DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)
GROUND BASED STRATEGIC DETERRENT TEST PROGRAM
ENVIRONMENTAL ASSESSMENT / OVERSEAS ENVIRONMENTAL ASSESSMENT

AGENCY: United States Air Force (USAF)

BACKGROUND: The United States (U.S.) Air Force (USAF) prepared this Environmental Assessment/Overseas Environmental Assessment (EA/OEA) to analyze implementation of the Ground Based Strategic Deterrent (GBSD) Test Program. GBSD represents the modernization of the U.S. land-based nuclear arsenal, eventually replacing the aging Minuteman III intercontinental ballistic missile (ICBM) system. Before USAF can make future decisions to transition the Minuteman III weapon system from active status to the GBSD weapon system, developmental and operational program testing of the new system must occur. Test program-related actions would occur primarily at Hill Air Force Base (HAFB) in Utah and at Vandenberg Air Force Base (VAFB) in California. Such tests would include conducting missile launches from VAFB with flights over the Pacific Ocean in the Western Test Range. Testing flights would terminate at the Kwajalein Atoll in the Republic of the Marshall Islands (RMI). The USAF also must begin planning for the development of training for our Airmen on the new GBSD system, which would include establishing a GBSD Schoolhouse at VAFB. The Schoolhouse would include classrooms and other support facilities for the GBSD Formal Training Unit (FTU). Additional test support activities would occur at U.S. Army Dugway Proving Ground (DPG) in Utah.

Following review of the proposed GBSD Test Program, USAF determined that an EA/OEA is required to assess the potential environmental effects from the facility construction, operations, and flight test activities that would occur.

The EA/OEA considers all potential impacts of the No Action Alternative and the Proposed Action. This Finding of No Significant Impact (FONSI) summarizes the results of the evaluations of the activities associated with the GBSD Test activities.

DESCRIPTION OF PROPOSED ACTION AND NO ACTION ALTERNATIVE: The proposed GBSD Test Program involves the development, testing of, and training for a new ICBM weapon system that would eventually replace the aging Minuteman III weapon system. Implementation of the test program would include facility construction or modifications at HAFB, VAFB, and DPG. In addition, GBSD flight test activities would be conducted from VAFB and include target impacts at U.S. Army Garrison–Kwajalein Atoll (USAG-KA) in the RMI. While technically not part of the test program, the Proposed Action includes the construction and operation of the GBD FTU/Schoolhouse at VAFB. As described earlier, such training at VAFB would be needed in time to support the fielding of the new GBSD weapon system when that decision is made.

Developed using 1960s technology and materials, the Minuteman III weapon system has exceeded its designed life expectancy. While the system remains an active, viable deterrent for the United States, many components are becoming obsolete and unsupportable, resulting in continual upgrades to maintain system reliability and performance. It is in the best interest of

national security to replace the Minuteman III weapon system with a technologically and environmentally mature design before age, diminishing manufacturing sources, and material shortages make Minuteman III sustainability difficult, putting the nation at risk.

However, before the USAF can make future decisions to remove the Minuteman III weapon system from active status and deploy the new GBSD weapon system, system development and successful testing under the proposed GBSD Test Program must first occur. Such developmental and operational testing is needed to ensure the GBSD weapon system can function and achieve operational status to replace the Minuteman III and support the nuclear triad. Without the GBSD Test Program, the development and later deployment of the GBSD weapon system, which is vital to the long-term defense and security of the United States and its allies, could be impaired or delayed.

Under the No Action Alternative, ongoing system monitoring, and flight testing of Minuteman III missiles would continue to ensure weapon system safety, accuracy, and reliability for the remaining life of the Minuteman III weapon system, which is expected to occur at least to 2030. All of the USAF installations and facilities currently supporting the Minuteman III test activities would continue their operations in support of maintaining the Minuteman III weapon system. The Minuteman III missile, flight preparation, and launch-related activities are described in the following sections.

Although not specifically described herein as part of the No Action Alternative, future life-extension programs for the Minuteman III weapon system would need to occur, along with major investments in all of the parts and sustainment requirements, in order for the Minuteman III to remain operational long term.

ENVIRONMENTAL EFFECTS: The USAF assessed potential impacts of the No Action Alternative and the Proposed Action at HAFB, VAFB, DPG, and Downrange Test and Support Locations (USAG-KA, Broad Ocean Area [BOA]). Because environmental issues associated with the flight test program vary widely at each location, the resources analyzed in each case also vary. For HAFB, the following resources could be affected and were analyzed in the document: air quality, climate change, cultural resources, hazardous material and waste, health and safety, infrastructure, noise, and transportation/traffic. For VAFB, the following resources could be affected and were analyzed in the document: air quality, biological resources, climate change, coastal zone, cultural resources, hazardous material and waste, health and safety, infrastructure, noise, socioeconomics/environmental justice, transportation/traffic, and water. For DPG, the following resources could be affected and were analyzed in the document: air quality, biological resources, climate change, cultural resources, geology and soils, hazardous material and waste, health and safety, infrastructure, noise and water. For USAG-KA the following resources could be affected and were analyzed in the document: biological resources and noise. Within the BOA, biological resources could be affected and were analyzed in the document. The analyses for each location are summarized as follows.

