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April 22, 2014

Mr. Mike Byer  
Richland Developers, Inc.  
3161 Michelson Drive, Suite 425  
Irvine, California 92612

Subject: Supplementary Cultural Resources Assessment for the Skyline Heights Project (TTM 36544) in the City of Corona, Riverside County, California (LSA Project No. KWC1301)

Dear Mr. Byer:

LSA Associates, Inc. (LSA) has completed a supplementary study to the previous cultural resources assessment LSA conducted for this project (Dalton and Reynolds 2006). The Skyline Heights Project (Tentative Tract Map [TTM] 36544) consists of 270.9 acres in the City of Corona in western Riverside County, California, adjacent to Foothill Parkway. The project area includes the area to be acquired by the Riverside County Transportation Commission (RCTC)/City of Corona for the construction of the future Foothill Parkway westerly extension and Mabey Canyon Debris Basin. The site is located approximately 3 miles south of State Route 71 and State Route 91 and approximately 4 miles west of Interstate 15.

Specifically, the project is located in Sections 3, 4, 9, and 10; Township 4 South, Range 7 West, as shown on the United States Geological Survey (USGS) *Corona South, California* (1988) 7.5-minute topographic quadrangle map (attached Figure 1).

At the City's request, additional parcels outside the project development footprint designated for annexation were added to the study area (Assessor's Parcel Numbers [APNs] 102-320-009, 102-320-010, 102-320-014, 275-080-009, 275-090-007 and 275-090-011 [the last parcel is a segment of Skyline Drive right-of-way]). Two other parcels within the project study area but outside the project development footprint (APNs 275-040-004 and -005) have been removed from annexation.

The City requested a Sacred Lands File (SLF) search from the Native American Heritage Commission (NAHC) for the proposed General Plan Amendment I (which includes the project area) in June 2013 and solicited requests for Senate Bill 18 (SB 18) Native American consultation for the project in July through September 2013. The City subsequently directed LSA to request a supplementary SLF search to include the expanded study area in October 2013.

The City of Corona requires that the project be in compliance with the California Environmental Quality Act (CEQA; as amended January 1, 2013): Public Resources Code (PRC), Division 13 (Environmental Quality), Chapters 2.6, Section 21083.2 (Archaeological Resources) and 2.6, Section 21084.1 (Historical Resources); and the State CEQA Guidelines (as amended December 1, 2010), California Code of Regulations (CCR) Title 14, Chapter 3, Article 5 Section 15064.5 (Determining the Significance of Impacts on Historical and Unique Archaeological Resources). All cultural resources identified within the project area that are greater than 50 years of age were to be recorded and evaluated per CEQA.

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## **CULTURAL SETTING**

### **Prehistory**

The description of various prehistoric stages or chronologies identifying cultural evolution in the Southern California area has been attempted numerous times. Several of these chronologies are reviewed in Morratto (1984). No single description is universally accepted. The various chronologies are based primarily on material developments identified by researchers familiar with sites in a region, and variation exists essentially due to the differences in those items found at the sites. Small differences occur over time and space, which combine to form patterns that are variously interpreted.

Currently, two primary regional culture chronology syntheses (Wallace 1955, 1978; Warren 1968) are commonly referenced in the archaeological literature. The first, Wallace (1955, 1978), is among the most widely used prehistoric chronology for Southern California. It describes four cultural horizons or time periods: Horizon I – Early Man (9000–6500 BC), Horizon II – Milling Stone Assemblages (6500–2000 BC), Horizon III – Intermediate Cultures (2000 BC–AD 200), and Horizon IV – Late Prehistoric Cultures (AD 200–historic contact). This chronology was refined (Wallace 1978) using absolute chronological dates unavailable in 1955. The second cultural chronology (Warren 1968) is based broadly on Southern California prehistoric cultures, including those of Santa Barbara, San Diego, and the inland desert areas, and was also revised (Warren 1984; Warren and Crabtree 1986). Warren’s chronology includes five periods in prehistory: Lake Mojave (7000–5000 B.C.), Pinto (4000–3000 BC), Gypsum (1000 BC–AD 1), Saratoga Springs (AD 500–1000), and Protohistoric (AD 1500–historic). Warren views cultural continuity and change in terms of various significant environmental shifts, fitting what is known as the cultural ecological approach. Changes in settlement pattern and subsistence focus are viewed as cultural adaptations to a changing environment. In general, this pattern begins with gradual environmental warming in the late Pleistocene, continues with the desiccation of the desert lakes, followed by a brief return to pluvial conditions, and concludes with a general warming and drying trend, with periodic reversals that continue to the present (Warren 1986).

### **Ethnography**

The project area lies within the traditional cultural territory of the Gabrielino (Bean and Smith 1978). Like other Native American groups in southern California, the Gabrielino were semi-nomadic hunter-gatherers who subsisted by exploitation of seasonably available plant and animal resources and were first encountered by Spanish missionaries in the late 18<sup>th</sup> century. The first written accounts of the Gabrielino are attributed to mission fathers and later documentation was by Kroeber (1925), Johnston (1962), Blackburn (1962–1963), Hudson (1971), and others.

## **METHODS**

### **Records Search**

On April 8, 2013, a records search for the project area and a 1-mile radius around it was conducted at the Eastern Information Center (EIC) of the California Historical Resources Information System, located at the University of California, Riverside. The EIC houses the pertinent archaeological site and survey information necessary to determine whether previously recorded cultural resources exist within the study area boundaries. The objectives of this archival research is (1) to establish the status

and extent of previously recorded sites, surveys, and excavations within the project area, and (2) to note what types of sites might be expected to occur within the proposed project area based on the existing data from archaeological sites within 1.0 mile of the project area. The search includes a review of cultural resources studies and sites on file at the EIC and a review of the most up-to-date listings in the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), the California Inventory of Historic Resources, the California Historical Landmarks (CHL), the California Points of Historical Interest (CPHI), and the Historic Property Data File (HPD). In addition, historic USGS 7.5-minute, 15-minute, and 30-minute topographic quadrangle maps and General Land Office (GLO) plat maps are reviewed. The records search update was conducted to determine whether any cultural resources had been identified within the project area or study area radius since the 2006 records search.

### **Supplementary Records Search**

In order to address the expanded study area, a supplementary records search was conducted on July 9, 2013.

### **Additional Research**

Available references and historic maps were reviewed to verify the adequacy of documentation for the cultural resource recorded within the project area and to identify any previously undocumented historic period resources (Gray 1961; Kupferman 1961; HistoricAerials.com 1948, 1952, 1967, 1980; USGS 1967, 1980).

### **Supplementary Research**

In order to address the expanded study area, supplementary research was conducted in July 2013.

### **Field Survey**

On April 10 and May 8, 2013, LSA archaeologists Riordan Goodwin and Gini Austerman conducted a reconnaissance survey of all accessible areas of the 270.9 acres that are planned for development. Due to the thick vegetation and steep topography, the surveyed areas were limited to ridge tops, accessible canyon bottoms, and road cuts.

### **Senate Bill 18 Consultation**

The City contacted the NAHC to request an SLF search for the proposed General Plan Amendment 1 (which includes the project area) in June 2013. The NAHC responded on June 24, 2013, indicating there are no Native American traditional cultural places (TCPs) documented within the General Plan Amendment I area. The NAHC also provided a list of Native American contacts with traditional lands or cultural places located in the vicinity of the project area. The City solicited formal SB 18 consultation requests from 9 individuals representing 8 Native American groups (see attached correspondence for list of individuals/groups) on July 16, 2013.

At the direction of the City, LSA subsequently submitted a supplementary SLF search request to address the expanded study area of the Skyline Heights project on October 24, 2013. The NAHC responded on November 7 indicating that there are Native American TCPs documented within the expanded study area.

## **Regulatory Framework**

CEQA (PRC Chapter 2.6, Section 21083.2 and CCR Title 145, Chapter 3, Article 5, Section 15064.5) calls for the evaluation and recordation of historical resources. The criteria for determining the significance of impacts to historical resources (greater than 50 years of age) are based on Section 15064.5 of the CEQA Guidelines and Guidelines for the Nomination of Properties to the California Register. Properties eligible for listing in the California Register and subject to review under CEQA are those meeting the criteria for listing in the California Register, National Register, or designation under a local ordinance.

**California Register of Historical Resources.** The California Register criteria are based on National Register criteria. For a property to be eligible for inclusion in the California Register, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values; and/or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

## **RESULTS**

### **Records Search**

Results of the records search for the proposed 270.9-acre development indicate that cultural resource studies have been conducted within a 1-mile radius of the project. Six of these studies include portions of the project area, two which were the previous SWCA (Harper 2008) and LSA (Dalton and Reynolds 2006) reports. One historic period site was previously recorded within the project area; known as Sky Ranch (33-16976); this site in Mabey Canyon was first noted and partially evaluated by LSA in 2006 (Dalton and Reynolds 2006) and documented/evaluated by SWCA in 2008 (Smith et al. 2008). This site consists of a small masonry shed, a metal water tank, concrete residence and aircraft hangar foundations, arroyo stone walls and bridge, and other remnant landscaping features (see Smith et al. 2008 for details). The bridge was evaluated as eligible for the California Register as a separate property (Smith et al. 2008).

Eight additional cultural resources have been documented within one mile of the project, five of which are prehistoric archaeological sites and three of which are historic-period built resources. There are no properties listed in the National Register, the California Register, the CHL, or the CPHI within

a 1-mile radius of the project area. In addition, no properties listed in the Historic Properties Directory match the location of the project area.

### **Supplementary Records Search**

The supplementary records search for the parcels added to the study area revealed nine additional studies have been conducted within one mile. While two of the southern parcels (APNs 275-080-009 and 275-090-007) have been previously surveyed twice, no additional cultural resources have been documented within one mile of any of the three southern parcels (including APN 275-090-011; Harper 2006; Digregorio 1990; Digregorio and Langenwalter 1979). The northern parcels (APNs 102-320-009, 102-320-010, and 102-320-014) have not been surveyed, and no additional cultural resources have been documented within one mile.

### **Additional Research**

Additional research confirmed documentation of historic-period mining activity within the project area. Eight adjacent mining claims were filed in 1917 by Leo Kroonen of Corona: Big 4, Black Chief, Dutch Republic, Keno, Kroonen, Little Canyon, Victor, and White Clay (attached Figure 2; Gray 1961; Kupferman 1961). However, there is indication of only minimal mining activities within the northwest portion of these claims (likely the Big 4, Little Canyon, and Victor claims) into the 1920s, and the volume of production was not large (Gray 1961). This is consistent with the lack of discernible excavations conclusively attributable to historic period mining operations within the project area (see Field Survey below).

### **Supplementary Research**

Supplementary review of historical references for the expanded study area indicates the northern parcels (APNs 102-320-009 and 102-320-010) encompasses an entire historic period mining claim (Findley Feldspar Placer No. 2 patented in 1923) and a portion of another (Findley Feldspar Placer, patented the same year; Gray 1961). No historic period mining activities are documented within the additional southern parcels (APNs 275-080-009, 275-090-007 and 275-090-011; Gray 1961).

### **Field Survey**

Ground visibility was poor, averaging approximately 10 percent due to obstruction from vegetation over the majority of the project surface. Mabey Canyon has been severely disturbed by agricultural activities, the development of Sky Ranch, the debris basin and associated channelization and flow-control structures of the creek in Mabey Canyon. Some of the ridge-tops have been graded for fire roads and several (recent) geological test borings.

The historic period Sky Ranch site (33-16976) was resurveyed and conditions are generally consistent with the site record prepared by SWCA (Smith et al. 2008). However, an unusual erosion control structure composed of an alignment of 30+ 1940s–1950s cars buried on their sides was noted on the south side of Mabey Canyon Road (UTMs east end: 443207mE/3748603mN; west end 443128mE/3748564mN) adjacent to the site boundary. Since its origin and date of deposition could not be determined, it was not added to the site or formally documented as a historic period feature. In

addition, two adjacent isolated excavations were noted approximately 120 feet north of the project area (UTMs 443305mE/3745763mN). Although these could be mining test pits conducted by Clifford Tillotson (the clay mining/fire brick mogul responsible for Sky Ranch and co-owner of multiple nearby mining claims), this could not be confirmed as the excavations are nearly 0.5 mile from the nearest documented mining claim (the Susie Placer, not owned by Tillotson), located approximately 0.2 mile west of the project boundary.

No discernible previously undocumented cultural resources were identified within the accessible portions of the project area.

