below. Furthermore, the City has adopted emergency measures to respond to a water quality emergency.

City of Redding Water Shortage Response

The City has an emergency notification plan that will be implemented in the event of a water quality or water shortage emergency. The plan outlines procedures to notify City and County personnel, the media and public, and area hospitals and medical clinics. Notification of the majority of the public could be accomplished within two or three hours.

See Appendix G for Excerpts from the City of Redding Water Utility Emergency Response Plan, Section 2 - Water Utility Disaster Response Plan.

Step 1

Stages of Action

Table 18
Water Supply Shortage Stages and Conditions

Stage Number	Water Supply Conditions	% Shortage
Stage 1 - Voluntary Reduction	Drought or Emergency	15 %
Stage 2 - Mandatory Reduction	Drought or Emergency	25%
Stage 3 - Mandatory Reduction	Drought or Emergency	35%
Stage 4 - Mandatory Reduction	Drought or Emergency	50%

Source: City of Redding Drought Management Plan Redding Municipal Code Chapter 14.09

Step 2

Estimate of Minimum Supply for Next Three Years

Table 19
Three-Year Estimated Minimum Water Supply

Water Source	2006	2007	2008	Normal
Sacramento River	21,000	21,000	21,000	21,000
Whiskeytown Lake	6,140	6,140	6,140	6,140
Redding Groundwater Basin	19,000	19,000	19,000	19,000
Total	46,140	46,140	46,140	46,140
Units of Measure: Acre-feet per year				

Source: Table 8

Step 3

Catastrophic Supply Interruption Program

Table 20
Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Regional Power Outage	Initiate Measures of Emergency Response Plan
Earthquake	Initiate Measures of Emergency Response Plan
Chemical Spill into Water Supply	Initiate Measures of Emergency Response Plan
Flooding	Initiate Measures of Emergency Response Plan
Source: *Water Utility Emergency Response Plan and City of Redding Emergency Guidelines*	

Step 4

Prohibitions, Penalties, and Consumption Reduction

Table 21
Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Using potable water for Street Washing	Stage 2
Failure to repair leaks	Stage 2
Other	Stage 2

Source: *City of Redding Drought Management Plan Redding Municipal Code Chapter 14.09*

Table 22
Consumption Reduction Methods

Consumption Reduction Method	Stage When Method takes Effect	Projected Reduction (%)
Customer Allocations	Stage 2, 3, 4	15% - 50%
Irrigation Limited to Certain Days	Not mandatory but could be voluntarily implemented to achieve reduction	15% - 50%
Decorative Fountain Restrictions	Not mandatory but could be voluntarily implemented to achieve reduction	35% - 50%
Swimming Pool Refilling	Not mandatory but could be voluntarily implemented to achieve reduction	50%
New Services - postpone landscaping	Stage 2, 3, 4	25% - 50%
New Services must be reviewed and approved by City Council	Stage 4	50%
Other		

Source: City of Redding Drought Management Plan Redding Municipal Code Chapter 14.09

Table 23
Penalties and Charges

Penalty or Charge	Stage When Penalty takes Effect
$2.50 per ccf over allocation	Stage 2
$5.00 per ccf over allocation	Stage 3
$7.50 per ccf over allocation	Stage 4
Other	
Other	

Source: City of Redding Drought Management Plan Redding Municipal Code Chapter 14.09

Step 5

Analysis of Revenue Impacts of Reduced Sales during Shortages

All surplus revenues that the City collects are classified as reserves and can be used to fund conservation activities and capital expenditures. Surplus revenue is also used to maintain a sufficient reserve should the City experience a revenue shortfall. Recent multi-year rate increases have given the Water Utility the financial ability to fund both Operations and Maintenance and Capital Improvement projects while maintaining a substantial reserve.

Step 6

Draft Ordinance and Use Monitoring Procedure

See Appendix H for a copy of the City of Redding Drought Management Plan, Ordinance 1957, which appears in the Redding Municipal Code.

Table 28
Water Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type and Quality of Data Expected
Monitoring Daily Production & Distribution Records	Water Utility Monitors daily with SCADA system
Waste Water Treatment Records	Can be monitored daily

Source: *City of Redding Water Utility Staff*

SECTION 5 – RECYCLED WATER PLAN

(Water Code Section 10633)

Step 1

Coordination

Table 29
Participating Agencies

Participating Agencies	Role in Plan Development
City of Redding Wastewater Utility	Provide narrative regarding recycled waste water currently being used
Private Ag User	Negotiated agreement with City for Redding for Reclaimed water
Other Agencies	State Water Resources Control Board - Redding Regional Office
Other	

Source: *City of Redding Wastewater Utility Staff*

Step 2

Wastewater Quantity, Quality, and Current Uses

Collection System

The City of Redding Wastewater Utility is organized into three divisions: Collection, Treatment and Industrial Waste. The Wastewater Collection division provides sanitary sewer services to City residents and is tasked with the operations and maintenance of a complex system of sewer mains, trunk lines, interceptors and lift stations which collectively transport waste to one of two City Wastewater Treatment Plants.

There are 395 miles of sewer pipeline and 7,600 manholes that provide access to the collection system for maintenance and flow monitoring. Sixteen lift stations located throughout the system utilize pumps to lift the wastewater to a higher elevation.

Of the 16 facilities, 6 are major lift stations with average daily dry weather flows ranging from 2 million gallons per day (mgd) to .35 mgd. These facilities have more sophisticated control systems that allow the pumping to automatically increase and decrease according to the flow rates. They include flow monitoring and equipment diagnostic instrumentation as well as emergency generator systems to insure operations in the event of a loss of electrical power. The remaining 9 facilities are smaller lift stations with flows ranging from 52,000 gallons per day (gpd) to 1,000 gpd.

The Collection division also maintains15 rain gauges throughout the system that monitor rainfall amounts and track the effects of rain on the collection system through infiltration and inflow.

Wastewater Treatment

The City of Redding currently has two Wastewater Treatment Plants, both of which are considered tertiary treatment facilities: Stillwater Wastewater Treatment Plant and Clear Creek Wastewater Treatment Plant.

Table 30
Wastewater Facilities

Treatment Plant Name	Location (City)	Average Daily (2004)	Maximum Daily (2005)	Year of Planned Build-out	Planned Maximum Daily Volume
Clear Creek Wastewater Treatment Plant	Anderson	6.55 MGD	8.8 MGD	2050	17MGD
Stillwater Wastewater Treatment Plant	Anderson	2.9 MGD	4 MGD	2050	8MGD

Source: City of Redding Wastewater Utility Records

The Wastewater Treatment Plants' service area includes residential and commercial customers. Also included are some industrial customers. These industries do not contribute heavy metals or other toxic industrial waste. A source control program monitors industrial and commercial enterprises to ensure that toxic substances and other pollutants are kept below safe discharge limitations.

Wastewater Treatment Processes

Current wastewater treatment at the City of Redding's Wastewater Treatment Plants includes the following tertiary level processes:

Clear Creek Wastewater Plant	Stillwater Wastewater Treatment Plant
1. Primary Sedimentation - Grit Removal	1. Activated Sludge - Conventional
2. Activated Sludge - Complete Mix	2. Filtration
3. Filtration	3. Chlorination/Dechlorination
4. Chlorination/Dechlorination	4. Wastewater Quality
5. Wastewater Quality	5. Wastewater Disposal
6. Wastewater Disposal	

These processes are described below:

Primary Sedimentation - *Clear Creek*
Incoming wastewater flows to two primary sedimentation tanks. This removes about 60% of the suspended solids, 25% of the biochemical oxygen demand (BOD), and nearly all of the floatable material. Settleable solids (sludge) are pumped into an above ground tank known as an anaerobic digester which can hold over 600,000 gallons. Primary effluent (activated sludge) is then channeled to three aeration tanks.

Activated Sludge – *Clear Creek*
Treatment facilities consist of three complete aeration tanks with platform mounted electric mixers (aerators) and three secondary sedimentation tanks. At this point, nearly all solids

(sludge) will have settled to the bottom at the final sedimentation tanks. Sludge is concentrated, sent to sludge lagoons and dried during the summer months.

Activated Sludge - *Stillwater*
Treatment facilities consist of three complete aeration tanks with diffused air aeration and two secondary sedimentation tanks. Sludge is concentrated and sent to aerobic digesters and dried during the summer months.

Activated Sludge - *Clear Creek and Stillwater*
The dried digested sludge (biosolids) is used as soil amendment (fertilizer) for agricultural purposes. All of the biosolids from the secondary system are used for agricultural purposes with none going to the landfill.

Filtration - *Clear Creek*
Filtration consists of four dual-media, gravity, declining rate filters. Each filter measures 12x39 ft. The average filtration rate with four filters in operation at a max design flow of 16.2 million gallons per day (mgd) is 6.0 gpm/ft^2. When one filter is out of service for backwashing the average filtration rate is 8.0 gpm/ft^2 at the max design flow.

Filtration - *Stillwater*
Filtration consists of continuous rapid-rate down flow traveling bridge filter. The Aqua ABF filter is used in municipal wastewater treatment for suspended solids and Biological Oxygen Demand (BOD) reduction.

Chlorination/Dechlorination - *Clear Creek and Stillwater*
After final sedimentation, chlorine is added to the effluent. After a set period of time, the water is then dechlorinated by introducing sulfur dioxide. Effluent is limited to <0.01 parts per million (PPM) of chlorine residual.

Wastewater Quality - *Clear Creek and Stillwater*
Significant constituents for water quality are: gross solids, grit, floating materials, suspended solids, and oxygen demanding substances. Effluent limitations are BOD at 10 parts per million and total suspended solids at 10 parts per million. Both are monthly averages. Effluent from the treatment plant resembles clean Sacramento River quality water and continues to meet its discharge requirements monthly.

Wastewater Disposal - *Clear Creek and Stillwater*
Treated effluent from the Wastewater Treatment Plants is discharged to the Sacramento River.

Table 31
Wastewater Collected and Treated

Wastewater Collected & Treated	2000	2005	2010	2015	2020	2025
Stillwater Wastewater Treatment Plant	4,060.60	4,102.30	4,771.20	5,174.40	5,577.60	6,048.00
Clear Creek Wastewater Treatment Plant	9,060.00	8,558.00	10,138.80	10,995.60	11,852.40	12,852.00
Total	13,120.60	12,660.30	14,910.00	16,170.00	17,430.00	18,900.00
Quantity that meets recycled water standard	All	All	All	All	All	All
Unit of Measure: Acre-feet per year						

Source: City of Redding Wastewater Utility Staff & Records (totals calculated on % of water use Table 15)

Table 32
Disposal of Wastewater (Non-Recycled)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025
Sacramento River - Stillwater	Tertiary	4,090.80	4,759.69	5,162.89	5,566.09	6,036.49
Land(Ag) Application	Tertiary	11.51	11.51	11.51	11.51	11.51
Sacramento River - Clear Creek		8,558.00	10,138.80	10,995.60	11,852.40	12,852.00
Total		12,660.31	14,910.00	16,170.00	17,430.00	18,900.00
Unit of Measure: Acre-feet per year						

Source: City of Redding Wastewater Utility Staff & Records

Recycled Water Currently Being Used

Wastewater from the Redding area west of the Sacramento River is collected and treated at the Clear Creek Wastewater Treatment Facility situated along the Sacramento River at the southern boundary of the City's service area. The treatment facility discharges effluent at an annual average rate of 7.3 MGD, and the total dissolved solids (TDS) concentration of the wastewater is normally about 300 milligrams per liter. Recycled water used for landscape irrigation and for washdown purposes at the treatment site is not measured, while the remainder of the effluent is discharged into the Sacramento River where it is repeatedly diverted and treated for reuse by water agencies further downstream.

Wastewater from the Redding area east of the Sacramento River is collected and treated at the Stillwater Wastewater Treatment facility. The Stillwater treatment facility discharges effluent at an annual average rate of 3.0 mgd and the total dissolved solids (TDS) is about 240 milligrams per liter. Recycled water used for landscape irrigation is not measured. Recycled water used for crop irrigation totals between 3 millions gallons (9.21 acre-feet) and 8 million gallons (24.6 acre-feet) depending on weather conditions and crop cycles. Recycled water for crop irrigation is permitted under Waste Discharge Requirement permit #96-0169. The remainder of effluent is discharged into the Sacramento River where it is repeatedly diverted and treated for reuse by water agencies further downstream.

Table 33
Recycled Water Uses - Current

Type of Use	Treatment Level	2005
Agriculture - Stillwater Treatment Plant	Tertiary	11.51
Landscape Irrigation on site not measured - estimate only	Tertiary	2.0
Total		13.51

Unit of Measure: Acre-feet per year

Source: City of Redding Wastewater Utility Records

Step 3

Potential and Projected Use, Optimization Plan with Incentives

Although the volume and quality of treated effluent are suitable for reclamation, the idea of reusing the water in the City's service area for irrigation purposes has several drawbacks. First, a section of the contract between the City and the Bureau of Reclamation (Bureau) states that any wastewaters that result from diverted Sacramento River water are the property of the Bureau. This could limit the possibility of the City's selling wastewater to other water agencies or reusing the water itself. Secondly, reuse options are mostly limited to the use of treated effluent for on-site irrigation and agricultural crops since there are no large water users in Redding.

Finally, the Anderson-Cottonwood Irrigation District (ACID) currently supplies water for irrigation in the Redding area. They are able to sell their water for less than $9 per acre-foot because the water is diverted from the Sacramento River without pumping or treatment and carried southward almost exclusively by gravity. Therefore, the City would have to market the treated effluent at a cost competitive to that of ACID and add in the cost of pumping the water.

Table 34
Recycled Water Uses - Potential

Type of Use	Treatment Level	2010	2015	2020	2025
Agriculture - Stillwater Treatment Plant	Tertiary	11.51	11.51	11.51	11.51
Landscape Irrigation	Not Measured	0	0	0	0
Total		11.51	11.51	11.51	11.51

Unit of Measure: Acre-feet per year

Source: City of Redding Wastewater Utility Staff & Records

Table 35
Projected Use of Recycled Water in Service Area

Type of Use	2010	2015	2020	2025
Agriculture - Stillwater Treatment Plant	11.51	11.51	11.51	11.51
Landscape Irrigation	0	0	0	0
Total	11.51	11.51	11.51	11.51

Unit of Measure: Acre-feet per year

Source: City of Redding Wastewater Staff & Utility Records

SECTION 6 - WATER QUALITY IMPACTS ON RELIABILITY

(Water Code Section 10634)

Water Quality

As required by the Federal Safe Drinking Water Act, the City water supplies must meet stringent water quality standards set by the state Department of Health Services - Division of Drinking Water (CDHS-DDW), the United States Environmental Protection Agency (USEPA), and the Food and Drug Administration (FDA). An annual Water Quality Report is published and distributed to all water customers. The City consistently meets or falls below Maximum Contaminant Levels set by Federal and State Agencies thereby ensuring that Water Quality Standards are met throughout the year. *A copy of the City's 2004 Water Quality Report is contained in Appendix I.*

Table 36
Current and Projected Water Supply Changes

Water Supply Sources	2005	2010	2015	2020	2025
USBR Redding Contract 14-06-200-2871A	21,000	21,000	21,000	21,000	21,000
USBR Buckeye Contract 14-06-200-5272A	6,140	6,140	6,140	6,140	6,140
Redding Groundwater Basin	19,000	28,000	31,000	31,000	31,000
Transfers In or out	0	0	0	0	0
Units of Measure: Acre-feet per year					

Source: City of Redding Water Master Plan Table 4-6 Annual Supply and Maximum Daily Capacity; Table 17

Source Assessment

The City of Redding conducted drinking water source assessments for its surface water sources in July 2001 and groundwater sources in May 2002. The City's sources are considered most vulnerable to the following activities not associated with contaminants detected in the water supply: recreational use, agricultural drainage and grazing. The City's sources are considered most vulnerable to the following activities associated with contaminants detected in the water supply fueling areas, septic systems, biosolids application, and petroleum pipeline. Currently, there are no significant water quality problems that affect any of the City's three water sources.

SECTION 7 - WATER SERVICE RELIABILITY

(Water Code Section 10635)

Step 1

Projected Normal Year Supply and Demand

Table 39 compares current and projected water supply and demand.

Table 37
Projected Normal Year Supply and Demand Comparison

	2010	2015	2020	2025
Supply totals	46,140	46,140	46,140	46,140
% of Normal Year (Table 5)	100 %	100%	100%	100%
Demand totals	28,400	30,800	33,200	36,000
% of Year 2005 (Table 16)	109%	118%	127%	138%
Difference (Supply minus demand)	17,740	15,340	12,940	10,140
Difference as % of Supply	38%	33%	28%	22%
Difference as % of Demand	62%	50%	39%	28%
Units of Measure: Acre-feet per year				
2005 demand - Normal Year	26,100 acre-feet			

Source: Table 5 (Supply) & Table 16 (Demand) of this plan; calculated %

Step 2

Projected Single Dry-Year Supply and Demand Comparison

Table 38 presents a supply and demand comparison where demand does not fluctuate in conjunction with a change in supply.

Table 38
Projected Single Dry Year Water Supply and Demand Comparison

	2010	2015	2020	2025
Supply totals	41,551	41,551	41,551	41,551
% of Projected Normal Year (Table 37)	90%	90%	90%	90%
Demand totals	28,400	30,800	33,200	37,120
% of Projected Normal Year (2005 in Table 37)	109%	118%	127%	142%
Difference (Supply minus demand)	13,151	10,751	8,351	4,431
Difference as % of Supply	32%	26%	20%	11%
Difference as % of Demand	46%	35%	25%	12%
Units of Measure: Acre-feet per year				

Source: Table 8 (Supply Scenarios) & Table 16 (Demand) of this plan; calculated %

Step 3

Projected Multiple Dry-Year Supply and Demand Comparison

2006 – 2010

Table 39
Projected Multiple Dry Year Period Water Supply and Demand Comparison
2006 - 2011

	2006	2007	2008	2009	2010
Supply totals	46,140	46,140	46,140	46,140	46,140
% of Projected Normal Year (Table 37)	100 %	100 %	100%	100%	100%
Demand totals	26,492	26,889	27,292	27,701	28,400
% of Projected Normal Year (Table 37)	102%	103%	105%	106%	109%
Difference (Supply minus demand)	19,648	19,251	18,848	18,439	17,740
Difference as % of Supply	43%	42%	41%	40%	38%
Difference as % of Demand	74%	72%	69%	67%	62%

Units of Measure: Acre-feet per year

Source: Table 8 (Supply Scenarios) & Table 16 (Demand) of this plan; calculated %

2011 – 2015

Table 40
Projected Multiple Dry Year Period Water Supply and Demand Comparison
2011 - 2015

	2011	2012	2013	2014	2015
Supply totals	46,140	46,140	46,140	46,140	46,140
% of Projected Normal Year (Table 37)	100 %	100 %	100%	100%	100%
Demand totals	28,826	29,258	29,697	30,142	30,800
% of Projected Normal Year (Table 37)	110%	112%	114%	115%	118%
Difference (Supply minus demand)	17,314	16,882	16,443	15,998	15,340
Difference as % of Supply	38%	37%	36%	35%	33%
Difference as % of Demand	60%	58%	55%	53%	50%

Units of Measure: Acre-feet per year

Source: Table 8 (Supply Scenarios) & Table 16 (Demand) of this plan; calculated %

2016 – 2020

Table 41
Projected Multiple Dry Year Period Water Supply and Demand Comparison
2016 - 2020

	2016	2017	2018	2019	2020
Supply totals	46,140	46,140	46,140	46,140	46,140
% of Projected Normal Year (Table 37)	100 %	100 %	100%	100%	100%
Demand totals	31,262	31,731	32,207	32,690	33,200
% of Projected Normal Year (Table 37)	120%	122%	123%	125%	127%
Difference (Supply minus demand)	14,878	14,409	13,933	13,450	12,940
Difference as % of Supply	32%	31%	30%	29%	28%
Difference as % of Demand	48%	45%	43%	41%	39%

Units of Measure: Acre-feet per year

Source: Table 8 (Supply Scenarios) & Table 16 (Demand) of this plan; calculated %

2021 – 2025

Table 42
Projected Multiple Dry Year Period Water Supply and Demand Comparison
2021 - 2025

	2021	2022	2023	2024	2025
Supply totals	46,140	46,140	46,140	46,140	46,140
% of Projected Normal Year (Table 37)	100 %	100 %	100%	100%	100%
Demand totals	33,698	34,203	34,716	35,237	36,000
% of Projected Normal Year (Table 37)	129%	131%	133%	135%	138%
Difference (Supply minus demand)	12,442	11,937	11,424	10,903	10,140
Difference as % of Supply	27%	26%	25%	24%	22%
Difference as % of Demand	37%	35%	33%	31%	28%

Units of Measure: Acre-feet per year

Source: Table 8 (Supply Scenarios) & Table 16 (Demand) of this plan; calculated %

Active water efficiency improvements and additional water supply will be necessary to meet the City's projected water demand. The City will look at supply enhancement options, including the feasibility of water recycling, groundwater recharge and conjunctive use, water transfers, additional surface water supplies and the development of additional wells. Increased water conservation measures and tiered pricing will be considered as a way to meet increased demand as well.

SECTION 8 – ADOPTION AND IMPLEMENTATION OF PLAN

(Water Code Section 10640 – 10645)

Attach a copy of adoption resolution to your UWMP.

You are required to provide your 2005 UWMP to DWR and cities and counties within your service area within 30 days of adoption

You are required to file copies of amendments or changes to the UWMP with DWR and city or counties within your service area within 30 days of adoption.

