National Aeronautics and Space Administration

Ames Research Center
Moffett Field, California 94035

May 8, 2017

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: Section 106 Consultation for the FY18 Modular Supercomputing Facility Project at Ames Research Center, Moffett Field, California

Dear Ms. Polanco:

In support of its responsibilities under Section 106 of the National Historic Preservation Act (NHPA), the National Aeronautics and Space Administration (NASA) requests initiation of Section 106 consultation for the FY18 Modular Supercomputing Facility (MSF) Project (project or undertaking) located at Ames Research Center (ARC) at Moffett Field, California (Attachment A, Figures 1 and 2). NASA determined that this project constitutes an undertaking under the NHPA. NASA requests your review and consultation concerning the following project description, the delineation of the Area of Potential Effects (APE), identification efforts, and effects analysis for the project. NASA requests the State Historic Preservation Officer's (SHPO) concurrence on NASA's determination of No Historic Properties Affected related to this project, pursuant to 36 Code of Federal Regulations (CFR) 800.5(b).

Description of the Undertaking

NASA has developed a concept for containerized supercomputing facilities to supplement the NASA Advanced Supercomputing Facility (Building N258) at ARC. To improve on the current space, cooling, and power limitations in Building N258's existing computer rooms, NASA is developing external, expandable, and parallel containerized facilities. The design of the modules and their distribution systems is not complete, but the concept involves using a single large or multiple smaller, one-story modular, prefabricated, container structures to house additional

computing equipment. This project proposes to construct the MSF infrastructure to accommodate multiple modules. Plate 1 shows the conceptual design for the MSF, and Plate 2 shows a similar existing structure located near the project area at the intersection of Parsons Avenue and Allen Road.

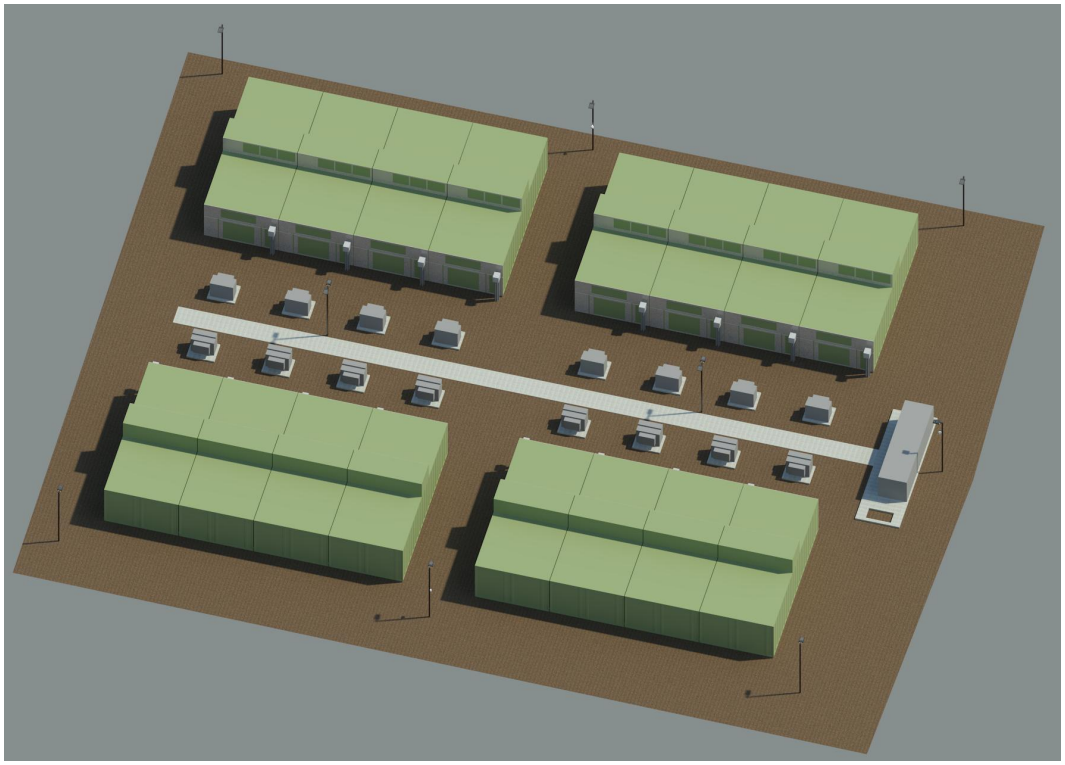


Plate 1. Simulated oblique view of the MSF (AECOM 2017).

