Record of Environmental Consideration

U.S. Geological Survey – Parcel 15 Development Project

Menlo to Moffett (M2M) Building

August 2021

1 Introduction, Background, and Purpose and Need

1.1 Introduction

A Record of Environmental Consideration (REC) has been prepared by the National Aeronautics and Space Administration (NASA) in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321–4347, as amended), the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] 1500–1508), and 14 CFR Part 1216 NASA Procedures for Implementing the National Environmental Policy Act for the U.S. Geological Survey (USGS) Parcel 15 Development Menlo to Moffett (M2M) project. The REC evaluates a proposal by the USGS to construct a new two-story laboratory building and demolish Building 6, all storage sheds and portions of underground utilities and utility vaults on Parcel 15 within the NASA Research Park (NRP). The REC documents whether the currently proposed Parcel 15 Development project activities were adequately evaluated in the NASA Ames Development Plan (NADP) Final Programmatic Environmental Impact Statement (PEIS), and if not, whether the action qualifies for a Categorical Exclusion (CatEx). In 2002, NASA approved the PEIS that evaluated the environmental consequences associated with buildout of four development areas (i.e., NASA Research Park, Eastside/Airfield, Bay View, and Ames Campus) under the NADP, which was intended to bring new research and development uses to NASA ARC.

This Exhibit summarizes NASA's environmental impact determinations regarding the proposed action. The determinations are based on information provided by the USGS contained in the Parcel 15 Development Project Planning Clearance Submittal Package on Month XX, 2021, including the Environmental Checklist,supporting information, and supplemental documents requested by NASA (Attachment 1).

1.2 Background

The NADP PEIS assessed the environmental impacts associated with developing the alternatives proposed in the NADP. To reduce the severity of several anticipated environmental impacts, mitigation measures were included in the PEIS. As stipulated in the Record of Decision (ROD), NASA committed to implementation of PEIS Mitigated Alternative 5 and associated environmental mitigation measures. The PEIS determined that Mitigated Alternative 5 would result in significant and unavoidable impacts to socio- economic, traffic and circulation, and air quality. Impacts to other environmental resources would be reduced to less than significant with the inclusion of mitigation measures stipulated in the Final PEIS Mitigation Implementation and Monitoring Plan (MIMP) adopted as part of the ROD. The MIMP includes mitigation measures and monitoring procedures to address significant and unavoidable impacts in addition to other impacts from project activities.

NASA entered into the NASA Ames Research Center Use Permit with the USGS on October 23, 2017 (USGS Use Permit). Section 1.2.1, Phases of Design and Construction, in the 2017 USGS Use Permit, each project would commence with a review of the proposed design concepts for the project in an effort to determine the appropriate level of NEPA review; to determine whether the project is an "undertaking" in accordance with the National Historic Preservation Act (NHPA); to identify points of contact for the project; and to outline the goals for the project. In accordance with Ames Procedural Requirements 8500.1,the USGS provided an environmental checklist subject to review and approval by the NASA Ames Center NEPA Manager. As described in the USGS Use Permit, no environmental remediation, demolition, or construction shall be undertaken until the USGS has obtained all required permits and authorizations relatedto the phase of the demolition or construction to be undertaken.

The NADP sets forth NASA's plan to develop a world-class shared-use research and development for government, academia, and industry at NASA ARC. NASA has completed the NADP Final Programmatic EIS for the NADP under NEPA that established, upon a Record of Decision in November 2002, NASA ARC development entitlements. As outlined in the 2020 Use Permit Terms for USGS to construct a new laboratory on Parcel 15 in the NASA NRP, NASA and the USGS would need to conduct updated NEPA analysis based on USGS's proposed project and the current environmental baseline to determine whether the environmental effects of the Parcel 15 development project would be the same or different from the 2002 NADP Final Programmatic EIS for the NADP.

Following NASA's requirements for complying with NEPA, including NASA Procedural Requirement (NPR) 8580.1A and Ames Procedural Directive (APD) 8822.1, the USGS presented conceptual project information and an Environmental Checklist to the NASA Ames Design Review Board (DRB) for the proposed action (Attachment 1). Because the proposed action is being undertaken pursuant to the USGS Use Permit and USGS Use Permit activities rely on compliance with the PEIS for NEPA coverage, this REC Exhibit 1 tiers from the PEIS with a focus on effects that were not considered or adequately evaluatedin the PEIS.

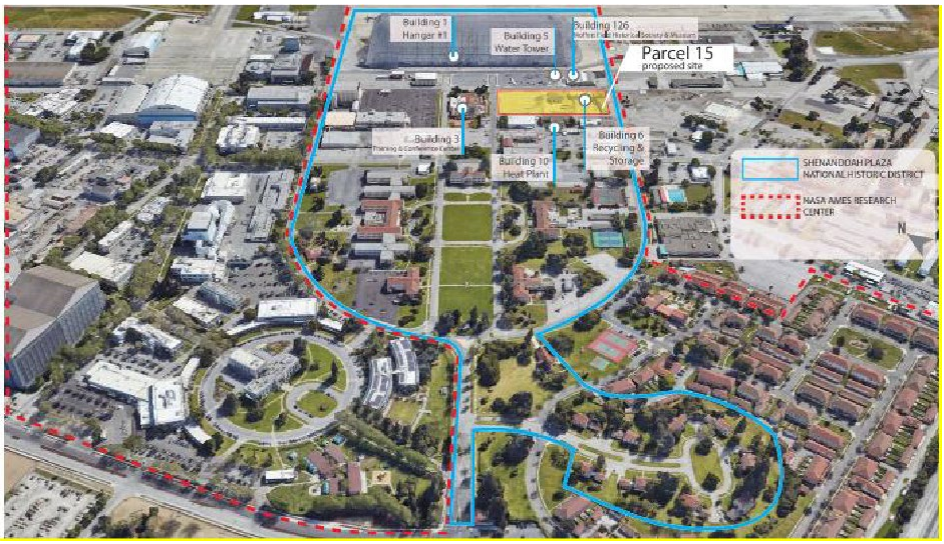
1.3 Purpose and Need

The purpose of the NADP is to bring new research and development to the NASA ARC in Santa Clara County, California. The purpose of the proposed action is to build a new two-story research facility to support relocating the USGS scientific research programs from their current facility at their Melo Park Campus to NASA ARC. This new research laboratory facility would house a multidisciplinary group of USGS staff and their research.