You are required to make the 2005 UWMP available for public review within 30 days of filing with DWR.

You are required to encourage the involvement of social, cultural & economic community groups prior to and during the preparation of your UWMP.

Before adopting your 2005 UWMP you must make the UWMP available for public review and hold a public hearing about your 2005 UWMP. Public and private water suppliers have to notify cities, counties and the community served with notice of the time and place of the public hearing.

The City of Redding has actively encouraged community participation in its urban water management planning efforts since the first plan was developed in 1985.

For this update to the Urban Water Management Plan, a formal public session was held for review and comment on the draft plan before the City Council's approval. *The Notice of Public Meeting is attached as Appendix J.*

A special effort was made to include neighboring water districts, community and public interest organizations, the Chamber of Commerce, members of the Redding Area Water Council, members of the Water Resource Managers of Shasta County (an ad hoc group), and other governmental agencies who may have an interest. Legal public notices for each meeting were published in the local newspapers. Copies of the draft plan were available at City offices and the library.

Plan Adoption

The City of Redding prepared this update of its Urban Water Management Plan during 2005. The updated plan will be adopted by City Council in March 2006 and submitted to the California Department of Water Resources within 30 days of Council approval. *Attached to the cover letter addressed to the Department of Water Resources is Appendix K, a copy of the signed Resolution of Plan Adoption.* This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 - Urban Water Management Planning.

SECTION 9 – MISCELLANEOUS PROVISIONS

(Water Code Section 10650-10657)

Agencies subject to the Urban Water Management Planning Act must have adopted a complete UWMP that meets the requirements of the law and submitted it to DWR to be eligible for drought assistance from the State and funds administered by DWR.

California Groundwater Bulletin 118 – Sacramento River Hydrologic Region – Redding Groundwater Basin, Enterprise Subbasin

Redding Groundwater Basin, Enterprise Subbasin

- Groundwater Basin Number: 5-6.04
- County: Shasta
- Surface Area: 60,900 acres (95 square miles)

Basin Boundaries and Hydrology

The Enterprise Subbasin comprises the portion of the Redding Groundwater Basin bounded on the west and southwest by the Sacramento River, on the north by the Klamath Mountains, and on the east by Little Cow Creek and Cow Creek. Annual precipitation within the basin ranges from 29- to 41-inches, increasing to the north.

Hydrogeologic Information

Water-Bearing Formations

The Enterprise Subbasin aquifer system is comprised of continental deposits of late Tertiary to Quaternary age. The Quaternary deposits include Holocene Stream Channel Deposits and terrace deposits of the Modesto and Riverbank formations. The Tertiary deposits are the Pleistocene Tehama Formation and the Tuscan Formation. The following descriptions of water-bearing formations are from Helley and Harwood (1985) unless otherwise noted.

Holocene Stream Channel Deposits. The youngest alluvium consists of unconsolidated gravel, sand, silt and clay from stream channel and flood-plain deposits. Holocene stream channel deposits are observed along the entire extents of the western boundary along the Sacramento River. These deposits are also observed along Stillwater Creek extending from the Klamath Mountains to the Sacramento River in the center of the subbasin and along Cow Creek on the eastern side. The thickness ranges to 50 feet. This unit represents the perched water table and the upper part of the unconfined zone of the aquifer. Although the alluvium is moderately permeable, it is not a significant contributor to groundwater usage.

Pleistocene Terrace Deposits. The Modesto and Riverbank formations consist of poorly consolidated gravel with some sand and silt deposited during the Pleistocene. They are usually found as terrace deposits near the surface along the Sacramento River and tributaries. The thickness ranges to 50 feet. They are moderately to highly permeable and yield limited domestic water supply from perched water tables.

Pliocene Tehama Formation. The Tehama Formation consists of locally cemented silts, sand, gravel, and clay of fluviatile origin derived from the Klamath Mountains and Coast Ranges. Thickness of the formation along the southern boundary ranges from 300 feet at the southwestern extents of the subbasin to 1,000 feet at the confluence of Cow Creek and the Sacramento River. From north to south along Cow Creek, the deposit uniformly increases in thickness from where the Chico Formation daylights near Bella Vista to a depth of 500 feet in the vicinity of Palo Cedro and to a depth of 1,000 feet at the Sacramento River (DWR 1964). The permeability is

moderate to high, with yields of 100- to 1,000-gpm. The formation interfingers with the Tuscan Formation along the eastern boundary; however, the extents are unknown.

Pliocene Tuscan Formation. The Tuscan Formation consists of volcanic gravel and tuff-breccia, fine- to coarse-grained volcanic sandstone, conglomerate and tuff, tuffaceous silt and clay predominantly derived from andesitic and basaltic source rocks. The formation is described as four separate but lithologically similar units, Units A through D (with Unit A being the oldest), which in some areas are separated by layers of thin tuff or ash units.

Unit A is the oldest water-bearing unit of the formation and is characterized by the presence of metamorphic clasts within interbedded lahars, volcanic conglomerate, volcanic sandstone and siltstone. Unit B is composed of a fairly equal distribution of lahars, tuffaceous sandstone, and conglomerate. Coarse cobble to boulder conglomerate predominates the deposit in the eastern and northern parts of mapped unit. Unit C consists of several massive mudflow or lahar deposits with some interbedded volcanic conglomerate and sandstone. Unit D consists of fragmental deposits characterized by large monolithologic masses of andesite, pumice, and fragments of black obsidian in a mudstone matrix. The unit has limited areal extents and may not occur within the Redding Basin.

Permeability is moderate to high with yields of 100- to 1,000-gpm except for beds of tuff-breccia which are essentially impermeable.

Recharge Areas

Recharge to the principal aquifer formation is mostly by infiltration of streamflows. Infiltration of applied water and streamflows, and direct infiltration of precipitation are the main sources of recharge into the alluvium (Pierce 1983).

Groundwater Level Trends

Review of the hydrographs for long-term comparison of spring-spring groundwater levels indicates a gradual decline of approximately 5- to 10-feet associated with the 1976-77 and 1987-94 droughts, followed by a gradual recovery to pre-drought conditions of the early 1970's and 1980's. Evaluation of groundwater level data shows a seasonal fluctuation of approximate 5- to 10-feet and, for the semi-confined wells, between 10- to 15-feet for normal and dry years. Overall, there does not appear to be any increasing or decreasing trends in groundwater levels.

Groundwater Storage

Groundwater Storage Capacity. The storage capacity for the entire Redding Basin is estimated to be 5.5 million acre-feet for 200 feet of saturated thickness over an area of approximately 510 square miles (Pierce 1983). Specific yield data for the Enterprise Subbasin aquifer system is not available to estimate storage capacity at the subbasin level.

Groundwater Budget (Type B)

Estimates of groundwater extraction are based on a survey conducted by the California Department of Water Resources in 1995. The survey included land use and sources of water. Estimates of groundwater extraction for agricultural and municipal/industrial uses are 4,449 and 4,127 acre-feet respectively. Deep percolation from applied water is estimated to be 3,788 acre-feet.

Groundwater Quality

Characterization. Magnesium-sodium bicarbonate is the predominate water type in the subbasin. Sodium bicarbonate and sodium chloride type waters are also found. Total dissolved solids range from 160- to 210-mg/L (DWR unpublished data).

Impairments. High levels of total dissolved salts and chlorides are present in the lower Tehama and Tuscan Formations. Sodium and boron is present at shallow depth where wells draw from the Chico Formation. Locally high concentrations of iron and manganese occur in the basin.

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	18	0
Radiological	19	0
Nitrates	17	0
Pesticides	7	0
VOCs and SVOCs	14	0
Inorganics – Secondary	18	7

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Irrigation	Range: 30 – 700	Average: 266 (5 Well Completion Reports)
	Total depths (ft)	
Domestic	Range: 18 – 713	Average: 139 (1970 Well Completion Reports)
Irrigation	Range: 32 – 460	Average: 180 (65 Well Completion Reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR	Groundwater levels	17 wells semi-annually
DWR	Miscellaneous Water Quality	3
Department of Health Services	Miscellaneous Water Quality	43

Basin Management

Groundwater management:	Shasta County adopted a groundwater management ordinance in 1998.
Water agencies	
Public	Redding Area Water Committee, Bella Vista WD, City of Redding, Shasta Dam Area Public Utility District, Shasta County Water Agency, Shasta Community Service District.
Private	

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Errata

Changes made to the basin description will be noted here.

Coordinated Groundwater Management Plan for the Redding Groundwater Basin

Coordinated AB 3030
Groundwater Management Plan
for the
Redding Groundwater Basin

Prepared for the
Redding Area Water Council

Prepared by
Shasta County Water Agency

November 1998

Updated May 2007

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APPENDICES

Appendix "A" – Ordinance SCC 98-1

Appendix "B" – DWR Groundwater Information

Chapter 1 - Introduction

Background and Authority of AB 3030

Section 1.01. On January 1, 1993, California Assembly Bill 3030, the Groundwater Management Act, was codified into California law. California Water Code Sections 10750 et seq., allow local water agencies to adopt local groundwater management plans. Local public and private entities are encouraged by Water Code Section 10755.2 to adopt and implement a coordinated AB 3030 Plan, such as this plan for the Redding Groundwater Basin.

Section 1.01.A. On September 16, 2002, the California Legislature passed Senate Bill 1938. This act amended Water Code Sections 10753.4 and 10795.4; amended and renumbered Sections 10753.7, 10753.8, and 10753.9; and added Sections 10753.1 and 10753.7.

Section 1.02. Development of an AB 3030 Plan under Water Code Sections 10750, et seq., allows local entities to efficiently manage groundwater supplies, assure long-term water supplies, and distribute costs, benefits, and water sharing in a locally determined equitable manner.

Section 1.03. The Department of Water Resources ("DWR") defines a "Groundwater Management Plan" as "planned use of the groundwater basin yield, storage space, transmission capability, and water in storage."

Section 1.04. Water Code Section 10750 et seq., defines "Groundwater Management Program" as "a coordinated and ongoing activity undertaken for the benefit of a groundwater basin pursuant to a Groundwater Management Plan as specified in AB 3030."

Section 1.05. The Redding Area Water Council ("Water Council") is an association of numerous public and private entities within the Redding Groundwater Basin area who have determined by Memorandum of Understanding (MOU) dated August 1998 to jointly prepare, adopt, and implement an AB3030 Plan for the Redding Basin.

The Shasta County Water Agency (SCWA), an authorized groundwater management agency as defined in Water Code Section 10753, was authorized by the Water Council MOU to serve as the lead agency in preparing, adopting, and implementing this AB 3030 Groundwater Management Plan. The MOU also designated the Water Council to serve in a policy making oversight capacity for this planning effort. Accordingly, this plan has been undertaken by agreement of the public and private entities comprising the Water Council, as permitted by Water Code Sections 10750.7, 10753 and 10755.2. (See Table 1 for a list of Water Council members.)

Section 1.06. By executing the MOU, each of the participating entities has found and declared that management of the groundwater within their combined jurisdictions, by joint preparation, adoption and implementation of this AB3030 Plan, is in the public interest and will be of common benefit to water users within the Plan Area described in Chapter 2 of this Plan.

Section 1.07. The Water Council has determined that the adoption of this plan will provide immediate and long-term benefits for all beneficial uses of water.

Management Objectives

Section 1.08. The purposes of this Groundwater Management Plan can be summarized as follows:

A. To avoid or minimize conditions that would adversely affect groundwater availability and quality within the Plan area.

B. To develop a groundwater management program that addresses data collection and which protects and enables reasonable use of the groundwater resources of the Redding Basin.

Section 1.09. The Plan will not intrude upon, diminish, or negate in any manner, the existing authority of each affected agency, except as may be expressly provided. This Plan is intended to supplement and strengthen individual agency authority, while building on coordination efforts through the public/private entity partnership established by the above-referenced MOU. Elements of the Groundwater Management Plan will be achieved by Basin-wide consensus, wherever possible.

Coordinated Implementation

Section 1.10. The Water Council shall implement this AB 3030 Plan, with SCWA serving as the lead agency, consistent with the MOU establishing the Water Council. Accordingly, SCWA, working with and at the direction of the Water Council Policy Advisory Committee, will coordinate with all affected water purveyors and other interested parties to implement this Plan within the defined Plan Area.

Section 1.11. Upon its adoption by majority vote of the Water Council, and upon meeting all regulatory prerequisites, this Plan will be effective within the entire jurisdictional boundary of each participating public entity except where the jurisdictional boundaries are outside of Shasta County or the Redding Groundwater Basin (as shown schematically in Figure 1).

TABLE 1
Redding Area Water Council

Member Agencies
City of Anderson
City of Redding
City of Shasta Lake
Shasta County Water Agency
Anderson-Cottonwood Irrigation District
Bella Vista Water District
Clear Creek Community Services District
Centerville Community Services District
Cottonwood Water District
Shasta Community Services District
Mountain Gate Community Services District
McConnell Foundation – Advisory Only

Chapter 2 - Plan Area

Location

Section 2.01. The AB 3030 Plan Area Encompasses the cities of Shasta Lake, Redding, and Anderson, and the lands served by the numerous other water districts, agencies and purveyors in Shasta County and northern Tehama County comprising the Water Council. The Plan Area is the Redding Groundwater Water Basin (shown on Figure 1), including the service areas of the public water purveyors (shown on Figure 2).

Physiography and Geology

Section 2.02. The Redding Basin is bounded on the east by the dissected alluvial terraces, which form the foothills of the Cascade Range. The low hills and dissected uplands of the Coast Range stretch for the length of the western Shasta and Tehama County borders. The interior of the Redding Basin is characterized by stream channels, floodplain, and natural levees of the Sacramento River and its tributaries. Alluvial fans are also present near the confluence of tributaries with the Sacramento River.

Section 2.03. The Redding Groundwater Basin consists of a sediment-filled, southward-plunging, symmetrical trough (Department, 2001). Simultaneous deposition of material from the Coast Range and the Cascade Range resulted in two different formations, which are the principal freshwater-bearing formations in the basin. The Tuscan Formation, in the east, is derived from Cascade Range volcanic sediments, and the Tehama Formation, in the western and northwest portion of the basin, is derived from Coast Range sediments. These formations are up to 2,000 feet thick near the confluence of the Sacramento River and Cottonwood Creek; the Tuscan Formation is generally more permeable and productive than the Tehama Formation (Department, 2001). Groundwater recharge occurs in the higher elevations through stream seepage and direct infiltration of precipitation. Rivers and streams transition to gaining streams at lower elevations and receive direct groundwater discharge. Areas of riparian vegetation occur along surface water features throughout the basin.

Section 2.04. The oldest rock unit exposed in the area is the Upper Cretaceous Chico Formation. This unit consists of sandstone, conglomerates, and shale, which are of marine origin. In most areas of the Redding Basin, the Chico Formation contains salt water under artesian pressure. The Chico Formation is overlain by the Tuscan Formation in the eastern portion of the basin and by the Tehama Formation in the eastern portion.

Section 2.05. The Tuscan Formation is Pliocene in age, and consists of tuff breccia, tuffaceous sandstone and conglomerate, and tuffaceous silt and clay (Anderson, 1933). The mudflow deposits are generally of low permeability, but in many areas of the Redding Basin, the mudflows were eroded, sorted, and redeposited shortly after eruption. These reworked deposits are composed of thick, highly permeable sand and gravel strata. These units of the Tuscan Formation are the most prolific aquifers of the Redding Basin.

Section 2.06. The valley fill sediments that were eroded from the finer- grained rocks of the Coast Range that bound the Redding Basin to the west comprise the Pliocene Tehama Formation. The Tehama Formation is comprised of silt, sand, gravel, and clays of fluvial origin, and have been observed to be locally cemented (Russel, 1931). The Tehama Formation is another principal water-bearing formation in the Redding Basin, and contains groundwater under both confined and unconfined conditions. While parts of the Tehama Formation appear to be younger in age than the Tuscan Formation, the two formations interfinger in the central portion of the basin, indicating that these portions of the two formations are equivalent in age.

(See Figure 3 for an illustrative depiction of a typical geologic cross-section view looking from west to east across the Redding Basin.)

Section 2.07. The Red Bluff Formation unconformably overlies most of the interbedded Tehama and Tuscan Formations. It is composed primarily of coarse gravels and boulders in a reddish sand, silt, and clay matrix, and outcrops to the west of the Sacramento River (Pierce, 1983). These materials may have been originally deposited by debris-laden, turbid streams draining glacial areas. (Bulletin 118-6, DWR, 1978) The Red Bluff Formation is poorly to moderately permeable, and, in general, areas of outcrop are above the zone of saturation.

Section 2.08. Alluvial deposits of varying age underlie the floodplain along the Sacramento River and its tributaries. These flood-deposited materials generally appear as thin layers of gravel, sand, silt, and clay that occur in thicker beds along the channel of the Sacramento River. The deposit is unconsolidated and the permeability is generally moderate but locally, where gravels predominate, may be very high (Pierce, 1983).

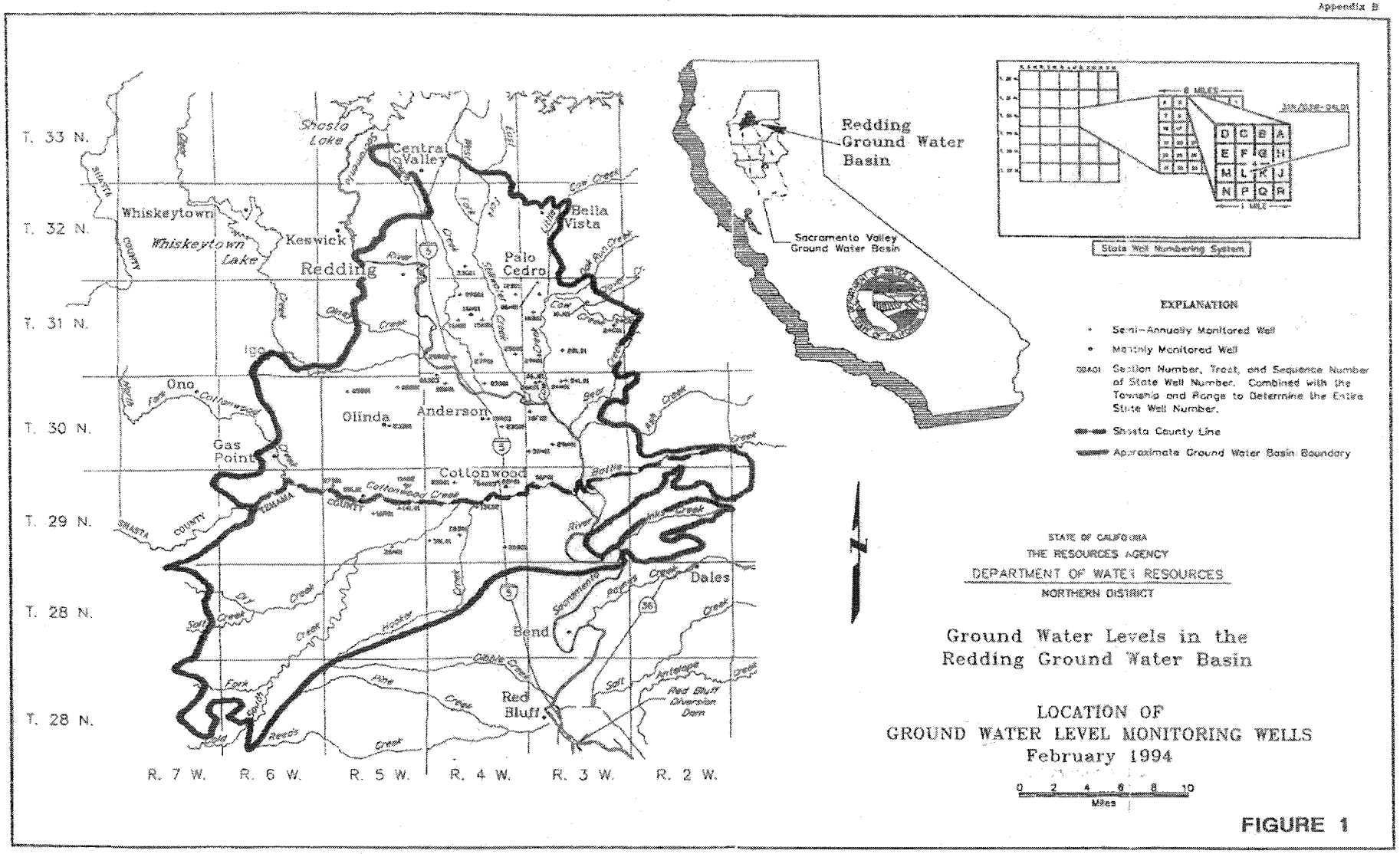

T. 33 N.
T. 32 N.
T. 31 N.
T. 30 N.
T. 29 N.
T. 28 N.
T. 28 N.
R. 7 W.
R. 6 W.
R. 5 W.
R. 4 W.
R. 3 W.
R. 2 W.
Shasta Lake
Central Valley
Whiskeytown
Whiskeytown Lake
Keswick
Redding
Bella Vista
Palo Cedro
Igo
Ono
Olinda
Anderson
Gas Point
Cottonwood
Dales
Bend
Red Bluff
Red Bluff Diversion Dam
Redding Ground Water Basin
Sacramento Valley Ground Water Basin
State Well Numbering System
EXPLANATION
Semi-Annually Monitored Well
Monthly Monitored Well
Section Number, Tract, and Sequence Number of State Well Number. Combined with the Township and Range to Determine the Entire State Well Number.
Shasta County Line
Approximate Ground Water Basin Boundary
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
Ground Water Levels in the Redding Ground Water Basin
LOCATION OF GROUND WATER LEVEL MONITORING WELLS
February 1994
0 2 4 6 8 10
Miles