Plate 2. Example of a similar modular structure near the intersection of Parsons Avenue and Allen Road, view facing northeast.

The MSF site is located on the east side of De France Avenue, northeast of the intersection with Allen Road (Attachment A, Figure 3). The MSF site is currently occupied by several trailers (TA28A, B, G, H, J, N and P), antennae, and other equipment, and is covered with gravel (Plates 3 through 6). The MSF infrastructure will consist of a level, 250-ft. by 180-ft. pad of engineered fill at the site, with various foundations as necessary for the installation of the modules (Attachment B, Sheet – Site Plan). The elevation of the engineered fill will be 14-ft. above mean sea level to meet the Goddard Institute of Space Studies Climate Projections for the Middle to High Range in the year 2050. The MSF site will also include ramps, access walkways, stairs, and a perimeter fire access road. To construct the project, the existing TA28 trailers, antennae, and other equipment currently located at the site will be relocated to the north or south of the MSF site in currently vacant areas (Attachment B, Sheet C5 – Relocation Plan). Construction of the proposed facility will include limited grading for drainage improvements, erosion control, water service and utilities connection, relocation of existing storm drainage, and modification of existing retention facilities within the project site. The depth of excavation for construction will range in areas from 6 in. to 12 in. for the fill pad at the MSF site, and 14 ft. for the utilities. The equipment relocation and staging areas will be limited to areas adjacent to the MSF site, as shown in Figure 3 within the extent of the Project Area.

Plate 3. MSF site, view facing northeast from DeFrance Avenue (TA28A and TA28B at left).

Plate 4. MSF site, view facing southwest (opposite view of TA28A and TA28B in foreground at center, Building N-255 in background at right).

Plate 5. MSF site, view facing northwest.

Plate 6. MSF site, view facing north.

The project will also include trenching to install new utility ducts below Allen Road and Parsons Avenue for telecommunication and electrical lines between the MSF and Building N258, and

between the MSF site and Main Substation (Building N225B) (Attachment B, Sheet C14-18 – Utilities). Trenching will be limited to existing road and buried utility footprints.

Area of Potential Effects

For archaeological resources, the APE is defined as the limits of disturbance, including areas of temporary staging and construction ground disturbance, including utilities trenching and grading. The vertical APE for the project extends to 12 in. below grade at the MSF site to account for grading and compaction of soil for the preparation of the fill pad, and 14 ft. below the surfaces of Allen Road and Parsons Avenue for trenching for utilities.

The APE also includes adjacent areas where potential historic properties could be indirectly affected by the project. The APE is delineated to encompass buildings adjacent to the project area where aboveground elements are proposed in the MSF site, as shown in Figure 3. Taking into consideration the building type and height of the proposed HSCC Module facility (one-story modules as shown in Plate 2) and the height and nature of buildings in the immediate vicinity of the project site, NASA has determined that this is an adequate APE to address any potential effects on historic properties.

Identification of Historic Properties

The MSF site is primarily an open gravel lot, with little to no visibility of the native ground surface. The area is disturbed from previous grading associated with the creation of the lot and placement of trailers and equipment. The project area was previously surveyed in 1991, and no archaeological resources were identified in the area (Chavez 1991). In February 2017, a desktop study was conducted to identify the status of any known archaeological resources and potential archaeologically sensitive areas, for both surficial and buried resources, at ARC (AECOM 2017). The study included a comprehensive records search conducted at the Northwest Information Center at Sonoma State University. No archaeological resources or areas of high archaeological sensitivity were identified in the APE. Due to the ground coverage of the gravel lot and the road surfaces, no additional pedestrian survey was conducted. [redacted] The area surrounding the site was previously extensively investigated, including 58 backhoe test trenches by Basin Research Associates, Inc. in 1993 (Garaventa and Guedon 1993). Based on the negative results of the testing efforts, it was determined that the site has been completely destroyed and no longer exists.

