



HANGAR 1: PHASE I REHABILITATION (ABATEMENT)

SECTION 106 TECHNICAL REPORT

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HISTORIC RESOURCES GROUP

PREPARED FOR

Jonathan Ikan
Cultural Resources Manager
NASA Ames Research Center
Historic Preservation Office, MS 213-8
Moffett Field, CA 94035

PREPARED BY

Historic Resources Group
12 S. Fair Oaks Avenue, Suite 200
Pasadena, CA 91105

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1.0 INTRODUCTION

1.1 PURPOSE

Planetary Ventures, LLC (PV) proposes the Hangar 1: Phase I Rehabilitation (Abatement) (the “Project” or “Undertaking”) at ARC, Moffett Field, Santa Clara County, California and is requesting approval from the National Aeronautics and Space Administration (NASA) Ames Research Center (ARC). PV entered into a lease with NASA for the Moffett Federal Airfield (MFA) premises, including use of Hangar 1 for research and development, including testing and light assembly uses related to space, aviation, rover/robotics and other emerging technologies, and any other uses permitted under applicable law. Note that this Undertaking constitutes the first in two distinct phases at Hangar 1. The rehabilitation project is phased in order to address immediate environmental concerns. Phase I comprises the abatement and recoating project; Phase II comprises the re-cladding, adaptive re-use, and structural strengthening. This report addresses only Phase I; Phase II will be submitted separately.

As the lead federal agency, NASA is responsible for compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (54 United States Code 30101 et seq.), which requires federal agencies to consider the effects of their activities and programs on historic properties, and its implementing regulations in 36 Code of Federal Regulations (CFR) Part 800. The purpose of this report is to provide necessary information for compliance with Section 106, including a description of the Undertaking and the Area of Potential Effects (APE), the methodology used to identify historic properties within the APE, a description of the affected historic properties, and an assessment of potential effects resulting from the Undertaking.

The Former Naval Air Station (“NAS”) Moffett Field was originally commissioned as the NAS Sunnyvale in 1933 to serve as a base for the West Coast dirigibles of the Lighter-Than-Air program. Hangar 1 is a large steel structure measuring approximately 1,133 feet long by 308 feet wide and 198 feet tall that was constructed to house the United States Ship (“USS”) *Macon* dirigible. In 2014, Planetary Ventures (PV) entered into a lease with NASA for an approximately 1,000-acre parcel of land (“MFA Leasehold”) within the former NAS Moffett Field, including Hangar 1, for research and development activities. Under the lease agreement, PV committed to remediating, rehabilitating, and reskinning Hangar 1 for occupancy.

NASA has begun its review process under the National Environmental Policy Act (NEPA). A Draft NEPA Environmental Checklist was prepared on December 9, 2019 and the Planning Clearance Application was submitted to the NASA Ames Planning Office on December 10, 2019. Permit review clearance is anticipated by summer 2020.

1.2 PROJECT LOCATION

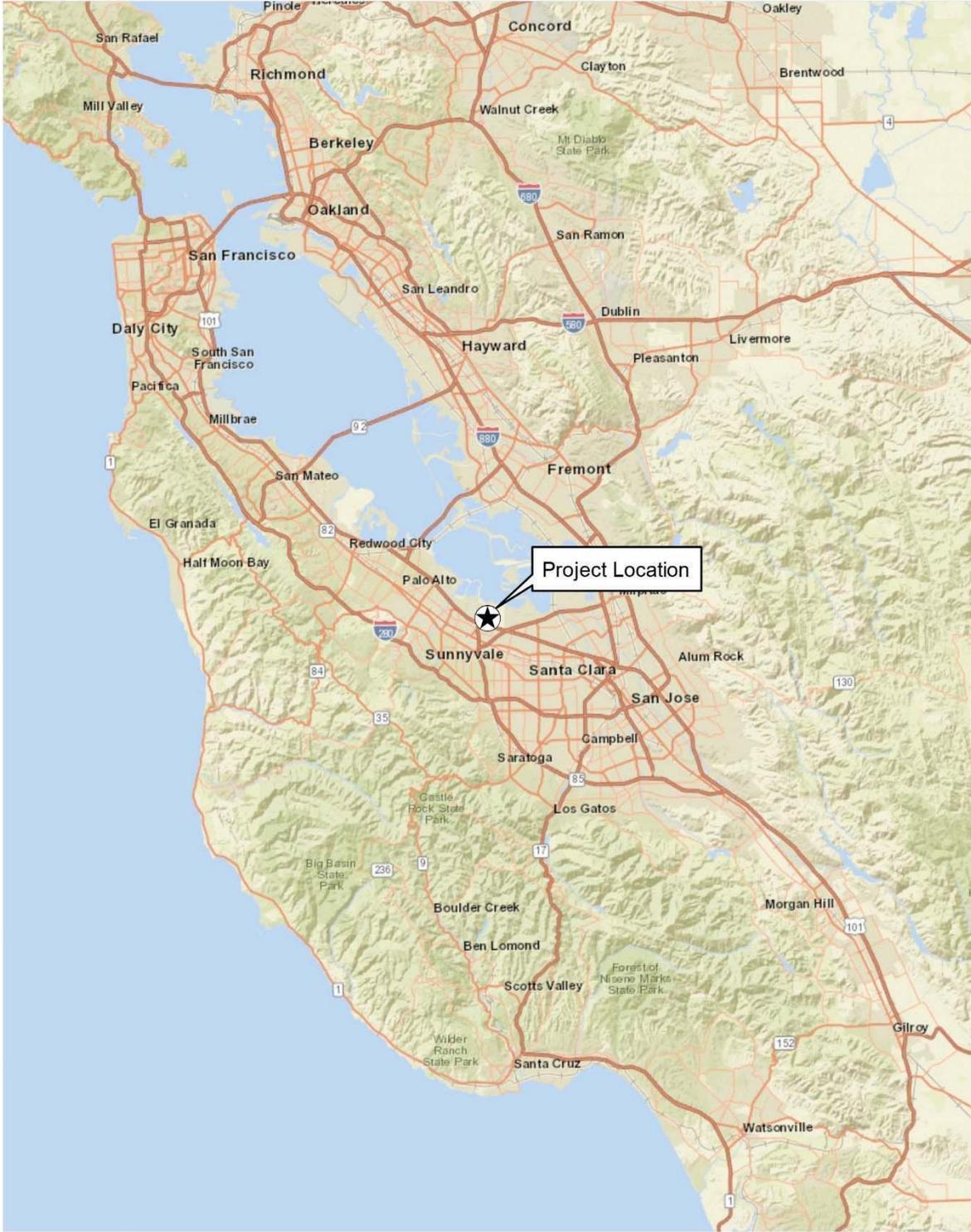
Hangar 1 (the “Hangar”) is located within the NASA Ames Research Center, located at the south end of San Francisco Bay, between the cities of Mountain View and Sunnyvale, in Santa Clara County, California. The irregularly shaped, approximately 1,930-acre property is roughly bounded to the north by San Francisco Bay, to the west by Stevens Creek, to the south by Highway 101 and Manila Avenue, and to the east by Enterprise Way and East Patrol Road. Hangar 1 is a contributor to the U.S. Naval Air Station (NAS) Sunnyvale Historic District, which was listed in the National Register of Historic Places (“NRHP”) in 1994 (NRHP #94000045) and was determined individually eligible for listing in the NRHP.

The PV leasehold of approximately 1,000 acres occupies the central and western sections of the NASA Ames property and encompasses portions of both the designated and expanded historic districts, including Hangars 1, 2 and 3, the runways, and golf course. A Project Location Map is included in Figure 1. A Site Map is included in Figure 2.

1.3 PROJECT TEAM

This study was conducted by Christine Lazzaretto, Managing Principal, and John LoCascio, AIA, Principal, Historic Resources Group. Both are qualified professionals who meet the Secretary of the Interior’s Professional Qualification Standards (36 Code of Federal Regulations [C.F.R.] Part 61) in, respectively, Architectural History and Historic Architecture.

FIGURE 1. PROJECT LOCATION MAP



Source: ESRI, AECOM, NASA

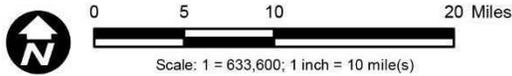


FIGURE 2. SITE MAP



SECTION 106 TECHNICAL REPORT - HANGAR 1: PHASE I REHABILITATION (ABATEMENT)

2.0 DESCRIPTION OF THE UNDERTAKING

2.1 PROJECT DESCRIPTION

Phase I of the Project involves the abatement of lead- and Polychlorinated Biphenyl (PCB)-containing paint on the steel structure of Hangar 1, which is considered an undertaking per 36 CFR § 800.3(a). As part of the 2010-13 abatement program carried out by the Navy, an epoxy coating system (CM15) was applied to Hangar 1's steel frame and concrete walls, to encapsulate the remaining PCBs and lead paint. During pre-lease negotiations between NASA and PV in 2014, NASA indicated that the CM15 epoxy coating had deteriorated in several areas. As a result, PV's consultants performed a visual screening inspection of the CM15 epoxy coating, collected wipe and bulk samples of building materials within the Hangar 1 structure, and collected samples of the sediment that had accumulated on the concrete floor and accessible storm drain trenches. During the visual inspection, deterioration of the CM15 epoxy coating was observed in multiple locations and based on the wipe and sediment sampling results, PV's consultants concluded that failure of the CM15 epoxy coating was the likely source of the PCBs and lead detected in these samples.

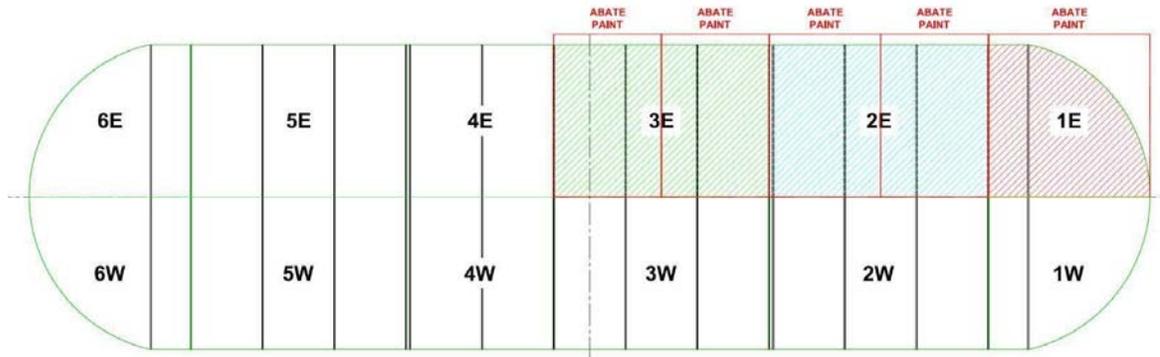
The purpose of the Phase I Project is to completely abate the steel frame and concrete walls to control the release of PCB- and lead-impacted paint, and asbestos-containing materials. To reduce the potential risks to human health and the environment, the coatings need to be abated as soon as possible. Therefore, the Undertaking to rehabilitate Hangar 1 is being phased in order to proceed with the abatement while the re-cladding, seismic strengthening, and adaptive reuse project is being developed.

Hangar 1 includes approximately 385,000 square feet of floor area. Visible paint and coatings will be removed from approximately 1,800,000 square feet of structural steel elements and approximately 36,000 square feet of concrete masonry unit ("CMU") walls within the Hangar 1 structure.¹ It is anticipated that the Phase I Project will take up to 36 months. It will consist of:

- Mobilization: The contractor would mobilize onto the site which would include setting up construction trailers, establishing laydown area, stage materials, and prep site for start of work.

¹ EKI Environment & Water, "Hangar 1 Engineering Evaluation/Cost Analysis," December 20, 2018, 4-7.

- Scaffolding: In order to execute the abatement and re-coating of the super-structure, a massive scaffolding effort will need to be undertaken by the General Contractor. The Hangar will be broken into twelve sub-sections where work will occur:



- Up to three (3) sections at a time will be scaffolded to allow multiple trades to work the structure simultaneously. The scaffolding would cover the ground floor up to the crown of the Hangar (approximately 198' height).
- Containment: To prevent the release of lead and PCBs during the Abatement activities, full scale negative air pressure enclosures will be constructed around the scaffolded sections of the Hangar.
- Abatement: Copper slag media blasting of the structural steel components of Hangar 1, chemical stripping of the CMU walls, concrete stem walls and/or concrete floors and cleaning of these elements, as necessary.
- Wipe Sampling/Testing: Visual inspections and confirmation sampling of the abated surfaces to confirm that the abated surfaces meet the SSPC surface preparation and cleanliness standards and that residual chemical concentrations are consistent with the cleanup goals.
- Wastes from abatement activities would be disposed of at permitted off-site disposal facilities in accordance with applicable laws and regulations.
- Re-Coat: A protective coating and paint layer will be reapplied to the newly abated superstructure after all visual inspections and wipe sampling is complete.

The Phase I Project has been designed to comply with the Secretary of the Interior's Standards for Rehabilitation, and therefore meets Programmatic Environmental Impact Statement (PEIS) Mitigation Measures CUL-1 and CUL-2, as identified in the "NASA Ames Development Plan Final Programmatic Environmental Impact Statement," prepared for NASA by Design, Community &

Environment, July 2002.² The PEIS included mitigation measures to avoid significant impacts to cultural resources as the result of the implementation of the plan.

Other reference documents include the “Condition Assessment and Rehabilitation Plan for Hangar 1,” prepared for NASA by CH2MHill in 2011;³ the “NASA Ames Integrated Cultural Resources Management Plan,” prepared for NASA by AECOM in 2014;⁴ the “Pilot Scale Abatement Study of Hangar 1” (“Pilot Study”), prepared for PV by ACC Environmental in 2017;⁵ and the Hangar 1 Engineering Evaluation/Cost Analysis, prepared for PV by EKI Environment & Water in 2019, which has been approved by the Environmental Protection Agency (EPA) and the Water Board.⁶

The Pilot Study is included as Appendix A.