FIGURE 1

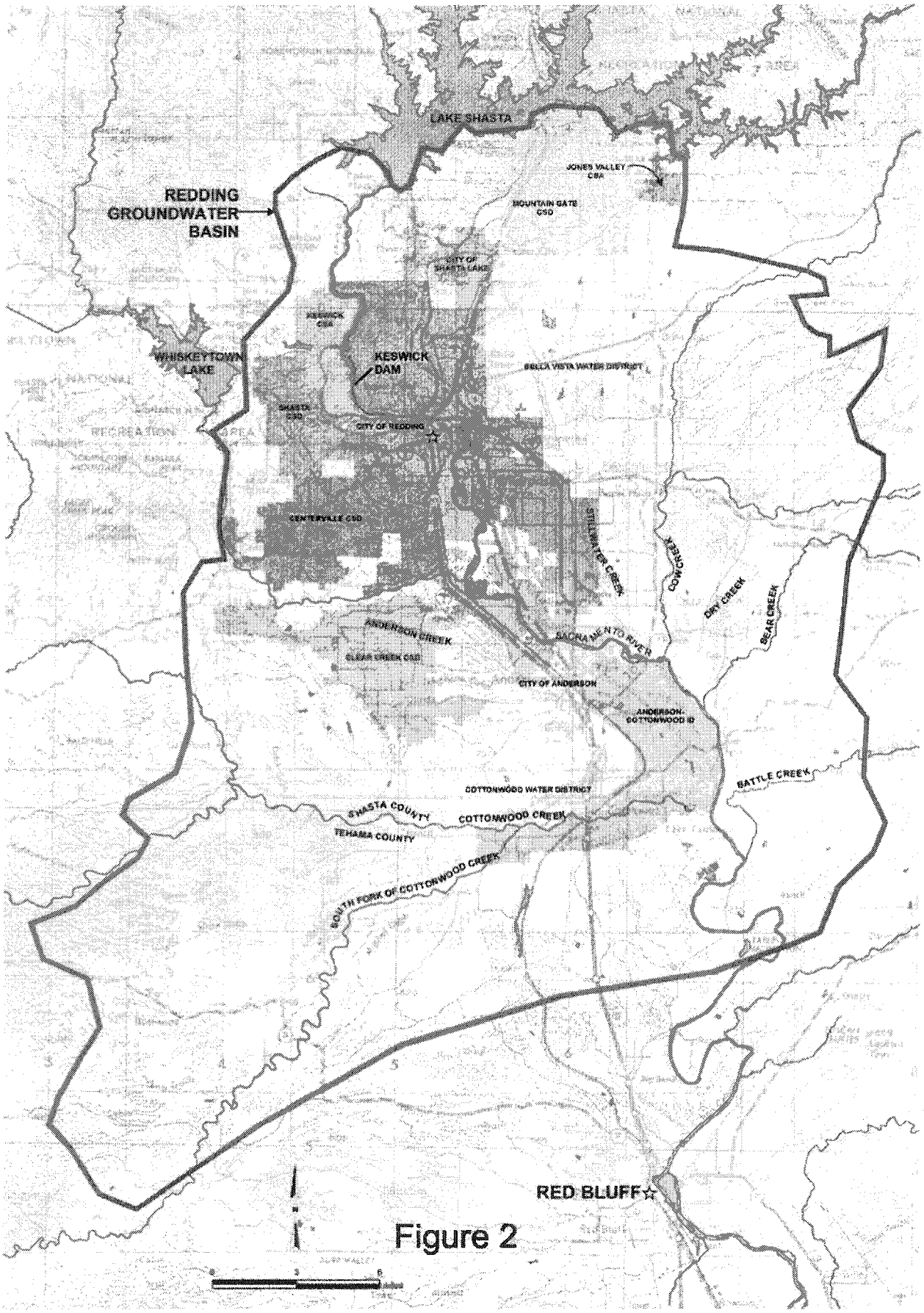
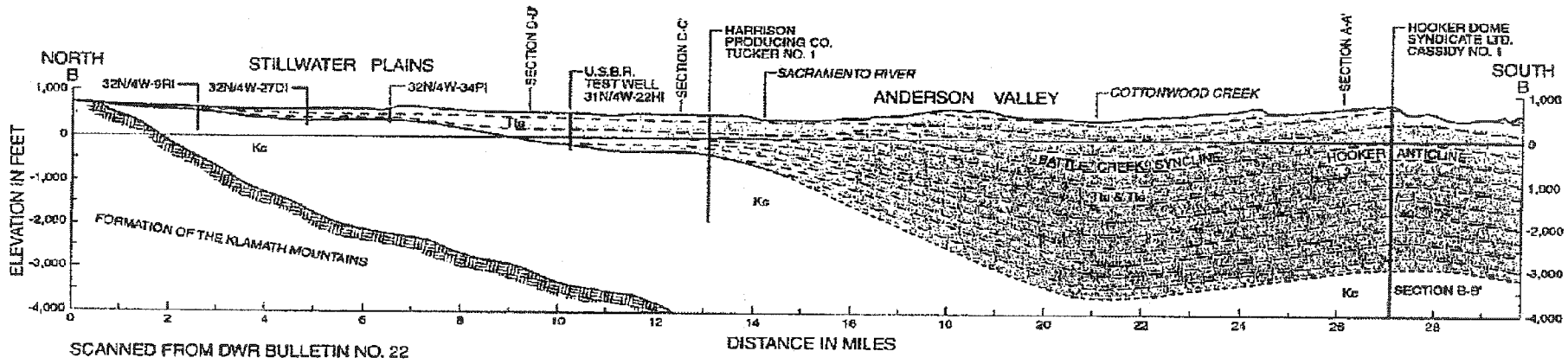

LAKE SHASTA
JONES VALLEY CSA
REDDING GROUNDWATER BASIN
MOUNTAIN GATE CSD
CITY OF SHASTA LAKE
KESWICK CSA
WHISKEYTOWN LAKE
KESWICK DAM
BELLA VISTA WATER DISTRICT
SHASTA CSD
CITY OF REDDING
CENTERVILLE CSD
STILLWATER CREEK
COW CREEK
DRY CREEK
BEAR CREEK
ANDERSON CREEK
SACRAMENTO RIVER
CLEAR CREEK CSD
CITY OF ANDERSON
ANDERSON-COTTONWOOD ID
BATTLE CREEK
COTTONWOOD WATER DISTRICT
SHASTA COUNTY
COTTONWOOD CREEK
TEHAMA COUNTY
SOUTH FORK OF COTTONWOOD CREEK
RED BLUFF

Figure 2



SCANNED FROM DWR BULLETIN NO. 22

FIGURE 3

GENERALIZED CROSS SECTION ACROSS THE SACRAMENTO VALLEY

REDDING GROUNDWATER BASIN, SHASTA COUNTY

2478_07 (7/7/98)

Climate

Section 2.09. Shasta County exhibits a wide range of precipitation and temperature due to the relatively large elevation difference between the valley floor and the highlands in the extreme eastern and western portions of the County adjacent to the Redding Basin. Precipitation and temperature data from Redding, representing typical valley floor climate parameters in the Redding Basin, demonstrate that the valley lands encompassing the Redding Basin experience hot dry summers and mild winters.

Section 2.10. Typical temperatures in the Redding area are summarized in Table 2. Mean annual precipitation in Shasta County (from the Shasta County Hydrology Manual) is shown on Figure 4.

Section 2.11. The major portion of annual precipitation generally occurs from November through April; very little rainfall typically occurs between May and October. Average annual rainfall in the Redding Basin varies from approximately 25 to 50 inches.

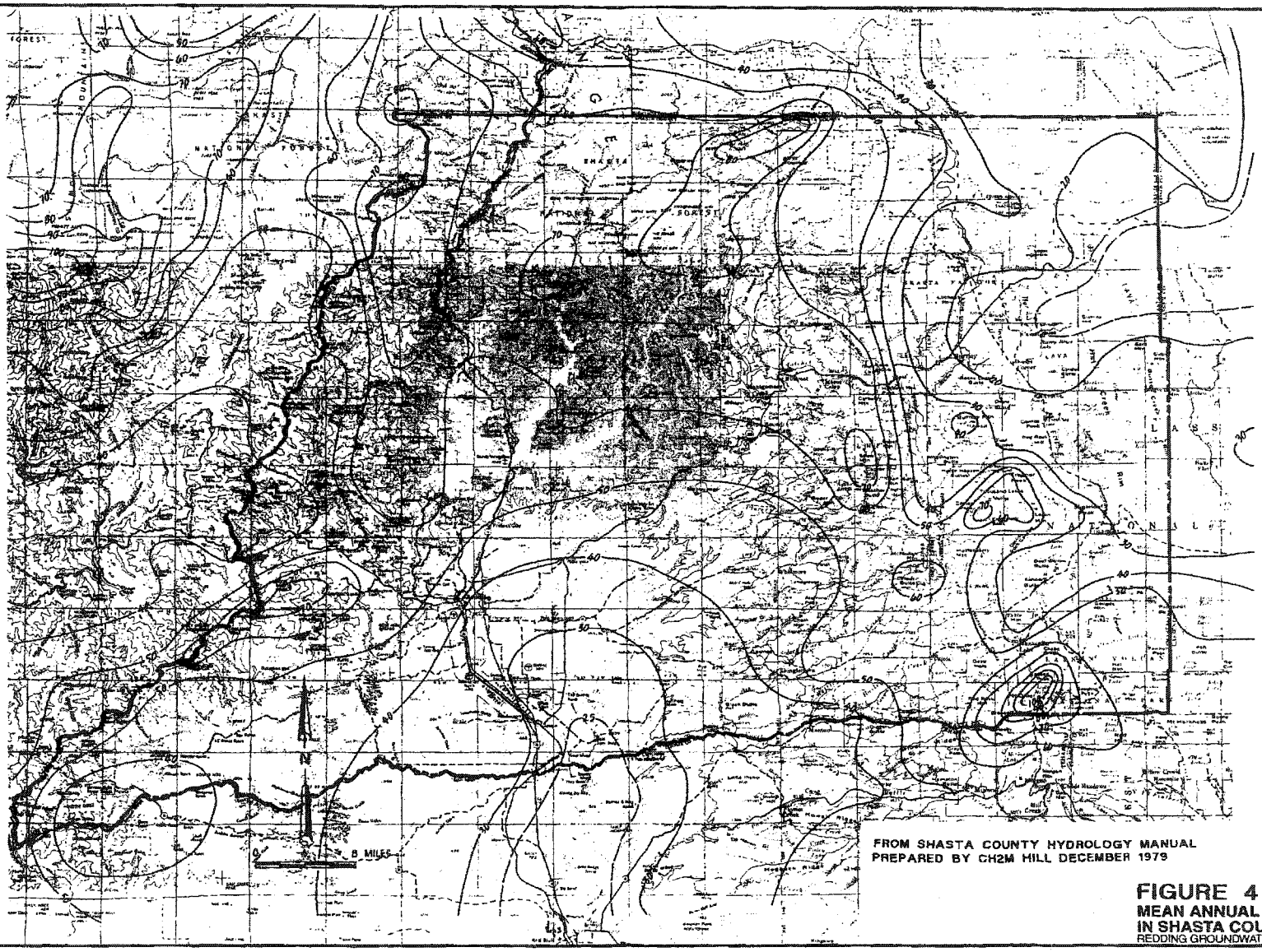
Section 2.12. The population within the Redding Basin is growing at a much higher rate than in the surrounding areas, in part because of the availability of public services, including public water supplies. The development of public water systems has resulted in a variety of high intensity land uses, including urban, residential, agriculture, riparian and native vegetation, and recreation. The three incorporated cities in the Redding Basin—Redding, Shasta Lake, and Anderson—currently account for about sixty-six percent (66%) of the total population within the Redding Basin. (See Shasta County Water Resources Master Plan—Phase 1 Report, SCWA (1997), Appendix C). Long-term population growth rates in the Redding Basin have been relatively uniform since World War II

TABLE 2

Historic Climatic Data for Redding, California

Month	[1]Normal Mean Temperature (EF)	[2]Highest Temperature of Record (EF)	[2]Lowest Temperature of Record (EF)	[2]Average Sunshine
Jan	45.5	77	19	73%
Feb	50.7	83	21	83%
Mar	52.2	85	28	84%
Apr	58	94	33	90%
May	66.4	104	36	91%
Jun	76.1	111	42	94%
Jul	81.5	118	54	97%
Aug	79.5	115	51	97%
Sep	74.1	116	40	94%
Oct	63.5	105	33	92%
Nov	51.8	88	23	84%
Dec	45	74	17	73%
Annual Average	62	118	17	88%

[1]Period of record: 1961 through 1990
[2]Data through 1995



FROM SHASTA COUNTY HYDROLOGY MANUAL
PREPARED BY CH2M HILL DECEMBER 1979

FIGURE 4
MEAN ANNUAL PRECIPITATION IN SHASTA COUNTY
REDDING GROUNDWATER BASIN, SHASTA COUNTY

2476_11 (7/7/98)

Economy

Section 2.13. The economy of Shasta County and the Redding Basin is directly tied to water supply. Lack of reliability in the water supplies has resulted in severe impacts within the service areas of purveyors who rely on federal water contracts for all or a major portion of their water supplies. Since 1991, there have been cutbacks of as much as 75 percent of agricultural allocations and 25 percent of municipal and industrial allocations. These cutbacks have resulted in substantial uncertainty and related constraints on the short-term and long-term planning needed for the orderly development of the Redding Basin.

Local Interest

Section 2.14. In late 1996, the SCWA, acting as a lead agency in this coordinated planning process, hired CH2M HILL, a water resources consulting firm, and retained legal counsel specializing in water, environmental, and regulatory law to assist with development and implementation of the Groundwater Management Plan. Working together, the Water Council members prepared the "Shasta County Water Resources Master Plan Phase 1 Report" (October 1997), which addresses current and future water needs in Shasta County and the Redding Basin. The Water Council members, by terms of the June 1998 MOU, have agreed to continue with this joint planning effort, including the preparation of an integrated surface and groundwater management plan for the Redding Groundwater Basin.

List of Participants

Section 2.15. The Water Council includes the major public and private water users in the Redding Basin. Water use for 1995 by type of use and purveyor or major user in the Redding Basin is shown in Table 3.

Section 2.16. In addition to the above referenced public and private stakeholders, key interest groups will be encouraged to participate in Plan implementation, including public education.

Section 2.17. The success of this Groundwater Management Plan, as prepared pursuant to Water Code Section 10750 et seq., will largely be dependent on the extent of coordination between all affected public entities and other interested parties. As required under Water Code Section 10750 et seq., a notice of public hearing will be published to consider whether to implement a Groundwater Management Plan.

Legal, Financial and Political Considerations

Section 2.18. In Shasta County, as in other parts of California, water resources management is governed by a complex system of local, state, and federal laws. Water use, development, and allocation are controlled by legal contracts and agreements, common law principles, statutes, constitutional provisions, and court decisions. These legal considerations, in combination with the jurisdictional powers of the various local governing agencies and the private property rights of groundwater users, form the framework that governs water resources management in Shasta County and the Redding Basin. A more thorough overview of the institutional framework for water resource management in California is provided in Chapter 2 of *The California Water Plan Update* (DWR Bulletin 160-98).

TABLE 3
1998 Annual Water Needs Summary
Redding Basin

(acre-feet x 1,000, except as noted)

	Major Public Purveyors						Small Purveyors	Private Users		
	ACID Gravity	BVWD Pressure	Clear Creek CSD Pressure	Anderson City Pressure	Redding City Pressure	Shasta Lake City Pressure	Others[a] Pressure	HWUI[b] Pressure	Irrigators, 50% Gravity, 50% Pressure	Totals
Water-Using Lands										
Irrigated Agriculture										
Permanent Crops	5.40	0.24	3.10	0.00	0.14	0.00	0.00	0.00	0.04	8.92
Grain and Field Crops	1.04	0.63	0.09	0.00	0.45	0.00	0.00	0.21	1.31	3.73
Pasture	45.93	10.35	3.57	0.00	0.00	0.04	0.10	1.38	13.82	75.19
Truck	0.14	0.02	0.04	0.00	0.04	0.00	0.00	0.00	0.30	0.54
Rice	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rural Urban (1 to 5 acres)	8.48	4.18	0.00	0.00	0.00	0.00	0.08	0.00	0.00	12.74
Total	**60.99**	**15.42**	**6.80**	**0.00**	**0.63**	**0.04**	**0.18**	**1.59**	**15.47**	**101.12**
Urban										
Urban	0.00	2.07	0.56	1.34	15.66	2.06	0.93	0.00	2.44	25.06
Rural Urban Domestic (1 to 5 acres)	0.00	0.98	0.95	0.09	1.51	0.02	1.44	0.00	1.63	6.62
Total	**0.00**	**3.05**	**1.51**	**1.43**	**17.17**	**2.08**	**2.37**	**0.00**	**4.07**	**31.68**
Commercial and Industrial										
Commercial	0.00	0.25	0.07	0.16	1.16	0.02	0.04	0.00	0.11	1.81
Industrial	0.00	1.70	0.14	0.07	0.60	0.00	0.12	14.67	0.71	18.01
Total	**0.00**	**1.95**	**0.21**	**0.23**	**1.76**	**0.02**	**0.16**	**14.67**	**0.82**	**19.82**
Recreational and Environmental										
Water Bodies	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00
Parks and Golf Courses	0.00	0.68	0.00	0.16	0.87	0.08	0.02	0.00	0.24	2.05
Riparian Vegetation	4.67	0.30	0.03	0.00	3.53	0.00	0.00	0.00	3.14	11.67
Total	**4.67**	**0.98**	**0.03**	**0.16**	**4.40**	**0.08**	**0.02**	**0.00**	**3.38**	**13.72**
Diversions to Other Counties	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00
Total	**30.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**30.00**
Total Water Delivery Demands, acre-feet per year	95.66	21.40	8.55	1.82	23.96	2.22	2.73	16.26	23.74	196.34
Conveyance Losses (acre-feet per year)	79.34	1.06	0.43	0.09	1.02	0.11	0.14	0.81	1.16	84.16
Current Diversion Requirements (acre-feet per year)[c]	**175.00**	**22.46**	**8.98**	**1.91**	**24.98**	**2.33**	**2.87**	**17.07**	**24.90**	**280.50**

a Centerville CSD, Shasta County CSD, Keswick CSA, Mountain Gate CSD, Cottonwood Water District and Jones Valley CSA.

b Heavy Water Usage Industrial (Simpson Paper Company, Sierra Pacific Industries, and Wheelabrator).

c Includes 20,000 acre-feet per year delivered to Tehama County and 10,000 acre-feet delivered to downstream users.

Section 2.19. The Water Council will adopt rules and regulations to implement provisions of this AB 3030 Plan. All such rules and regulations shall be adopted pursuant to Water Code Section 10753.8.

Section 2.20. Though permitted pursuant to Water Code Section 10754 et seq., no fees or assessments to finance AB 3030 Plan expenses, such as administrative and operating costs, will be considered by the Water Council unless a future need is demonstrated.

Condition of the Groundwater Basin

Redding Groundwater Basin and Sub-Basins

Section 2.21. The boundaries of the Redding Basin roughly approximate the eastern and western edges of the Sacramento Valley floor. (See Figure 1, showing the Basin and Plan Area.) The foothill areas that constitute the eastern and western portions of Shasta and Tehama Counties adjacent to the Redding Basin are designated as "highland" areas, and are noted for their relative scarcity of groundwater resources. Sub-basins and areas within the Redding Basin with unique characteristics will be identified and evaluated in AB 3030 Plan implementation.

Existing Monitoring

Section 2.22. Since the late 1920s, the State Department of Water Resources (DWR) and the United States Bureau of Reclamation have measured groundwater levels for 48 wells in the Redding Basin. Currently, 35 wells are monitored semi-annually and 5 wells are measured on a quarterly basis.

Section 2.23. The DWR issues periodic reports that relate to the monitoring program in the Redding Basin. These reports include groundwater hydrographs for the monitored wells. Appendix "B" contains access information for DWR Groundwater levels.

Section 2.24. Most wells in the monitoring program are measured by DWR semi-annually, usually in March and October. These monitoring periods provide an indication of groundwater levels before and after the typical agricultural irrigation season.

Section 2.25. In addition to recording water levels, the DWR reports also include, for each well, information on the producing aquifer(s), degree of certainty associated with the groundwater body classification, the hydrogeologic unit, and the applied use of the extracted groundwater.

Section 2.26. The data from these historic and ongoing monitoring efforts will be considered and reflected in the ongoing development of a Redding Basin computer model.

Historic Variations in Groundwater Levels

Section 2.27 Groundwater levels in the Redding Basin fluctuate seasonally in response to the quantities of discharge from, and recharge to, the groundwater basin that occurs in a particular year. The primary source of groundwater discharge from the aquifer is groundwater pumping, along with a small quantity of subsurface outflow from the basin, while the main sources of recharge are deep percolation of precipitation and applied water, along with leakage from surface streams.

Section 2.28. Monthly measurements of groundwater show that water levels start dropping in early spring (usually April) and continue to decline through the summer until early September. Maximum levels are usually reached by February.

Section 2.29. Over the long term, groundwater levels in the Redding Basin have remained steady. There are seasonal fluctuations (summer to winter), and there are some fluctuations caused by climatic patterns (wet or dry years), but overall, groundwater levels have not changed significantly throughout the period of record.