### **Senate Bill 18 Consultation**

Ms. Tuba Ozdil (Pechanga Band of Luiseño Mission Indians) formally requested SB 18 consultation, that the Pechanga be involved in the entire CEQA environmental review process including notification of public hearings and scheduled approvals, that a project-specific SLF search be conducted, and receipt of all documents pertaining to this project. Mr. Joseph Ontiveros (Soboba Band of Luiseño Indians), requested SB 18 consultation, Native American monitoring of construction activities by the Soboba, and that the Soboba continue to be a lead consulting tribal entity. There were no other concerns expressed by any of the other individuals contacted (see attached SB 18 correspondence for details).

## **RECOMMENDATIONS**

### **Current Project**

The records search indicated that the project area and surrounding vicinity are not particularly sensitive for archaeological resources. However, additional historical research revealed documentation of minimal historic-period mining activity within the project area.

Current project plans do not include impacts to the Sky Ranch site's (APN 275-040-015) bridge that was evaluated as eligible for the California Register. In the event project plans change to include potential impacts to the bridge, LSA recommends that the impacts be evaluated in a supplemental study.

In light of the results of the additional research and hindrance of the field survey by thick vegetation, there remains potential for obscured historic-period archaeological resources to exist within the project area. Therefore, LSA recommends that ground-disturbing activities within the project area be monitored on a part-time (spot-check) basis. If previously undocumented cultural resources are encountered when the archaeological monitor is not present, it is recommended that work be halted immediately in the area of the find until the archaeological monitor can assess the nature and significance of the find.

### **Additional Study Area Parcels Outside the Project Footprint**

While the northern parcels in the expanded study area (APNs 102-320-009, 102-320-010, and 102-320-014) have no cultural resources documented within one mile, they include historically documented mining claims and have not been previously surveyed. Therefore, in the event

development is planned for these parcels, a cultural resources survey by a qualified archaeologist is recommended.

Two of the southern parcels in the expanded study area (APNs 275-080-009 and 275-090-007) have no cultural resources documented within one mile and been surveyed twice with negative results. Although the segment of Skyline Drive right-of-way within the study area (parcel 275-090-011) dates to at least the mid-1960s and has not been surveyed, no cultural resources have been documented within one mile. Also, road right-of-ways by nature are severely disturbed and minor (local) road right-of-ways generally have a low sensitivity for cultural resources. Therefore, no further cultural resource investigation of the three southern parcels is recommended.

### **Human Remains**

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Please contact me at (951) 781-9310 or via email at rory.goodwin@lsa-assoc.com if you have any questions regarding this document.

Sincerely,

**LSA ASSOCIATES, INC.**



Riordan Goodwin  
Senior Cultural Resources Manager/Archaeologist

Attachments:   References Cited  
                    Figure 1: Project Location Map  
                    Figure 2: Patented Mining Claims within Project Area  
                    SLF Search Results  
                    SB 18 Native American Consultation Correspondence

## REFERENCES CITED

Bean, Lowell John, and Charles R. Smith

- 1978 Gabrielino. In California, edited by R.F. Heizer, pp.538–549. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Blackburn, Thomas C.

- 1962–1963 Ethnohistoric Descriptions of Gabrielino Material Culture. Annual Reports of the University of California Archaeological Survey 5: 1-50.

Dalton, Jodi, and Robert Reynolds

- 2006 Cultural Resources Assessment, Far West Housing/Annexation #106, City of Corona, Riverside County, California. Unpublished report on file, Eastern Information Center, UCR.

Digregorio, Lee

- 1990 Archaeology Reconnaissance Report – Trabuco Land Exchange. Unpublished report on file, Eastern Information Center, UCR.

Digregorio, Lee, and Becky Langenwalter

- 1979 An Archaeological Reconnaissance Report of Oak Flats Land Exchange: Six Parcels. Unpublished report on file, Eastern Information Center, UCR.

Gray, Clifton H., Jr.

- 1961 Geology of the Corona South Quadrangle and the Santa Ana Narrows Area, Riverside, Orange and San Bernardino Counties. California Division of Mines and Geology, Bulletin 178.

Harper, Caprice D.

- 2006 Cultural Resources Assessment for the Foothill Parkway Westerly Extension Project, City of Corona, Riverside County, California. Unpublished report on file, Eastern Information Center, UCR.
- 2008 Revised Addendum to Cultural Resources Assessment for the Foothill Parkway Westerly Extension Project, City of Corona, Riverside County, California. Unpublished report on file, Eastern Information Center, UCR.

HistoricAerials.com

- 1948 Aerial photograph of project area.
- 1952 Aerial photograph of project area.
- 1967 Aerial photograph of project area.
- 1980 Aerial photograph of project area.

Hudson, Dee T.

- 1971 Proto-Gabrielino Patterns of Territorial Organization in South Coastal California. Pacific Coast Archaeological Society Quarterly 5(1). Costa Mesa, California.

Kupferman, Steven A.

- 1961 Riverside County Mineral Resources. Unpublished manuscript # 6294 of the American *Institute of Professional Geologists*.

Morratto, Michael J.

- 1984 California Archaeology. Orlando, Florida: Academic Press.

Smith, Francesca, Tony Sawyer, and Celeste LeSuer

- 2008 Sky Ranch site record (33-16976/CA-RIV-8842).

United States Geological Survey

- 1967 *Corona South, California* 7.5-minute topographic quadrangle map.  
1988 *Corona South, California* 7.5-minute topographic quadrangle map.

Wallace, William J.

- 1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3):214-230.  
1978 Post-Pleistocene Archaeology. In California, edited by R. Heizer, pp. 550–563. *Handbook of North American Indians*, Vol. 8. W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Warren, Claude N.

- 1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. Eastern New Mexico University Contributions in Anthropology 1(3). Portales.  
1984 The Desert Region. In *California Archaeology*, by M. Morratto with contributions by D.A. Fredrickson, C. Raven, and C. N. Warren, pp. 339–430. Academic Press, Orlando, Florida.  
1986 Fort Irwin Historic Preservation Plan, Volume 2: The Research Overview. Coyote Press, Salinas, California. Copies also available from National Park Service-Western Region, San Francisco, and National Technical Information Service, Washington, D.C.

Warren, Claude N., and Robert H. Crabtree

- 1986 Prehistory of the Southwestern Area. In W.L. D’Azevedo ed., *Handbook of the North American Indians*, Vol. 11, Great Basin, pp. 183–193. Washington D.C.: Smithsonian Institution.

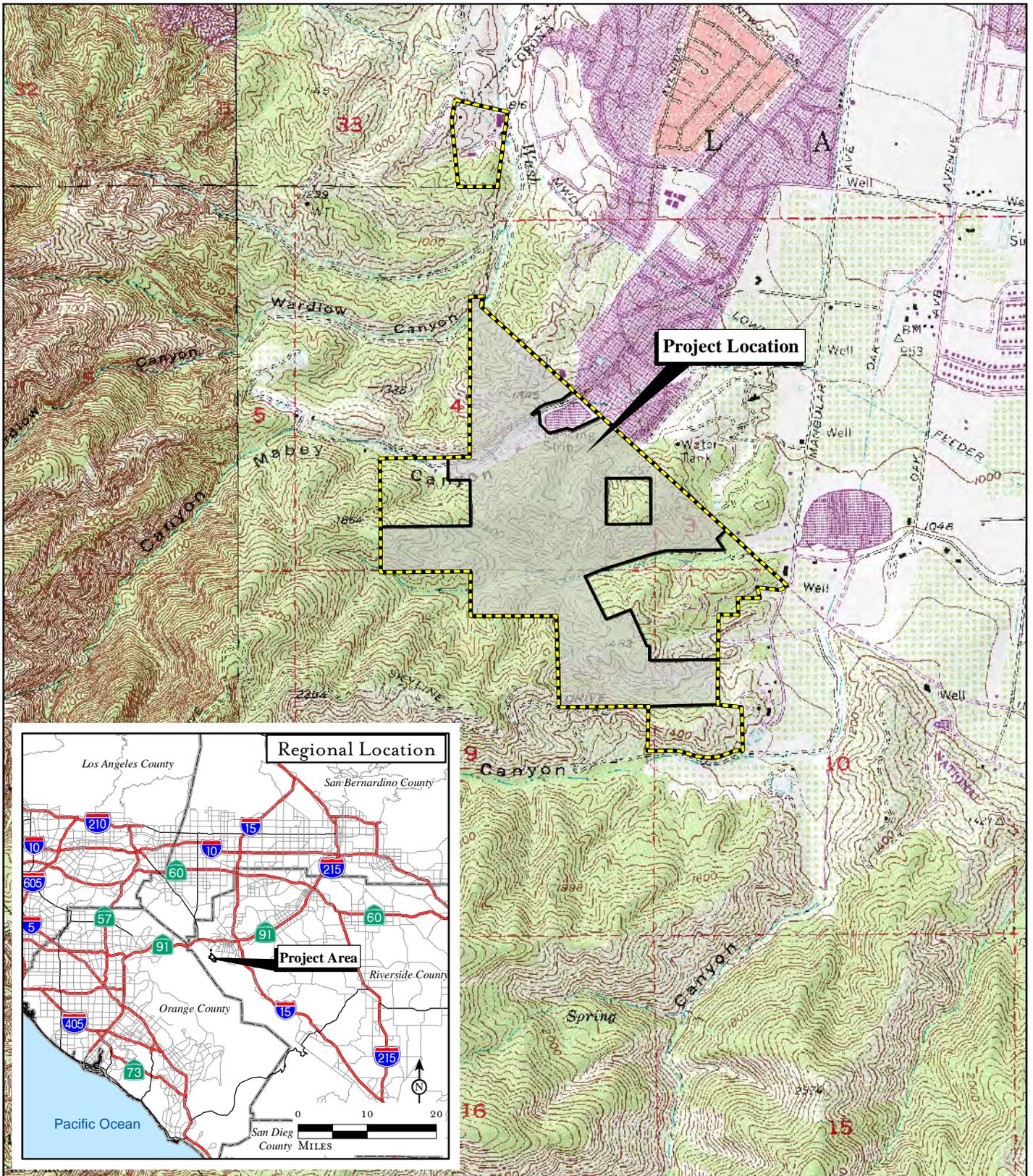
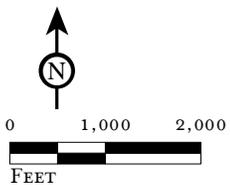


FIGURE 1

LSA



- Study Area
- Development Footprint

*Skyline Heights  
Supplemental Cultural  
Resources Assessment*

Regional and Project Location

SOURCE: USGS 7.5' Quads: Black Star Canyon and Corona South, 1988, CA; Riverside County, 2011.