The USGS has determined that a new facility is needed to create a long lasting and durable facility to withstand long-term use by the USGS. The proposed action is intended to serve as an earthquake science center and a geology laboratory to contribute to the field of geologic research.

As part of the proposed action, the USGS would demolish all storage sheds within the parcel and select underground utilities and utility vaults and construct a new two-story laboratory building within Parcel 15(Figure 1). In addition to the demolition activities and laboratory construction, the proposed action would include removing a portion of the tunnel that is no longer in use beneath Parcel 15 that extends from Building 010 to Hangar 1 and originally transported helium and other utilities. The proposed action would also include the construction of a sub-slab depressurization (SSD) system with a vapor barrier underneath the new building. These project components would be covered under one NEPA action.

Figure 1. Project Location



Source: USGS, 2020.

2 Description of the Proposed Action

2.1 Parcel 15 Development and New USGS Laboratory Building

Based on information provided by the USGS, the proposed action would include the construction of a newtwo-story laboratory building to provide a long lasting and adequately sized laboratory facility for USGS research needs and to support the relocation of the USGS research programs from their current Menlo Park Campus to NASA ARC. The proposed USGS laboratory facility would provide approximately 48,000 square feet of additional laboratory space for the USGS to conduct research and development projects andwould house laboratories, a clean room, high-bay laboratories, chemical storage, a lobby, and mechanical, electrical, and plumbing rooms. The new facility would contain approximately 30,000 square feet of laboratory space and would include: wet chemistry labs, light industrial dry labs, and shops. The dry laboratories would serve as an earthquake science center to study historic impacts of earthquakes to betterpredict future seismic events and the wet laboratories would focus on studying the earth's geology. The new building would include an entrance oriented to South Akron Road, with new sidewalks and plantings that encourage pedestrian access from the west portion of the NAS Sunnyvale Historic District to the building.

The project site consists primarily of a 3-acre rectangular area located west of Hangar 1 within the NASA ARC portion of the Formal Naval Air Station Moffett Field in Santa Clara County, California (Figure 1). Parcel 15 is bounded to the north by South Akron Road, to the south by Wescoat Road, to the east by Severyns Avenue, and to the west by Dugan Road. There is a historic water tower onsite (also called Building 005) that would be protected in place during construction using a perimeter fence and would remain onsite after the project is completed and the laboratories are operational. This water tower used to supply water to Hangar 1, but is no longer functional and is not included in the proposed action. The water tower is supported by a steel frame, water tank, is topped with a conical roof, and is painted with a red and white checkered pattern. NASA is responsible for any planned maintenance on the water tower. Building 006 would also be protected in place during construction and would remain onsite once the project is completed. Building 006 was identified as a "Motor Test Building" in a 1933 landscape plan but was laterused as a recycling and storage building.

Approximately two-thirds of the existing Parcel 15 site is currently surface parking. The total site limits ofproposed work include the entire 3-acre parcel and 30,000 square feet for the building footprint (Figure 2). The depth of disturbance would be approximately 7 feet below grade for the installation of the building foundations, except for the installation of precast driven piles, which would be driven approximately 50 feet below the ground surface.

The project site is located within NASA's land use control area, Navy Site 28. The area of Navy Site 28 contains historical Navy containment source areas located west of the runways comingled with the chlorinated volatile organic compounds (VOCs) in groundwater that has migrated to Navy Site 28 from theupgradient Middlefield-Ellis-Whisman Regional Plume. The land use controls for this area restrict domestic groundwater use and require that vapor intrusion is addressed in new construction. Therefore, construction of the new research

facility would address vapor intrusion issues by installing an active SSD system per this requirement, described further in Section 2.2, Sub-Slab Depressurization (SSD) System.

Construction of the proposed project is anticipated to begin in mid-2021 and would take approximately 24 months to complete. Prior to building construction, the existing structures and utilities (all storage sheds and associated structures, selective underground utilities, and portions of underground utility vaults and associated structures – detailed in the Civil Demolition Plan) would be demolished by a licensed demolition contractor in accordance with a demolition plan, provided by the demolition contractor. If utilities are installed in a trench or horizontal borehole that extends to within two feet of the seasonal high elevation of the groundwater table, the implementation of mitigation measures from Section 5.2.2 in the EIMP would be required. This would include using low permeability backfill and/or cutoff features (EKI, 2020b). The buildings would be abated of lead and asbestos prior to demolition. The tunnel would also be abated of lead and asbestos prior to removal, as described in Section 2.3, Planned Demolition and Removal of Portions of the Tunnel Beneath Parcel 15. The abatement would be performed by a licensed abatement contractor in accordance with an abatement plan, provided by the abatement contractor.

Construction would be completed in a single phase. The building would be constructed as a steel frame on a concrete foundation. The new building foundation would include concrete grade beams and pile foundations consisting of precast driven piles approximately 50 feet deep. These precast concrete piles would be driven/hammered into the ground using a pile driver. Pile driving activity is expected to be limited to 4-5 weeks. Exterior cladding would be attached to the steel frame and composed of prefabricated concrete, metal, and glass panels. Site improvement would include landscape and hardscape, public parking, and fenced outdoor backyard and utility yard. Exterior lighting would be installed to accommodate life safety. Typical construction equipment that would be used include excavators, dump trucks, cranes, semi-trucks with materials, forklifts, concrete trucks, concrete pumps, aerial boom lifts, pile driving equipment, etc.

On average, there would be 12 to 15 full time construction workers onsite every day. Construction worker parking would be located south of Wescoat Road.

The new laboratory building would require new lateral connections for sanitary sewer, domestic water, irrigation, natural gas, and fire water. Existing utility lines would be re-used to the extent feasible, and new lines would be sited to minimize ground disturbance. An onsite sanitary sewer lift station would be installed as well as an offsite 8-inch sanitary sewer main extension from Cummins Avenue (approximately 329 linear feet). The offsite area of disturbance for this sanitary sewer extension would be approximately 1,300 square feet, with an average depth of excavation of 7 feet, and would result in approximately 340 cubic yards of soil disturbance. Dewatering of groundwater may be required for this utility work. If dewatering water is generated as a result of this project, the dewatering water would be managed and disposed of in accordance with Section 6.3.4 of the Environmental Issues Management Plan (EIMP) (EKI, 2020b). A new above grade emergency generator and boiler would be installed and fenced onsite. The generator and boiler installation and operation would comply with all necessary Santa Clara County permits for temporary and new generators.

