

National Aeronautics and Space Administration



**Ames Research Center**  
Moffett Field, California 94035

November 12, 2015

Ms. Julianne Polanco  
State Historic Preservation Officer  
Office of Historic Preservation  
Department of Parks & Recreation  
1725 23rd Street, Suite 100  
Sacramento, CA 95816

Attn: Mr. Mark Beason

Subject: NASA Section 106 Consultation: Arc Jet Complex Steam Vacuum System Boiler Replacement Project at Ames Research Center, Moffett Field, California

Dear Ms. Polanco:

As part of its responsibilities under Section 106 of the National Historic Preservation Act (NHPA), the National Aeronautics and Space Administration (NASA) is requesting consultation for the Arc Jet Complex Steam Vacuum System (SVS) Boiler Replacement Project (project or undertaking) located at Ames Research Center (ARC) at Moffett Field, California (Attachment A). NASA has determined that this project constitutes an undertaking under the NHPA. NASA requests review and consultation concerning the following project description, identification efforts, and effects analysis for the project, and the State Historic Preservation Officer's (SHPO) concurrence that NASA's finding of no adverse effect is appropriate, pursuant to 36 Code of Federal Regulations (CFR) 800.5(b).

### **Description of the Undertaking**

The project proposes to construct a new, fully functional boiler plant (to be known as N234B) to replace the existing boiler plant in support of the Arc Jet Complex at ARC. The Arc Jet Complex is composed of several structures, including Building N238, the Arc Jet Laboratory, which has been determined eligible for the National Register of Historic Places (NRHP) and has a pending NRHP nomination. The Arc Jet Complex has existing SVS boiler equipment inside of Building N234A on the west side of Mark Avenue that will be removed. The proposed new boiler plant, Building N234B, will be located on the east side of Mark Avenue, to the north of Building N242, on the site of Building N252 where a 30,000-gallon tank and 40,000-gallon tank are currently installed (see Primary Area of Work in Attachment B and Plate 1).

The proposed boiler plant will include three low-emission, high-pressure steam boilers installed on a reinforced concrete mat slab foundation, and related mechanical equipment, tanks, valves, and piping. The boiler facility will be covered with a structural steel canopy and will have an attached prefabricated boiler control room. The project will also include the relocation of the 30,000-gallon and 40,000-gallon tanks, and the removal and relocation or replacement of existing site utilities, fencing, and tank foundations.



**Plate 1. Primary area of work, view facing southwest (N242 in background at left; N238 in background at right).**

Minor earthwork will include steam pipe utility trenching, grading, drainage improvements, and site restoration. Other activities under this project will include:

- improvements to Building N231 with HVAC upgrades, interior changes to the restroom, and exterior repainting;
- demolition of Building N234A and the existing SVS boiler and feedwater deaerating (FWDA) system and specific mechanical equipment (obsolete piping, pumps, controls, instruments, and electrical power) located inside; and
- construction of a new boiler shop building to the north of the proposed N234B. The proposed boiler shop building (to be known as N234C) will be a one-story, 20-foot by 40-foot utilitarian building with a concrete floor, steel structure, standing seam aluminum roof and insulation, aluminum siding and insulation, and steel doors.

Project activities are illustrated on the site plan provided in Attachment C, and in architectural drawings provided in Attachment D.

## Area of Potential Effects

The area of potential effects (APE) is defined to encompass the first tier of buildings adjacent to the project's footprint. The APE is shown in Attachment B. Where the project proposes only interior work to a building, the APE is limited to the footprint of that building. For archaeological resources, the APE is defined as the limits of disturbance, including areas of temporary staging and construction ground disturbance. The proposed APE boundary includes all historic properties that may be indirectly affected by the project.

## Identification of Historic Properties

The APE has been previously surveyed for archaeological and architectural resources, and one architectural resource has been previously evaluated for NRHP eligibility.

No archaeological resources or areas of high archaeological sensitivity have been previously identified in or around the APE for archaeological resources. The project area that will contain ground disturbance is primarily an open dirt lot adjacent to Building N242 and under existing roads. The area is disturbed, and no new archaeological survey was performed. The area was not identified in the 2014 Draft Integrated Cultural Resources Management Plan for ARC (AECOM 2014) as having high archaeological sensitivity.