2.2 GROUND DISTURBING ACTIVITIES

The Phase I Project proposes no ground disturbance.

² Design, Community & Environment, “NASA Ames Development Plan Final Programmatic Environmental Impact Statement,” prepared for NASA Ames Research Center, July 2002.

³ CH2MHill, “Condition Assessment and Rehabilitation Plan for Hangar 1,” prepared for NASA Headquarters and Ames Research Center, California, November 30, 2011.

⁴ AECOM, “NASA Ames Integrated Cultural Resources Management Plan,” prepared for NASA, November 2014.

⁵ ACC Environmental, “Pilot Scale Abatement Study of Hangar 1,” prepared for Planetary Ventures, October 9, 2017.

⁶ EKI Environment & Water, “Draft Final Hangar 1 Engineering Evaluation/Cost Analysis,” prepared for Planetary Ventures, August 13, 2019. Available online: <https://environment.arc.nasa.gov/FFAAR.html>.

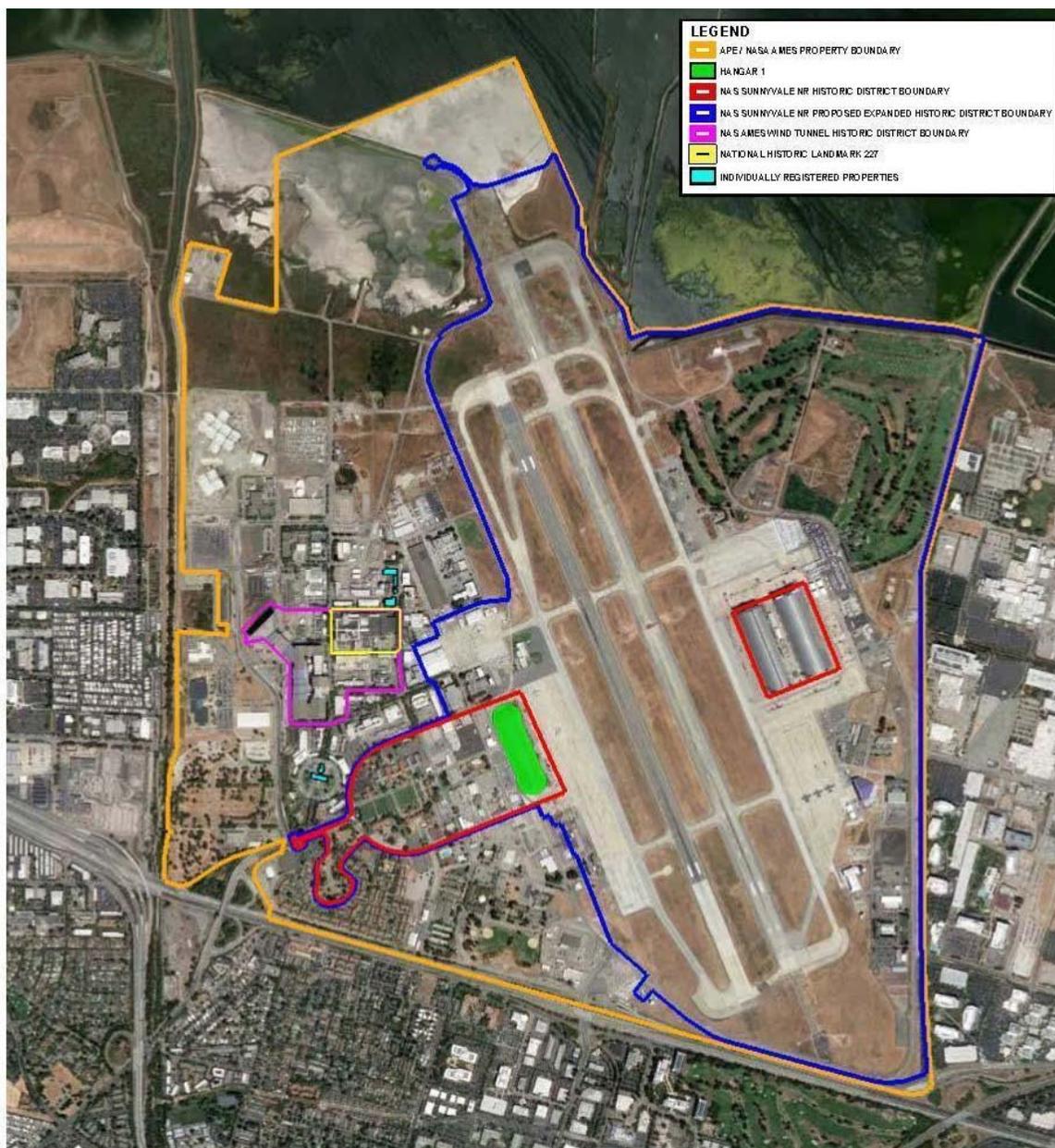
3.0 AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) is defined as the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties (36 Code of Federal Regulations [CFR] Part 800, Protection of Historic Properties, Section [§]800.16(d)). These changes may include physical destruction, damage, or alteration of a property; change in the character of the property's use or of physical features within its setting that contributes to its historic significance; and introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features (36 CFR § 800.5(a)(2)). The locations of various known historic properties within the Project vicinity were carefully considered. Specifically, the APE includes areas of potential physical disturbance for the proposed improvements and related construction impact areas.

The APE for the Undertaking is the property line boundary of the NASA Ames Research Center. Historic properties within the APE include the NRHP-designated United States Naval Air Station, Sunnyvale Historic District; the 2013 extended NAS Sunnyvale Historic District boundary, which includes the airfield; the NRHP-designated Ames Wind Tunnel Historic District; the Unitary Plan Wind Tunnel, which was designated a National Historic Landmark in 1985; and the Arc Jet Complex and Flight and Guidance Simulation Laboratory.

A map of the APE is included in Figure 3.

FIGURE 3. AREA OF POTENTIAL EFFECT



Source: Google Earth



4.0 CONSULTING PARTIES

Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP, “Protection of Historic Properties” (36 CFR Part 800.2(c)(3-5) and Part 800.2(d)). Coordination and consultation with the public, public agencies, Native Americans, SHPO, appropriate Tribal Historic Preservation Officers (THPOs), ACHP, and other consulting parties in a manner that reflects the nature and complexity of the undertaking is a key aspect of Section 106 compliance.

For the proposed Undertaking, the following parties were consulted:

- The Moffett Field Historical Society
- The City of Sunnyvale, California
- The City of Mountain View, California
- Sunnyvale Historical Society
- Mountain View Historical Association
- History San Jose
- Silicon Valley Historical Association
- California Preservation Foundation
- National Trust for Historic Preservation

The letters sent to the potential consulting parties listed above are included in Appendix B.

A public outreach meeting was held on August 27, 2019. The meeting was held as part of the Engineering Evaluation/Cost Analysis process. During the meeting, representatives from NASA, the Environmental Protection Agency (EPA), PV, and EKI Environment & Water, Inc. provided an overview and history of the environmental issues at the site; previous steps to mitigate these issues, including a summary of the 2010-13 removal of the exterior wall cladding, deconstruction of interior structures, and application of CM15 coating; and the currently proposed abatement methodology and schedule. There were approximately 50 people in attendance. No additional public comments were received following the meeting.

5.0 IDENTIFICATION OF HISTORIC PROPERTIES

Historic properties, as defined in 36 CFR Section 800.16(l)(1), include any district, site, building, structure, or object that is included in or eligible for listing in the NRHP.

5.1 ARCHITECTURAL RESOURCES

Above-ground historic properties located within MFA have been subject to numerous previous studies in efforts to inform an understanding of the historic significance of the site. These studies have been used to inform this report and determine whether the Undertaking may have potential effects on historic properties within the APE. These studies include:

- “U.S. Naval Air Station Sunnyvale, California Historic District National Register of Historic Places Nomination,” Bonnie Bamberg, Urban Programmers, 1994.
- “Historic Property Survey Report for the Airfield at NASA Ames Research Center, Moffett Field, California,” AECOM for NASA, 2013.

The Undertaking site is located within the boundary of the NAS Sunnyvale Historic District (both the original district as designated in 1994 and the expanded district identified in 2013).

NAS Sunnyvale Historic District

The United States Naval Air Station (NAS) Sunnyvale, California Historic District as listed in the NRHP is a non-contiguous historic district with two periods of significance: 1930-1935 and 1942-1946. The historic district consists of the original portions of Shenandoah Plaza at the west side of the airfield, including Hangar 1 and the U.S. Army Wescoat Housing, as well as Hangars 2 and 3 on the east side of Moffett Federal Airfield.

As summarized in the NRHP nomination, the district is significant under Criteria A and C:

In the nation's quest to provide security for the lengthy expanse of its coastlines the opportunity for air reconnaissance was realized by the futuristic Admiral William A. Moffett. Through his efforts, two Naval Air Stations were commissioned in the early 1930s to port the two U.S. Naval Airships (dirigibles) he believed capable of this challenge. The Naval Air Station Sunnyvale was the Pacific Coast location selected, designed, and developed to port the U.S.S. MACON (ZRS 5). The immense structure, Hangar 1, designed to house the U.S.S. MACON, with its larger counterpart in Akron, Ohio, remain the two largest structures in the United States without internal support. At the onset of WWII, the base was expanded with Hangars 2 and 3 which were designed to accommodate the smaller blimps and balloons used for reconnaissance, until the range of heavier than air aircraft (airplanes) was sufficient to patrol the coast. The significance of the U.S. Naval Air Station Sunnyvale Historic District is attributed to its

association with the expanding defense capabilities of the U.S. Navy, the engineering technology found in lighter than air ships, the design of the hangar and system for porting the dirigible and in the plan and architectural style of the station designed to support this defense technology. The significance of Hangar 1 was recognized when it was designated a Naval Historical Monument. It has been designated a California Historic Civil Engineering Landmark by the San Francisco section, American Society of Civil Engineers, and has been determined eligible for listing in the National Register of Historic Places by the U.S. Navy in consultation with the California State Historic Preservation Officer. The entire historic district is supported for listing in the National Register of Historic Places at the National level of significance under Criterion A for its association with coastal defense and naval technology that has made a significant contribution to the broad pattern of our history; and Criterion C reflecting the distinctive type, period, method of construction and high artistic values that are represented in the 1933 station plan and buildings. In 1942, the station was recommissioned, U.S. Naval Air Station, Moffett Field, in recognition of the significant contribution to naval history by Admiral Moffett, contributions that have gained him the unofficial title, “Father of Naval Aviation.”⁷

The 1930-1935 period of significance reflects the early history of the site, when it was commissioned and developed specifically for the dirigible program. Hangar 1 was the first building constructed on the site, followed by the complex of buildings to the west of Hangar 1 that include administration, housing, gymnasium, instruction, and other buildings that were all constructed to support the activities in Hangar 1. Following the dissolution of the dirigible defense program in 1935, the facility was used by the Army; in 1940, it was converted to the West Coast Air Corps Training Facility. Following the United States entry into World War II, the base was returned to the U.S. Navy and in 1942 it was recommissioned Naval Air Station Moffett Field. The return to Naval command was to provide expanded facilities for small blimps and balloons used for coastal observation; in 1942-43 Hangars 2 and 3 were constructed for this purpose. The second period of significance for the historic district is 1942-1946, reflecting the site’s use by the Navy during World War II.⁸

Expanded Historic District

In 2013, NASA determined that the airfield and its component features were eligible for listing in the National Register under Criterion A as contributors to the NAS Sunnyvale Historic District, with an additional period of significance of 1942-1961, reflecting the jet aircraft program at the airfield. On June 6, 2013 the SHPO concurred that the airfield contributed to the significance of the

⁷ Bonnie Bamburg, “National Register of Historic Places Registration Form: United States Naval Air Station Sunnyvale, California/U.S. Naval Air Station Moffett Field Historic District,” November 9, 1991, section 8, page 1.

⁸ Information about the period of significance excerpted from the National Register of Historic Places Registration Form, section 8, pages 4-5.

NAS Sunnyvale Historic District. In addition, the SHPO recommended that NASA develop a list or table of contributors to the district, specifying the character-defining features of the airfield, including landscape design. The nomination was not formally updated to include these areas.⁹

Later in 2013, at NASA's request and under the SHPO's recommendation, AECOM prepared the "Historic Property Survey Report for the Airfield at NASA Ames Research Center, Moffett Field, California." The purpose of that study was to evaluate the airfield as a landscape, and to evaluate its eligibility and integrity. The study recommended the expansion of the NAS Sunnyvale Historic District boundary to include the adjacent airfield. The statement of significance for the airfield is as follows:

The Airfield is nationally significant under Criterion A as the central core facility of aviation-related research programs, as well as significant transport, training, and other aviation uses at the property. The Airfield's landscape is composed of a collection of buildings and structures that contribute to the adjacent NAS Sunnyvale Historic District under Criterion A. The Airfield's inclusion in the existing historic district expands the district's currently defined significance to include World War II and ongoing use of the Airfield for Cold War-era NACA, NASA, and military missions.¹⁰

The 2013 study recommended a period of significance of 1930-1961 for the district to include significant post-World War II operations at the airfield, and identified a preliminary list of airfield features that could potentially contribute to the expanded historic district based on general association and age related to the revised period of significance. However, these features were not fully evaluated for National Register eligibility and did not receive a formal determination of eligibility. There was no formal response from SHPO regarding concurrence with the 2013 study's preliminary list of airfield features.¹¹

The SHPO has found it appropriate to consider the identified potential contributors to the expanded historic district as historic properties during subsequent consultation for Section 106 of the National Historic Preservation Act.

⁹ Excerpted and adapted from AECOM, "Historic Property Survey Report for the Defense Fuel Support Point Closure Project at Ames Research Center, Moffett Field, California," April 2016, 16-19.

¹⁰ AECOM, 16-19.

¹¹ AECOM, 16-19.