The new research laboratory would include onsite fire department connections, fire hydrants, and backflow preventers. Onsite storm drain lines and bioretention areas would also be constructed. All treated site stormwater shall discharge into existing offsite stormwater drains. Impervious area and runoff from the site would not increase as compared to existing condition. Stormwater flow would not increase from the existing condition.

New overhead service and/or wires would not be required. There would be a new pad-mounted transformer installed in utility yard. This transformer steps down 12KV service to 277/480 volts, utilized for secondary power distribution within new USGS laboratory building. A proposed irrigation line would be installed for landscaping use. It would tap off the proposed domestic water lateral and would be served by its own watermeter.

The Environmental Checklist and supporting documents describe the proposed activities, potential impacts on the environment, and mitigation measures from the PEIS and USGS Use Permit that would be implemented to reduce potential environmental impacts (NASA ARC, 2002). In some instances, mitigation measures would require following a plan to meet specific goals or adhering to a performance standard (e.g., the EIMP).

2.2 Sub-Slab Depressurization (SSD) System

Parcel 15 is located within the Middlefield-Ellis-Whisman Vapor Intrusion (VI) Study Area and remedial actions for the Middlefield-Ellis-Whisman VI Study area are specified in the 2010 Record of Decision (ROD) Amendment for the VI Pathway (EPA, 2010). The USGS would install an active SSD system underneath the new research laboratory building within Parcel 15 to mitigate the potential for chemicals of potential concern in groundwater and soil vapor at the parcel to migrate into the new building. Without an SSD system, these chemicals of potential concern, including chlorinated VOCs, petroleum hydrocarbons, and other fuel-related constituents, could migrate into the building through cracks in the floor and penetrations in the concrete slab. Since 1984, numerous environmental investigations and removal/remedial actions have been implemented near Parcel 15. While no known sources within Parcel 15 have been identified, these investigations indicate that a large regional plume of chlorinated VOCs is present in groundwater beneath Parcel 15. The source of this contamination is from the upgradient Middlefield-Ellis-Whisman Superfund Site.

In compliance with the 2010 Middlefield-Ellis-Whisman VI ROD Amendment, the new USGS research laboratory building at Parcel 15 would be required to install an active SSD system and soil vapor extracted by the system must be treated to remove VOCs prior to being discharged to the atmosphere. The SSD system planned for the proposed action is consistent with the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) and EPA guidance for vapor intrusion mitigation. This SSD system would be required to comply with the substantive requirements of the BAAQMD permitting process and as a result, emissions treatment may be required to meet BAAQMD emission limits (EKI, 2020a).

The main components of the SSD system include: a sub-slab gravel venting layer; sub-slab vent piping in four SSD suction zones; conveyance piping from the suction zones to the SSD blower systems; sub-slab liner; two SSD blower systems; granular activated carbon treatment for VOC emissions abatement; instrumentation and controls to monitor the SSD blower systems and automatically alert the operator of any shutdown of the system; and sub-slab probes for measuring the vacuum beneath the floor of the building to verify performance.

The performance objective for the Parcel 15 SSD system is to maintain a sub-slab vacuum relative to outdoor air in order to pull contaminated air into the treatment and blower system and prevent contaminated air from entering the building. Final plans and specifications for construction would be prepared as building designs are finalized. The general contractor for the building construction would construct the SSD system in accordance with the plans and specifications. As described in the SSD Design Report, EKI would observe construction activities related to the SSD system to verify that the system is constructed consistent with the plans and specifications.

There are several monitoring requirements once construction is complete and throughout operations to ensure the active SSD system is working properly and maintaining the appropriate vacuum relative to outdoor air. During startup, the SSD system would be monitored to determine that the system has been constructed consistent with the design plans and that equipment and controls are operating within the applicable specifications. Startup emissions would be monitored to verify that flammable gases are not present at potentially hazardous levels during startup, VOC loading rates are correct, and VOCs are not escaping through the drums. Additional monitoring includes indoor air testing two weeks after the heating, ventilation, and cooling (HVAC) systems have been operating to demonstrate that the SSDD system specifications are sufficient. Upon completion of SSD startup and startup monitoring activities, an Implementation Report would be prepared to document SSD system construction and startup activities; this report would be submitted to the EPA and Water Board for review and approval within 60 days of completion of startup monitoring activities. Following startup of the SSD system, routine monitoring would generally include a review of the building automation system monitoring data on a quarterly basis and an annual inspection. Maintenance shutdowns are anticipated to be infrequent, generally no more than once per year. The SSD blower is designed to run continuously without maintenance but may require replacement every 5 to 10 years (EKI, 2020a).

Operations, maintenance, and monitoring (OMM) procedures would be implemented to confirm that the SSD system is operating in accordance with the design criteria. At a minimum, the OMM plan would include: an overview of SSD and the performance objective at the building; a description of the scope of the active SSD system and vapor treatment systems; a summary of routine SSD operations and monitoring, including blower and treatment system instruments and controls, sub-slab vacuum monitoring, suction point vacuums, SSD flow sensors and flow rates, and emissions monitoring; a summary of maintenance requirements for the system; a summary of corrective actions for the system; a summary of the requirements for terminating SSD operations and/or vapor treatment; and a description of the contents, format, and frequency of progress reporting (EKI, 2020a).

2.3 Planned Demolition and Removal of Portions of the Tunnel Beneath Parcel 15

The USGS plans to demolish and remove sections of the existing tunnel that is no longer in use beneath Parcel 15 at NASA ARC. Historically, this tunnel, which runs beneath Parcel 15, transported helium and other utilities from Building 010 to Hangar 1. Based on investigations by the U.S. Department of the Navy, the tunnel is a pathway for vapor intrusion into Building 010, Hangar 1, and potentially all the structures that overlay the tunnel. As mentioned above, the construction of the building foundation would include driving precast piles approximately 50 feet deep. The tunnel would interfere with the installation of these piles for the new building foundation. The USGS proposes to remove the segment of the tunnel beneath the new research laboratory building and a smaller section of the tunnel located outside of the northeastern corner of the building to address potential issues with the installation of the new foundation and VI concerns.