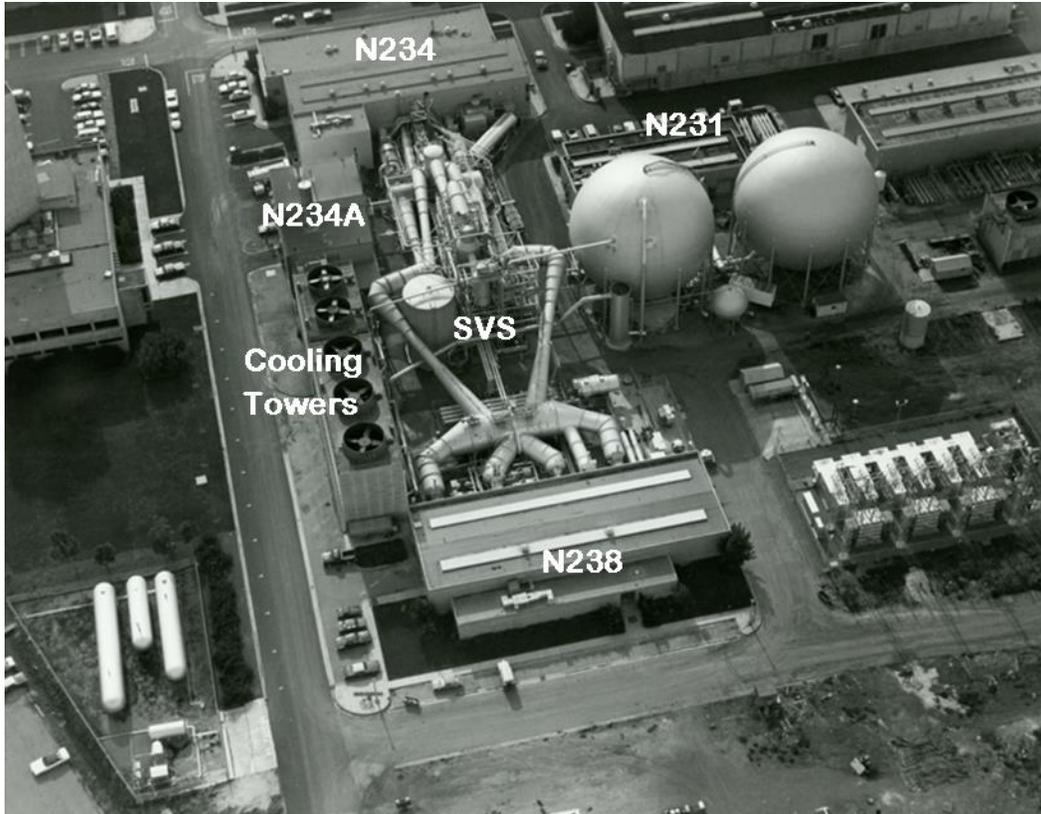
An intensive survey of the APE was conducted on May 22, 2015. The survey identified six buildings that are at least 50 years old and located within the APE (Table 1). The remaining buildings and structures in the APE are not yet 50 years old, do not exhibit the potential for exceptional significance, and, therefore, were not evaluated. For full descriptions and evaluations of the resources under the NRHP Criteria, see DPR 523 series forms located in Attachment E.

**Table 1. Historic-Era Architectural Resources in the APE**

<b>Building No.</b>	<b>Historic Name (Current Name)</b>	<b>Year Built</b>	<b>NRHP Status</b>
N144	General Warehouse	1952	Not Eligible
N231	Hypersonic Helium Tunnel (Arc Jet Shops)*	1960	Not Eligible
N234	Gasdynamics Laboratory (Thermal Protection Laboratory)*	1962	Eligible
N234A	Boiler/SVS Vacuum Ejector and Boiler Control System*	1962	Not Eligible
N238	Mach 50 Helium Tunnel (Arc Jet Laboratory)*	1964	Nominated for listing (pending)
N242	Structural Dynamics Laboratory (Systems Development Facility)	1965	Eligible

\* Currently part of the Arc Jet Complex

The Arc Jet Complex, located in the APE, currently employs Buildings N231, N234, N234A, N238, and the SVS with its associated cooling towers (Plate 2). Although Building N231 supports the Arc Jet Complex, it was evaluated separately according to its historical construction, use, and associations. The main buildings that compose the Arc Jet Complex are also discussed individually.