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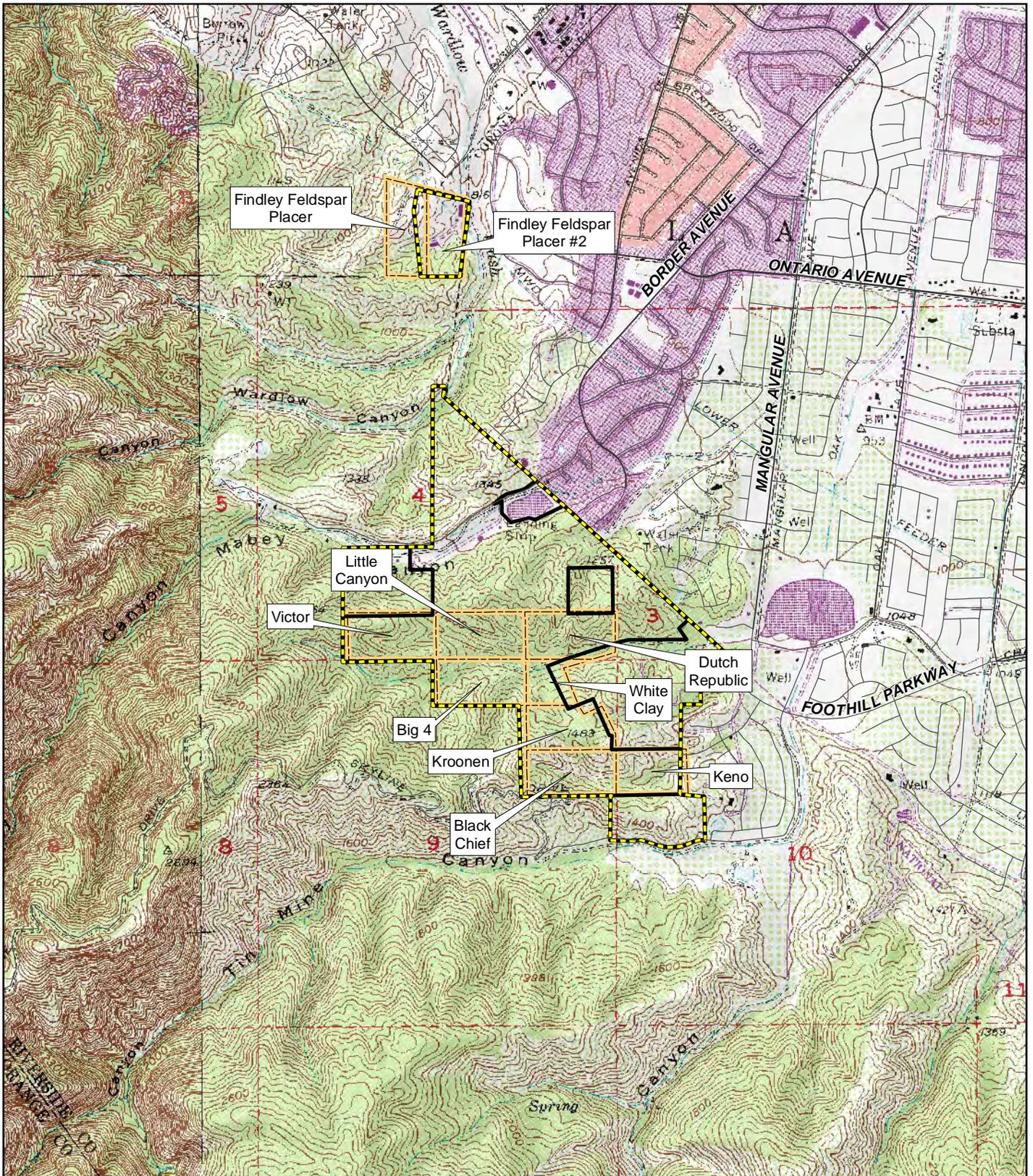
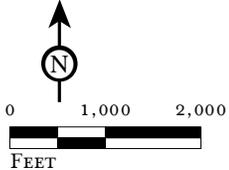


FIGURE 2

LSA



- Study Area
- Development Footprint
- Mining Claims

*Skyline Heights  
Supplemental Cultural  
Resources Assessment*

Mining Claims within the Study Area

SOURCE: USGS 7.5' Quads: Black Star Canyon and Corona South, 1988, CA;  
Riverside County, 2011; Mines & Mineral Deposits of the Corona South Quad, 1961

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STATE OF CALIFORNIA

Edmund G. Brown, Jr. Governor

## NATIVE AMERICAN HERITAGE COMMISSION

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West Sacramento, CA 95691  
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Da\_nahc@pacbell.net



June 24, 2013

Mr. Jason Moquin, Senior Planner

**CITY OF CORONA**

400 S. Vincentia Avenued  
Corona, CA 92882

Sent by FAX to: 951-279-3550

No. of Pages: 4

RE: Native American Consultation pursuant to California Government Code Sections 65351, 65352.3, 65562.5 *et seq.* for the proposed "General Plan Amendment I;" located in the City of Corona; Riverside County, California

Dear Mr. Mooquin:

Government Code Sections 65351, 65352.3, 65562.5, *et seq.* requires local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of protecting and/or mitigating impacts to cultural places. The Native American Heritage Commission (NAHC) is the state 'agency with responsibilities for Native American cultural resources.

In the 1985 Appellate Court decision (170 Cal App 3<sup>rd</sup> 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources impacted by proposed projects, including archaeological places of religious significance to Native Americans, and to Native American burial sites. Note that the NAHC does NOT APPROVE General or Specific Plan; rather, it provides a list of tribal governments with which local jurisdictions must consult concerning any proposed impact to cultural resources as a result of the proposed action.

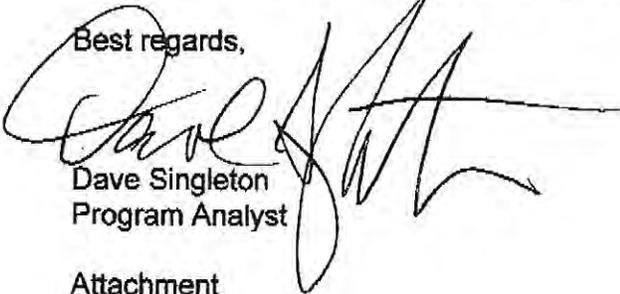
An NAHC Sacred Lands File search was conducted and failed to indicate the presence of Native American traditional cultural place(s) in the immediate project area of potential effect (APE). Also, the absence of specific site information in the sacred lands file does not preclude their existence. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a consultation list of tribal governments with traditional lands or cultural places located in the vicinity of the Project Area (APE). The tribal entities on the list are for your guidance for **government-to-government consultation** purposes.

A Native American tribe or individual may be the only source of the presence of traditional cultural places. For that reason, a list of Native American Contacts is enclosed as they may have knowledge of cultural resources and about potential impact, if any, of the proposed project.

If you have any questions, please let me know.

Best regards,



Dave Singleton  
Program Analyst

Attachment

California Tribal Government Consultation List  
Riverside County  
June 24, 2013

Ramona Band of Cahuilla Mission Indians ✓  
Joseph Hamilton, Chairman  
P.O. Box 391670  
Anza, CA 92539  
admin@ramonatribe.com  
(951) 763-4105

Cahuilla

Juaneno Band of Mission Indians ✓  
Alfred Cruz, Cultural Resources Coordinator  
P.O. Box 25628  
Santa Ana, CA 92799  
alfredcruz@sbcglobal.net  
714-998-0721  
714-998-0721 - FAX

Juaneno

Gabrieleno/Tongva San Gabriel Band of Mission ✓  
Anthony Morales, Chairperson  
PO Box 693  
San Gabriel, CA 91778  
GTTribalcouncil@aol.com  
(626) 286-1632  
(626) 286-1758 - Home  
(626) 483--3564 cell

Gabrielino Tongva

Pechanga Band of Mission Indians ✓  
Mark Macarro, Chairperson  
P.O. Box 1477  
Temecula, CA 92593  
(951) 770-6100  
hlaibach@pechanga-nsn.gov

Luiseno

Santa Rosa Band of Mission Indians ✓  
John Marcus, Chairman  
P.O. Box 391820  
Anza, CA 92539  
(951) 659-2700  
(951) 659-2228 Fax

Cahuilla

Cahuilla Band of Indians ✓  
Luther Salgado, Chairperson  
PO Box 391760  
Anza, CA 92539  
tribalcouncil@cahuilla.net  
915-763-5549

Cahuilla

Gabrielino Tongva Nation ✓  
Sam Dunlap, Cultural Resources Director  
P.O. Box 86908  
Los Angeles, CA 90086  
samdunlap@earthlink.net

Gabrielino Tongva

(909) 262-9351 - cell

Rincon Band of Mission Indians  
Bo Mazzetti, Chairperson  
1 West Tribal Road  
Valley Center, CA 92082  
bomazzetti@aol.com  
(760) 749-1051

Luiseno

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Government Code Section 65352.3. and 65362.4. et seq.

California Tribal Government Consultation List  
Riverside County  
June 24, 2013

Soboba Band of Mission Indians  
Rosemary Morillo, Chairperson; Attn: Carrie Garcia  
P.O. Box 487 Luiseno  
San Jacinto, CA 92581  
carrieg@soboba-nsn.gov  
(951) 654-2765

**This list is current only as of the date of this document.**

**Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.**

**This list is applicable only for consultation with Native American tribes under Government Code Section 65952.3, and 65362.4, et seq.**

**From:** Rory Goodwin  
**To:** [ds\\_nahc@pacbell.net](mailto:ds_nahc@pacbell.net)  
**Subject:** SLF Search for the Skyline Heights Project (LSA Project #KWC1301)  
**Date:** Thursday, October 24, 2013 9:25:00 AM  
**Attachments:** [fig1\\_reg\\_loc\\_07-01-13.pdf](#)

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Mr. Singleton,

LSA has a residential development project (Skyline Heights) in western Riverside County in Sections 3, 4, 9, 10, and 33; Township 4 South, Range 7 West, as shown on the United States Geological Survey (USGS) Corona South, California (1988) 7.5 minute topographic quadrangle map (attached). There will be ground disturbance associated with this project and the cultural resources study is being conducted pursuant to CEQA and City of Corona requirements. LSA is requesting a Sacred Lands File search for the project study area (the black and yellow outlined polygons on the map) and a list of Native American groups/individuals that may have cultural ties and/or knowledge of cultural resources in the project area. Please notify LSA of any Native American cultural resources that might be impacted.

I will anticipate a response within 10 working days from your receipt of this request. Thank you very much for your assistance. If you require a fax request or have any questions or comments, please contact me at (951) 781-9310.

Thanks,

Riordan Goodwin  
Archaeologist/Senior Cultural Resources Manager  
LSA Associates, Inc.  
1500 Iowa Avenue, Suite 200  
Riverside, CA 92507  
(951) 781-9310 Office  
(951) 781-4277 Fax  
(951) 712-3128 Wireless

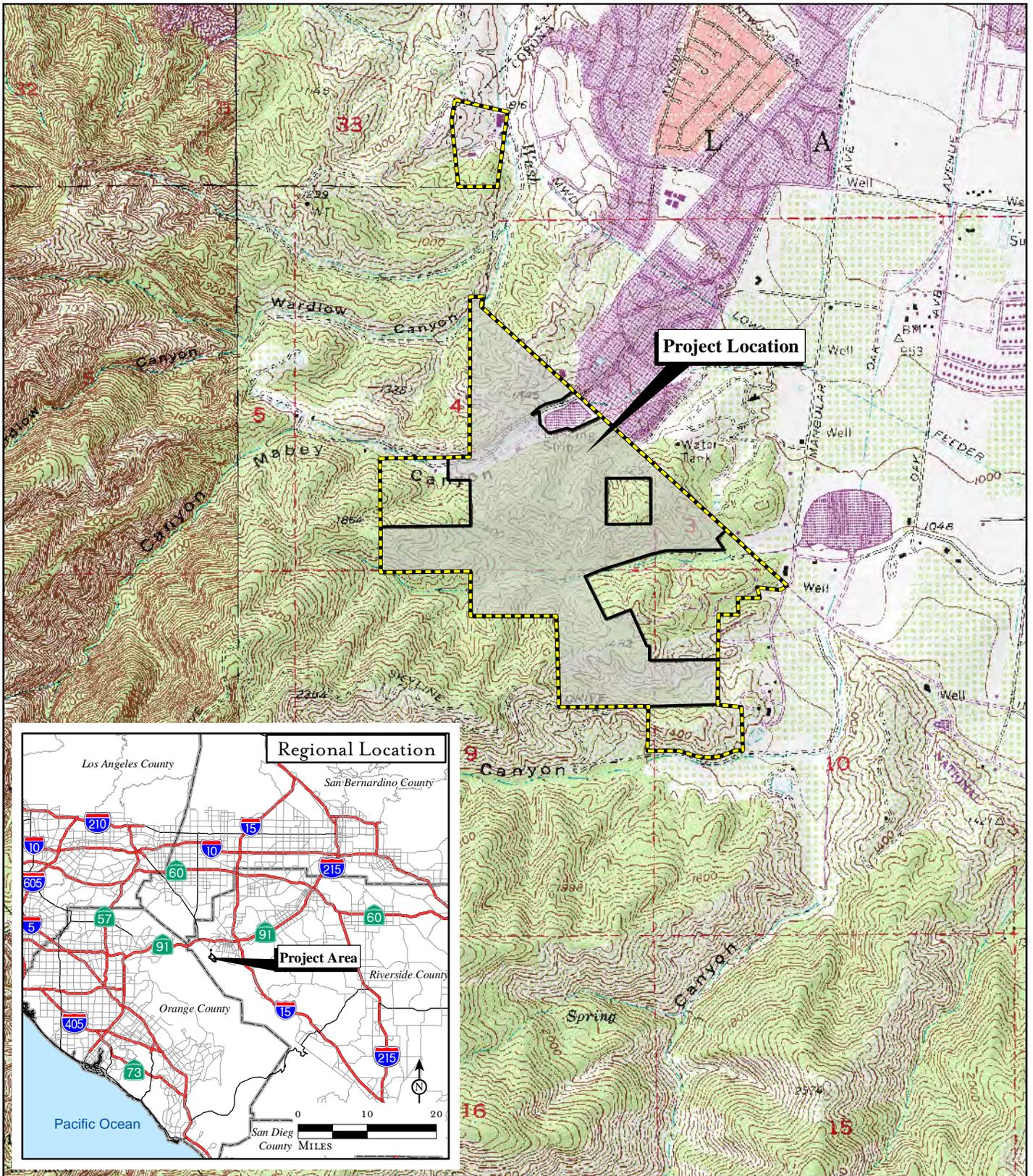
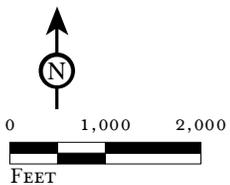


FIGURE 1

LSA



-  Study Area
-  Development Footprint

*Skyline Heights  
Supplemental Cultural  
Resources Assessment*

Regional and Project Location

SOURCE: USGS 7.5' Quads: Black Star Canyon and Corona South, 1988, CA; Riverside County, 2011.

