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PALEONTOLOGY - ARCHAEOLOGY - HISTORY

CULTURAL RESOURCES ASSESSMENT FOR THE LITTLE TUJUNGA CANYON ROAD BRIDGE REPLACEMENT PROJECT, LOS ANGELES COUNTY, CALIFORNIA

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Sites: P-19-188396, P-19-187552, P-19-187823
USGS Quadrangle: Sunland 7.5' quadrangle
Area: 1.74 acres
Key Words: negative survey, Tongva, Fernandeño, Tataviam

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SUMMARY OF FINDINGS

The purpose of this study is to determine the potential effects to cultural resources resulting from the replacement of the Little Tujunga Canyon Road Bridge (53C0967) located along Little Tujunga Canyon Road in the Angeles National Forest, Los Angeles County, California. The Los Angeles County Department of Public Works (LACDPW) is the lead agency. This technical study provides environmental documentation as required by the California Environmental Quality Act (CEQA). The County of Los Angeles has proposed the Little Tujunga Canyon Road Bridge Replacement Project (project) over Buck Canyon Creek in order to meet current bridge design and seismic safety standards, and improve the safety for pedestrians, bicyclists, and vehicle users in the project area. The existing Little Tujunga Canyon Road Bridge, originally known as Buck Canyon Creek Bridge, was built in 1928, and underwent widening in 1959. However, the existing bridge does not meet current bridge design and seismic safety standards. The project would implement improvements to the existing bridge and adjacent roadway to improve operations in the project area.

Cogstone Resource Management, Inc. (Cogstone) was retained to complete a cultural resources assessment of the project area. A cultural resources records search was completed by Janell Mort, Cogstone staff archaeologist at the South Central Coastal Information Center (SSCIC) of the California Historical Resources Inventory System (CHRIS) on January 23, 2017. Al Knight, Cogstone staff archaeologist, conducted a records search at the Angeles National Forest on May 22, 2017. The results of the record searches indicate that two prior studies included portions of the project area, while an additional twelve studies have been completed previously within a one-mile radius of the project area. The results of these studies indicated that three historic-age built environment resources have been previously recorded within the project area: Little Tujunga Canyon Road Bridge (P-19-187823), Little Tujunga Canyon Road (P-19-187823), and Little Tujunga Canyon Culverts (P-19-188396). Little Tujunga Canyon Road Bridge is a state bridge built in 1928 and widened in 1954 and further altered in 1959. It has been previously evaluated by Caltrans and found not eligible for listing in the National Register of Historic Places (NRHP). The Bridge was also recorded and evaluated in 2003 and found not eligible for listing in the NRHP nor appears to be a historical resource for purposes of CEQA.

Survey work was conducted under Archaeological Resources Protection Act (ARPA) permit # LAR9056. Al Knight conducted an intensive-level pedestrian survey of the 1.74 project area on April 6, 2017. The survey consisted of 2 to 5 meter-wide parallel transects within the project area, while closely inspecting the ground surface. The survey consisted of reviewing Little Tujunga Canyon Road Bridge and Little Tujunga Canyon Road as well as the shoulders and undeveloped areas to the east and west of the road. In areas without hardscape, ground visibility ranged from poor to excellent (20 to 100 percent). The results of the survey were negative for archaeological resources. The Little Tujunga Canyon Road Bridge (P-19-187552) was re-identified during the pedestrian survey and was in the same condition as recorded in the last site record update.

Since the Little Tujunga Canyon Road Bridge was previously evaluated by Caltrans in 1986 and found not eligible for listing in the National Register of Historic Places (NRHP) and evaluated in

2003 and did not appear to be a historical resource for purposes of CEQA, it does not to be further considered. Additionally, the project will not impact Little Tujunga Canyon Road (P-19-187823) or Little Tujunga Canyon Culverts (P-19-188396) thus they do not need to be further addressed.

The project will have a maximum depth of excavation of approximately 10 feet for the bridge abutments. Specific factors of the project– such as the lack of archaeological sites in the project vicinity, the steepness and ruggedness of the area, as well as the disturbance by construction of the existing roadway – indicate that the potential for discovery of archaeological deposits, including buried archaeological deposits, materials, or features, by implementation of this project is low. As a result, no further cultural resources work is necessary. If the scope of work changes, additional assessment may be necessary.

In the event of an unanticipated discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist can evaluate it. If human remains are unearthed during excavation, State Health and Safety Code Section 7050.5 states “there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered... [has made the appropriate assessment, and] …recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.”

INTRODUCTION

PURPOSE OF STUDY

The purpose of this study is to determine the potential effects to cultural resources resulting from the replacement of the Little Tujunga Canyon Road Bridge located along Little Tujunga Canyon Road in the Angeles National Forest, Los Angeles County, California (Figure 1). The Los Angeles County Department of Public Works (LACDPW) is the lead agency. This technical study provides environmental documentation as required by the California Environmental Quality Act (CEQA).

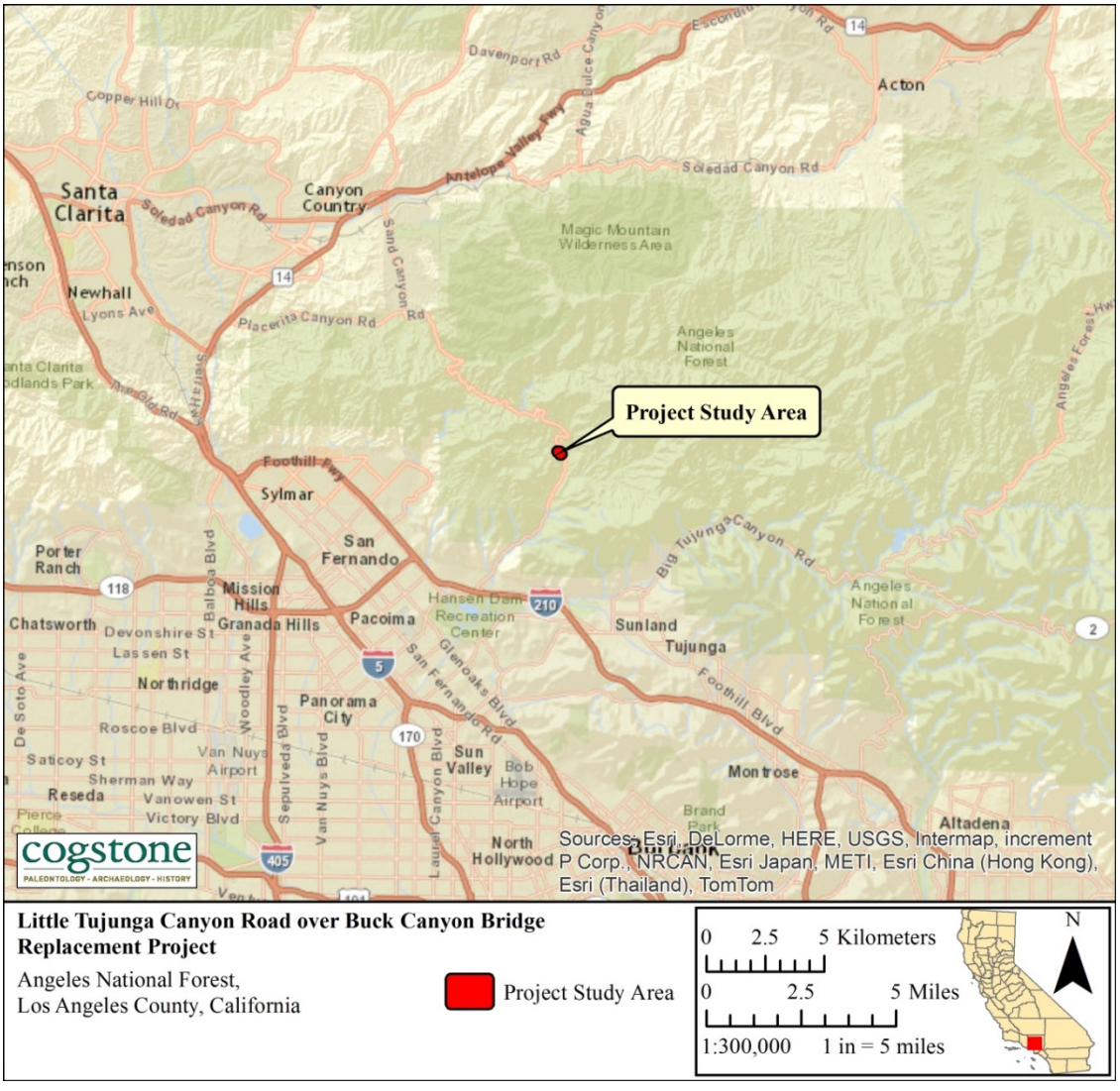

Figure 1. Project vicinity map

PROJECT LOCATION AND DESCRIPTION

The project is located at Little Tujunga Canyon Road over Buck Canyon Creek in the Angeles National Forest, approximately 4.9 miles north of Interstate 210. Specifically, the project is situated within Section 22 of Township 3 North, Range 14 West of the 7.5-minute United State Geological Survey (USGS) Sunland topographic map (Figure 2). The project area is approximately 1.74 acres. The maximum depth of excavation for the project is anticipated to be approximately 10 feet for the abutments.

The County of Los Angeles has proposed the Little Tujunga Canyon Road Bridge Replacement project over Buck Canyon Creek in order to meet current bridge design and seismic safety standards, and improve the safety for pedestrians, bicyclists, and vehicle users in the project area. The existing Little Tujunga Canyon Road Bridge structure, originally known as Buck Canyon Creek Bridge, was built in 1928, widened in 1954 and further altered in 1959. However, the existing bridge does not meet current bridge design and seismic safety standards. It is a timber A-frame bridge with timber piles and substandard travel lanes: a 12-foot lane and 1-foot shoulder in each direction. The existing bridge is classified as functionally obsolete and 16-ton trucks and greater are prohibited from traveling on the bridge. The project would construct a new bridge meeting current engineering standards in order to improve safety for all users of the bridge in the area (Figure 3).

The project would implement improvements to the existing bridge and adjacent roadway to improve operations in the project area. The new bridge would be a 65-foot-long, 34-foot-wide single-span precast pre-stressed concrete I-girder structure supported by pile foundation by drilling rig truck across Buck Canyon Creek. The new bridge would consist of a 12-foot lane and 5-foot shoulder in each direction. Concrete barriers with tubular handrails would be installed on both sides of the bridge. Existing wingwalls would be reconstructed; the top of concrete deck is expected to be approximately one foot above the existing deck.

The project would also include reconstruction of approximately 200 feet of roadway on each side of the bridge. The reconstructed roadway width would vary from the existing 26 feet to 34 feet, in order to accommodate the new travel lane width on the bridge. Metal beam guardrails would be installed at the approach corners. The project will have a maximum depth of excavation of approximately 10 feet for the bridge abutments.

The project would be constructed in two phases in order to keep the bridge open to the public throughout the construction period. Phase 1 construction would occur at the west side of the existing bridge, and one-way traffic would be maintained on the east side of the bridge. Phase 2 construction would occur at the east side and one-way traffic would be maintained on the west side of the bridge.

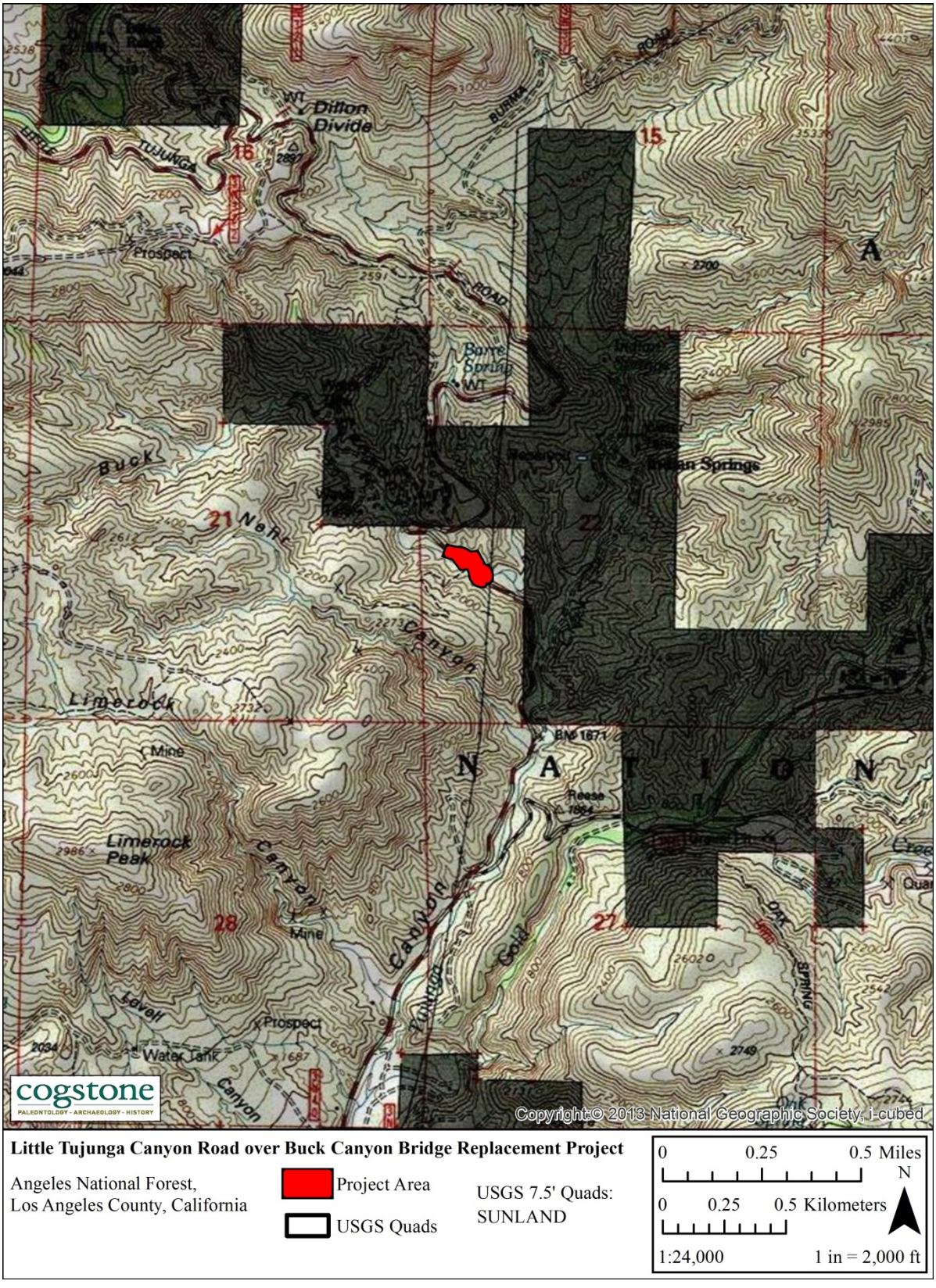

Figure 2. Project location

Figure 3. Project Aerial

PROJECT PERSONNEL

Cogstone Resource Management Inc. (Cogstone) conducted the cultural study. Cogstone's key staff includes professionals with over 35 years of experience in cultural resources management. Desireé Martinez served as the Project Manager and edited the report. Martinez has an M.A. in Anthropology from Harvard University and is a qualified archaeologist with 21 years of experience in California Archaeology. Molly Valasik served as Principal Investigator and prepared portions of this report. Ms. Valasik is a Registered Professional Archaeologist (RPA) and holds an M.A. in Anthropology from Kent State University in Ohio. Ms. Valasik has over seven years of experience in California archaeology.

Michelle Courtney prepared portions of this report. Ms. Courtney has a B.S. in Anthropology, University of California, Riverside and over 15 years of experience in California archaeology. Sherri Gust prepared the background section of the report. Ms. Gust has an M.S. in Anatomy from the University of Southern California and more than 35 years of experience in California archaeology.

