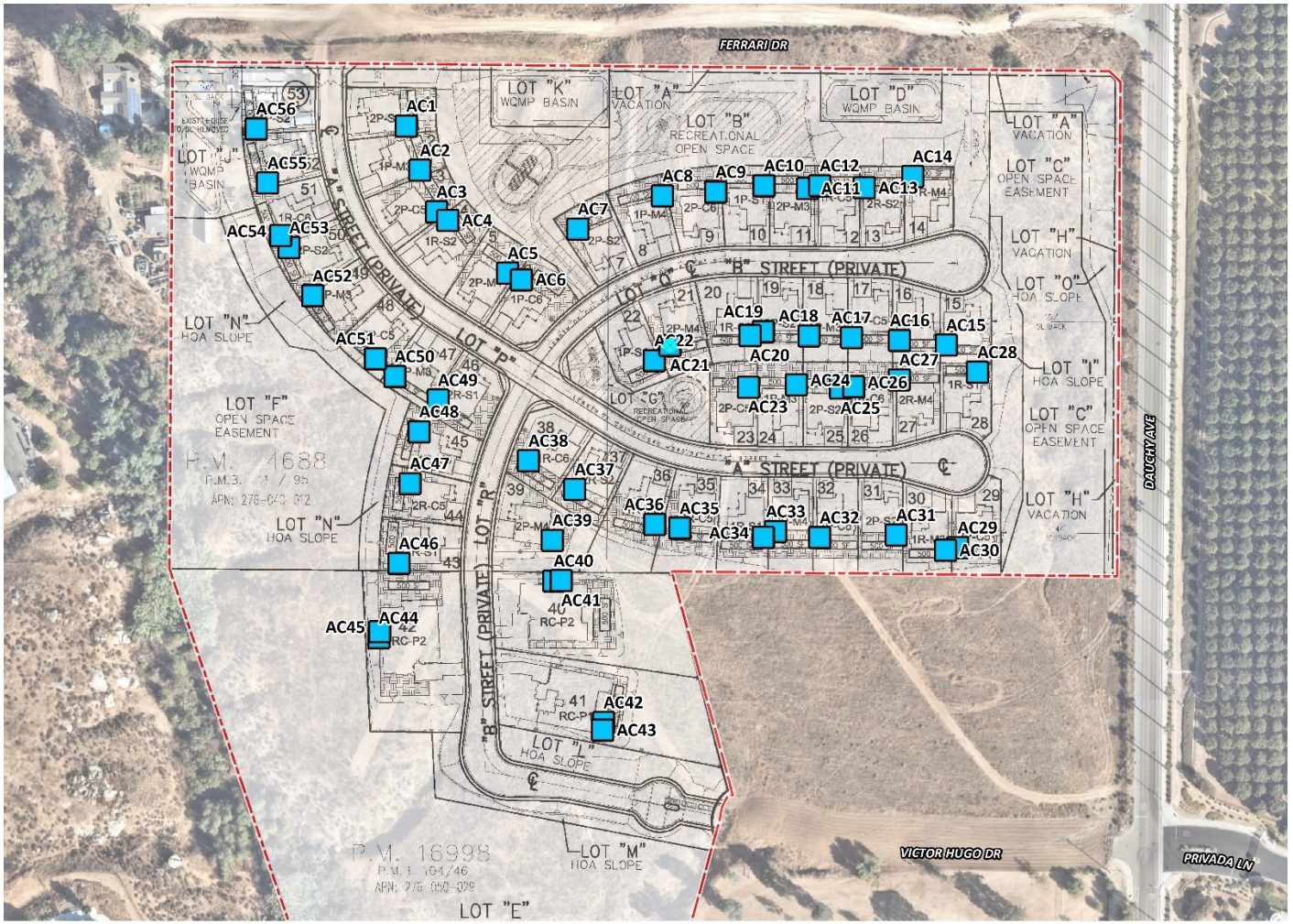
EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS



10.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces.

Using the reference noise levels, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. CadnaA noise model calculations are included in Appendix 10.2.

10.4 PROJECT OPERATIONAL NOISE LEVELS

10.4.1 OFF-SITE RECEIVERS

Table 10-1 shows the Project operational noise levels at the off-site receiver locations are expected to range from 5.5 to 25.0 dBA L_{eq} during the daytime hours.

TABLE 10-1: OFF-SITE PROJECT DAYTIME OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{max})								
	R1	R2	R3	R4	R5	R6	R7	R8	R9
Ground Mounted Air Conditioning Units	27.4	17.3	9.2	3.4	7.8	28.2	22.2	17.7	29.3

[1] See Exhibit 10-B for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

Table 10-2 shows the Project operational noise levels at the off-site receiver locations are expected to range from 2.8 to 22.3 dBA L_{eq} during the nighttime hours.

TABLE 10-2: OFF-SITE PROJECT NIGHTTIME OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{max})								
	R1	R2	R3	R4	R5	R6	R7	R8	R9
Ground Mounted Air Conditioning Units	27.4	17.3	9.2	3.4	7.8	28.2	22.2	17.7	29.3

[1] See Exhibit 10-B for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

10.4.1 ON-SITE RECEIVERS

Table 10-3 shows, the Project operational noise levels at the off-site receiver locations are expected to range from 29.6 to 48.8 dBA L_{eq} during the daytime hours and 26.9 to 39.0 dBA L_{eq}.

TABLE 10-3: ON-SITE PROJECT DAYTIME OPERATIONAL NOISE LEVELS

Receiver/ Lot[1]	Daytime Noise Level (dBA L_{eq})	Nighttime Noise Level (dBA L_{eq})
R01	34.6	31.8
R02	37.5	34.7
R03	39.3	36.6
R04	37.1	34.3
R05	38.2	35.5
R06	37.2	34.5
R07	34.8	32.0
R08	34.8	32.1
R09	35.7	33.0
R10	36.7	34.0
R11	38.5	35.8
R12	38.9	36.1
R13	38.5	35.7
R14	34.3	31.6
R15	41.7	39.0
R16	41.4	38.7
R17	41.4	38.6
R18	41.2	38.4
R19	41.6	38.9
R20	39.6	36.9
R21	46.7	36.8
R22	48.8	35.2
R23	40.6	37.9
R24	41.1	38.4
R25	41.6	38.8
R26	41.8	39.0
R27	40.1	37.3
R28	40.3	37.5
R29	32.5	29.8
R30	36.3	33.6
R31	34.4	31.7
R32	34.7	32.0

TABLE 10-3: ON-SITE PROJECT DAYTIME OPERATIONAL NOISE LEVELS

Receiver/ Lot[1]	Daytime Noise Level (dBA L_{eq})	Nighttime Noise Level (dBA L_{eq})
R33	37.5	34.8
R34	36.2	33.5
R35	34.0	31.3
R36	37.1	34.4
R37	38.2	35.4
R38	38.0	35.2
R39	40.8	38.1
R40	33.8	31.1
R41	29.6	26.9
R42	37.4	34.7
R43	35.5	32.8
R44	35.8	33.1
R45	38.2	35.5
R46	40.0	37.3
R47	40.0	37.3
R48	36.4	33.7
R49	35.3	32.6
R50	39.0	36.3
R51	37.2	34.5
R52	35.7	32.9
R53	33.0	30.3

10.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

10.5.1 OFF-SITE RECEIVERS

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Riverside exterior noise level standards at nearby noise-sensitive receiver locations. Table 10-4 shows the operational noise levels associated with the Project will satisfy the City of Riverside 45 dBA L_{eq} daytime and 35 dBA L_{eq} nighttime exterior noise level standards at on-site noise sensitive residential receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive residential receiver locations.

TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA L_{max})[2]		Exterior Noise Level Standards (dBA L_{max})[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	27.4	27.4	55	45	No	No
R2	17.3	17.3	55	45	No	No
R3	9.2	9.2	55	45	No	No
R4	3.4	3.4	55	45	No	No
R5	7.8	7.8	55	45	No	No
R6	28.2	28.2	55	45	No	No
R7	22.2	22.2	55	45	No	No
R8	17.7	17.7	55	45	No	No
R9	29.3	29.3	55	45	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-3 and 9-4.
[3] Exterior noise level standard as shown on Table 3-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
[5] Receiver locations R3 and R4 represent the Val Verde Regional Learning Center and Val Verde High School respectively, and do not include any noise sensitive nighttime receivers.
"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

10.5.2 ON-SITE RECEIVERS

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Riverside exterior noise level standards at nearby noise-sensitive receiver locations. Table 10-4 shows the operational noise levels associated with the Project will satisfy the City of Riverside 45 dBA L_{eq} daytime and 35 dBA L_{eq} nighttime exterior noise level standards at all nearby noise sensitive residential receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive residential receiver locations.

TABLE 10-5: ON-SITE OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver / Lot[1]	Daytime Noise Level (dBA L_{eq})	Nighttime Noise Level (dBA L_{eq})	Daytime Noise Level Limit (dBA L_{eq})[2]	Nighttime Noise Level Limit (dBA L_{eq})[2]	Exceed the daytime threshold?	Exceed the nighttime threshold?
R01	34.6	31.8	55	45	No	No
R02	37.5	34.7	55	45	No	No
R03	39.3	36.6	55	45	No	No
R04	37.1	34.3	55	45	No	No
R05	38.2	35.5	55	45	No	No
R06	37.2	34.5	55	45	No	No
R07	34.8	32.0	55	45	No	No
R08	34.8	32.1	55	45	No	No
R09	35.7	33.0	55	45	No	No
R10	36.7	34.0	55	45	No	No

TABLE 10-5: ON-SITE OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver / Lot[1]	Daytime Noise Level (dBA L_{eq})	Nighttime Noise Level (dBA L_{eq})	Daytime Noise Level Limit (dBA L_{eq})[2]	Nighttime Noise Level Limit (dBA L_{eq})[2]	Exceed the daytime threshold?	Exceed the nighttime threshold?
R11	38.5	35.8	55	45	No	No
R12	38.9	36.1	55	45	No	No
R13	38.5	35.7	55	45	No	No
R14	34.3	31.6	55	45	No	No
R15	41.7	39.0	55	45	No	No
R16	41.4	38.7	55	45	No	No
R17	41.4	38.6	55	45	No	No
R18	41.2	38.4	55	45	No	No
R19	41.6	38.9	55	45	No	No
R20	39.6	36.9	55	45	No	No
R21	46.7	36.8	55	45	No	No
R22	48.8	35.2	55	45	No	No
R23	40.6	37.9	55	45	No	No
R24	41.1	38.4	55	45	No	No
R25	41.6	38.8	55	45	No	No
R26	41.8	39.0	55	45	No	No
R27	40.1	37.3	55	45	No	No
R28	40.3	37.5	55	45	No	No
R29	32.5	29.8	55	45	No	No
R30	36.3	33.6	55	45	No	No
R31	34.4	31.7	55	45	No	No
R32	34.7	32.0	55	45	No	No
R33	37.5	34.8	55	45	No	No
R34	36.2	33.5	55	45	No	No
R35	34.0	31.3	55	45	No	No
R36	37.1	34.4	55	45	No	No
R37	38.2	35.4	55	45	No	No
R38	38.0	35.2	55	45	No	No
R39	40.8	38.1	55	45	No	No
R40	33.8	31.1	55	45	No	No
R41	29.6	26.9	55	45	No	No
R42	37.4	34.7	55	45	No	No
R43	35.5	32.8	55	45	No	No
R44	35.8	33.1	55	45	No	No
R45	38.2	35.5	55	45	No	No
R46	40.0	37.3	55	45	No	No
R47	40.0	37.3	55	45	No	No
R48	36.4	33.7	55	45	No	No
R49	35.3	32.6	55	45	No	No
R50	39.0	36.3	55	45	No	No
R51	37.2	34.5	55	45	No	No

TABLE 10-5: ON-SITE OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver / Lot[1]	Daytime Noise Level (dBA L_{eq})	Nighttime Noise Level (dBA L_{eq})	Daytime Noise Level Limit (dBA L_{eq})[2]	Nighttime Noise Level Limit (dBA L_{eq})[2]	Exceed the daytime threshold?	Exceed the nighttime threshold?
R52	35.7	32.9	55	45	No	No
R53	33.0	30.3	55	45	No	No

[1] On-Site receiver locations shown on Figure 10-A.
[2] Title 7, Ord.6273. 1

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11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8. To prevent high levels of construction noise from impacting noise-sensitive land uses the City of Riverside Municipal Code Section 7.35.020(G) exempts construction noise from its stationary-source noise level limits provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday.

11.1 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearest sensitive receiver locations were completed. The noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading. A default ground attenuation factor of 0.0 was used in the CadnaA noise analysis to account for hard site conditions.

To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 11-1, the construction noise levels are expected to range from 48.7 to 75.1 dBA L_{eq}, and the highest construction levels are expected to range from 58.8 to 75.1 dBA L_{eq} at the nearest receiver locations. Appendix 9.1 includes the detailed CadnaA construction noise model inputs.