Hangar 1

Hangar 1 is a contributor to the NAS Sunnyvale Historic District, associated with the first period of significance of 1930-1935. In addition, in 1988, Hangar 1 was determined individually eligible for listing in the NRHP by consensus through Section 106 process under Criterion A for its association with the dirigible program of the U.S. Navy during the interwar period and World War II, and under Criterion C as a milestone of military engineering. It has also been recognized as an Engineering Landmark by the American Society of Civil Engineers.

Summary

Based on the previous studies, above-ground historic properties are known to exist within the APE. Contributors and non-contributors to the designated and expanded historic district are listed in the table in Appendix C. Detailed information on all of the historic properties (including their historic use and the criteria under which they were evaluated) can be found in the documents identified in the previous studies listed above.

AFFECTED HISTORIC PROPERTIES

Of the identified above-ground historic properties located within the APE, only Hangar 1 and the NAS Sunnyvale Historic District have the potential to be physically affected by the Undertaking. Therefore, they are the only historic properties within the APE that are located in the Area of Direct Impact.

Although adjacent to the Undertaking, the potential for indirect impacts to Buildings 32 and 33, Shenandoah Plaza, or the Historic District as a whole through the visual or contextual change resulting from the abatement of hazardous materials at Hangar 1 is minimal. The nature of the abatement work will ensure that all activities are contained within a strictly controlled perimeter. The visual context and setting of the Historic District are anchored in the formality and symmetry of the Spanish Colonial Revival-style Shenandoah Plaza campus, the utilitarian character and expansive hardscape of the airfield, and the iconic mass of Hangar 1. The abatement will not significantly alter the appearance of Hangar 1 or change the setting of adjacent buildings or the Historic District.

Site and Setting

The Historic District is located within the NASA Ames Research Center. The NASA Ames Research Center is located at the south end of San Francisco Bay, between the cities of Mountain View and Sunnyvale, in Santa Clara County. The irregularly shaped, approximately 1,930-acre property is roughly bounded to the north by San Francisco Bay, to the west by Stevens Creek, to the south by Route 101 and Manila Avenue, and to the east by Enterprise Way and East Patrol Road.

The NRHP-designated historic district is a non-contiguous district that occupies two parcels within the larger NASA Ames property. One is an irregularly shaped parcel of approximately 85.5 acres located in the southwest portion of the NASA Ames property. This encompasses Hangar 1 and Shenandoah Plaza, the adjacent campus of buildings constructed in the 1930s to support dirigible

operations on the site. The second portion of the non-contiguous district is located more than a half-mile away from the first, on the opposite side of the diagonal runways that roughly bisect the NASA Ames property from northwest to southeast. This second portion is a rectangular parcel of approximately 24.5 acres that encompasses Hangars 2 and 3 and the ancillary buildings and structures between them.

The physical character of the NASA Ames property varies widely due to the property's large size, numerous periods of development, and multiple uses. Shenandoah Plaza, in the southwest portion of the designated National Register district, is characterized by its one- and two-story Spanish Colonial Revival buildings, curving drives, expansive lawns, and axial relationship to Hangar 1 which forms a prominent backdrop to the smaller-scale buildings. The central portion of the property is dominated by the vast open space of the runways, nearly two miles long and more than a half-mile wide, and the adjacent concrete taxiways and aprons flanking Hangars 1, 2, and 3.

The northeast corner of the property is also characterized by open space, in this case the greens of the Moffett Field Golf Club, which utilizes the otherwise empty safety zone surrounding the munitions bunkers.

The remainder of the NASA Ames property is characterized by a mixture of utilitarian industrial, office and residential buildings, apparently developed as needed over the years by NASA without benefit of any encompassing master plan.

Hangar 1

Hangar 1 is flanked to the west by Cummins Avenue and Shenandoah Plaza, to the north by Bushnell Road, and to the east and south by a scored concrete apron. Buildings 32 and 33 are located immediately east of Hangar 1, at the edge of the apron. Metal drainage grates form a continuous line around the building's perimeter, and planting beds extend along its east façade.

Hangar 1 has an oblong plan, approximately 1,100 feet long by 300 feet wide, and a parabolic profile approximately 200 feet high at its crown. It is constructed of steel truss frames on a battered concrete stem wall. The rounded north and south ends of the building are enclosed with full-height, steel-framed clamshell doors, consisting of two panels each. Each door panel sits on nine wheeled trucks that roll on standard gauge steel railroad tracks embedded in the concrete floor slab. The tracks extend beyond the building enclosure to allow the doors to roll into a fully open position. Concrete doorstops incorporated into the stem walls at the end of each track prevent the doors from opening too far. Each door panel is operated by a 150-horsepower electric motor that retracts the panel to its open position.

The steel frame of Hangar 1 was originally clad in Robertson Protected Metal siding, profiled steel panels coated with layers of asphalt and asbestos felt, finished with aluminum paint. The panels had two distinct profiles. The lower, angled portions of the walls and doors, up to a point approximately 132 feet 6 inches above the hangar floor, were clad in a corrugated panel with a trapezoidal profile

approximately two inches deep. The upper, curved portions were clad in a mansard sheet with a beaded profile approximately three-quarters of an inch deep. The Navy removed the siding panels in 2010-13 after it was discovered that the coatings were leaking toxins including asbestos, lead, and polychlorinated biphenyls (PCBs) into the storm water settling basin and retention ponds. The full abatement program from 2010-13 is discussed in detail below.

The crown of Hangar 1, an area approximately 40 feet wide running the length of the building, was originally clad in a built-up roofing system over redwood decking. The built-up roofing system and decking were removed by the Navy in 2010-13. A continuous roof vent and a raised walkway run the length of the crown. The walkway is supported by a steel frame and has steel pipe railings.

Hangar 1 originally had four horizontal bands of rectangular windows on its east and west façades, and two bands on each of the clamshell doors on the north and south façades. All windows had steel angle frames and mullions. The windows in the two lower bands were glazed with flat wired glass; those in the two upper bands were glazed with corrugated wired glass. The windows on the east and west façades were all twenty-one lights wide; those in the first band were four lights in height, those in the second two lights, those in the third three lights, and those in the fourth six lights. The windows in the clamshell doors continued the second and third bands and were six lights wide at the lower band, five lights wide at the upper. The windows were removed by the Navy in 2010-13 due to their extremely poor condition.

Hangar 1 was originally accessed by ten personnel doors, five each on the east and west façades. The doors were incorporated into the lowest band of windows in alternating bays and were recessed behind the battered concrete stem wall and metal façade. Additional personnel doors were added over time. All doors were removed by the Navy in the 2010-13 abatement.

There were originally six overhead truck doors on the west façade and five overhead truck doors and one aviation door on the east façade, alternating with the personnel door bays. These doors were all removed by the Navy in the 2010-13 abatement.

The interior of Hangar 1 consists of a vast central open space with a concrete floor and exposed steel framing, designed to house the USS *Macon*. The floor is embedded with multiple tie-downs used to secure the *Macon* in place, and remnants of standard gauge railroad tracks that facilitated the dirigible's travel between the hangar and the exterior mooring circles.

The central open space was flanked along its long east and west sides by support facilities at the ground level and two mezzanines above. These included workshops, storage spaces, offices, toilets, and specialty spaces such as the "Cork Room," so called because of the six-inch-thick cork lining its interior walls. This room was used to dry the *Macon*'s helium cell bags. These spaces were altered in later years and were removed entirely by the Navy in the 2010-13 abatement. Some interior concrete partitions at ground level, the mezzanine framing and decking, the Cork Room wall framing, and a series of stairs, railings, ladders, and catwalks remain in place. Two elevators were originally installed

to provide access between the ground floor and the top of the hangar. The elevators operated on steel rails mounted to the hangar structure. The elevators have been removed but the rails remain in place.

Hazardous Materials Abatement

In 1994, NASA Ames acquired stewardship of the property from the Navy; however, as the federal lead agency, the Navy retained primary responsibility for identifying appropriate requirements at Hangar 1, including necessary abatement. PCBs were detected in the storm water settling basin at Moffett Field in 1991, 1997, 1999, and 2002. As a result, in 2002 an investigation was undertaken to test the building materials in Hangar 1 for PCBs and other potential contaminants, specifically lead and asbestos. The results of this sample and analysis program confirmed that the Hangar 1 siding, a composite corrugated metal material commercially known as Robertson Protected Metal, contained PCBs and asbestos and that the lead-based paint (LBP) used to cover both the siding and steel frame of the hangar also contained PCBs at elevated concentrations. Due to the presence of PCBs and lead in Hangar 1 building materials, in 2002, NASA closed the hangar to all personnel except those involved in essential maintenance, abatement, or environmental cleanup activities and the Navy designated Hangar 1 as Installation Restoration (“IR”) Site 29.

In September 2003, NASA and the Navy implemented a Time Critical Removal Action (“TCRA”) to remove sediments contaminated with PCBs from the storm water collection trench located around the perimeter of Hangar 1. Between September 2003 and February 2004, the Navy implemented a second TCRA to control the migration of PCBs from Hangar 1 to the storm drain system and the environment by coating the exterior siding of the Hangar with an asphalt emulsion; this TCRA was envisioned as a temporary measure until a more permanent solution could be implemented.

From 2010 to 2013, additional abatement was undertaken by the Navy in order to mitigate the known PCB contamination at Hangar 1. This included the removal of the siding and roofing, deconstruction of interior structures, cleaning by high-pressure washing and preparation of steel and/or concrete surfaces, and application of an epoxy coating system (Carbomastic-15 or “CM15”) to the hangar’s remaining structural steel frame and certain concrete structures to encapsulate residual PCBs. The Navy subsequently prepared a Long-Term Management Plan (“LTMP”) that NASA was responsible for implementing. The abatement was undertaken by NASA and the Navy prior to leasing the site to Planetary Ventures in 2014, due to ongoing and significant environmental concerns. This phase was implemented at that time out of necessity prior to the identification of a new user and a new use for the Hangar. The removal of materials during abatement was therefore part of the first phase of the ongoing rehabilitation of Hangar 1, and not a permanent alteration.

Alterations

Hangar 1 has undergone several alterations over time including:

- Mooring circles and mooring mast removed sometime after the crash of the USS *Macon* in 1935 and the subsequent termination of the Lighter-Than-Air program
- Original personnel doors replaced, and additional doors added for various occupants and uses
- Interior configuration and finishes altered frequently since original construction to suit specific use requirements of changing military occupants
- Portions of concrete floor slab repaired and replaced, some tie-downs and portions of railroad tracks removed
- Gutters and downspouts added to windows to control water infiltration
- Black bitumen coating applied to mansard panels to address water infiltration; based on a review of historic photographs, this occurred sometime between 1964 and 1967
- Removal of steel-panel siding, windows, personnel doors, truck doors, and interior partitions and finishes during abatement program (2010-13)

Character-defining Features

Site and Setting

- North-South orientation adjacent to airfield
- Open viewshed of airfield
- Spatial relationship to adjacent Buildings 32 and 33
- Proximity and axial relationship to Shenandoah Plaza and historic district directly to the west
- Concrete paving and remaining metal tie-downs south of Hangar
- Remnant rail tracks

Exterior

- Oblong plan and parabolic profile
- North and south rolling clamshell doors and associated equipment, tracks, and stops
- Concrete stem walls
- Monitor walk at apex of roof
- Concrete apron and metal drainage grates around building perimeter
- Profiled steel panel cladding (removed 2010-13)
- Horizontal bands of steel-framed windows (removed 2010-13)
- Personnel and truck doors (removed 2010-13)

Interior

- Configuration of central volume flanked by office and shop spaces and mezzanines
- Exposed steel structural system
- Cork room framing
- Catwalk framing
- Parabolic elevator and crane tracks
- Remaining steel stairs
- Remaining concrete floor slab, tracks, and tie-downs

6.0 FINDING OF EFFECT

The Criteria of Adverse Effect pursuant to 36 C.F.R. 800.5(a)(1) were applied to assess effects of the Undertaking on historic properties within the APE:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

To comply with Section 106, the criteria of adverse effect are applied to historic properties in the Undertaking's APE, pursuant to 36 CFR Section 800.5(a). A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the threshold set forth in the criteria of adverse effect, or conditions are imposed to ensure review of rehabilitation plans for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (codified in 36 CFR Section 68). If a finding of adverse effect is made, mitigation is proposed and resolution of adverse effects occurs through consultation in accordance with 36 CFR Section 800.6(a) to avoid, minimize, or mitigate adverse effects on historic properties.

The Phase I and Phase II Projects are subject to NPS review and approval as part of the Federal Rehabilitation Tax Credit certification process. The Part 1 application was approved by the NPS on February 14, 2020. The Part 2 submittal is anticipated in April 2020. If the NPS determines that the Phase I and Phase II Projects meet the Secretary of the Interior's Standards for Rehabilitation and certifies the Part 2 application, then there would not be the potential for adverse effect as defined in 36 CFR Section 800.5.

Several examples of adverse effects are listed in 36 C.F.R. 800.5(a)(2). The following assessment examines the Phase I Project under each of those examples, including an analysis of compliance with the Secretary of the Interior's Standards for Rehabilitation.

i. Physical destruction of or damage to all or part of the property

The Phase I Project would not damage or destroy any historic property. Any potential physical impacts to historic properties are considered in the discussion of the Project's compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. Therefore, the Phase I Project would not cause an adverse effect under this criterion.

ii. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 C.F.R. part 68) and applicable guidelines

With the SHPO's agreement, if a property is restored, rehabilitated, repaired, maintained, stabilized, remediated, or otherwise changed in accordance with the Standards, then it will not be considered an adverse effect.

The Secretary of the Interior's Standards for the Treatment of Historic Properties (the Standards) provide guidance for reviewing proposed projects that may affect historic resources. The Standards and associated guidelines address four distinct historic "treatments," including: (1) preservation; (2) rehabilitation; (3) restoration; and (4) reconstruction. The specific Standards and guidelines associated with each of these possible treatments are provided on the National Park Service's website regarding the treatment of historic resources.

The intent of the Standards is to assist the long-term preservation of a property's significance through the preservation, rehabilitation, and maintenance of historic materials and features. The Standards pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and interior of the buildings. The Standards also encompass related landscape features and the building's site and environment, as well as attached, adjacent, or related new construction.