Historic Groundwater Pumpage

Section 2.30. In the earlier parts of this century, little groundwater was used in Shasta County and the Redding Basin. The Sacramento River and its primary tributaries provided the source of water for most irrigation. A notable exception is along Cottonwood Creek, where substantial groundwater extraction occurred over several decades, largely ending in the 1980s.

Section 2.31. In the early 1970s, approximately 5 percent of all irrigation water came from groundwater, and approximately 95 percent came from surface-water sources. In 1995, approximately 12.5 percent of all water used in the Redding Basin was derived from groundwater. The vast majority of groundwater extracted is put to municipal and industrial uses. Groundwater is the principal source of water supply for areas outside of the service areas of the 14 water districts within the basin.

Groundwater Quality

Section 2.32. The general quality of groundwater in the Redding Basin is considered good to excellent (TDS between 95 and 424 mg/L) for most uses, except for that water from shallow depths along the margin of the basin where pre-Tertiary formations may be tapped. Some wells in those areas yield water with constituents that are above limits for drinking (primarily metals, TDS, chloride and sulfate). This water is likely derived from the Chico Formation (Pierce, 1983).

Section 2.33. Additional review of existing and potential groundwater quality problems in the Redding Basin is needed. This will occur in AB 3030 Plan implementation.

Need for Groundwater Management Plan

Section 2.34. There is a substantial, but undefined, supply of groundwater in the Redding Basin. The Redding Basin does not appear to be in a state of groundwater overdraft; however, at this time there is no certainty as to how close the Redding Basin is to overdraft, what constitutes a "safe annual yield," and when and how frequently well interference problems may arise in the future.

The Redding Groundwater Basin has been estimated to contain up to 3,500,000 AF of groundwater in storage (DWR Bulletin 118, 1975). Groundwater levels in wells within the Basin are depressed seasonally, but fully recover over the winter months in all but the driest rainfall years. However, further study is necessary to determine the effects of a prolonged, severe drought on regional groundwater levels.

Section 2.35. The need for an AB 3030 Plan is documented in the Shasta County Water Resources Master Plan Phase 1 Report (October 1997) "Phase 1 Report," which was prepared for the Water Council. As indicated in that report, additional study of the Redding Basin's characteristics is needed to better understand and evaluate the occurrence, movement, origin, and destination of groundwater in the Redding Basin, and what constitutes reasonable use thereof.

Section 2.36. This plan is intended to provide a mechanism for both the public and private stakeholders in the Redding Basin to evaluate, manage, protect, and preserve this valuable local groundwater resource.

Replace Figures 5-11 with citations to Appendix B in 2.22-2.36. Appendix B would contain appropriate web links to historic documents.

Chapter 3 - Elements of the AB 3030 Plan

AB 3030 Plan Elements

Section 3.01. The approach to groundwater management reflected in this AB 3030 Plan will generally be based on voluntary cooperation between water agencies, purveyors, and interested private parties in the Redding Basin, with an information gathering and monitoring emphasis. This plan includes the following elements: (1) Data Development/Groundwater Monitoring; (2) Public Entity Coordination and Reporting; (3) Public Information and Education; (4) Export Limitations; (5) Water Quality; (6) Wellhead Protection; (7) Land Use; (8) Conjunctive Use Operations; (9) Groundwater Management Facilities; and (10) Groundwater Overdraft and Well Interference. These elements are further described below.

Data Development/Groundwater Monitoring

Section 3.02. To ensure that its actions are taken in accordance with the public interest, and to further prevent the use of unnecessary and potentially burdensome management techniques, SCWA will work with Water Council participants to collect data and will conduct or receive necessary and relevant studies, for the purpose of further documenting the existing quality and quantity of groundwater within the Redding Basin. This SCWA activity will be undertaken in a scope and manner consistent with the Water Council MOU, including the preparation and maintenance of a linked surface water and groundwater computer-based model.

Section 3.03. SCWA will serve as the Water Council's information and data collection coordinator, and will collect and conduct, or have conducted, technical investigations to carry out this plan, including computer model development. All data collection and technical investigations authorized under this plan shall be carried out by SCWA in consultation with the Water Council Policy Advisory Committee.

Section 3.04. One of the goals in the data collection and evaluation process will be to determine the Redding Basin's long-term safe annual yield. For the purpose of this plan, "long-term safe annual yield" shall be as defined in Appendix A, which defines this and other key AB 3030 Plan and implementing regulation terms. The determination shall estimate the safe annual yield of the total Redding Basin under various hydrologic conditions and the probable boundaries of the sub-basin hydrologic units.

Section 3.05. The Water Council shall prepare a report on the status of the Redding Basin no less than bi-annually. The report shall include an estimate of annual recharge, pumping, and groundwater discharge to surface streams. The report shall include any other information that the Water Council deems relevant and necessary to the effective management of groundwater within the Plan Area, including estimated changes in water levels.

A. Collection and Analysis of Data/Preparation of Reports on Hydrologic Conditions. Data related to the hydrologic inventory of the Redding Basin will be collected and reviewed as a component of the periodic report to be prepared by the Water Council. Principal factors to be considered will include surface water imported to and exported from the Redding Basin, evapotranspiration, the estimated groundwater recharge, discharge, and extractions from the Redding Basin, and subterranean outflow.

B. Preference for Use of Existing Databases. To avoid incurring unnecessary costs, the Water Council shall utilize data and models developed for the Redding Basin Management Planning effort and further determine the status of additional studies and monitoring programs carried out within the Redding Basin by federal, state, and local agencies. Where possible, information from pre-existing data collection programs, and new data derived from the computer model to be developed for the Water Council and other sources, will be incorporated into the report.

C. Expansion of Data Collection Efforts. Where significant and important data are missing or incomplete, the Water Council will determine methods to acquire a more complete database.

Section 3.06. The Water Council, using its Technical Advisory Committee as it determines appropriate, may prepare or receive reports on groundwater and supplemental water supplies, groundwater quality, and other conditions within the Plan Area. The Water Council may identify information useful to a water replenishment or conjunctive use project and prepare reports on the utility of these types of projects within the Plan Area.

Section 3.07. To protect and/or enhance the quality and quantity of water within the Redding Basin, the Water Council shall develop and implement a Redding Basin monitoring program. The monitoring program may consist of the measures identified in these sections and will be implemented by the adoption of rules and regulations, as determined appropriate by the Water Council Policy Advisory Committee.

A. Monitoring Redding Basin Conditions. The previous and ongoing collection and analysis of basic hydrologic data are important elements of the Management Plan. Monitoring is essential to characterize Redding Basin conditions and to provide the technical information needed to make decisions regarding the optimal use and management of the Redding Basin. Monitoring of the Redding Basin will allow the Water Council to: (1) identify reliable sources of information; (2) identify changing conditions; (3) develop and implement specific groundwater management programs as may be determined necessary in the future; and (4) document the accomplishments of the management program.

B. Use of Existing Monitoring Data. The Water Council shall coordinate with the DWR, Northern District Office, Anderson-Cottonwood Irrigation District, and other appropriate entities to use and supplement their existing semi-annual well water level measurement program. Monitoring of water levels will allow the Water Council to gauge the status of the groundwater resource in response to changing hydrologic conditions and water use practices. The number and location of these wells will be determined by the Water Council Policy Advisory Committee.

C. Monitoring Groundwater Quality Conditions. The Water Council shall include one or more monitoring wells within the Redding Basin, and in each sub-basin where feasible, for the purpose of measuring water quality conditions within the Redding Basin. The number and location of these wells will be determined by the Water Council Policy Advisory Committee. Efforts will be made to use existing wells that are subject to water quality testing to minimize costs associated with the water quality-monitoring program.

Section 3.08. The Water Council shall prepare an annual estimate of the amount of water extracted within the Plan Area and of the total cumulative groundwater extractions within the Redding Basin.

Public Entity Coordination and Reporting

Section 3.09. The Water Council shall strive at all times to coordinate with all agencies having jurisdiction over water-related matters in and adjacent to the Redding Basin.

Section 3.10. The Water Council will coordinate with the Regional Water Quality Control Board, U.S. Environmental Protection Agency, the State Office of Drinking Water, and other state and local regulatory agencies to monitor and develop information concerning groundwater quality compliance with applicable standards, and to otherwise manage and ensure reasonable use of Plan Area groundwater.

Public Information and Education

Section 3.11. It is essential to involve the public, agricultural, industrial, and business communities early in the development of the Groundwater Management Plan. Throughout the implementation of this plan, public education and community relations will be integral to successful groundwater management in the Redding Basin.

Section 3.12. The Water Council shall provide public outreach through public presentations, published information items, and references to groundwater data available through other public agencies, as determined by the Policy Advisory Committee.

Export Limitations

Section 3.13. In order to preserve and protect Redding Groundwater Basin resources, and to ensure their reasonable and beneficial use in a way that is not detrimental to the Basin and its local users, County of Shasta Ordinance No. SCC 98-1, as adopted by the Shasta County Board of Supervisors on January 27, 1998, is fully incorporated into this AB 3030 Plan by reference, and shall apply throughout the AB 3030 Plan area except: (1) as otherwise provided by this Plan; or (2) as it may be superceded by adoption of one or more local ordinances within individual public agency boundaries. That groundwater extraction and export ordinance, which is codified as Chapter 18.08 of the Shasta County Code, is attached to this Plan as Appendix A.

The term "Shasta County" as used in Exhibit "A" for the purpose of requiring a permit for the export of ground water outside of the County, shall mean the AB 3030 Plan area.

The term "Commission" as used in Exhibit "A" shall be the Water Council Technical Advisory Committee, as established by MOU, unless otherwise designated and appointed by the Water Council.

The terms "Clerk of the Board" and "Board" as used in Exhibit "A" for the purpose of appeals from Commission actions on permit applications, shall mean the "Director" as therein defined and the full Water council, Respectively.

Water Quality

Section 3.14. The Water Council, working with members and non-member entities shall develop a program to assess, monitor, and protect the quality of groundwater in the Redding Basin to ensure the quality is acceptable for all beneficial uses.

Wellhead Protection

Section 3.15. Abandoned wells provide the potential for pollutants or contaminants to enter and/or spread into the Redding Basin groundwater. As such, well abandonment represents a

key concern in groundwater management. The Water Council shall coordinate with the County Division of Environmental Health to obtain written notice concerning well abandonment projects.

Section 3.16. Improperly constructed and abandoned wells can impair yields and increase the potential for groundwater contamination. The Water Council supports the California Model Well Code standards, and the Shasta County well construction and destruction ordinance and regulations, and will work with the County Division of Environmental Health to provide information to well owners throughout the Basin regarding proper well construction and abandonment procedures.

Land Use

Section 3.17. To improve coordination among Water Council members and jurisdictions having land use authority, the Water Agency will request notification and circulation of CEQA documents for projects in the basin that identify potentially significant effects to groundwater quality. The Water Agency will notify members of the Water Council that may be affected and collaborate to assess the risk of groundwater contamination.

Conjunctive Use Operations

Section 3.18. The Water Council shall evaluate options and develop a program for conjunctive use of Redding Basin water sources in an effort to increase or maintain Redding Basin water supplies.

Groundwater Management Facilities

Section 3.19. The Water Council will assess the need for short- and long-term facilities, such as conjunctive use facilities, and develop plans as may be determined appropriate.

Groundwater Overdraft and Well Interference

Section 3.20. A mitigation and prevention program will be developed to address potential overdraft, well interference, and similar problems that would adversely affect the groundwater resources in the Plan area. This program will identify strategies and actions that will promote reasonable groundwater usage in the Redding Basin.

Section 3.21. The Water Council Policy Advisory Committee shall review this AB 3030 Plan and its implementation on a bi-annual basis and shall report its findings to all MOU participants.

Chapter 4 - Implementation

Procedure

Section 4.01. A Groundwater Management Plan developed pursuant to Water Code Section 10750 et seq., must be conducted according to the procedure show in Table 4.

TABLE 4 Procedure to Implement Groundwater Management Plan
1. Publish notice of public hearing to consider whether to adopt resolution of intent.
2. Conduct a hearing on whether to adopt a resolution of intent to adopt a Groundwater Management Plan.
3. Adopt a resolution of intention to adopt a Groundwater Management Plan.
4. Publication of notice.
5. Prepare a Groundwater Management Plan within 2 years.
6. Hold a second hearing after plan preparation is complete.
7. Consider protests at conclusion of second hearing.
8. If protests are received from landowners representing more than 50% of assessed value of property in the County occurs, the Plan shall not be adopted.
9. If protests are received from landowners representing less than 50% of assessed value of property in the Redding Basin Plan area occurs, the AB 3030 Plan may be adopted within 35 days after Step 6.

Plan Administration

Section 4.02. The Water Council will administer the AB 3030 Plan throughout the Plan Area in accordance with the adopted Water Council MOU. As reflected in that MOU, successful implementation of the AB 3030 Plan must involve the ongoing participation of, and coordination between, all Redding Basin agencies which are empowered with groundwater-related duties and other interested local entities.

Section 4.03. Consistent with Water Council objectives in preparing this AB 3030 Plan, it is intended that this Plan will apply to the service areas of all local water purveyors within its stated boundaries. However, any local agency, investor-owned utility, or mutual water company which may decline to have the plan made applicable within its service area will be exempt from this plan within its jurisdiction, as stated in the MOU or applicable law.

Section 4.04. Any local water agencies within the boundaries of the AB 3030 plan area that decline to participate in cooperative management of the Redding Basin within its agency boundary shall be encouraged to adopt their own groundwater management plans and coordinate with the Water Council to the extent possible.

Section 4.05. This AB3030 Plan shall be funded, with respect to implementation and maintenance, as provided in the Water Council MOU as may be amended.

Section 4.06. In accordance with the California Groundwater Management Act, the Water Council will develop rules and regulations from time to time, to implement provisions of this plan, as it may be amended consistent with the Water Council MOU. These rules and regulations shall be adopted by the Water Council by resolution.

Section 4.07. All meetings of the Policy Advisory Committee and/or Technical Advisory Committee will be publicly noticed in print media of general circulation. Parties that have requested will be notified of meetings in the same manner as the Policy Advisory Committee and/or Technical Advisory Committee.

A. Time will be allotted during meetings of the Policy Advisory Committee and/or Technical Advisory Committee for public comment. The amount of time will be at the discretion of the Water Committee member conducting the meeting.

B. Written comments germane to the Policy Advisory Committee and/or Technical Advisory Committee meeting will be considered if received before the close of business 5 working days after the meeting.

Section 4.08. All known water purveyors whose boundaries overlie the Redding Groundwater Basin will be notified of meetings of the Policy Advisory Committee and/or Technical Advisory Committee in the same manner as members of the Water Committee.

A. Time will be allotted during meetings of the Policy Advisory Committee and/or Technical Advisory Committee for purveyor comment. The amount of time will be at the discretion of the Water Committee member conducting the meeting.

B. Written comments germane to the Policy Advisory Committee and/or Technical Advisory Committee meeting will be considered if received before the close of business 10 working days after the meeting.

Chapter 5 - Plan Amendments

Section 5.01. This AB3030 Plan shall be periodically updated, based on changed circumstances within the Redding Basin, as determined by the Water Council.

Section 5.02. Plan Amendments shall occur in the manner established in the Water council MOU, as may be amended.

Section 5.03. The Water Council shall endeavor to publicly distribute, and educate the public concerning any AB3030 Plan amendments adopted resulting in more than mere technical changes.

APPENDIX "A"

SHASTA COUNTY GROUNDWATER
EXTRACTION AND EXPORT ORDINANCE

Appendix 15.11
Correspondence (NOP Responses / Public Services and Utilities Responses)

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

Notice of Preparation

RECEIVED
SEP 09 2008
DEVELOPMENT SERVICES DEPT.

September 5, 2008

To: Reviewing Agencies

Re: Salt Creek Heights Subdivision
SCH# 2008092020

Attached for your review and comment is the Notice of Preparation (NOP) for the Salt Creek Heights Subdivision draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Mr. Zach Bonnin
City of Redding
777 Cypress Avenue
Redding, CA 96001

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Assistant Deputy Director & Senior Planner, State Clearinghouse

Attachments
cc: Lead Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2008092020
Project Title Salt Creek Heights Subdivision
Lead Agency Redding, City of

Type NOP Notice of Preparation

Description The proposed Project consists of approximately 272 acres of undeveloped land located on the west side of Redding, with approximately 100 acres of 272 acres that are suitable for development. The project proposes the development of 440 residential units (248 single-family units, 96 clustered single-family units, and 96 apartment units) designed with a mix of housing types, including single-family, multiple-family, cluster homes with motor courts, and custom home sites.

Lead Agency Contact

Name Mr. Zach Bonnin
Agency City of Redding
Phone (530) 225-4020 **Fax**
email
Address 777 Cypress Avenue
City Redding **State** CA **Zip** 96001

Project Location

County Shasta
City Redding
Region
Cross Streets North of Sr-299/Eureka Way
Lat / Long
Parcel No. 204-030-036,-028,-027, and -023
Township 32N **Range** 5W **Section** 32/33 **Base** MDB&M

Proximity to:

Highways SR-299
Airports
Railways
Waterways Salt Creek, Gold Run Creek, Sacramento River
Schools Shasta High, Manzanita Elementary
Land Use Currently designated "Residential, 6 to 10 units per acre", "Residential, 2 to 3.5 units per acre", and "Greenway" (GWY), and zoned by the City as "RM-9" (Residential Mixed Housing Type, 9 units per acre), "RS-2" (Residential Single Family, maximum density of 3.5 units per acre), and "OS" (Open Space).

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

---

Reviewing Agencies Resources Agency; Department of Conservation; Cal Fire; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 1; Department of Health Services; Native American Heritage Commission; California Highway Patrol; Department of Housing and Community Development; Caltrans, District 2; Regional Water Quality Control Bd., Region 5 (Redding)

Date Received 09/05/2008 **Start of Review** 09/05/2008 **End of Review** 10/06/2008

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Shasta

SCH# 2008092020

Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  David Johnson
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [x] **Dept. of Conservation**
  Sharon Howell
- [ ] **California Energy Commission**
  Dale Edwards
- [x] **Cal Fire**
  Allen Robertson
- [ ] **Office of Historic Preservation**
  Wayne Donaldson
- [x] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **Central Valley Flood Protection Board**
  Mark Herald
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [x] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou
- [ ] _____
  Conservancy

Fish and Game

- [ ] **Depart. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [x] **Fish & Game Region 1**
  Donald Koch
- [ ] **Fish & Game Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Game Region 2**
  Jeff Drongesen
- [ ] **Fish & Game Region 3**
  Robert Floerke
- [ ] **Fish & Game Region 4**
  Julie Vance
- [ ] **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- [ ] **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M**
  Gabrina Getchel
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Anna Garbeff
  Environmental Services Section
- [x] **Dept. of Public Health**
  Veronica Malloy
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Debby Eddy
- [ ] **Office of Emergency Services**
  Dennis Castrillo
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Ken Lewis
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Marina Brand
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- [ ] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [ ] **Caltrans - Planning**
  Terri Pencovic
- [x] **California Highway Patrol**
  Shirley Kelly
  Office of Special Projects
- [x] **Housing & Community Development**
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [x] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Bruce de Terra
- [ ] **Caltrans, District 4**
  Lisa Carboni
- [ ] **Caltrans, District 5**
  David Murray
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Elmer Alvarez
- [ ] **Caltrans, District 8**
  Dan Kopulsky
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Ryan P. Chamberlain

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
  - [ ] Transportation Projects
    Ravi Ramalingam
  - [ ] Industrial Projects
    Mike Tollstrup
- [ ] **California Integrated Waste Management Board**
  Sue O'Leary
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [x] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____

Last Updated on 08/13/2008

Shasta County

DEPARTMENT OF RESOURCE MANAGEMENT
1855 Placer Street, Redding, CA 96001

Russ Mull, R.E.H.S., A.I.C.P
Director
Richard W. Simon,
Assistant Director

September 29, 2008

RECEIVED
SEP 30 2008
DEVELOPMENT SERVICES DEPT.

Zach Bonnin, Associate Planner
Planning Division
City of Redding
PO Box 496071
Redding, CA 96049-6071

Dear Mr. Bonnin:

Salt Creek Heights Tentative Subdivision Map S15-07, Rezoning Application RZ-06-07, Planned Development Application PD-11-07, and EIR 1-08.

The Shasta County Air Quality Management District (District) has reviewed the initial referral for the proposed residential development as requested in your letter dated September 2, 2008.

With the signing of Executive Order S-3-05 by Governor Arnold Schwarzenegger and the State Legislature enacting the Global Warming Solutions Act of 2006, adverse effects of the project's impact need to be identified on the global-scale phenomenon of climate change. The Environmental Impact Report (EIR) should analyze the project's global warming impacts by performing the same analysis that is used for conventional pollutants. The EIR analysis should calculate emissions of greenhouse gases (GHG) for all phases of construction and operation of the project.

Impacts from a project are typically compared with the significance thresholds established by the decision making authority. While no GHG significance thresholds have yet to be promulgated, one of the following three basic paths of significance must be considered:

No significance threshold for greenhouse gas emissions;
GHG emissions threshold set at zero; or
GHG threshold set at a non-zero level.

While the no significance threshold path currently exists in Shasta County by default, the nature of the cumulative impact of GHG on global warming indicates that a significance threshold of zero or near zero would be appropriate. Any non-zero significance threshold adopted for GHG emissions would be at a level low enough to ensure that a large percentage of projects would be evaluated for mitigations. This residential development project may have GHG emissions that would be expected to be above any reasonable threshold and therefor should be evaluated as stated in the initial study.