Sherri Gust wrote portions of the report. Gust is a Registered Professional Archaeologist (RPA) and meets the Secretary of Interior professional qualifications standards for archaeology. She has a M.S. in Anatomy (Evolutionary Morphology) from the University of Southern California, a B.S. in Anthropology from the University of California at Davis and over 30 years of experience in California.

Janell Mort conducted the records search at the SCCIC. Ms. Mort has an M.A. in Anthropology form California State University, Fullerton and over 15 years of experience in California archaeology. Megan Wilson assisted with Native American consultations and prepared the report maps. Ms. Wilson has an M.A. in Anthropology form California State University, Fullerton and over nine years of experience in California archaeology. Al Knight conducted the cultural resources records search at the Angeles National Forest and performed the archaeological and paleontological evaluation. Mr. Knight has a B.A. in Anthropology, University of California, Santa Barbara and over 30 years of experience in California archaeology.

Short resumes of Cogstone key staff are provided in Appendix A.

REGULATORY ENVIRONMENT

The project is located within the Angeles National Forest thus permit # LAR9056 for Archaeological Investigations as required by the Archaeological Resources Protection Act of 1979 and the Antiquities Act of 1906 was issued by Wilburn M. Blount, District Ranger on March 14, 2017. The permit requires this study to comply with all present and future federal laws and regulations and all present and future state, county, and municipal laws, regulations, and other legal requirements that apply to the permit area.

FEDERAL LAWS AND REGULATIONS

NATIONAL HISTORIC PRESERVATION ACT

The National Historic Preservation Act (NHPA) is the primary federal law governing the preservation of cultural and historic resources in the United States. The law establishes a national preservation program and a system of procedural protections which encourage the identification and protection of cultural and historic resources of national, state, tribal and local significance. A primary component of the act requires that federal agencies take into consideration actions that could adversely affect historic properties listed or eligible for listing on the National Register of Historic Places, known as the Section 106 Review Process.

NATIONAL REGISTER OF HISTORIC PLACES

The National Register of Historic Places is the nation's official list of buildings, structures, objects, sites, and districts worthy of preservation because of their significance in American history, architecture, archeology, engineering, and culture. The National Register recognizes resources of local, state and national significance which have been documented and evaluated according to uniform standards and criteria.

Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. The National Register is administered by the National Park Service, which is part of the U. S. Department of the Interior.
To be eligible for listing in the National Register, a resource must meet at least one of the following criteria:

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

NATIONAL ENVIRONMENTAL PROTECTION ACT

National Environmental Protection Act (NEPA) directs federal agencies to use all practicable means to "Preserve important historic, cultural, and natural aspects of our national heritage…". If the presence of a significant environmental resource is identified during the scoping process, federal agencies and their agents must take the resource into consideration when evaluating project effects. Consideration of paleontological resources may be required under NEPA when a project is proposed for development on federal land, or land under federal jurisdiction. The level of consideration depends upon the federal agency involved.

ANTIQUITIES ACT

The Antiquities Act states, in part: "That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court."

STATE LAWS AND REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA states that: It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed

project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

TRIBAL CULTURAL RESOURCES

As of 2015, CEQA established that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (Pub. Resources Code, § 21084.2). In order to be considered a "tribal cultural resource," a resource must be either:

(1) listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or

(2) a resource that the lead agency chooses, in its discretion, to treat as a tribal cultural resource.

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

PUBLIC RESOURCES CODE

Section 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register of Historical Resources (CRHR) is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing on the National Register, including properties evaluated under Section 106, and State Historical Landmarks number No. 770 and above. The California Register statute specifically provides that historical resources listed, determined eligible for listing on the California Register by the State Historical Resources Commission, or resources

that meet the California Register criteria are resources which must be given consideration under CEQA (see above). Other resources, such as resources listed on local registers of historic registers or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register, is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state or national level under one or more of the following four criteria:

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

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

NATIVE AMERICAN HUMAN REMAINS

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law (i.e., Health and Safety Code §7050.5 and Public Resources Code §5097.98), as reviewed below:

> In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native

American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307
This section states that "No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value."

BACKGROUND

ENVIRONMENTAL SETTING

The project is located within the San Gabriel Mountains which are part of the western Transverse Ranges Geomorphic Province. The Transverse Ranges are a series of steep ranges and valleys aligned obliquely to other Californian mountain ranges. These east-west ranges extend from the Channel Islands in the west to the Little San Bernardino Mountains in the east. Plate tectonics along the San Andreas Fault Zone played a part in molding the mountain ranges of western California, including the Coast, Peninsular, and Transverse ranges (the Sierra Nevada were already in place). A bend in the San Andreas Fault Zone created the Transverse Ranges and intense north-south compression has led to this region being one of Earth's most rapidly rising zones.

Today's Mediterranean-like climate is characterized by warm, dry summers and cool, moist winters, with rainfall predominantly falling between November and May. Climatic conditions in this region varied substantially during prehistoric times. Paleoclimatic research indicates that pine forests were present in the Santa Barbara coastal regions between 12,000 and 8,000 years ago (Heusser 1978). As the climate became warmer and drier, the pine forests were replaced approximately 5,700 years ago by Holocene-type grassland and oak woodland communities. Today's coastal sage scrub and chaparral communities became more pronounced by approximately 2,000 years ago.

Current land use in the project vicinity is park land for the Angeles National Forest. The only development within the project area is the Little Tujunga Canyon Road and related infrastructure. The project is located at approximately 2200 feet elevation and is surrounded by steep slopes from the surrounding mountains. The vegetation is dominated by chaparral and

coastal sage scrub species such as yucca and buckwheat. This setting hosts a variety of animal resources including mule deer, brush rabbits, black-tailed jackrabbits, as well as some larger mammals. Along Buck Canyon Creek is a riparian environment.

PREHISTORIC SETTING

Approaches to prehistoric frameworks have changed over the past half century from being based on material attributes to radiocarbon chronologies to association with cultural traditions. Archaeologists defined a material complex consisting of an abundance of milling stones (for grinding food items) with few projectile points or vertebrate faunal remains dating from about 7 to 3 thousand years before the present as the "Millingstone Horizon" (Wallace 1955). Later, the "Millingstone Horizon" was redefined as a cultural tradition named the Encinitas Tradition (Warren 1968) with various regional expressions including Topanga and La Jolla. Use by archaeologists varied as some adopted a generalized Encinitas Tradition without regional variations, some continued to use "Millingstone Horizon" and some used Middle Holocene (the time period) to indicate this observed pattern (Sutton and Gardner 2010:1-2).

Recently, it was recognized that generalized terminology is suppressing the identification of cultural, spatial, and temporal variation and the movement of peoples throughout space and time. These factors are critical to understanding adaptation and change (Sutton and Gardner 2010:1-2).

The Encinitas Tradition characteristics are abundant metates and manos, crudely made core and flake tools, bone tools, shell ornaments, very few projectile points with subsistence focusing on collecting (plants, shellfish, etc.) (Sutton and Gardner 2010:7). Faunal remains vary by location but include shellfish, land animals, marine mammals, and fish.

The Encinitas Tradition is currently redefined as comprising four geographical patterns (Sutton and Gardner 2010:8-25). These are (1) Topanga in coastal Los Angeles and Orange counties; (2) La Jolla in coastal San Diego County; (3) Greven Knoll in inland San Bernardino, Riverside, Orange, and Los Angeles counties; and (4) Pauma in inland San Diego County.

About 3,500 years before present, the Encinitas Tradition was replaced in the greater Los Angeles Basin by the Del Rey Tradition (Sutton 2010). This tradition has been generally assigned to the Intermediate and Late Prehistoric periods. The changes that initiated the beginning of the Intermediate Period include new settlement patterns, economic foci, and artifact types that coincided with the arrival of a biologically distinctive population. The Intermediate and Late Prehistoric periods have not been well-defined. Many archaeologists have proposed, however, that the beginning of the Intermediate marked the arrival of Takic-speaking groups (from the Mojave Desert, southern Sierra Nevada, and San Joaquin Valley) and that the Late

Prehistoric Period reflected Shoshonean groups (from the Great Basin). Related cultural and biological changes occurred on the southern Channel Islands about 300 years later.

As defined by Sutton (2010), the Del Rey Tradition replaces usage of the Intermediate and Late Prehistoric designations for both the southern California mainland and the southern Channel Islands. Within the Del Rey Tradition are two regional patterns named Angeles and Island. The Del Rey Tradition represents the arrival, divergence, and development of the Gabrielino in southern California.

PREHISTORIC CHRONOLOGY

"Much of the southern California archaeological literature argues that the Gabrielino moved into southern California from the Great Basin around 4,000 Before Present (B. P.), "wedging" themselves between the Hokan-speaking Chumash, located to the north, and the Yuman-speaking Kumeyaay, located to the south (see Sutton 2009 for the latest discussion). This Shoshonean Wedge, or Shoshonean "intrusion" theory, is counter to the Gabrielino community's knowledge about their history and origins. Oral tradition states that the Gabrielino have always lived in their traditional territory, with their emergence into this world occurring at Puvungna, located in Long Beach (Martinez and Teeter 2015:26)."

The latest cultural revisions for the project area define traits for time phases of the Greven Knoll pattern of the Encinitas Tradition applicable to inland Los Angeles County (Sutton and Gardner 2010; Table 1). This pattern is replaced in the project area by the Angeles pattern of the Del Rey Tradition (Sutton 2010; Table 1). Each pattern has subdivisions as identified by specific changes in cultural assemblages through time. Phases are identified by their archaeological signatures in components within sites.

The Greven Knoll toolkit is dominated by manos and metates throughout its extent. In Phase I, other typical characteristics were pinto dart points for atlatls or spears, charmstones, cogged stones, absence of shell artifacts and flexed position burials (Table 1). In Phase II, Elko dart points for atlatls or spears and core tools are observed along with increased indications of gathering (Table 4). In addition, the Greven Knoll populations are biologically Yuman (based on skeletal remains), while the later Angeles populations are biologically Shoshonean (Sutton and Gardner 2010; Sutton 2010).

The Angeles pattern generally is restricted to the mainland and appears to have been less technologically conservative and more ecologically diverse, with a largely terrestrial focus and greater emphases on hunting and nearshore fishing. In Angeles Phase I, Elko points for atlatls or darts appear, small steatite objects such as pipes and effigies from Catalina are found, shell beads and ornaments increase, fishing technologies increase including bone harpoons/fishhooks and

shell fishhooks, donut stones appear, and hafted micro blades for cutting/graving wood or stone appear. In addition, several Encinitas (Topanga) traits, such as discoidals, cogged stones, plummet-like charmstones, and cairn burials (see Sutton and Gardner 2010: Table 1) virtually disappear from the record. Mortuary practices changed to consist of primarily flexed primary inhumations, with extended inhumations becoming less common. Settlement patterns made a shift from general use sites being common to habitation areas separate from functional work areas. Subsistence shifted from mostly collecting to increase hunting and fishing (Sutton 2010).

Angeles Phase II is identified primarily by the appearance of a new funerary complex, with other characteristics similar to Angeles I. The complex features killed (broken) artifacts, including manos, metates, bowls, mortars, pestles, points, and others, plus highly-fragmented cremated human bones and a variety of faunal remains. In addition to the cremains, the other material also often burned. None of the burning was performed in the burial feature (Sutton 2010).
The Angeles Phase III is the beginning of what has been known as the Late Period and is marked by several changes from Angeles I and II. These include the appearance of small projectile points, steatite shaft straighteners and increased use of asphaltum all reflecting adoption of bow and arrow technology. In addition, obsidian sources changed from mostly Coso to Obsidian Butte, and shell beads derived from Gulf of California species began to appear. Subsistence practices continued as before and the geographic extent of the Angeles Pattern increased (Sutton 2010).

Angeles Phase IV is marked by new material items including Cottonwood points for arrows, Olivella cupped beads and Mytilus shell disks, birdstones (zoomorphic effigies with magico-religious properties) and trade items from the Southwest including pottery. It appears that populations increased and there was a change in the settlement pattern to fewer but larger permanent villages. Presence and utility of steatite vessels may have impeded the diffusion of pottery into the Los Angeles Basin. Smaller, special-purpose sites continued to be used (Sutton 2010).

Angeles Phase V components contain more and larger steatite artifacts, including larger vessels, more elaborate effigies, and comals. Settlement locations shifted from woodland to open grasslands. The exploitation of marine resources seems to have declined and use of small seeds increased. Many Gabrielino inhumations contained grave goods while cremations did not (Sutton 2010).

The Angeles Phase VI reflects the ethnographic mainland Gabrielino of the post-contact (i.e., post-A.D. 1542) period. One of the first changes in Gabrielino culture after contact was undoubtedly population loss due to disease, coupled with resulting social and political disruption. Angeles Phase VI material culture is essentially Angeles Phase V, augmented by a number of Euro-American tools and materials, including glass beads and metal tools such as knives and

needles (used in bead manufacture). The frequency of Euro-American material culture increased through time until it constituted the vast majority of materials used. Locally produced brownware pottery appears along with metal needle-drilled Olivella disk beads (Sutton 2010).

Table 1. Cultural Patterns and Phases

Pattern	Phase	Dates (BP)	Material Traits	Other Traits
Encinitas	Greven Knoll I	8,500 to 4,000	Abundant manos and metates, Pinto dart points for atlatls or spears, charmstones, cogged stones and discoidals rare, no mortars or pestles, general absence of shell artifacts	No shellfish, hunting important, flexed inhumations, cremations rare
	Greven Knoll II	4,000 to 3,000	Abundant manos and metates, Elko dart points for atlatls or spears, core tools, late discoidals, few mortars and pestles, general absence of shell artifacts	No shellfish, hunting and gathering important, flexed inhumations, cremations rare
Angeles	Angeles I	3,500 to 2,600	Appearance of Elko dart points and an increase in the overall number of projectile points from Encinitas components; beginning of large-scale trade in small steatite artifacts (effigies, pipes, and beads) and *Olivella* shell beads from the southern Channel Islands; appearance of single-piece shell fishhooks and bone harpoon points; Coso obsidian becomes important; appearance of donut stones	appearance of a new biological population (Takic proto-Gab/Supan language), apparent population increase; fewer and larger sites along the coast; collector strategy; less overall dependence on shellfish but fishing and terrestrial hunting more important; appearance of flexed and extended inhumations without cairns, cremations uncommon
	Angeles II	2,600 to 1,600	Continuation of basic Angeles I material culture with the addition of mortuary features containing broken tools and fragmented cremated human bone; fishhooks become more common	continuation of basic Angeles I settlement and subsistence systems; appearance of a new funerary complex
	Angeles III	1,600 to 1,250	Appearance of bow and arrow technology (e.g., Marymount or Rose Spring points); changes in *Olivella* beads; asphaltum becomes important; reduction in obsidian use; Obsidian Butte obsidian largely replaces Coso	larger seasonal villages; flexed primary inhumations but no extended inhumations and an increase in cremations; appearance of obsidian grave goods; possible expansion into eastern Santa Monica Mountains, replacing Topanga III groups

Pattern	Phase	Dates (BP)	Material Traits	Other Traits
	Angeles IV	1,250 to 800	Cottonwood points appear; some imported pottery appears; birdstone effigies at the beginning of the phase and "spike" effigies dropped by the end of the phase; possible appearance of ceramic pipes	change in settlement pattern to fewer but larger permanent villages; flexed primary inhumations continue, cremations uncommon; expansion into the San Gabriel Mountains, displacing Greven Knoll III groups
	Angeles V	800 to 450	Trade of steatite artifacts from the southern Channel Islands becomes more intensive and extensive, with the addition or increase in more and larger artifacts, such as vessels and comals; larger and more elaborate effigies	strengthening of ties, especially trade, with southern Channel Islands; expansion into the northern Santa Ana Mountains and San Joaquin Hills; development of mainland dialects of Gabrielino
	Angeles VI	450 to 150	Addition of Euroamerican material culture (e.g., glass beads and metal tools), locally made pottery, metal needle-drilled *Olivella* beads	change of settlement pattern, movement close to missions and ranches; use of domesticated species obtained from Euroamericans; flexed primary inhumations continue, cremations uncommon to the north (nearer the Chumash) but somewhat more common to the south (nearer the Luiseño); apparent adoption of Chingichngish religion

ETHNOGRAPHY

The project area is within the traditional tribal territory of the Tongva (Gabrielino) however the Tataviam were also known to use areas within the San Gabriel Mountains in the vicinity of the San Fernando Valley prehistorically (Figure 4). The Tongva occupied portions of Los Angeles, Orange and Riverside Counties, as well as the four southern Channel Islands: San Clemente, San Nicholas Santa Catalina and Santa Barbara (Kroeber 1976; McCawley 1996).