The Standards for Rehabilitation (36 CFR 67) address the most prevalent treatment. "Rehabilitation" is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values." As stated in the definition, the treatment "rehabilitation" assumes that at least some repair or alteration of the historic building will be needed in order to provide for an efficient contemporary use; however, these repairs and alterations must not damage or destroy materials, features or finishes that are important in defining the building's historic character.

The following is an assessment of the Phase I Project for compliance with the applicable Secretary of the Interior's Standards for Rehabilitation and the associated guidelines. Because the Phase I Project involves only hazardous materials remediation, it will not change the use of Hangar 1; remove distinctive materials or alter features, spaces or spatial relationships of the Hangar or district; add conjectural features or elements from other properties; alter or remove changes to Hangar 1 that

have acquired significance; alter or remove distinctive materials, features, finishes, construction techniques or examples of craftsmanship that characterize the building; repair or replace deteriorated features; disturb archaeological resources; or include new additions, alterations or related new construction. Therefore, only Standard 7 applies to the Phase I Project.

7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

Between March and mid-July 2017, PV conducted the Pilot Study (included in Appendix A) to determine the feasibility of large-scale abatement of the encapsulated PCB and lead contamination present on the structural steel elements and concrete walls of Hangar 1. Samples were collected at each phase of the Pilot Study to confirm the presence of lead and PCBs in paints/coatings applied to the structure, and to determine if target acceptance criteria were achievable with each of the abatement methods tested.

Chemical paint stripping, accompanied by manual scraping, is not a feasible abatement method for the steel structure of Hangar 1 due to its vast size and complex configuration. In addition, chemical stripping would not achieve the target acceptance criteria for removal of PCB and lead contaminants from structural steel surfaces. Therefore, three abatement methods were considered during the Pilot Study: ultra-high-pressure water blasting, media blasting, and vapor media blasting. Each of the three methods was evaluated based on the following criteria: 1) achievement of target acceptance criteria; 2) post-abatement conditions of steel and concrete surfaces; 3) mass of solid and liquid hazardous waste produced; 4) ease and safety of use; and 5) equipment performance efficiency.

Post-abatement wipe samples were collected from surfaces abated using each of the three methods. PCBs were not detected in the wipe samples for any of the abatement methods on both the structural steel and concrete elements. Lead concentrations were below the target acceptance criterion of 250 micrograms per square foot on every surface abated using the media blasting and vapor media blasting methods. Lead concentrations were above the target acceptance criteria on both the structural steel and concrete elements in areas abated using the ultra-high-pressure water blasting method.

All three methods resulted in varying degrees of abrasion to concrete surfaces. In addition, both the water blasting and vapor media blasting resulted in rapid formation of rust on the structural steel members shortly after treatment.

Therefore, while the Pilot Study determined that both media blasting and vapor media blasting were capable of removing the existing encapsulated PCB- and lead-containing paints to levels below the target acceptance criteria after HEPA vacuuming and wiping, media blasting was determined to be the optimal abatement method for the structural steel framing of Hangar 1.

The Phase I Project will utilize copper slag media blasting to remove the encapsulated PCB- and lead-containing paints from the structural steel frame of Hangar 1. As determined in the Pilot Study,

the blasting will not abrade or damage the historic steel surfaces. Sample photos of test areas from the Pilot Study are reproduced below. The complete pilot study is included in Appendix A.



Structural steel after removal of paint/coatings with media blast system.



Mated flange/beam connection after removal of paint/coatings with media blasting. The brown areas correspond to rust formation due to the wet decontamination of the abated steel.

For the CMU walls and other concrete surfaces, a chemical paint stripper and manual scraping will be used to remove impacted paints instead of media blasting to avoid abrasion or damage to the historic surface texture.

Post-blasting and post-stripping cleaning will include HEPA vacuuming and/or wiping the abated structural steel elements, CMU walls, concrete floor slab, and perimeter storm water trench. The cleaning will not be abrasive and will not damage the steel and concrete surfaces. A protective coating and paint layer will be applied to the newly abated steel surfaces after all visual inspections and wipe sampling is complete, to prevent rust formation and deterioration.

The Guidelines for Rehabilitating Historic Buildings¹² recommend grit blasting to remove paint buildup and corrosion from hard metals such as cast iron, wrought iron, and steel, as long as it does

¹² U.S. Department of the Interior, National Park Service, Technical Preservation Services, “The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings,” as revised 2017.

not abrade or damage the surface of the metal. The Pilot Study determined that copper slag media blasting is the gentlest feasible method to remove the encapsulated PCBs and lead to levels below the target acceptance criteria without abrading or damaging the steel surfaces of Hangar 1's structural frame. Concrete surfaces will be abated using chemical paint stripper and manual scraping to avoid surface abrasion.

The proposed abatement of Hangar 1 complies with Standard 7 of the Secretary of the Interior's Standards for Rehabilitation. Therefore, the Phase I Project would not cause an adverse effect under this criterion.

iii. Removal of the property from its historic location

The Phase I Project would not remove a historic property from its historic location; therefore, it would not cause an adverse effect under this example.

iv. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance

Although the specific future use of Hangar 1 has not been determined, it would be used for a program type that would be complementary to its historic significance. The central volume of the Hangar would be left open for potential future tenant uses involving research and development, including testing and light assembly uses related to space, aviation, rover/robotics, and other emerging technologies. The setting of Hangar 1, and the NAS Sunnyvale Historic District as a whole would remain the same. Therefore, the Phase I Project would not cause an adverse effect under this criterion.

v. Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features

No visual, atmospheric, or audible elements would be introduced by this project that would diminish the integrity of Hangar 1 or the NAS Sunnyvale Historic District. The future use of Hangar 1 would be in keeping with the research and development tradition of the NASA Ames Research Park and is not expected to introduce any additional visual, atmospheric, or audible elements that would impact the integrity of Hangar 1 or the NAS Sunnyvale Historic District. Therefore, the Phase I Project would not cause an adverse effect under this criterion.

vi. Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization

The Phase I Project will not involve the neglect of a property that causes its deterioration and therefore will not cause an adverse effect under this criterion.

vii. Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance

The Phase I Project does not involve the transfer, lease, or sale of property out of Federal ownership or control. Therefore, it would not cause an adverse effect under this criterion.

7.0 CONCLUSION

The Phase I Project to abate hazardous materials at Hangar 1 is intended to retain and preserve the significant character-defining features of the building and complies with the Secretary of the Interior's Standards for Rehabilitation, specifically Standard 7. The criteria of adverse effect were applied to historic properties in the APE, including Hangar 1 and the NAS Sunnyvale Historic District. The proposed Phase I Project would not alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the NRHP. Therefore, a finding of No Adverse Effect per 36 CFR § 800.5(b) would be appropriate for Phase I of this Undertaking.

8.0 REFERENCES

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- NPS (National Park Service). 2017 (revised). The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings.
- NRHP (National Register of Historic Places). 1994. National Register of Historic Places, U.S. Naval Air Station Sunnyvale, California Historic District, Moffett Field, Santa Clara County, California, NR #94000045.

APPENDIX A
Pilot Study

Pilot Scale Abatement Study of Hangar 1

October 9, 2017

Hangar One, Moffett Federal Airfield
Mountain View, California

Prepared For:

Planetary Ventures, LLC
Kevin Antonelli, Project Executive, Development
1600 Amphitheater Parkway, Mountain View CA. 94043

ACC Project #: 1591-011.01



Pilot Scale Abatement Study of Hangar 1

Hangar 1, Moffett Federal Airfield
Mountain View, California

Prepared For:
Planetary Ventures, LLC
Kevin Antonelli, Project Executive, Development
1600 Amphitheater Parkway, Mountain View CA. 94043

Prepared By:



7977 Capwell Drive, Suite 100
Oakland, CA 94621

A handwritten signature in blue ink that reads 'Stephen E. Jackson'.

Stephen Jackson, Senior Project Manager
Certified Asbestos Consultant #95-1782
CDPH Lead Inspector/Assessor/Supervisor/Project Monitor #9148

A handwritten signature in black ink that reads 'Jim Wilson'.

Reviewed by:
Jim Wilson, CEO
Certified Asbestos Consultant #06-4043

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LIST OF ABBREVIATIONS

ACC: ACC Environmental Consultants

ACM: Asbestos-Containing Material

ANSI: American National Standards Institute

BAAQMD: Bay Area Air Quality Management District

BRAC: Base Realignment and Closure

CAAQS: California Ambient Air Quality Standards

CAM: California Administrative Manual

CCR: California Code of Regulations

CEL: Consolidated Engineering Laboratories

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CFR: Code of Federal Regulations

CM15: Carbomastic 15 epoxy coating

CMU: Concrete Masonite Unit

COC: Chain-of-Custody

CTS: Construction Testing Services

DIR: The State of California Department of Industrial Relations

DOSH: The State of California Division of Occupational Safety & Health

EcoBay: EcoBay Services, Inc.

EE/CA: Engineering Evaluation/Cost Analysis

EIMP: Environmental Issues Management Plan

EPA: Environmental Protection Agency

FFA: Federal Facilities Agreement

FFS: Focused Feasibility Study

GFCl: Ground-fault Circuit Interrupter

gpm: gallons per minute

HAZWOPER: Hazardous Waste Operations and Emergency Response Standard

HEPA: High-Efficiency Particulate Air

ICC: International Code Council

ICP/MS: Inductively coupled plasma mass spectrometry

ITRC: Interstate Technology & Research Council

ISM: Incremental Sampling Methodology

LTMP: Long-Term Management Plan

m³: cubic meter

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ABBREVIATIONS (continued)

mg/cm²: milligrams per square centimeter
mg/m³: milligrams per cubic meter
MFA: Moffett Federal Airfield
mg/kg: milligrams per kilogram
NA: Not applicable
NACE: National Association of Corrosion Engineers
NAS: Naval Air Station
NASA: National Aeronautics and Space Administration
Navy: U.S. Department of the Navy
NIOSH: National Institute of Occupational Safety and Health
NIST: National Institute of Standards and Technology
NTCRA: Non-Time-Critical Removal Actions
OSHA: Occupational Safety and Health Administration
PAPR: Powered Air Purifying Respirators
PCB: Polychlorinated Biphenyls
PPE: Personal Protective Equipment
PV: Planetary Ventures, LLC.
PVC: Polyvinyl Chloride
RCRA: Resource Conservation and Recovery Act
SCBA: Self-Contained Breathing Apparatus
SDS: Safety Data Sheet
SF: square feet
SSHSP: Site Specific Health and Safety Plan
TAT: Turn Around Time
TCRA: Time-Critical Removal Action
TWA: time-weighted average
µg: micrograms
µg/100 cm²: micrograms per 100 square centimeters
µg/ft²: micrograms per square foot
µg/m³: micrograms per cubic meter
UHPW: ultra-high pressure water
U.S.: United States
USEPA: U.S. Environmental Protection Agency
VOC: Volatile Organic Compounds
Water Board: Regional Water Quality Control Board, San Francisco Bay Region
XRF: X-Ray Fluorescence Spectrometer

The following content was redacted from this public posting:

Appendix B: Pilot Study
October 9, 2017 Pilot Scale Abatement Study of Hangar 1
prepared by ACC Environmental Consultants

APPENDIX B
Consulting Party Letters

EXHIBIT B: CONSULTING PARTY LETTERS

National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

February 18, 2020

Herb Parsons
President
Moffett Field Historical Society
P.O. Box 16
Moffett Field, CA 94035-0016

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Mr. Parsons,

In support of its responsibilities under Section 106 of the National Historic Preservation Act of 1966 (NHPA), the National Aeronautics and Space Administration Ames Research Center (NASA ARC) has initiated Section 106 consultation with the California State Historic Preservation Officer (SHPO) regarding the Hangar 1 Rehabilitation Project (project or undertaking) located at Moffett Field, Santa Clara County, California (see attached Figure 1 for project location map). Built in 1933, Hangar 1 is listed in the National Register of Historic Places (NRHP) as a contributor to the U.S. Naval Air Station (NAS) Sunnyvale Historic District and is also individually eligible for listing; therefore, it qualifies as a historic property for the purposes of Section 106 consultation.

In 2002, an investigation was undertaken to test the building materials in Hangar 1 for PCBs and other potential contaminants, specifically lead and asbestos. The results of this sample and analysis program confirmed that the Hangar 1 siding contained PCBs and asbestos and that the lead-based paint (LBP) used to cover both the siding and the steel frame also contained PCBs at elevated concentrations. Due to the presence of PCBs and lead in Hangar 1 building materials, in 2002, NASA ARC closed the hangar to all personnel except those involved in essential maintenance, abatement, or environmental cleanup activities. From 2010 to 2013 abatement of hazardous materials at Hangar 1 was undertaken, including the removal of the siding and roofing, deconstruction of interior structures, cleaning by high-pressure washing and preparation of steel and/or concrete surfaces, and application of an epoxy coating system to encapsulate residual PCBs.

In 2014, Planetary Ventures, LLC (PV) entered into a lease agreement with NASA ARC for the MFA premises, including use of Hangar 1 for research and development, such as testing and light assembly uses related to space, aviation, rover/robotics and other emerging technologies. NASA ARC is currently reviewing PV's proposed rehabilitation plans for Hangar 1, which would qualify as a federal undertaking under Section 106 of the NHPA. The rehabilitation will be completed in two phases. Phase I will address the abatement of the steel frame and concrete walls to control the release of PCB- and lead-impacted paint, and asbestos-containing materials. To reduce the potential risks to human health and the environment, the coatings need to be abated as soon as possible. Phase II comprises the exterior re-cladding, seismic strengthening, and core interior improvements for occupancy of Hangar 1. The proposed rehabilitation includes a metal skin, glazing systems, and roofing system to ensure that the hangar is enclosed and that past performance issues are addressed. These features have been designed to recreate the appearance of the original features and materials of Hangar 1.