The District recommends that the evaluation of significance during the EIR should include modeling for GHG emissions. URBEMIS 2007 can be used for construction emission modeling, and any traffic study data associated with the project operation. The California Climate Action Protocol v2.2 can also be used to model indirect GHG emissions from energy use during project operation.

The Air Quality Element of the City of Redding's General Plan requires that if the project's criteria pollutant emissions remain above the Level B daily thresholds, emission offsets are required. Furthermore, it states that our District should be contacted to determine the appropriate offsets.

Should GHG be found to increase significantly, then mitigation measures should be addressed in the EIR. During the review of the Draft EIR, please allow our District to review any determinations, URBEMIS analysis, and potential mitigation measures. Also, please inform the District if there are any changes to the project.

If there are any questions, please feel free to contact me at (530) 225-5674.

Sincerely,

Adam Fieseler

Adam Fieseler
Air Pollution Inspector II

af/mb

SHASTA
COUNTY OFFICE OF
EDUCATION

Providing assistance and leadership to the districts in Shasta County and ensuring all students have equal access to a quality education

Superintendent
Tom Armelino

Board of Education
Linda Bradford
Derek Fasking
Diane Gerard
Rhonda Hull
Linda McBride
William Stegall
Susan Wilson

RECEIVED
SEP 29 2008
DEVELOPMENT SERVICES DEPT.

September 15, 2008

City of Redding Planning Division
777 Cypress Avenue
Redding, CA 96001

Dear Zach Bonnin:

The Shasta County Office of Education (COE) does not have any specific comments on the project at this time and looks forward to commenting on the Environmental Impact Report (EIR) as it will provided needed information on the school facility impacts of the Salt Creek Heights project. All development projects, especially those the size of the proposed Salt Creek Heights project, affect the COE and our duty to provide facilities and services for the children of our community. The COE will undoubtedly require the developer to assist in the funding of new school facilities necessitated by the project. The COE looks forward to working with the City of Redding and the project developer to ensure that our facilities needs are met as the project moves forward.

Sincerely,

Shayne Hale
Director of Facilities, Maintenance and Operations

1644 Magnolia Avenue | Redding, CA 96001 | (530) 225-0200 | Fax (530) 225-0329 | www.shastacoe.org

DEPARTMENT OF TRANSPORTATION
OFFICE OF COMMUNITY PLANNING
1657 RIVERSIDE DRIVE
P. O. BOX 496073
REDDING, CA 96049-6073
PHONE (530) 225-3369
FAX (530) 225-3020
TTY (530) 225-2019

Flex your power!
Be energy efficient!

October 2, 2008

IGR/CEQA Review
Sha-299-20 & 22
Salt Creek Heights
NOP EIR
SCH# 2008092020

Mr. Zach Bonnin
City of Redding
Development Services Department
777 Cypress Avenue
Redding, CA 96001

Dear Mr. Bonnin:

Thank you for providing us the opportunity to comment on the Notice of Preparation of an Environmental Impact Report (NOP EIR) and the traffic study for the housing development project submitted on behalf of Sierra Pacific Industries Inc., for a 440-unit subdivision. The project is located along the north side of State Route (SR) 299 extending westerly near its intersection with Buenaventura Boulevard.

In reviewing the NOP we noticed that Caltrans was not listed in the agencies for which the project will be required to obtain permits. A Caltrans encroachment permit will be required for all work to be done in the State Highway right of way.

We look forward to the DEIR clearly stating the direct impacts that the project will be wholly responsible for providing which will include the construction of the two proposed highway connections including turn lane channelization and intersection illumination as well as future intersection improvements. The DEIR should also identify whether the signal phasing at the Buenaventura Boulevard/SR 299 intersection will need to be upgraded to accommodate the increase in traffic from the project.

Since this project will extend the City's urban fringe, we look forward to the DEIR identifying the highway frontage improvements that the project will be responsible to provide to accommodate pedestrians, bicycles, and transit.

We also look forward to the DEIR describing the mitigation measures that the project will be responsible for constructing and those that the project will contribute proportionate shares for the affected highway intersections that have a significantly degraded level of service (LOS) or operations. We also look forward to the EIR identifying whether the mitigation will be constructed or collected based on project phasing, as lots are developed, or through a development agreement. The DEIR should consider whether the proportionate shares will be collected through the life of the project or whether the City and the developer will work with Caltrans to identify specific improvements that are acceptable in-luie of the proportionate shares to be collected.

A small portion of the project would develop units next to the highway that could be affected by transportation noise. We look forward to the noise analysis assessing feasible mitigation measures for noise attenuation. The DEIR and subdivision map should clearly advise that feasible measures for noise attenuation will be incorporated into the project. Caltrans will not be responsible for constructing any additional noise barriers along SR 299 as a result of this project.

We look forward to receiving and reviewing the DEIR. If you have any questions, please call me at 225-3369.

Sincerely,

MARCELINO GONZALEZ
Local Development Review
District 2

c: State Clearinghouse

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

RECEIVED
SEP 15 2008
DEVELOPMENT SERVICES DEPT.

September 12, 2008

Mr. Zach Bonnin
City pf Redding
777 Cypress Avenue
Redding, CA 96001

RE: SCH# 2008092020 Salt Creek Heights Subdivision; Shasta County.

Dear Mr. Bonnin:

The Native American Heritage Commission has reviewed the Notice of Preparation (NOP) regarding the above referenced project. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064(b)). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

- ✓ Contact the appropriate Information Center for a record search to determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **Sacred Lands File check completed, no sites indicated**
  - A list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez

Katy Sanchez
Program Analyst
(916) 653-4040

CC: State Clearinghouse

Native American Contacts
Shasta County
September 11, 2008

Pit River Tribe of California
Jessica Jim, Chairperson
37118 Main Street
Burney , CA 96013
(530) 335-5421
(530) 335-3140 Fax

Pit River
Achumawi -
Wintun

Pit River Tribe Environmental Office
Sharon Elmore, Cultural Information Officer
37118 State Highway 299 E
Burney , CA 96013
ajumawi@frontier.net
(530) 335-5062, Ext. 2

Pit River
Wintun

Redding Rancheria
Tracy Edwards, Chief Executive Officer
2000 Redding Rancheria Road
Redding , CA 96001
(530) 225-8979
Fax: (530) 241-1879

Wintu
Pit River
Yana

Winnemem Wintu Tribe
Caleen Sisk-Franco, Tribal Chair
14840 Bear Mountain Road
Redding , CA 96003
winnemem@msn.com

(530) 275-2737
(530) 275-4193 FAX

Wintu

Wintu Tribe of Northern California
Kelli Hayward
3576 Oasis Road
Redding , CA 96003
wintu_tribe@hotmail.com
(530) 245-0141
(530) 245-0241 - FAX
530-245-0241-FAX

Wintu

Redding Rancheria
Barbara Murphy, Chair
2000 Redding Rancheria Road
Redding , CA 96001
(530) 225-8979
(530) 241-1879 - Fax

Wintu
Pit River
Yana

Wintu Educational and Cultural Council
Robert Burns
PO Box 483
Hayfork , CA 96041
(530) 628-5930

Wintu

Pit River Tribe of California
Alexis Barry, Tribal Administrator
37118 Main Street
Burney , CA 96013
(530) 335-5421
(530) 335-3140 Fax

Pit River
Achomawi -
Wintun

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2008092020 Salt Creek Heights Subdivision; Shasta County.

Salt
KS

Native American Contacts
Shasta County
September 11, 2008

Pit River Tribe of California
Michelle Berditschevsky, Environmental Coordinator
37118 Main Street
Burney , CA 96013
(530) 335-5062

Pit River
Achomawi -
Wintun

Carol Sinclair
9253 Chaparral Dr.
Redding , CA 96001
530-242-1374

Wintu

United Tribe of Northern Calif., Inc., Wintu, Wintun, Wintoon
Gloria Gomes, Chairperson
20059 Parocast
Redding , CA 96003
(530) 275-1915

Wintu
Wintun
Wintoon

Matthew Root
16117 North St.
Keswick , CA 96001
530-247-7351

Wintu

United Tribe of Northern Calif., Inc., Wintu, Wintun, Wintoon
John Castro, Cultural Liaison
20059 Parocast
Redding , CA 96003
(530) 275-1915

Wintu
Wintun
Wintoon

Loretta Root
5620 Kofford Lane
Redding , CA 96001
530-229-9203

Wintu

Redding Rancheria Cultural Resources
James Hayward Sr., Cultural Resources Program
2000 Redding Rancheria Road
Redding , CA 96001
jamesh@redding-rancheria.
530-242-4543
530-410-2873 - cell
Fax: (530) 241-1879

Wintu
Pit River
Yana

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2008092020 Sal Creek Heights Subdivision; Shasta County.

Salt Ks

Shasta Mosquito and Vector Control District

MANAGER • WILLIAM C. HAZELEUR
DISTRICT OFFICE • 19200 LATONA ROAD, ANDERSON, CA 96007
MAILING ADDRESS • P. O. BOX 990331, REDDING, CA 96099-0331
PHONE (530) 365-3768 • FAX (530) 365-[illegible]
mosquito@clearwire.net

RECEIVED
SEP 08 2008
DEVELOPMENT SERVICES DEPT.

September 5, 2008

City of Redding Development Services Department
777 Cypress Avenue
Redding, CA. 96001

Attention: Zach Bonnin.
Subject: Tentative Subdivision Map Application S-15-07 (Salt Creek Subdivision)

Dear Mr. Bonnin:

Our Agency wishes to offer the following comments regarding the above proposed project:

1. Detention basins incorporated into this project, should have the bottom of the detention basin graded in a manner to channel water during low summer flows, from inflow pipes to out flow pipes to discourage spreading of water and vegetation growth.

2. Access to all storm drains outfalls and natural drainages should be provided for the Shasta Mosquito & Vector Control District to conduct mosquito control operations.

3. Our Agency would like to request the inspection of the detailed grading and drainage plans, when available, for further comments and signature.

Thank you.

Sincerely,

Audie Butcher
Operations Supervisor

P.C.
Sharrah Dunlap Sawyer Inc.
6590 Lockheed Drive
Redding, CA 96002

October 3, 2008

Zach Bonnin, Planner
City of Redding
777 Cypress Ave.
Redding, CA 96001
VIA EMAIL to zbonnin@ci.redding.ca.us

RE: EIR-1-08 Salt Creek Heights Subdivision, Scoping Comments

Dear Zach,

Please accept these comments for analysis in the EIR preparation for the Salt Creek Heights Subdivision:

1. Ensure that water pressures will be adequate for fire flow for the new development and that water pressure will not be degraded in other parts of the system.

2. Include analysis of long-term (20 years) availability of treated water. Given that the City of Redding has just contracted for 400 acre feet of water from the Centerville Community Services District, this analysis of water availability as well as infrastructure capacity for both wet year and dry year scenarios is critical.

3. The City of Redding uses Central Valley Project water under contract with the Bureau of Reclamation. The Biological Opinion for current water contracts was recently invalidated and is being re-written. Salt Creek, directly below this project is NOAA designated Critical Habitat for Central Valley steelhead. Terms of the previous Biological Opinion (in effect for the old contracts and preceding the recent invalidated Biological Opinion) limited use of CVP water for new development in previously undeveloped Critical Habitat Areas. The EIR should confirm that CVP water can be used for the new subdivision.

4. How will this project during development and after build-out ensure no increase of greenhouse gases to the atmosphere?

5. Property for the subdivision should have recently been detached from the Shasta CSD. Verify the detachment was properly completed through the LAFCO process.

6. Development of this project should include consultation with the Shasta CSD about the feasibility of constructing an emergency water inter-tie between City of Redding and Shasta CSD. Shasta CSD and City of Redding have an existing contract for such an inter-tie, but the connection has not yet been built.

7. Ample commuter trails should allow for all parcels to easily access the City of Redding Trail system.

Thank you for including the above points in the EIR analysis.

Sincerely,

Susan Weale
9837 Swasey Drive
Redding, CA 96001
sweale@snowcrest.net

PURCHASE AND SALE OF WATER AGREEMENT

BETWEEN

THE CITY OF REDDING

AND

CENTERVILLE COMMUNITY SERVICE DISTRICT

THIS AGREEMENT is made at Redding, California, by and between THE CITY OF REDDING, a Municipal Corporation ("CITY"), whose address is 777 Cypress Avenue, Redding, Ca. 96001 and CENTERVILLE COMMUNITY SERVICE DISTRICT, ("DISTRICT"), a California Community Service District, whose address is 8930 Placer Road, Redding, CA 96001, for an Emergency Inter-tie Agreement ("Agreement").

RECITALS

A. The District pursuant to its Contract with the United States for Exchange of Water dated August 11, 2000 (the "Contract"), owns nine hundred (900) acre feet of water (the "Water");

B. The Contract further provides that the District may designate one or more persons or entities to receive water provided by the Contract without such designation being deemed an assignment or transfer requiring approval by the Bureau of Reclamation;

C. The Contract provides that the Water shall be made available to the District or its designee, without charge, at existing Central Valley Project ("CVP") facilities located in Shasta County; and

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

1. Term of Agreement: This agreement shall be effective January 1 2009 through December 31 2013. In the event the City wishes to renew this Agreement beyond December 31 2013, the City shall submit a written request for renewal to the District no later than one year prior to the date this Agreement expires. Both parties will consider an option to renew the Agreement for a one year term under terms and conditions mutually agreeable to both parties.

2. Delivery Point: The delivery point between the parties to this Agreement exists at 16761 Clear Creek Road in Shasta County as attached and incorporated herein as Exhibit A.

Approved 4-15-08

C-4942

3. Purchase and Sale of Water: The District hereby agrees to sell to the City, and the City hereby agrees to buy from the District, up to 400 acre feet of Water each calendar year during the term of this Agreement as hereinafter provided.

4. Payment for Water: Any water provided to the City pursuant to this Agreement, shall be billed at a wholesale rate of $.35 per 100 cubic feet for calendar year 2009. The wholesale rate will be adjusted annually, on January 1 of each year, based on multiplying the sum of both agencies' commodity charges in effect at that time, by twenty five (25%) percent.

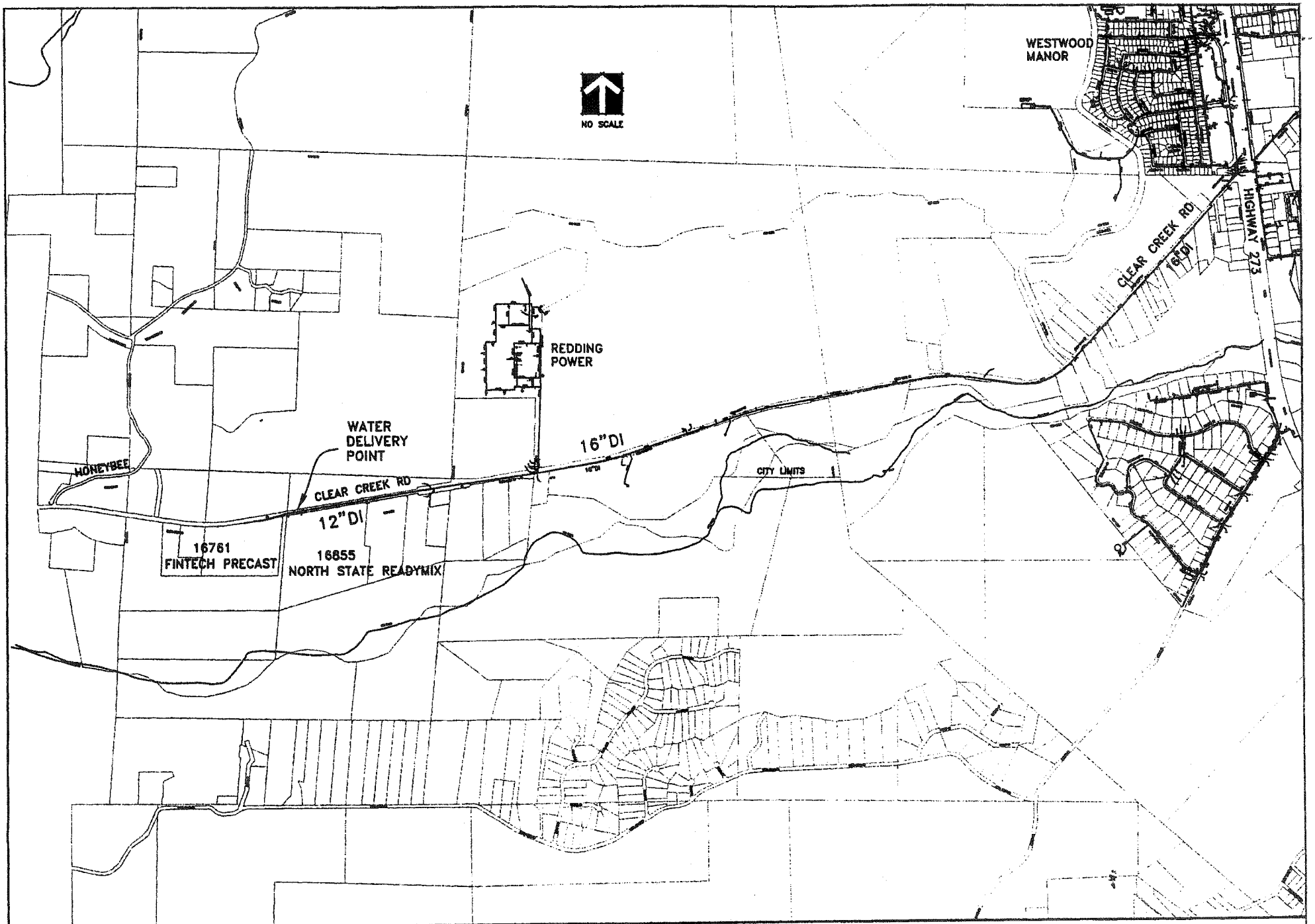
5. Scheduling and Delivery of Water: The District, pursuant to the Contract, will provide the City with an annual total of up to 400 acre feet of water during the months of May through September, inclusive. The City will schedule its required monthly water delivery with the District by January 31st of each year. Any of the 400 acre feet not scheduled or used by August 1st of each year will be released back to the District for their use. The Contract provides that the Water shall be made available to the District or its designees at any existing CVP facility located in Shasta County. The District shall notify the United States acting through the Bureau of Reclamation that the Water purchased by the City shall be delivered to the City at the delivery point.

6. Drought Conditions: During any year in which the District receives notice from the Bureau of Reclamation of a Shortage in its Project Water Supply, some or all of the 400 acre feet will be retained by the District for its own use within the District's Service Boundary. The District will confirm any reduction in the availability of water requested by the City, upon final Shortage notification by Reclamation

7. Indemnification: The party receiving a secondary water supply pursuant to this Agreement hereby agrees to indemnify and hold harmless the supplying party, its directors, officials, officers, employees, agents and volunteers, and each and every one of them, from any and all claims of any nature whatsoever arising from or relating to, directly or indirectly, negligent performance of this Agreement by the supplying party, or relating to the quality of water transferred pursuant to this Agreement, or the inability of failure of the supplying party to deliver water for any reason whatsoever.

9. Disputes: If any action or arbitration is commenced to enforce any of the terms or conditions herein, or to enforce collection of monies due pursuant to this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees and costs.

10. Date of Agreement: The date of this agreement shall be the date it is signed by the second party to sign.



WATER DELIVERY POINT
CITY OF REDDING AND CLEAR CREEK COMMUNITY SERVICE DISTRICT
PURCHASE AND SALE OF WATER AGREEMENT

EXHIBIT A

CERTIFICATION OF APPROVAL BY BOARD OF DIRECTORS

The undersigned, Secretary of the Centerville Community Services District, hereby certifies that approval to enter into this Emergency Water Supply Agreement between the City of Redding and Centerville Community Services District was passed and approved by resolution of the Board of Directors of the Centerville Community Services District on April 16, 2008.

IN WITNESS WHEREOF, the City of Redding and the Centerville Community Service District have executed this Agreement on the days and year set forth below.

CITY OF REDDING
A Municipal Corporation

Date: May 1, 2008

By: Mary Lea Stegall
MARY LEAS STEGALL, MAYOR

Attest

Connie Strohmayer
City Clerk

Form Approved:

Barry E. DeWalt
Assistant City Attorney

CENTERVILLE COMMUNITY SERVICES DISTRICT
a California Community Service District

Date: May 7, 2008

By:
Walt Richison
President, Board of Directors

Attest

Tina Teuscher
Secretary/Bookkeeper

California Regional Water Quality Control Board
Central Valley Region
Karl E. Longley, ScD, P.E., Chair

Linda S. Adams
Secretary for Environmental Protection

415 Knollcrest Drive, Suite 100, Redding, California 96002
(530) 224-4845 • Fax (530) 224-4857
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

RECEIVED
NOV 26 2008
DEVELOPMENT SERVICES DEPT.

24 November 2008

Mr. Zach Bonnin
City of Redding
Development Services Department
777 Cypress Ave.
Redding, CA 96001

COMMENTS ON THE NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE PROPOSED SALT CREEK HEIGHTS SUBDIVISION, TM S-15-07, REZONE APPLICATION (RZ-6-07), PLANNED DEVELOPMENT PLAN (PD-11-07), REDDING, SHASTA COUNTY

On 3 September 2008, our office received a Notice of Intent to Adopt A Mitigated Negative Declaration, Environmental Initial Study, Tentative Parcel Map and Request for Comments Letter from your office regarding the proposed development referenced above. The Central Valley Regional Water Quality Control Board (Regional Water Board) is a responsible agency for this project, as defined by the California Environmental Quality Act (CEQA).