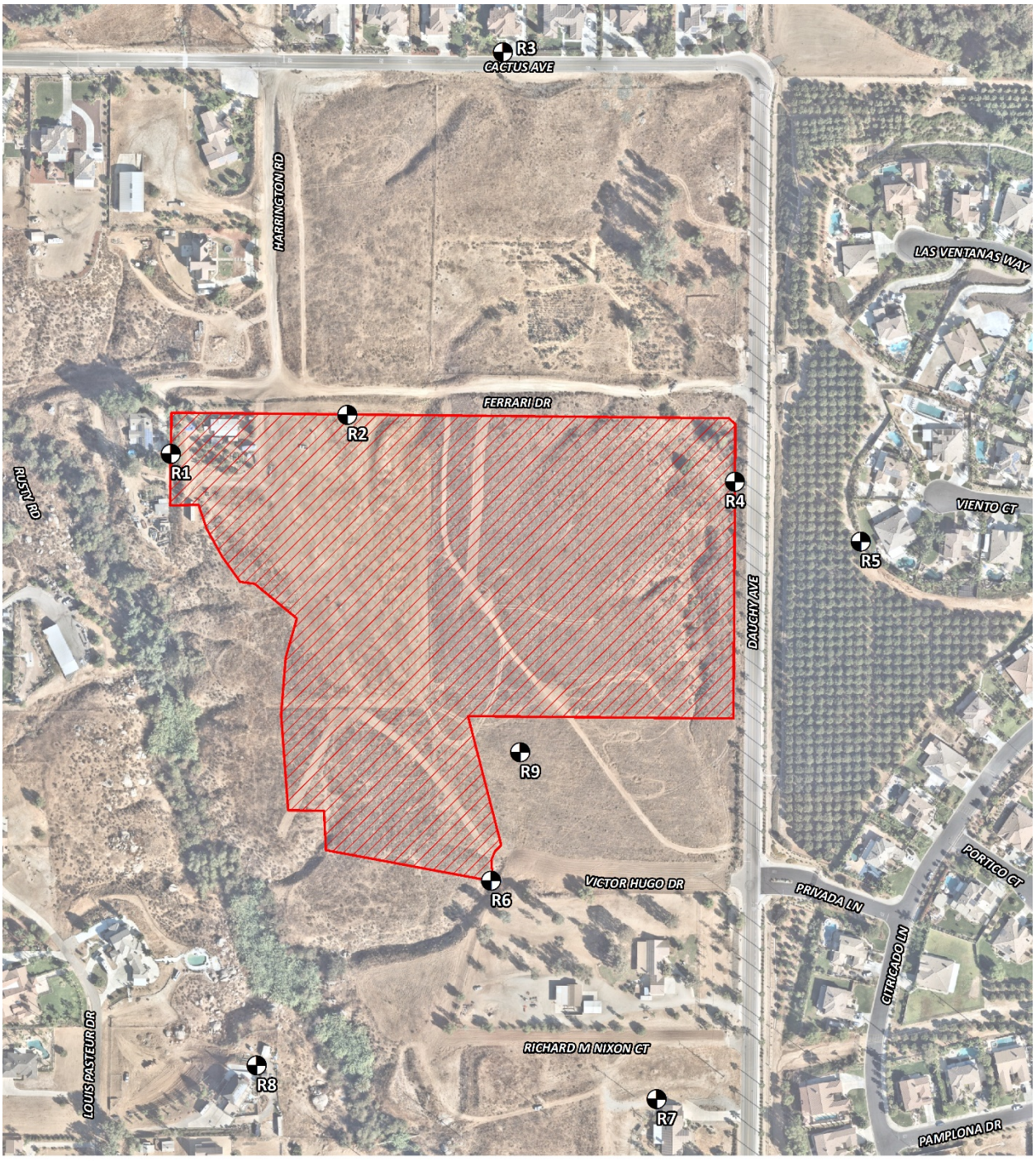
TABLE 11-1: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	74.6	72.8	70.9	70.5	64.5	74.6
R2	59.9	58.1	56.2	55.8	49.8	59.9
R3	65.6	63.8	61.9	61.5	55.5	65.6
R4	58.8	57.0	55.1	54.7	48.7	58.8
R5	61.0	59.2	57.3	56.9	50.9	61.0
R6	74.7	72.9	71.0	70.6	64.6	74.7
R7	75.1	73.3	71.4	71.0	65.0	75.1
R8	72.4	70.6	68.7	68.3	62.3	72.4
R9	70.1	68.3	66.4	66.0	60.0	70.1

[1] Noise receiver locations are shown on Exhibit 9-A.

[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 9.1.

EXHIBIT 11-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS



The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearest sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location.

11.2 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 11-2. Therefore, the noise impacts due to Project construction noise is considered *less than significant* under CEQA at all receiver locations.

TABLE 11-2: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	74.6	80	No
R2	59.9	80	No
R3	65.6	80	No
R4	58.8	80	No
R5	61.0	80	No
R6	74.7	80	No
R7	75.1	80	No
R8	72.4	80	No
R9	70.1	80	No

[1] Noise receiver locations are shown on Exhibit 9-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 9-1.
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.3 CONSTRUCTION VIBRATION LEVELS

Using the vibration source level of construction equipment provided on Table 6-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 9-3 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 37 to 778 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.00 to 0.05 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec) for older

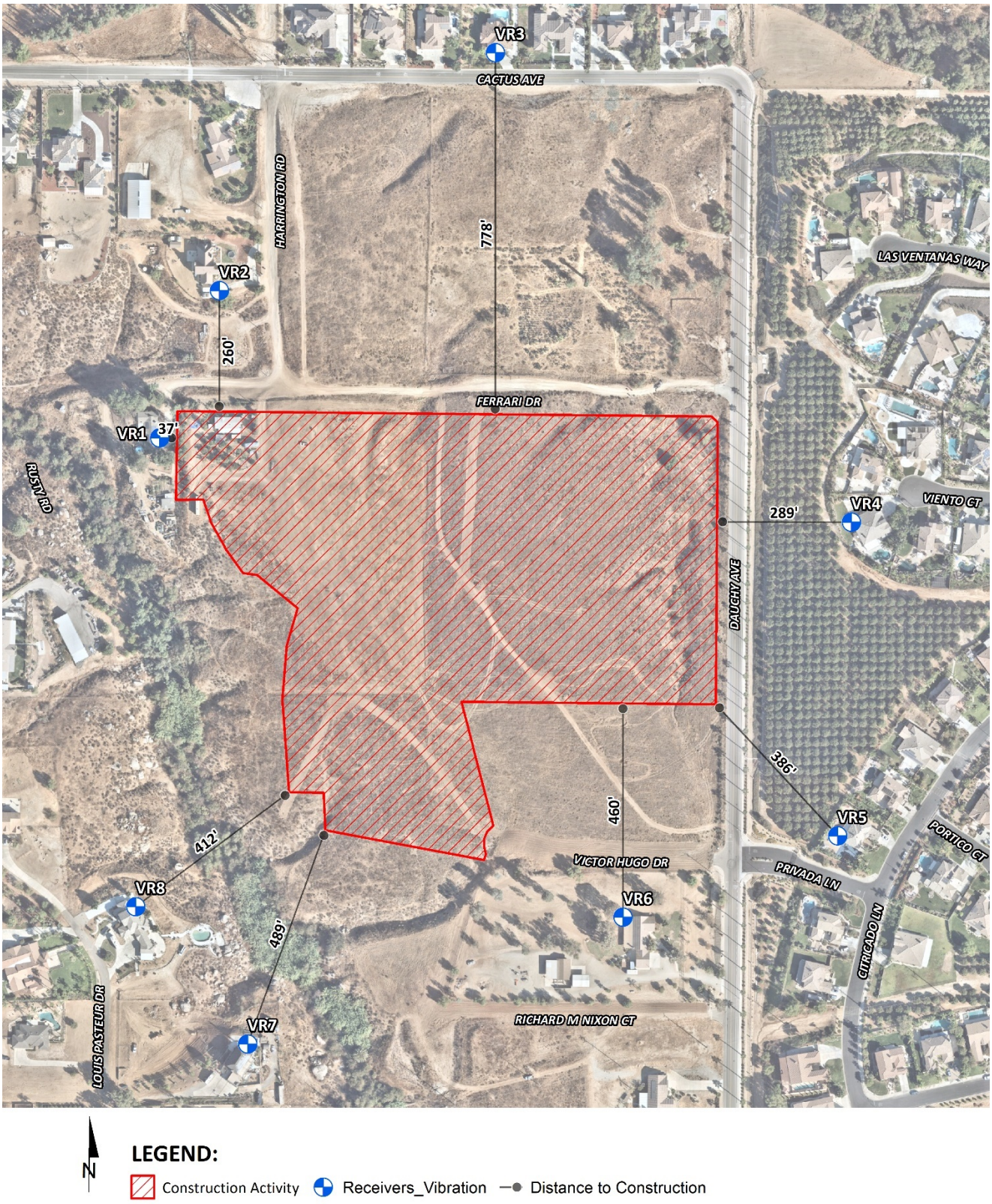
residential buildings, the typical Project construction vibration levels will satisfy the building damage thresholds at all receiver locations. In addition, the typical construction vibration levels at the nearest sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site boundaries. Based on the vibration analysis shown in Table 11-3, vibration impacts would be *less than significant* under CEQA.

TABLE 11-3: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
VR1	37'	0.00	0.02	0.04	0.05	0.05	0.3	No
VR1	260'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR2	778'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR3	289'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR4	386'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR5	460'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR6	489'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR7	412'	0.00	0.00	0.00	0.00	0.00	0.3	No

[1] Receiver locations are shown on Exhibit 9-B.
[2] Distance from receiver location to Project construction boundary.
[3] Based on the Vibration Source Levels of Construction Equipment (Table 6-4).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

EXHIBIT 11-B: VIBRATION RECEIVER LOCATIONS



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Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
VR1	37'	0.00	0.02	0.04	0.05	0.05	0.3	No
VR1	260'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR2	778'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR3	289'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR4	386'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR5	460'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR6	489'	0.00	0.00	0.00	0.00	0.00	0.3	No
VR7	412'	0.00	0.00	0.00	0.00	0.00	0.3	No

[1] Receiver locations are shown on Exhibit 9-B.
[2] Distance from receiver location to Project construction boundary.
[3] Based on the Vibration Source Levels of Construction Equipment (Table 6-4).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

12 REFERENCES

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13 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Dauchy Avenue Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (619) 778-1971.

William Maddux
Senior Associate
URBAN CROSSROADS, INC.
(619) 788-1971
bmaddux@urbanxroads.com

EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
INCE – Institute of Noise Control Engineers

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training Certificate • October 2008.

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APPENDIX 5.1:

STUDY AREA PHOTOS

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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APPENDIX 7.1:

CADNAA EXTERIOR TRAFFIC NOISE CALCULATIONS

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APPENDIX 10.1:

LENNOX AIR CONDITIONER NOISE LEVEL DATA

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APPENDIX 10.2:

CADNAA OFF-SITE OPERATIONAL NOISE MODEL INPUTS

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APPENDIX 10.3:

CADNAA ON-SITE OPERATIONAL NOISE MODEL INPUTS

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APPENDIX 11.1:

CADNAA CONSTRUCTION NOISE CALCULATIONS

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CULTURAL RESOURCE REPORT FOR THE DAUCHY AVENUE PROJECT

CITY OF RIVERSIDE, RIVERSIDE COUNTY, CALIFORNIA

Planning Case P20-0398
APNs 276-040-011 and -012 and 276-050-029

Prepared on Behalf of:

Signature Realty Capital Corporation
1901 Newport Boulevard, Suite 350
Costa Mesa, California 92627

Prepared for:

City of Riverside Planning Division
Community Development Department
3900 Main Street
Riverside, California 92522

Prepared by:

Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

December 2, 2020

Fieldwork Performed: November 6, 2020
Key words: Cultural resources survey; negative; monitoring recommended.

Archaeological Report Summary Information

Authors:	Jillian L.H. Conroy, B.A. and Brian F. Smith, M.A
Prepared by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
Report Date:	December 2, 2020
Report Title:	Cultural Resource Report for the Dauchy Avenue Project, City of Riverside, Riverside County, California
Prepared on Behalf of:	Signature Realty Capital Corporation 1901 Newport Boulevard, Suite 350 Costa Mesa, California 92627
Prepared for:	City of Riverside Planning Division Community Development Department 3900 Main Street Riverside, California 92522
Assessor's Parcel Numbers:	276-040-011 and -012 and 276-050-029
Lead Agency Identifier:	Planning Case P20-0398
USGS Quadrangle:	*Riverside East, California* (7.5-minute)
Study Area:	24.43 acres
Key Words:	Archaeological survey; negative; no resources identified; City of Riverside; *Riverside East* USGS Quadrangle; monitoring recommended.

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1.0 MANAGEMENT SUMMARY/ABSTRACT

The following report describes the results of a cultural resources study conducted by Brian F. Smith and Associates, Inc. (BFSA) for the Dauchy Avenue Project, a 24.43-acre property located in the city of Riverside, California. The project is bound by Ferrari Drive to the north, Dauchy Avenue to the east, and a seasonal drainage to the west. The project is identified as Assessor's Parcel Numbers (APNs) 276-040-011 and -012 and 276-050-029 and is situated within Section 18, Township 3 South, Range 4 West of the *Riverside East, California* 7.5-minute USGS Quadrangle. The proposed project includes the construction of a residential development (see Figure 2.0–3).