The USGS would also construct 12- to 18-inch thick reinforced concrete walls on both sides of the sections of the tunnel being removed. During demolition and excavation of the tunnel sections, dewatering, shoring, and benching may be necessary. All dewatering water would be managed in accordance with the procedures presented in Section 6.3.4 of the EIMP (EKI, 2020b). Once the sections of the tunnel are demolished and removed, engineered fill (controlled low-strength material, as recommended in the geotechnical investigation report) would be backfilled in that area. As described in Section 2.2, Sub-Slab Depressurization (SSD) System, the new building would be constructed with an active SSD system to address the potential for vapor intrusion from beneath the building (including the area where the tunnel would be removed).

As a result of previous surveys of the tunnel, it is anticipated that the existing steam line within the tunnel is made with asbestos-containing materials. Prior to the removal activities, this material would be abated and disposed of in accordance with applicable laws and regulations. During all work related to tunnel removal and abandonment, sampling for trichloroethylene (TCE) would be conducted in accordance with the EIMP and proper personal protective equipment (PPE) would be required until sampling data indicate that TCE concentrations are at EPA-accepted levels (7 micrograms per cubic meter) (Smithgroup, 2020).

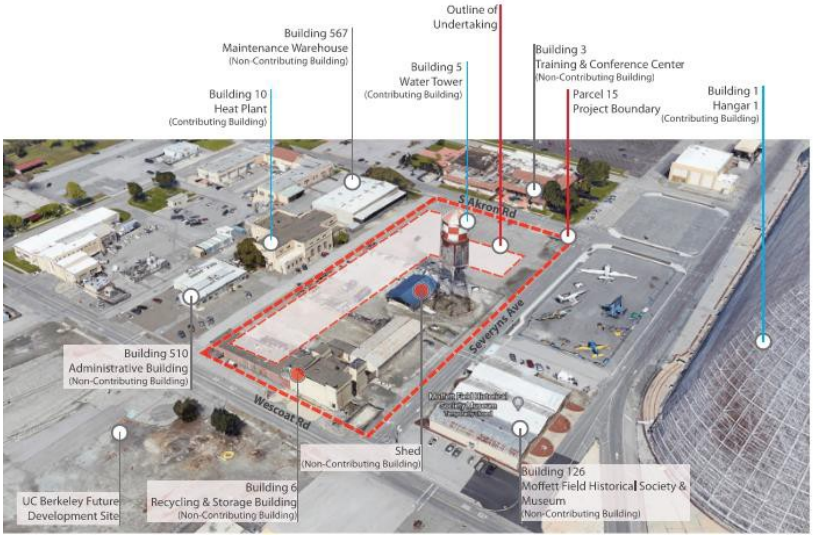
2.4 New Building Operations

Operational hours would be limited to normal business hours. Once the building is constructed, it is anticipated that there would be a small number of visitors traveling to the site, approximately three to five per week. There would be approximately 67 USGS employees who would be considered transient employees working in the new research laboratories. These employees would split their time between going into the field or working at Building 19 at NASA ARC and working in the new building. These employees currently work in Building 19. The USGS employees working in the new building are expected to park at Building 19 and walk to Parcel 15. Seven visitor parking spaces are planned for the north side of the building. As mentioned above in Section 2.1, Parcel 15 Development and New USGS Laboratory Building, the existing water tower would remain onsite. The proposed site layout is depicted in Figure 2.

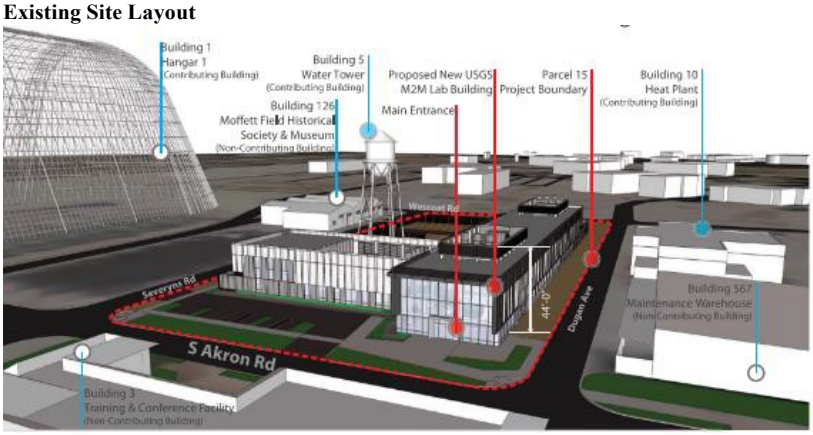
Exact hazardous materials to be stored in the new building have not been determined yet; however, appropriate precautions would be taken for any hazardous materials stored onsite, including preparation of a Chemical Hygiene Plan and Hazardous Materials Business Plan. To protect USGS staff and property, a Chemical Hygiene Plan would be required for activities where multiple chemical procedures and/or small quantities of hazardous materials are used on a laboratory scale. A list of the hazardous chemicals known to be present at each site shall be maintained and updated to reflect the chemicals at each site. The local written hazard communication program shall have provisions for providing contractors with hazardous chemical information when necessary. All chemical containers shall be appropriately labeled, and the chemical safety data sheets received shall be maintained in the workplace for each hazardous chemical and shall be readily accessible during each work shift to employees when they are in their work area. Other requirements that would be documented in a Hazardous Materials Business Plan would include: employee training on hazardous chemicals in their work area; the use of chemical fume hoods and snorkel exhaust hoods when using hazardous materials; and the handling and disposal of liquid and solid hazardous materials and waste in accordance with the Department of Transportation regulations and EPA regulations. The Hazardous Materials Business Plan would be reviewed annually and subject to inspection by the California DTSC and Certified Unified Program Agencies. As mentioned in Section 2.1, Parcel 15 Development and New USGS Laboratory Building, a new generator and boiler would be installed and fenced onsite. During operation, the generator and boiler would comply with all necessary Santa Clara County permits and UL 142 fuel oil tank regulations.