The proposed Project consists of approximately 272 acres of undeveloped land, which will be developed into 440 residential units designed with a mix of housing types, including 248 single family, 96 apartment units, 96 cluster homes with motor courts, and custom home sites. The proposed subdivision will require a rezone to apply the Planned Development Overlay District to the property. The Project will include all necessary on and off-site sewer, water, and storm drain improvements to support the Project. The proposed Project's domestic water and sanitary sewer infrastructure consists of off-site mains that originate near SR-299. The proposed domestic water system is comprised of two separate off-site lines.

The Project site is located at 4200 Eureka Way (APN's 204-030-036, -028, -027, and –023), within the western portion of the City of Redding. The Project site is located along the north side of Eureka Way (SR-299) at the western City limits. Salt Creek forms the western and northern boundaries of the Project and Gold Run Creek forms the eastern Project boundary. Three streets will provide access to the proposed Project; two of which are on Eureka Way (SR-299), and one through the future extension of Buenaventura Boulevard.

The following comments are provided to help outline the potential permitting which may be required by the Regional Water Board, policy issues concerning the project, and suggestions for mitigation measures. Our present comments focus primarily on discharges regulated under our CWA §401 and storm water programs.

The following summarizes project permits that may be required by our agency depending upon potential impacts to water quality:

Water Quality Certification (401 Certification)
Certifications issued for activities resulting in dredge or fill within waters of the United States (including wetlands). All projects must be evaluated for the presence of jurisdictional waters, including wetlands and other waters of the state. Destruction of, or impacts to these waters should be avoided. Under the Clean Water Act Section 401 and 404, disturbing these waters requires an Army Corps of Engineers (Corps) Section 404 Certification and a State 401 permit. The Section 404 and 401 permits are required for activities involving a discharge (such as fill or dredged material) to Waters of the United States. "Waters" include wetlands, riparian zones, streambeds, rivers, lakes, and oceans. Typical activities include any modifications to these waters, such as stream crossings, stream bank modifications, filling of wetlands, etc. If required, the Section 404 Permit and Section 401 Certification must be obtained prior to site disturbance.

Waste Discharge Requirements (WDRs) or a Conditional Waiver of WDRs
Under authority of the California Water Code, the Regional Water Board may issue WDRs for any project, which discharges or threatens to discharge waste to waters of the state. Projects that cause disturbance to Waters of the State (including any grading activities within stream courses) require permitting by the Regional Water Board.

Isolated wetlands not covered by the federal Clean Water Act
Wetlands not covered by the Clean Water Act are known as "isolated wetlands." Should the U.S. Army Corps of Engineers determine that isolated wetlands exist at the project site and should the project impact or have potential to impact the isolated wetlands, a Report of Waste Discharge and filing fee must be submitted prior to commencing the construction activity. The Regional Board will consider the provided information and either issue or waive Waste Discharge Requirements. Failure to obtain waste discharge requirements or a waiver thereof, when required, may result in enforcement action.

As a protective measure for wetland, riparian areas and species of special concern, the final map will show a 50-foot buffer for all wetland areas and a 50-foot buffer from the top of both banks for all of the delineated seasonal drainages.

General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) – Land disturbances on projects of 1 acre or more requires the landowner to obtain coverage under the General Permit. As the land disturbance for the Salt Creek Heights Subdivision Project appears to be in excess of 1 acre, the project proponent and/or representatives will need to file a Notice of Intent (NOI), along with a vicinity map, a Storm Water Pollution Prevention Plan (SWPPP), and appropriate fees to the State Water Resources Control Board (SWRCB), prior to the commencement of activities on site. The owner may call our office to receive a permit package or download it off the Internet at http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

Post Construction Requirements
The General Permit and the Small Municipal Separate Storm Sewer Systems Permit (MS4 General Permit), requires the preparation and submittal of specific information regarding post-construction Best Management Practices (BMPs) that will be incorporated in the project to mitigate pollutants. Post-construction storm water management in areas undergoing new

development or redevelopment is necessary because runoff from these areas has been shown to significantly affect receiving waterbodies. As stated in the Environmental Protection Agency MS4 Phase II Final Rule, many studies indicate that prior planning and design for minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.

Therefore, the project development plans and environmental review documents prepared pursuant to the California Environmental Quality Act (CEQA) should indicate that the proposed project applicant shall prepare an NOI, a SWPPP and post construction storm water development plans, as discussed above, and submit copies to the Regional Water Board for review, to mitigate pollutants from the new development proposed on the site. The development plans should contain specific structural and non-structural post-construction BMPs, such as grassed swales, bioretention, porous pavement, treatment vaults, retention of buffer strips, minimization of impervious surfaces, ect, and approximate locations of each BMP. For more information go to:
http://www.waterboards.ca.gov/stormwtr/post_construction.html.

If you have any questions or comments regarding this matter please contact me at (530) 224-4783 or by email at Ajensen@waterboards.ca.gov.

Andrew Jensen, M.S.
Environmental Scientist
Storm Water and Water Quality Certification Unit

AJJ: clg

cc: Mr. Matt Kelley, U.S. Army Corp of Engineers, Redding
Ms. Donna Cobb, Department of Fish and Game, Region 1, Redding
Sierra Pacific Industries, PO Box 496014, Redding, CA 96049

Doug

Shasta County

DEPARTMENT OF RESOURCE MANAGEMENT
1855 Placer Street, Redding, CA 96001

Russ Mull, R.E.H.S., A.I.C.P.
Director

Richard W. Simon
Assistant Director

RECEIVED
OCT 23 2008
DEVELOPMENT SERVICES DEPT.

October 22, 2008

Zach Bonnin
City of Redding Development Services Department
777 Cypress Avenue
Redding, CA 96001

Dear Mr. Bonnin:

TENTATIVE SUBDIVISION MAP APPLICATION S-15-05, REZONING APPLICATION RZ-7-07, PLANNING DEVELOPMENT APPLICATION PD-11-07 AND EIR-1-08 (SALT CREEK HEIGHT SUBDIVISION)

Thank you for the opportunity to comment on the applications for the above referenced proposed subdivision, which is adjacent to the City/County boundary. The Shasta County Department of Resource Management, Planning Division, has reviewed the proposed subdivision map with the County Fire Marshall and the Department of Public Works. We offer the following comments and recommendations:

There is considerable undeveloped acreage adjacent to the northwest side of the proposed Salt Creek Heights Subdivision. This unincorporated area is bounded by State Highway 299, Iron Mountain Road, Middle Creek Road, the Sacramento River, and Salt Creek. The privately owned portions of this area have a County General Plan land use designation of Rural Residential A (RA) and a County zoning of Rural Residential (R-R) zone district or Unclassified (U) zone district. This area has no primary access except from Middle Creek Road, which is a long, dead-end road. There may be emergency access at the east end of Middle Creek Road to the north via the Sacramento River Trail. For the purposes of facilitating better road circulation and better emergency access, a second primary road access back to Highway 299 will be important for the development of this area.

The design of the Salt Creek Heights Subdivision roads, as shown on the nine plan sheets dated September 17, 2007, precludes any access to or from the property to the northwest. The Planning Division recommends that a road stub be shown on the map and developed to connect the northeast end of Road N, or the north end of either Road L or Road K, to the off-site property to the north across Salt Creek. If a road stub is not appropriate, then at least a 60-foot- wide road right-of-way should be offered for dedication in the same location, so that eventually a full-size road would be constructed. We acknowledge that steep slopes and the crossing of Salt Creek may present some challenges for designing the road alignment, but it appears to be feasible if properly designed, and there is flexibility for locating the alignment before the property is subdivided.

We appreciate the opportunity to comment on development project which may affect the unincorporated parts of the County. If you have any questions, please contact me at 225-5532 or bwalker@co.shasta.ca.us.

Sincerely,

W. M. Walker

Bill Walker
Senior Planner

wmw:rk

c: Doug DeMallie, Planning Manager, City of Redding Development Services Department, 777 Cypress Avenue, Redding, CA 96001

Sierra Pacific Industries, P.O. Box 496014, Redding, CA 96049-6014

Sharrah Dunlap Sawyer, Inc., 3161 Bechelli Lane Suite 100, Redding, CA 96002

CITY OF REDDING

DEVELOPMENT SERVICES DEPARTMENT
PLANNING DIVISION
777 Cypress Avenue, Redding, CA 96001-271
P.O. Box 496071, Redding, CA 96049-6071
530.225.4020 FAX 530.225.4495

December 16, 2008

Mr. Bill Walker
Shasta County Department of Resource Management
1855 Placer Street
Redding, CA 96001

Subject: Tentative Subdivision Map Application S-15-07
Salt Creek Heights Subdivision

Dear Mr. Walker:

This is in response to the county's October 22, 2008, letter, commenting on the tentative map for the proposed Salt Creek Heights Subdivision located at the western boundary of the Redding city limits between Highway 299W and Salt Creek. In that letter, the county suggests that an alignment be determined and that the subdivider be required to construct a street stubbing to Salt Creek to provide future access to property within county jurisdiction on the opposite side of the creek. If not constructed, the county recommends that right-of-way for the street be reserved. A specific alignment or point of crossing the creek was not offered.

The City has considered the county's suggestion and determined not to pursue it further. This decision is made in view of the very steep slopes above Salt Creek and its main tributary (up to 40 percent); the engineering difficulties and effects of constructing a street on those slopes meeting public-street design standards, including a bridge spanning Salt Creek; and the lack of a direct nexus between the street requirement and this project.

Thank you for your review of this application.

Sincerely,

Douglas DeMallie
Planning Manager

DD:amf
E121608L-BW.wpd

PUBLIC SCOPING MEETING SUGGESTIONS/COMMENTS

SALT CREEK HEIGHTS TENTATIVE SUBDIVISION MAP (S-15-07), REZONE APPLICATION (RZ-6-07), AND PLANNED DEVELOPMENT PLAN (PD-11-07) ENVIRONMENTAL IMPACT REPORT

Name: Marc Narosaki

Mailing Address: 857 Leisha Ln.

Phone Number: 242-1419

☒ *Please check here if you would like to be included on future correspondence related to the Salt Creek Heights Subdivision Environmental Impact Report.*

Comments:

1. No traffic study done by City of Redding
Recommend: traffic study by City / County. Count speed
2. Extension of Buenaventura not on scoping letter.
Recommend: notification of surrounding communities of this intent.
3. What is the median cost of housing? How would you factor in the apts?
4. Anticipated rent for apts?
5. Do they (apts) comply with the general plan of 6-10 units per acre?
5a. Will there be an effort to save prominent existing trees? Or will area be clear cut.

Send To: CITY OF REDDING
777 Cypress Avenue
Redding, CA 96001
Attention: Mr. Zachary Bonnin
Associate Planner
Fax: 530-225-4495
E-mail: zbonnin@ci.redding.ca.us

PUBLIC SCOPING MEETING SUGGESTIONS/COMMENTS

SALT CREEK HEIGHTS TENTATIVE SUBDIVISION MAP (S-15-07), REZONE APPLICATION (RZ-6-07), AND PLANNED DEVELOPMENT PLAN (PD-11-07) ENVIRONMENTAL IMPACT REPORT

Name: Marc Narasaki

Mailing Address: 857 Leisha Ln

Phone Number: 242-1419

☐ *Please check here if you would like to be included on future correspondence related to the Salt Creek Heights Subdivision Environmental Impact Report.*

Comments:

6. 440 units would add to surplus of 1944 units listed on MLS. Not including foreclosures.
7. There must be meetings after 5 PM to allow working citizens to attend.
8. Must be safety provisions for development such as security force
9. Access from 44/Eureka Way must be developed prior to Buenaventura extension. Reduce impact on existing communities.
10. Wildlife impact?

Send To: CITY OF REDDING
777 Cypress Avenue
Redding, CA 96001
Attention: Mr. Zachary Bonnin
Associate Planner
Fax: 530-225-4495
E-mail: zbonnin@ci.redding.ca.us

REDDING ELECTRIC UTILITY
CITY OF REDDING
Smart Service...Bright Ideas!

August 21, 2008

RBF Consulting
Attn: Jennifer Donovan
2101 Arena Boulevard, Suite 250
Sacramento, CA 95834

Dear Jennifer,

Attached you will find Redding Electric Utility's response to your Electric Service Questionnaire for the Salt Creek Heights Environmental Impact Report. You can reach me at 530/339-7322 if you have any further questions.

Sincerely,

Ronald L. Hofer, P.E.
Service Planning Supervisor

H:\...\RH\003.08:rg
Attachment

RECEIVED
AUG 25 2008
RBF CONSULTING

777 Cypress Avenue • P.O. Box 496071 • Redding, California 96049-6071
530.339.7300 • Fax 530.339.7389 • reupower.com
Working Together to Improve Our Community

ELECTRIC SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions on your agency/company letterhead and provide maps to illustrate facility locations.

1. What is the present service area and/or locations of your facilities? Are any of these facilities within the proposed project boundaries as shown on the attached Site Map?
IT IS REU'S POLICY TO SERVE ELECTRICITY TO ALL CUSTOMERS WITHIN THE CITY LIMITS. REU HAS TRANSMISSION AND DISTRIBUTION FACILITIES WITHIN THE PROJECT AREA AND A SUBSTATION DIRECTLY ADJACENT TO IT.

2. What is the present capacity and/or nature of your facilities? (Please provide any available information necessary to evaluate existing conditions in the project area and potential impacts). EUREKA WAY SUBSTATION, WHICH IS LOCATED NEAR THE SOUTHEAST CORNER OF THE PROPERTY, HAS SUFFICIENT CAPABILITY TO SERVE THE PROJECT.

3. What is the projected electrical demand for the project based upon the information provided? THE ESTIMATED PROJECT LOAD WILL BE 2.0 MW

4. Can your facilities in the service area supply the required additional electricity currently or on project completion? EUREKA WAY SUBSTATION HAS SUFFICIENT CAPACITY TO SERVE THE PROJECT LOAD. THE NORMAL EXTENSION OF DISTRIBUTION FACILITIES THROUGHOUT THE DEVELOPMENT WILL BE NECESSARY TO SUPPLY ELECTRICITY TO THE PROJECT.

5. Do you anticipate any project related impacts to your facilities? Specifically, will the proposed project impact service or require new or modified facilities? If so, please list/summarize additions or modifications. THE NEW FACILITIES WILL NOT IMPACT SERVICE. BUT NEW DISTRIBUTION FACILITIES (CONDUCTOR, SWITCHES...) WILL BE REQUIRED THROUGHOUT THE PROJECT TO DISTRIBUTE ELECTRICITY AND SERVE FUTURE AREAS BEYOND THE PROJECT BOUNDARY.

6. Do you anticipate any short-term construction or related impacts, such as a possible disruption of service? THE EXTENSION OF DISTRIBUTION FACILITIES OFTEN CAN NECESSITATE SHORT DISRUPTIONS OF SERVICE TO CONNECT THE NEW FACILITIES.

7. Do you require or recommend any mitigation measures for any project impacts noted in Items 3, 4, or 5? NO SPECIFIC MITIGATION MEASURES WILL BE NECESSARY. REQUIREMENTS ARE SPELLED OUT IN REU'S SERVICE POLICY.

8. Is there any other relevant information regarding potential significant impacts of the project?

NO

STORM DRAINAGE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions, as applicable, on your agency letterhead and provide maps to illustrate facility locations.

1. Please identify graphically your service area within the project area. The Storm Drain Utility will serve the project area once developed. CalTrans maintains storm drain systems within the Hwy 299 right-of-way adjacent to the project.

2. Are there storm drainage facilities currently serving the project area? If so, please indicate the location, size, and capacity if applicable. No.

3. Will any new storm drainage facilities be required due to the proposed project? Yes. New storm drain facilities will be required to convey the storm water from this project to the Sacramento River.

4. Are there currently any deficiencies in the storm drainage system in the project area? There are no storm drain facilities currently maintained by the Storm Drain Utility in the project area.

5. Is there any other relevant information or concerns due to the proposed project with regard to storm drainage? All proposed storm drain improvements shall be constructed to City Standards. All detention basins shall be maintained by the HOA. Unobstructed vehicular access shall be provided to all new storm drain inlets and outlets per the City Standards.

6. Do you have any required assessment fees or other required or recommended mitigation measures? All storm drainage from the Project should be treated to remove oils, contaminants and/or sediment before discharging into the Sacramento River.

From: Jennifer Donovan
To: Lane Simmons
Date: 9/18/2008 10:03:32 AM
Subject: Fwd: RE: Re: Salt Creek Heights Subdivision

>>> "Langfield, Darren" <dlangfld@ci.redding.ca.us> 09/18/08 10:00 AM >>>
Jennifer,
Attached are RMU comments to the storm drain questionnaire you sent for the Salt Creek Heights Project. I am sorry I was not able to get it back to you by the 17th. I hope you will be able to incorporate the information. Call me if you have questions.
Thanks,
Darren.

-----Original Message-----
From: Jennifer Donovan [mailto:JDONOVAN@rbf.com]
Sent: Thursday, September 11, 2008 2:54 PM
To: Langfield, Darren
Cc: Lane Simmons
Subject: Fwd: Re: Salt Creek Heights Subdivision

Hi Darren -

I don't think we ever received the attached storm drainage questionnaire from you for the proposed Salt Creek Heights project. Could you please return the questionnaire to us by next Wednesday, September 17th? Thank you!

~Jennifer

>>> Jennifer Donovan 08/01/08 1:19 PM >>>
Hi Darren -

Attached is a "generic" storm drainage questionnaire. Please feel free to add any information you feel would be applicable to this proposed project regarding storm drainage. Thanks and have a good weekend!

Jennifer Donovan
Environmental Planner
RBF Consulting
2101 Arena Boulevard, Suite 250
Sacramento, CA 95834
Phone: (916) 928-1113
Fax: (916) 928-1117
E-mail: jdonovan@rbf.com
Web: www.rbf.com

>>> "Langfield, Darren" <dlangfld@ci.redding.ca.us> 08/01/08 9:01 AM >>>
Ms. Donovan,

In addition to water, sewer and solid waste, Redding Municipal Utilities is responsible for storm drainage in the City of Redding. If you have a questionnaire for storm drainage, please forward it to me and I will complete it early next week. My e-mail address is dlangfld@ci.redding.ca.us

Thanks,

Darren

RMU Response
7/31/08

SEWER SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions on your agency letterhead and provide maps to illustrate facility locations.

1. What are the size and location of sewer lines currently serving the project area? Also, please indicate the location available capacity for the trunk lines and treatment plant.
There are no sewer lines currently serving the project area.

2. What is the existing sewage flow from the project area? Include both gallons per day and total million gallons per day generated.
There is no existing sewage flow from the project area.

3. What is the estimated daily projected sewage generation for the proposed project, based upon information provided? Include both gallons per day and total million gallons per day generated.
Design of sewer lines shall be based upon and average daily flow of 300 gallons per HE per day plus 1500 gallons per acre per day for I&I. Peaking factors shall be per the City Master Plan.

4. Are there currently any deficiencies in the sewage system in the project area?
There are no sewer facilities in the project area. However, the existing sewer system off-site that will ultimately serve the project area is at capacity per the Wastewater Utility Master Plan.

5. Would implementation of the project present a significant increase in service demand based upon project development? Yes.

6. Will any new facilities, such as sizing requirements, new lines or treatment facilities, be required due to the proposed project? Yes. Downstream sewer mains and the Mary Street Pump Station will need to be replaced with larger facilities to serve this project.

7. Is there any other relevant information or concerns due to the proposed project with regard to sewer service?
Variable frequency drives

- The on-site proposed pump stations shall be designed to incorporate a block building, generator backup power, VFD's and odor control facilities.
- Sanitary sewer facilities shall be constructed in paved streets to the extent possible. 12' paved access roads shall be constructed to provide access to sewer systems constructed outside road right-of-ways.
- Sewer systems shall be constructed to City of Redding Construction Standards.

8. Do you have any required assessment fees or other required or recommended mitigation measures? Funding for maintenance of the proposed sewer pump stations shall be provided through the creation of a sewer maintenance district which will encompass the Salt Creek Heights Subdivision.

RMU Response
7/31/08

WATER SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions, as applicable, on your agency letterhead and provide maps to illustrate facility locations.

1. Please identify graphically your service area within the project area. The City of Redding service area extends slightly west of the Projects west boundary.

2. What are the size and location of water mains currently serving the project area?
There are no water lines currently serving the project area.

3. What is the current and projected water capacity for the District; annual use in acre-feet, daily flow in cfs and peak demand in MGD? Are there currently any deficiencies in the water system in the project area? There is no City of Redding water system in the immediate vicinity of the Project. A few parcels in the Project area are currently served by Shasta CSD. The condition of the Shasta CSD water system is unknown.

4. Given the proposed land uses and densities, what is the projected maximum day water usage (in gallons per minute) for the proposed Project, at buildout?

The 2000 Water Master plan calls out Hill 900 peak demand at 1800 gpd/connection on peak day. Multiplied by the number of connections expected at full Project buildout yields approximately 800,000 gpd peak day demand.

5. Does your agency have sufficient water supplies available to serve the project area, or are new or expanded entitlements needed? Sufficient water supplies are available.