A survey of the APE was conducted on March 28, 2017, for built environment resources. Three permanent buildings are located within the APE (Table 1), none of which are over 50 years old or exhibit the potential for exceptional significance to be eligible under National Register of Historic Places (NRHP) Criteria Consideration G. Therefore, these buildings were not evaluated further and are not considered eligible for listing in the NRHP. Seven trailers (TA28 series) are temporarily stationed in the project area, and additional trailers are located in other areas of the APE. None of the trailers are historically or architecturally significant; therefore, the trailers are not included in this assessment.

Table 1. Architectural Resources in the APE

Building No.	Name	Year Built
N254	Telecommunication Gateway Facility	1980
N255	Supply Support Facility	1978
N260	Fluid Mechanics Laboratory	1987

Affected Historic Properties

There are no known historic properties or potential historic properties within the APE. The NRHP-listed Ames Wind Tunnel Historic District and the Arc Jet Complex are located outside of the APE to the south (see Figure 3), and will not be affected by this undertaking based on the distance and scale of the visual relationship.

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 and is not anticipated to have any effects on historic properties, with the exception of the potential to affect unknown subsurface archaeological resources (the likelihood of which is anticipated to be low, based on analysis presented in AECOM 2017). To address that potential, NASA will follow its standard operating procedure for unanticipated discoveries as outlined in the 2014 *Draft Integrated Cultural Resources Management Plan* (AECOM 2014). In such cases, implementation of the established procedures for unanticipated discoveries would result in no adverse effect on historic properties.

This assessment was prepared by M.K. Meiser, M.A. Ms. Meiser is a historic preservation planner with over 15 years of experience and meets the Secretary of the Interior's Professional Qualifications Standards (PQS) in history and architectural history (36 CFR Part 61). The assessment was reviewed by Jay Rehor, M.A., RPA, who meets the Secretary of the Interior's PQS in archaeology.

Public Participation

Pursuant to 36 CFR 800.5(c), NASA will make its finding of No Historic Properties Affected for this undertaking available to the public and any consulting parties, as specified in 36 CFR 800.11(e). Currently, no federally recognized Native American Tribes are associated with the location of the APE (AECOM 2017).

Conclusions

NASA has determined that a finding of No Historic Properties Affected is appropriate for the MSF project. NASA is seeking the SHPO's concurrence with this determination. 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 or at (650) 604-6408 with your comments or questions.

Sincerely,

Keith Venter
Historic Preservation Officer

Ames Research Center, MS 213-8
Moffett Field, California 94035

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

Attachments

A. Maps
B. Site Plans

References

AECOM Technical Services, Inc.

2014 *Draft Integrated Cultural Resources Management Plan for Ames Research Center*. On file at ARC (in progress).

2017 *NASA Ames Research Center Archaeological Resources Study*. On file at ARC.