Operational noises are expected from the Rock Labs, and these noise levels would be confined to the building interior. Acoustical treatment is planned to reduce sound transmission and enhance sound absorption in the labs. Operational vibration is also expected from the Rock Labs. Design of the building includes an isolated slab on grade and 8x16 grout filled concrete masonry unit interior walls to contain operational noises and vibrations. The walls and ceilings in the Rock Labs would be designed with sound attenuating and sound absorption properties. The walls would be reinforced concrete masonry, and the ceiling would be acoustical structural deck. These design components are intended to minimize noise and vibration impacts to adjacent laboratories with sensitive scientific instrumentation and significant indoor noise and vibration would not be expected during building operation.

Figure 2. Conceptual Site Layout



Existing Site Layout



Proposed Site Layout

Source: USGS, 2020.

3 Supplemental Analysis

3.1 Environmental Resources Not Requiring Supplemental Analysis

Based on information provided in the Environmental Checklist from USGS's analysis (Attachment 1) the proposed action would have nonexistent or negligible impacts on the following environmental resource:

- Socio-Economics/Controversy/Environmental Justice

The proposed action would have the potential to impact the following environmental resources:

- Geology
- Land Use
- Transportation/Circulation
- Water Resources
- Utilities and Service Systems

Although the resources listed above have been identified as having the potential to be impacted, the Environmental Checklist indicates USGS will comply with existing environmental laws, mitigation measures included in the PEIS and USGS Use Permit, and NASA protocols to minimize impacts to these resources. Implementation of applicable laws, mitigation measures, and NASA protocols would ensure impacts to these resources are avoided or negligible. Any potential impact to these resources would be temporary or minor and would not have a considerable contribution to cumulative impacts.

3.2 Environmental Resources Requiring Supplemental Analysis

Based on review of the information provided by USGS, NASA determined that supplemental analysis wasrequired for the following environmental resources:

- Air Quality
- Biological Resources
- Cultural Resources
- Health and Safety/Hazardous Materials and Pollution Prevention
- Noise

3.2.1 Air Quality

Effects to air quality could be significant if they result in:

A. Substantial air emissions or deterioration of ambient air quality;
B. The creation of objectionable odors outside the facility; or
C. Alteration of air movement, moisture, temperature, or any change in climate locally or regionally.

As described above in Section 2, Description of the Proposed Action, the construction of the proposed project would include the demolition of existing buildings onsite, demolition of the existing tunnel beneaththe proposed building that is no longer in use, installing a new SSD system beneath the proposed building, and building a proposed new two-story research laboratory building. Existing asphalt parking lot materialand miscellaneous concrete pads/ancillary storage shed foundations would be removed within Parcel 15. Impervious area would not increase as a result of the project, the project site is predominantly covered in asphalt surfaces and with existing buildings. The installation of landscaping and hardscaping is anticipated. Other site work would also include new lateral connections for sanitary sewer, domestic water, irrigation,natural gas, and fire water. An offsite 8-inch diameter sanitary sewer main extension would also be installed from Cummins Avenue (approximately 329 linear feet). Exterior lighting would also be installed to accommodate life safety.

These construction activities could result in temporary and minor odor emissions. These would be similarto typical construction activities at NASA ARC and would not be out of the ordinary given the industrial setting and proximity to the airfield. No sensitive receptors are within 1,000 feet of the work areas and nonewould be affected by odors from the work. Construction is temporary in nature, and would not be anticipated to alter air movement, moisture, temperature, or change in local or regional climate.

Once operational, the proposed project would not result in a change to the overall emissions at NASA ARCas significant changes to total traffic volumes would not occur (induced traffic would be limited to three tofive vehicles per week). During operations, a new aboveground generator and boiler would be installed and fenced. The generator would comply with the UL 142 fuel oil tank regulations and would contain leak detection provisions for local and remote alarm indication. All necessary Santa Clara County permits would be obtained for the new generator and boiler. The new generator would be incorporated as appropriate and would comply with all local, state, and federal regulations. Therefore, the proposed project would not createobjectionable odors or create any change to local or regional climates.

Air emissions estimates from CalEEMod were provided by USGS for construction activities. These estimates indicate that a total of 0.27 tons per year of reactive organic gases (ROG) and 2.24 tons per year of nitrogen oxides (NOx) would be emitted during construction. Operational air emissions would primarily occur from energy, mobile sources, and stationary sources during operation and would result in approximately 0.37 tons per year of ROG. The laboratory space would use a small amount of refrigerant for occasional cooling. No significant increases to total traffic trips would occur as a result of this project. These construction and operation air emissions are well below the BAAQMD significance thresholds (100 tons per year per pollutant).

Other projects, and their maximum annual emissions estimate, occurring at NASA ARC within the same two-year period as the proposed project include:

- Development of the Bay View Campus (7.7 tons (T) of ROG, and 39 T of NOx);
- The Short-term Employee Accommodations and Garage (2.8 T of ROG and 18.8 T of NOx);
- Hangar 3 Demolition Project (0.28 T of ROG and 2.87 T of NOx);
- Hangar 1 Project (2021: 1.28 T of ROG and 9.26 T of NOx; 2022: 3.07 T of ROG and 8.94 T ofNOx; 2023: 0.57 T of ROG and 3.99 T of NOx); and
- Mountain View Housing Venture Project (2021: 1.74 T of ROG and 19.58 T of NOx; 2022: 3.78T of ROG and 14.76 T of NOx; 2023: 7.93 T of ROG and 21.29 T of NOx).

NASA ARC's average annual emissions of these pollutants over the past several years has been 0.013 T of ROG and 12.73 T of NOx. Cumulatively, annual emissions for 2021 may be up to 3.31 T of ROG and 31.62 T of NOx; annual emissions for 2022 may be up to 7.38 T of ROG and 26.04 T of NOx; and annual emissions for 2023 may be up to 8.98 T of ROG and 29.76 T of NOx all below the BAAQMD thresholds.

Proposed construction activities would also generate fugitive dust emissions from earth-moving activitiesand the operation of equipment and trucks on exposed soil. Without proper controls, fugitive dust could potentially result in a significant impact to air quality. The USGS EIMP identifies dust and particulate control measures that can be used to minimize emissions during construction activities (EKI, 2020b). Giventhis project would be undertaken per the USGS Use Permit, the EIMP guidance would be followed.