I:\KWC1301\Reports\Cult\fig1\_reg\_loc.mxd (7/1/2013)

## NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Boulevard, Suite 100  
West Sacramento, CA 95691  
(916) 373-3715  
Fax (916) 373-5471  
Web Site [www.nahc.ca.gov/](http://www.nahc.ca.gov/)  
Ds\_nahc@pacbell.net



November 7, 2013

Mr. Riordan Goodwin, Archaeologist

**LSA ASSOCIATES, INC.**

1500 Iowa Avenue, Suite 200  
Riverside, CA 92507

Sent by FAX to: 851-781-4277  
No. of Pages: 3

RE: Request for Sacred Lands File Search and Native American Contacts list for the  
**"Skyline Heights Residential Project;"** located in the City of Corona; Riverside  
County, California

Dear Mr. Riordan:

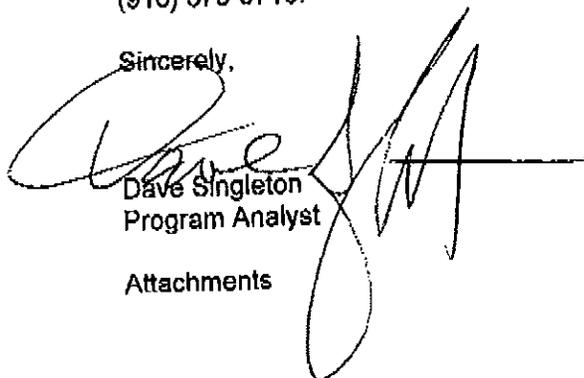
A record search of the NAHC Sacred Lands File **DID** indicate the presence of Native American traditional cultural places in the project site(s) submitted as defined by the USGS coordinates configuring the 'Area of Potential Effect' or APE. Other data sources for Native American sacred places/sites should also be contacted. A Native American tribe or individual may be the only sources of information about traditional cultural places or sites.

In the 1985 Appellate Court decision (170 Cal App 3<sup>rd</sup> 604), the Court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources impacted by proposed projects, including archaeological places of religious significance to Native Americans, and to Native American burial sites.

Attached is a list of Native American tribes, Native American individuals or organizations that may have knowledge of cultural resources in or near the project area (APE). As part of the consultation process the NAHC recommends that local government and project developers contact the tribal governments and individuals in order to determine the proposed action on any cultural places/sacred sites. If a response from those listed is not received in two weeks of notification, the NAHC requests that a follow-up telephone call be made to ensure the project information has been received

If you have any questions or need additional information, please contact me at  
(916) 373-3715.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dave Singleton', written over a horizontal line. The signature is stylized and cursive.

Dave Singleton  
Program Analyst

Attachments

**Native American Contacts  
Riverside County, California  
November 7, 2013**

Pechanga Band of Mission Indians  
Paul Macarro, Cultural Resources Manager  
P.O. Box 1477 Luiseno  
Temecula , CA 92593  
**(951) 770-8100**  
pmacarro@pechanga-nsn.  
gov  
**(951) 506-9491 Fax**

Ramona Band of Cahuilla Mission Indians  
Joseph Hamilton, Chairman  
P.O. Box 391670 Cahuilla  
Anza , CA 92539  
admin@ramonatribe.com  
**(951) 763-4105**  
**(951) 763-4325 Fax**

Santa Rosa Band of Mission Indians  
John Marcus, Chairman  
P.O. Box 391820 Cahuilla  
Anza , CA 92539  
**(951) 659-2700**  
**(951) 659-2228 Fax**

Juaneno Band of Mission Indians  
Alfred Cruz, Cultural Resources Coordinator  
P.O. Box 25628 Juaneno  
Santa Ana , CA 92799  
alfredgcruz@sbcglobal.net  
714-998-0721  
714-998-0721 - FAX  
714-321-1944 - cell

Pechanga Band of Mission Indians  
Mark Macarro, Chairperson  
P.O. Box 1477 Luiseno  
Temecula , CA 92593  
**(951) 770-6100**  
hlaibach@pechanga-nsn.  
gov  
**(951) 695-1778 FAX**

Cahuilla Band of Indians  
Luther Salgado, Chairperson  
PO Box 391760 Cahuilla  
Anza , CA 92539  
Chairman@cahuilla.net  
760-763-5549  
760-763-2631 - Tribal EPA

Pechanga Cultural Resources Department  
Anna Hoover, Cultural Analyst  
P.O. Box 2183 Luiseno  
Temecula , CA 92593  
ahoover@pechanga-nsn.gov  
951-770-8104  
**(951) 694-0446 - FAX**

**SOBOBA BAND OF LUISENO INDIANS**  
Joseph Ontiveros, Cultural Resource Department  
P.O. BOX 487 Luiseno  
San Jacinto , CA 92581  
jontiveros@soboba-nsn.gov  
**(951) 663-5279**  
**(951) 654-5544, ext 4137**

**This list is current only as of the date of this document.**

**Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.**

**This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Skyline Heights Residential Project; located in the City of Corona; Riverside County, California for which a Sacred Lands file search and Native American Contacts list were requested.**



COMMUNITY DEVELOPMENT DEPARTMENT  
*"Promoting and Sustaining Quality Development"*

(951) 736-2262  
(951) 279-3553 FAX

400 S. Vicentia Avenue Corona, California 92882  
[www.discovercorona.com](http://www.discovercorona.com)

VIA EMAIL

July 16, 2013

**Tribal Council for**

Cahuilla Band of Indians  
Juaneno Band of Mission Indians  
Pechanga Band of Mission Indians  
Ramona Band of Cahuilla Indians  
Santa Rosa Band of Mission Indians  
Soboba Band of Mission Indians  
Gabrieleno /Tongva San Gabriel band of Mission Indians  
Gabrieleno Tongva Nation

**RE: Invitation for Consultation Request in accordance with SB 18 Regarding Protection of California Native American Traditional Tribal Cultural Places**

Dear Tribal Representative,

The City of Corona extends to you herein an invitation to request consultation regarding a development proposal to be considered by the City. As defined in the above-referenced statute, development projects that affect existing or proposed areas of open space are subject to consultation requests by Native American tribes for the purpose of, among other things, the protection of places of cultural tribal significance. The City of Corona recognizes the importance of engaging in such a dialogue and welcomes the opportunity to consult with your respective tribal representatives to ensure proper consideration of any places of cultural significance within the City, or its Sphere of Influence.

It is the City's intention to establish a dialogue as early as possible in the process and to provide you with as much information as possible to facilitate your decision process for the necessity of consultation. Because of this, detailed information such as technical reports or grading concepts may not be initially available or warranted based on the type of project. If more information is required, the same can be made available with the progression of the project.

In accordance with Government Code §65352.3, the City of Corona is requesting that you review and comment on the proposed projects, known as Annexation 117, an application to annex into the City of Corona approximately 353 acres located generally south of the proposed westerly

extension of Foothill Parkway, east of Paseo Grande and west of Trudy Way in an unincorporated area of Riverside County in the city's sphere of influence GPA13-003, an application to amend the General Plan Designation of approximately 353 acres from RR I (Rural Residential I, 0.2-0.5 du/ac) to LDR (Low Density Residential 3-6 du/ac); CZ13-002, an application to pre-zone approximately 353 acres in conjunction with Annexation 117 from R-R (Rural Residential, five-acre minimum lots size, unincorporated Area of Riverside County) to R-1-7.2 (Single Family Residential, minimum lot size 7,200 square feet) and TTM 36544 an application to subdivide approximately 273 acres into 291 lots for single family residential purposes located in the proposed R-1-7.2 (Single Family Residential, minimum lot size 7,200 square feet) Zone and waiver from CMC Section 16.08.120 (B) to allow for a residential block to exceed 1,300 feet in length located generally south of the proposed westerly extension of Foothill Parkway, east of Paseo Grande and west of Trudy Way in an unincorporated area of Riverside County in the city's sphere of influence. See attached project location map Exhibit A.

Your primary point of contact at the City is the undersigned. If there are any questions or concerns, please do not hesitate to contact me. While I look forward to your contact within the next 90 days in accordance with state statutes, the City of Corona believes the scope of the project does not warrant additional consultation and/or mitigation and will be preparing a Negative Declaration as there are no impacts associated with the proposed amendment other than those already identified and mitigated in the aforementioned Environmental Impact Report. As such, we do respectfully request that you respond to this request at your earliest convenience.

Please contact me directly at (951) 736-2268 if you have any questions regarding this letter or of the project.



**Jason Moquin, Senior Planner**

Enc: Cultural Resources Analysis  
Paleontological Analysis

File: GPA13-003, CZ13-002, TTM 36544 and Annex 117

Receive

JUL 15 2013

Community Development Dept.



July 11, 2013

Attn: Jason Moquin, Senior Planner  
City of Corona, Community Development Department  
400 S. Vicente Ave,  
Corona, CA 92882

**Re: Amend the General Plan Designation of Approximately 353 acres from RRI to LDR  
Location south of the proposed westerly extension of Foothill Parkway, east of Paseo  
Grande and west of Trudy Way (GPA13-003; DPR 13-002)**

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. This project location is in close proximity to known village sites and is a shared use area that was used in ongoing trade between the Luiseno and Cahuilla tribes. Therefore it is regarded as highly sensitive to the people of Soboba. At this time the Soboba Band does not have immediate concerns with the General Plan Amendment itself, however the tribe requests that we be kept apprised about any future plans for any ground disturbing activities or development on the subject property.

Soboba Band of Luiseño Indians is requesting the following:

1. **Government to Government** consultation in accordance to SB18. Including the transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.
2. Soboba Band of Luiseño Indians continue to be a lead consulting tribal entity for this project.
3. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.
4. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

Sincerely,

Joseph Ontiveros  
Soboba Cultural Resource Department  
P.O. Box 487  
San Jacinto, CA 92581  
Phone (951) 654-5544 ext. 4137  
Cell (951) 663-5279  
[jontiveros@soboba-nsn.gov](mailto:jontiveros@soboba-nsn.gov)

**Cultural Items (Artifacts).** Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

### **Treatment and Disposition of Remains**

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact

**Coordination with County Coroner's Office.** The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

**Non-Disclosure of Location Reburials.** It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.



PECHANGA CULTURAL RESOURCES  
*Temecula Band of Luiseño Mission Indians*

Post Office, Box 2183 • Temecula, CA 92593  
Telephone (951) 308-9295 • Fax (951) 506-9491

September 5, 2013

Received

SEP - 9 2013

Community Development Dept.

**VIA E-MAIL and USPS**

Jason Moquin  
Senior Planner  
City of Corona Planning Division  
400 S. Vicentia Avenue  
Corona, CA 92882

**Re: Pechanga Tribe Request for Consultation Pursuant to SB 18 for General Plan Amendment 13-003 (GPA13-003) Associated with the Development of 273 Acres in the City of Corona, County of Riverside**

Dear Mr. Moquin:

This letter is written on behalf of the Pechanga Band of Luiseño Indians (hereinafter, "the Tribe"), a federally recognized Indian tribe and sovereign government in response to the Letter of Transmittal provided by the City of Corona dated June 4, 2013, which was received in our office June 7, 2013. Based upon this notice, the Project involved a General Plan Amendment which triggers tribal consultation through SB 18. The Tribe has not received an official SB 18 letter for this project to date; however in anticipation of a SB 18 request, we are submitting this letter to serve as the Tribe's formal request for consultation under SB18 for this Project. The Tribe hereby invokes its right to consult with City under SB 18 and after reviewing the information requested below, we may request additional consultation, which may include a face-to-face meeting.