Garaventa, D., and S. Guedon

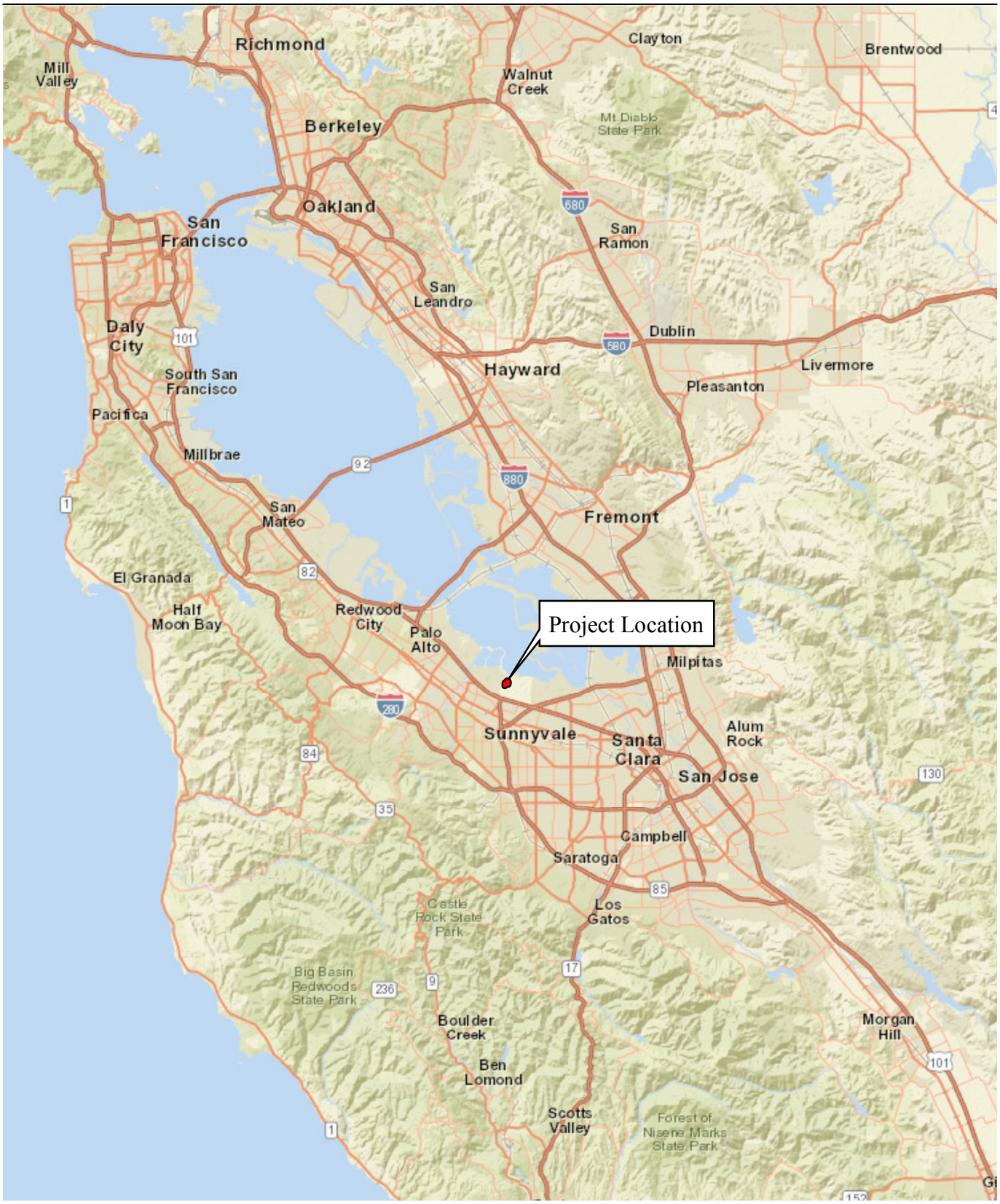
1993 *Archeological Test Program CA- SCL-23 and Vicinity for the National Wind Tunnel Complex (NWTC) NASA Ames Research Center, Moffett Field, Santa Clara County, California*. Prepared by Basin Research Associates, Inc. On file at the Northwest Information Center, Sonoma State University, California.

David Chavez & Associates

1981 *Cultural Resources Review for the AMES Research Center Environmental Resources Document, Santa Clara County, California*. Prepared for Camp Dresser and McKee, Inc. Prepared by David Chavez & Associates. On file at the Northwest Information Center, Sonoma State University, California.