VOCs are the primary chemical of potential concern (COPC) found within Parcel 15. VOCs in groundwater can volatilize within unsaturated zone soils and migrate through the soil column and through cracks or penetrations in floors into enclosed indoor spaces, where they can be inhaled by potential receptors. The migration of COPCs from the subsurface into indoor air is called vapor intrusion. Vapor intrusion is the primary potentially complete exposure pathway that could affect future indoor workers within all portions of Parcel 15 (EKI, 2020a). The USGS would be required to complywith the mitigation, design, implementation, operations, maintenance, and monitoring, and reporting in the Building-Specific Vapor Intrusion Control System Remedial Design report to construct an SSD system that would mitigate the potential for COPCs in groundwater and soil vapor at Parcel 15 (EKI,2020a). All monitoring and reporting activities outlined in this report must be fulfilled during construction and operation.

The following measures from the EIMP comprise REC Requirement (RR)-1 and must be implemented during construction and operation activities:

- **Dust and Particulate Control Measures:**
- Misting or spraying water on active construction areas while performing excavation activitiesand loading transportation vehicles;
- Covering all trucks transporting soil or impacted materials offsite;
- Limiting vehicle speeds on the property to 25 kilometers per hour (15 miles per hour or "mph");
- Suspending excavation and grading activities when instantaneous wind speeds exceed 40kilometers per hour (25 mph);
- Installing windbreaks, or plant trees/vegetative windbreaks at the windward side(s) ofconstruction areas, if necessary;
- Controlling excavation, grading, and other construction activities to minimize the generationof dust;
- Minimizing drop heights while loading transportation vehicles;
- Hydroseeding or applying non-toxic soil stabilizers to graded areas that have been inactive for10 days or more;
- Contacting the BAAQMD prior to the disturbance (or removal) of materials suspected to contain asbestos, lead, or other toxic air contaminants; and
- Covering with plastic sheeting or tarps any soil stockpiles generated as a result of excavating soil potentially impacted by COPCs (e.g., visibly contaminated or odorous soil or soil from areas known to contain lead-based paint). Inactive soil stockpiles potentially impacted by COPCs should always be kept covered.

- **Vapor Intrusion Control Measures:**
- Installing an active SSD system to continuously create a slight vacuum beneath the concrete floor slab of the building so soil vapors generally cannot flow from beneath the floor slab intothe building. This system should be designed per the requirements in the Building-Specific Vapor Intrusion Control System Remedial Design report (EKI, 2020a).
- All monitoring and reporting requirements outlined in the Building-Specific Vapor Intrusion Control System Remedial Design report must be fulfilled (EKI, 2020a).
- During removal of the tunnel, air monitoring for VOCs shall be conducted in accordance withthe procedures outlined in Section 6.2.3 of the EIMP (EKI, 2020b)
- During excavation activities at depths greater than 3 feet below ground surface, the contractor(or someone on its behalf) shall monitor total VOC concentrations in ambient air within and outside of the excavation area using a direct read instrument.
- Respiratory protection for construction workers shall comply with the EIMP requirements (EKI, 2020b).
- Monitoring vapor intrusion mitigation effectiveness per agreements between the USGS, the EPA, NASA, and the Navy to develop an appropriate monitoring system to verify the long- term effectiveness of any implemented VI mitigation measures installed within Parcel 15.

Implementation of the measures stipulated above for fugitive dust control during construction and vapor intrusion concerns during construction and operations (RR-1) and compliance with any applicable BAAQMD permit requirements for the new research laboratory (fume hoods, boiler, and generator) wouldensure that impacts associated with the proposed activities are less than significant and would not result in new or additional impacts to air quality beyond those identified in the PEIS (NASA ARC, 2002). The USGS must adhere to the

monitoring and reporting requirements in the Building-Specific Vapor Intrusion ControlSystem Remedial Design and NASA should receive copies of all reports (EKI, 2020a).

3.2.2 Biological Resources

Several species of common native birds protected by the Migratory Bird Treaty Act (MBTA) and CaliforniaFish and Game Code are known to nest within structures and in trees on NASA ARC. Project-related disturbance during the nesting season (February 1 to August 31 for most species in Santa Clara County) could result in the incidental loss of eggs or nestlings either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. Additionally, birds may roost in abandoned structures onsite and the demolition of structures that contain roosting birds could potentially cause injury or mortality. Such impacts could occur year-round. All native migratory birds are protected under the MBTA and California Fish and Game Code.

Mitigation measures would be necessary prior to demolition and construction activities to ensure thatProject activities do not violate the MBTA and California Fish and Game Code. PEIS Mitigation Measures BIO-1 would be implemented to avoid impacts to nesting birds and as a result, the project would not have a significant impact to nesting birds.

The proposed demolition of the sheds on Parcel 15 could result in the direct physical disturbance of any roosting bats that may be present, as well as the loss of roosting sites. In addition, demolition of structures during the bat maternity season (approximately March 15 to August 31) could result in the injury or mortality of young and lactating females within a roost site. Proposed activities are not expectedto have a significant impact on common species of roosting bats, due to the small number of bats that could be impacted. Nonetheless, PEIS mitigation measure BIO-5 would be required to avoid injury or mortality of bats. Implementation of Mitigation Measures BIO-5 would ensure that the proposed action does not result in injury or mortality of common species of roosting bats and, as a result, the proposed action would not have a significant impact to roosting bats.

Implementation of the measures in the MIMP would ensure that impacts associated with the proposed activities are less than significant and would not result in new or additional impacts to biological resourcesbeyond those identified in the PEIS.

3.2.3 Cultural Resources

This is a placeholder. NASA has determined that Section 106 Consultation with the State Historic Preservation Office (SHPO) is required for this project. USGS has prepared a Section 106 Technical Report to describe the area of potential effects and would describe USGS's effects determination. This technical report will be submitted to SHPO for concurrence.

Parcel 15 was not included in the 2017 NASA Ames Research Center: Archeological Resources Study. However, according to this report, the proposed project is in an area of Low Archaeological Sensitivity (Smithgroup, 2021).