**Plate 2. The Arc Jet Complex, circa 1974 (Primary area of work is located at lower left.)**

## **Arc Jet Complex**

### ***Building N234 – Gasdynamics Laboratory (Thermal Protection Laboratory)***

Building N234 is a 24,670-square-foot, two-story laboratory and office building with a concrete foundation, an asymmetrical plan, reinforced concrete walls, and a flat roof (Plate 3). The building has two distinct parts: an office portion on the south side (front), and a laboratory portion on the north side (rear). The front of the building has concrete exterior walls that are scored in a grid pattern. Each story on the south side and east side contains a series of continuous aluminum-framed fixed windows some with hopper or awning sash and a flat concrete awning projecting over the windows. The offset central entrance contains a recessed pair of glazed doors with a transom and projecting concrete awning above, flanked by full-height brick pilasters. The west side contains no fenestration and has an attached brick partition wall enclosing the area around it (Plate 4). The rear portion of the building is clad with corrugated metal siding and has an L-shaped plan. The east side contains a single glazed door and a roll-up steel utility door in the first story, and an exterior staircase leading to a single glazed door in the second story. The rear of the building is connected to SVS equipment.

Constructed in 1962, Building N234 and its related SVS equipment were built as the Gasdynamics Laboratory and were used for research in heat shield applications and aerodynamics for spacecraft reentry into Earth's atmosphere.



**Plate 3. Building N234, view facing northwest.**



**Plate 4. Building N234, view facing northeast.**

### **SVS**

The SVS is composed of a warren of metal tubes, valves, structural supports, tanks, and cooling towers (Plate 5). The SVS was first built as part of Building N234 in 1962, and was later expanded to connect to Building N238. It is integral to the operation of the Arc Jet Complex. The

SVS is powered by the existing boiler in Building N234A (described below). The cooling towers are connected to the SVS to the east (Plate 6). The cooling towers consist of five aligned cylindrical towers with vents housed in a rectangular, two-story structure that is clad in corrugated metal and vented in the first story.



**Plate 5. SVS, view facing northeast.**



**Plate 6. Cooling towers, view facing northwest.**

***Building N234A – Boiler/ SVS Vacuum Ejector and Boiler Control System***

Building N234A is a three-story building with a concrete foundation, a steel-frame structural system, and a dual shed roof (Plate 7). The roof is covered with corrugated metal, and several vents and a large cylindrical pipe project from it. The exterior is clad with corrugated metal siding. On the east and west sides of the building, each story contains a series of steel-sash, industrial windows with operable awning window panels in the center. The east side also contains a roll-up steel utility door that has been modified to contain a single glazed steel door. The west side of the building has an exterior staircase attached that leads to a single steel door in the second story and pipes that extend from the building to connect to the SVS. The south side contains a single glazed steel door and is connected to an adjacent three-story structure that holds a series of tanks (Plate 8). The north side of Building N234A has a one-story shed addition and a vent in the second story.



**Plate 7. Building N234A, east side, view facing southwest.**



**Plate 8. Building N234A, east side, view facing northwest.**

***Building N238 – Mach 50 Helium Tunnel (Arc Jet Laboratory)***

Building N238 has a utilitarian design composed of two distinct sections: a one-story L-shaped portion with brick exterior walls, and a corrugated metal structure one and one-half stories high situated within the ell of the brick portion and extending to the south and west (Plates 9 and 10). The building has a 17,030-square-foot rectangular plan with a concrete foundation, a steel-frame structural system, and a flat roof. The façade (north elevation) of the brick portion contains two windows in the eastern portion and an entrance with glazed double-doors in the western portion. The east side of the brick portion extends the full width of the building and contains a steel overhead utility door. The west side of the brick portion and the north side of the corrugated metal portion have no fenestration. The west side of the corrugated metal portion contains a steel overhead utility door and a single man-door. The rear (south elevation) of Building N238 is connected to the SVS. The building's interior at one time contained five discrete test bays: the 60-megawatt Interaction Heating Facility, the Direct Connect Facility; the Panel Test Facility; the Giant Planet Facility; and the High Enthalpy Facility.