ATTACHMENT A

MAPS



Source: ESRI 2014

10 5 0 10 Miles

Scale: 1:633,300; 1 inch = 10 miles

Location Map

NASA ARC MSF Project

Figure 1

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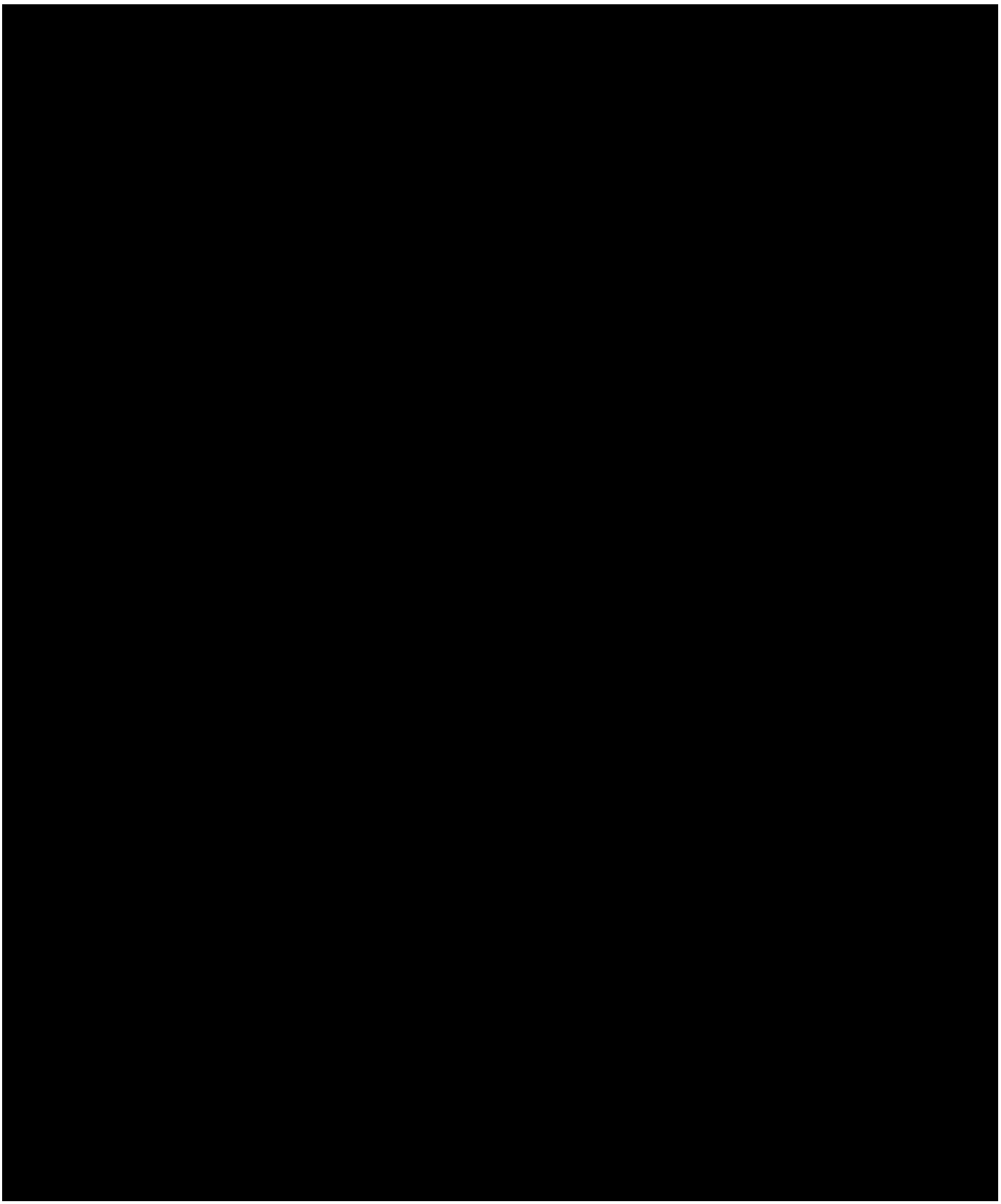