Further, the Tribe formally requests, pursuant to Public Resources Code §21092.2, to be notified and involved in the entire CEQA environmental review process for the duration of the above referenced project (the "Project"). Please add the Tribe to your distribution list(s) for public notices and circulation of all documents, including environmental review documents, archeological reports, and all documents pertaining to this Project. The Tribe further requests to be directly notified of all public hearings and scheduled approvals concerning this Project. Please also incorporate these comments into the record of approval for this Project.

The Pechanga Tribe asserts that the Project area is part of Luiseño, and therefore the Tribe's, aboriginal territory as evidenced by the existence of Luiseño place names, *tóota yixélvá* (rock art, pictographs, petroglyphs), a blue-line stream and an extensive Luiseño artifact record in the vicinity of the Project. As such, this culturally sensitive area is affiliated with the Pechanga

Chairperson:  
Mary Bear Magee

Vice Chairperson:  
Darlene Miranda

Committee Members:  
Evie Gerber  
Bridgett Barcello Maxwell  
Richard B. Scarce, III  
Germaine Arenas

Director:  
Gary DuBois

Coordinator:  
Paul Macarro

Cultural Analyst:  
Anna Hoover

Band of Luiseño Indians because of our knowledge of this area and our long working relationship with the City of Corona. During our consultation we will provide more specific, confidential information on the resources located on and near this Project.

The Tribe received the supplemental cultural resources assessment dated May 10, 2013; however, the original assessment was not attached to the report. In addition, tribal consultation should be updated in the form of a sacred lands check with the Native American Heritage Commission (NAHC) and consultation with interested Native American tribes. Additionally, we have not received a request for our tribal knowledge or information for this area from the Project consultant, to date.

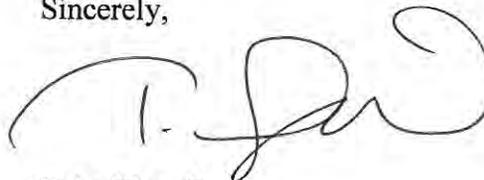
The Tribe would like to receive all available copies of the geotechnical report, the Initial Study and any current development plans for this Project as soon as possible so that we may review them prior to our SB18 meeting.

As you know, the SB 18 consultation process is ongoing and continues for the duration of the Project. As such, under both CEQA and SB 18 we look forward to working closely with City on ensuring that a full, comprehensive environmental review of the Project's impacts are completed. Further, we hope to assist the City with ensuring that the Project is designed to avoid impacts to cultural resources, as mandated by CEQA, in addition to developing mitigation measures addressing the culturally appropriate and respectful treatment of human remains, cultural resources and inadvertent discoveries.

In addition to those rights granted to the Tribe under SB 18, the Tribe reserves the right to fully participate in the environmental review process, as well as to provide further comment on the Project's impacts to cultural resources and potential mitigation for such impacts.

The Pechanga Tribe looks forward to working together with the City of Corona in protecting the invaluable Pechanga cultural resources found in the Project area. Please contact me at 951-770-8113 or at [eozdil@pechanga-nsn.gov](mailto:eozdil@pechanga-nsn.gov) once you have had a chance to review these comments so that we might schedule our consultation meeting. Thank you.

Sincerely,



Tuba Ebru Ozdil  
Planning Specialist

cc: Pechanga Office of the General Counsel



LSA ASSOCIATES, INC.  
1500 IOWA AVENUE, SUITE 200  
RIVERSIDE, CALIFORNIA 92507

951.781.9310 TEL  
951.781.4277 FAX

OTHER OFFICES: FORT COLLINS  
IRVINE BERKELEY  
PT. RICHMOND ROCKLIN  
SAN LUIS OBISPO CARLSBAD  
PALM SPRINGS FRESNO

April 22, 2014

Mr. Mike Byer  
Richland Developers, Inc.  
3161 Michelson Drive, Suite 425  
Irvine, California 92612

Subject: Supplementary Paleontological Research for Expanded Study Area of the Skyline Heights Project (TTM 36544) in the City of Corona, Riverside County (LSA Project No. KWC1301)

Dear Mr. Byer:

LSA Associates (LSA) has completed a supplementary study to the previous paleontological resources assessment (Reynolds and others, 2006) of the Skyline Heights project (formerly Corona Annexation), and responded to comments from the City of Corona (City) on the draft Paleontological Resource Assessment Update (Reynolds 2013) .

At the City's request, additional parcels outside the project development footprint designated for annexation were added to the project study area (Assessor's Parcel Numbers [APNs] 102-320-009, 102-320-010, 102-320-014, 275-080-009, 275-090-007 and 275-090-011 [the last parcel is a segment of Skyline Drive right-of way]) in June 2013 and April 2014. In order to accommodate this expanded study area, supplementary paleontological research was required to maintain compliance with the California Environmental Quality Act (CEQA; as amended January 1, 2013). Two other parcels within the project study area but outside the project development footprint (APNs 275-040-004 and -005) have been removed from annexation.

The Skyline Heights Project (Tentative Tract Map [TTM] 36544) consists of 270.9 acres in the City of Corona in western Riverside County, California, adjacent to Foothill Parkway. The project area includes the area to be acquired by the Riverside County Transportation Commission (RCTC)/City of Corona for the construction of the future Foothill Parkway westerly extension and Mabey Canyon Debris Basin. The site is located approximately 3 miles south of the junction of State Route 71 and State Route 91 and approximately 4 miles west of Interstate 15.

Specifically, the project is located in Sections 3, 4, 9, and 10; Township 4 South; Range 7 West as shown on the United States Geological Survey (USGS) *Corona South, California* (1988) 7.5-minute topographic quadrangle map. Attached Figure 1 shows the Skyline Heights project development footprint, the parcels added to the study area, and the geologic formations that underlie the project and the additional parcels (Morton, 2004).

## METHODS

### Literature and Records Search

Both a records search and literature search were conducted for the parcels added to the study area, since they were not included in the 2006 paleontological resources assessment.

The literature search for was conducted using available references in the LSA library and in LSA paleontologist Bob Reynolds' personal library. The purpose of the literature search was to determine if sedimentary formations containing fossils had been recognized by geologic mapping of the project area.

The records search was requested from Dr. Samuel McLeod at the Natural History Museum of Los Angeles County (NHMLAC). This paleontological resources records search was requested to determine if there are known paleontological resource localities on or near the new parcels within the recognized sedimentary formations.

## RESULTS

### Records and Literature Search

The records search from the LACMNH is attached. Both the records and literature search noted that the proposed additional parcels contain the following sedimentary formations reported as containing fossils (Gray, 1961; Morton, 2004) as shown in Table A.

**Table A: Sedimentary Formations in the Proposed Additional Parcels**

<b>Proposed Addition</b>	<b>Fossiliferous Formation</b>	<b>Potentially Fossiliferous</b>	<b>Non-Fossiliferous Pleistocene &amp; Holocene Sediments</b>
Northern	<b>Kwl</b> Williams & Ladd Formations	—	Qyaa Qvofg
Southern	<b>Tsi</b> Silverado Formation	<b>Klbc</b> Baker Canyon Member of Ladd Formation	Qyfg

## DISCUSSION

The Cretaceous and Paleocene formations are described as follows:

- Cretaceous Williams and Ladd Formations (Kwl; Morton, 2004): undifferentiated; fossiliferous.
- Cretaceous Ladd Formations (Kwl; Morton, 2004): fossil dinosaur, sharks, and mollusks.
- Cretaceous Baker Canyon Member of the Ladd Formation (Klbc; Morton, 2004): rare fossil mollusks.
- Paleocene Silverado (Tsi; Morton, 2004): thirteen or more species of fossil gastropods and pelecypods, marine turtle.

These sedimentary formations are described as fossiliferous (Gray, 1961; Morton, 2004). The Baker Canyon Member of the Ladd Formation is conglomeratic, and normally, conglomerates are not ideal for preservation of fossils. As noted in the LACMNH records search (attached), "Any fossil vertebrate remains from those [Cretaceous] rock units have the potential of being very significant."

Pleistocene and Holocene sediments on the parcels include older coarse-grained fluvial wash (Qvofg; Morton, 2004) and young channel deposits (Qyfg, Qyaa; Morton, 2004). These late Pleistocene and Holocene deposits are generally considered too coarse or too young to contain significant vertebrate fossils in a meaningful stratigraphic context.

LSA recommends that in the event of planned development of the parcels designated for annexation in the expanded study area (APNs 102-320-009, 102-320-010, 102-320-014, 275-080-009, 275-090-007 and 275-090-011), a Paleontological Resources Impact Mitigation Program (PRIMP) be implemented. Additional focused surveys and fieldwork will also be required should development be pursued in these areas.

The PRIMP is consistent with guidelines of the Riverside County Planning Department and recommendations of the Society of Vertebrate Paleontology. The PRIMP should include a pre-construction survey, excavation monitoring and fossil salvage, specimen preparation, identification, curation into a museum repository, and a report of findings. The mitigation program (i.e., the PRIMP) from the 2013 Paleontological Resource Assessment Update for Skyline Heights Project development footprint (270.9 acres) follows:

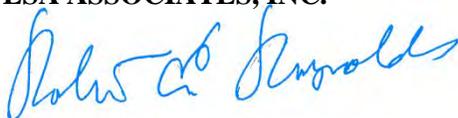
The project proponent must retain a qualified vertebrate paleontologist to develop a Paleontological Resource Impact Mitigation Program (PRIMP). The PRIMP must include a pre-construction field assessment, and project specific measures to reduce impacts to the fossils to a level less than significant. The program must include, but not be limited to:

- A. A pre-construction field assessment to locate fossils at surface exposures. Salvage of fossils from known localities, including processing standard samples of matrix for the recovery of small vertebrate fossils, and trackway replication.
- B. Monitoring of excavation by a qualified vertebrate paleontologic monitor to recover paleontological resources. The monitor must be prepared to rapidly remove fossils uncovered by excavation. The monitor must be empowered to temporarily divert equipment if fossils are located. If the parcel has more than one spread of equipment conducting excavation at more than one workstation, additional monitors will be added to comply with agency conditions for adequacy of monitoring. If resources are located, monitoring hours will be increased as needed.
- C. Preparation of recovered specimens to a point of identification, including sediment washing to recover small fossil vertebrates. Removal of surplus sediment from around the specimens reduces the volume of storage for the repository and the storage cost for the developer.
- D. Identification and curation of specimens into a museum repository with retrievable storage.
- E. Preparation of a report of findings with an appended, itemized inventory of specimens. The report and inventory, when submitted to the lead agency, signifies the completion of the program to mitigate impacts to paleontological resources.

If you have any questions regarding this supplementary paleontological research or recommendations for the parcels in the expanded study area, please do not hesitate to contact me (rreynolds220@verizon.net).