The Arc Jet Laboratory (Building N238) was determined eligible in 2007 under Criterion A at the national level of significance for its association with NASA's Space Shuttle Program (SSP), specifically for the research and development of Thermal Protection Systems (TPS) for the space shuttle conducted in its 60-megawatt Interaction Heating Facility. The period of significance is 1968 to 2011, the year of its construction to the end of the SSP. The property also meets Criteria Consideration G for properties that have achieved significance within the past 50 years. The significance of Building N238 was measured according to NASA's guidelines published in *Evaluating Historic Resources Associated with the Space Shuttle Program: Criteria of Eligibility*

*for Listing in the National Register of Historic Places (NRHP) (NASA 2006) (Page & Turnbull 2007). Building N238 has been individually nominated for the NRHP (pending November 2015).*



**Plate 9. Building N238, view facing southwest.**



**Plate 10. Building N238, view facing southeast.**

Constructed 1962–1964, the Arc Jet Complex is associated with scientific innovation and the development of arc jet technology. The arc jets designed and built in the complex contributed to the successful development of TPS technology related to NASA’s mission to achieve manned spaceflight and a lunar landing in the 1960s. TPS technology was critical for the successful reentry of spacecraft related to every NASA space program, including Apollo, Space Shuttle, Viking, Pioneer-Venus, Galileo, Mars Pathfinder, MER heatshield, Stardust, NASP, X-33, X-34, SHARP-B1 and B2, X-37 WLE TPS and most recently CEV/Orion heatshield development and Mars Science Laboratory TPS. The unique invention of high-powered arc jets that approximately simulated the conditions upon entry into the Earth’s atmosphere to develop TPS technology originated in the test areas of the Arc Jet Complex. The Arc Jet Complex is eligible for the NRHP under Criterion A for its association with the creation and operation of the arc jets, its contributions to important TPS research related to space exploration, for a period of significance from 1962, the year that the Gasdynamics Laboratory was completed, to 2011, the end of the SSP and NASA-directed manned spaceflight. Building N234 (formerly Gasdynamics Laboratory, now Thermal Protection Laboratory), the SVS, and Building N238 (formerly Mach 50 Helium Tunnel, now Arc Jet Laboratory) are the primary features of the Arc Jet Complex that meet this criterion. The property retains integrity, and is eligible for listing in the NRHP.

The boiler inside of Building N234A has supported the SVS since it was constructed as part of the Gasdynamics Laboratory in 1962, but is an auxiliary feature of the complex and is not directly related to the significant scientific research related to arc jets and space exploration that has taken place within the laboratories. The boiler itself was built for a Navy ship, the 1945 *U.S.S. Helena*, and repurposed for the laboratory. Building N234A (SVS boiler), although dating to the period of significance, is a secondary feature of the Arc Jet Complex, and does not achieve a level of significance to be eligible.

### **Building N144 – General Warehouse**

Building N144 is a warehouse located along the east side of Walcott Avenue, to the east of the project area and the Arc Jet Complex (Plate 11). The one-story warehouse has a concrete slab foundation, a steel-frame structural system, corrugated cement-asbestos siding, and a low-pitched gable roof. It is 20 bays long with concrete firewalls between every five bays, and two bays wide. The bays contain regularly spaced access openings, primarily with roll-up steel utility doors. There are also some glazed doors and metal sliding windows. The majority of roll-up steel utility doors are located on the west side facing Walcott Avenue. Building N144 has had some minor changes, including the addition of new access openings and the replacement of utility doors, but does not appear to have had any major alterations.