3.2.4 Health and Safety/Hazardous Materials and Pollution Prevention

Effects to health and safety could be significant if they result in:

A. Generation of ionizing or non-ionizing radiation;
B. Generation of air emissions;
C. Use of pesticides, including insecticides, herbicides, fungicides, or rodenticides;
D. Confined space entry;
E. Risk of exposure to asbestos- or lead-containing materials;
F. Exposure or disturbance of contaminated soil or groundwater;
G. Generation of industrial waste water or stormwater discharge;
H. Use of Class I ozone-depleting substances (chlorofluorocarbons, trichloroethane, and halons);
I. Acquisition, use, or storage of any toxic or hazardous substance;
J. Generation of medical (biohazard), hazardous, toxic, or radiological wastes; and
K. Use, disturbance, or disposal of polychlorinated biphenyls (PCBs).

The proposed project would not include the following health and safety hazards: generation of ionizing ornon-ionizing radiation or use of pesticides, insecticides, herbicides, fungicides, or rodenticides.

During the removal of existing pavement and the demolition of existing structures, the construction contractor could potentially encounter debris containing asbestos or lead-based paints and/or PCB- containing paint. The contractor could also potentially encounter PCB-containing equipment or building materials that are removed during development. Prior to any ground disturbance, the construction contractor would test for lead-based paint, asbestos, and PCBs at the project site. The USGS would be required to manage debris containing lead-based paint, PCB-containing paint, and/or PCB-containing electrical equipment per Sections 6.5 and 6.6 of the EIMP (EKI, 2020b). All lead- and PCB-containing materialsand debris would be managed and disposed of in a manner consistent with state laws and the Toxic Substances Control Act requirements. If these contaminated materials are found onsite, measures from Section 6.9.1, Lead-and PCB-Impacted Soil from Paint, would need to be adhered to, including (but not limited to) additional surveys, initial assessments, evaluation and proper disposal, etc.

As described in the EIMP, a site-specific Health and Safety Plan (HSP) would be required for activities involving work in utility vaults or other subgrade areas (e.g., utility maintenance or modifications in subfloor areas of buildings) where potential exposure to

accumulated VOC vapors may occur. The HSP would be consistent with state, federal, and any other applicable health and safety standards andregulations. The contractor's HSP would include a description of health and safety training requirements for onsite personnel, a description of the level of personal protective equipment to be used, air monitoring requirements, confined space entry procedures (e.g., work in utility vaults), andany other applicable precautions to be undertaken to minimize direct contact with soil and groundwater or exposure to COPC vapors. Workers would have the appropriate level of health and safety trainingand would use the appropriate level of personal protective equipment, as determined in the relevantHSP. Confined space entry may be required during the tunnel removal activities (EKI, 2020b).

As described in the EIMP, the Navy has installed many groundwater monitoring wells to monitor and address groundwater contamination within Parcel 15. As discussed in Section 5.4 of the EIMP, measures must be taken to protect the integrity of these features during development activities within Parcel 15 and changes, modifications, and/or disturbances to these features cannot be implemented without concurrence from NASA, the NAVY, the EPA, and the Water Board (EKI, 2020b).

The new aboveground generator and boiler would be fenced onsite. These new facilities have been accounted for by the USGS in the CalEEMod emissions model. The proposed project would include refrigerators and freezers for laboratory research and would therefore use a small amount of refrigerant. Although refrigerant is an ozone depleting substance, the proposed project would use a small amount and it would not be anticipated to result in the depletion of ozone.

During construction, common hazardous materials would be used and small quantities of hazardous waste(i.e., used oil) would be produced as a result of the project. USGS and its contractor(s) would confirm thatall employees are properly using, storing, and disposing of any hazardous materials and wastes in accordance with all federal, state, and local laws and regulations. In addition, the project site has a potential concern for vapor intrusion. Construction activities would comply with the guidelines and recommendation in the EIMP and measure HAZ-1 in the MIMP for vapor intrusion (EKI, 2020b). As described in Section 2.2, Sub-Slab Depressurization (SSD) System, the new building would be constructed with vapor barriersand an active SSD system to prevent vapor intrusion. The USGS must adhere to the monitoring and reporting requirements in the Building-Specific Vapor Intrusion Control System Remedial Design and NASA should receive copies of all reports (EKI, 2020a).

Without proper controls, sediment, oil and grease, and heavy metal from construction activities may be discharged into storm drains and result in a significant impact from the proposed action. While the EIMP identifies dust and particulate control measures that can be used to minimize emissions during construction activities, the EIMP is designed be utilized in instances when contaminated structures, soil, or groundwaterwould be encountered (EKI, 2020b). The EIMP does not adequately address potential impacts from stormwater runoff. The proposed action would include approximately 3 acres of temporary and permanent ground disturbance and the amount of impervious surfaces are not anticipated to change at the project site.Because the area of ground disturbance would exceed one acre (approximately 3 acres), a site-specific construction SWPPP would be required and would include Best Management Practices to manage stormwater during construction. A copy of the Construction SWPPP including the Waste Discharge Identification number would be provided to NASA's Environmental Management Division prior to work beginning and copies of any annual reports and Notice of Termination at the completion of the project would also be provided to the Environmental Management Division. Additionally, the USGS would need to obtain a National Pollutant Discharge Elimination System (NPDES) permit through the Regional WaterQuality Control Board to protect Waters of the United States.

According to the USGS, the project would not substantially change the amount of water discharged to the ground surface. The area of impervious surfaces onsite is not anticipated to change. Additionally, Best Management Practices would be implemented as part of a construction stormwater management plan, or as outlined in the SWPPP, in order to minimize impacts from stormwater runoff. During construction, asphaltwould be removed, new asphalt would be poured to create the new pavement surfaces, and new concrete would be installed as the foundation for the new tanks and equipment, etc. All these construction activitieswould be implemented in compliance with the SWPPP. Mitigation Measure HAZ-1 from the 2002 PEIS requires the developer (USGS) to work with the Remediation Project Manager within the Environmental Management Division during site planning to implement the guidelines and recommendations in the EIMP.This would ensure that none of the proposed construction, demolition, and infrastructure improvements would expose personnel to unacceptable levels of contaminated soil or groundwater. If it were not feasibleto avoid exposure, protective measures would be undertaken to minimize the risk of exposure as describedin the EIMP (EKI, 2020b).