Populations of the Tongva associated with Mission San Fernando were known as Fernandeño and some descendants of these lineages are now part of the Fernandeño Tataviam Band of Mission Indians (McCawley 1996; Fernandeño Tataviam Band of Mission Indians 2017). Tataviam territory stretched from Antelope Valley, through the Tejon Ranch area and into the San Fernando Valley. Further a Tataviam ancestor of a Fernandeño Tataviam Band of Mission Indians Citizen, Francisco del Espirito, was born in Tujunga in 1794 (Fernandeño Tataviam Band of Mission Indians 2017).

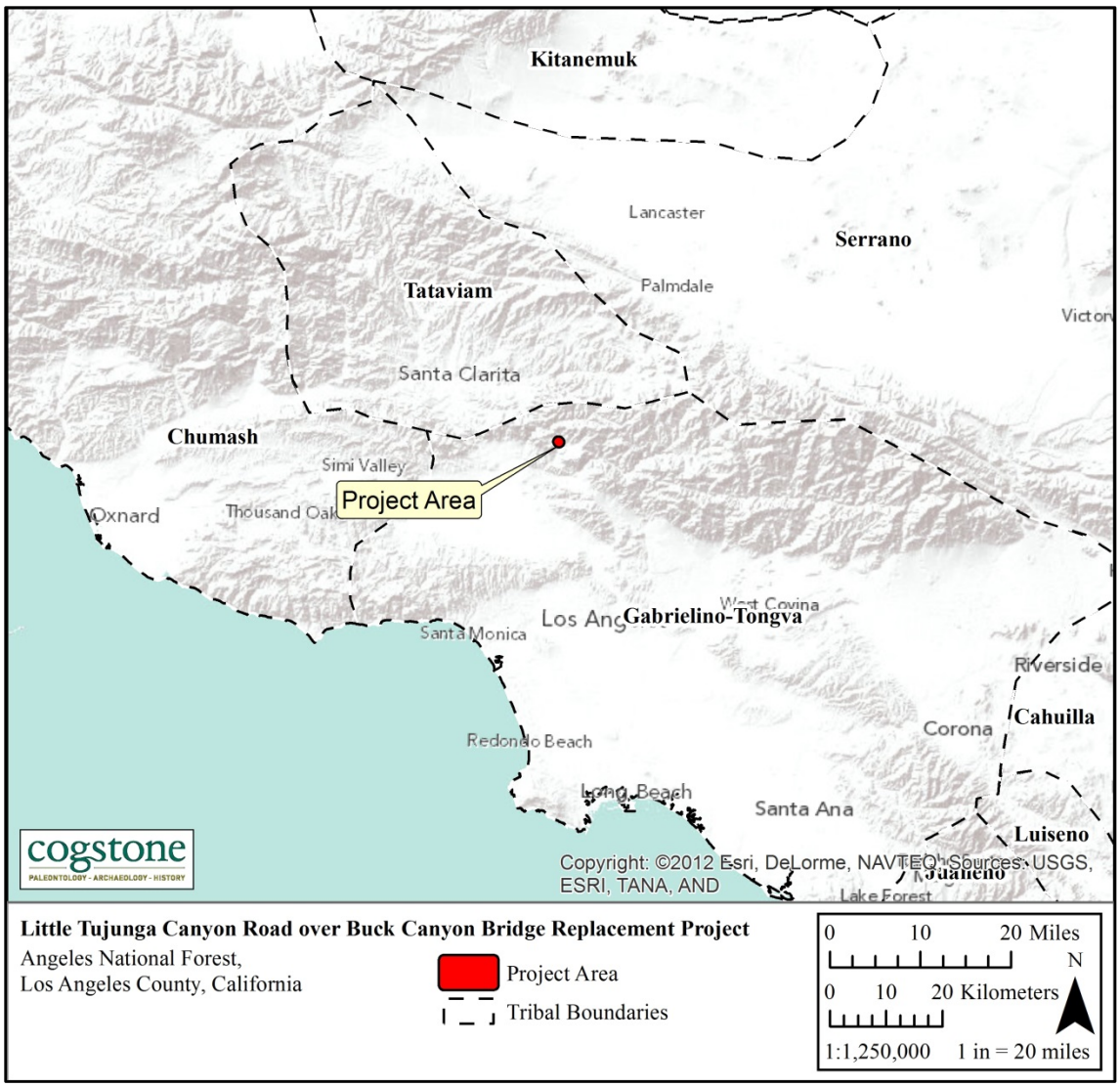

Figure 4. Tribal Boundaries

Both tribes were semi-sedentary hunter and gatherers with populations totaling more than 5,000 people living in various settlements throughout the area. Some of the villages could be quite large, housing up to 150 people. They thrived by exploiting the abundant and rich animal and plant resources available in the area. Marine resources, such as fish, marine mammals and shellfish, were especially important and items were often traded between coastal and inland groups.

Acorns were one of the most important food resources utilized by Native American groups across California. The acorns were ground into a fine powder in order to make an acorn mush or gruel. A dietary staple, acorns provided a large number of calories and nutrients. The ability to store and create stockpiles in case of lean times also contributed to the importance of acorns as a

vital natural resource. Much of the material evidence available to archaeologists concerning the Tataviam and Tongva is a result of tools and technologies related to their subsistence activities. Acorns contain tannic acid, which is poisonous. Acorns must be ground and the tannic acid leached out before they are edible. Manos, metates, mortars and pestles used for processing acorns and other nuts and seeds are often found at archaeological sites.

In addition to plant resources, the tribes also hunted animals such as deer, rabbits and other small game. A wide variety of plants were also exploited not only for food, but also medicine, clothing, building materials etc. Lithic debitage from the manufacture of stone tools such as arrowheads is also frequently found.

After the advent of the Missions in California, the Tataviam were called the Fernandeño and the Tongva were called the Gabrielino. Many modern day descendants are active members of current tribes of Tataviam and Tongva.

HISTORIC SETTING

Juan Cabrillo was the first European to sail along the coast of California in 1542 and was followed in 1602 by Sebastian Vizcaino (Bean and Rawls 1993). Between 1769 and 1822 the Spanish had colonized California and established missions, presidios, and pueblos (Bean and Rawls 1993).

After Mexico won its independence from Spain in 1822, the Mission lands were secularized under the Secularization Act of 1833, but much of the land was transferred to political appointees. A series of large land grants (ranchos) that transferred Mission properties to private ownership were awarded by the various governors of California. Land grants were also awarded in the interior to increase the population away from the coastal areas that were settled during the Spanish Period.

The first reported European contact for the area of the Angeles was in 1769 when the expedition of Gaspar de Portola traveled through the neighboring valleys on his way to Monterey. Early non-Native American use of the Forest centered on early explorers traveling through the area, while early land grants, missions, and townsites surrounded the Forest area. The construction of the missions of San Gabriel Archangel (1771) and San Fernando Rey de España (1797) cemented Spanish presence in the region.

In the first two decades of the 19th Century, the Mission System drew in large numbers of Indian neophytes for baptism, completely changing the cultural landscape of the area. A number of subordinate Missions, or Estancias, were built with native labor as outposts to serve as mission-

affiliated ranchos, overseeing localized operations. The Spanish Missions generally occupied the lands in the lowlands but relied heavily on the mountains for water, building supplies, and game. By 1800, local Native American traditional cultural lifestyles of had largely disappeared due to devastating European influences, including diseases and incorporation into the Mission System.

The first documented instance of timber activity in the local mountains was in 1819 when Joseph Chapman cut down timber in Millard Canyon (also called Church Canyon) for use in the construction of the Plaza Church in El Pueblo de Nuestra Señora la Reina de los Angeles de Porciuncula (now just ‘Los Angeles’). It has also been said that timbers for the San Fernando Mission came from the Tujunga Canyons, and for the San Gabriel Mission came from Little Icehouse Canyon and Little Santa Anita Canyon.

With the Independence of Mexico in 1821, the area of the Forest came under Mexican control. The Mexican Period is typified by the secularization of the Mission system, and the appearance of large land grants, called Ranchos. The major activities involved livestock and farming, and peripheral areas were regularly involved in these activities, as vaqueros sought out timber, water, prey, sport, and stray cattle and horses. Use of the highlands may have included seasonal livestock grazing, utilizing some of the springs in the area.

It was during this period that gold was discovered in Placerita Canyon, in 1842, the first authenticated discovery of gold in California. It started California's "first" gold rush. Soon after the later discovery of gold at Sutter’s Mill in 1848, and subsequent conflict between the United States and Mexico, California became part of the United States. Almost immediately large numbers of American migrants began crossing the desert. Merchants and landowners settled in communities throughout the southern California region. Miners poured into the mountains primarily following original and modified Indian trails. Large placer and lode mining operations were established in the San Gabriels, with mixed success. Although the mountains were honeycombed with quartz veins, and a host of small mines were gouged out of the slopes in an attempt to strike gold, many of the ventures were inactive by 1896. The last flurries of serious mining in the region ended by the late 1930s. Building of major roads began in the 1850s and railroads passed through Soledad Canyon and Cajon Pass a short time later. Don Benito Wilson, in 1864, built a road into the Forest to harvest wood for fence posts, wine barrels, pickets and shingles. With the majority of Forest composed of chaparral, timber has not played a large role on the Forest, with commercial timber activities virtually ceasing in the Forest during the mid-1950s.

The Great Hiking Era of the San Gabriel Mountains (AD 1880 – 1938) saw increasing use of the rugged backcountry for recreational purposes by the foothill communities, coinciding with the real estate boom in the lowlands and the great interest in hiking, hunting and fishing by the urban populations. In particular, six major hiking trails converged at Red Box Saddle. Settlements

started inside the Forest boundaries in the forms of homesteads and resorts in the southern section, and, in the less steep northern section, ranches and homesteads. In 1891, the first homestead was filed in the Big Tujunga Canyon area, and others soon followed. Homestead patents were established throughout the range, with the last being granted on the Angeles National Forest in 1938. A number of resorts and camps sprang up, and these supported the increasing numbers of hikers and campers who forged into the wilderness. In 1889, the first telescope made its arduous journey up to the summit of Mt. Wilson. A small observatory of canvas and wood, run by Harvard and USC astronomers, was later replaced in 1904 by the more famous institution run by George Ellery Hale. Mount Wilson Observatory would quickly rise to dominate astronomy worldwide. It was home to the world's two largest telescopes as well as the most powerful facilities in existence for studying the sun.

In 1891, preliminary work began on an electric cable incline railway from Rubio Canyon to Echo Mountain, a feat never before attempted in the world. Professor Thaddeus S. C. Lowe, an energetic entrepreneur who had garnered fame in the Civil War by ballooning for the Union Army, undertook the venture. In its height at the turn of the century, the Mount Lowe Railway was the most popular tourist attraction in California, comparable to a modern-day Disneyland. In its 43 year history, it saw over three million recorded visitors. In 1938, the most destructive rainstorm in recent memory washed away so much of the track that the railway was abandoned. Much of the ruins of the Mt Lowe Railway are still accessible above Pasadena for interpretive hikes.

On December 20, 1892, the San Gabriel Timberland Reserve was created by President Harrison. The creation of the Reserve, which was the forerunner of the Angeles, was in response to public concern about watershed values as early as 1883. Floods resulting from fire denuded slopes were causing problems with the lowland populations. In 1905, the Reserves were transferred from the Department of the Interior to the Department of Agriculture, and renamed National Forest in 1907. The San Gabriel National Forest consisted of the southern section of the present day Angeles and portions of the San Bernardino Forest. In 1908, the name was changed to Angeles National Forest. In 1926, the eastern area was divided and San Bernardino National Forest recreated. At this time, the Saugus (now part of the Santa Clara-Mojave Rivers Ranger District) was detached from the Santa Barbara Reserve and joined with the Angeles.

PROJECT AREA HISTORY

The earliest available topographic map, the 15 minute USGS Fernando topographic map from 1900, shows the project area within the San Gabriel Timberland Reserve. The only development within the project area in 1900 is Little Tujunga Canyon Road. The Little Tujunga Canyon Road Bridge within the project area was constructed in 1928 and widened in 1959. The 1934 Little

Tujunga 7.5 minute topographic map depicts the project area within the Angeles National Forest. The project vicinity is undeveloped.

RECORDS SEARCH

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

Janell Mort, a Cogstone staff archaeologist, performed a search for archaeological and historical records on January 23, 2017 at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Inventory System (CHRIS). The record search covered a one-mile radius around the project area. In addition, Al Knight conducted a records search at the Angeles National Forest on April 22, 2017.

The results of the records searches indicated that two prior studies included portions of the project area, while an additional twelve studies have been completed previously within a one-mile radius of the project area (Table 2). The previous studies within the one-mile radius included one completed within a 0.25-mile radius of the project area, four located within a 0.5-mile radius of the project area, and seven located with a 0.5-1.0-mile radius of the project area.

Table 2. Previous Cultural Resource Studies

Report No. (LA)	Author	Report Title	Date	Distance from PA (in miles)
01555	McCombs, Diane H.	Archaeological Reconnaissance Report: Yerba Buena Grazing Allotment	1986	0.5-1
01692	Wessel, Richard L.	Archaeological Reconnaissance Report: Divide Fire Rehab	1988	0.5-1
02952	Skaggs, Glenn A.	Kagel Fuel Break Rehab - Los Angeles County	1992	0.25-0.5
02955	Mehaffie, Nancy	Oak Springs Trailhead Construction, Los Angeles County	1993	0.5-1
02965	Norwood, Richard H.	Phase I Cultural Resource Investigation for Assessment District 93-3 Lancaster, Los Angeles County, California	1994	0.5-1
03126	Wells, Helen Fairman	Cultural Resources Literature Search and Survey for Proposed Gold Creek Road Project	1994	0.5-1
03140	Brechbiel, Brant A.	Cultural Resources Survey Report for Road Improvements Project Little Tujunga Canyon Road at the Wildlife Way Station in the Angeles National Forest Near Sunland, California	1995	0-0.25
04304	Milburn, Douglas H	Archaeological Reconnaissance Report Wildlife Wayside Small Tracts Act	1997	0.25-0.5

Report No. (LA)	Author	Report Title	Date	Distance from PA (in miles)
04495	Skaggs, Glenn A.	Archaeological Reconnaissance Report: Oak Springs Trail Rehabilitation and Trailhead Construction, Los Angeles Co.	1989	0.5-1
05681	Romani, Gwendolyn R.	Negative Archaeological Reconnaissance Report Wildlife Waystation: 14831 Little Tujunga Canyon Road, Angeles National Forest, Los Angeles County	2001	0.25-0.5
07428	McMorris, Christopher	Caltrans Historic Bridges Inventory Update: Timber Truss, Concrete Truss, and Suspension Bridges	2004	Within
08833	Holmes, Amy M.	Archaeological Survey for the Southern California Edison Replacement of Deteriorated Power Pole No. 193711Oe Located on the Lopez 16kv Circuit, County of Los Angeles; Wo 6059-4800 7-4819	2007	0.5-1
10174	Jordan, Stacey C. and Michael Wise	Archaeological Survey Report SCE Deteriorated Pole Replacement Program, Little Tujunga 16kV Circuit Angeles National Forest and Private Inholdings, Los Angeles County, CA	2005	Within
10555	Jordan, Stacey C. and Michael J. Wise	Archaeological Survey Report SCE Deteriorated Pole Replacement Program Lopez 16kV Circuit, Angeles National Forest and Private Inholdings, Los Angeles County, California	2005	0.25-0.5

The results of these studies indicated that three historic-age built environment resources have been previously recorded within the project area; Little Tujunga Canyon Road Bridge, Little Tujunga Canyon Road, and Little Tujunga Canyon Culverts (Table 3). One additional cultural resource has been previously recorded within the one-mile search radius. This resource is a historic archaeological site located between 0.5 and 1.0-mile radius.