Built in 1952, Building N144 has continuously served a support function as a warehouse and does not meet the NRHP Criteria because it does not exhibit historical significance tied to any particular themes, events, individuals, or architectural significance related to its design, materials, type, or materials. It is not eligible for the NRHP.



**Plate 11. Building N144, view facing north.**

### **Building N231 – Hypersonic Helium Tunnel**

Building N231 is a one-story, 7,400-square-foot building with a steel-frame structural system, a concrete foundation, and a flat roof (Plate 12). The building has a roughly rectangular plan with two distinct parts: an office area on the south (front) side, and a testing area/warehouse on the north (rear) side. The front of the building has brick siding and a hipped canopy covered with standing seam sheet metal and supported by plain posts along the south and east sides. Inset under the canopy, the exterior walls contain a series of aluminum-framed fixed windows (Plate 13). The offset central entrance contains a recessed pair of glazed doors with a transom above, flanked by brick piers. The rear portion of the building is a half story taller, and is clad with corrugated metal siding and stucco or concrete siding. The east and west sides each contain a roll-up steel utility door and a single door. The north side of the building is attached to a helium spherical evacuation recovery tank and other equipment. Other equipment is located to the west of the building behind a brick partition wall.

Built in 1960 as the 20-inch Hypersonic Helium Tunnel facility, Building N231 has undergone substantial alteration. Originally connected to two helium spherical tanks and other research equipment that composed the 20-inch Hypersonic Helium Tunnel, the building no longer serves that function since the helium tunnel was dismantled and one helium spherical tank was removed. An addition to the north side of the building doubled the size of the rear portion of the building, and utility doors were installed at an undetermined date. Currently, the building is used for offices and a shop related to the Arc Jet Complex. While significant under NRHP Criterion A for its association with the creation and operation of helium tunnels and its contributions to important scientific research related to space exploration when it was the Hypersonic Helium Tunnel, Building N231 does not retain sufficient integrity to be listed in the NRHP. Therefore, it is not eligible for the NRHP.



**Plate 12. Building N231, view facing northwest.**



**Plate 13. Building N231, view facing northeast.**

### **Building N242 – Structural Dynamics Laboratory (Systems Development Facility)**

Building N242 is a two-story research facility with a rectangular plan and a prominent 100-foot-high pentagonal test chamber tower extending from the center of the building (Plate 14). The building has reinforced concrete walls that are scored with a grid pattern. The building and the tower have flat roofs. The building has two sections: the laboratory and test areas, including the

tower, to the south, and offices and shops to the north. The sections are divided without internal access.



**Plate 14. Building N242, view facing north.**



**Plate 15. Building N242, view facing southeast.**

The south portion of the building containing the laboratory has a central, two-story bay enclosed with a sliding hangar door on the south side of the building that provides access to the laboratory test areas (pictured below). To the left, there is a two-story bay that contains corrugated metal siding with a pair of steel doors under a concrete canopy in the first story, and fixed metal-

framed windows in the first and second stories. The east side of the building contains roll-up steel utility doors in the first and second stories, although the first story door has been modified with a single glazed steel door. The west side of the building contains no doors or windows. The east and west sides have regularly spaced vent openings in the second story.

The north portion of the building containing offices and shops has entrances on the east and west sides, each consisting of recessed glazed doors and surrounds under five, tall and narrow fixed windows with projecting concrete dividers. To the north of each entrance, a concrete mass projects from the building. The north side of the building has eight symmetrical bays containing narrow fixed clerestory windows in the first story and large, recessed, single-plate, fixed windows in the second story. Mechanical equipment is also located along the north side of the building.

Built in 1965, Building N242 was designed as the Structural Dynamics Laboratory. The facility was completed in 1965 with infrared heating, variable-frequency shakers, and noisemakers to simulate lift-off forces for testing missiles. By 1972, it was used for other purposes, including serving as the Mars Surface Wind Tunnel in the mid-2000s. Building N242 has had some alterations related to its repurposing for other scientific research. Currently, the building is still used for offices and scientific research. Building N242 is significant under NRHP Criterion A for its association as a highly specialized missile and spacecraft testing facility, and for its contributions to important scientific research related to space exploration. It is also distinctive as a specially designed Modern research facility with a prominent 100-foot-tall pentagonal tower, and meets NRHP Criterion C. The period of significance extends from 1964 to 1972, the year construction began until the Structural Dynamics Branch at ARC terminated and the building was repurposed for other uses. The Structural Dynamics Laboratory sufficiently retains its integrity of location, design, setting, materials, workmanship, feeling, and association to be eligible for the NRHP.