1.1 Purpose of Investigation

As part of the preparation of a project development permit for the subject property, BFSA was retained by the applicant to prepare a technical report analyzing the potential for cultural resources within the 24.43-acre project. This study is part of the environmental review process for the proposed project, as required by the City of Riverside, in compliance with the California Environmental Quality Act (CEQA) and the City's Cultural Resources Ordinance. The following tasks were included in the cultural resources assessment process:

- A records search was requested from the Eastern Information Center (EIC) at the University of California at Riverside (UCR) on November 6, 2020;
- A Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on November 6, 2020;
- A focused survey of the approximately 24.43-acre property was conducted on November 6, 2020; and
- A CEQA-based cultural resource study was completed.

1.2 Major Findings

Due to the limitations imposed by the evolving circumstances related to the COVID-19 pandemic, records search access has become limited with delays for the foreseeable future. As such, as of the date of this report, the archaeological records search results are pending from the EIC at UCR and BFSA reviewed in-house records for the project location. This review indicates that at least one previous study covers the entire project (Parr and Wilke 1989). Based upon the cultural resources assessment conducted by Parr and Wilke (1989) and a previous records search conducted by BFSA in Riverside for the 18806 Van Buren Boulevard Project (Garrison et al. 2018), at least 90 cultural resources are located within one mile of the project, two of which (bedrock milling feature sites RIV-2184 and RIV-2670) are located within 50 meters (164 feet) of the southern project boundary.

BFSA also requested a records search of the SLF of the NAHC. The SLF search results did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the search radius. In accordance with the recommendations of the NAHC, BFSA contacted all Native American consultants listed in the NAHC response letter and as of the date of this report. All correspondence is provided in Appendix C.

The subject property is primarily undeveloped, with the exception of dirt access roads crossing throughout the property from the early 1970s and a manufactured home that was constructed between 2002 and 2003 in the northwest corner of the property. Portions of the property also appear to have been disked or mowed beginning in the early 2000s.

1.3 Recommendation Summary

The cultural resources survey of the Dauchy Avenue Project did not identify any historic or prehistoric resources. No archaeological sites, features, or artifacts were identified during the field reconnaissance and, as a result, no impacts to cultural resources are anticipated as a result of the proposed development. The archaeological study was completed in accordance with City of Riverside report guidelines and CEQA significance evaluation criteria. Based upon the presence of 90 known cultural resources located within a one-mile radius of the project boundary, including two bedrock milling feature sites that are located within 50 meters of the southern property boundary, the potential for unidentified buried cultural materials exists within the Dauchy Avenue Project that may be exposed during grading. In order to identify any cultural resources uncovered by the development of the project, it is recommended that all earthwork (grading or trenching) is monitoring by an archaeological and a Native American representative as a condition of permit approval. A copy of this final report will be permanently curated at the EIC at UCR.

2.0 INTRODUCTION

BFSA was retained by the project applicant to conduct a cultural resources study for the Dauchy Avenue Project in the city of Riverside, Riverside County, California. The cultural resources study for the 24.43-acre project was conducted in order to comply with CEQA regulations and the City of Riverside's Cultural Resources Ordinance. The project is located in an area of moderate to low cultural resource sensitivity, primarily associated with prehistoric milling features, and the historic development of the surrounding area.

The project is located just southwest of the intersection of Ferrari Drive and Dauchy Avenue in the city of Riverside, bound by Ferrari Drive to the north, Dauchy Avenue to the east, and a seasonal drainage and a residence to the west (Figure 2.0–1). The project (APNs 276-040-011 and -012 and 276-050-029) is situated within Section 18, Township 3 South, Range 4 West of the *Riverside East, California* USGS Quadrangle (Figure 2.0–2). The proposed project includes grading of the property for a residential development (Figure 2.0–3).

Principal Investigator Brian F. Smith directed the cultural resources study for the project. Field Archaeologist Clarence Hoff conducted the pedestrian survey on November 6, 2020. The survey was conducted in 10-meter interval transects and visibility was poor. Jillian Conroy and Brian Smith prepared the technical report, Jillian Conroy created the report graphics, and Elena Goralogia conducted technical editing and report production. Qualifications of key personnel are provided in Appendix A.

2.1 Previous Work

BFSA requested a records search for the property from the EIC at UCR on November 6, 2020. To date, the records search has not been completed by the EIC at UCR. However, due to the limitations imposed by the evolving circumstances related to the COVID-19 pandemic, records search access has become limited with delays for the foreseeable future. As such, as of the date of this report, the archaeological records search results are pending from the EIC at UCR and BFSA reviewed in-house records for the project location. This review indicates that at least one previous study covers the entire project (Parr and Wilke 1989). Based upon the cultural resources assessment conducted by Parr and Wilke (1989) and a previous records search conducted by BFSA in Riverside for the 18806 Van Buren Boulevard Project (Garrison et al. 2018), at least 90 cultural resources are located within one mile of the project, two of which (bedrock milling feature sites RIV-2184 and RIV-2670) are located within 50 meters (164 feet) of the southern project boundary.

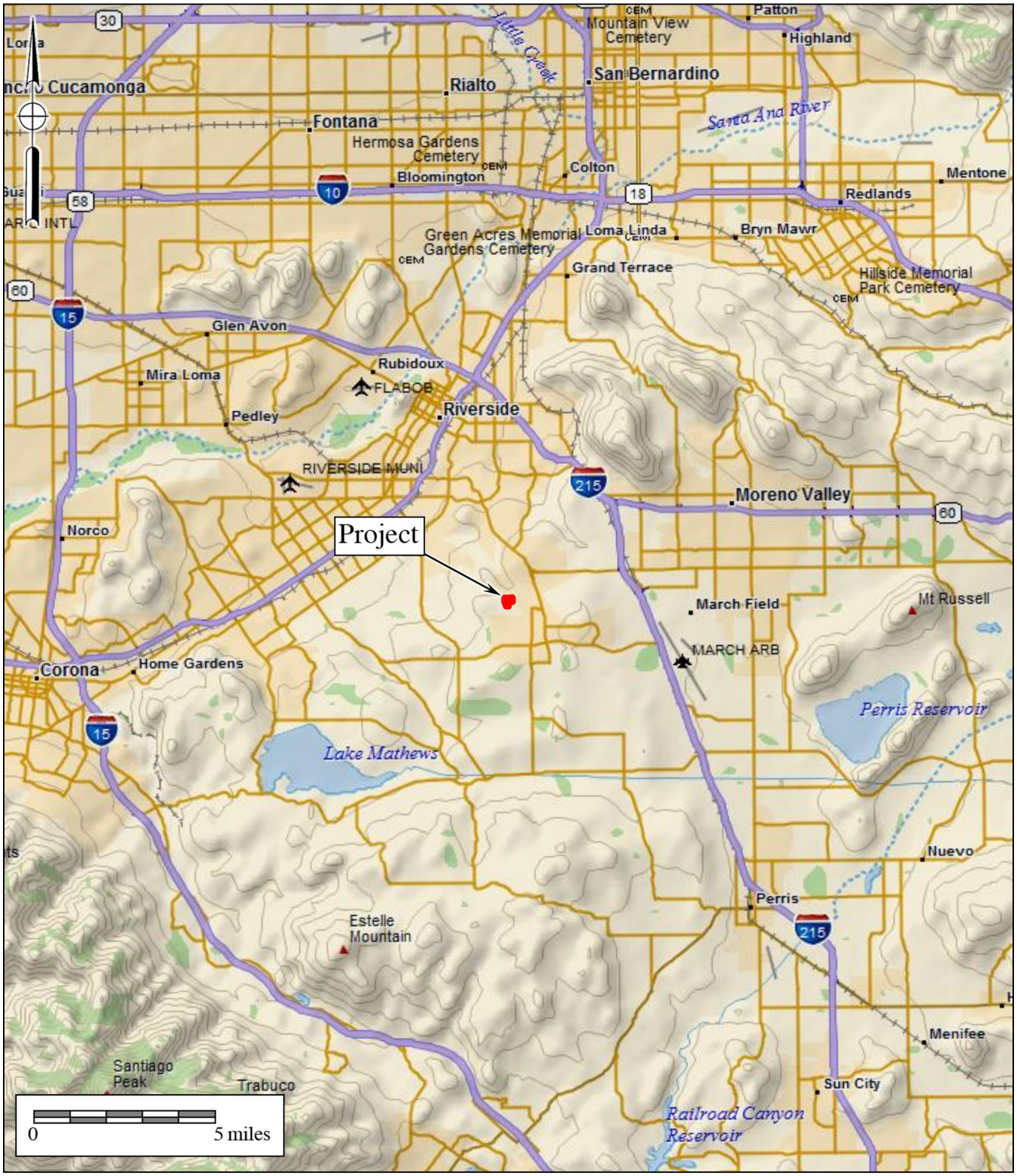

Figure 2.0–1

General Location Map

The Dauchy Avenue Project

DeLorme (1:250,000)

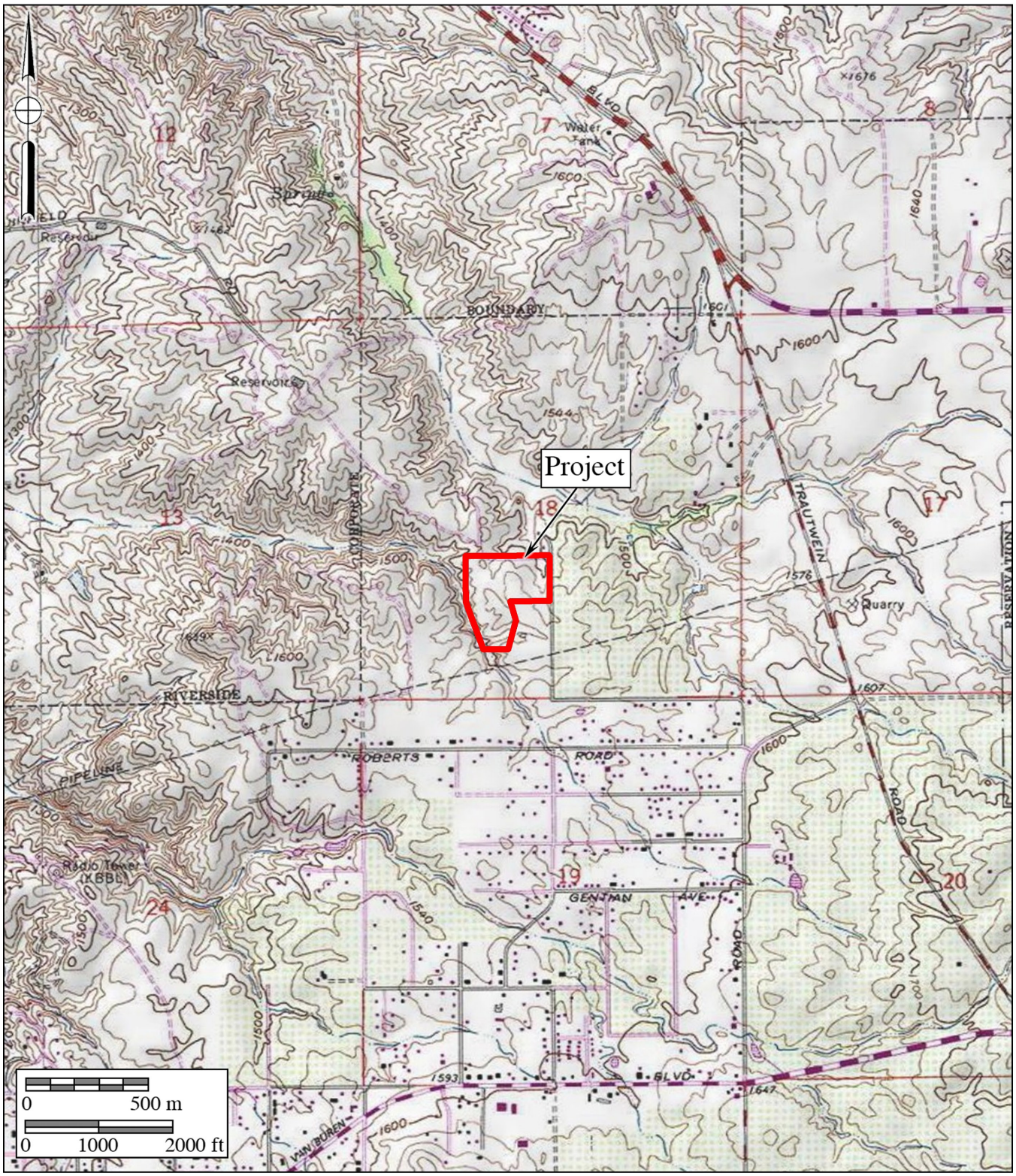

Figure 2.0–2

Project Location Map

The Dauchy Avenue Project

USGS *Riverside East* Quadrangle (7.5-minute series)