Table 3. Previously recorded cultural resources within one-mile radius of project area

Primary No. (P-19-)	Trinomial	Resource Type	NRHP or CRHR Eligibility	Resource Description	Year Recorded	Distance from PA (miles)
002138	CA-LAN-2138H	Historic Archaeological Site	Not determined	Remnants of Black Wonder Mill Site, structures removed by US Forest Service 1985	1993, 2005, 2006	0.5-1
187552	-	Historic	Ineligible	Bridge, "Little Tujunga Canyon Road Bridge" 1928	2003	Within
187823	-	Historic	Not determined	Historic Road "Little Tujunga Canyon Road"	2006	Within
188396	-	Historic	Not determined	Water Conveyance System "Little Tujunga Canyon Culverts"	2005	Within

P-19-187552
Little Tujunga Canyon Road Bridge (53C0967), originally known as Buck Canyon Creek Bridge, was built by the state in 1928 and widened in 1954 and further altered in 1959. It has been previously evaluated by Caltrans and found not eligible for listing in the National Register of Historic Places (NRHP) (Appendix B). The Bridge was also recorded and evaluated in 2003 and found not eligible for listing in the NRHP nor appears to be a historical resource for purposes of CEQA.

P-19-187823
Little Tujunga Canyon Road is a historic road located within the project area. This resource has not been evaluated for eligibility for listing in the NRHP or CRHR.

P-19-188396
Little Tujunga Canyon Culverts are a series of interspersed roadside drainages and culverts located along Little Tujunga Canyon Road. The features were built in 1936. This resource has not been evaluated for eligibility for listing in the NRHP or CRHR.

While the records search results indicate that P-19-187823 and P-19-188396 are located within the project area, the project will have no impact on these resources and they do not need to be further addressed.

OTHER SOURCES

In addition to the records search at the SCCIC and the Angeles National Forest, a variety of sources were consulted in April 2017 to obtain information regarding the cultural context of the project area (Table 4). Sources included the National Register of Historic Places (NRHP), the California Register of Historic Resources (CRHR), California Historical Resources Inventory (CHRI), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). Specific information about the project area, obtained from historic-era maps and aerial photographs, is presented in the project area History section.

Table 4. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP; 1979-2002 & supplements)	Negative
Historic USGS Topographic Maps	The earliest available topographic map, the Fernando 15 minute topographic map from 1900 shows the project area within the San Gabriel Timberland Reserve. The only development within the project area is Little Tujunga Canyon Road. The 1934 Little Tujunga Topographic map depicts the project area within the National Forest.
Historic US Department of Agriculture Aerial Photographs	The earliest available imagery from 1952 depicts Little Tujunga Canyon Road. The project vicinity is undeveloped and currently remains undeveloped.
California Register of Historical Resources (CRHR; 1992-2014)	Negative
California Historical Resources Inventory (CHRI; 1976-2014)	Negative
California Historical Landmarks (CHL; 1995 & supplements to 2014)	Negative
California Points of Historical Interest (CPHI; 1992 to 2014)	Negative
Caltrans Historic Bridge Inventory (2016)	Positive; Little Tujunga Canyon Road Bridge (Buck Canyon Creek Bridge 53C0967), not eligible for the NRHP in 1986
Bureau of Land Management (BLM) General Land Office Records	Negative

NATIVE AMERICAN CONSULTATION

A Sacred Lands File search request was submitted to the Native American Heritage Council (NAHC) on January 20, 2017. The NAHC replied on February 22, 2017 that a search of their records returned negative results for sacred lands located within the project area. The NAHC requested that 11 tribes be consulted about the project (Appendix C). LADPW mailed letters to those tribes requesting to be consulted notifying them of the project.

The Fernandeño Tataviam Band of Mission Indians (Tataviam) responded to the LADPW's request for consultation on February 1, 2017 and February 16, 2017 and requested to meet regarding the project. The LADPW and the Tataviam have agreed to meet once the Tataviam have had an opportunity to review this technical report.

SURVEY

METHODS

The survey stage is important in a project's environmental assessment phase to verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to areas of cultural resources sensitivity. All undeveloped ground surface areas within the ground disturbance portion of the project area were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were visually inspected. Photographs of the project area, including ground surface visibility and items of interest, were taken with a digital camera.

Survey work was done under Archaeological Resources Protection Act (ARPA) permit # LAR9056. Al Knight, Cogstone Staff Archaeologist, conducted an intensive-level pedestrian survey of the 1.74 project area on April 6, 2017 (Figure 5). The survey consisted of 2 to 5 meter-wide parallel transects within the project area, while closely inspecting the ground surface. The survey consisted of Little Tujunga Canyon Road Bridge, Little Tujunga Canyon Road, Buck Canyon Creek, as well as the shoulders and undeveloped areas to the east and west of the Road.

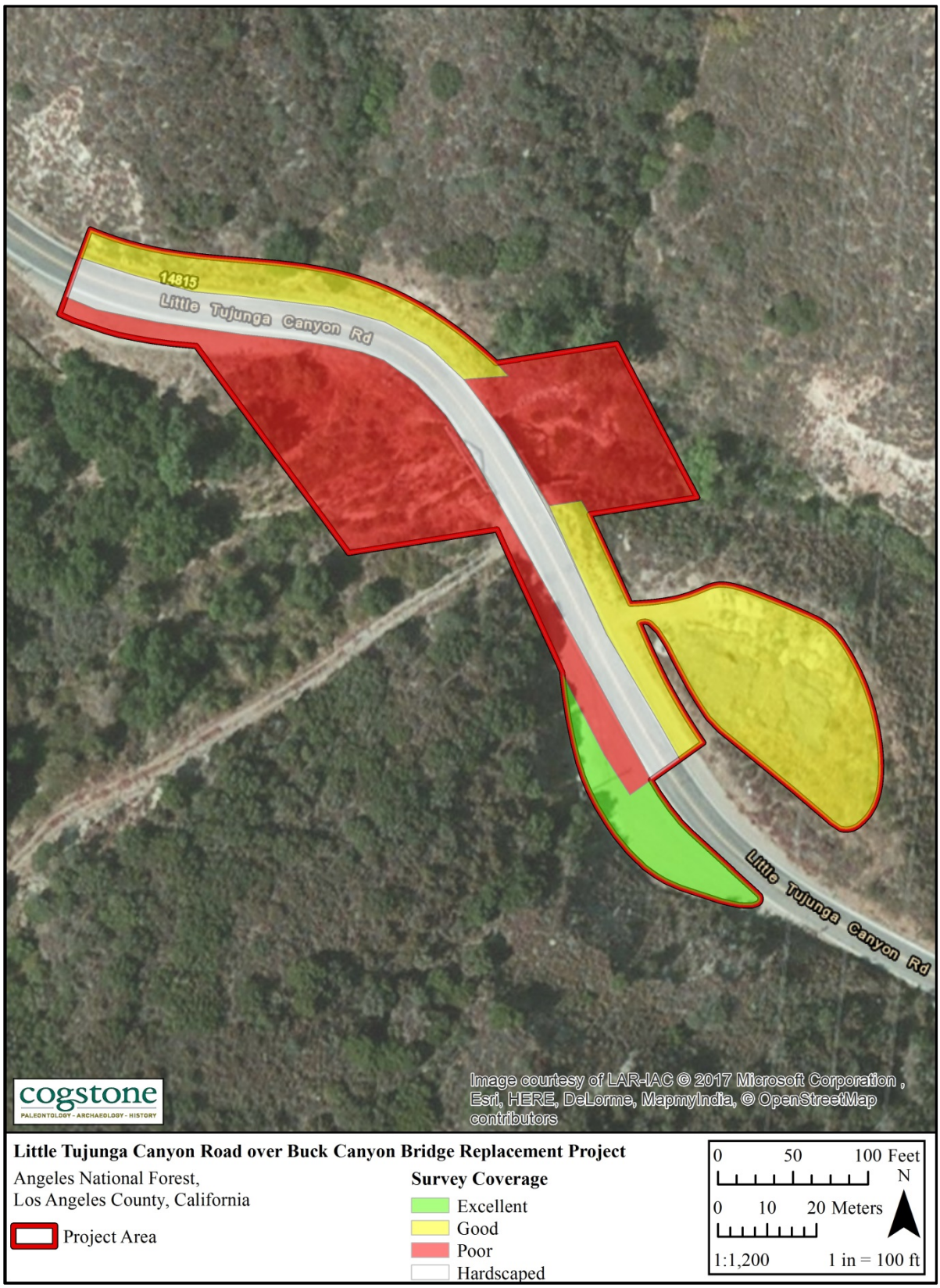

Figure 5. Survey Coverage of Project Area

RESULTS

The terrain in the general area of the bridge is very steep, with the exception of the bottom of the Buck Canyon drainage, which is relatively level up-stream (west) from the bridge, but falls off sharply below (east) of the bridge. Buck Canyon Creek bisects the survey area in a generally east-to-west direction, and has formed a mini-gorge at and around the area where the bridge; the bridge spans this mini-gorge. At the time of the survey, Buck Canyon Creek was running clean and clear. All of the surrounding undisturbed hillsides are covered in mature robust chaparral. The area dominant plant communities include Oak Woodland, Chaparral, and some Riparian species, as follows: Quercus agrifolia, California Sycamore, Fremont Cottonwood, a species of small willow, California Buckwheat, Black Sage, Toyon, shrub or hybrid oak, Mule-fat, Yerba Santa, Yucca, Ceanothus, Sugar Bush, Mugwort, Mexican Elderberry, and other common Chaparral-community species. The area is relatively free from invasive plants, with the exception of Fox-tail grasses, which were present in almost all disturbed areas.
In areas without hardscape, ground visibility ranged from poor to excellent (20 to 100 percent). The western shoulder of Little Tujunga Canyon Road consists of fill and was densely covered in fox-tails (Figure 6).

The survey area in the vicinity of Buck Canyon Creek had poor visibility (20 percent) due to native chaparral and riparian plants. Buck Canyon Creek west of Little Tujunga Canyon Road Bridge forms a narrow channel with very little stream-side terracing that was surveyed in 5 meter transects (Figure 7). Conversely, Buck Canyon Creek east of Little Tujunga Canyon Road Bridge has steep banks that were opportunistically surveyed. Some concrete and rip-rap are present under the bridge. Visibility in the areas at and around the bridge footings had good visibility (90 percent).

The two staging areas south of the Little Tujunga Canyon Road Bridge were also surveyed however each staging area is currently being used to stockpile dirt (Figure 8). Ground visibility within the non-disturbed ground surface was excellent (100 percent).

No archeological resources were identified during the survey. The Little Tujunga Canyon Road Bridge (P-19-187552) and Little Tujunga Canyon Road (P-19-187823) were re-identified during the pedestrian survey and were found to be in the same condition as recorded on their most recent site records. The Little Tujunga Canyon Culvert (P-19-188396) was not re-identified in the vicinity of the project area. The project will not impact Little Tujunga Canyon Road (P-19-187823) or Little Tujunga Canyon Culverts (P-19-188396).

Figure 6. Overview of Little Tujunga Canyon Road and Bridge, view southeast

Figure 7. Buck Canyon Creek, west of Bridge

Figure 8. Overview of Little Tujunga Canyon Road and Bridge, view north

STUDY FINDINGS AND CONCLUSIONS

Identification efforts by Cogstone for this assessment included a review of existing literature and historic maps, a cultural resources record search and pedestrian survey. The Little Tujunga Canyon Road Bridge (formally known as Buck Canyon Creek Bridge; P-19-187552) (53C0967) has been previously recorded within the project area. The Little Tujunga Canyon Road Bridge was re-identified during the pedestrian survey and was found to be in the same condition as recorded on the most recent site records. This built-environment resource was previously evaluated by Caltrans in 1986 and found not eligible for listing in the National Register of Historic Places (NRHP). The Bridge was also recorded and evaluated in 2003 and found not eligible for listing in the NRHP nor appears to be a historical resource for purposes of CEQA. As a result, it does not to be further considered.

Results of the record search also indicate that Little Tujunga Canyon Road (P-19-187823) and Little Tujunga Canyon Culverts (P-19-188396) are located within the project area. Little Tujunga Canyon Road (P-19-187823) has not been evaluated for eligibility for listing in the NRHP or CRHR and was re-identified during the pedestrian survey. It was found to be in the same condition as recorded on the most recent site records. The Little Tujunga Canyon Culvert (P-19-188396) has not been evaluated for eligibility for listing in the NRHP or CRHR and was not re-

identified in the vicinity of the project area. The project will not impact Little Tujunga Canyon Road (P-19-187823) or Little Tujunga Canyon Culverts (P-19-188396) thus they do not need to be further addressed.

The project will have a maximum depth of excavation of approximately 10 feet for the bridge abutments. Specific factors of the project– such as the lack of archaeological sites in the project vicinity, the steepness and ruggedness of the area, as well as the disturbance by construction of the existing roadway – indicate that the potential for discovery of archaeological deposits, including buried archaeological deposits, materials, or features, by implementation of this project is low. No further cultural resources work is necessary. If the scope of work changes, then additional assessment may be necessary.

RECOMMENDATIONS

In the event of an unanticipated discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it. In the unlikely event that human remains are encountered during project development, all work must cease near the find immediately.

In accordance with California Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. Work may not resume in the vicinity of the find until all requirements of the health and safety code have been met.

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APPENDIX A. QUALIFICATIONS

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

DESIREÉ RENEÉ MARTINEZ
Project Manager and Principal Archaeologist

EDUCATION

1999 M.A., Anthropology (Archaeology), Harvard University, Cambridge
1995 B.A., Anthropology, University of Pennsylvania, Philadelphia

EXPERIENCE

Martinez is an archaeologist with 21 years of experience in fieldwork, research, and curation. She is co-director of the Pimu Catalina Island Archaeology Project.

SELECTED PROJECTS

Longboat Solar Photovoltaic, EDF Renewable Energy, Barstow and Lenwood, San Bernardino County, CA. The project was construction of a new solar facility. Managed the cultural resources assessment including Phase I and Extended Phase I studies to support MND for this ~235-acre site. Managed archaeological monitoring, Native American coordination, Phase II testing, and was co-author of the treatment plan and compliance report. Sub to Environmental Intelligence. Project Manager/Principal Investigator. 2015-present

Fisher House and Golf Course, Mechanized Archaeology Survey, Veterans Affairs Long Beach Healthcare System, Long Beach, Los Angeles County, CA. The project was preconstruction testing and monitoring for two new constructions projects. In compliance with the Historic Property Treatment Plan preconstruction work included ground penetrating radar and magnetometry, truck mounted auger testing and mechanical excavation units. One historic refuse area was defined and recorded. Monitoring recovered additional cultural materials. Co-author of compliance reports. Principal Investigator. 2015-present

Dune Palms Bridge, Caltrans District 8, La Quinta, Riverside County, CA. The project involves replacing a low water crossing at the Coachella Valley Storm Water Channel. Conducted supplemental archaeological survey and site documentation, extensive Native American coordination and updated the Archaeological Survey Report. Sub to Parsons Brinckerhoff. Principal Archaeologist. 2015-present

Driscoll Ranch, Architectural Survey and Evaluation, Midpeninsula Regional Open Space District (MROSD), near La Honda, San Mateo County, CA. The project was evaluation of 21 historic-age buildings and structures located at four ranches within a 3,649-acre project area. Managed work and contributed to the report. Project Manager. 2016

FBI Sonnet Ring, MCB Quantico, Prince William County, VA. The project involved Phase I and Phase II Archaeological Survey of lands to be impacted by new fiber optic cable placement. Managed labwork, analyzed lithics, and was lead author of the report. Prime. Principal Archaeologist. 2015

Hidden Oaks Country Club Specific Plan, City of Chino Hills, CA. The proposed project is a 537 acre residential development with minimum 5 acre lots. Managed cultural and paleontological resources assessments including records searches, Sacred Lands search, NAHC consultation, field survey, and assisted the City with SB 18 compliance. Wrote sections of the report. Principal Archaeologist. 2015-2016

Devers-Palos Verde 500 kV No. 2 Transmission Line Project, Southern California Edison, Devers Valley, Riverside County, CA. Evaluated Edom Hill, located in Desert Hot Springs, and the Lakeview Mountains Cultural Landscape, located in Lakeview, for inclusion in the National Register of Historic Places as Traditional Cultural Properties. Sub to ASM. Principal Archaeologist. 2016.