NASA ARC is contacting you to assess your organization's interest in participating as a consulting party as defined in 36 CFR Section 800.2(c) in the Section 106 of the NHPA review process for the Hangar 1 Rehabilitation Project. If you would like to participate, you may elect to do so by sending written notification by email with the subject heading "Hangar Section 106 Consultation Interested Party" to Jonathan.d.ikan@nasa.gov within the next 30 days. Please include the following information:

1. Name
2. Title
3. Organization/Affiliation
4. Address
5. Email address
6. Phone number
7. Statement of election to participate as a consulting party

Please contact me if you have any questions pertaining to this process. I appreciate your attention and look forward to hearing from you regarding this Undertaking.

Sincerely,



Jonathan Ikan
Cultural Resource Manager, Facilities Engineering Branch
NASA Ames Research Center, Mail Stop 213-8
Moffett Field, CA 94035
(605) 604-6859
Jonathan.d.ikan@nasa.gov

Cc:

Ms. Rebecca Klein, NASA FPO
Environmental Management Division
NASA Headquarters
300 E Street, SW
Washington, DC 20546-0001

Lease Administration Team
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

Legal Department/Legal Matters
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

Attachments:

Figure 1. Regional Project Location Map

National Aeronautics and Space Administration



Ames Research Center

Moffett Field, California 94035

February 18, 2020

Trudi Ryan
Community Development Director
City of Sunnyvale
456 W. Olive Avenue
Sunnyvale, CA 94086

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Ms. Ryan,

In support of its responsibilities under Section 106 of the National Historic Preservation Act of 1966 (NHPA), the National Aeronautics and Space Administration Ames Research Center (NASA ARC) has initiated Section 106 consultation with the California State Historic Preservation Officer (SHPO) regarding the Hangar 1 Rehabilitation Project (project or undertaking) located at Moffett Field, Santa Clara County, California (see attached Figure 1 for project location map). Built in 1933, Hangar 1 is listed in the National Register of Historic Places (NRHP) as a contributor to the U.S. Naval Air Station (NAS) Sunnyvale Historic District and is also individually eligible for listing; therefore, it qualifies as a historic property for the purposes of Section 106 consultation.

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NASA ARC is contacting you to assess your organization's interest in participating as a consulting party as defined in 36 CFR Section 800.2(c) in the Section 106 of the NHPA review process for the Hangar 1 Rehabilitation Project. If you would like to participate, you may elect to do so by sending written notification by email with the subject heading "Hangar Section 106 Consultation Interested Party" to Jonathan.d.ikan@nasa.gov within the next 30 days. Please include the following information:

1. Name
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6. Phone number
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Please contact me if you have any questions pertaining to this process. I appreciate your attention and look forward to hearing from you regarding this Undertaking.

Sincerely,



Jonathan Ikan
Cultural Resource Manager, Facilities Engineering Branch
NASA Ames Research Center, Mail Stop 213-8
Moffett Field, CA 94035
(605) 604-6859
Jonathan.d.ikan@nasa.gov

Cc:

Ms. Rebecca Klein, NASA FPO
Environmental Management Division
NASA Headquarters
300 E Street, SW
Washington, DC 20546-0001

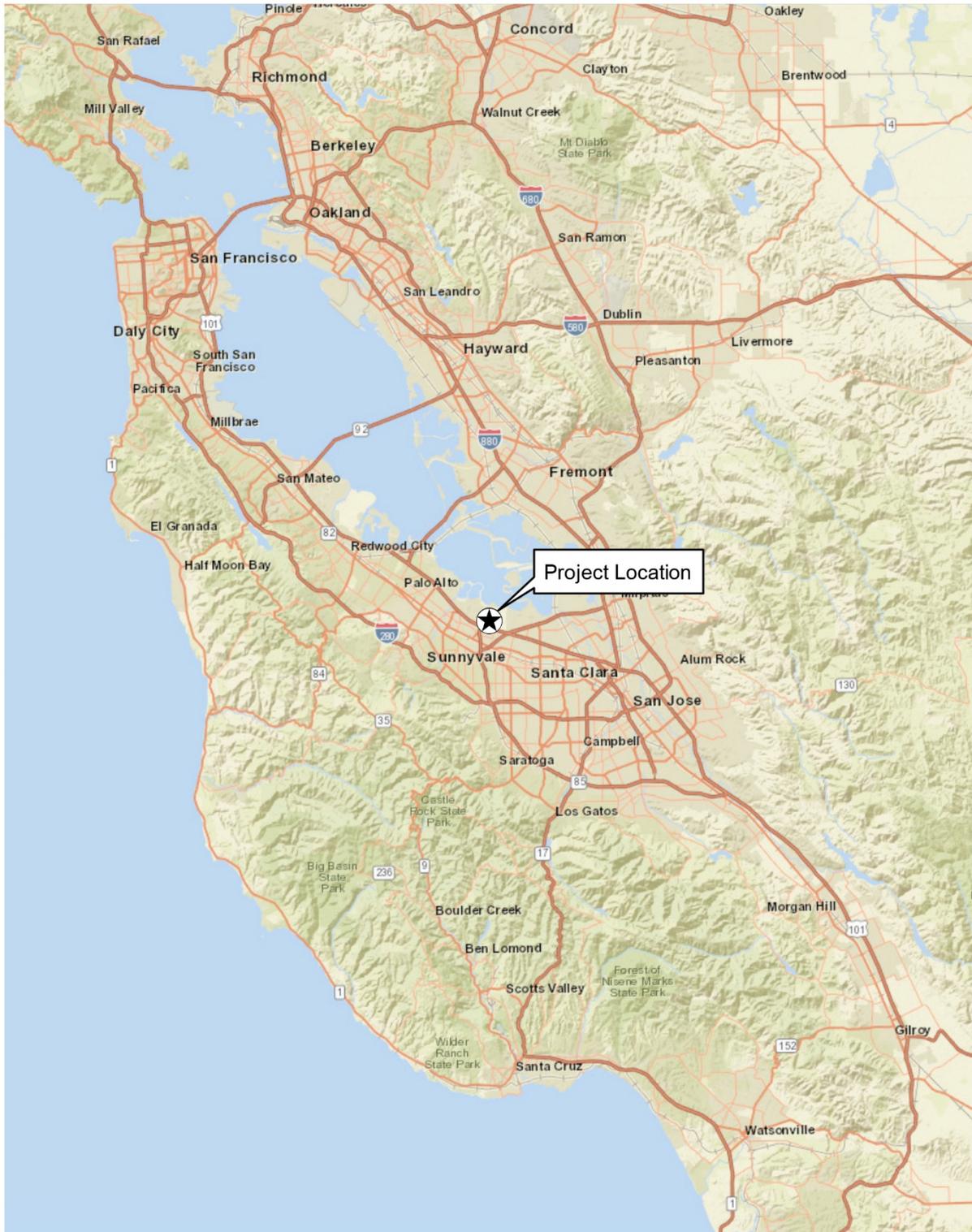
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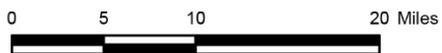
Attachments:

Figure 1. Regional Project Location Map

FIGURE 1: Regional Project Location Map



Source: ESRI, AECOM, NASA



Scale: 1 = 633,600; 1 inch = 10 mile(s)

National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

February 18, 2020

Aarti Shrivastava
Assistant City Manager/Community Development Director
City of Mountain View
500 Castro Street, 1st Floor
Mountain View, CA 94035-0016

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Ms. Shrivastava,

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Sincerely,



Jonathan Ikan
Cultural Resource Manager, Facilities Engineering Branch
NASA Ames Research Center, Mail Stop 213-8
Moffett Field, CA 94035
(605) 604-6859
Jonathan.d.ikan@nasa.gov

Cc:

Ms. Rebecca Klein, NASA FPO
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NASA Headquarters
300 E Street, SW
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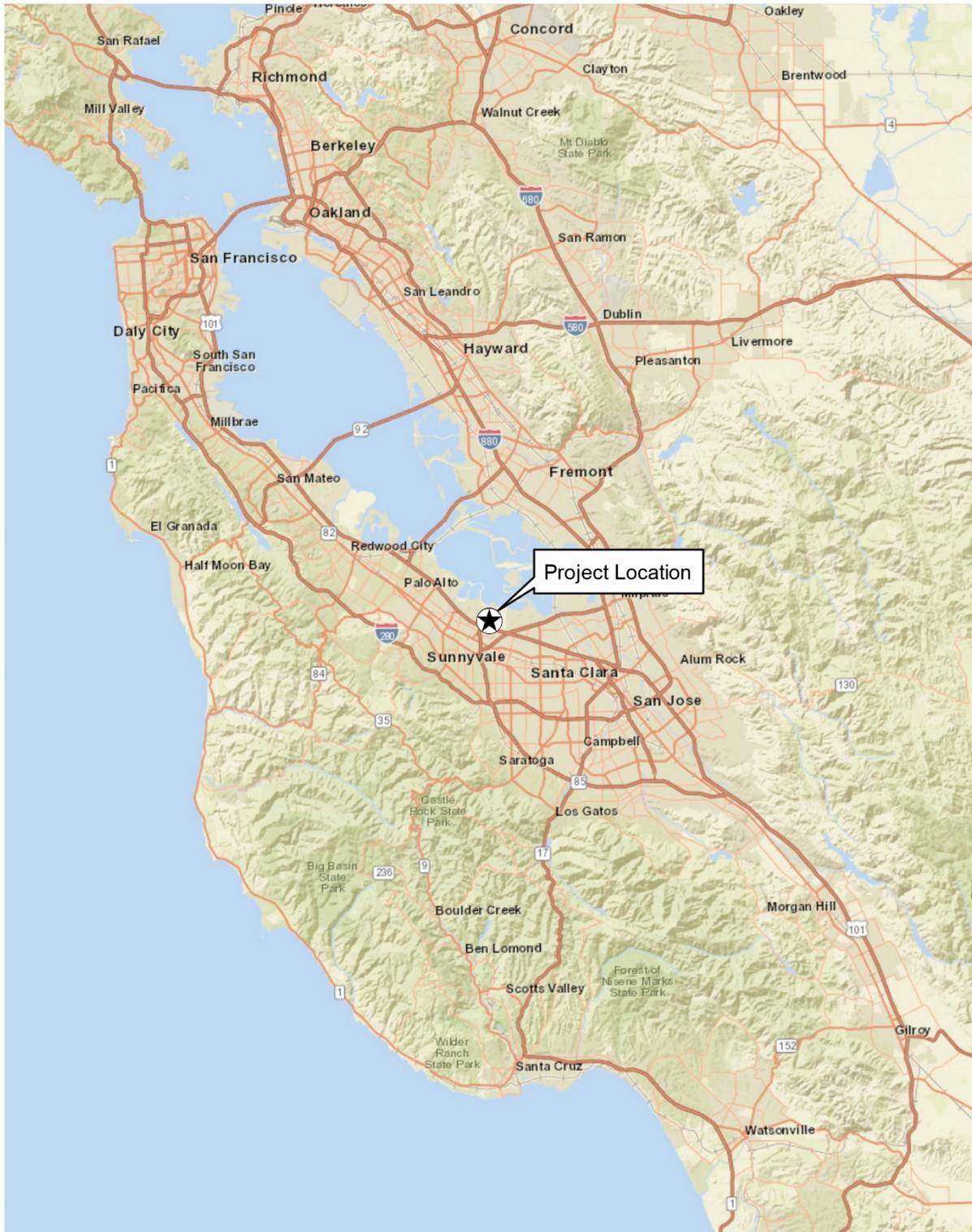
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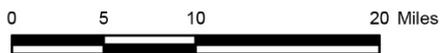
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National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

February 18, 2020

Laura Babcock
Director
Sunnyvale Historical Society
P.O. Box 2187
Sunnyvale, CA 94087-0187

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Ms. Babcock,

In support of its responsibilities under Section 106 of the National Historic Preservation Act of 1966 (NHPA), the National Aeronautics and Space Administration Ames Research Center (NASA ARC) has initiated Section 106 consultation with the California State Historic Preservation Officer (SHPO) regarding the Hangar 1 Rehabilitation Project (project or undertaking) located at Moffett Field, Santa Clara County, California (see attached Figure 1 for project location map). Built in 1933, Hangar 1 is listed in the National Register of Historic Places (NRHP) as a contributor to the U.S. Naval Air Station (NAS) Sunnyvale Historic District and is also individually eligible for listing; therefore, it qualifies as a historic property for the purposes of Section 106 consultation.