Sincerely,

**LSA ASSOCIATES, INC.**



Robert E. Reynolds  
Senior Paleontologist

Attachments:

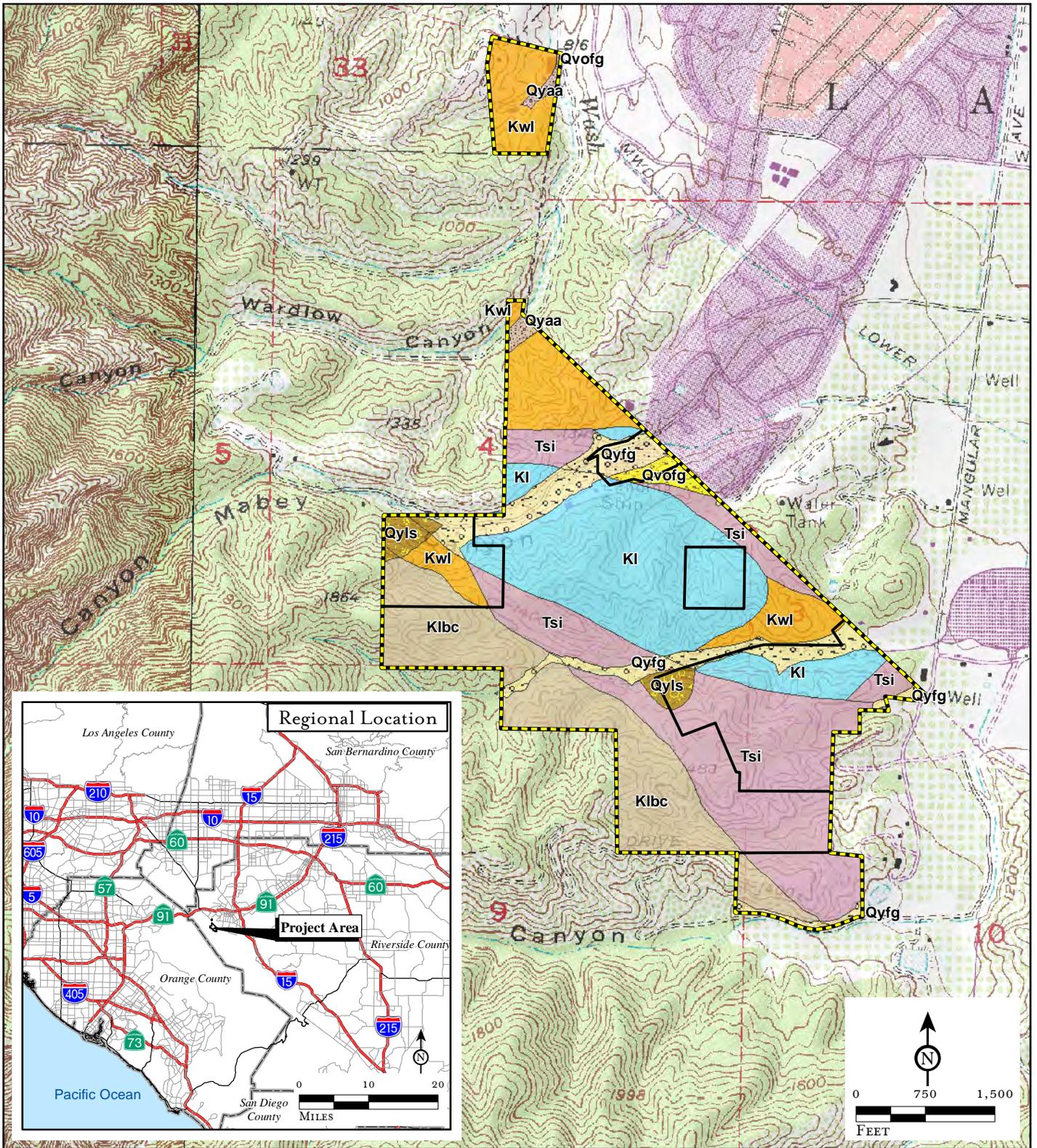
References

Figure 1: Geologic Map showing Skyline Heights project development footprint and expanded study area (including APNs 102-320-009, 102-320-010, 102-320-014, 275-080-009, 275-090-007 and 275-090-011)

Paleontological Records Search Received from LACMNH

## REFERENCES

- Gray, C.H., 1961. Geology of the Corona South Quadrangle and the Santa Ana Narrows Area, Riverside, Orange, and San Bernardino Counties, California. Calif. Div. Mines Bull 178, p. 120.
- Gray, C.H. Jr., D.M. Morton, and W.F. Weber, 2002. Geologic Map of the *Corona South, California* 7.5' Quadrangle, Riverside County, California. USGS OFR 02-21 Scale: 1:24,000.
- Morton, D.M., 2004. Geologic Map of the *Santa Ana* 30' × 60' Quadrangle, Southern California. USGS OFR 99-172, V.2-2004. Scale: 1:100,000.
- Reynolds, R.E., 2013. Paleontological Resource Assessment Update, Skyline Heights Project, City of Corona, Riverside County, California; LSA Project No. KWC1301. p. 6–7.
- Reynolds, R.E., D.R. Berry, T.J. Tuttle, 2006. Paleontological Resource Assessment, Corona Annexation, City of Corona, Riverside County, California; LSA Project No.SIR0601.
- United States Geological Survey (USGS) *Corona South, California* (1988) 7.5-minute topographic quadrangle map.



# LSA

- Study Area
- Development Footprint

## Geologic Formations

- Qyls: Young landslide deposits
- Qyfg: Young alluvial fan deposits, gravel
- Qyaa: Young axial channel deposits, arenaceous
- Qvofg: Very old alluvial fan deposits, gravel
- Tsi: Silverado Formation
- Kl: Ladd Formation
- Klbc: Ladd Formation, Baker Canyon Conglomerate Member
- Kwl: Williams and Ladd Formations, undifferentiated

SOURCE: USGS 7.5' Quads: Black Star Canyon and Corona South, 1988, CA; Riverside County, 2011; Santa Ana 30x60 Geologic Map, 2006.

I:\KWC1301\Reports\Paleo\fig1\_reg\_loc\_geol.mxd (4/18/2014)

FIGURE 1

*Skyline Heights  
Supplemental  
Paleontological  
Resources Assessment*

Regional and Project  
Location and Geologic Map



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1500 IOWA AVENUE, SUITE 200  
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OTHER OFFICES: FORT COLLINS  
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May 9, 2013

Mr. Mike Byer, Director of Land Acquisition  
Richland Developers, Inc.  
3161 Michelson Drive, Suite 425  
Irvine, California 92612

Subject: Update to the Paleontology Report for the Skyline Heights Project, in the City of Corona, Riverside County, California (LSA Project No. KWC1301)

Dear Mr. Byer:

LSA Associates, Inc. (LSA) conducted a paleontological resources assessment of the Skyline Heights (formerly Corona Annex parcel) parcel in 2006. At the request of the City of Corona and Richland Developers, LSA has conducted a review of the 2006 paleontological assessment report.

As stated in the 2006 assessment report, the fossiliferous Upper Cretaceous Ladd Canyon Formation and the Upper Cretaceous Williams Formation occur on the project. In addition, the fossiliferous Paleocene Silverado Formation occurs within the project boundaries. These three formations are known to contain and have potential to produce additional, significant, nonrenewable paleontological resources.

Consequently, LSA recommends that a paleontological resource impact mitigation program (PRIMP) accompany construction excavation for the project. The PRIMP is consistent with guidelines of the Riverside County Planning Department and recommendations of the Society of Vertebrate Paleontology. The PRIMP should include a pre-construction survey, excavation monitoring and fossil salvage, specimen preparation, identification, curation into a museum repository, and a report of findings.

Thank you for contacting LSA about this interesting project. Please let us know if you have any questions.

Sincerely,

**LSA ASSOCIATES, INC.**

Robert E. Reynolds  
Senior Paleontologist

**PALEONTOLOGICAL RESOURCES ASSESSMENT  
UPDATE**

**SKYLINE HEIGHTS PROJECT  
CITY OF CORONA  
RIVERSIDE COUNTY, CALIFORNIA**

**LSA**

May 2013

**PALEONTOLOGICAL RESOURCES ASSESSMENT  
UPDATE**

**SKYLINE HEIGHTS PROJECT  
CITY OF CORONA  
RIVERSIDE COUNTY, CALIFORNIA**

Prepared for:

Mr. Mike Byer  
Richland Developers, Inc.  
3161 Michelson Drive, Suite 425  
Irvine, California 92612

Prepared by:

Bob Reynolds  
LSA Associates, Inc.  
1500 Iowa Avenue, Suite 200  
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LSA Project No. KWC1301

**LSA**

May 2013

## MANAGEMENT SUMMARY

LSA Associates, Inc. (LSA) was retained by Richland Developers, Inc. (Richland) to conduct an update of the paleontological resources assessment completed by LSA for the Skyline Heights project in the City of Corona, Riverside County, California. The field assessment was completed pursuant to the California Environmental Quality Act (CEQA). Paleontological resources described and located within the project area were to be recorded and evaluated for importance per CEQA.

The paleontological resources literature review conducted in 2006 indicated that six fossil localities had been previously recorded from Cretaceous sediments within the project. Additionally, the Cretaceous Ladd and Williams Formations on the project have produced fossils of dinosaurs and marine reptiles at eight other localities in the Santa Ana Mountains. Two additional fossil localities have been recorded from the Paleocene Silverado Formation within the project. The Silverado Formation produces the oldest Cenozoic record of plants in California.

The paleontological resources assessment and review of recent United States Geological Survey (USGS) mapping verified the presence of the two Cretaceous formations and the Paleocene formation within the project boundaries. Despite dense vegetation, two fossil localities were located on the project in 2006, one of which had been previously reported in California Division of Mines and Geology (CDMG) reports.

The paleontological resources assessment for the Skyline Heights project found that the Upper Cretaceous Ladd Canyon Formation and the Upper Cretaceous Williams Formation are fossiliferous and occur on the project. In addition, the fossiliferous Paleocene Silverado Formation occurs within the project boundaries. These three formations have potential to contain significant, nonrenewable paleontological resources. Consequently, LSA recommends that a paleontological resource impact mitigation program (PRIMP) accompany construction excavation for the project. Construction for the project will probably include development of housing pads, access roads, sewers, drains, culverts, and water crossings. The PRIMP is consistent with guidelines of the Riverside County Planning Department and recommendations of the Society of Vertebrate Paleontology (1995, 1996). The PRIMP should include a pre-construction survey, excavation monitoring and fossil salvage, specimen preparation, identification, curation into a museum repository, and a report of findings.

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## APPENDIX

A: Paleontological Resource Locality Records

## FIGURE

1: Regional and Project Location.....	2
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## **INTRODUCTION**

LSA was retained by Richland Developers, Inc. (Richland) to conduct a paleontological resources study of proposed development of the Skyline Heights Project that encompasses approximately 288 acres of private holdings within Cleveland National Forest boundaries. The project as proposed will annex the private holdings into the City of Corona (Figure 1).

## **PROJECT LOCATION AND DESCRIPTION**

The Skyline Heights Project is on the southwestern margin of the City of Corona in northwestern Riverside County. Specifically, the project is located in the southwestern quarter of Section 3, southeastern quarter of Section 4, northeast quarter of Section 9, and the northwest quarter of Section 10, Township 4 South, Range 7 West, San Bernardino Baseline and Meridian, as shown on the *Corona South, California 7.5-minute topographic quadrangle* (USGS, 1988). The surface of the project is generally in a natural state with native vegetation occurring in canyons and on some ridge tops. There has been some disturbance of the area by agricultural and earthmoving activities. The project is residential construction on a 270-acre portion of the project (TTM 34471) including Assessor's Parcel Numbers (APNs) 275-030-006, 275-040-011, 275-040-012, 275-040-015, 275-050-004, 275-070-003, and 275-080-010.

## **NATURAL SETTING**

### **Biology**

The Skyline Heights Project falls into the lower portion of the Upper Sonoran Life Zone of California (Jaeger and Smith, 1971) ranging from sea level to approximately 4,500 feet above mean sea level (AMSL). This area is considered a cismontane valley and is covered by clumps of scrub oak, with intervening coastal sage scrub and mixed chaparral. Native and introduced grasses occur on terraces and surfaces disked for agriculture. Animals native to the region include coyotes, foxes, cottontail and jack rabbits, skunks, rodents, reptiles, crows, scrub jays, mockingbirds, doves, roadrunners, raptors, and other bird species.

### **Geology**

The Skyline Heights project is crossed by the Elsinore Fault and lies south of the Chino Fault (the northern branch of the Elsinore Fault) (Gray, 1961; Rogers, 1966; Morton, 2004). The Elsinore Fault bounds the northeast side of the Santa Ana Mountains, while the Chino Fault trends northwest and bounds the east side of the Chino (Puente) Hills. In the vicinity of the project, the Elsinore Fault separates the Jurassic Santiago Peak Volcanics and underlying Jurassic Bedford Canyon Formation on the southwest from an upper Cretaceous through lower Tertiary sequence of sedimentary rocks that crop out southwest of the Chino Fault. The upper Cretaceous sequence includes the Baker Canyon Formation, Ladd Formation, and Williams Formation, while the lower Tertiary (Paleocene) includes the Silverado Formation (Gray, 1961; Morton, 2004). Pleistocene terrace deposits are located on the larger flattened ridge tops within the project (Gray, 1961; Morton, 2004).