### **Affected Historic Properties**

Affected properties include the Arc Jet Complex (Building N234, Building N238, and SVS) and Building N242. As described above, these resources are eligible for the NRHP.

### **Assessment of Effects**

The Criteria of Adverse Effect pursuant to 36 CFR 800.5(a)(1) are applied to assess effects of the undertaking on historic properties within the APE:

(1) Criteria of adverse effect. 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.

The project does not propose to alter any historic properties directly, and is not anticipated to have any direct effects on historic properties, with the exception of the potential to affect unknown subsurface archaeological resources. To address that potential, NASA will follow its standing operating procedures for unanticipated discoveries as outlined in the 2014 Draft Integrated Cultural Resources Management Plan (AECOM 2014).

The project has the potential for indirect effects through visual changes that may alter the setting of the Arc Jet Complex and N242. The new construction of Building N234B will introduce a visual intrusion adjacent to these historic properties and will change the power source for the Arc Jet Complex. Recommendations for new construction are equal to those for compatible new additions set forth in the Secretary of the Interior's Standards for Rehabilitation, specifically Standards 9 and 10.

Standard 9 states:

New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

Standard 10 states:

New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

The project will not destroy any significant features that characterize the historic properties. Removal of the existing boiler in Building N234A will not diminish the integrity of the Arc Jet Complex, as it served a support function to the facility and was not directly associated with the research that makes the facility significant.

The main consideration for the new construction is how it will impact the setting of the Arc Jet Complex and N242. The buildings are research facilities that are significant for their innovation in scientific research related to space flight. The setting for these buildings is generally reflective of a research facility composed of industrial-type buildings made with common materials and construction methods. The function of the buildings rather than the setting is the more important aspect of their integrity that allows the historic properties to convey their historical significance. However, to be compatible with the setting, the proposed Building N234B will complement these buildings and the other existing facilities in the immediate area.

Buildings N234 and N238 share similar materials, including concrete, brick, and corrugated metal siding. Building N242 has concrete exterior walls and is two stories. Nearby industrial-type structures include sheds, storage facilities, and other steel-framed buildings clad primarily in concrete and corrugated metal siding of varying heights. New construction of Building N234B,

which will be composed of a series of boilers with a steel-framed, approximately four-story-high corrugated metal canopy, will be compatible with the massing, size, scale, and materials of the historic properties and other buildings in the immediate vicinity. Differentiation from the adjacent historic properties will be evident through the profile of Building N234B's roof and the discernible differences in its contemporary materials. Furthermore, Building N234B's location across the street from the Arc Jet Complex and at the rear of Building N242 (approximately 35 feet away from the north side of the building) will be obscured within the main viewsheds of the buildings and their prominent façades, and will not affect the overall setting of the historic properties. The feeling of a research facility will be retained. Therefore, the project will be consistent with Standard 9.

The project proposes several actions that will not be feasibly reversible, including construction of Building N234B; removal and disposal of existing boiler equipment; relocation of 30,000- and 40,000-gallon tanks; and installment of underground utility lines. Building N234B will be a permanent facility. No new use of the existing boiler equipment is proposed, and its disposal will be permanent. The relocation of the tanks, one to a location on a paved lot behind Building N271 and the other to an area on the east side of Building N242, will not affect historic properties, as the buildings adjacent to the paved lot are not of historic age and do not exhibit exceptional significance, and the tanks are already adjacent to Building N242 to the north. Installment of underground utility lines will also require permanent infrastructure. However, the project proposes minimal connections to the Arc Jet Complex through the cooling towers of the SVS that will be reversible, and will not impair the essential form, character-defining features related to the laboratories and their equipment, or integrity of the adjacent historic properties. Therefore, the project will be consistent with Standard 10.