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Jonathan Ikan
Cultural Resource Manager, Facilities Engineering Branch
NASA Ames Research Center, Mail Stop 213-8
Moffett Field, CA 94035
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Jonathan.d.ikan@nasa.gov

Cc:

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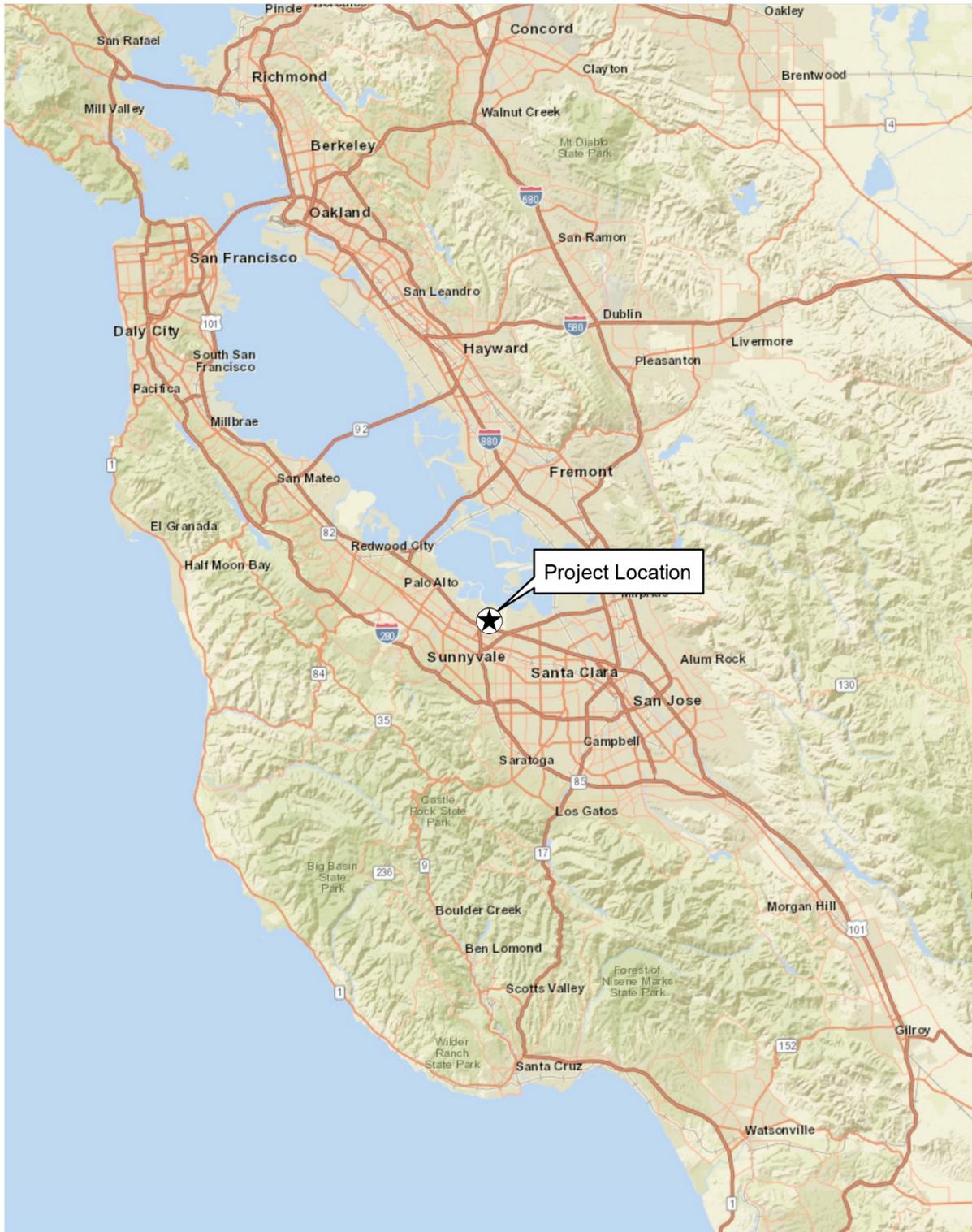
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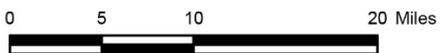
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Scale: 1 = 633,600; 1 inch = 10 mile(s)

National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

February 18, 2020

Nick Perry
President
Mountain View Historical Association
P.O. Box 252
Mountain View, CA 94042

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Mr. Perry,

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Cc:

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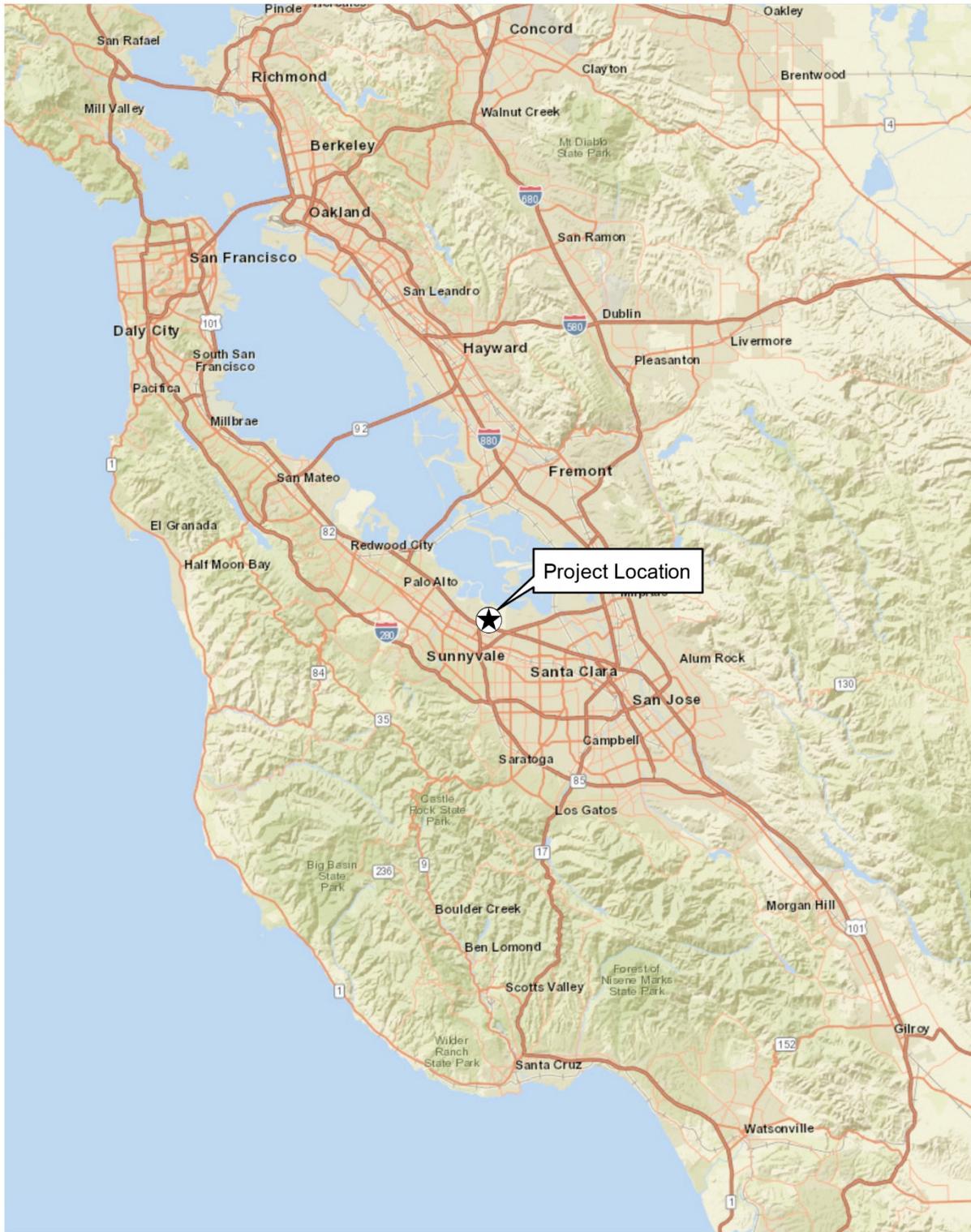
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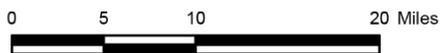
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National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

February 18, 2020

William P. Schroh, Jr.
President & CEO
History San Jose
1650 Senter Road
San Jose, CA 95112

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Mr. Schroh,

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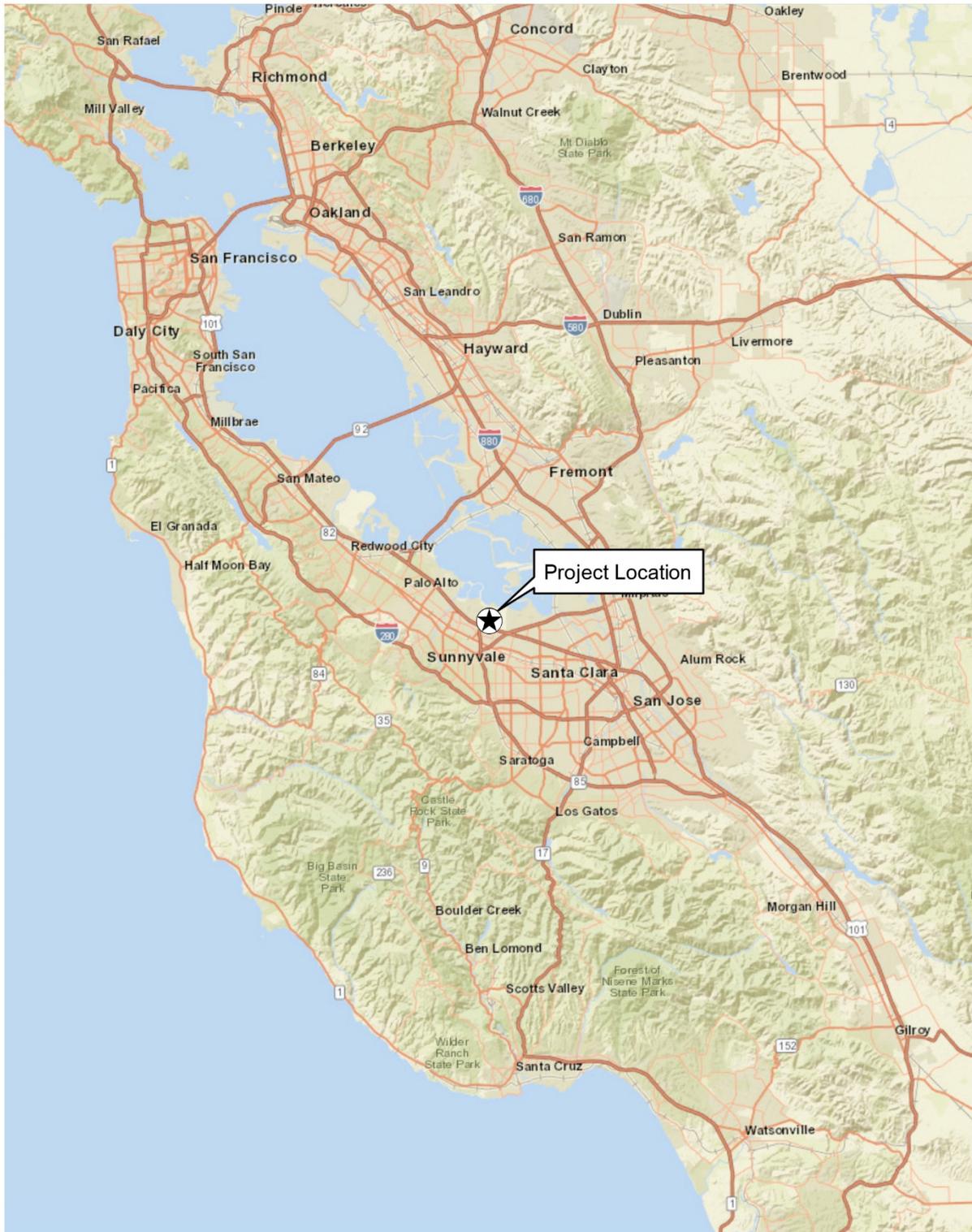
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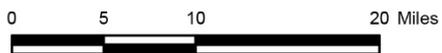
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National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

February 18, 2020

Cindy Heitzman
Executive Director
California Preservation Foundation
101 The Embarcadero, Suite 120
San Francisco, CA 94105-1215

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Ms. Heitzman,

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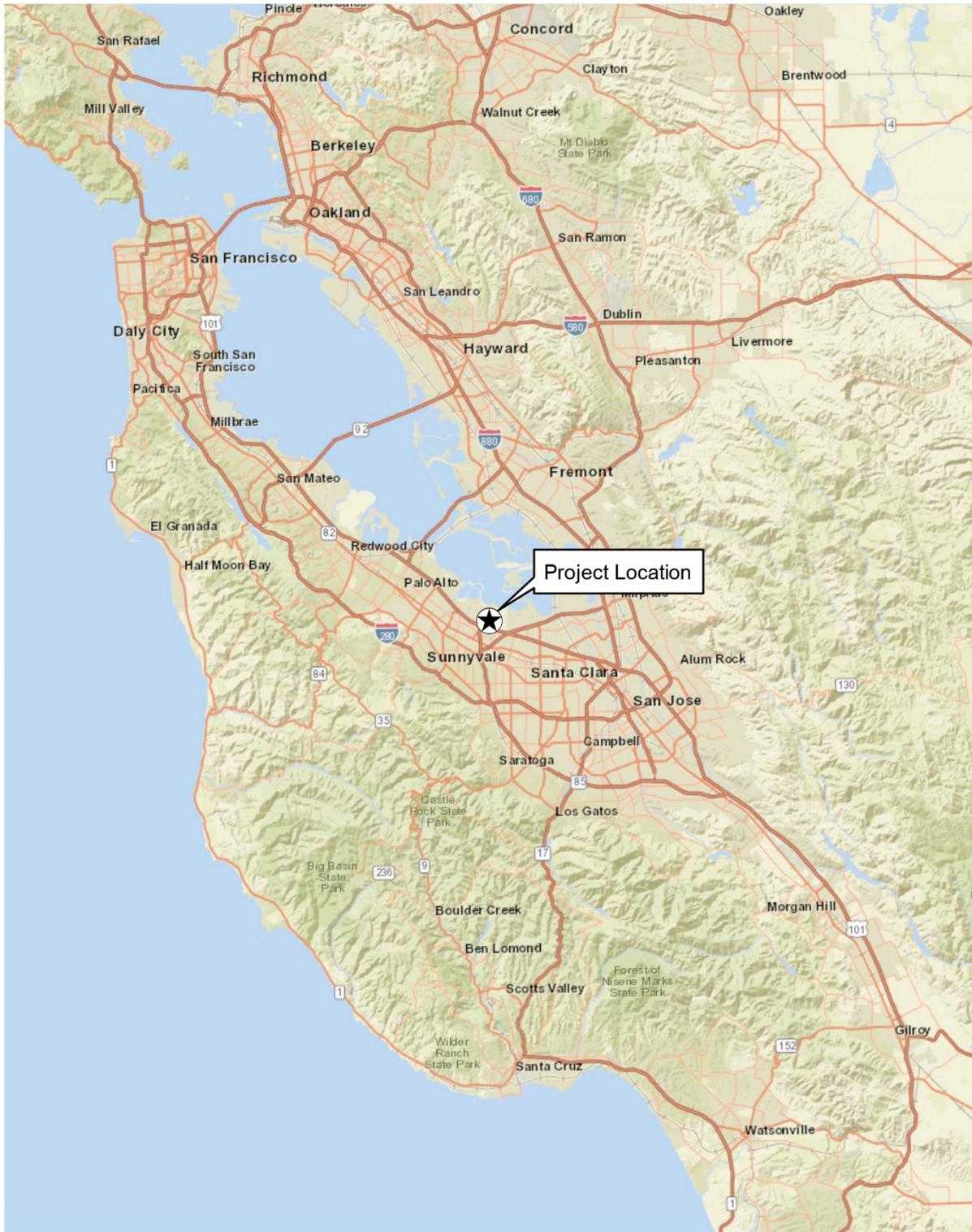
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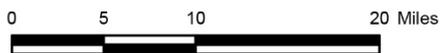
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National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

February 18, 2020

Christina Morris
Field Director
National Trust for Historic Preservation, Los Angeles Office
700 Flower Street, Suite 1100
Los Angeles, CA 90017

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Ms. Morris,

In support of its responsibilities under Section 106 of the National Historic Preservation Act of 1966 (NHPA), the National Aeronautics and Space Administration Ames Research Center (NASA ARC) has initiated Section 106 consultation with the California State Historic Preservation Officer (SHPO) regarding the Hangar 1 Rehabilitation Project (project or undertaking) located at Moffett Field, Santa Clara County, California (see attached Figure 1 for project location map). Built in 1933, Hangar 1 is listed in the National Register of Historic Places (NRHP) as a contributor to the U.S. Naval Air Station (NAS) Sunnyvale Historic District and is also individually eligible for listing; therefore, it qualifies as a historic property for the purposes of Section 106 consultation.