Catalina Solar 2, EDF Renewable Energy, Rosamond, Kern County, CA. The project was construction of an 18MWac utility-scale solar photovoltaic facility on a 761.4-acre site that will connect to the SCE Whirlwind substation. Managed monitoring and monitoring mitigation compliance report. Sub to Environmental Intelligence. Principal Investigator. 2015

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

MOLLY VALASIK
Project Manager and Principal Archaeologist

EDUCATION

2009 M.A., Anthropology, Kent State University, Kent, Ohio
2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

EXPERIENCE

Ms. Valasik is a Registered Professional Archaeologist with eight years of professional experience.

SELECTED PROJECTS

Old Town Streetscape, Phase 2, Caltrans District 3, City of Elk Grove, Sacramento County, CA. The City proposed construction of bump outs, sidewalk widening, bus lanes, etc. within a National Register-listed historic district. Managed cultural studies including record search, Sacred Lands File search, Native American consultation, intensive-level pedestrian archaeological and architectural surveys, as well as coordination and approval by District 3 of an APE map. The District record was updated. Author of Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker/PMC. Project Manager/Principal Investigator. 2016

SR-138 Palmdale Boulevard PA/ED (Sierra Highway), Caltrans District 7, City of Palmdale, Los Angeles County, CA. The project involved widening State Route 138 and Sierra Highway. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey, as well as coordinated approval by District 7 of an APE map. Co-author of the Archaeological Survey Report and Historic Properties Survey Report. Sub to Parsons Transportation. Project Manager/Principal Investigator. 2016

Paradise Valley Specific Plan, County of San Bernardino, near Indio, CA. The proposed project, encompassing 5,411 acres, consists of the construction of a planned community. Directed archaeological survey and extended Phase I activities. Lead author of assessment report. Managed subsequent supplemental survey and updated report. Sub to Envicom. Field Director and GIS Manager. 2011-2013; 2014; 2016

Arlington Avenue Widening, Caltrans District 8, City of Riverside Public Works, Riverside County, CA. The City proposed widening Arlington Avenue one linear mile in order to construct safety improvements. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey of the 5-acre site with negative results, as well as coordinated approval by District 8 of an APE map. Co-author of the Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker. Project Manager/Co-Principal Investigator. 2015

Folsom Boulevard Streetscape Enhancement, Caltrans District 3, City of Rancho Cordova, Sacramento County, CA. The City proposed to construct sidewalks, bike lanes, medians, safety fencing, and street and pedestrian lighting along Folsom Boulevard. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey, as well as coordination and approval by District 3 of an APE map. Author of Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker/PMC. Project Manager/Principal Archaeologist. 2015

Newport Beach Land Use Element, City of Newport Beach, CA. The project was update of a general plan element. Conducted research and co-authored assessment report with mitigation recommendations. Sub to Place Works. Co- Principal Archaeologist. 2014

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

ALBERT KNIGHT
Field Supervisor
Archaeologist/Cross-Trained Paleontologist

EDUCATION

1983 B.A., Anthropology, University of California, Santa Barbara

SUMMARY

Mr. Knight is a qualified archaeologist and cross-trained paleontologist with more than 30 years of professional experience in anthropology, prehistoric, and historic research and fieldwork, including field survey, site excavation, materials analysis, construction monitoring, and project reporting. He is the author, or co-author, of over 100 professional reports and papers. His personal research interests include California and Great Basin prehistory, geography, and rock art. He has performed extensive historical research in south-central California, and is a contributing author for the Kawaiisu Handbook, by Garfinkel et al. (2011). He has worked with Chumash, Fernandeno, Kawaiisu, Yokuts, and Miwok people. His personal research interests include California and Great Basin geography, ethnography, and history, and over the last 20 years he has published or edited over a dozen papers on the rock art of Ventura, Kern and Los Angeles counties.

SELECTED PROJECTS

Angeles National Forest, Agua Dulce Canyon Restoration Due Diligence, Mountains Recreation and Conservation Authority, Los Angeles County, CA. This project implemented a riparian Habitat Mitigation and Monitoring Plan, in order to offset impacts caused by a nearby road improvement project by the Los Angeles County Department of Public Works. Conducted a cultural resources assessment of one acre, in compliance with NHPA Section 106, including the records search, the pedestrian survey, and Phase I Cultural Resources Assessment Report for the Habitat Mitigation and Monitoring Plan. Report Co-author. Archaeologist. 2014

Angeles National Forest, Lopez Canyon Restoration Project, Mountains Recreation and Conservation Authority, Angeles National Forest, Los Angeles County, CA. This project implemented the mitigation of riparian habitat in the Los Angeles River watershed. Conducted a Phase I Cultural Resources Assessment of 9 acres in compliance with NHPA Section 106, including the records search, pedestrian survey, and Phase I Cultural Resources Assessment Report for the Lopez Canyon Habitat Mitigation and Monitoring Site. Report Co-author. Archaeologist. 2014

Wilson Canyon Mitigation Project, Mountains Recreation and Conservation Authority, Sylmar, Los Angeles County, CA. This project implemented the mitigation of riparian habitat in the Los Angeles River watershed. Conducted a Phase I Cultural Resources Assessment of 258 acres in compliance with NHPA Section 106, including the records search, the pedestrian survey, and Phase I Cultural Resources Assessment Report for the Wilson Canyon Mitigation Site in Sylmar. Report Co-author. Archaeologist. 2014

Malibu Coastal Access Project, Mountains Recreation and Conservation Authority, City of Malibu, Los Angeles County, CA. Conducted a Phase I Cultural Resources Assessment including the field survey of four coastal locations for development of pedestrian access located within the City of Malibu. Report Co-author. Archaeologist. 2015

Gopher Canyon Restoration Project, Mountains Restoration and Conservation Authority, USACE, unincorporated Chatsworth, Los Angeles County, CA. Conducted a Phase I cultural resources assessment to evaluate effects of the proposed streambed alteration and restoration areas in compliance with NHPA Sec 106. USACE served as the lead agency. Tasks included a records search, intensive pedestrian survey, and compliance report. Report Co-author. Archaeologist. 2013

3121 Old Topanga Canyon Road, Calabasas, Los Angeles County, CA. Conducted cultural and paleontological mitigation monitoring during trenching and excavation for construction of a single-family residence on a 5-acre vacant, but previously disturbed steep hillside parcel. Archaeological/Paleontological Monitor. 2016

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

MICHELLE SAVALA COURTNEY
Archaeologist/Paleontologist Field Technician

EDUCATION

2000 B.S., Anthropology, Univerisity of California, Riverside

SUMMARY OF QUALIFICATIONS

Ms. Courtney is certified by the City of San Diego as a dual-qualified archaeologist/paleontologist with 16 years of experience in cultural resource management. She has worked on all aspects of historical, prehistoric and paleontological resources projects throughout southern California. She is knowledgeable of environmental compliance requirements under CEQA, NEPA, NHPA Sec. 106/110, NAGPRA and local agencies regulations. Her experience includes project management, records search, archival research, and Native American consultation. Her field activities include scheduling and managing field crews, conducting, Phase I and II surveys and excavations, data recovery, site recording, construction monitoring, coordinating with Native American monitors, and preparing compliance reports. She has been responsible for directing laboratory technicians for sorting, identifying, archiving, documenting, and cataloging artifacts and fossils.

SELECTED PROJECTS

Barren Ridge Renewable Transmission Project, Los Angeles Department of Water and Power, Los Angeles and Kern Counties, CA. Conducted paleontological resources preconstruction surveys of the project alignment (~75 linear miles) within the Angeles National Forest and Mojave Desert areas of Southern California on National Forest System lands and Bureau of Land Management managed public lands. Cogstone provided monitoring of the installation of a limited number of towers near Rosamond and south to near Palmdale; conducted WEAP training for construction personnel; prepared daily and weekly reports, and will prepare a summary monitoring report in accordance with the Mitigation Monitoring and Reporting Program requirements under CEQA. 2016

Country Club Bridge, San Diego County Department of Public Works/Caltrans District 11, unincorporated San Diego County, CA. The project involved replacing a low water crossing with a new bridge. In support of a cultural resources assessment, conducted background research and intensive-level pedestrian survey of the 5.07-acre APE with negative results for inclusion in an Archaeological Survey Report. Sub to ICF International. Field Technician. 2016

Cypress Apartments, Imperial Housing Development, Affirmed Housing/HA Builders, San Diego, San Diego County, CA. Conducted archaeological and paleontological resources monitoring during ground disturbing activities for construction of an apartment building. Data recovery and cataloging of artifacts. Field Technician. 2015-2016

Lane Field South Hotel, Lane Field LLC, Hensel Phelps, San Diego, San Diego County, CA. Conducted archaeological and paleontological awareness training and mitigation monitoring during ground disturbing activities in compliance with the Subsurface Mitigation Plan (Cogstone) on behalf of the developer. The project involves construction of a new multi-story high-rise hotel with ground level retail space and underground parking. It is located on the site of the former Lane Field baseball stadium (c. 1936-1957). The site is currently a paved parking lot at Pacific Coast Highway and Broadway in downtown San Diego. Field Technician. 2016-ongoing

Palatino Little Italy Apartments Project, Kirkham Road and McMillin Little Italy, City of San Diego, San Diego County, CA. Providing cultural and paleontological resources compliance and mitigation monitoring during ground disturbing activities for construction of a 100 unit multi-family housing development at State and Elm Streets in the Little Italy area of San Diego on behalf of the developer. Sub to Spindrift Archaeology. Field Technician. 2016-ongoing

APPENDIX B. CALTRANS BRIDGE INVENTORY

Structure Maintenance & Investigations

Historical Significance - Local Agency Bridges

District 07

Los Angeles County

Bridge Number	Bridge Name	Location	Historical Significance	Year Built	Year Wid/Ext
53C0943	HOLLYWOOD WAY	1/2 MI N VICTORY BLVD	5. Bridge not eligible for NRHP	1970	
53C0944	VERDUGO WASH	1/4 MI N VENTURA FREEWAY	5. Bridge not eligible for NRHP	1981	1993
53C0945	PICKENS CANYON CHANNEL	3/4 MI S FOOTHILL FWY	5. Bridge not eligible for NRHP	1935	
53C0946	THOMPSON CREEK	3/4 MI N SAN BERNARDINO F	5. Bridge not eligible for NRHP	1958	
53C0948	SAN JOSE CREEK	1/2 MI N OF HOLT AVE	5. Bridge not eligible for NRHP	1957	
53C0949	WHITE AVE UNDERPASS (UP RR)	1/4 MI S/O HOLT AVE	5. Bridge not eligible for NRHP	1960	
53C0950	UPRR	1/4MI S OF HOLT AVE	5. Bridge not eligible for NRHP	1960	
53C0951	GAREY AVE UNDERPASS	1/4 MI S OF HOLT AVE	5. Bridge not eligible for NRHP	1963	
53C0952	TOWNE AVE UNDERPASS (UP RR)	1/4MI S OF HOLT AVE	5. Bridge not eligible for NRHP	1959	
53C0953	TOWNE AVE UP (UP RR)	1/4MI S OF HOLT AVE	5. Bridge not eligible for NRHP	1959	
53C0954	BURBANK-WESTERN CHANNEL	200' N GOLDEN STATE FRWY	5. Bridge not eligible for NRHP	1958	
53C0955	BURBANK WESTERN CHAN	0.8MI W/O I-5 FWY	5. Bridge not eligible for NRHP	1940	
53C0956	BURBANK-WESTERN CHANNEL	50' E GOLDEN STATE FRWY	5. Bridge not eligible for NRHP	1958	
53C0957	UTILITY BRIDGE	HOLLYWOOD WY @ EMPIRE AV	5. Bridge not eligible for NRHP	1970	
53C0958	PACOIMA WASH	0.2 MILE SE MACLAY ST	5. Bridge not eligible for NRHP	1923	1959
53C0963	OLD TOPANGA CRK	300FT S/O TOPANGA SKY DR	5. Bridge not eligible for NRHP	1927	1960
53C0966	OLD TOPANGA CRK	400FT N/O TOPANGA SKY DR	5. Bridge not eligible for NRHP	1928	1960
53C0967	BUCK CYN	6.0MI N/O FOOTHILL BLVD	5. Bridge not eligible for NRHP	1928	1959
53C0968	OLD TOPANGA CRK	0.1MI N/O OLD TOPANGA RD	5. Bridge not eligible for NRHP	1928	1967
53C0969	PACOIMA CRK	9.0MI N/O FOOTHILL BLVD	5. Bridge not eligible for NRHP	1931	1959
53C0970	TOPANGA CYN CRK	25FT W/O TOPANGA CYN BLVD	5. Bridge not eligible for NRHP	1936	1966
53C0971	SAN ANTONIO CRK	0.2MI NE/O MNT BALDY RD	5. Bridge not eligible for NRHP	1931	1950
53C0972	CATTLE CYN CRK	5.7MI E/O SAN GAB CYN RD	5. Bridge not eligible for NRHP	1932	
53C0973	ALHAMBRA WASH	0.2MI S/O VALLEY BLVD	5. Bridge not eligible for NRHP	1935	
53C0976	SIERRA MADRE WASH	0.6MI W/O SANTA ANITA AVE	5. Bridge not eligible for NRHP	1934	
53C0977	FISH CRK	18MI NE/O I-5 FWY	5. Bridge not eligible for NRHP	1935	1976
53C0979	RED ROCK CRK	1.9MI N/O TOPANGA CYN BL	5. Bridge not eligible for NRHP	1936	1960
53C0980	OLD TOPANGA CRK	1.4MI W/O TOPANGA CYN BL	5. Bridge not eligible for NRHP	1937	1962
53C0981	OLD TOPANGA CRK	0.3MI W/O TOPANGA CYN BL	5. Bridge not eligible for NRHP	1937	1963
53C0983	ALHAMBRA WASH	0.5MI W/O SAN GABRIEL BL	5. Bridge not eligible for NRHP	1936	1963
53C0984	ALHAMBRA WASH	0.5MI W/O SAN GABRIEL BL	5. Bridge not eligible for NRHP	1936	1963
53C0986	MINT CANYON WASH	300&#39 W OF SIERRA HWY	5. Bridge not eligible for NRHP	1927	1962
53C0987	ARROYO SEQUIT	1.5MI N/O PACIFIC CST HY	5. Bridge not eligible for NRHP	1938	
53C0988	MINT CANYON WASH	0.1 MI E SIERRA HWY	5. Bridge not eligible for NRHP	1983	
53C0989	PINE CYN CRK	1.5MI W/O LAKE HUGHES RD	5. Bridge not eligible for NRHP	1939	
53C0990	RUBIO WASH	0.3MI E/O SN GABrIEL BLVD	5. Bridge not eligible for NRHP	1939	
53C0991	BALLONA CRK	0.1MI W/O JEFFERSON BLVD	5. Bridge not eligible for NRHP	1938	
53C0992	SANTA CLARA RIV	0.2MI S/O SOLEDAD CYN RD	5. Bridge not eligible for NRHP	1986	
53C0994	WEBB CYN CRK	0.2MI W/O TOWNE AVE	5. Bridge not eligible for NRHP	1929	
53C0995	GREENLEAF CYN CRK	0.4MI W/O TOPANGA CYN BL	5. Bridge not eligible for NRHP	1942	1966
53C0998	CHESEBRO CYN CRK	0.6MI N/O US-101 FWY	5. Bridge not eligible for NRHP	1945	
53C0999	LAS FLORES CRK	100FT E/O LAS FLORES C RD	5. Bridge not eligible for NRHP	1945	1994
53C1000	EAGLE CYN CHAN	0.1MI N/O FOOTHILL BLVD	5. Bridge not eligible for NRHP	1948	

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APPENDIX C. NATIVE AMERICAN CONSULTATION

Local Government Tribal Consultation List Request
Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

☒ **CEQA Tribal Consultation List (AB 52)** – *Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2*

☐ **General Plan (SB 18)** - *Per Government Code § 65352.3.*

Local Action Type:

___ General Plan ___ General Plan Element ___ General Plan Amendment

___ Specific Plan ___ Specific Plan Amendment ___ Pre-planning Outreach Activity

Required Information

Project Title: Little Tujunga Canyon Road, Bridge Replacement

Local Government/Lead Agency:
County of Los Angeles, Department of Public Works

Contact Person: Stephanie Hsiao

Street Address: 900 S Fremont Ave, 11th Floor **City:** Alhambra **Zip:** 91803-1331
Phone: (626) 458-3945
Fax: None provided
Email: shsiao@dpw.lacounty.gov

Specific Area Subject to Proposed Action

County: Los Angeles **City/Community:** Angeles National Forest

Project Description: The bridge replacement project is located at Little Tujunga Canyon Road over Buck Canyon in the Angeles National Forest, approximately 4.9 miles northerly from Freeway I-210. The existing bridge was built in 1928 and widened in 1959, and it is a timber A-frame bridge with timber piles and substandard travel lanes: a 12-foot lane and 1-foot shoulder in each direction. The existing bridge is classified as functionally obsolete and16-ton trucks and greater are prohibited from traveling on the bridge.