Hill AFB

Construction-related emissions would be short-term, temporary, and would be confined to the construction site area. Air quality permits will be required for emergency generators. No adverse effects on archaeological or architectural resources are anticipated. All hazardous material and waste associated with GBSD operations and maintenance would be managed by HAFB's Hazardous Materials Management Plan and Hazardous Waste Management Plan in accordance with installation regulations and policies. For health and safety, long-term, minor, adverse impacts are anticipated at HAFB over the approximate 10-year period during which the ongoing Minuteman III test program and the proposed GBSD Test Program campus activities would be conducted in parallel. As it relates to Infrastructure, no adverse impacts and long-term, negligible, beneficial impacts on the HAFB electrical power system, natural gas, potable water, and wastewater management would be expected from the flight test activities conducted during operation of the GBSD Test Program. Long-term, negligible, adverse impacts on stormwater drainage at HAFB would be expected from the flight test activities conducted during operation of the GBSD Test Program. Operation of the proposed campus would increase impervious surfaces at HAFB by 15 acres, which could increase stormwater runoff. Long-term, negligible, adverse impacts would be expected on solid waste management at HAFB from the flight test activities conducted during operation of the GBSD Test Program. Operation of the GBSD Test Program would increase the quantity of solid waste generated at HAFB due to the 820 new personnel. The existing HAFB solid waste management contract would be amended to accommodate collection and disposal of solid waste generated at the GBSD Test Program Campus. Noise from construction will be localized and temporary. No significant impacts to workers during operation and maintenance activities are anticipated. Implementation of the Proposed Action would not result in significant or high and adverse short-term environmental justice impacts in the defined Region of Influence. A housing shortfall would cause negligible impacts over a 10-year period. This EA/OEA has identified no effects that would result in disproportionately high or adverse effects on minority or low-income populations in the area. Short-term, negligible, adverse impacts on transportation/traffic at and near HAFB would occur during site preparation and construction. Long-term, minor, adverse impacts on transportation/traffic at and near HAFB would occur under the Proposed Action. No water resources would be impacted by operations and maintenance actions for the Proposed Action.

Vandenberg AFB

Construction-related emissions would be short-term, temporary, and would be confined to the construction site area. Air quality permits will be required for emergency generators, some boilers, and non-electric humidifiers/de-humidifiers. The increased launches do not exceed the significant indicator levels for criteria pollutants. Under the Proposed Action, no impacts on airspace are expected at VAFB. The environmental consequences of ongoing Minuteman III testing for biological resources at VAFB are not expected to be different under the Proposed Action than under the No Action Alternative. The avoidance, minimization, and monitoring measures listed in **Attachment A** of this document would be implemented to avoid, minimize, or characterize the effects of the GBSD Test Program new construction on sensitive vegetation and wildlife. The impact of proposed new construction on threatened and endangered species is

considered less than significant. The avoidance, minimization, and monitoring measures detailed in the VAFB Marine Mammal Protection Act Letter of Authorization (National Marine Fisheries Service [NMFS] 2019) would be implemented as part of the Proposed Action. Overall, launch emissions from proposed tests are not expected to impact wildlife species, including buckwheat blue butterflies, at VAFB. Operations and maintenance of new facilities and existing facilities under the Proposed Action would occur in compliance with the requirements of programmatic operations at VAFB. Under the Proposed Action, the combination of the ongoing Minuteman III flight test activities and proposed GBSD Test Program activities would not result in significant impacts on the coastal zone at VAFB. Under the Proposed Action, USAF would continue to comply with Federal Coastal Zone Consistency regulations (15 CFR Part 930) and the California Coastal Management Program. For cultural resources, during site preparation and construction, USAF would develop appropriate avoidance, minimization, or mitigation measures in consultation with the California SHPO and consulting parties that would reduce these adverse effects below a significant impact threshold under the National Environmental Policy Act (NEPA). Adverse effects on architectural resources under Section 106 are anticipated as a result of the proposed construction activities and facility modifications that would occur in support of the GBSD Test Program at VAFB. The modifications would alter the characteristics that make one or more architectural resources National Register of Historic Places (NRHP)-eligible in a manner that would reduce the resource's ability to convey that significance. These impacts would be characterized as long-term, moderate to major impacts that would be reduced below a significant impact threshold through consultation to avoid, minimize, or mitigate the adverse effects under Section 106. Therefore, no significant impacts are anticipated. The proposed construction would be relatively shallow and is not anticipated to result in contamination, substantial degradation, or loss of value to the soil. During flight test activities no adverse effects on geology and soil resources are anticipated. Flight test activities associated with the GBSD Test Program at VAFB would be conducted similarly to that of the ongoing Minuteman III flight tests. Hazardous construction and demolition material and waste would be handled, used, stored, and disposed of by authorized personnel under VAFB's hazardous waste management plan. The proposed construction for GBSD facilities at VAFB would increase the use and generation of hazardous material and waste during site preparation and construction; however, this would be temporary. Minuteman III pre-test motor inspections, system checks, addition of test reentry vehicles and flight termination system are routine activities that do not exceed VAFB's hazardous waste management plan. Routine post-test refurbishment would follow established standard operating procedures. Short-term, negligible, adverse impacts on health and safety would result from construction and demolition associated with the proposed GBSD Test Program facilities and infrastructure on North Base. Public health and safety for the proposed GBSD flight tests would be ensured through the establishment of launch hazard areas and debris impact corridors; beach and access road closures (as necessary); evacuation of offshore oil rigs (as necessary); and the coordination and monitoring of train traffic passing through the installation. Short-term, negligible, adverse impacts on the utility systems (i.e., electrical power, natural gas, potable water, and wastewater management) would be expected during site preparation and construction at VAFB. Because the proposed flight test activities at VAFB would occur no more than 10 times per year and each test event would last just a few days, the overall effects on infrastructure from such actions would be minor. No adverse