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In 2014, Planetary Ventures, LLC (PV) entered into a lease agreement with NASA ARC for the MFA premises, including use of Hangar 1 for research and development, such as testing and light assembly uses related to space, aviation, rover/robotics and other emerging technologies. NASA ARC is currently reviewing PV's proposed rehabilitation plans for Hangar 1, which would qualify as a federal undertaking under Section 106 of the NHPA. The rehabilitation will be completed in two phases. Phase I will address the abatement of the steel frame and concrete walls to control the release of PCB- and lead-impacted paint, and asbestos-containing materials. To reduce the potential risks to human health and the environment, the coatings need to be abated as soon as possible. Phase II comprises the exterior re-cladding, seismic strengthening, and core interior improvements for occupancy of Hangar 1. The proposed rehabilitation includes a metal skin, glazing systems, and roofing system to ensure that the hangar is enclosed and that past performance issues are addressed. These features have been designed to recreate the appearance of the original features and materials of Hangar 1.

NASA ARC is contacting you to assess your organization's interest in participating as a consulting party as defined in 36 CFR Section 800.2(c) in the Section 106 of the NHPA review process for the Hangar 1 Rehabilitation Project. If you would like to participate, you may elect to do so by sending written notification by email with the subject heading "Hangar Section 106 Consultation Interested Party" to Jonathan.d.ikan@nasa.gov within the next 30 days. Please include the following information:

1. Name
2. Title
3. Organization/Affiliation
4. Address
5. Email address
6. Phone number
7. Statement of election to participate as a consulting party

Please contact me if you have any questions pertaining to this process. I appreciate your attention and look forward to hearing from you regarding this Undertaking.

Sincerely,



Jonathan Ikan
Cultural Resource Manager, Facilities Engineering Branch
NASA Ames Research Center, Mail Stop 213-8
Moffett Field, CA 94035
(605) 604-6859
Jonathan.d.ikan@nasa.gov

Cc:

Ms. Rebecca Klein, NASA FPO
Environmental Management Division
NASA Headquarters
300 E Street, SW
Washington, DC 20546-0001

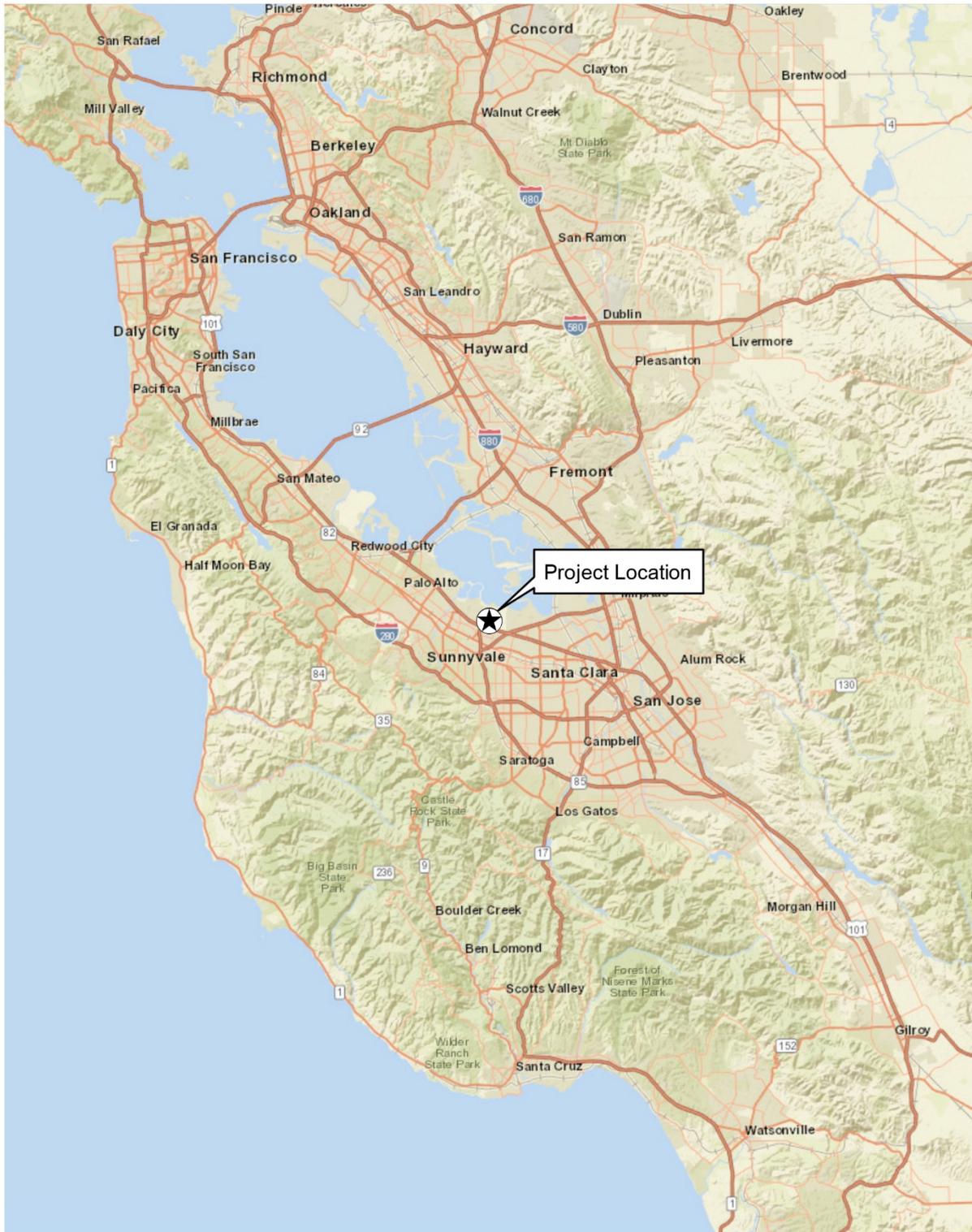
Lease Administration Team
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

Legal Department/Legal Matters
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

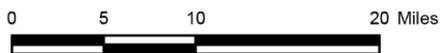
Attachments:

Figure 1. Regional Project Location Map

FIGURE 1: Regional Project Location Map



Source: ESRI, AECOM, NASA



Scale: 1 = 633,600; 1 inch = 10 mile(s)

National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

April 1, 2020

John McLaughlin
Silicon Valley Historical Society
1134 Crane Street, Suite 216
Menlo Park, CA 94025

Subject: Section 106 Consultation for the MFA Hangar 1 Rehabilitation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1210_001)

Dear Mr. McLaughlin,

In support of its responsibilities under Section 106 of the National Historic Preservation Act of 1966 (NHPA), the National Aeronautics and Space Administration Ames Research Center (NASA ARC) has initiated Section 106 consultation with the California State Historic Preservation Officer (SHPO) regarding the Hangar 1 Rehabilitation Project (project or undertaking) located at Moffett Field, Santa Clara County, California (see attached Figure 1 for project location map). Built in 1933, Hangar 1 is listed in the National Register of Historic Places (NRHP) as a contributor to the U.S. Naval Air Station (NAS) Sunnyvale Historic District and is also individually eligible for listing; therefore, it qualifies as a historic property for the purposes of Section 106 consultation.

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In 2014, Planetary Ventures, LLC (PV) entered into a lease agreement with NASA ARC for the MFA premises, including use of Hangar 1 for research and development, such as testing and light assembly uses related to space, aviation, rover/robotics and other emerging technologies. NASA ARC is currently reviewing PV's proposed rehabilitation plans for Hangar 1, which would qualify as a federal undertaking under Section 106 of the NHPA. The rehabilitation will be completed in two phases. Phase I will address the abatement of the steel frame and concrete walls to control the release of PCB- and lead-impacted paint, and asbestos-containing materials. To reduce the potential risks to human health and the environment, the coatings need to be abated as soon as possible. Phase II comprises the exterior re-cladding, seismic strengthening, and core interior improvements for occupancy of Hangar 1. The proposed rehabilitation includes a metal skin, glazing systems, and roofing system to ensure that the hangar is enclosed and that past performance issues are addressed. These features have been designed to recreate the appearance of the original features and materials of Hangar 1.

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Sincerely,



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Cc:

Ms. Rebecca Klein, NASA FPO
Environmental Management Division
NASA Headquarters
300 E Street, SW
Washington, DC 20546-0001

Lease Administration Team
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

Legal Department/Legal Matters
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

Attachments:

Figure 1. Regional Project Location Map

APPENDIX C
Contributors and Non-Contributors to the
NAS Sunnyvale Historic District

APPENDIX C: CONTRIBUTORS AND NON-CONTRIBUTORS TO THE NAS SUNNYVALE HISTORIC DISTRICT

Building No. and Name	Date	Planetary Ventures' Leasehold	1994 NAS Sunnyvale Historic District (NR listed)	2013 NAS Sunnyvale Expanded District	Historic Property
1 - Hangar #1	1932	YES	Contributor	Contributor	YES
2 - Gymnasium	1933	NO	Contributor	Contributor	YES
3 - Training and Conference Center	1933	NO	Non-contributor	Non-contributor	NO
5 - Water Tower and Storage Tank	1933	NO	Contributor	Contributor	YES
Building #6	1930	NO	Non-contributor	Contributor	YES
10 - Heat Plant	1933	NO	Contributor	Contributor	YES
12 - Commissary/Administration Building	1933	NO	Non-contributor	Non-contributor	NO
13 - Commissary/Storage Building	1933	NO	Non-contributor	Non-contributor	NO
14 - Industry Partners Building	1933	NO	Non-contributor	Non-contributor	NO
15 - Public Works Shop/Security Station	1933	NO	Contributor	Contributor	YES
16 - Public Works Shop	1933	NO	Contributor	Contributor	YES
17 - CPWP Administration Building/Blumberg Administration and Telephone Exchange	1933	NO	Contributor	Contributor	YES
18 - Control Tower/Aerological Building Flight Control Tower	1933	NO	Contributor	Contributor	YES
19 - Bachelor Enlisted Quarters (BEQ)	1933	NO	Contributor	Contributor	YES
20 - Bachelor Officers Quarters (BOQ)	1933	NO	Contributor	Contributor	YES
21 - Garage	1933	NO	Contributor	Contributor	YES
22 - Garage	1933	NO	Contributor	Contributor	YES
23 - Instruction Building	1933; 1936 (enlarged)	NO	Contributor	Contributor	YES
24 - Garage	1933	NO	Contributor	Contributor	YES
25 - Theater	1933	NO	Contributor	Contributor	YES
26 - Gate House/Iron Fence	1933	NO	Contributor	Contributor	YES
29 - NASA Bicycle Distribution Facility	1933	NO	Non-contributor	Non-contributor	NO
32 - Twin Small Tower/Floor Watchtower	1933-1934	YES	Contributor	Contributor	YES
33 - Twin Small Tower/Floor Watchtower	1933-1934	YES	Contributor	Contributor	YES
34 - Shed	1934	NO	Non-contributor	Non-contributor	NO
37 - Scale House	1933	NO	Contributor	Contributor	YES
38 - Tennis Courts	1936	NO	Non-contributor	Non-contributor	NO
40 - Flagpole/Commons	1933	NO	Contributor - Object Only	Contributor - Object Only	YES - Object Only
45 - Assembly Building	1944	NO	Non-contributor	Non-contributor	NO
46 - Hangar #2	1943	YES	Contributor	Contributor	YES
47 - Hangar #3	1943	YES	Contributor	Contributor	YES