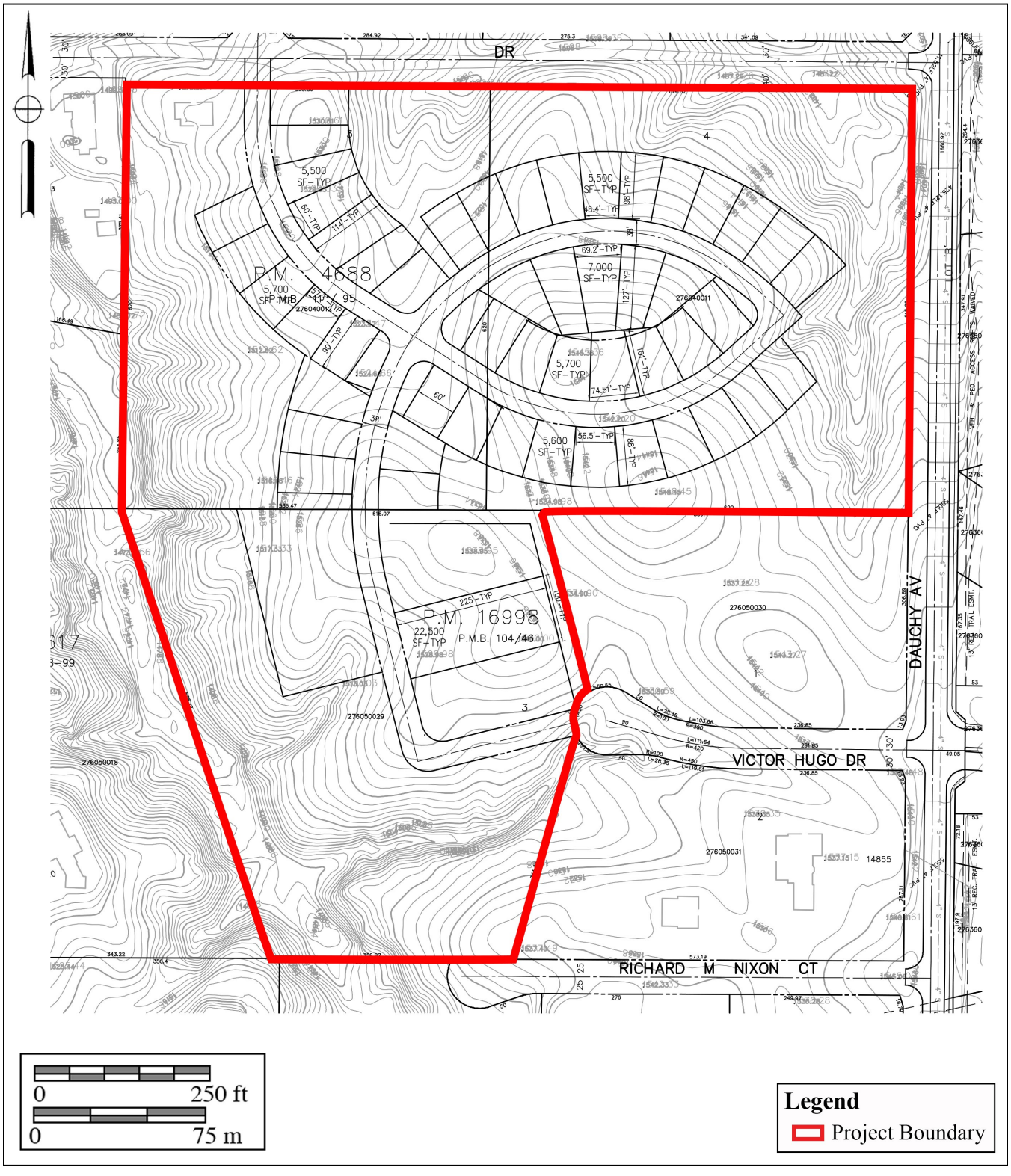

Figure 2.0–3

Site Plan

The Dauchy Avenue Project

2.2 Project Setting

The project is located in the southeastern area of the city of Riverside, California, and is bound by a seasonal drainage to the west, a residential development to the east, and farmland with associated farmhouses to the north and south in the community of Woodcrest. A manufactured home located in the northwest corner of the project and the residential development were constructed circa 2002 to 2003. Currently, the topography of the property is characterized as gently rolling hills, with elevations ranging from approximately 1,493 to 1,541 feet above mean sea level (AMSL). The property is primarily undeveloped, with dirt roads crossing approximately 10.00 percent, the manufactured home making up approximately 5.00 percent, and native and introduced grassland, sage scrub, willow trees, reeds, and cholla covering the remaining 85.00 percent. Portions of the property also appear to have been disked or mowed beginning in the early 2000s.

The subject property lies within Riverside County within the Peninsular Ranges Geologic Province of southern California. The mountain range, which lies in a northwest to southeast trend through the county, extends some 1,000 miles from the Raymond-Malibu Fault Zone in western Los Angeles County to the southern tip of Baja California. The project is situated within the foothills just north of the community of Woodcrest. Geologically, the area surrounding the property is largely comprised of Val Verde tonalite (Kvt). The region is generally underlain by Cretaceous plutonic rocks that comprise a portion of the composite Peninsular Ranges batholith; however, tonalite predominates the region (Morton and Cox 2001).

During the prehistoric period, vegetation near the project provided sufficient food resources to support prehistoric human occupants. Animals that inhabited this location during prehistoric times included mammals such as rabbits, squirrels, gophers, mice, rats, deer, and coyotes, in addition to a variety of reptiles and amphibians. The natural setting of this area during prehistoric occupation offered a rich nutritional resource base. Fresh water was likely obtained from surrounding drainages and springs.

2.3 Cultural Setting – Archaeological Perspectives

The archaeological perspective seeks to reconstruct past cultures based upon the material remains left behind. This is done using a range of scientific methodologies, almost all of which draw from evolutionary theory as the base framework. Archaeology allows one to look deeper into history or prehistory to see where the beginnings of ideas manifest via analysis of material culture, allowing for the understanding of outside forces that shape social change. Thus, the archaeological perspective allows one to better understand the consequences of the history of a given culture upon modern cultures. Archaeologists seek to understand the effects of past contexts of a given culture on this moment in time, not culture in context *in* the moment.

Despite this, a distinction exists between “emic” and “etic” ways of understanding material culture, prehistoric lifeways, and cultural phenomena in general (Harris 1991). While “emic” perspectives serve the subjective ways in which things are perceived and interpreted by the

participants within a culture, "etic" perspectives are those of an outsider looking in, hoping to attain a more scientific or "objective" understanding of the given phenomena. Archaeologists, by definition, will almost always serve an etic perspective as a result of the very nature of their work. As indicated by Laylander et al. (2014), it has sometimes been suggested that etic understanding, and therefore an archaeological understanding, is an imperfect and potentially ethnocentric attempt to arrive at emic understanding. In contract to this, however, an etic understanding of material culture, cultural phenomena, and prehistoric lifeways can address significant dimensions of culture that lie entirely beyond the understanding or interest of those solely utilizing an emic perspective. As Harris (1991:20) appropriately points out, "Etic studies often involve the measurement and juxtaposition of activities and events that native informants find inappropriate or meaningless." This is also likely true of archaeological comparisons and juxtapositions of material culture. However, culture as a whole does not occur in a vacuum and is the result of several millennia of choices and consequences influencing everything from technology, to religions, to institutions. Archaeology allows for the ability to not only see what came before, but to see how those choices, changes, and consequences affect the present. Where possible, archaeology should seek to address both emic and etic understandings to the extent that they may be recoverable from the archaeological record as manifestations of patterned human behavior (Laylander et al. 2014).

To that point, the culture history offered herein is primarily based upon archaeological (etic) and ethnographic (partially emic and partially etic) information. It is understood that the ethnographic record and early archaeological records were incompletely and imperfectly collected. In addition, in most cases, more than a century of intensive cultural change and cultural evolution had elapsed since the terminus of the prehistoric period. Coupled with the centuries and millennia of prehistoric change separating the "ethnographic present" from the prehistoric past, this has affected the emic and etic understandings of prehistoric cultural settings. Regardless, there remains a need to present the changing cultural setting within the region under investigation. As a result, both archaeological and Native American perspectives are offered when possible.

2.3.1 Introduction

Paleo Indian, Archaic Period Milling Stone Horizon, and the Late Prehistoric Takic groups are the three general cultural periods represented in Riverside County. The following discussion of the cultural history of Riverside County references the San Dieguito Complex, Encinitas Tradition, Milling Stone Horizon, La Jolla Complex, Pauma Complex, and San Luis Rey Complex, since these culture sequences have been used to describe archaeological manifestations in the region. The Late Prehistoric component present in the Riverside County area was primarily represented by the Cahuilla, Gabrielino, and Luiseño Indians.

Absolute chronological information, where possible, will be incorporated into this archaeological discussion to examine the effectiveness of continuing to interchangeably use these terms. Reference will be made to the geological framework that divides the archaeologically-based culture chronology of the area into four segments: the late Pleistocene (20,000 to 10,000

years before the present [YBP]), the early Holocene (10,000 to 6,650 YBP), the middle Holocene (6,650 to 3,350 YBP), and the late Holocene (3,350 to 200 YBP).

2.3.2 Paleo Indian Period (Late Pleistocene: 11,500 to circa 9,000 YBP)

Archaeologically, the Paleo Indian Period is associated with the terminus of the late Pleistocene (12,000 to 10,000 YBP). The environment during the late Pleistocene was cool and moist, which allowed for glaciation in the mountains and the formation of deep, pluvial lakes in the deserts and basin lands (Moratto 1984). However, by the terminus of the late Pleistocene, the climate became warmer, which caused the glaciers to melt, sea levels to rise, greater coastal erosion, large lakes to recede and evaporate, extinction of Pleistocene megafauna, and major vegetation changes (Moratto 1984; Martin 1967, 1973; Fagan 1991). The coastal shoreline at 10,000 YBP, depending upon the particular area of the coast, was near the 30-meter isobath, or two to six kilometers further west than its present location (Masters 1983).

Paleo Indians were likely attracted to multiple habitat types, including mountains, marshlands, estuaries, and lakeshores. These people likely subsisted using a more generalized hunting, gathering, and collecting adaptation utilizing a variety of resources including birds, mollusks, and both large and small mammals (Erlandson and Colten 1991; Moratto 1984; Moss and Erlandson 1995).

2.3.3 Archaic Period (Early and Middle Holocene: circa 9,000 to 1,300 YBP)

Archaeological data indicates that between 9,000 and 8,000 YBP, a widespread complex was established in the southern California region, primarily along the coast (Warren and True 1961). This complex is locally known as the La Jolla Complex (Rogers 1939; Moriarty 1966), which is regionally associated with the Encinitas Tradition (Warren 1968) and shares cultural components with the widespread Milling Stone Horizon (Wallace 1955). The coastal expression of this complex appeared in southern California coastal areas and focused upon coastal resources and the development of deeply stratified shell middens that were primarily located around bays and lagoons. The older sites associated with this expression are located at Topanga Canyon, Newport Bay, Agua Hedionda Lagoon, and some of the Channel Islands. Radiocarbon dates from sites attributed to this complex span a period of over 7,000 years in this region, beginning over 9,000 YBP.

The Encinitas Tradition is best recognized for its pattern of large coastal sites characterized by shell middens, grinding tools that are closely associated with the marine resources of the area, cobble-based tools, and flexed human burials (Shumway et al. 1961; Smith and Moriarty 1985). While ground stone tools and scrapers are the most recognized tool types, coastal Encinitas Tradition sites also contain numerous utilized flakes, which may have been used to pry open shellfish. Artifact assemblages at coastal sites indicate a subsistence pattern focused upon shellfish collection and nearshore fishing. This suggests an incipient maritime adaptation with regional similarities to more northern sites of the same period (Koerper et al. 1986). Other artifacts

associated with Encinitas Tradition sites include stone bowls, doughnut stones, discoidals, stone balls, and stone, bone, and shell beads.

The coastal lagoons in southern California supported large Milling Stone Horizon populations circa 6,000 YBP, as is shown by numerous radiocarbon dates from the many sites adjacent to the lagoons. The ensuing millennia were not stable environmentally, and by 3,000 YBP, many of the coastal sites in central San Diego County had been abandoned (Gallegos 1987, 1992). The abandonment of the area is usually attributed to the sedimentation of coastal lagoons and the resulting deterioration of fish and mollusk habitat, which is a well-documented situation at Batiquitos Lagoon (Miller 1966; Gallegos 1987). Over a two-thousand-year period at Batiquitos Lagoon, dominant mollusk species occurring in archaeological middens shift from deep-water mollusks (*Argopecten* sp.) to species tolerant of tidal flat conditions (*Chione* sp.), indicating water depth and temperature changes (Miller 1966; Gallegos 1987).

This situation likely occurred for other small drainages (Buena Vista, Agua Hedionda, San Marcos, and Escondido creeks) along the central San Diego coast where low flow rates did not produce sufficient discharge to flush the lagoons they fed (Buena Vista, Agua Hedionda, Batiquitos, and San Elijo lagoons) (Byrd 1998). Drainages along the northern and southern San Diego coastline were larger and flushed the coastal hydrological features they fed, keeping them open to the ocean and allowing for continued human exploitation (Byrd 1998). Peñasquitos Lagoon exhibits dates as late as 2,355 YBP (Smith and Moriarty 1985) and San Diego Bay showed continuous occupation until the close of the Milling Stone Horizon (Gallegos and Kyle 1988). Additionally, data from several drainages in Camp Pendleton indicate a continued occupation of shell midden sites until the close of the period, indicating that coastal sites were not entirely abandoned during this time (Byrd 1998).