6. From what sources does the project area currently obtain its water supply? What is the method of water treatment and the quality of water levels available to the community?
The project area is currently within the sphere of influence of two water districts. A few properties in the project area are currently served by Shasta CSD. The Project is currently being removed from the Shasta CSD sphere of influence. This process requires LAFCO approval and an agreement for service of existing Shasta CSD customers. The proposed City of Redding water supply for the project is surface water from the Sacramento River treated at the Foothill Water Treatment Plant. This is high quality water.

7. What is the current rate of local groundwater extraction and existing groundwater quality?
Unknown.

8. Are any new facilities, such as sizing requirements, new lines or treatment facilities, currently planned near the project area?
The City of Redding has no plans to construct new facilities, lines or treatment facilities near the project area.

9. Do you have any required assessment fees or other required or recommended mitigation measures? None other than the payment of Water Utility connection fees .

10. Is there any other relevant information or concerns from the proposed project? No.

11. Will the proposed project require new facilities or additions to existing facilities? If so, please list/summarize any changes. City of Redding staff have placed the Project into the City Water Model and have estimated the following minimum pipes and a tank will have to be constructed to serve the Project:

- A 16-inch main in Hwy 299 from Ridge Road to Road A.
- 12-inch mains in:
    - Road A from Hwy 299 to Road O.
    - Road C from Road A to Road O.
    - Road O from Road A to Buenaventura
    - Buenaventura from Road O to Hwy 299 connecting to the existing 12-inch main on the south side of Hwy 299.
- A minimum 750,000 gallon tank will be required to serve Phase 6 of the Project. The elevation of the tank shall be approximately 890 feet. This will require offsite property acquisition and piping from the new tank to the Project.

12. Does your agency have any requirements for setbacks, shielding, etc. of canals? No.

DIANE KEMPLEY, Ed.D.
Superintendent

REDDING SCHOOL DISTRICT
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SHASTA UNION ELEMENTARY SCHOOL DISTRICT

FRENCH GULCH-WHISKEYTOWN SCHOOL DISTRICT

IGO-ONO-PLATINA UNION SCHOOL DISTRICT

EDUCATION CENTER
5885 East Bonnyview Road
P.O. Box 992418
Redding, CA 96099-2418
(530) 225-0011
(530) 225-0015 Fax
http://redding.echalk.com

November 21, 2008

Jennifer Donovan
RBF Consulting
2101 Area Boulevard, Suite 250
Sacramento, CA 95834

RE: Salt Creek Heights Tentative Subdivision Map (S-15-07), Rezone Application (RZ-6-07), and Planned Development Plan (PD-11-07)
Public Services and Facilities Questionnaire

Dear Ms. Donovan,

Redding School District would like to be of assistance to RBF Consulting in providing the requested information on the attached environmental questionnaire. Thank you for additional information and maps to help with the location of dwelling units within the district boundaries.

If you have any questions or concerns, please call me at 225-0011, ext. 1221.

Sincerely,

Maureen Lewis, Senior Chief Accountant, Facilities Coordinator
Redding School District

Cc: Diane Kempley, Superintendent
RoseAnn Adams, Assistant Superintendent
Jim Lightner, Principal

Enclosure

REDDING SCHOOL DISTRICT
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DIANE KEMPLEY, Ed.D.
Superintendent

SCHOOL FACILITIES QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

1. **Please list the name and address of all day care centers, elementary, junior high and high schools that the District is responsible for in the project area.**

   Redding Elementary School District:

   Manzanita Elementary
   1240 Manzanita Hills Ave, Redding

   Manzanita Elementary serves the following grades and programs:
   a. Kindergarten through fifth grade
   b. Preschool
   c. After school childcare

   Sequoia Middle School
   1805 Sequoia Street, Redding

   Sequoia Middle School serves the following grades and programs:
   a. Grades fourth through eighth
   b. District Home School – grades K - 8
   c. After School Program
   d. Jazz Band
   e. Strings
   f. Athletic Programs – indoor and outdoor
   g. GATE

2. **What is the current enrollment of each school in the vicinity of the project, and what is the distance of the school from the project area?**

   Current enrollment at Manzanita Elementary is 630 students. Sequoia Middle School enrollment is 776 students. The approximate distance to the proposed Salt Creek Heights subdivision is 1.5 miles.

3. **Does the District currently use portable or temporary classrooms at any of the school sites? If so, identify the school and number of portable facilities.**

   Manzanita Elementary houses 8 portables.
   Sequoia Middle School houses 8 portables.

4. **What are the average student generation rates per dwelling unit at each school level? Will new facilities be required?**

   The state average for student generation rates per dwelling unit is .5. An estimation of 30 dwelling units is located inside Redding School District boundaries. The impact could be as low as 15 students, however, Shasta County offers "parent choice' for enrollment. Parents are given the choice to enroll their child outside of their residential boundaries which could double or triple enrollment projections.

5. **Are fees assessed against new developments for school – related services? If so, in which amount?**

   Residential fees collected are $1.78 per square foot and $0.28 per square foot for commercial/industrial construction.

6. **Are there any new schools planned in the project area?**

   There are no new schools planned in the project area.

7. **What issues are important to the District? If you have any particular concerns about the ability of the District to continue to provide adequate levels of day care and/or educational services, what do you recommend to alleviate these concerns?**

   The district participates in the K-3 Class Size Reduction (CSR) Program and funding eligibility requires teacher student ration of 1:20. If the projected enrollment at Manzanita Elementary is greater than projected, then limited facilities space could be impacted.

8. **Do you anticipate that the proposed project would result in the need for physical additions to your agency (i.e., construction of new school facilities)?**

   There could be a potential facilities impact at Manzanita Elementary.

9. **Is there any other relevant information regarding significant project impacts?**

   The district has no additional funding and or state eligibility for lack of educational facilities and staffing at Manzanita Elementary School.

DIANE KEMPLEY, Ed.D.
Superintendent

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http://redding.echalk.com

November 21, 2008

Jennifer Donovan
RBF Consulting
2101 Area Boulevard, Suite 250
Sacramento, CA 95834

RE: Salt Creek Heights Tentative Subdivision Map (S-15-07), Rezone Application (RZ-6-07), and Planned Development Plan (PD-11-07)
Public Services and Facilities Questionnaire

Dear Ms. Donovan,

Shasta Union Elementary School District would like to be of assistance to RBF Consulting in providing the requested information on the attached environmental questionnaire. Thank you for additional information and maps to help with the location of dwelling units within the district boundaries.

If you have any questions or concerns, please call me at 225-0011, ext. 1221.

Sincerely,

Maureen Lewis, Senior Chief Accountant, Facilities Coordinator
Redding School District

Cc: Diane Kempley, Superintendent
RoseAnn Adams, Assistant Superintendent
Jim Lightner, Principal

Enclosure

DIANE KEMPLEY, Ed.D.
Superintendent

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(530) 225-0015 Fax
http://redding.echalk.com

SCHOOL FACILITIES QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

1. **Please list the name and address of all day care centers, elementary, junior high and high schools that the District is responsible for in the project area.**

   Shasta Union Elementary School District
   10446 Red Bluff Road
   Shasta, CA 96087

   Shasta Union serves the following grades and programs:
   a. Grades kindergarten through fifth grade
   b. Montessori Program serving grades kindergarten through sixth
   c. After school childcare
   d. Preschool
   e. Redding School District serves grades sixth through eighth at Shasta Union

2. **What is the current enrollment of each school in the vicinity of the project, and what is the distance of the school from the project area?**

   Current enrollment at Shasta Union Elementary is 187 students. The approximate distance to the proposed Salt Creek Heights subdivision is 3 miles.

3. **Does the District currently use portable or temporary classrooms at any of the school sites? If so, identify the school and number of portable facilities.**

   Shasta Union Elementary owns 5 portables.

4. **What are the average student generation rates per dwelling unit at each school level? Will new facilities be required?**

   The state average for student generation rates per dwelling unit is .5. An estimation of 410 dwelling units is located inside Shasta Union Elementary School boundaries. The impact of 205 students will require additional facilities.

5. **Are fees assessed against new developments for school – related services? If so, in which amount?**

   Residential fees collected are $1.78 per square foot and $0.28 per square foot for commercial/industrial construction.

6. **Are there any new schools planned in the project area?**

   There are no new schools planned in the project area.

7. **What issues are important to the District? If you have any particular concerns about the ability of the District to continue to provide adequate levels of day care and/or educational services, what do you recommend to alleviate these concerns?**

   The district participates in the K-3 Class Size Reduction (CSR) Program and funding eligibility requires teacher student ratio of 1:20. The impact of 205 students will require additional facilities for the district to maintain its eligibility.

8. **Do you anticipate that the proposed project would result in the need for physical additions to your agency (i.e., construction of new school facilities)?**

   Yes, the impact of 205 students would result in the need for physical additions to prevent overcrowding.

9. **Is there any other relevant information regarding significant project impacts?**

   The district has a major concern on the lack of educational facilities, staffing, and funding to house the proposed development of 440 residential units.

Jennifer Donovan - Environmental Planner RBF Consulting

From: Dave Rader, Streets Superintendent
Date: August 5, 2008 @ 6:40 a.m.

Subject: Roadway Maintenance Questionnaire
Salt Creek Heights Environmental Impact Report

1. **Do you anticipate any significant impacts from the project on current roadway maintenance around the project area?**

   Yes, identified roadways surrounding the project site which the City of Redding is responsible to maintain are currently in-need of maintenance. The type of maintenance required would range from crack sealing, slurry sealing, selective removal and replacement of failed sections of asphalt, up to and including total re-construction and possible widening to handle any increase in traffic volume. Please note that Highway 299 is a State Highway and roadway maintenance responsibilities fall under the State Department of Transportation.

   Increased roadway miles created within the project will increase the total maintained miles for our Street Maintenance Division. Without, an increase in staff, the level of service for street maintenance, provided to the rest of the City would be reduced as a result of the increased roadway lengths created in the project area.

2. **Do you have any required or recommended mitigation measures for significant impacts?**

   Roads within the project area will be designed and constructed to handle the increased traffic volumes expected by the planned uses. However, to mitigate the reduced level of service, for street maintenance, or provide funding for Street Maintenance Staff, a road maintenance district may be necessary.

3. **Is there any other relevant information regarding potential impacts of the project that you can provide for use in the environmental analysis.**

   Our current level of service with 14 employee's maintaining 462 miles of roadway equates to 33.00 miles per employee, that ratio will increase street miles within the project area.

Jennifer, the information provided above pertains to only the existing roadway the City of Redding is responsible to maintain. Any other information pertaining to this project may the attention of our Engineering or Planning Departments.

If I can be of any further assistance please call me direct at (530) 224-6077.

c: Brian Crane, Director of Transportation and Engineering

SOLID WASTE DISPOSAL QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions on your company letterhead and provide maps to illustrate facility locations.

1. Which landfills are presently used in disposal of solid waste from the project area? Do the landfills have sufficient permitted capacity or are they nearing their maximum allowable capacity?
   Richard W. Curry Landfill
   14095 Clear Creek Road
   Redding CA 96001

   Yes

2. What are the current generation rates for solid waste based on the various land uses (including residential and non-residential) in the project area/City of Redding? How many pounds, per person/per day?
   Res = 96 gal = 250# $19.22/mo Commercial = Various
   Res = 64 gal = 150# $18.22/mo 64 gal = $18.50/mo 40 yard = $337.63 per p/u

3. Will solid waste pickup service be available for the project? Yes

4. Do you anticipate any impacts associated with construction of the proposed project with respect to solid waste service? No

5. Does your organization have any plans to update your facilities or add additional facilities? If updates or additional facilities are required, who would be financially responsible for providing these updates or additional facilities? Yes. City of Redding rate payers.

6. What issues associated with providing continuing or long-term solid waste disposal service to the City are important to your company? If there are any particular concerns, what do you recommend to alleviate those concerns? Continue to meet state requirements and implement programs at the least cost to the City of Redding rate payers.

7. How does your organization assist the City in meeting its recycling goals? The City is the franchise solid waste hauler. The Solid Waste Utility has invested in equipment, facilities, and staffing in order to meet the states mandated recycling and solid waste requirements.

8. Do you have any required or recommended mitigation measures for any significant impacts? Continue to maintain an unrestricted retained earnings reserve and investment fund.

9. Is there any other relevant information regarding significant project impacts? Adding 450 homes would require the utility to reorganize routes and possibly adding additional equipment and staff.

Salt Creek Hgts

GAS SERVICE QUESTIONNAIRE
~~TULARE INDUSTRIAL COMPLEX~~
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions on your agency/company letterhead and provide maps to illustrate facility locations.

1. What is the present service area and/or locations of your facilities? Are any of these facilities within the proposed project boundaries as shown on the attached Site Map? (1) Natural Gas Shasta & Tehama Counties (2) Our natural gas facilities are located @ the intersection of Eureka Way & Buenaventura Blvd.

2. What is the present capacity and/or nature of your facilities? (Please provide any available information necessary to evaluate existing conditions in the project area and potential impacts). We will be able to provide service without reinforcement upstream of proposed Development tie a Buena Ventura @ Eureka.

3. Please provide estimated gas consumption factors on the basis of the information provided? our rough estimate is 18 mcfh for the 440 residential units

4. Do you anticipate any project related impacts to your facilities in the service area? If so, please list/summarize additions or modifications. Our proposal is to utilize the EXTG ~~EXTG~~ Extension of Buenaventura as the feed to this development. So this area should be phased in first if not we will extend from Eureka.

5. Do you anticipate any short-term construction related impacts to the service area, such as the possible disruption of services? Our tie in Eureka will require Cal Trans permitting no disruptions are antisipated.

6. Do you require or recommend any mitigation measures for any project impacts noted above? unsure looking a plans if bridges or creeks will be an issue.

Note.. Please make application well in advance of construction

Thank You

Contact Lew Blevins
530 246 6586

8/8/08
Curtis Scott - PG&E
Gas Assoc. Dist. Eng.
Redding

received Tues. 9/23/2008

FIRE SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions on your agency letterhead and provide maps to illustrate facility locations.

1. Please indicate the name and location of the fire stations that serve the project area. Also, indicate, the equipment, personnel and emergency medical services available at each station.
   CITY OF REDDING FIRE STATION #2 3491 PLACER ST.
   1 - TYPE (1) ENGINE WITH 2 FIRE FIGHTERS - 24 X 7 SERVICES
2. What is the average response time to areas within the project area?
   4 - 5 MINUTES RESPONSE TIME
3. Please indicate any assessment fees required for the project.

	1/08	1/09	
SFR	$588	$815	PER UNIT
MF	468	$655	

4. Is the current level of fire protection service provided adequate for the project area? If the fire protection levels are not adequate, what would be required to provide an adequate level of service for the community (number and types of personnel or personnel hours, and resources required)? CURRENT LEVEL OF STAFFING IS NOT ADEQUATE BUT BY HAVING ALL UNITS FIRE SPRINKLER MITIGATES THE ADDITIONAL STAFFING NEEDS.
5. Have the needs for fire protection services increased, decreased or remained the same during recent years? If there have been changes, please provide information about those changes, including: change in type of service request, amount of change in service needs, known causes of changes, and timeframe in which these changes occurred.
   THE CALLS FOR SERVICE CONTINUES TO GROW. THERE WAS A 6% INCREASE IN CALLS FOR STAT. 2 FROM 06-07
6. Do you anticipate the proposed project would result in the need for physical additions to your agency (i.e., construction of new fire stations)?
   NO
7. Do you anticipate that required fees and taxes provided by the project will adequately mitigate the expected increase in fire and emergency medical service demand?
   YES
8. Do you require or recommend any additional mitigation measures? FIRE SPRINKLERS IN ALL UNITS. SHORTAGE OF STAFFING AT STATION 2 AND THIS PROJECT LIES IN THE VERY HIGH FIRE SEVERITY ZONE.

9. Please indicate the present ISO rating of the site and any fire hazard impacts of the project (will the ISO rating remain the same)? YES – ISO RATING IS A 3

10. Is there any other relevant information regarding potential significant project impacts?

WILDLAND FIRE THREAT

INFORMATION PROVIDED BY FIRE MARSHAL
BRUCE BECKER CITY OF REDDING,
RETIRING 7/18/08
REPLACEMENT PHILLIP PAGE

11. MITIGATION MEASURES FOR THE WILDLAND THREAT

A) TWO ZONE VEGETATION CLEARING
B) FIRE SPRINKLERS IN ALL STRUCTURES
C). BLDG. CONSTRUCTION TO COMPLY WITH CA. BLDG. CODE CHAPTER 7A & CITY OF REDDING FIRE SAFE BUILDING CONSTRUCTION & METHODS FOR WILDLAND-URBAN INTERFACE FIRES. JULY 2008
D) FIRE FLOWS COMPLYING WITH CA. FIRE CODE APPENDIX "B".

POLICE SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions on your agency letterhead and provide maps to illustrate facility locations.

1. Please indicate the location of the police or sheriff stations that serve the project area.
   Redding Police Dept.
   1313 California St.
   Redding, CA 96001
2. What is the geographical area and total population which is served by the station?
   60 sq/miles
   Pop 90,491
3. What are the number and types of personnel in this Department that are available to provide police protection services to the project area?
   115 Sworn Officers
   15 Community Service Officers
4. What is the average response time to areas within the project area?
   Emergency Calls. 11 min 18 sec.
5. What are the mean response times for different priority levels over the last three years? Also, please provide a description of the different priority service levels.
   Statistics for non-emergency response times are not available.
6. Is the current level of police protection service provided adequate for the project area? If the protection levels are not adequate, what would be required to provide an adequate level of service for the community (number and types of personnel or personnel hours, and resources required)? A manpower needs analysis has not been completed for this project.
7. Have the needs for police protection services increased, decreased or remained the same during recent years? If there have been changes, please provide information about those changes, including: changes in type of service request, amount of change in service needs, known causes of changes, and timeframe in which these changes occurred. (For example, have there been significant increases/decreases in drug-related investigation, violent crime, burglary or other types of crimes.) All of our crime statistics are available on the City of Redding's website
8. Do you have any required or recommended mitigation measures for significant impacts of the project?
   When the planning department submits a request for comment to the police dept. an analysis will be made

9. Is there any other relevant information regarding significant projects impacts?

All projects of this scope will increase call for service for the Police Dept.

10. Do you anticipate the proposed project would result in the need for physical additions to your agency (i.e., construction of new police stations)?

Unknown at this time.

/

CABLE SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions on your agency/company letterhead and provide maps to illustrate facility locations.

1. What is the present service area and/or locations of your facilities? Are any of these facilities within the proposed project boundaries as shown on the attached Site Vicinity Map?

   There is no charter cable in the proposed project boundaries.
   We service wildwood, sunflower LN, sunflower AERA. (yellow)

2. What is the present capacity?

   Charter will tie-in at Buenaventura Blvd (RED)

Charter COMMUNICATIONS®

JIM M. ROBERTS
Construction Coordinator

5797 Eastside Road
Redding, CA 96001

tel: 530 • 229 • 2221
fax: 530 • 225 • 8673
cell: 530 • 510 • 6417
e-mail: james.roberts@chartercom.com

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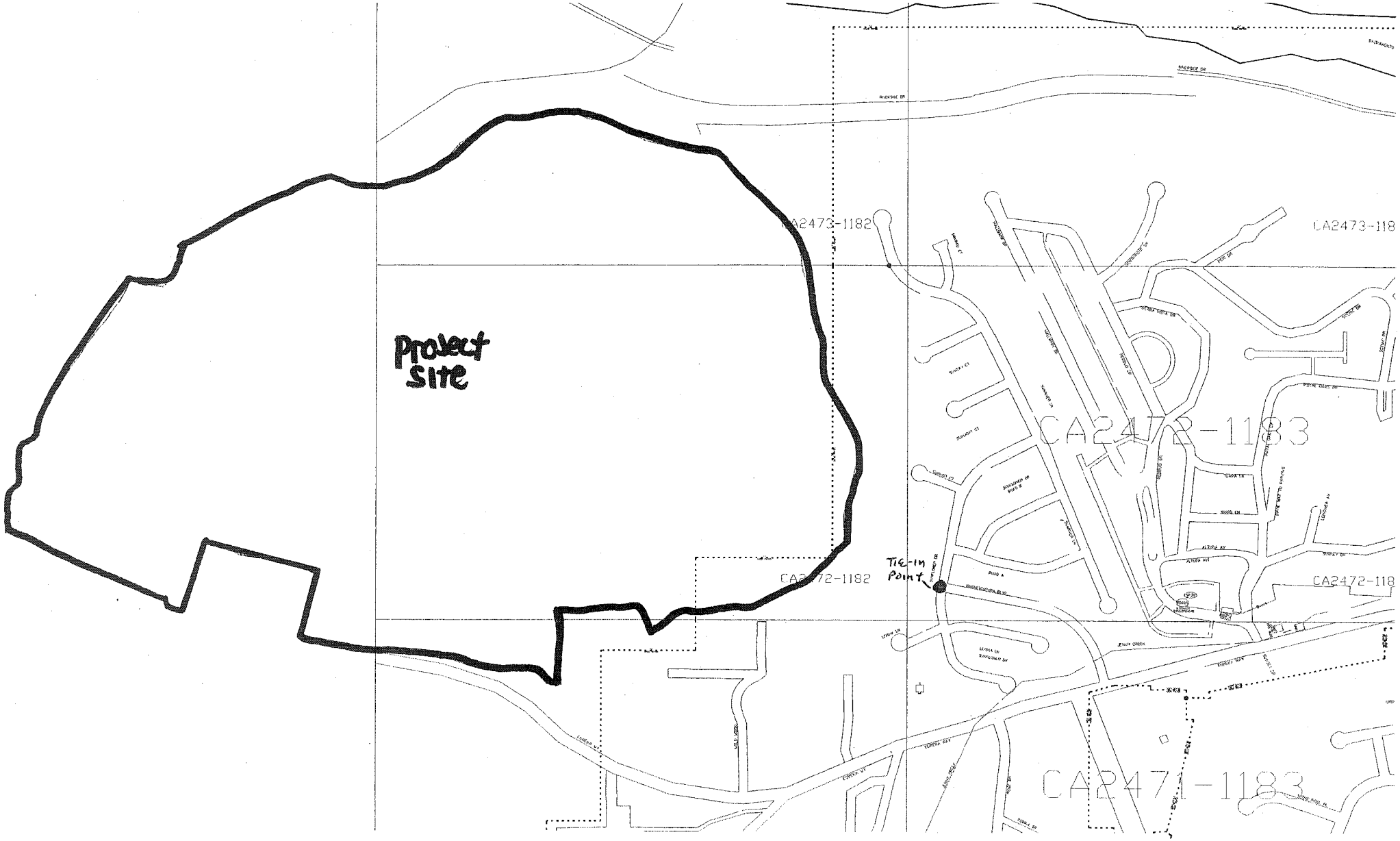
Project Site
CA2473-1182
CA2473-118
CA2472-1183
CA2472-1182
CA2472-118
CA2471-1183
Tie-in Point

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Superintendent
Michael J. Stuart

September 29, 2008

Lane E. Simmons
Environmental Planner
RBF Consulting
2101 Arena Boulevard, Suite 250
Sacramento, CA 95834-2303

Re: Buenaventura Park Subdivision
Cessna Dr. & Piper Way
Number of Lots: 5

Dear Ms. Simmons:

The above referenced subdivision will be serviced, for grades 9-12, by:

Shasta High School
2500 Eureka Way
Redding, CA 96001

If I can be of further assistance, please give me a call at 241-3261.