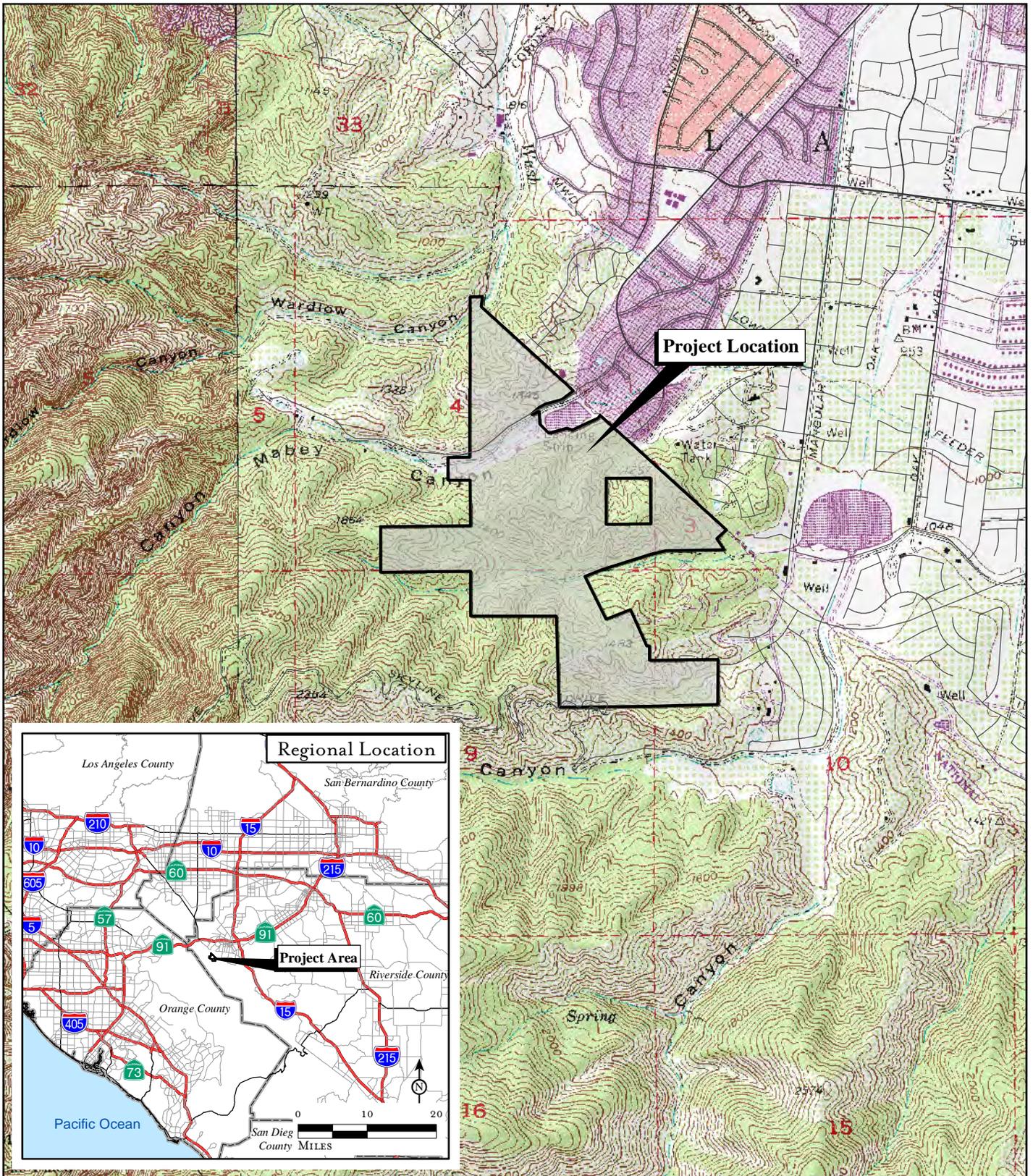
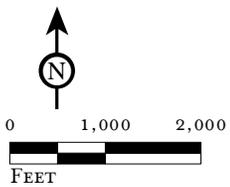


FIGURE 1

LSA



Project Location

*Skyline Heights  
Paleontological Resources  
Assessment Update*

Regional and Project Location

SOURCE: USGS 7.5' Quads: Black Star Canyon and Corona South, 1988, CA; Riverside County, 2011.

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## **Paleontology**

The age of the Jurassic Bedford Canyon Formation is based on abundant marine fossil ammonites, pelecypods, and brachiopods. The Cretaceous age of the marine formations is also based on the ammonites, gastropods, and pelecypods that they contain. All the Mesozoic formations have produced dinosaur and reptile fossils (Deméré, 1985; Hilton, 2003).

The Paleocene age of the Silverado Formation is based on oysters, pelecypods, and gastropods that it contains. The earliest record of fossil Cenozoic plants comes from the coal beds in the Corona and Alberhill area of the Elsinore Trough (Engel, 1959; Reynolds, 2004).

## **Hydrology**

The Skyline Heights Project sits at an elevation of 1,200 feet to 1,500 feet AMSL. The parcel is cut on the north by Mabey Canyon and on the south by Tin Mine Canyon, which flow northeasterly across the Elsinore and Chino Faults into the Santa Ana River. Winter storms are intermittent and precipitation is variable. Current rainfall ranges from 5–15 inches annually (Jaeger and Smith, 1971).

## **PURPOSE OF INVESTIGATION**

The paleontological resources assessment and report was completed pursuant to the California Environmental Quality Act (CEQA), Public Resources Code (PRC) Division 13, Chapter 2.6, Sections 21083.2 and 21084.1, and California Code of Regulations (CCR) Title 14, Chapter 3, Article 5, Section 15064.5. All paleontological resources within the project area that are greater than 9,000 years of age were recorded and evaluated per CEQA.

## **PERSONNEL**

The field assessment was conducted by Dr. David Berry, Tina Tuttle, Jeff Vadala, and Jodi Dalton. Robert E. Reynolds, LSA Paleontologist and Senior Cultural Resource Manager, conducted the review of available literature and wrote the paleontological resources assessment report.

## **METHODS**

### **Literature Review**

The literature review for paleontological resources records conducted in 2006 used references available in local libraries and the LSA Riverside office library.

### **Field Assessment**

The intensive foot survey of the project for paleontological resources was conducted on May 2, 4, 11, and 17, 2006. The survey was conducted by walking parallel transects spaced approximately 20 meters apart in areas where vegetation and topography permitted. The rough topography and dense

undergrowth prohibited visits to all exposures on the project. Soil profiles, rock fall debris, and outcrop exposures were examined for paleontological remains.

## RESULTS

### Literature Review

Sedimentary rocks in the Santa Ana Mountains are related to oil-bearing strata in the Los Angeles Basin and, as such, have been of special interest to geologists. Early paleontological and structural studies in the area (Whitney, 1865; Hanks, 1884; Goodyear, 1888; Cooper, 1894; Eldridge and Arnold, 1907; and Smith, 1916) have been followed by relatively recent updates (Durham and Yerkes, 1964; Gaede, 1969; Gray, 1961; Krueger, 1936, 1943; Schoellhamer and others, 1954, 1981; and Woodford and others, 1944, 1946, 1954) that have been more regionally specific, correlating and clarifying earlier studies and adding to the body of data by detailed mapping and limited faunal studies. The project area is covered by geologic mapping recorded on the *Corona South* quadrangle (Gray, 1961), eastern Puente Hills (Durham and Yerkes, 1964), and on the Santa Ana Sheet (Rogers, 1966; Morton, 2004).

The Santa Ana Mountains contain sediments that were deposited through the middle Mesozoic and lower Cenozoic time. The following list of formations is presented in order of deposition, the oldest first, putting the depositional history on the Skyline Heights project into stratigraphic perspective.

- **Mesozoic Era**

- **Jurassic Period.** Bedford Canyon Formation (**Jbm**: Gray, 1961; Gray and others, 2002). Limestone containing ammonites and rhynchonellid brachiopods (Gray, 1961).
- **Cretaceous Period.**
  - Cretaceous Volcanics (**Kvem, Kvsp**: Gray and others, 2002). Santiago Peak Volcanics are basaltic andesite, andesite dacite, and rhyolite.
  - Cretaceous Plutonic Complex (**Kcg, Kgu, Khg, Ktgb**: Gray and others, 2002). Granitic and gabbroic rocks making up plutons of multiple compositions.
  - Ladd Canyon Formation (**Kl**: Gray and others, 2002).
  - Holz Shale Member (**Klhs**). Shale and sandstone with locally abundant molluscan megafossils.
  - Baker Canyon Conglomerate Member (**Klbc**). Conglomerate and pebble sandstones, the latter containing locally abundant mollusks indicating deposition in shallow water.
  - Williams Formation (**Kw**: Gray and others, 2002). Conglomerates overlying the Ladd Formation.

- **Cenozoic Era**

- **Tertiary Period.** Silverado Formation (**Tsi**: Gray and others, 2002). These earliest Tertiary (Paleocene) rocks are interfingering marine and continental sandstones, silts, conglomerates, and clays. Non-marine sediments contain clay beds with lignite seams and fresh- and brackish-water fossil invertebrates and plants; overlying marine sediments have yielded

- marine invertebrates (Dickerson, 1914; Woodring and Popenoe, 1945; Engel, 1959; Savage and Downs, 1954; Gray, 1961; Gapanoff, 1981; Warter, 1984; Reynolds, 1984, 2004).
- **Quaternary Period.** Quaternary Older and Younger Alluvium (**Qvo & Qo**: Gray and others, 2002). Pleistocene older and younger alluvial deposits border the northern Santa Ana Mountains and represent fan and terrace deposits that generally drain into the Santa Ana River (Gray, 1961; Durham and Yerkes, 1964; Schoellhamer and others, 1981).

**Locality References.** Upper Cretaceous localities are reported from within the project area (Gray, 1961). These marine formations contain six localities (Localities 3, 4, 6, 11, 12, and 13; Gray, 1961) that have produced ammonites, gastropods, and pelecypods. It is highly likely that the marine mechanism that concentrated these shell beds also collected remains of vertebrate fossils.

The lower Paleocene Silverado Formation within the project contains two known localities (Localities 7 and 10; Gray, 1961) with oysters, pelecypods, and gastropods. It is likely that vertebrate fossils occur in shell bed concentrations. The ten clay and lignite mines and prospects recorded among Wardlow, Mabey, and Tin Mine Canyons (Gray, 1961) have good potential for fossil plants (Engel, 1959; Reynolds, 2004).

Dinosaurs and Mesozoic reptiles are reported from Jurassic and Cretaceous formations of the Santa Ana Mountains (Deméré, 1985; Hilton, 2003). The review of available literature located the following records (Hilton, 2003):

- **Locality B1.** A string of nine vertebrae from an elasmosaurid plesiosaur is known from the Jurassic Bedford Canyon Formation of the Santa Ana Mountains. This is the oldest marine reptile from the Peninsular Range Province and also the only Jurassic specimen from the Santa Ana Mountains.
- **Locality L1.** A hadrosaur maxilla with dentition associated with plesiosaur vertebrae is known from the Cretaceous Ladd Formation of the Santa Ana Mountains.
- **Locality L2.** A hadrosaur vertebra is known from the Cretaceous Ladd Formation of the Santa Ana Mountains.
- **Locality L3.** A hadrosaur tibia is known from the Cretaceous Ladd Formation of the Santa Ana Mountains.
- **Locality L4.** The Cretaceous Ladd Formation of the Santa Ana Mountains has produced hadrosaur foot and lower limb elements as well as vertebra.
- **Locality L5.** The turtle (*Basilemys*) is known from the Cretaceous Ladd Formation of the Santa Ana Mountains.
- **Locality L6.** The Cretaceous Ladd Formation has produced additional turtle remains from another locality in the Santa Ana Mountains.
- **Locality W1.** A dinosaur limb is known from the upper Cretaceous Williams Formation of the Santa Ana Mountains.

## Field Assessment

The 2006 field assessment of the project area identified two fossil localities. These localities are outcrop exposures with abundant invertebrate remains (shells of gastropods and pelecypods). It is highly likely that the currents that concentrated these shell beds also collected and concentrated the remains of vertebrate fossils.

- **SIR0601-LSA 06-5-03-1: Mabey Canyon.** Cretaceous Ladd Formation has dense gray siliceous limestone bed with abundant mollusks, coral, bryozoa, and microfossils.
- **SIR0601-LSA 06-5-05-1: Chase Drive Extension (Rattlesnake Hill).** Baker Canyon member of the Cretaceous Ladd Formation has a dense, blue, fine silty sandstone bed that weathers tan and contains abundant mollusks, including the gastropod *Actaeonella oviformis* and the pelecypods *Arca* sp. and *Crassitella* sp. This is very close to Locality 6 (Gray, 1961), which produced four other genera of gastropods and pelecypods. It is highly likely that the currents that concentrated these shells also concentrated the remains of vertebrate fossils.

Pleistocene sediments consist of coarse, deeply-weathered fanglomerate that appears too coarse to contain fossil remains (Reynolds and Reynolds, 1991).