By 5,000 YBP, an inland expression of the La Jolla Complex is evident in the archaeological record, exhibiting influences from the Campbell Tradition from the north. These inland Milling Stone Horizon sites have been termed "Pauma Complex" (True 1958; Warren et al. 1961; Meighan 1954). By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusk remains, have greater tool variety (including atlatl dart points, quarry-based tools, and crescentics), and seem to express a more sedentary lifestyle with a subsistence economy based upon the use of a broad variety of terrestrial resources. Although originally viewed as a separate culture from the coastal La Jolla Complex (True 1980), it appears that these inland sites may be part of a subsistence and settlement system utilized by the coastal peoples. Evidence from the 4S Project in inland San Diego County suggests that these inland sites may represent seasonal components within an annual subsistence round by La Jolla Complex populations (Raven-Jennings et al. 1996). Including both coastal and inland sites of this time period in discussions of the Encinitas Tradition, therefore, provides a more complete appraisal of the settlement and subsistence system exhibited by this cultural complex.

More recent work by Sutton has identified a more localized complex known as the Greven Knoll Complex. The Greven Knoll Complex is a redefined northern inland expression of the

Encinitas Tradition first put forth by Mark Sutton and Jill Gardener (2010). Sutton and Gardener (2010:25) state that "[t]he early millingstone archaeological record in the northern portion of the interior southern California was not formally named but was often referred to as 'Inland Millingstone,' 'Encinitas,' or even 'Topanga.'" Therefore, they proposed that all expressions of the inland Milling Stone in southern California north of San Diego County be grouped together in the Greven Knoll Complex.

The Greven Knoll Complex, as postulated by Sutton and Gardener (2010), is broken into three phases and obtained its name from the type-site Greven Knoll located in Yucaipa, California. Presently, the Greven Knoll Site is part of the Yukaipa't Site (SBR-1000) and was combined with the adjacent Simpson Site. Excavations at Greven Knoll recovered manos, metates, projectile points, discoidal cogged stones, and a flexed inhumation with a possible cremation (Kowta 1969:39). It is believed that the Greven Knoll Site was occupied between 5,000 and 3,500 YBP. The Simpson Site contained mortars, pestles, side-notched points, and stone and shell beads. Based upon the data recovered at these sites, Kowta (1969:39) suggested that "coastal Milling Stone Complexes extended to and interdigitated with the desert Pinto Basin Complex in the vicinity of the Cajon Pass."

Phase I of the Greven Knoll Complex is generally dominated by the presence of manos and metates, core tools, hammerstones, large dart points, flexed inhumations, and occasional cremations. Mortars and pestles are absent from this early phase, and the subsistence economy emphasized hunting. Sutton and Gardener (2010:26) propose that the similarity of the material culture of Greven Knoll Phase I and that found in the Mojave Desert at Pinto Period sites indicates that the Greven Knoll Complex was influenced by neighbors to the north at that time. Accordingly, Sutton and Gardener (2010) believe that Greven Knoll Phase I may have appeared as early as 9,400 YBP and lasted until about 4,000 YBP.

Greven Knoll Phase II is associated with a period between 4,000 and 3,000 YBP. Artifacts common to Greven Knoll Phase II include manos and metates, Elko points, core tools, and discoidals. Pestles and mortars are present; however, they are only represented in small numbers. Finally, there is an emphasis upon hunting and gathering for subsistence (Sutton and Gardener 2010:8).

Greven Knoll Phase III includes manos, metates, Elko points, scraper planes, choppers, hammerstones, and discoidals. Again, small numbers of mortars and pestles are present. Greven Knoll Phase III spans from approximately 3,000 to 1,000 YBP and shows a reliance upon seeds and yucca. Hunting is still important, but bones seem to have been processed to obtain bone grease more often in this later phase (Sutton and Gardener 2010:8).

The shifts in food processing technologies during each of these phases indicate a change in subsistence strategies; although people were still hunting for large game, plant-based foods eventually became the primary dietary resource (Sutton 2011a). Sutton's (2011b) argument posits that the development of mortars and pestles during the middle Holocene can be attributed to the year-round exploitation of acorns as a main dietary provision. Additionally, the warmer and drier

climate may have been responsible for groups from the east moving toward coastal populations, which is archaeologically represented by the interchange of coastal and eastern cultural traits (Sutton 2011a).

2.3.4 Late Prehistoric Period (Late Holocene: 1,300 YBP to 1790)

Many Luiseño hold the world view that as a population they were created in southern California; however, archaeological and anthropological data proposes a scientific/archaeological perspective. Archaeological and anthropological evidence suggests that at approximately 1,350 YBP, Takic-speaking groups from the Great Basin region moved into Riverside County, marking the transition to the Late Prehistoric Period. An analysis of the Takic expansion by Sutton (2009) indicates that inland southern California was occupied by "proto-Yuman" populations before 1,000 YBP. The comprehensive, multi-phase model offered by Sutton (2009) employs linguistic, ethnographic, archaeological, and biological data to solidify a reasonable argument for population replacement of Takic groups to the north by Penutians (Laylander 1985). As a result, it is believed that Takic expansion occurred starting around 3,500 YBP moving toward southern California, with the Gabrielino language diffusing south into neighboring Yuman (Hokan) groups around 1,500 to 1,000 YBP, possibly resulting in the Luiseño dialect.

Based upon Sutton's model, the final Takic expansion would not have occurred until about 1,000 YBP, resulting in Vanyume, Serrano, Cahuilla, and Cupeño dialects. The model suggests that the Luiseño did not simply replace Hokan speakers, but were rather a northern San Diego County/southern Riverside County Yuman population who adopted the Takic language. This period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, yet effective, technological innovations. Technological developments during this period included the introduction of the bow and arrow between A.D. 400 and 600 and the introduction of ceramics. Atlatl darts were replaced by smaller arrow darts, including Cottonwood series points. Other hallmarks of the Late Prehistoric Period include extensive trade networks as far-reaching as the Colorado River Basin and cremation of the dead.

2.3.5 Protohistoric Period (Late Holocene: 1790 to Present)

Ethnohistoric and ethnographic evidence indicates that three Takic-speaking groups occupied portions of Riverside County: the Cahuilla, the Gabrielino, and the Luiseño. The geographic boundaries between these groups in pre- and proto-historic times are difficult to place, but the project is located well within the borders of ethnographic Luiseño territory. This group was a seasonal hunting and gathering people with cultural elements that were very distinct from Archaic Period peoples. These distinctions include cremation of the dead, the use of the bow and arrow, and exploitation of the acorn as a main food staple (Moratto 1984). Along the coast, the Luiseño made use of available marine resources by fishing and collecting mollusks for food.

Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. Elaborate kinship and clan systems between the Luiseño and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian and other resources from the eastern deserts, as well as steatite from the Channel Islands.

According to Charles Handley (1967), the primary settlements of Late Prehistoric Luiseño Indians in the San Jacinto Plain were represented by Ivah and Soboba near Soboba Springs, Jusipah near the town of San Jacinto, Ararah in Webster's Canyon en route to Idyllwild, Pahsitha near Big Springs Ranch southeast of Hemet, and Corova in Castillo Canyon. These locations share features such as the availability of food and water resources. Features of this land use include petroglyphs and pictographs, as well as widespread milling, which is evident in bedrock and portable implements. Groups in the vicinity of the project site, neighboring the Luiseño, include the Cahuilla and the Gabrielino. Ethnographic data for the three groups is presented below.

Luiseño: An Archaeological and Ethnographic Perspective

When contacted by the Spanish in the sixteenth century, the Luiseño occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsular Ranges mountains at San Jacinto (including Palomar Mountain to the south and Santiago Peak to the north), on the south by Agua Hedionda Lagoon, and on the north by Aliso Creek in present-day San Juan Capistrano. The Luiseño were a Takic-speaking people more closely related linguistically and ethnographically to the Cahuilla, Gabrielino, and Cupeño to the north and east rather than the Kumeyaay who occupied territory to the south. The Luiseño differed from their neighboring Takic speakers in having an extensive proliferation of social statuses, a system of ruling families that provided ethnic cohesion within the territory, a distinct worldview that stemmed from the use of datura (a hallucinogen), and an elaborate religion that included the creation of sacred sand paintings depicting the deity Chingichngish (Bean and Shipek 1978; Kroeber 1976).

Subsistence and Settlement

The Luiseño occupied sedentary villages most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching and in areas that offered thermal and defensive protection. Villages were composed of areas that were publicly and privately (by family) owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were intensively used from January to March when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. The Luiseño remained at village sites for the remainder of the year, where food resources were within a day's travel (Bean and Shipek 1978; Kroeber 1976).

The most important food source for the Luiseño was the acorn, six different species of which were used (*Quercus californica, Quercus agrifolia, Quercus chrysolepis, Quercus dumosa,*

Quercus engelmannii, and *Quercus wislizenii*). Seeds, particularly of grasses, flowering plants, and mints, were also heavily exploited. Seed-bearing species were encouraged through controlled burns, which were conducted at least every third year. A variety of other stems, leaves, shoots, bulbs, roots, and fruits were also collected. Hunting augmented this vegetal diet. Animal species taken included deer, rabbit, hare, woodrat, ground squirrel, antelope, quail, duck, freshwater fish from mountain streams, marine mammals, and other sea creatures such as fish, crustaceans, and mollusks (particularly abalone, or *Haliotis* sp.). In addition, a variety of snakes, small birds, and rodents were eaten (Bean and Shipek 1978; Kroeber 1976).

Social Organization

Social groups within the Luiseño nation consisted of patrilinear families or clans, which were politically and economically autonomous. Several clans comprised a religious party, or nota, which was headed by a chief who organized ceremonies and controlled economics and warfare. The chief had assistants who specialized in particular aspects of ceremonial or environmental knowledge and who, with the chief, were part of a religion-based social group with special access to supernatural power, particularly that of Chingichngish. The positions of chief and assistants were hereditary, and the complexity and multiplicity of these specialists' roles likely increased in coastal and larger inland villages (Bean and Shipek 1978; Kroeber 1976; Strong 1929).

Marriages were arranged by the parents, often made to forge alliances between lineages. Useful alliances included those between groups of differing ecological niches and those that resulted in territorial expansion. Residence was patrilocal (Bean and Shipek 1978; Kroeber 1976). Women were primarily responsible for plant gathering and men principally hunted, although, at times, particularly during acorn and marine mollusk harvests, there was no division of labor. Elderly women cared for children and elderly men participated in rituals, ceremonies, and political affairs. They were also responsible for manufacturing hunting and ritual implements. Children were taught subsistence skills at the earliest age possible (Bean and Shipek 1978; Kroeber 1976).

Material Culture

House structures were conical, partially subterranean, and thatched with reeds, brush, or bark. Ramadas were rectangular, protected workplaces for domestic chores such as cooking. Ceremonial sweathouses were important in purification rituals; these were round and partially subterranean thatched structures covered with a layer of mud. Another ceremonial structure was the wámkis (located in the center of the village, serving as the place of rituals), where sand paintings and other rituals associated with the Chingichngish religious group were performed (Bean and Shipek 1978; Kroeber 1976).

Clothing was minimal; women wore a cedar-bark and netted twine double apron and men wore a waist cord. In cold weather, cloaks or robes of rabbit fur, deerskin, or sea otter fur were worn by both sexes. Footwear included deerskin moccasins and sandals fashioned from yucca fibers. Adornments included bead necklaces and pendants made of bone, clay, stone, shell, bear

claw, mica, deer hooves, and abalone shell. Men wore ear and nose piercings made from cane or bone, which were sometimes decorated with beads. Other adornments were commonly decorated with semiprecious stones including quartz, topaz, garnet, opal, opalite, agate, and jasper (Bean and Shipek 1978; Kroeber 1976).

Hunting implements included the bow and arrow. Arrows were tipped with either a carved, fire-hardened wood tip or a lithic point, usually fashioned from locally available metavolcanic material or quartz. Throwing sticks fashioned from wood were used in hunting small game, while deer head decoys were used during deer hunts. Coastal groups fashioned dugout canoes for nearshore fishing and harvested fish with seines, nets, traps, and hooks made of bone or abalone shell (Bean and Shipek 1978; Kroeber 1976).

The Luiseño had a well-developed basket industry. Baskets were used in resource gathering, food preparation, storage, and food serving. Ceramic containers were shaped by paddle and anvil and fired in shallow, open pits to be used for food storage, cooking, and serving. Other utensils included wood implements, steatite bowls, and ground stone manos, metates, mortars, and pestles (Bean and Shipek 1978; Kroeber 1976). Additional tools such as knives, scrapers, choppers, awls, and drills were also used. Shamanistic items include soapstone or clay smoking pipes and crystals made of quartz or tourmaline (Bean and Shipek 1978; Kroeber 1976).

Cahuilla: An Archaeological and Ethnographic Perspective

At the time of Spanish contact in the sixteenth century, the Cahuilla occupied territory that included the San Bernardino Mountains, Orocopia Mountain, and the Chocolate Mountains to the west, Salton Sea and Borrego Springs to the south, Palomar Mountain and Lake Mathews to the west, and the Santa Ana River to the north. The Cahuilla are a Takic-speaking people closely related to their Gabrielino and Luiseño neighbors, although relations with the Gabrielino were more intense than with the Luiseño. They differ from the Luiseño and Gabrielino in that their religion is more similar to the Mohave tribes of the eastern deserts than the Chingichngish religious group of the Luiseño and Gabrielino. The following is a summary of ethnographic data regarding this group (Bean 1978; Kroeber 1976).