Building No. and Name	Date	Planetary Ventures' Leasehold	1994 NAS Sunnyvale Historic District (NR listed)	2013 NAS Sunnyvale Expanded District	Historic Property
55 - Heat Plant for Hangars #2 and #3	1943	YES	Contributor	Contributor	YES
56 - Sanitary Sewer Lift/Pump Station	1943	YES	Outside the historic district boundary	Not evaluated	No
67 - Post Office Building	1940	NO	Non-contributor	Non-contributor	NO
69 - Inert Ammunition Storage	1943	YES	Outside the historic district boundary	Contributor	YES
70 - Fuse & Detonator Magazine	1943	YES	Outside the historic district boundary	Contributor	YES
71 - High Explosive Magazine	1943	YES	Outside the historic district boundary	Contributor	YES
72 - High Explosive Magazine	1943	YES	Outside the historic district boundary	Contributor	YES
73 - High Explosive Magazine	1943	YES	Outside the historic district boundary	Contributor	YES
74 - High Explosive Magazine	1943	YES	Outside the historic district boundary	Contributor	YES
76 - Locksmith Shop	1944	NO	Non-contributor	Non-contributor	NO
81 - Quonset Building #86	1944	NO	Non-contributor	Non-contributor	NO
Building #86	1940	NO	Non-contributor	Non-contributor	NO
Building #87	1940	NO	Non-contributor	Non-contributor	NO
105 - Airfield Lighting Vault	1947	NO	Outside the historic district boundary	Contributor	YES
106 - Airfield Compass Calibration Pad (Compass Rose)	1947	YES	Outside the historic district boundary	Contributor	YES
120 - Hazardous Material Storage Compound	1989	YES	Outside the historic district boundary	Non-contributor	NO
126 - Moffett Field Historical Society	1949	NO	Non-contributor	Non-contributor	NO
137 - Aircraft Fuel Storage Tank	1952	YES	Outside the historic district boundary	Non-contributor	NO
138 - Aircraft Fuel Storage Tank	1952	YES	Outside the historic district boundary	Non-contributor	NO
139 - Aircraft Fuel Storage Tank	1952	YES	Outside the historic district boundary	Non-contributor	NO
140 - Aircraft Fuel Storage Tank	1952	YES	Outside the historic district boundary	Non-contributor	NO
141 - Tank Truck Filling Rack	1952	YES	Outside the historic district boundary	Contributor	YES
143 - High Explosive Magazine	1951	YES	Outside the historic district boundary	Contributor	YES
147 - High Explosive Magazine	1951	YES	Outside the historic district boundary	Contributor	YES
158 - Flight Operations Building (Tower)	1954	YES	Outside the historic district boundary	Contributor	YES
169 - Vehicular Bridge	1953	NO	Outside the historic district boundary	Not evaluated	NO
329 - Ultra High Frequency/Very High Frequency (UHF/VHF) Receiver Building	1958	YES	Outside the historic district boundary	Contributor	YES
330 - Open Storage Compound	1958	YES	Outside the historic district boundary	Not evaluated	NO

Building No. and Name	Date	Planetary Ventures' Leasehold	1994 NAS Sunnyvale Historic District (NR listed)	2013 NAS Sunnyvale Expanded District	Historic Property
331 - Airfield Storage	1958	YES	Outside the historic district boundary	Not evaluated	NO
359 - Golf Course Grounds Maintenance Shop	1956	YES	Outside the historic district boundary	Not evaluated	NO
395 - Line Operations Shelter	1948	YES	Outside the historic district boundary	Not evaluated	NO
399 - Storage	1956	YES	Outside the historic district boundary	Not evaluated	NO
400 - Air Operations Storage	1958	YES	Outside the historic district boundary	Not evaluated	NO
409 - Storage	1946	YES	Outside the historic district boundary	Not evaluated	NO
439 - Aircraft Wash Rack	1942	YES	Outside the historic district boundary	Not evaluated	NO
442 - Ordnance Handling Pad	c. 1951	YES	Outside the historic district boundary	Contributor	YES
446 - Communications Tacan Facility	1958; 1986	YES	Outside the historic district boundary	Not evaluated	NO
454 - Transmission Building UHF/VHF	1960	NO	Outside the historic district boundary	Contributor	YES
455 - Storage	1964	YES	Outside the historic district boundary	Not evaluated	NO
471 - Storage	1961	YES	Outside the historic district boundary	Not evaluated	NO
480 - Racquetball Courts	1963	NO	Outside the historic district boundary	Not evaluated	NO
482 - Painting/Washing Facility; Storage Facility (JCM)	1963	NO	Non-contributor	Non-contributor	NO
484 - P-3 Munitions Maintenance Shop; Air/Underwater Shop	1965	YES	Outside the historic district boundary	Not evaluated	NO
485 - P-3 Sentry House; Guard & Watch Towers	1965	YES	Outside the historic district boundary	Not evaluated	NO
486 - P-3 AWW Weapons Magazines/High Explosive Magazines	1965	YES	Outside the historic district boundary	Not evaluated	NO
487 - P-3 AWW Weapons Magazines/High Explosive Magazines	1965	YES	Outside the historic district boundary	Not evaluated	NO
488 - P-3 AWW Weapons Magazines/High Explosive Magazines	1965	YES	Outside the historic district boundary	Not evaluated	NO
489 - P-3 AWW Weapons Magazines/High Explosive Magazines	1965	YES	Outside the historic district boundary	Not evaluated	NO
490 - P-3 AWW Weapons Magazines/High Explosive Magazines	1965	YES	Outside the historic district boundary	Not evaluated	NO
491 - P-3 AWW Weapons Magazines/High Explosive Magazines	1965	YES	Outside the historic district boundary	Not evaluated	NO

Building No. and Name	Date	Planetary Ventures' Leasehold	1994 NAS Sunnyvale Historic District (NR listed)	2013 NAS Sunnyvale Expanded District	Historic Property
492 - P-3 AWW Weapons Magazines/High Explosive Magazines	1965	YES	Outside the historic district boundary	Not evaluated	NO
493 - Swimming Pool at Bldg. 20	1963	NO	Non-contributor	Non-contributor	NO
498 - Storage	1965	YES	Non-contributor	Non-contributor	NO
499 - Storage	1966	YES	Non-contributor	Non-contributor	NO
Building #501	1930	NO	Non-contributor	Non-contributor	NO
502 - Golf Course Restrooms	1967	YES	N/A		
510 - Administrative Building	1967	NO	Non-contributor	Non-contributor	NO
511 - P-3 Missile Integration Facility/Equipment Storage Facility (JP)	1968	YES	Outside the historic district boundary	Not evaluated	NO
527 - Storage	1968	NO	Non-contributor	Non-contributor	NO
528 - High Explosive Magazine	1951	YES	Outside the historic district boundary	Not evaluated	NO
537 - Golf Course Restrooms	1973	YES	Outside the historic district boundary	Non-contributor (Outside period of significance)	NO
542 - Storage	1973	NO	Non-contributor	Non-contributor	NO
545 - Fuel Farm Offices	1973	YES	Outside the historic district boundary	Non-contributor (Outside period of significance)	NO
561 - P-3 Missile Magazine & Torpedo Maintenance/Missile Magazine	1976	YES	Outside the historic district boundary	Non-contributor (Outside period of significance)	NO
566 - Administration Building	1979	NO	Non-contributor	Non-contributor	NO
567 - Warehouse	1978	NO	Non-contributor	Non-contributor	NO
569 - Procurement Office	1978	NO	Non-contributor	Non-contributor	NO
570 - Storage	1978	NO	Non-contributor	Non-contributor	NO
571 - Tennis Courts	1979	NO	Outside the historic district boundary	Not evaluated	NO
580 - Fire Station/Crash & Structural Fire Station	1983	NO	Outside the historic district boundary	Not evaluated	NO
581 - Sign Board/Theater Marquee	1982	NO	Outside the historic district boundary	Not evaluated	NO
591 - 115/12KV Main Electrical Substation	1985	YES	Outside the historic district boundary	Non-contributor (Outside period of significance)	NO
650 - P-3 AIMD Avionics Shop/Administration Building	1975	NO	Outside the historic district boundary	Not evaluated	NO
651 - Battery Locker/Shop	1981 or 1982	NO	Outside the historic district boundary	Not evaluated	NO
653 - P-3 Applied Instruction/Administration Building	1984	NO	Outside the historic district boundary	Not evaluated	NO
654 - P-3 Classroom/Administration Building	1969	NO	Outside the historic district boundary	Not evaluated	NO
655 - P-3 Classroom/Mobility Warehouse A	1945	NO	Outside the historic district boundary	Not evaluated	NO

Building No. and Name	Date	Planetary Ventures' Leasehold	1994 NAS Sunnyvale Historic District (NR listed)	2013 NAS Sunnyvale Expanded District	Historic Property
656 - P-3 Communications & Technical Support Center/129th Rescue Operations	1971	NO	Outside the historic district boundary	Not evaluated	NO
657 - Line Operations/Warehouse F	1955	NO	Outside the historic district boundary	Not evaluated	NO
658 - Line Maintenance Shelter/Warehouse F	1955	NO	Outside the historic district boundary	Not evaluated	NO
659 - Ammunition Service Locker/Warehouse G	1956	NO	Outside the historic district boundary	Not evaluated	NO
660 - Ammunition Service Locker/Warehouse H	1956	NO	Outside the historic district boundary	Not evaluated	NO
661 - Line Operations Shelter/Warehouse I	1955 or 1956	NO	Outside the historic district boundary	Not evaluated	NO
662 - Aircraft Maintenance Hangar	2003	NO	Outside the historic district boundary	Not evaluated	NO
663 - Pararescue Training Facility	2016	NO	Outside the historic district boundary	Not evaluated	NO
669 - P-3 Classroom/Propulsion/Training Facility	1943	NO	Outside the historic district boundary	Not evaluated	NO
679 - Storage/Civil Engineering Warehouse	1992 or 1994	NO	Outside the historic district boundary	Not evaluated	NO
680 - CANG Headquarters	1980	NO	Outside the historic district boundary	Not evaluated	NO
681 - CANG Administrative & Supply/Base Supply Equipment Warehouse	1980	NO	Outside the historic district boundary	Not evaluated	NO
682 - CANG Hazardous/Flammable Material Storage Facility	1980	NO	Outside the historic district boundary	Not evaluated	NO
683 - CANG Civil Engineering	1980	NO	Outside the historic district boundary	Not evaluated	NO
684 - CANG Equipment Storage/Ground Support Maintenance	1984	YES	Outside the historic district boundary	Non-contributor (Outside period of significance)	NO
686 - Parachute & Dinghy Repair/Parachute & Survival Gear Repair Shop	1984 or 1986	YES	Outside the historic district boundary	Non-contributor (Outside period of significance)	NO
780 - Telephone Remote Switch	1989	YES	Non-contributor	Not evaluated	NO
901 - Liquid Oxygen Storage/Cryogenics Facility	1987	YES	Outside the historic district boundary	Non-contributor (Outside period of significance)	NO
934 - Golf Course Club House (19th Hole)	1940	YES	Outside the historic district boundary	Non-contributor	NO
953 - Aircraft Ready Fuel Day Tank and Pumping Station	1956	YES	Outside the historic district boundary	Not evaluated	NO
10A - Chemical Feed & Storage for Bldg. 10 Broiler	1996	NO	Outside the historic district boundary	Not evaluated	NO
478, 482 - Stand-by Generator	1963	NO	Non-contributor	Non-contributor	NO
A - Officers Housing	1933	NO	Contributor	Contributor	YES
A1 - Garage	1933	NO	Contributor	Contributor	YES
B - Officers Housing	1933	NO	Contributor	Contributor	YES

Building No. and Name	Date	Planetary Ventures' Leasehold	1994 NAS Sunnyvale Historic District (NR listed)	2013 NAS Sunnyvale Expanded District	Historic Property
B1 - Garage	1933	NO	Contributor	Contributor	YES
C - Officers Housing	1933	NO	Contributor	Contributor	YES
C1 - Garage	1933	NO	Contributor	Contributor	YES
D - Officers Housing	1933	NO	Contributor	Contributor	YES
D1 - Garage	1933	NO	Contributor	Contributor	YES
E - Officers Housing	1933	NO	Contributor	Contributor	YES
E1 - Garage	1933	NO	Contributor	Contributor	YES
F - Officers Housing	1933	NO	Contributor	Contributor	YES
F1 - Garage	1933	NO	Contributor	Contributor	YES
G - Officers Housing	1933	NO	Contributor	Contributor	YES
G1 - Garage	1933	NO	Contributor	Contributor	YES
H - Officers Housing	1933	NO	Contributor	Contributor	YES
H1 - Garage	1933	NO	Contributor	Contributor	YES
I - Officers Housing	1933	NO	Contributor	Contributor	YES
I1 - Garage	1933	NO	Contributor	Contributor	YES
MF1000 - Runway 32L/14R	1938	YES	Outside the historic district boundary	Contributor	YES
MF1001 - Instrument Runway 32R/14L	1945	YES	Outside the historic district boundary	Contributor	YES
MF1002 - Aircraft Parking Apron	1945	YES	Outside the historic district boundary	Contributor	YES
MF1003 - Hi-Speed Aircraft Fueling Pits	1955	YES	Outside the historic district boundary	Non-contributor	NO
MF1016 - Connecting Taxiways	1945	YES	Outside the historic district boundary	Contributor	YES
MF1016 - East Parallel Aircraft Taxiway	1945	YES	Outside the historic district boundary	Contributor	YES
MF1016 - West Parallel Aircraft Taxiway	1945	YES	Outside the historic district boundary	Contributor	YES
MF1017 - Golf Course	1959	YES	Outside the historic district boundary	Not evaluated	NO
N210 - Flight Sys. Research Lab	1941 or 1947	NO	Outside the historic district boundary	Not evaluated	NO
N211 - Flight Support Facility	1945	NO	Outside the historic district boundary	Not evaluated	NO
N243 - Flight and Guidance Simulation Laboratory	1967	NO	Outside the historic district boundary	Not evaluated	NO
N243A - Flt. & Guidance Simulation Lab	1967	NO	Outside the historic district boundary	Not evaluated	NO
N248 - Aircraft Servicing Fac.	1973	NO	Outside the historic district boundary	Not evaluated	NO
N248A - Grd. Supp. Equip Building	1973	NO	Outside the historic district boundary	Not evaluated	NO
N248B - Grd. Supp. Equip. Bldg No. 2	1976	NO	Outside the historic district boundary	Not evaluated	NO
N248C - Rotorcraft Maintenance Facility	1978	NO	Outside the historic district boundary	Not evaluated	NO
N248D - Aircraft Svc. Storage Bldg	1987	NO	Outside the historic district boundary	Not evaluated	NO
N248E - Aircraft Washrack	1995	NO	Outside the historic district boundary	Not evaluated	NO
N259 - Aircraft Operations Support Facility	1984	NO	Outside the historic district boundary	Not evaluated	NO

Building No. and Name	Date	Planetary Ventures' Leasehold	1994 NAS Sunnyvale Historic District (NR listed)	2013 NAS Sunnyvale Expanded District	Historic Property
Memorial Anchor		NO	Contributor - Object Only	Contributor - Object Only	YES - Object Only