As a whole, the project will minimally alter the setting of the Arc Jet Complex and N242 with the removal and upgrade of utility sources in the new Building N234B boiler facility. Replacement of the SVS boiler will allow for the continued function of the research facility, a necessary upgrade to keep the laboratory capable of conducting the research that makes the historic properties significant. Periodic modifications to these research facilities are necessary for these facilities to continue their functions and maintain their significance under the NRHP Criteria. The project reflects guidance in the Advisory Council for Historic Preservation's (ACHP) 1991 *Balancing Historic Preservation Needs with the Operation of Highly Technical or Scientific Facilities* (ACHP 1991) that accounts for the changing nature of scientific research facilities. The historic properties will continue to convey their historical significance and their integrity of location, design, materials, workmanship, and association, will not be diminished. Therefore, the project will result in no adverse effect.

## **Public Participation**

Pursuant to 36 CFR 800.5(c), NASA will make its finding of no adverse effect for this undertaking available to the public and any consulting parties, as specified in 36 CFR 800.11(e). Currently, there are no federally recognized Native American Tribes associated with the location of the APE.

## Conclusions

NASA has determined that the Arc Jet Complex, specifically Building N234, Building N238, and the SVS, meets NRHP Criterion A, retains integrity, and is eligible for listing in the NRHP, and that Building N242, the Structural Dynamics Laboratory, meets NRHP Criteria A and C, retains integrity, and is eligible for listing in the NRHP.

The Arc Jet Complex and Building N242 are historic properties within the APE that will be impacted by the undertaking. The significance of these historic properties is primarily associated with innovation in research and development related to experimentation for space flight conducted within the research facilities. The project proposes the removal of Building N234A and construction of Building N234B with a new boiler to meet the needs of the Arc Jet Complex. In its assessment of effects, NASA found that the proposed design of the new Building N234B boiler facility is compatible with adjacent historic properties and will not significantly diminish the integrity of the historic properties, thus meeting the Secretary of the Interior's Standards. NASA has determined that the undertaking's impact would not constitute an adverse effect due to its minimal impact on the ability of the adjacent historic properties to convey their historical associations that make them eligible for the NRHP. NASA, in applying the Criteria of Adverse Effect on the proposed project activities, proposes that a finding of no adverse effect is appropriate.

NASA is seeking the SHPO's concurrence with its determination that the Arc Jet Complex and Building N242 are historic properties eligible for listing in the NRHP. NASA is also seeking the SHPO's concurrence with NASA's finding that the proposed undertaking will have no adverse effect on historic properties. NASA requests the SHPO's concurrence within 30 days of receipt of this letter, as specified in 36 CFR 800.5(c).

Please contact me at [keith.venter@nasa.gov](mailto:keith.venter@nasa.gov) or at (650) 604-6408 with your comments or questions.

Sincerely,

Keith Venter  
Historic Preservation Officer



**cc:**

HQ/EMD/Ms. Klein, Ph.D., RPA

**Attachments**

- A. Project Location Map
- B. APE Map
- C. Site Plan
- D. Architectural Plans
- E. DPR 523 Series Forms

**References**

Advisory Council for Historic Preservation (ACHP)

- 1991 *Balancing Historic Preservation Needs with the Operation of Highly Technical or Scientific Facilities*. Excerpts available online at <http://www.achp.gov/balancingsum.html>.