Sincerely,

Melinda Kinder
Administrative Assistant
Business Services

2200 Eureka Way, Suite B, Redding, California 96001 (530) 241-3261 Fax (530) 225-8499

mailed 9/26/08

SHASTA COUNTY OFFICE OF EDUCATION

Providing assistance and leadership to the districts in Shasta County and ensuring all students have equal access to a quality education

Superintendent
Tom Armelino

Board of Education
Linda Bradford
Derek Fasking
Diane Gerard
Rhonda Hull
Linda McBride
William Stegall
Susan Wilson

September 15, 2008

City of Redding Planning Division
777 Cypress Avenue
Redding, CA 96001

Dear Zach Bonnin:

The Shasta County Office of Education (COE) does not have any specific comments on the project at this time and looks forward to commenting on the Environmental Impact Report (EIR) as it will provided needed information on the school facility impacts of the Salt Creek Heights project. All development projects, especially those the size of the proposed Salt Creek Heights project, affect the COE and our duty to provide facilities and services for the children of our community. The COE will undoubtedly require the developer to assist in the funding of new school facilities necessitated by the project. The COE looks forward to working with the City of Redding and the project developer to ensure that our facilities needs are met as the project moves forward.

Sincerely,

Shayne Hale
Director of Facilities, Maintenance and Operations

1644 Magnolia Avenue | Redding, CA 96001 | (530) 225-0200 | Fax (530) 225-0329 | www.shastacoe.org

Grant Elementary School District

"Preparing Students for the Future"

John Krinkel
Superintendent

Internet: www.Grantesd.k12.ca.us

8835 Swasey Drive
Redding, CA 96001
(530) 243-4952
Fax (530) 243-7014

August 17, 2008

Jennifer Donovan
RBF Consulting
2101 Arena Boulevard, Suite 250
Sacramento, CA 95834

Dear Ms. Donovan:

The environmental questionnaire does not apply to Grant Elementary School District, since the proposed project site is not part of our school boundary area.

Sincerely,

John V. Krinkel
Superintendent

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AUG 20 2008
RBF CONSULTING

Board of Trustees
Chuck Aukland, Cris Hartman, Galen Schmidt, Camile Woodstrom, Ronald Zufall

Jennifer Donovan - Salt Creek Heights Tentative Subdivision Map

From: "Theresa Ungaro" <tungaro@gwusd.org>
To: <jdonovan@rbf.com>
Date: 8/4/2008 11:15 AM
Subject: Salt Creek Heights Tentative Subdivision Map
CC: "John Strohmayer" <jstrohmayer@gwusd.org>

Good morning Jennifer –

Per our telephone conversation, the Salt Creek Heights Tentative Subdivision Map is not located within the Gateway Unified School District boundaries.

Our district is located to the north of Middle Creek Road. If you have any questions, please feel free to give me a call.

Thank you -

Theresa A. Ungaro

Administrative Assistant to the Superintendent

Gateway Unified School District

(530) 245-7908

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Jennifer Donovan - Salt Creek Heights - Redding

From: "Sue A. Hawley" <shawley@eesd.net>
To: "JDONOVAN@rbf.com" <JDONOVAN@rbf.com>
Date: 7/31/2008 3:52 PM
Subject: Salt Creek Heights - Redding

Jennifer, The Salt Creek Heights project is located across the river in the Redding School District. We will not be filling out your questionnaire since this does not pertain to us.

Sue

Susan Ohlson-Hawley

Enterprise Elementary School District

1155 Mistletoe Lane

Redding, CA 96002

(530) 224-4100

(530) 224-4101 Fax

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CITY OF REDDING

COMMUNITY SERVICES DEPARTMENT
777 Cypress Avenue, Redding, CA 96001-2718
P.O. Box 496071, Redding, CA 96049-6071
530.225.4512 FAX 530.225.4533
www.ci.redding.ca.us

August 22, 2008
A-050-110

Jennifer Donovan
RBF Consulting
2101 Arena Blvd, Ste 250
Sacramento, CA 95834

RE: City of Redding Community Services Dept Questionnaire Response

Dear Jennifer:

Thank you for the opportunity to provide comments for the Salt Creek Heights Subdivision Project EIR. Our responses to the 9 questions are below in the same order as presented.

1. We anticipate the park within Salt Creek Heights to be a Large Neighborhood Park and to include those amenities listed in the City of Redding Parks, Trails, and Open Space Master Plan for this size of a park. No other city park exists within the standard ½ mile service area that will benefit from this location.

   This project will also be required to connect with an existing off-site trail connection to the Sacramento River Trail and provide a contribution to the trail program in-lieu of capacity enhancements.

2. This is the only proposed facilities planned for the future in the project vicinity.

3. This project will at build-out include 440 units and approximately 1,100 new residents. We have a goal of 10 acres of developed park for every 1,000 residents.

4. This park is sized and will be designed to be a large neighborhood park serving the immediate neighborhoods within 0.5 miles. We expect all the use to be local. There will be a positive impact on both the health and fitness of the residents and the property values.

5. We anticipate entering into a park development agreement with the developer to dedicate the land and construct the park as part of the Salt Creek Heights project. Impact fees normally assessed upon the project will be credited and the developer will use these credited funds to pay for the park construction costs.

6. The project will generate a significant number of new residents; it is important the necessary park, trail and open space amenities be included in the project.

7. Park dedication is required.

8. The project will be required to make a contribution to the trail program in lieu of capacity enhancements to the existing Buenaventura Trail.

9. No other impacts have been identified.

Sincerely,

Chris Glover
Community Projects Manager

cg

RECEIVED
SEP 11 2008
RBF CONSULTING

RABA

September 8, 2008
R-010-265

Jennifer Donovan
RBF Consulting
2101 Arena Boulevard, Suite 250
Sacramento, CA 95834-2303

Subject: Public Services and Facilities Questionnaire for Salt Creek Heights Subdivision

Dear Ms. Donovan:

We have received your request for consideration of impacts to the Redding Area Bus Authority (RABA) system from the planned development of the Salt Creek Heights subdivision in west Redding. While the impacts to the RABA system will not be significant, there are route adjustments that will need to be made and facilities that will need to be incorporated into the project in order to adequately serve our riders. Specifically, the following responses address your public transportation questionnaire:

1. Do you anticipate any significant impacts from the project on current public transit operation around the project area?

   The proposed project will not significantly impact the RABA transit system operations. Route 2 is currently serving the Buenaventura Blvd./Eureka Way intersection. To adequately serve this development, Route 2 would be expanded further west. This expansion will impact route timing which will need to be considered and optimized. As each phase is constructed, the conditions for approval will require construction of bus turn out and bus stop improvements to accommodate buses and riders. The locations will be determined as plans are considered. The attached map provides information on the current configuration of Route 2.

2. Do you have any required or recommended mitigation measure for significant impacts?

   There are no significant impacts to mitigate. The only mitigation will be the requirement to build bus turn out and bus stop facilities as noted above.

REDDING AREA BUS AUTHORITY
777 CYPRESS AVENUE,REDDING, CALIFORNIA 96001-3396 • (530) 225-4171 • FAX (530) 245-7024

3. Is there any other relevant information regarding potential impacts of the project that you can provide for use in the environmental analysis.

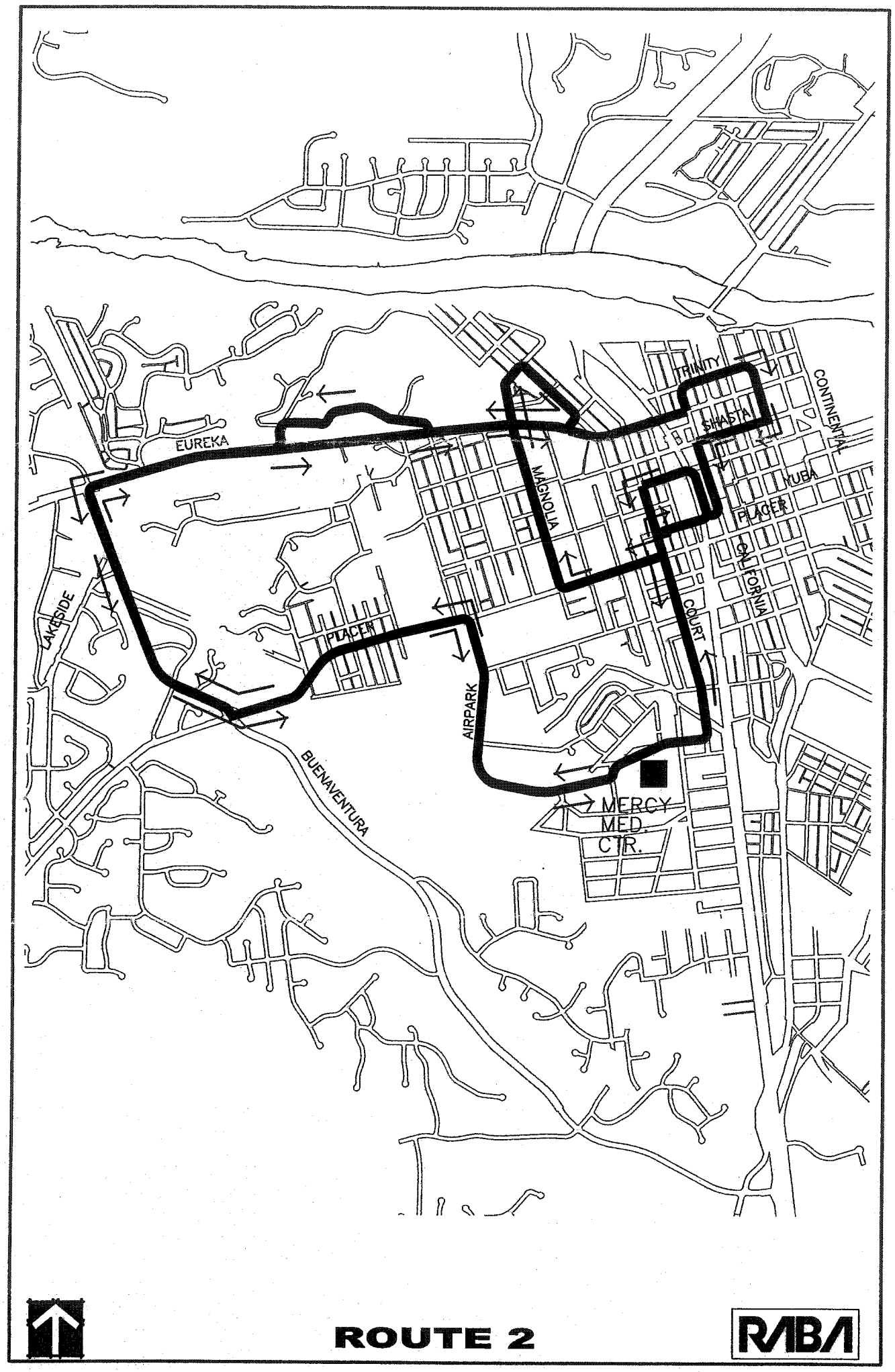
No other impacts from the project should affect the RABA system.

Should you have any further questions, please feel free to give me a call at (530) 245-7156.

Sincerely,

Charles R. "Chuck" Aukland, P.E.
Assistant City Engineer

CA:sm
L:\RABA\Correspondence\Chuck\090808L-RBF-Salt Creek EIR impacts.wpd
Attachments
c: Brian Crane, Director of Transportation and Engineering
Sue Hanson, Transportation Planner
Zach Bonin, Associate Planner


TRINITY
CONTINENTAL
SHASTA
EUREKA
MAGNOLIA
YUBA
PLACER
CALIFORNIA
COURT
LAKESIDE
PLACER
AIRPARK
BUENAVENTURA
MERCY
MED.
CTR.

ROUTE 2

RABA

ROUTE 2
(Eureka / Placer / Trinity)

1. Downtown Transit Center ..... :30
2. Court at Butte (Courthouse)
3. Placer at West
4. Magnolia at Placer
5. Magnolia at Tehama
6. Magnolia at Tenth
7. West at Tenth
8. Eleventh at Eureka
9. Eureka at Magnolia
10. Pioneer at Wolf (Shasta High School) ..... :43
11. Pioneer (2770)
12. Overhill at Eureka
13. Eureka at Sunset
14. Buenaventura (west side) at Eureka
15. Buenaventura at Lakeside
16. Buenaventura at Westgate
17. Buenaventura at Rosita
18. Placer (3315) (Holiday Market)
19. Placer at Mesa
20. Airpark at Gold *(Benton Airport)*
21. Airpark at Sonoma (across from *CHP*)
22. Airpark (2510) *(Sequoia Medical Arts)*
23. Airpark (south side) at Rosaline *(near Mercy Hospital)*
24. Rosaline (south side) at West
25. Court at Sonoma
26. Court (east side) at Gold
27. Downtown Transit Center ..... :00
28. Court at Butte *(Courthouse)*
29. Court at South
30. Court at Sonoma
31. Rosaline at West
32. Airpark at Rosaline *(Mercy Hospice Care)*
33. Airpark (2525) *(CH2M Hill)*
34. Airpark at Sonoma *(CHP)*
35. Airpark at Gold *(St. Joseph Church)* ..... :07
36. Placer at Mesa
37. Placer at San Francisco
38. Buenaventura at Placer
39. Buenaventura at Cal Ore
40. Buenaventura at Eureka *(Sunset Market)*
41. Eureka at Whiskeytown Ct
42. Eureka at Walnut
43. Trinity at East
44. Downtown Transit Center ..... :30

WATER SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

Please respond to the following questions, as applicable, on your agency letterhead and provide maps to illustrate facility locations.

1. Please identify graphically your service area within the project area.

   THE PROJECT IS OUTSIDE THE BELLA VISTA W.D.'S SERVICE AREA.

2. What are the size and location of water mains currently serving the project area?

   N. A

3. What is the current and projected water capacity for the District; annual use in acre-feet, daily flow in cfs and peak demand in MGD? Are there currently any deficiencies in the water system in the project area?

4. Given the proposed land uses and densities, what is the projected maximum day water usage (in gallons per minute) for the proposed Project, at buildout?

5. Does your agency have sufficient water supplies available to serve the project area, or are new or expanded entitlements needed?

6. From what sources does the project area currently obtain its water supply? What is the method of water treatment and the quality of water levels available to the community?

7. What is the current rate of local groundwater extraction and existing groundwater quality?

8. Are any new facilities, such as sizing requirements, new lines or treatment facilities, currently planned near the project area?

9. Do you have any required assessment fees or other required or recommended mitigation measures?

10. Is there any other relevant information or concerns from the proposed project?

11. Will the proposed project require new facilities or additions to existing facilities? If so, please list/summarize any changes.

12. Does your agency have any requirements for setbacks, shielding, etc. of canals?

N.A.

at&t

TELEPHONE SERVICE QUESTIONNAIRE
SALT CREEK HEIGHTS
ENVIRONMENTAL IMPACT REPORT

1. Please indicate the location of telephone lines within the immediate project vicinity. We have structure and facilities at Lower Springs Rd & Hwy 299.

2. Do you anticipate any impacts of the project on telephone facilities or services? If so, please list/summarize additions or modifications. Will telephone service be available for the project? At this time I do not see any impacts on the telephone facilities. Telephone service will be available for the project.

3. Do you have any required or recommended mitigation measures for significant impacts? Until we design the project for telephone facilities it is difficult to foresee what will be needed. We most likely will ask for an easement to place equipment, possibly a 20'x20' space.

4. Is there any other relevant information regarding potential impacts of the project? Not at this time.

From: Marcelino Gonzalez <marcelino_gonzalez@dot.ca.gov>
To: LSIMMONS@rbf.com
Date: 10/2/2008 9:37:25 AM
Subject: Salt Creek Heights Subdivision NOP EIR - Caltrans Comment Letter

Attached is an electronic copy of Caltrans review of the NOP and traffic study. The original letter will be sent to the City of Redding by regular mail.

As indicated, we did not respond to the questionnaire because the questions were not written to address Caltrans concerns. While local agencies and service districts may be able to comment on street maintenance impacts, Caltrans is required to perform highway maintenance. We are however concerned that the EIR address that adequate transportation facilities be provided to accommodate the project.

(See attached file: Sha-299-20 Salt Creek Heights NOP EIR SCH.pdf)

Marcelino "Marci" Gonzalez
Local Development Review
(530) 225-3369
(530) 225-3020 FAX
----- Forwarded by Marcelino Gonzalez/D02/Caltrans/CAGov on 10/02/2008 09:29 AM -----

Michelle Millette/D02/Caltrans/CAGov
10/02/2008 09:00 AM

To: "Lane Simmons" <LSIMMONS@rbf.com>
cc: cliff.peterson@dot.ca.gov, "Jennifer Donovan" <JDONOVAN@rbf.com>, Marcelino Gonzalez/D02/Caltrans/CAGov
Subject: Re: Salt Creek Heights Subdivision EIR - Roadway Maintenance Questionnaire(Document link: Marcelino Gonzalez)

Hi Lane,

I will send you a copy via email of our response to the NOP. It is currently in draft form. However, we will NOT respond to your questionnaire. We indicated to the previous RFB consultant that we would not attempt to respond to the questionnaire - I believe we were supported

by the City staff.

I believe that some of the information requested in the questionnaire, plus additional issues, are adequately covered in our response to the NOP.

Feel free to call me if you would like to discuss.

Michelle Millette
Senior Transportation Planner
District 2, Office of Community & Regional Planning
California Department of Transportation
(530) 229-0517
FAX (530) 225-3578

"Lane Simmons"
<LSIMMONS@rbf.com
>
10/02/2008 08:00
AM

To
<michelle.millette@dot.ca.gov>
cc
<cliff.peterson@dot.ca.gov>,
"Jennifer Donovan"
<JDONOVAN@rbf.com>
Subject
Salt Creek Heights Subdivision EIR
- Roadway Maintenance Questionnaire

Hello Michelle,

I found your email address on the CALTRANS District 2, Office of Community and Regional Planning webpage. RBF Consulting is preparing an Environmental Impact Report (EIR) for the City of Redding. The proposed Project is the Salt Creek Heights Subdivision, located at 4200 Eureka Way (SR-299). I hope you can provide input on potential impacts (if any) regarding roadway maintenance and the proposed Project, if not, would you please point me in the right direction? Input from CALTRANS would be greatly appreciated for inclusion in the Salt Creek Heights Subdivision EIR. I have attached a letter with additional project information, a roadway maintenance questionnaire, and several exhibits for reference. Please email or fax the questionnaire back to me by the end of next week (Friday, October 10). Feel free to call me if you have any questions, my direct line is (916) 928-2634. Thank you very much for your help in this regard!

Lane E. Simmons
Environmental Planner
RBF Consulting
2101 Arena Boulevard, Suite 250
Sacramento, CA 95834-2303
lsimmons@rbf.com
Direct Phone: (916) 928-2634
Office Phone: (916) 928-1113
Fax: (916) 928-1117

[attachment "CALTRANS_Dist2_PSULetter.doc" deleted by Michelle Millette/D02/Caltrans/CAGov] [attachment "ROADWAY MAINTENANCE QUESTIONNAIRE.doc" deleted by Michelle Millette/D02/Caltrans/CAGov] [attachment "2-SiteVic.pdf" deleted by Michelle Millette/D02/Caltrans/CAGov] [attachment "3-Aerial_Photo.pdf" deleted by Michelle Millette/D02/Caltrans/CAGov] [attachment "4-Subdivision_Tent-Map.pdf" deleted by Michelle Millette/D02/Caltrans/CAGov] [attachment "5-Prelim_Phasing.pdf" deleted by Michelle Millette/D02/Caltrans/CAGov]

CC: zbonnin@ci.redding.ca.us

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