Subsistence and Settlement

Cahuilla villages were typically permanent and located on low terraces within canyons in proximity to water sources. These locations proved to be rich in food resources and also afforded protection from prevailing winds. Villages had areas that were publicly owned and areas that were privately owned by clans, families, or individuals. Each village was associated with a particular lineage and series of sacred sites that included unique petroglyphs and pictographs. Villages were occupied throughout the year; however, during a several-week period in the fall, most of the village members relocated to mountain oak groves to take part in acorn harvesting (Bean 1978; Kroeber 1976).

The Cahuilla's use of plant resources is well documented. Plant foods harvested by the Cahuilla included valley oak acorns and single-leaf pinyon pine nuts. Other important plant species included bean and screw mesquite, agave, Mohave yucca, cacti, palm, chia, quail brush, yellowray goldfield, goosefoot, manzanita, catsclaw, desert lily, mariposa lily, and a number of other species such as grass seed. A number of agricultural domesticates were acquired from the Colorado River tribes including corn, bean, squash, and melon grown in limited amounts. Animal species taken included deer, bighorn sheep, pronghorn antelope, rabbit, hare, rat, quail, dove, duck, roadrunner, and a variety of rodents, reptiles, fish, and insects (Bean 1978; Kroeber 1976).

Social Organization

The Cahuilla was not a political nation, but rather a cultural nationality with a common language. Two non-political, non-territorial patrimoieties were recognized: the Wildcats (túktem) and the Coyotes (?ístam). Lineage and kinship were memorized at a young age among the Cahuilla, providing a backdrop for political relationships. Clans were composed of three to 10 lineages; each lineage owned a village site and specific resource areas. Lineages within a clan cooperated in subsistence activities, defense, and rituals (Bean 1978; Kroeber 1976).

A system of ceremonial hierarchy operated within each lineage. The hierarchy included the lineage leader, who was responsible for leading subsistence activities, guarding the sacred bundle, and negotiating with other lineage leaders in matters concerning land use, boundary disputes, marriage arrangements, trade, warfare, and ceremonies. The ceremonial assistant to the lineage leader was responsible for organizing ceremonies. A ceremonial singer possessed and performed songs at rituals and trained assistant singers. The shaman cured illnesses through supernatural powers, controlled natural phenomena, and was the guardian of ceremonies, keeping evil spirits away. The diviner was responsible for finding lost objects, telling future events, and locating game and other food resources. Doctors were usually older women who cured various ailments and illnesses with their knowledge of medicinal herbs. Finally, certain Cahuilla specialized as traders, who ranged as far west as Santa Catalina and as far east as the Gila River (Bean 1978; Kroeber 1976).

Marriages were arranged by parents from opposite moieties. When a child was born, an alliance formed between the families, which included frequent reciprocal exchanges. The Cahuilla kinship system extended to relatives within five generations. Important economic decisions, primarily the distribution of goods, operated within this kinship system (Bean 1978; Kroeber 1976).

Material Culture

Cahuilla houses were dome-shaped or rectangular, thatched structures. The home of the lineage leader was the largest, located near the ceremonial house with the best access to water. Other structures within the village included the men's sweathouse and granaries (Bean 1978; Kroeber 1976).

Cahuilla clothing, like other groups in the area, was minimal. Men typically wore a loincloth and sandals; women wore skirts made from mesquite bark, animal skin, or tules. Babies wore mesquite bark diapers. Rabbit skin cloaks were worn in cold weather (Bean 1978; Kroeber 1976).

Hunting implements included the bow and arrow, throwing sticks, and clubs. Grinding tools used in food processing included manos, metates, and wood mortars. The Cahuilla were known to use long grinding implements made from wood to process mesquite beans; the mortar was typically a hollowed log buried in the ground. Other tools included steatite arrow shaft straighteners (Bean 1978; Kroeber 1976).

Baskets were made from rush, deer grass, and skunkbrush. Different species and leaves were chosen for different colors in the basket design. Coiled-ware baskets were either flat (for plates, trays, or winnowing), bowl-shaped (for food serving), deep, inverted, and cone-shaped (for transporting), or rounded and flat-bottomed for storing utensils and personal items (Bean 1978; Kroeber 1976).

Cahuilla pottery was made from a thin, red-colored ceramic ware that was often painted and incised. Four basic vessel types are known for the Cahuilla: small-mouthed jars, cooking pots, bowls, and dishes. Additionally, smoking pipes and flutes were fashioned from ceramic (Bean 1978; Kroeber 1976).

Gabrielino: An Archaeological and Ethnographic Perspective

The territory of the Gabrielino at the time of Spanish contact covers much of present-day Los Angeles and Orange counties. The southern extent of this culture area is bounded by Aliso Creek, the eastern extent is located east of present-day San Bernardino along the Santa Ana River, the northern extent includes the San Fernando Valley, and the western extent includes portions of the Santa Monica Mountains. The Gabrielino also occupied several Channel Islands including Santa Barbara Island, Santa Catalina Island, San Nicholas Island, and San Clemente Island. Because of their access to certain resources, including a steatite source from Santa Catalina Island, this group was among the wealthiest and most populous aboriginal groups in all of southern California. Trade of materials and resources controlled by the Gabrielino extended as far north as the San Joaquin Valley, as far east as the Colorado River, and as far south as Baja California (Bean and Smith 1978; Kroeber 1976).

Subsistence and Settlement

The Gabrielino lived in permanent villages and occupied smaller resource-gathering camps at various times of the year depending upon the seasonality of the resource. Larger villages were comprised of several families or clans, while smaller, seasonal camps typically housed smaller family units. The coastal area between San Pedro and Topanga Canyon was the location of primary subsistence villages, while secondary sites were located near inland sage stands, oak groves, and pine forests. Permanent villages were located along rivers and streams and in sheltered

areas along the coast. As previously mentioned, the Channel Islands were also the locations of relatively large settlements (Bean and Smith 1978; Kroeber 1976).

Resources procured along the coast and on the islands were primarily marine in nature and included tuna, swordfish, ray and shark, California sea lion, Stellar sea lion, harbor seal, northern elephant seal, sea otter, dolphin and porpoise, various waterfowl species, numerous fish species, purple sea urchin, and mollusks, such as rock scallop, California mussel, and limpet. Inland resources included oak acorn, pine nut, Mohave yucca, cacti, sage, grass nut, deer, rabbit, hare, rodent, quail, duck, and a variety of reptiles such as western pond turtle and numerous snake species (Bean and Smith 1978; Kroeber 1976).

Social Organization

The social structure of the Gabrielino is little known; however, there appears to have been at least three social classes: 1) the elite, which included the rich, chiefs, and their immediate family; 2) a middle class, which included people of relatively high economic status or long-established lineages; and 3) a class of people that included most other individuals in the society. Villages were politically autonomous units comprised of several lineages. During times of the year when certain seasonal resources were available, the village would divide into lineage groups and move out to exploit them, returning to the village between forays (Bean and Smith 1978; Kroeber 1976).

Each lineage had its own leader, with the village chief coming from the dominant lineage. Several villages might be allied under a paramount chief. Chiefly positions were of an ascribed status, most often passed to the eldest son. Chiefly duties included providing village cohesion, leading warfare and peace negotiations with other groups, collecting tribute from the village(s) under his jurisdiction, and arbitrating disputes within the village(s). The status of the chief was legitimized by his safekeeping of the sacred bundle, a representation of the link between the material and spiritual realms and the embodiment of power (Bean and Smith 1978; Kroeber 1976).

Shamans were leaders in the spirit realm. The duties of the shaman included conducting healing and curing ceremonies, guarding the sacred bundle, locating lost items, identifying and collecting poisons for arrows, and making rain (Bean and Smith 1978; Kroeber 1976).

Marriages were made between individuals of equal social status and, in the case of powerful lineages, marriages were arranged to establish political ties between the lineages (Bean and Smith 1978; Kroeber 1976).

Men conducted the majority of the heavy labor, hunting, fishing, and trading with other groups. Women's duties included gathering and preparing plant and animal resources, and making baskets, pots, and clothing (Bean and Smith 1978; Kroeber 1976).

Material Culture

Gabrielino houses were domed, circular structures made of thatched vegetation. Houses varied in size and could house from one to several families. Sweathouses (semicircular, earth-covered buildings) were public structures used in male social ceremonies. Other structures

included menstrual huts and a ceremonial structure called a yuvar, an open-air structure built near the chief's house (Bean and Smith 1978; Kroeber 1976).

Clothing was minimal; men and children most often went naked, while women wore deerskin or bark aprons. In cold weather, deerskin, rabbit fur, or bird skin (with feathers intact) cloaks were worn. Island and coastal groups used sea otter fur for cloaks. In areas of rough terrain, yucca fiber sandals were worn. Women often used red ochre on their faces and skin for adornment or protection from the sun. Adornment items included feathers, fur, shells, and beads (Bean and Smith 1978; Kroeber 1976).

Hunting implements included wood clubs, sinew-backed bows, slings, and throwing clubs. Maritime implements included rafts, harpoons, spears, hook and line, and nets. A variety of other tools included deer scapulae saws, bone and shell needles, bone awls, scrapers, bone or shell flakers, wedges, stone knives and drills, metates, mullers, manos, shell spoons, bark platters, and wood paddles and bowls. Baskets were made from rush, deer grass, and skunkbush. Baskets were fashioned for hoppers, plates, trays, and winnowers for leaching, straining, and gathering. Baskets were also used for storing, preparing, and serving food, and for keeping personal and ceremonial items (Bean and Smith 1978; Kroeber 1976).

The Gabrielino had exclusive access to soapstone, or steatite, procured from Santa Catalina Island quarries. This highly prized material was used for making pipes, animal carvings, ritual objects, ornaments, and cooking utensils. The Gabrielino profited well from trading steatite since it was valued so much by groups throughout southern California (Bean and Smith 1978; Kroeber 1976).

2.3.6 Ethnohistoric Period (1769 to Present)

Traditionally, the history of the state of California has been divided into three general periods: the Spanish Period (1769 to 1821), the Mexican Period (1822 to 1846), and the American Period (1848 to present) (Caughey 1970). The American Period is often further subdivided into additional phases: the nineteenth century (1848 to 1900), the early twentieth century (1900 to 1950), and the Modern Period (1950 to present). From an archaeological standpoint, all of these phases can be referred to together as the Ethnohistoric Period. This provides a valuable tool for archaeologists, as ethnohistory is directly concerned with the study of indigenous or non-Western peoples from a combined historical/anthropological viewpoint, which employs written documents, oral narrative, material culture, and ethnographic data for analysis.

European exploration along the California coast began in 1542 with the landing of Juan Rodriguez Cabrillo and his men at San Diego Bay. Sixty years after the Cabrillo expeditions, an expedition under Sebastian Viscaíno made an extensive and thorough exploration of the Pacific coast. Although the voyage did not extend beyond the northern limits of the Cabrillo track, Viscaíno had the most lasting effect upon the nomenclature of the coast. Many of his place names have survived, whereas practically every one of the names created by Cabrillo have faded from use. For instance, Cabrillo named the first (now) United States port he stopped at "San Miguel";

60 years later, Viscaíno changed it to "San Diego" (Rolle 1969). The early European voyages observed Native Americans living in villages along the coast but did not make any substantial, long-lasting impact. At the time of contact, the Luiseño population was estimated to have ranged from 4,000 to as many as 10,000 individuals (Bean and Shipek 1978; Kroeber 1976).

The historic background of the region that includes the project began with the Spanish colonization of Alta California. The first Spanish colonizing expedition reached southern California in 1769 with the intention of converting and civilizing the indigenous populations, as well as expanding the knowledge of and access to new resources in the region (Brigandi 1998). As a result, by the late eighteenth century, a large portion of southern California was overseen by Mission San Luis Rey (San Diego County), Mission San Juan Capistrano (Orange County), and Mission San Gabriel (Los Angeles County), who began colonization the region and surrounding areas (Chapman 1921).

Up until this time, the only known way to feasibly travel from Sonora to Alta California was by sea. In 1774, Juan Bautista de Anza, an army captain at Tubac, requested and was given permission by the governor of the Mexican State of Sonora to establish an overland route from Sonora to Monterey (Chapman 1921). In doing so, Juan Bautista de Anza passed through Riverside County and described the area in writing for the first time (Caughey 1970; Chapman 1921). In 1797, Father Presidente Lausen (of Mission San Diego de Alcalá), Father Norberto de Santiago, and Corporal Pedro Lisalde (of Mission San Juan Capistrano) led an expedition through southwestern Riverside County in search of a new mission site to establish a presence between San Diego and San Juan Capistrano (Engelhardt 1921). Their efforts ultimately resulted in the establishment of Mission San Luis Rey in Oceanside, California.

Each mission gained power through the support of a large, subjugated Native American workforce. As the missions grew, livestock holdings increased and became increasingly vulnerable to theft. In order to protect their interests, the southern California missions began to expand inland to try and provide additional security (Beattie and Beattie 1939; Caughey 1970). In order to meet their needs, the Spaniards embarked on a formal expedition in 1806 to find potential locations within what is now the San Bernardino Valley. As a result, by 1810, Father Francisco Dumetz of Mission San Gabriel had succeeded in establishing a religious site, or capilla, at a Cahuilla rancheria called Guachama (Beattie and Beattie 1939). San Bernardino Valley received its name from this site, which was dedicated to San Bernardino de Siena by Father Dumetz. The Guachama rancheria was located in present-day Bryn Mawr in San Bernardino County.