The new bridge will be 65-foot-long, 34-foot-wide single-span precast pre-stressed concrete I-girder structure supported by pile foundation by drilling rig truck across Buck Canyon Creek. The new bridge will consist of a 12-foot lane and 5-foot shoulder in each direction. Caltrans' Type 732 concrete barrier with tubular handrail will be installed on both sides of the bridge. Existing wingwalls will be reconstructed, and the top of concrete deck is expected to be approximately one foot above the existing deck. The new bridge will provide resistance to fire damage, facilitate emergency access and improve roadway safety. Small portions of the new wingwalls will be constructed outside of the existing U.S. Forest Special Use Permit. Currently, U.S. Forest Service is working to amend the existing permit to accommodate the new wingwalls.

The project also includes reconstruction of approximately 200-foot roadway on each side of the bridge. The reconstructed roadway width will vary from existing 26 feet to 34 feet to accommodate the new travel lane width on the bridge. Metal beam guardrails will be installed at the approach corners.

Additional Request

☒ **Sacred Lands File Search** - *Required Information:*
USGS Quadrangle Name(s): Sunland **Township:** 3N **Range:** 14W **Section(s):** 22

STATE OF CALIFORNIA — Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX

February 22, 2017

Stephanie Hsiao
County of Los Angeles, Department of Public Works

Sent by E-mail: shsiao@dpw.lacounty.gov

RE: Proposed Little Tujunga Canyon Road, Bridge Replacement Project, Angeles National Forest; Sunland USGS Quadrangle, Los Angeles County, California

Dear Ms. Hsiao:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent of the reference codes below is to avoid or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects under AB-52.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 **require public agencies** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> **Within 14 days** of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.
   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed for the project with negative results.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

for Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Heritage Commission
Tribal Consultation List
Los Angeles County
2/22/2017

Barbareno/Ventureno Band of Mission Indians
Julie Lynn Tumamait-Stennslie, Chairperson
365 North Poli Ave — Chumash
Ojai, CA, 93023 — Chumash
Phone: (805)646-6214
jtumamait@hotmail.com

Coastal Band of the Chumash Nation
Mia Lopez, Chairperson
Phone: (805) 324 - 0135 — Chumash
cbcntribalchair@gmail.com

Fernandeno Tataviam Band of Mission Indians
Rudy Ortega, President
1019 2nd Street, #1 — Tataviam
San Fernando, CA, 91340
Phone: (818) 837 - 0794
Fax: (818) 837-0796

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
gabrielenoindians@yahoo.com

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626)286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951)807-0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino-Tongva Tribe
Linda Candelaria, Co-Chairperson
1999 Avenue of the Stars, Suite 1100 — Gabrielino
Los Angeles, CA, 90067
Phone: (626) 676 - 1184

Northern Chumash Tribal Council
Fred Collins, Spokesperson
67 South Street — Chumash
San Luis Obispo, CA, 93401
fcollins@northernchumash.org

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Serrano
Phone: (760) 885 - 0955 — Tataviam
tsen2u@hotmail.com

Santa Ynez Band of Mission Indians
Kenneth Kahn, Chairperson
P.O. Box 517 — Chumash
Santa Ynez, CA, 93460
Phone: (805) 688 - 7997
Fax: (805) 686-9578
kkahn@santaynezchumash.org

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 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Little Tujunga Canyon Road, Bridge Replacement Project, Los Angeles County.

PROJ-2017-000913 — 02/22/2017 10:26 AM — 1 of 1

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

PALEONTOLOGICAL RESOURCES ASSESSMENT FOR THE LITTLE TUJUNGA CANYON ROAD BRIDGE REPLACEMENT PROJECT, LOS ANGELES COUNTY, CALIFORNIA

Prepared for:
Michael Baker International
5 Hutton Centre Drive, Suite 500
Santa Ana, CA 92707

Author and Principal Investigator:
Kim Scott, M.S.

April 2017

Cogstone Project Number: 3990
Type of Study: Paleontological Resources Assessment
Localities: none within the project area, one nearby
USGS Quadrangle: Sunland 7.5' quadrangle
Area: 1.74 acres
Key Words: negative survey; Saugus Formation- low (PFYC 2) fossil potential; fill, granodiorite and gneiss- very low (PFYC 1) fossil potential

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SUMMARY OF FINDINGS

The purpose of this study is to determine the potential effects to paleontological resources resulting from the replacement of the Little Tujunga Canyon Road Bridge located along Little Tujunga Canyon Road in the Angeles National Forest, Los Angeles County, California. This technical study provides environmental documentation as required by the California Environmental Quality Act (CEQA). The County of Los Angeles has proposed the Little Tujunga Canyon Road Bridge Replacement Project (project) over Buck Canyon Creek in order to meet current bridge design and seismic safety standards, and improve the safety for pedestrians, bicyclists, and vehicle users in the project area. The project would implement improvements to the existing bridge and adjacent roadway to improve operations in the project area. Planned depths of excavations of the 1.74 acre project are anticipated to be about 10 feet deep for the abutments.

The project is mapped as the middle to early Pleistocene Saugus Formation, Cretaceous granodiorite, and early to middle Mesozoic gneiss. Only the sediments of the Saugus Formation have potential to contain fossils as the other rock types that do not preserve fossils. Results of the record search indicate that no previous fossil localities have been recorded within the project boundaries and only one nearby. An ancient horse fossil (*Pliohippus* sp.) was recovered from the Saugus Formation in Doane Canyon, which feeds into Big Tujunga Canyon to the east of the project area. Based on the results of the records search, the Saugus Formation is assigned a low (PFYC 2) fossil potential. Both the granodiorite and gneiss are assigned a very low (PFYC 1) fossil potential.

During the survey, sediments of the terrestrial Saugus Formation were observed. The only area mapped as Saugus Formation within the study area was heavily overgrown. Aerial photographs though the past few years revealed that this area was entirely fill. No fossils were observed during the survey.

Few fossils are known from the Saugus Formation, although the remains of vertebrates are known from near to the project. However, the only area mapped as Saugus Formation has been used as a dumping area for fill. Planned staging activities are unlikely to reach below the fill horizon. Because of this, recommendations are as follows:

- Paleontological monitoring is not recommended for the current project due to the unlikelihood of encountering any significant vertebrate fossil remains.
- In the event of an unanticipated discovery of fossils, all work must be suspended within 50 feet of the find until a qualified paleontologist evaluates it. Work may resume immediately a minimum of 50 feet away from the find.

INTRODUCTION

PURPOSE OF STUDY

The purpose of this study is to determine the potential effects to paleontological resources resulting from the replacement of the Little Tujunga Canyon Road Bridge located along Little Tujunga Canyon Road in the Angeles National Forest, Los Angeles County, California (Figure 1). The Los Angeles County Department of Public Works (LACDPW) is the lead agency. This technical study provides environmental documentation as required by the California Environmental Quality Act (CEQA).

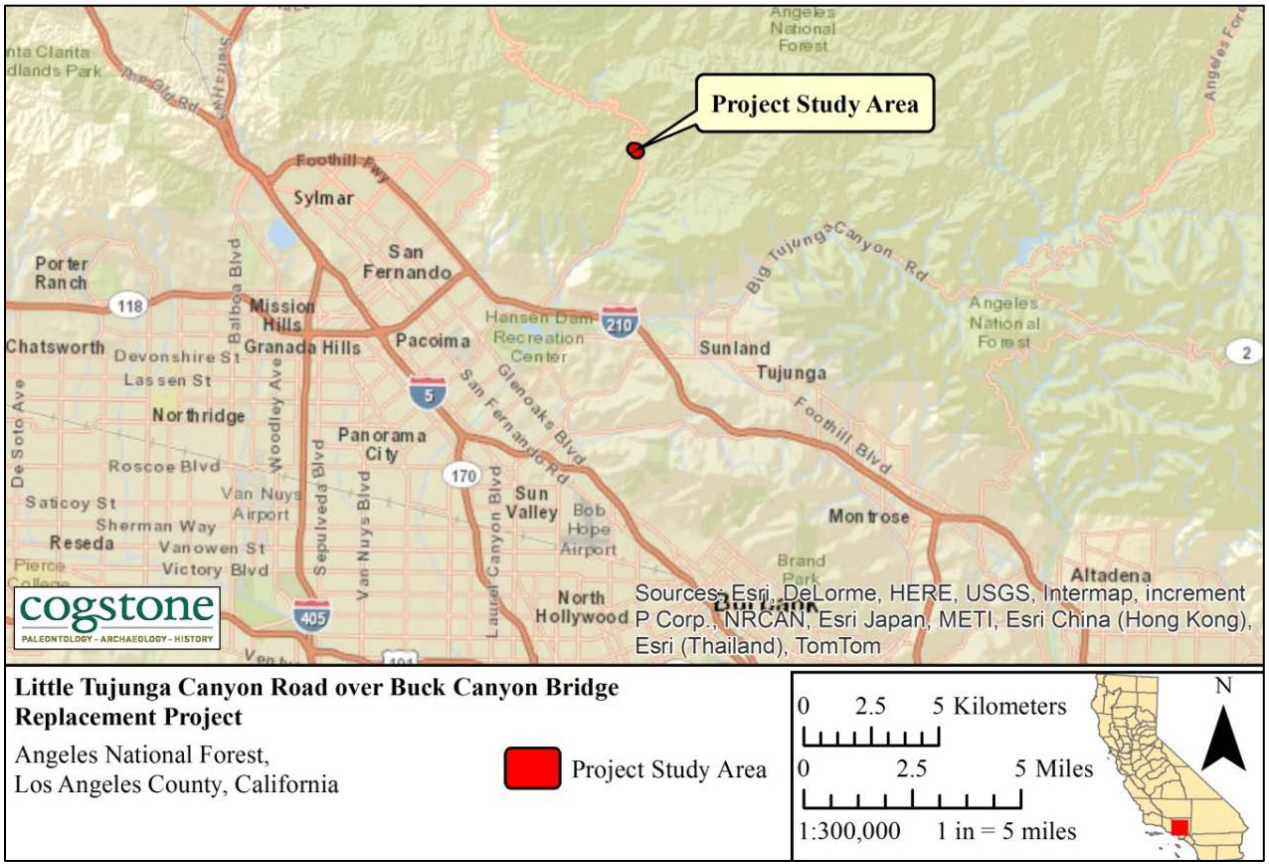

Figure 1. Project vicinity map

PROJECT LOCATION AND DESCRIPTION

The bridge replacement project is located at Little Tujunga Canyon Road over Buck Canyon Creek in the Angeles National Forest, approximately 4.9 miles northerly from Freeway I-210 (Figures 2, 3). The existing bridge was built in 1928 and widened in 1959, and it is a timber A-frame bridge with timber piles and substandard travel lanes: a 12-foot lane and 1-foot shoulder in each direction. The existing bridge is classified as functionally obsolete and 16-ton trucks and greater are prohibited from traveling on the bridge.

The new bridge will be 65-foot-long, 34-foot-wide single-span precast pre-stressed concrete I-girder structure supported by pile foundation by drilling rig truck (79 dBA) across Buck Canyon Creek. The new bridge will consist of a 12-foot lane and 5-foot shoulder in each direction. Caltrans' Type 732 concrete barrier with tubular handrail will be installed on both sides of the bridge. Existing wingwalls will be reconstructed, and the top of concrete deck is expected to be approximately one foot above the existing deck. The new bridge will provide resistance to fire damage, facilitate emergency access and improve roadway safety. Small portions of the new wingwalls will be constructed outside of the existing U.S. Forest Special Use Permit. Currently, U.S. Forest Service is working to amend the existing permit to accommodate the new wingwalls.

The project also includes reconstruction of approximately 200-foot roadway on each side of the bridge. The reconstructed roadway width will vary from existing 26 feet to 34 feet to accommodate the new travel lane width on the bridge. Metal beam guardrails will be installed at the approach corners.

The project will be completed in two phases to keep the bridge open to the public through construction. Phase 1 construction will occur at the west side of the existing bridge, and one-way traffic will be maintained on the east side. Phase 2 will construct the east side and one-way traffic will be maintained on the other side. Flagmen will be required during daytime working hours. In the evening, a temporary traffic signal at each approach will be required to enhance sight distance. To minimize traffic impacts to the surrounding area, construction of this project will be scheduled to start after completion of the Little Tujunga Canyon Road over Pacoima Creek Bridge Replacement project, which is located approximately 4 miles northerly.

A staging area (Figures 3, 4, 5) is in the only potentially paleontologically sensitive area.

PROJECT STUDY AREA

The project covers 1.74 acres and is located in Township 3 North, Range 14 West, Section 22 of the Sunland 7.5' USGS quadrangle (Figure 2). Planned depths of excavations of the 1.74 acre project are anticipated to be about 10 feet deep for the abutments.