The EIMP includes a set of minimum health and safety guidelines that must be followed by any developerat ARC to protect worker safety. The EIMP also includes land use guidelines based on the ARC's HumanHealth Risk Assessment, as well as recommended construction practices to minimize exposure of onsite personnel to existing contaminants. Additionally, per the EIMP, all imported fill material would be testedprior to transporting to the site and all material excavated from the site would be managed in accordance with Section 6.9.2 in the EIMP (EKI, 2020b). These measures would include: notifying regulatory agenciesprior to ground-disturbing activities; ensuring workers who may directly contact soil or groundwater havethe appropriate level of health and safety training and would use the appropriate level of personal protective equipment; and stockpiling, or containing, and sampling any soil or groundwater prior to removal from thesite prior.

Other projects occurring at NASA ARC within the same two-year period as the proposed project include:

- Development of the Bay View Campus;
- The Short-term Employee Accommodations and Garage;
- Hangar 3 Demolition Project;
- Hangar 1 Project; and
- Mountain View Housing Venture Project.

These cumulative projects would result in several acres of ground disturbance where potentially contaminated soils and/or water would be encountered or would include removal of hazardous materials. Ground disturbance and encountering and handling hazardous materials would be regulated under the project-specific NPDES permits, SWPPPs, and EIMP and mitigation measure requirements for onsite projects. USGS Use Permit obligations, permit conditions, and Best Management Practice requirements would be applicable to each cumulative project and would be monitored by NASA and the agencies to ensure compliance through inspections, monitoring report reviews, and enforcement actions, if necessary.

Dewatering of groundwater may be required for the tunnel removal activities, pile driving, onsite utility installation, and potentially the offsite sewer installation. If dewatering is necessary, the following measures from Section 6.3.4 of the EIMP and must be implemented during construction activities:

- The groundwater shall be sampled in planned work areas and analyzed to determine appropriate management and disposal practices.
- Dewatering water shall initially be collected and analyzed for VOCs and total petroleum hydrocarbons (gasoline, diesel, and motor oil) by U.S. EPA Methods 8260 and 8015m, respectively.
- Depending on the analytical results, and with appropriate governmental agency approvals, extracted groundwater may either be: used for dust control within Parcel 15 with NASA approval; discharged to the West-Side Aquifers Treatment System with NASA approval; discharged to the sanitary sewer (with pre-treatment, if needed); or transported offsite for disposal at an authorized facility.

Once the new research laboratory is operational, the USGS would be required to adhere to all applicable local, state, and federal regulations associated with the storage of fuel for the new aboveground generator and boiler and for the other new activities occurring onsite. As mentioned in Section 2.1, Parcel 15 Development and New USGS Laboratory Building, a new generator and boiler would be installed and fenced onsite. During operation, the generator and boiler would comply with all necessary Santa Clara County permits and UL 142 fuel oil tank regulations. The level and leak monitoring system would meet design code requirements and provide local and remote fuel tank liquid level status and leak status of all storage tanks, including appropriate alarm systems.

Exact hazardous materials to be stored in the new building have not been determined yet; however, appropriate precautions would be taken for any hazardous materials stored onsite, including preparation of a Chemical Hygiene Plan and Hazardous Materials Business Plan. To protect USGS staff and property, a Chemical Hygiene Plan would be required for activities where multiple chemical procedures and/or small quantities of hazardous materials are used on a laboratory scale. A list of the hazardous chemicals known to be present at each site shall be maintained and updated to reflect the chemicals at each site. The local written hazard communication program shall have provisions for providing contractors with hazardous chemical information when necessary. All chemical containers shall be appropriately labeled, and the chemical safety data sheets received shall be maintained in the workplace for each hazardous chemical and shall be readily accessible during each work shift to employees when they are in their work area. Other requirements that would be documented in a Hazardous Materials Business Plan would include: employee training on hazardous chemicals in their work area; the use of chemical fume hoods and snorkel exhaust hoods when using hazardous materials; and the handling and disposal of liquid and solid hazardous materials and waste in accordance with the Department of Transportation regulations and EPA regulations. The Hazardous Materials Business Plan would be reviewed annually and subject to inspection by the California DTSC and Certified Unified Program Agencies.

Compliance with the site-specific SWPPP, SWPPP Best Management Practices, NPDES permit conditions, dewatering measures (if applicable during construction), and other local, state, and federal requirements would be necessary to avoid impacts to health and safety and comprise RR-2. Project-specific Best Management Practices must be implemented based on final design. In cases where the EIMP and RR-2 contain guidance that overlaps with the SWPPP or NPDES permit, the more restrictive of the guidelines shall be followed. NASA requires the USGS to provide copies of all permits, applicable requirements, and Best Management Practices. The USGS shall also notify NASA with updates about any of the applicable permits and conditions, should anything change.

Implementation of RR-2 and the measures included in the Environmental Checklist would ensure that impacts associated with the proposed activities are less than significant and would not result in new or additional impacts to health and safety beyond those identified in the PEIS.

3.2.5 Noise

Effects to noise could be significant if they result in:

L. A noise increase greater than 10 percent from an existing operation;
M. Exposure of people to severe noise levels (above 80 dBA); or
N. Increase in existing Community Noise Equivalent Level (CNEL) noise contours surrounding the airfield or Ames.

Operational hours would be limited to normal business hours. Operational noises are expected from the Rock Labs, and these noise levels would be confined to the building interior. Acoustical treatment is planned to reduce sound transmission and enhance sound absorption in the labs. Operational vibration is also expected from the Rock Labs. The building design proposes an isolated slab on grade and 8x16 grout filled concrete masonry unit interior walls to contain operational noises and vibrations. The walls and ceilings in the Rock Labs would be designed with sound attenuating and sound absorption properties. The walls would be reinforced concrete masonry, and the ceiling would be acoustical structural deck. These design components are intended to minimize noise and vibration impacts to adjacent laboratories with sensitive scientific instrumentation and significant indoor noise and vibration would not be expected during building operation. USGS would be required to comply with applicable building codes to contain noise and vibration within the building. Interior noise levels in the current USGS facility in Menlo Park are short in duration and typically under 85 dBA. The hearing conservation program requirements of 29 CFR 1910.95 shall be instituted when employee noise exposure is equal to or exceeds an 8-hour time-weighted average of 85 dBA.

4 References

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