These early colonization efforts were followed by the establishment of estancias at Puente (circa 1816) and San Bernardino (circa 1819) near Guachama (Beattie and Beattie 1939). These efforts were soon mirrored by the Spaniards from Mission San Luis Rey, who in turn established a presence in what is now Lake Elsinore, Temecula, and Murrieta (Chapman 1921). The indigenous groups who occupied these lands were recruited by missionaries, converted, and put to work in the missions (Pourade 1961). Throughout this period, the Native American populations were decimated by introduced diseases, a drastic shift in diet resulting in poor nutrition, and social

conflicts due to the introduction of an entirely new social order (Cook 1976).

Mexico achieved independence from Spain in 1822 and became a federal republic in 1824. As a result, both Baja and Alta California became classified as territories (Rolle 1969). Shortly thereafter, the Mexican Republic sought to grant large tracts of private land to its citizens to begin to encourage immigration to California and to establish its presence in the region. Part of the establishment of power and control included the desecularization of the missions circa 1832. These same missions were also located on some of the most fertile land in California and, as a result, were considered highly valuable. The resulting land grants, known as "ranchos," covered expansive portions of California and by 1846, more than 600 land grants had been issued by the Mexican government. Rancho Jurupa was the first rancho to be established and was issued to Juan Bandini in 1838. Although Bandini primarily resided in San Diego, Rancho Jurupa was located in what is now Riverside County (Pourade 1963). A review of Riverside County place names quickly illustrates that many of the ranchos in Riverside County lent their names to present-day locations, including Jurupa, El Rincon, La Sierra, El Sobrante de San Jacinto, La Laguna (Lake Elsinore), Santa Rosa, Temecula, Pauba, San Jacinto Nuevo y Potrero, and San Jacinto Viejo (Gunther 1984). As was typical of many ranchos, these were all located in the valley environments within western Riverside County.

The treatment of Native Americans grew worse during the Rancho Period. Most of the Native Americans were forced off of their land or put to work on the now privately-owned ranchos, most often as slave labor. In light of the brutal ranchos, the degree to which Native Americans had become dependent upon the mission system is evident when, in 1838, a group of Native Americans from Mission San Luis Rey petitioned government officials in San Diego to relieve suffering at the hands of the rancheros:

> We have suffered incalculable losses, for some of which we are in part to be blamed for because many of us have abandoned the Mission … We plead and beseech you … to grant us a Rev. Father for this place. We have been accustomed to the Rev. Fathers and to their manner of managing the duties. We labored under their intelligent directions, and we were obedient to the Fathers according to the regulations, because we considered it as good for us. (Brigandi 1998:21)

Native American culture had been disrupted to the point where they could no longer rely upon prehistoric subsistence and social patterns. Not only does this illustrate how dependent the Native Americans had become upon the missionaries, but it also indicates a marked contrast in the way the Spanish treated the Native Americans compared to the Mexican and United States ranchers. Spanish colonialism (missions) is based upon utilizing human resources while integrating them into their society. The Mexican and American ranchers did not accept Native Americans into their social order and used them specifically for the extraction of labor, resources, and profit. Rather than being incorporated, they were either subjugated or exterminated (Cook

1976).

By 1846, tensions between the United States and Mexico had escalated to the point of war (Rolle 1969). In order to reach a peaceful agreement, the Treaty of Guadalupe Hidalgo was put into effect in 1848, which resulted in the annexation of California to the United States. Once California opened to the United States, waves of settlers moved in searching for gold mines, business opportunities, political opportunities, religious freedom, and adventure (Rolle 1969; Caughey 1970). By 1850, California had become a state and was eventually divided into 27 separate counties. While a much larger population was now settling in California, this was primarily in the central valley, San Francisco, and the Gold Rush region of the Sierra Nevada mountain range (Rolle 1969; Caughey 1970). During this time, southern California grew at a much slower pace than northern California and was still dominated by the cattle industry established during the earlier rancho period. However, by 1859, the first United States Post Office in what would eventually become Riverside County was set up at John Magee's store on the Temecula Rancho (Gunther 1984).

During the same decade, circa 1852, the Native Americans of southern Riverside County, including the Luiseño and the Cahuilla, thought they had signed a treaty resulting in their ownership of all lands from Temecula to Aguanga east to the desert, including the San Jacinto Valley and the San Gorgonio Pass. The Temecula Treaty also included food and clothing provisions for the Native Americans. However, Congress never ratified these treaties, and the promise of one large reservation was rescinded (Brigandi 1998).

With the completion of the Southern Pacific Railroad in 1869, southern California saw its first major population expansion. The population boom continued circa 1874 with the completion of connections between the Southern Pacific Railroad in Sacramento to the transcontinental Central Pacific Railroad in Los Angeles (Rolle 1969; Caughey 1970). The population influx brought farmers, land speculators, and prospective developers to the region. As the Jurupa area became more and more populated, circa 1870, Judge John Wesley North and a group of associates founded the city of Riverside on part of the former rancho.

Although the first orange trees were planted in Riverside County circa 1871, it was not until a few years later when a small number of Brazilian navel orange trees were established that the citrus industry truly began in the region (Patterson 1971). The Brazilian naval orange was well suited to the climate of Riverside County and thrived with assistance from several extensive irrigation projects. At the close of 1882, an estimated half a million citrus trees were present in California. It is estimated that nearly half of that population was in Riverside County. Population growth and 1880s tax revenue from the booming citrus industry prompted the official formation of Riverside County in 1893 out of portions of what was once San Bernardino County (Patterson 1971).

Shortly thereafter, with the start of World War I, the United States began to develop a military presence in Riverside County with the construction of March Air Reserve Base. During World War II, Camp Haan and Camp Anza were constructed in what is now the current location

of the National Veteran's Cemetery. In the decades that followed, populations spread throughout the county into Lake Elsinore, Corona, Norco, Murrieta, and Wildomar. However, a significant portion of the county remained largely agricultural well into the 1970s. Following the 1970s, Riverside saw a period of dramatic population increase as the result of new development, more than doubling the population of the county with a population of over 1.3 million residents (Patterson 1971).

2.3.7 General History of the City of Riverside

The city of Riverside was officially formed in 1870, primarily as a result of the vision of Judge John Wesley North. North and a group of investors formed the Southern California Colony Association in hopes of founding a viable agricultural colony in southern California (Patterson 1971). Although initially focused upon the Los Angeles region, their gaze shifted to the banks of the Santa Ana River in Rancho Jurupa where land was readily available for purchase from the California Silk Association (Stonehouse 1965). North became part of the community, providing the initial survey of the new colony and helping to facilitate its overall development. The community was originally dubbed "Yurupa," but the moniker was revised to "Riverside" at the close of 1870 (Stonehouse 1965; Patterson 1971). Although North had originally envisioned a diversified farming community growing a wide range of produce, including "oranges, lemons, figs, English walnuts, olives, almonds, raisin grapes, wine grapes, peanuts, sweet potatoes, sorghum and sugar beets" (Stonehouse 1965), the drive of the citrus industry by the 1880s and the introduction of the navel orange would eventually lead to a more citrus-focused industry in Riverside.

The expansion of the citrus industry in Riverside would have never been possible without the canal system, which was established in stages between 1870 and 1888. In an effort to feed the growing citrus industry, the first of these irrigation projects was initiated by the Southern California Colony Association and the California Silk Association in 1870 (Bailey 1961). This first canal system was followed by additional canals developed by the Riverside Canal Company and the Riverside Water Company in 1886 (Bailey 1961). With the establishment of a third large canal (the Gage Canal) constructed between 1882 and 1888, a constant and reliable water source had been established, feeding some 20,000 acres of navel orange groves by 1885 (Guinn 1907; Brown 1985).

The growth of Riverside was further fueled by the development of the railroad system across the United States, giving Riverside the ability to ship citrus nationwide. As a result of the success of the navel orange, the establishment of canal systems, the advent of rail transportation, and the subsequent associated packing and cold storage industries, by 1885, Riverside had become the wealthiest city per capita in the United States (Patterson 1971).

In early 1917, the United States entered World War I, necessitating the construction of additional military bases across the country to facilitate the war efforts. Frank Miller, owner of the Mission Inn, and other Riverside residents successfully petitioned the United States

government to expand Alessandro Flying Training Field, a nearby airstrip used by private pilots for cross-country flights, for military use (March Air Reserve Base 2010). "On March 20, 1918, Alessandro Flying Training Field became March Field, named in honor of Second Lieutenant Peyton C. March … who had been killed in a flying accident in Texas the previous month" (March Air Reserve Base 2010). However, March Field saw only limited use, as World War I ended on November 11, 1918, shortly after the base was established (Patterson 1971). Between World War I and World War II, March Field was actively used for pilot training and tactical unit repair and activation (March Air Reserve Base 2010). With the advent of World War II, March Field grew in size and importance, housing troops from around the United States and further expanding the city's economy and population, with many service members choosing to settle in the city and the region in general. In 1941, March Field became March Army Air Field, in 1942, it became March Army Air Base, in 1947, it became March Army Air Force Base (to reflect the establishment of the United States Air Force), and in 1996, it became March Air Reserve Base (March Field Air Museum 2020). Although the official name changed multiple times, residents have continued to refer to it as "March Field" (Gunther 1984).

After the end of World War II, as with the rest of Riverside County, a significant portion of the city remained largely agricultural well into the 1970s. However, the city did enjoy some diversification with the introduction of a sizable manufacturing sector during this period. Following the 1970s, the city of Riverside and Riverside County as a whole saw a period of dramatic population increase as the result of new development, with the city growing to a population of over 300,000 residents by 2010 (United States Census 2010).

2.4 Research Goals

The primary goal of the research design is to attempt to understand the way in which humans have used the land and resources within the project through time, as well as to aid in the determination of resource significance. For the current project, the study area under investigation is the southeast portion of Riverside County. The scope of work for the archaeological program conducted for the Dauchy Avenue Project included the survey of the 24.43-acre property and the subsequent review of any identified cultural resources. Given the area involved and the narrow focus of the cultural resources study, the research design for this project was necessarily limited and general in nature. Since the main objective of the investigation was to identify the presence of, significance of, and potential impacts to cultural resources, the goal is not necessarily to answer wide-reaching theories regarding the development of early southern California, but to investigate the role and importance of the identified resources. Nevertheless, the assessment of the significance of a resource must take into consideration a variety of characteristics, as well as the ability of the resource to address regional research topics and issues.

Although initial site evaluation investigations are limited in terms of the amount of information available, several specific research questions were developed that could be used to guide the initial investigations of any observed cultural resources. The following research

questions take into account the size and location of the project discussed above.

Research Questions:

- Can located cultural resources be situated with a specific time period, population, or individual?
- Do the types of located cultural resources allow a site activity/function to be determined from a preliminary investigation? What are the site activities? What is the site function? What resources were exploited?
- How do the located sites compare to others reported from different surveys conducted in the area?
- How do the located sites fit existing models of settlement and subsistence for valley environments of the region?

Data Needs

At the survey level, the principal research objective is a generalized investigation of changing settlement patterns in both the prehistoric and historic periods within the study area. The overall goal is to understand settlement and resource procurement patterns of the region's occupants. Therefore, adequate information on site function, context, and chronology from an archaeological perspective is essential for the investigation. The fieldwork and archival research were undertaken with these primary research goals in mind:

1) To identify cultural resources occurring within the project;
2) To determine, if possible, site type and function, context of the deposit, and chronological placement of each cultural resource identified;
3) To place each cultural resource identified within a regional perspective; and
4) To provide recommendations for the treatment of each of the cultural resources identified.

3.0 METHODOLOGY

The cultural resources program for the Dauchy Avenue Project consisted of institutional records searches, an intensive pedestrian survey of the 24.43-acre project, and preparation of a technical study. This archaeological study conformed to the City of Riverside's Cultural Resources Ordinance. Statutory requirements of CEQA and subsequent legislation (Section 15064.5) were followed in reviewing the significance evaluations of cultural resources. Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Office (SHPO 1995).

3.1 Archaeological Records Search

An archaeological records search for the project was requested from the EIC at UCR on November 6, 2020. However, due to the limitations imposed by the evolving circumstances related to the COVID-19 pandemic, records search access has become limited with delays for the foreseeable future. As such, as of the date of this report, the archaeological records search results are pending from the EIC at UCR and BFSA reviewed in-house records for the project location. Land patent records, held by the Bureau of Land Management (BLM) and accessible through the BLM General Land Office website, were reviewed for pertinent project information. In addition, the BFSA research library was consulted for any relevant historical information.

3.2 Field Methodology

In accordance with City of Riverside CEQA review requirements, an intensive archaeological reconnaissance was conducted that employed a series of parallel survey transects spaced at 10-meter intervals to locate archaeological sites within the project. The archaeological survey was conducted on November 6, 2020. The entire project was covered by the survey process and photographs were taken to document project conditions during the survey (see Section 4.2). Ground visibility throughout the property was poor, with extensive ground cover on approximately 80.00 percent of the project.