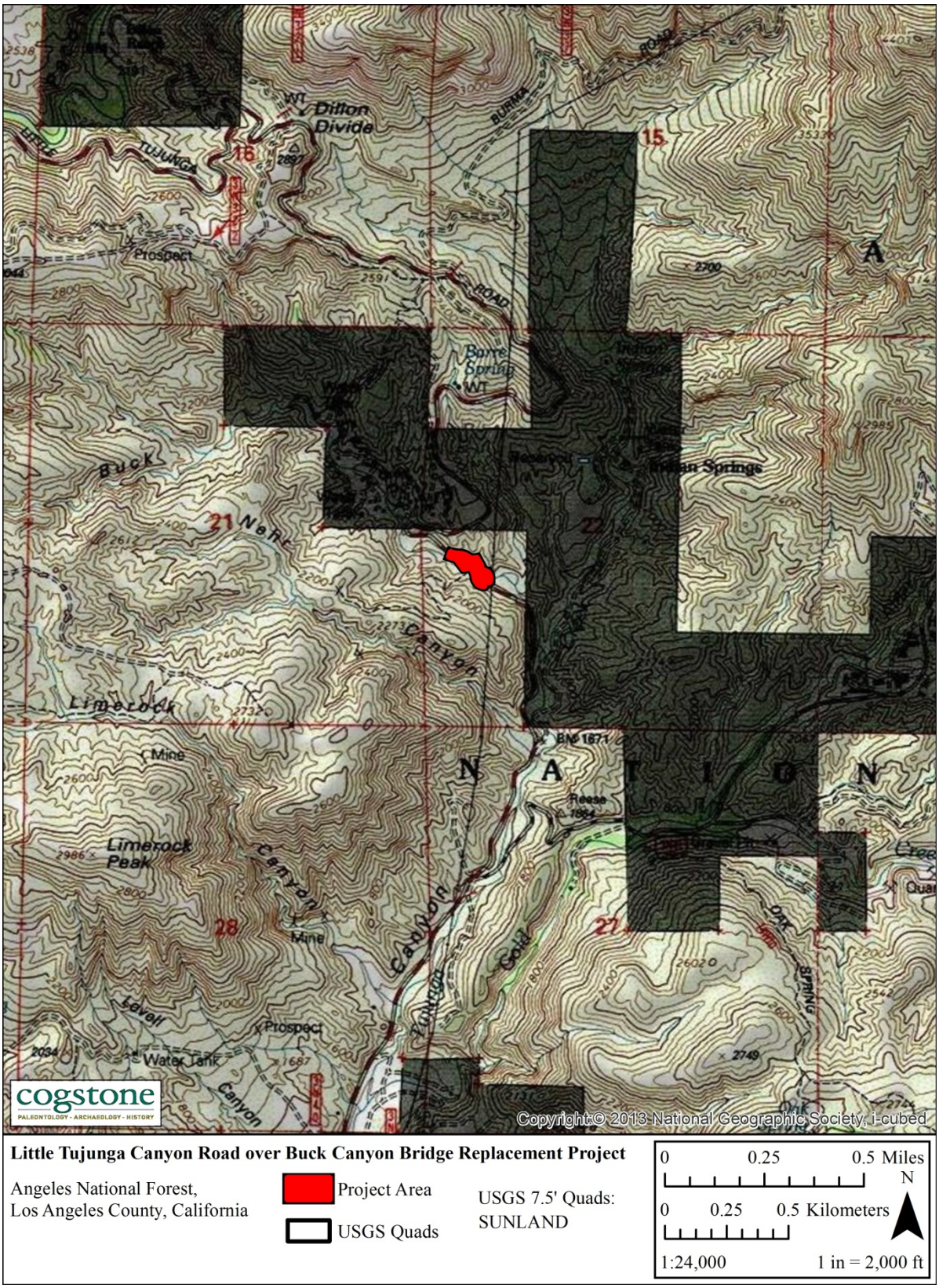

Figure 2. Project Location

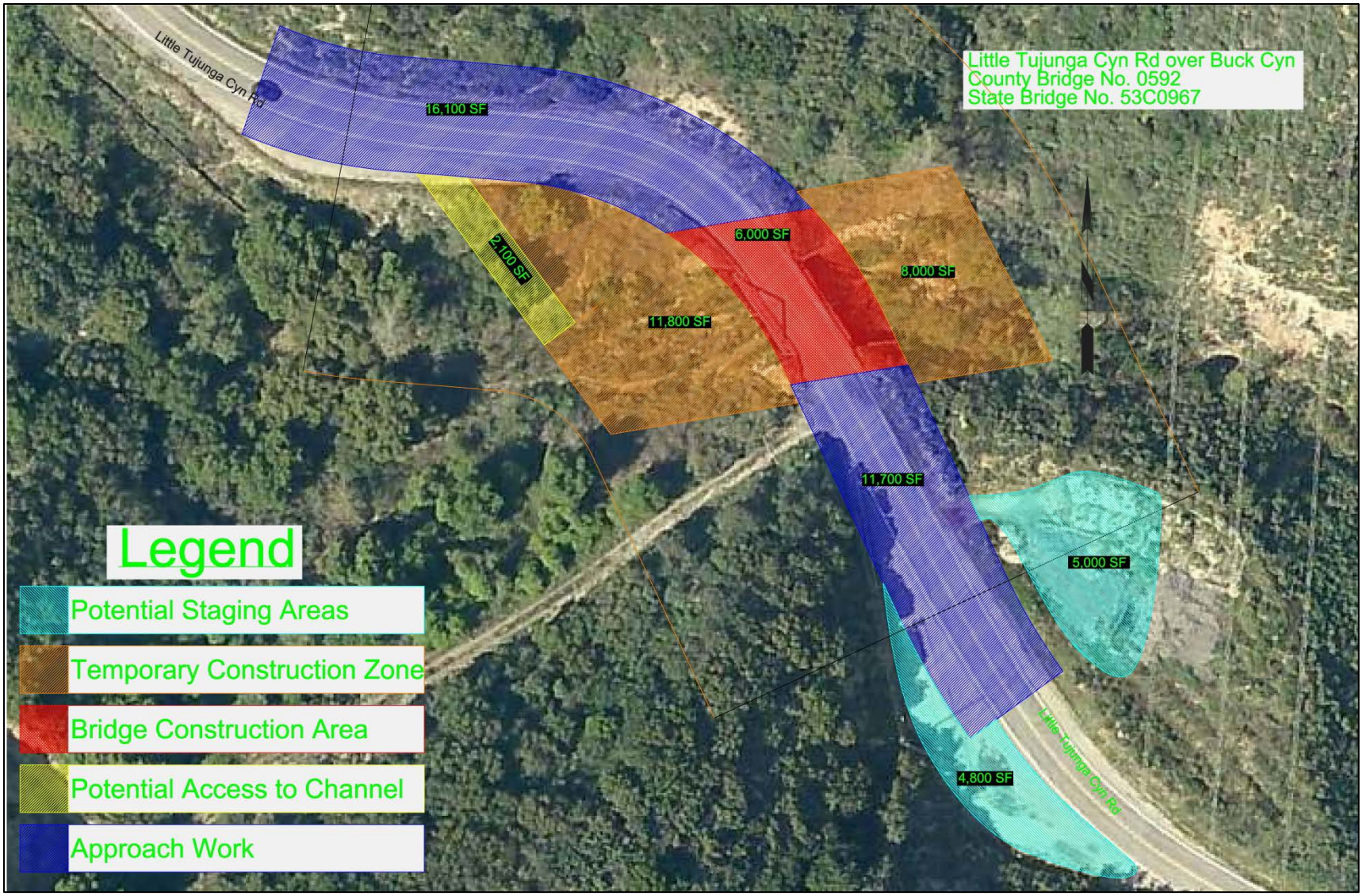

Figure 3. Project Study Area Map. Note staging area on the southeast corner of the project.

PROJECT PERSONNEL

Cogstone conducted the paleontological resources studies and brief resumes of senior staff are appended (Appendix A).

- Kim Scott served as the Principal Paleontologist for the project and wrote this report. Scott has a M. S. in Biology with an emphasis in paleontology from California State University, San Bernardino, a B.S. in Geology with an emphasis in paleontology from the University of California, Los Angeles, and over 20 years of experience in California paleontology and geology.

- Sherri Gust reviewed this report for quality control. Gust has a M.S. in Anatomy (Evolutionary Morphology) from the University of Southern California, a B.S. in Anthropology from the University of California at Davis and over 35 years of experience in California.

- John Harris, Paleontology Practice Leader and Principal Investigator reviewed the report. He has a Ph.D. in Geology from the University of Bristol (U.K.), an M.A. in Geology from the University of Texas, Austin, a B.S. (Hons) in Geology from the University of Leicester (U.K.). Dr. Harris has over 40 years of field and research experience in North America and Africa.

- André Simmons prepared the Geographic Information System (GIS) maps throughout this report. Simmons has a M.A. in Anthropology from California State University Fullerton, a GIS certification, and over eight years of experience in California archaeology and paleontology.

- Al Knight of Cogstone performed a joint archaeological and paleontological field evaluation. Knight has a B.A. in Anthropology, University of California, Santa Barbara and over 30 years of experience in California archaeology.

REGULATORY ENVIRONMENT

FEDERAL LAWS AND REGULATIONS

NATIONAL ENVIRONMENTAL PROTECTION ACT

NEPA directs federal agencies to use all practicable means to "Preserve important historic, cultural, and natural aspects of our national heritage…". If the presence of a significant environmental resource is identified during the scoping process, federal agencies and their agents must take the resource into consideration when evaluating project effects. Consideration of paleontological resources may be required under NEPA when a project is proposed for development on federal land, or land under federal jurisdiction. The level of consideration depends upon the federal agency involved.

ANTIQUITIES ACT

The Antiquities Act states, in part: That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, at the discretion of the court.

Although there is no specific mention of natural or paleontological resources in the Act itself, or in the Act's uniform rules and regulations [Title 43 Part 3, Code of Federal Regulations (CFR)], "objects of antiquity" has been interpreted to include fossils by the National Park Service, the Bureau of Land Management, the Forest Service, and other Federal agencies.

STATE LAWS AND REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA states that: It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

PUBLIC RESOURCES CODE

Section 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307

This section states that “No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value.”

BACKGROUND

GEOLOGICAL SETTING

The San Gabriel Mountains are part of the western Transverse Ranges Geomorphic Province. The Transverse Ranges are a series of steep ranges and valleys aligned obliquely to other Californian mountain ranges. These east-west ranges extend from the Channel Islands in the west to the Little San Bernardino Mountains in the east. Plate tectonics along the San Andreas Fault Zone played a part in molding the mountain ranges of western California, including the Coast, Peninsular, and Transverse ranges (the Sierra Nevada were already in place). A bend in the San Andreas Fault Zone created the Transverse Ranges and intense north-south compression has led to this region being one of Earth’s most rapidly rising zones.

STRATIGRAPHY

The project is mapped as middle to early Pleistocene Saugus Formation with a late Cretaceous granodiorite and an early to middle Mesozoic diorite gneiss (Figure 4). The Quaternary older alluvium mapped to the north of the project and which is locally composed of alluvial fan deposits, should not have subsurface representation within the project.

Although the planned staging area is mapped as Saugus Formation, it has been used as a dumping area for fill (Figures 3, 4, 5, 6).

SAUGUS FORMATION

The base of the middle to early Pleistocene (formerly middle Pleistocene to late Pliocene) Saugus Formation is estimated to be 2.3 million years old west of Valencia, the upper part of the formation contains an ash 730,000 years old, and the top is estimated to be 500,000 years old in the Ventura Basin (Treiman 1982, Levi and Yeats 1993, Squires et al. 2006, Cohen et al. 2016). Due to the changes made to the Pliocene-Pleistocene boundary from 1.8 million years to 2.58 million years by the International Commission on Stratigraphy, the age of the base of this formation has been revised from early Pleistocene to late Pliocene (Cohen et al. 2016).

The Saugus Formation overlies and interfingers with portions of the marine Pico Formation. Accordingly, geologic maps may not be detailed enough to record the local facies. In this instance however, no consulted sources indicated that portions of the Pico Formation occurred along Little Tujunga Canyon (Dibblee 1991, Campbell et al. 2014).

The terrestrial sediments of the Saugus Formation are slightly indurated, weakly to moderately cemented, poorly sorted, cross-bedded, channelized, light-grey to yellowish-grey, medium- to coarse-grained sandstones and pebble conglomerates of a braided-river environment with light greenish-grey sandy siltstones (Yerkes and Campbell 2005, Campbell et al. 2014). Sandstones and pebble conglomerates are interbedded with reddish-brown to moderate-brown sandy mudstones and claystones of overbank and paleosol deposits (Campbell et al. 2014).

GRANODIORITE (KGRD)

This presumably late Cretaceous (100.5 to 66 million years old), massive to gneissoid, grey granodiorite locally carries pendants of gneiss and the Paleozoic (541 to 252 million years old) Placerita Formation (Campbell et al. 2014).

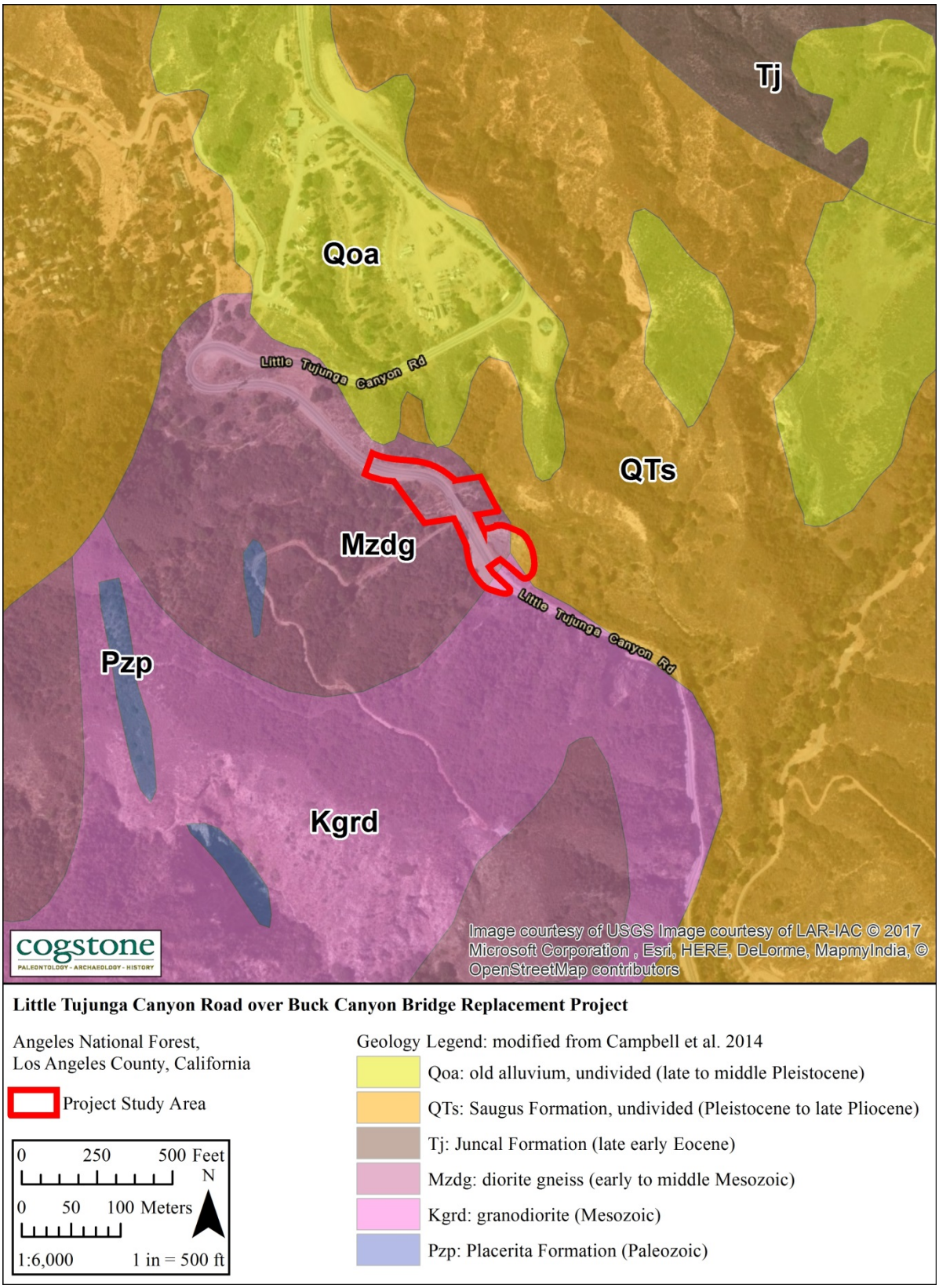

Figure 4. Project Geology map

Figure 5. Project Staging Area 2008 through 2017. All sediments are fill over Saugus Fm.

DIORITE GNEISS (M_zDG)

This early to middle Mesozoic (252 to 145 million years old), dark grey gneiss includes metadiorites, hornblende diorite, as well as amphibolite and diorite schists (Campbell et al. 2014). This unit is intruded by Cretaceous granitic rocks.

RECORDS SEARCH

Cogstone requested a records search from the Natural History Museum of Los Angeles County Department of Vertebrate Paleontology that covered the project area as well as a 1 mile radius (McLeod 2017; Appendix B). In addition, online and print resources including the University of California Museum of Paleontology Database (UCMP 2017), the PaleoBiology Database (PBDB 2017), and the Natural History Museum of Los Angeles County's Department of Invertebrate Paleontology database (LACM-IP 2017) were reviewed.