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Location Map
Topo

NASA ARC MSF Project

Figure 2

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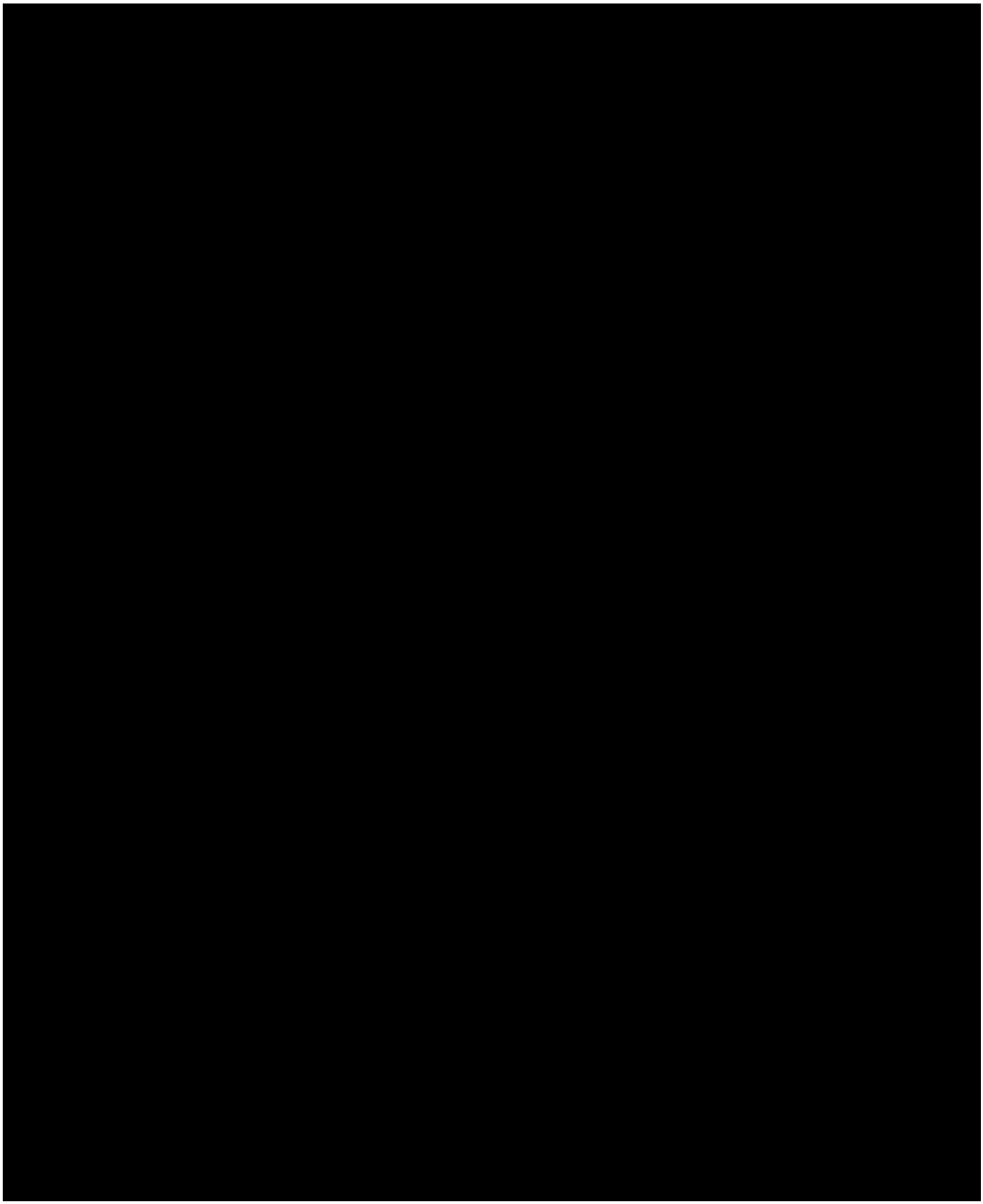

510 255 0 510

Feet

Scale: 1:24,000; 1 inch = 2,000 feet

Area of Potential Effects Map

NASA ARC MSF Project

Figure 3

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ATTACHMENT B

PLANS

The following content was redacted from this public posting:

Attachment B: Plans