## Paleontological Resources

The 2006 literature review indicated that the Cretaceous formations on the project have potential to contain significant, nonrenewable paleontological resources including fish, sharks, marine reptiles, and dinosaurs. Likewise, the Paleocene sediments on the project have potential to contain vertebrate fossils and rare fossil plants. The field survey confirmed the presence of the fossiliferous Cretaceous and Paleocene formations on the project and located two fossil localities.

## RECOMMENDATIONS

The paleontological resources assessment for the Skyline Heights Project found that the fossiliferous Upper Cretaceous Ladd Canyon Formation and Upper Cretaceous Williams Formation occur on the project. In addition, the fossiliferous Paleocene Silverado Formation occurs within the project boundaries. These three formations have potential to contain significant, nonrenewable paleontological resources. Consequently, LSA recommends that a paleontological resource impact mitigation program (PRIMP) accompany construction excavation for the project. Construction for the project will probably include development of housing pads, access roads, sewers, drains, culverts and water crossings. This program is consistent with guidelines of the Riverside County Planning Department and recommendations of the Society of Vertebrate Paleontology (1995, 1996).

The project proponent must retain a qualified vertebrate paleontologist to develop a PRIMP. The PRIMP must include a pre-construction field assessment and project-specific measures to reduce impacts to the fossils to a level less than significant. The program must include, but not be limited to the following:

- A. A pre-construction field assessment to locate fossils at surface exposures. Salvage of fossils from known localities, including processing standard samples of matrix for the recovery of small vertebrate fossils, and trackway replication.
- B. Monitoring of excavation by a qualified vertebrate paleontologic monitor to recover paleontological resources. The monitor must be prepared to rapidly remove fossils uncovered by excavation. The monitor must be empowered to temporarily divert equipment if fossils are located. If the parcel has more than one spread of equipment conducting excavation at more than one workstation, additional monitors will be added to comply with agency conditions for adequacy of monitoring. If resources are located, monitoring hours will be increased as needed.
- C. Preparation of recovered specimens to a point of identification, including sediment washing to recover small fossil vertebrates. Removal of surplus sediment from around the specimens reduces the volume of storage for the repository and the storage cost for the developer.
- D. Identification and curation of specimens into a museum repository with retrievable storage.
- E. Preparation of a report of findings with an appended, itemized inventory of specimens. The report and inventory, when submitted to the lead agency, signifies the completion of the program to mitigate impacts to paleontological resources.

## REFERENCES CITED

- Cooper, J.G., 1894. Bulletin 4(4), California State Mining Bureau: 34-35 et seq.
- Deméré, T.A., 1985. Dinosaurs of California. *Environment Southwest* (San Diego Natural History Museum), no. 509:15-17.
- Dickerson, R.E., 1914. The Martinez and Tejon Eocene and associated formations of the Santa Ana Mountains. University of California Publications, Bulletin Department of Geological Sciences 8(11): 257-274.
- Durham, D.L. and R.F. Yerkes, 1964. Geology and oil resources of the eastern Puente Hills area, southern California. U.S. Geological Survey Professional Paper 420-B: 62 p.
- Eldridge, G.H., and R. Arnold, 1907. The Santa Clara Valley, Puente Hills, and Los Angeles Oil Districts, southern California. U.S. Geological Survey Bulletin 309:102-137.
- Engel, R., 1959. Geology of the Lake Elsinore quadrangle, California. California Division of Mines Bulletin 146:9-58.
- Gaede, V.F., 1969. Prado-Corona oil field, in California Oil Fields—summary of operations 55:23-29.
- Gapanoff, S.L., 1981. Palynology of the Silverado Formation, Riverside and Orange Counties, California. M.A. thesis, California State University, Long Beach.
- Goodyear, W.A., 1888. Los Angeles County, 8<sup>th</sup> Annual Report of the State Mineralogist. California State Mining Bureau: 337-338.
- Gray, C.H., Jr., 1961. Geology of the Corona South quadrangle, and the Santa Ana Narrows area, Riverside, Orange, and San Bernardino counties, California. California Division of Mines Bulletin 178: 119 p.
- Gray, C.H., Jr., D.M. Morton, and W.F. Weber, 2002. Geologic Map of the Corona South 7.5 Quadrangle, Riverside County, California. USGS OFR 02-21 Scale: 1:24,000.
- Hanks, H.G., 1884. The minerals of California. California Mining Bureau Report 4:120-122.
- Hilton, R.P., 2003. Dinosaurs and other Mesozoic reptiles of California. University of California Press, Berkeley. p. 318.
- Jaeger, Edmund C., and Arthur C. Smith, 1971. *Introduction to the Natural History of Southern California*. California Natural History Guides: 13. Los Angeles: University of California Press.
- Krueger, M.L., 1936. The Sycamore Canyon Formation (abs). Bulletin, American Association of Petroleum Geologists 20: 1520.

- \_\_\_\_\_, 1943. Chino area. California Division of Mines Bulletin 118:362-363.
- Morton, D.M., 2004. Geologic Map of the Santa Ana 30' × 60' Quadrangle, Southern California. USGS OFR 99-172, V.2-2004. Scale: 1:100,000.
- Reynolds, R.E., 1984. Paleontological assessment, Trautwein Annexation No. 54, southeastern Puente Hills and northern Santa Ana Mountains, Riverside County, California. Redlands, San Bernardino County Museum.
- \_\_\_\_\_, 2004. Paleontological resource monitoring program, Amberhill-Pinnacle Project, City of Corona, Riverside County, California. LSA Associates, Inc: 29 p. +appendices.
- Reynolds, R.E., and R.L. Reynolds, 1991. The Pleistocene Beneath our Feet: Near-surface Pleistocene Fossils from Inland Southern California Basins. San Bernardino County Museum Association Quarterly V. 38(3 & 4), p. 41–43.
- Rogers, T.H., 1966. Geologic Map of California, Santa Ana sheet, scale 1:250,000. California Division of Mines and Geology.
- Savage, C.E., and T. Downs, 1954. Cenozoic land life of southern California, in Jahns, R.H., ed, Geology of Southern California. California Division of Mines Bulletin 170(11): 43-58.
- Schoellhamer, J.E., D.M. Kinney, R.F. Yerkes, and J.G. Vedder, 1954. Geologic map of the northern Santa Ana Mountains, Orange and Riverside counties, California. U.S. Geological Survey Oil and Gas Inventory Map OM-154.
- Schoellhamer, J.E., J.G. Vedder, R.F. Yerkes, and D.M. Kinney, 1981. Geology of the northern Santa Ana Mountains, Orange and Riverside counties, California. U.S. Geological Survey Professional Paper 240-D: 109 p.
- Smith, J.P., 1916. The geologic formations of California. California Mining Bureau, Bull.72: 47 p.
- Society of Vertebrate Paleontology, 1995. Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources: standard guidelines. SVP News Bulletin No. 163:22-27.
- \_\_\_\_\_, 1996. Conditions of receivership for paleontologic salvage collections. SVP News Bulletin No. 166:31-32.
- United States Geological Survey, 1988. *Corona South, California* 7.5-minute topographical quadrangle.
- Warter, J.K., 1984. Fossil leaves from a Paleocene forest, *in* The natural sciences of Orange County, Vol. I. Huntington Beach, Natural History Foundation of Orange County: 130-132.
- Whitney, J.D., 1865. Geological survey of California: geology, Vol. 1, report of progress and synopsis of field work from 1859 to 1864: 498 p.

Woodford, A.O., T.G. Moran and J.S. Shelton, 1946. Miocene conglomerates of Puente and San Jose Hills, California. *Bulletin American Association of Petroleum Geologists*. 30(4): 414-560.

Woodford, A.O., J.E. Schoellhamer, J.G. Vedder and R.F. Yerkes, 1954. Geology of the Los Angeles Basin, *in* Jahns, R.H., ed., *Geology of southern California*. California Division of Mines Bulletin 170 II: 65-81.

Woodford, A.O., J.S. Shelton and T.G. Moran, 1944. Geology and oil possibilities of Puente and San Jose Hills, California. U.S. Geological Survey Oil and Gas Investigations Preliminary map 23.

Woodring, W.P. and W.P. Popenoe, 1945. Paleocene and Eocene stratigraphy of northwestern Santa Ana Mountains, Orange County, California. U.S. Geological Survey Oil and Gas Investigations, Preliminary Chart 12.

**APPENDIX A**

**PALEONTOLOGICAL RESOURCE LOCALITY RECORDS**

## FOSSIL LOCALITY SHEET

LSA Associates, 1500 Iowa Avenue, Suite 200, Riverside, California, 92507

Please fill in this form as completely as possible. This form will be kept on site and may be referenced during a locality search. Use additional sheets if necessary.

LSA Job Name: Skyline Heights

LSA Job Number: SIR0601

Field Locality Number: SIR0601-LSA 06-5-03-1 Mabey Canyon.

Institutional Number: \_\_\_\_\_

General Location: Southwest of Corona in Mabey Canyon

Specific Location: West end of Mabey Canyon approx. 1.4 miles west of Mangular Avenue

Plan Page: \_\_\_\_\_

Elevation: *Of Fossil:* \_\_\_\_\_ *Final grade:* \_\_\_\_\_ *Topographic:* 1,300 feet

7.5-Minute Quadrangle(s): Corona South, California 7.5' USGS quadrangle map

Exact Locality: Base Meridian: SBBM Township: T 4 S. Range: R 7 W.

SW  $\frac{1}{4}$  NE  $\frac{1}{4}$  of NE  $\frac{1}{4}$  of NW  $\frac{1}{4}$  of SW  $\frac{1}{4}$  of Section: 4

UTM coordinates: Zone: 11 NAD27 | 4 | 4 | 2 | 7 | 2 | 5 | Easting/ | 3 | 7 | 4 | 5 | 4 | 2 | 4 | Northing

Formation: Ladd Formation Age: Upper Cretaceous

Description of Sediments: Dense gray siliceous limestone bed

Material Obtained: Abundant mollusks, coral, bryozoa and microfossils.

Disposition of Material: Left in field

Collected by: Dr. David Berry, Tina J. Tuttle Date: May 11, 17, 2006

References: Gray, C.H. Jr., 1961. Geology of the Corona South quadrangle, Riverside County, California. California Division of Mines Bulletin 178: 119 p.

Other Institutional Numbers: \_\_\_\_\_

Papers on Site: \_\_\_\_\_

**Important Notes:**

## FOSSIL LOCALITY SHEET

LSA Associates, 1500 Iowa Avenue, Suite 200, Riverside, California, 92507

Please fill in this form as completely as possible. This form will be kept on site and may be referenced during a locality search. Use additional sheets if necessary.

LSA Job Name: Skyline Heights

LSA Job Number: SIR0601

Field Locality Number: SIR0601-LSA 06-5-05-1 Chase Drive Extension (Rattlesnake Hill).

Institutional Number: This is very close to Locality 6 (Gray, 1961)

General Location: Southwest of Corona in Chase Road Canyon

Specific Location: West end of Chase Road Canyon approx. 0.9 mile west of Mangular Avenue

Plan Page: \_\_\_\_\_

Elevation: *Of Fossil:* \_\_\_\_\_ *Final grade:* \_\_\_\_\_ *Topographic:* 1,440 feet

7.5-Minute Quadrangle(s): Corona South, California 7.5' USGS quadrangle map

Exact Locality: Base Meridian: SBBM Township: T 4 S. Range: R 7 W.

SW ¼ of SW ¼ of SW ¼ of SE ¼ of Section: 4

UTM coordinates: Zone: 11 NAD27 |4|4|3|1|5|0| Easting/ |3|7|4|4|9|5|0| Northing

Formation: Baker Canyon member of the Cretaceous Ladd Formation Age: Cretaceous

Description of Sediments: Dense blue, fine silty sandstone bed that weathers tan

Material Obtained: Abundant mollusks, gastropod *Actaeonella oviformis* and the pelecypods *Arca* sp. and *Crassitella* sp.

Disposition of Material: LSA Riverside lab then to RMM

Collected by: Dr. David Berry, Tina J. Tuttle, Jeff Vadala Date: May 11, 17, 2006

References: Gray, C.H. Jr., 1961. Geology of the Corona South quadrangle, Riverside County, California. California Division of Mines Bulletin 178: 119 p.

Other Institutional Numbers: \_\_\_\_\_

Papers on Site: \_\_\_\_\_

**Important Notes:**