Only the sediments of the Saugus Formation have potential to contain fossils. The other rock units present are igneous and metamorphic rocks that do not preserve fossils. Results of the record search indicate that no previous fossil localities have been recorded within the project boundaries.

McLeod (2017) noted only an ancient horse fossil (*Pliohippus* sp.) from the Saugus Formation in Doane Canyon which feeds into Big Tujunga Canyon to the east of the project area. No other records for the terrestrial facies of the Saugus Formation were found (LACM-IP 2017, PBDB 2017, UCMP 2017).

Although McLeod (2017) did report fossils from Quaternary (Pleistocene) older alluvium near to the project (Appendix B) no Quaternary older alluvial sediments are likely to be disturbed during excavations.

RECONNAISSANCE SURVEY

METHODS

The survey stage is an important part of the project's environmental assessment phase. Its purpose is to confirm that field observations support the geological maps of the project area. Sediments are assessed for their potential to contain fossils. Additionally, if there are known paleontological resources the survey will verify the exact location of those resources, the condition or integrity of each resource, and the proximity of the resource to the project area. All undeveloped ground surface areas within the ground disturbance portion of the project area were examined. Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were visually inspected. Photographs of the project area, including ground surface visibility and items of interest, were taken with a digital camera.

Al Knight performed a joint archaeological and paleontological field survey of the project area on April 10, 2017. Only the Saugus Formation sediments of the project were studied. Overall ground visibility ranged from 0% to 20% due to heavy overgrowth and hardscaping. Those areas where the sediments could be viewed fully were on cliff faces outside of the study area and with no access. Due to these factors, much of the area could not be surveyed.

RESULTS

Sediments adjacent to the project were confirmed as the terrestrial Saugus Formation (Figure 6). Both the reddish color and presence of sand-rich channels (yellowish) are typical of this formation. The only area mapped as Saugus Formation within the study area was heavily overgrown (Figure 6 in foreground). Aerial photographs though the past few years revealed that this area was entirely fill (Figure 5). The survey also confirmed that the Quaternary older alluvium/ alluvial fan deposits to the north of the project would not be impacted during construction.

No fossils were observed during the survey.

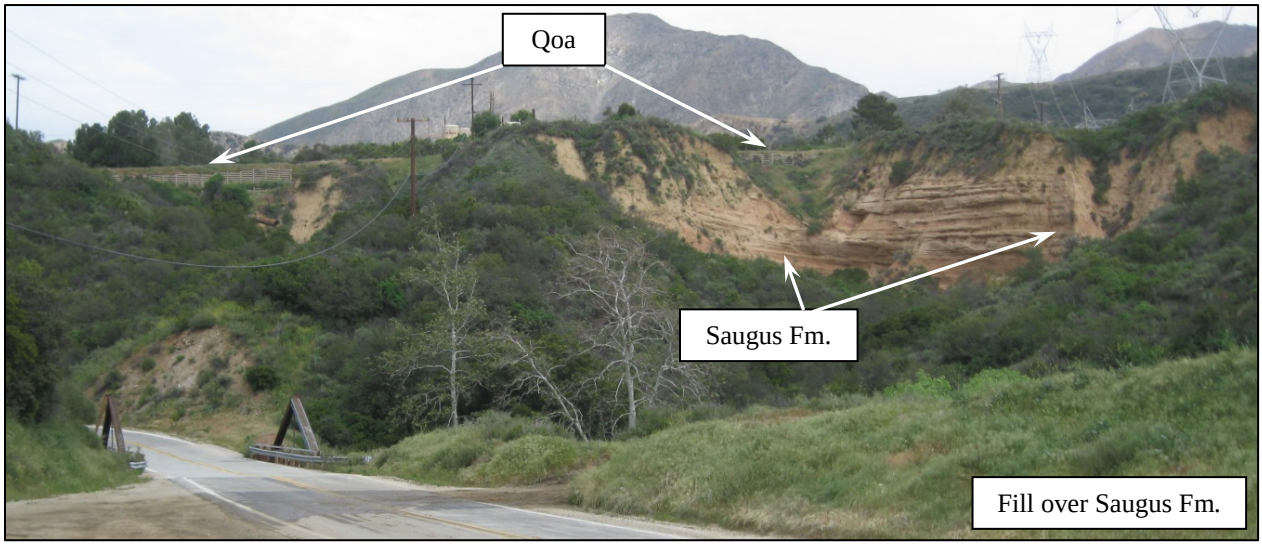

Figure 6. Saugus Formation with overlying fill and Quaternary older alluvium.

PALEONTOLOGICAL SENSITIVITY

The Potential Fossil Yield Classification (PFYC) utilizes a multi-level scale for fossiliferous sensitivity (BLM 2008; Appendix C). Knowledge of the geological formations gleaned from

geological maps, the survey, and records of previous fossils recovered from the area provide the basis for determining the paleontological sensitivity of the sediments found within the project area. In general, invertebrate localities are less sensitive for fossils than vertebrate localities.

The project is mapped as the middle to early Pleistocene Saugus Formation, Cretaceous granodiorite, and early to middle Mesozoic gneiss. Based on the results of the records search, the Saugus Formation is assigned a low (PFYC 2) fossil potential. Both the granodiorite and gneiss are assigned a very low (PFYC 1) fossil potential (Table 1).

Table 1. Sensitivity of various formations within the project area

Formation	Very high (PFYC 5)	High (PFYC 4)	Moderate, patchy (PFYC 3a)	Low (PFYC 2)	Very low (PFYC 1)
middle to early Pleistocene Saugus Formation				X	
Cretaceous granodiorite					X
early to middle Mesozoic gneiss					X

CONCLUSIONS AND RECOMMENDATIONS

The maximum depth of project-related ground disturbance is approximately 10 feet for the abutments. Little other earthmoving is planned for this 1.74 acre project.

Few fossils are known from the Saugus Formation, although the remains of vertebrates are known from near to the project. However, the only area mapped as Saugus Formation has been used as a dumping area for fill. Planned staging activities are unlikely to reach below the fill horizon. Because of this, recommendations are as follows:

- Paleontological monitoring is not recommended for the current project due to the unlikelihood of encountering any significant vertebrate fossil remains.
- In the event of an unanticipated discovery of fossils, all work must be suspended within 50 feet of the find until a qualified paleontologist evaluates it. Work may resume immediately a minimum of 50 feet away from the find.

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Campbell, R. H., C. J. Wills, P. J. Irvine, B. J. Swanson
2014 Preliminary Geologic Map of the Los Angeles 30' x 60' Quadrangle, California, version 2.1: California Department of Conservation, California Geological Survey and U.S. Geological Survey map, scale 1:100,000. Online at ftp://ftp.consrv.ca.gov/pub/dmg/rgmp/Prelim_geo_pdf/Los_Angeles_100k_v2.1_Map.pdf

Cohen, K. M., D. A. T. Harper, P. L. Gibbard, and Fan, J-XCS
2016 Updated from 2013. The ICS International Chronostratigraphic Chart Episodes 36:199-204. Online at http://www.stratigraphy.org/ICSchart/ChronostratChart2016-12.pdf

Dibble, T. W. Jr.
1991 Geologic map of the Sunland and Burbank (north ½) quadrangles, Lozs Angeles County, California. Edited by H. E. Ehrenspeak. Dibblee Geological Foundation Map #DF-32, scale 1:24,000.

LACM-IP
2017 Online records search of the Natural History Museum of Los Angeles County's Department of Invertebrate Paleontology database.

Levi, S. and R. S. Yeats
1993 Paleomagnetic constraints on the initiation of the uplift of the Santa Susana fault, western Transverse Ranges, California. Tectonics 12:688-702.

McLeod, S. A.
2017 Vertebrate Paleontology Records Check for paleontological resources for the proposed Little Tujunga Canyon Road Bridge Replacement Project, Cogstone Project # 3990, near Mendenhall Peak, Los Angeles County, project area. See Appendix B.

PBDB
2017 Online records search of the Paleobiology Database.

Squires, R. L., Groves, L. T., and J. T. Smith
2006 New information on molluscan paleontology and depositional environments of the upper Pliocene Pico Formation, Valencia Area, Los Angeles County, southern California. Contributions in Science 511, 24 p.

Treiman, J. A.
1982 Age of upper Saugus Formation at Newall, California and its implications as to the age of

the Santa Susana Mountains. *In* Fife, D. L. and J. A. Minch, Geology and mineral wealth off the California Transverse Ranges. South Coast Geological Society Annual Symposium and Guidebook 10, Mason Hill Volume, 330 p.

UCMP
2017 Online records search of the University of California, Berkeley paleontology database.

Yerkes, R. F., and R. H. Campbell
2005 Preliminary geologic map of the Los Angeles 30' x 60' quadrangle, southern California. Version 1.0. U.S. Geological Survey Open file report 2005-1019, scale 1:100,000. Online at http://pubs.usgs.gov/of/2005/1019

APPENDIX A. QUALIFICATIONS

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

KIM SCOTT
Principal Investigator for Paleontology
Field & Lab Director for Paleontology

EDUCATION

2013 M.S., Biology with a paleontology emphasis, California State University, San Bernardino
2000 B.S., Geology with paleontology emphasis, University of California, Los Angeles

SUMMARY QUALIFICATIONS

Scott has more than 20 years of experience in California paleontology. She is a qualified geologist and field paleontologist with extensive survey, monitoring and fossil salvage experience. In addition, she has special skills in fossil preparation (cleaning and stabilization) and preparation of stratigraphic sections and other documentation for fossil localities. Scott serves as company safety officer and is the author of the company safety and paleontology manuals.

SELECTED PROJECTS

Coto de Caza EIR Subdivision, Coto de Caza, Orange County, CA. The project proposes the subdivision of an existing large estate for development of 28 new residential lots on approximately 50-57 acres of land. Proposed residential lots will be a minimum of one acre in size. Prepared a Paleontological Assessment Report. Contracted to Bill Lyon. Co-Principal Paleontologist/Report Co-author. 2015.

Little Corona, Newport Beach, Orange County, CA. The project is part of the Newport Coast Watershed Management Plan and proposes the diversion of water from Buck Gully Creek into a subsurface infiltration gallery in which the Creek water will be percolated through the sand in order to improve beach conditions. Prepared the Archaeological and Paleontological Assessment Report. Contracted to Michael Baker RBF. Co-Principal Paleontologist/Report Co-author. 2015.

Center Avenue, Huntington Beach, Orange County, CA. The project consisted of constructing an underground parking structure. Sub to Avalon Bay. Supervised archaeological and paleontological field work and prepared the Archaeological and Paleontological Monitoring report. Field and Laboratory Director/ Report Co-author. 2014.

Gene Autry Way, Caltrans District 12, Anaheim, Orange County, CA. Project consisted of extending Gene Autry Way westward from 2,400 feet east of Interstate 5 to Haster Street (6 lanes wide), widening approximately 1,575 feet of Haster Street (520 feet south of Katella Avenue to 600 feet north of Orangewood Avenue) from 4 to 6 lanes plus a center turn lane, and completion of the Gene Autry Way overpass. Prepared a Paleontological Monitoring Report. Contracted to C. C. Myers. Field and Laboratory Director/Report Co-author. 2011-2012.

State Route 57 Northbound Widening Project, Caltrans District 12/ Orange County Transportation Authority (OCTA), Fullerton, Orange County, CA. Caltrans widening to State Route 57 between Lambert and Yorba Linda Avenue. Supervised paleontological monitoring and prepared the Paleontological Monitoring report. Under contract to CC Myers. Field and Laboratory Supervisor/Report Co-author. 2011-2012.

Interstate 5 and Ortega Highway Interchange, San Juan Capistrano, Orange County, CA. The project consisted of reconfiguring the interchange. Sub to ECORP Consulting. Co-authored Paleontological Literature Review. Field and Laboratory Director/ Report Co-author. 2006.

Central Park West Project, Irvine, Orange County, CA. The project consisted of building a housing development with underground parking. Supervised archaeological and paleontological field work and co-authored the Archaeological and Paleontological Assessment and monitoring reports. Sub to Lennar Communities. Field and Laboratory Director/ Report Co-author. 2005-2010.

APPENDIX B. RECORD SEARCH

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

3 February 2017

Cogstone Resource Management, Inc.
1518 West Taft Avenue
Orange, CA 92865-4157

Attn: Megan Wilson, Archaeologist & GIS Technician

re: Vertebrate Paleontology Records Check for paleontological resources for the proposed Little Tujunga Canyon Road Bridge Replacement Project, Cogstone Project # 3990, near Mendenhall Peak, Los Angeles County, project area

Dear Megan:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed Little Tujunga Canyon Road Bridge Replacement Project, Cogstone Project # 3990, near Mendenhall Peak, Los Angeles County, project area as outlined on the portion of the Sunland USGS topographic quadrangle map that you sent to me via e-mail on 20 January 2017. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area.

In most of the proposed project area, the southeastern portion, there are exposures of plutonic igneous rocks that will not contain recognizable fossils. In the northwestern portion of the proposed project area there are exposures of the Plio-Pleistocene Saugus Formation, and possibly exposures of older Quaternary Alluvium, with the latter probably derived as alluvial fan deposits around Buck Canyon. Our closest vertebrate fossil locality from older Quaternary deposits is LACM 5745, just south of west of the proposed project area just east of the Golden State Freeway (I-5) and south of the Foothill Freeway (I-210), that produced fossil specimens of mastodon, *Mammut*, and horse, *Equus*, in fill dirt. Our next closest fossil vertebrate localities in these Quaternary deposits occur at or near the Van Norman Reservoir, also south of west of the

proposed project area. These localities include LACM 3397 that produced fossil bison, *Bison*, at a seventy-five foot depth, LACM 7152 that produced fossil mammoth, *Mammuthus*, and bison, *Bison*, in terrace deposits and LACM 1733 that produced fossil horse, *Equus*, at unknown depth. Our closest vertebrate fossil locality from the Saugus Formation is probably LACM (CIT) 130, east-southeast of the proposed project area in Doane Canyon that drains into Tujunga Valley, that produced a fossil specimen of horse, *Pliohippus*.

Excavations in the exposures of plutonic igneous bedrock in most of the proposed project area will not encounter any recognizable fossils. Excavations in the Saugus Formation deposits exposed in the northwestern portion of the proposed project area, and in the older Quaternary Alluvium if present, may well encounter significant vertebrate fossils. Any substantial excavations in the sedimentary deposits exposed in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples from the proposed project area should also be collected and processed to determine the small fossil potential of the site. Any fossil materials uncovered during mitigation activities should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

APPENDIX C. SENSITIVITY RANKING CRITERIA

PFYC Description (BLM 2008)	PFYC Rank
Very Low. The occurrence of significant fossils is non-existent or extremely rare. Includes igneous or metamorphic and Precambrian or older rocks. Assessment or mitigation of paleontological resources is usually unnecessary.	**1**
Low. Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils. Includes rock units too young to produce fossils, sediments with significant physical and chemical changes (e.g., diagenetic alteration) and having few to no fossils known. Assessment or mitigation of paleontological resources is not likely to be necessary.	**2**
Potentially Moderate but Undemonstrated Potential. Units exhibit geologic features and preservational conditions that suggest fossils could be present, but no vertebrate fossils or only common types of plant and invertebrate fossils are known. Surface-disturbing activities may require field assessment to determine appropriate course of action.	**3b**
Moderate Potential. Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered and of low abundance. Common invertebrate or plant fossils may be found. Surface-disturbing activities may require field assessment to determine appropriate course of action.	**3a**
High. Geologic units containing a high occurrence of significant fossils. Fossils must be abundant per locality. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.	**4**
Very High. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils. Vertebrate fossils or scientifically significant invertebrate fossils are known or can reasonably be expected to occur in the impacted area. On-the-ground surveys prior to authorizing any surface disturbing activities will usually be necessary. On-site monitoring may be necessary during construction activities.	**5**