3.3 Report Preparation and Recordation

This report contains information regarding previous studies, statutory requirements for the project, a brief description of the setting, research methods employed, and the overall results of the survey. The report includes all appropriate illustrations and tabular information needed to make a complete and comprehensive presentation of these activities, including the methodologies employed and the personnel involved. A copy of this report will be placed at the EIC at UCR. Any newly recorded sites or sites requiring updated information will be recorded on the appropriate Department of Parks and Recreation (DPR) site forms, which will be filed with the EIC.

3.4 Native American Consultation

The analysis of nearby site components and artifacts did not indicate Native American religious, ritual, or other special activities at this location. In addition, BFSA requested a SLF review by the NAHC on November 6, 2020 to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within one mile of the project. The SLF search results did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the search radius. In accordance with the recommendations of the NAHC, BFSA contacted all Native American consultants listed in the NAHC response letter and as of the date of this report, two responses have been received. The Santa Rosa Band of Cahuilla Indians has no comment, stating that the project is out of their area, and the Cabazon Band of Mission Indians indicates that the tribe "has no specific archival information on the site indicating that it may be a sacred/religious site or other site of Native American traditional cultural value." All correspondence is provided in Appendix C.

3.5 Applicable Regulations

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of Riverside County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in the City of Riverside policies (City of Riverside Municipal Code Title 20 [Cultural Resources Ordinance]) and CEQA provide the guidance for making such a determination. City of Riverside Municipal Code Title 20 (Cultural Resources Ordinance) also require potential "historical resources" identified within their jurisdiction to be evaluated under established criteria for listing on the National Register of Historic Places (NRHP). Provided below are the CEQA, City of Riverside, and NRHP criteria that a resource must meet in order to be determined important.

3.5.1 California Environmental Quality Act

According to CEQA (§15064.5a), the term "historical resource" includes the following:

1) A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] SS5024.1, Title 14 CCR. Section 4850 et seq.).
2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3) Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC SS5024.1, Title 14, Section 4852) including the following:

    a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b) Is associated with the lives of persons important in our past;
    c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    d) Has yielded, or may be likely to yield, information important in prehistory or history.

4) The fact that a resource is not listed in, or determined eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to Section 5020.1[k] of the PRC), or identified in a historical resources survey (meeting the criteria in Section 5024.1[g] of the PRC) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Section 5020.1(j) or Section 5024.1.

According to CEQA (Section 15064.5[b]), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect upon the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.
2) The significance of a historical resource is materially impaired when a project:

    a) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or
    b) Demolishes or materially alters in an adverse manner those physical

characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or,

c) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects upon archaeological sites and contains the following additional provisions:

1) When a project will impact an archaeological site, a lead agency shall first determine whether the site is a historical resource, as defined in subsection (a).
2) If a lead agency determines that the archaeological site is a historical resource, it shall refer to the provisions of Section 21084.1 of the PRC, Section 15126.4 of the guidelines, and the limits contained in Section 21083.2 of the PRC do not apply.
3) If an archaeological site does not meet the criteria defined in subsection (a) but does meet the definition of a unique archaeological resource in Section 21803.2 of the PRC, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in PRC Section 21083.2(c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
4) If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project upon those resources shall not be considered a significant effect upon the environment. It shall be sufficient that both the resource and the effect upon it are noted in the Initial Study or Environmental Impact Report, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5(d) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an Initial Study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in PRC SS5097.98. The applicant may develop an agreement for treating or disposing of, with

appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5).
2) The requirement of CEQA and the Coastal Act.

3.5.2 City of Riverside Cultural Resources Ordinance

City Landmark and Structure or Resource of Merit Criteria

The City of Riverside Cultural Resources Ordinance also includes evaluation criteria for local-level evaluation of potential resources as a City Landmark and Structure or Resource of Merit. The procedures and criteria for this designation, as provided in Section 20.50.010(U) of the Riverside Municipal Code, state that "any Improvement or Natural Feature that is an exceptional example of a historical, archaeological, cultural, architectural, community, aesthetic or artistic heritage of the City, retains a high degree of integrity" may be designated as a City Landmark if it meets one or more of the following criteria:

1) Exemplifies or reflects special elements of the city's cultural, social, economic, political, aesthetic, engineering, architectural, or natural history;
2) Is identified with persons or events significant in local, state, or national history;
3) Embodies distinctive characteristics of a style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship;
4) Represents the work of a notable builder, designer, or architect, or important creative individual;
5) Embodies elements that possess high artistic values or represents a significant structural or architectural achievement or innovation;
6) Reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of park or community planning, or cultural landscape;
7) Is one of the last remaining examples in the city, region, state, or nation possessing distinguishing characteristics of an architectural or historical type or specimen; or
8) Has yielded or may be likely to yield, information important in history or prehistory.

The criteria (Ord. 7206 §24, 2013; Ord. 7108 §1, 2010) also state that "an Improvement or Natural Feature meeting one or more of the above criteria, yet not having the high degree of integrity to qualify as a Landmark, may qualify as a Structure or Resource of Merit." A Structure or Resource of Merit is defined as "any Improvement or Natural Feature which contributes to the

broader understanding of the historical, archaeological, cultural, architectural, community, aesthetic or artistic heritage of the City, retains sufficient integrity," and:

1) Has a unique location or singular physical characteristics or is a view or vista representing an established and familiar visual feature of a neighborhood community or of the city;
2) Is an example of a type of building which was once common but is now rare in its neighborhood, community, or area;
3) Is connected with a business or use which was once common but is now rare;
4) A Cultural Resource that could be eligible under Landmark Criteria no longer exhibiting a high level of integrity, however, retaining sufficient integrity to convey significance under one or more of the Landmark Criteria;
5) Has yielded or may be likely to yield, information important in history or prehistory; or
6) An improvement or resource that no longer exhibits the high degree of integrity sufficient for Landmark designation, yet still retains sufficient integrity under one or more of the Landmark criteria to convey cultural resource significance as a Structure or Resource of Merit.

National Register of Historic Places Criteria

City of Riverside policies also require that potential "historical resources" identified within their jurisdiction be evaluated for listing on the NRHP. The four primary evaluation criteria to determine a resource's eligibility to the NRHP, in accordance with the regulations outlined in 36 CFR 800, are identified by 36 CFR 60.4. Historical resource properties may be considered eligible for listing on the NRHP if they meet one or more of the following criteria identified in 36 CFR 60.4:

(A) Is associated with events that have made a significant contribution to the broad patterns of our history;
(B) Is associated with the lives of persons significant in our past;
(C) Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(D) Has yielded, or may be likely to yield, information important in prehistory or history.

If a resource is determined to be not important under these criteria, it is assumed that the resource cannot be significantly impacted, and therefore, mitigation measures are not warranted. However, any resources found to be important according to these criteria must be assessed for

project-related actions that could directly or indirectly impact such resources. Impacts that adversely affect important resources are considered to be significant impacts for which mitigating measures are warranted.

4.0 RESULTS

4.1 Records Search Results

An archaeological records search was requested on November 6, 2020 from the EIC at UCR for the project and the surrounding area within a one-mile radius. However, due to the limitations imposed by the evolving circumstances related to the COVID-19 pandemic, records search access has become limited with delays for the foreseeable future. As such, as of the date of this report, the archaeological records search results are pending from the EIC at UCR and BFSA reviewed in-house records for the project location.

The review indicates that at least one cultural resources study was conducted within a one-mile radius of the project (Parr and Wilke 1989), which included all of the subject property. BFSA combined the Parr and Wilke (1989) cultural resources assessment information with a previous records search conducted by BFSA in Riverside for the 18806 Van Buren Boulevard Project (Garrison et al. 2018).

According to the in-house materials, a total of 90 cultural resources are located within a one-mile radius of the Dauchy Avenue Project (Table 4.1–1). Two of these resources (bedrock milling feature sites RIV-2184 and RIV-2670) are located within 50 meters (164 feet) of the southern project boundary; however, no cultural resources were identified within the Dauchy Avenue Project. All but one of the identified resources are bedrock milling feature sites, four of which also include a lithic artifact scatter. The remaining site is a historic single-family property and ranch site.

Table 4.1–1

Archaeological Sites Located Within a One-Mile Radius of the Project

Site(s)	Description	Distance From the Project Boundary (m)
RIV-853	Prehistoric bedrock milling feature(s)	857.9
RIV-899		1,020.9
RIV-1297		329.3
RIV-1792		1,561.1
RIV-2079		322.1
RIV-2080		214.4
RIV-2184		27.9
RIV-2231		675.7
RIV-2232		772.3
RIV-2233		505.5
RIV-2234		564.8
RIV-2235		768.5
RIV-2552		664.5
RIV-2553		797.8

Site(s)	Description	Distance From the Project Boundary (m)
RIV-2669		94.2
RIV-2670		48.2
RIV-2671		173.5
RIV-2672		164.8
RIV-2699		1,031.7
RIV-2700		933.9
RIV-2779		820.6
RIV-2780		806.1
RIV-2781		790.7
RIV-2806		627.3
RIV-2807		635.5
RIV-3540		1,497.6
RIV-3542		1,490.8
RIV-3543		1,466.6
RIV-3544		1,372.8
RIV-3545		1,198.0
RIV-3547		1,497.4
RIV-3548		1,045.6
RIV-3549		1,037.1
RIV-3550		1,142.5
RIV-3551		1,279.2
RIV-3552		1,491.4
RIV-3553		1,454.3
RIV-3554		1,052.5
RIV-3555		1,054.4
RIV-3556		654.7
RIV-3557		869.1
RIV-3558		979.1
RIV-3582		1,025.2
RIV-3584		839.9
RIV-3585		826.0
RIV-3586		506.4
RIV-3587		294.2
RIV-3588		179.6
RIV-3589		288.0
RIV-3590		433.4
RIV-3591		701.6
RIV-3596		1,399.0
RIV-3600		986.6
RIV-3601		845.4
RIV-3602		642.3

Site(s)	Description	Distance From the Project Boundary (m)
RIV-3603		340.3
RIV-3605		515.0
RIV-3606		515.0
RIV-3607		341.3
RIV-3608		309.7
RIV-3609		355.8
RIV-3610		427.1
RIV-3611		899.0
RIV-3612		843.6
RIV-3613		713.1
RIV-3614		423.8
RIV-3615		558.1
RIV-3618		1,140.5
RIV-3619		1,563.5
RIV-3622		1,544.1
RIV-3623		1,539.8
RIV-3624		1,009.9
RIV-3629		1,134.5
RIV-3630		1,401.3
RIV-3631		1,498.0
RIV-3632		1,140.2
RIV-3633		1,001.6
RIV-3638		1,094.5
RIV-3639		1,363.9
RIV-3641		372.0
RIV-3643		1,423.2
RIV-3683		897.1
RIV-4021		944.8
RIV-6003		1,289.9
RIV-6530		809.2
RIV-3995	Prehistoric bedrock milling feature(s) with a lithic artifact scatter	1,329.8
RIV-3996		1,609.4
RIV-4020		858.6
RIV-7183		1,219.8
P-33-007818	Historic single-family property with a ranch	1,265.2

The following historic sources were also reviewed:

- The NRHP Index
- The Office of Historic Preservation, Archaeological Determinations of Eligibility

- The Office of Historic Preservation, Built Environment Resources Directory
- The 15' USGS *Riverside* topographic map (1901, 1911, 1927, 1939, 1959)

None of these sources identified any resources within the boundaries of the proposed project. It must be noted, however, that additional resources and surveys could have been reported to the EIC at UCR that will be part of the records search, the results of which are still pending due to circumstances related to the COVID-19 pandemic. Historic aerial images show the property as largely unmodified until the early 1970s, when two dirt roads are visible crossing through the parcel. The manufactured home present in the northwest corner was constructed sometime between 2002 and 2003, and the property appears to have been mowed or disked repeatedly throughout the 2000s and 2010s.

BFSA also requested a records search of the SLF of the NAHC on November 6, 2020. The SLF search results did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the search radius or the project site. The SLF search results did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the search radius. In accordance with the recommendations of the NAHC, BFSA contacted all Native American consultants listed in the NAHC response letter and as of the date of this report, one response has been received. The Santa Rosa Band of Cahuilla Indians has no comment, stating that the project is out of their area, and the Cabazon Band of Mission Indians indicates that the tribe "has no specific archival information on the site indicating that it may be a sacred/religious site or other site of Native American traditional cultural value." All correspondence is provided in Appendix C.

4.2 Results of the Cultural Resources Survey

Field Archaeologist Clarence Hoff conducted the field survey of the project site November 6, 2020. Overviews of the project are provided in Plates 4.2–1 and 4.2–2. The survey can be characterized as an intensive reconnaissance consisting of a series of parallel survey transects spaced at approximately 10-meter intervals. The entire project was accessible and careful attention was paid to the ground surface; however, visibility was limited due to dense vegetation cover that primarily consists of grassland with pockets of native and non-native sage scrub and chaparral, willow trees, and reeds. The topography of the property can be characterized as gently rolling hills with a seasonal drainage running along the western property boundary and dirt access roads crossing throughout. The northwest corner of the property was developed for a manufactured home and associated outbuildings sometime between 2002 and 2003 (Plate 4.2–3). An active, modern well that is associated with the manufactured home was also identified (Plate 4.2–4).

The results of the cultural resources survey indicate that no visible archaeological deposits or features exist on the property. However, given the presence of 89 bedrock milling feature sites in the area, and the seasonal drainage along the western project boundary, the possibility for unidentified buried cultural deposits exists within the project.