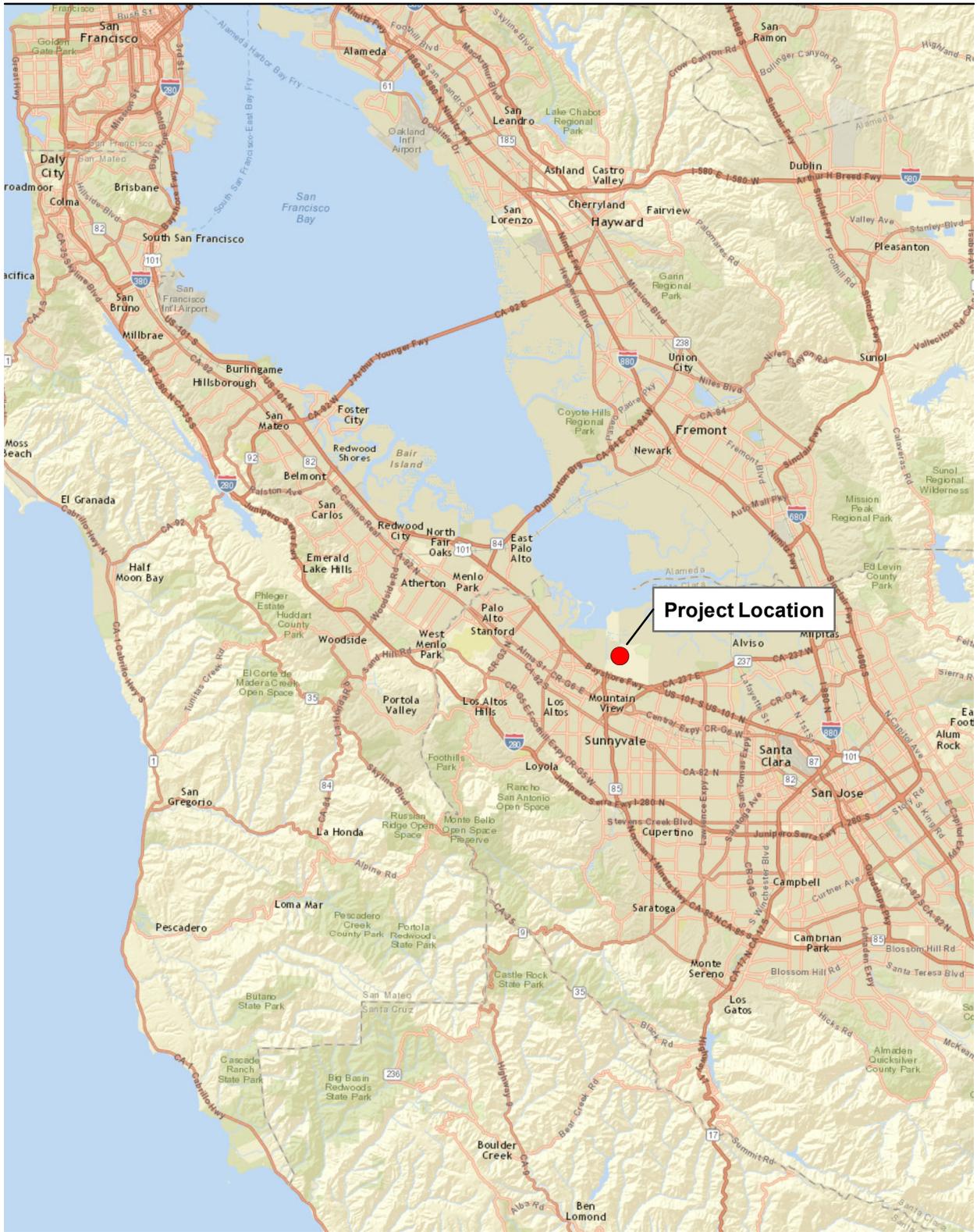
NASA

- 2006 *Evaluating Historic Resources Associated with the Space Shuttle Program: Criteria of Eligibility for Listing in the National Register of Historic Places (NRHP)*. Washington, D.C.: National Aeronautics and Space Administration.

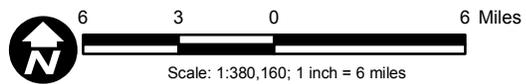
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- 2007 *Space Shuttle Program: NASA Ames Research Center, Moffett Field, California*. Available online at ARC historic properties web site, <http://historicproperties.arc.nasa.gov/shuttle.html>.

**ATTACHMENT A**  
**PROJECT LOCATION MAP**



Source: ESRI 2015



Scale: 1:380,160; 1 inch = 6 miles

## Attachment A Regional Map

**The following content was redacted from this public posting:**

Attachment C: Site Plan

Attachment D: Architectural Plans

Attachment E: DPR 523 Series Forms