impacts and long-term, negligible, beneficial impacts on the VAFB infrastructure would be expected from the test activities conducted during operations and maintenance for the GBSD Test Program. Overall impacts from noise during construction would be short-term and is not anticipated to cause significant noise impacts. Noise exposure from pre-flight activities is minimal. The continuing Minuteman III launch actions combined with the GBSD launch actions, the launches per year would have no significant impact on ambient noise levels. Implementation of the Proposed Action would be expected to have a positive socioeconomic impact on the Region of Influence (ROI) during the site preparation and construction phase. Based on the increase in population and the possibility that a percentage of the increased population are already living in the area and would not have a negative impact on the housing shortfall, the housing shortfall would cause negligible impacts over a 10-year period. Short-term, negligible, adverse impacts on transportation/traffic at and near VAFB would occur during site preparation and construction. Long-term, negligible, adverse impacts on transportation/traffic at and near VAFB would occur during GBSD Test Program activities. Flight test activities would not result in more than negligible adverse impacts on traffic on SR-1 and SR-246. Like the Minuteman III program, all transportation for GBSD would be accomplished in accordance with DoD, USAF, U.S. Department of Transportation (DOT), and state DOT policies and regulations. VAFB and its contractors would follow federal, state, and local regulations regarding maintaining original site hydrology, and revegetate or leave unpaved areas in a permeable state to allow for maximum surface drainage. The proposed construction for GBSD facilities would not be anticipated to redirect, dam, drain, or withdraw from any of VAFB's surface water or groundwater bodies. No water resources would be impacted by pre-test preparation and support for the Proposed Action. No water resources would be impacted by operations and maintenance actions for the Proposed Action.

The USAF, in coordination with the VAFB 30 Space Wing (30 SW) Installation Management Flight, prepared a Biological Assessment to evaluate the effects of proposed GBSD Test Program construction activities at VAFB on species listed under the Endangered Species Act (ESA) and to support consultation with the USFWS under Section 7 of the ESA. The USAF initiated formal consultation with USFWS Pacific Southwest Regional Office for potential effects on ESA-listed species on November 16, 2020.

In accordance with Section 106 of the National Historic Preservation Act (NHPA), consultations with the California State Historic Preservation Office (SHPO), Indian Tribes, and any other identified consulting parties are currently ongoing and led by VAFB. In January 2021, VAFB initiated consultation with the California SHPO on the Area of Potential Effects (APE), determinations of NRHP eligibility of historic and archaeological resources, and determinations of effect to historic properties (listed or eligible for listing in the NRHP) from the GBSD Proposed Action VAFB made a determination of adverse effects for the undertaking at three architectural resources and three archaeological sites. Pending concurrence from SHPO on the determinations of eligibility and effect for the undertaking, VAFB will continue consultation to resolve those adverse effects. USAF will continue to work with California SHPO to avoid or minimize adverse effects through appropriate mitigation. These mitigation activities would be detailed in a Memorandum of Agreement (MOA) that once executed will conclude the Section 106 process for GBSD Test Program activities at VAFB.

For compliance with Federal Coastal Zone Consistency regulations (15 CFR Part 930) and the California Coastal Management Program, USAF submitted a negative determination to the CCC requesting their concurrence.

U.S. Army Dugway Proving Ground

A temporary increase in emissions (i.e., fugitive, volatile organic compounds, CO2e) would occur as a result of site preparation and construction activities. The avoidance, minimization, and monitoring measures listed in **Attachment A** of this document would be implemented to avoid, minimize, or characterize the effects of the GBSD Test Program on biological resources and are considered part of the Proposed Action. No impacts are expected to terrestrial vegetation and impacts to terrestrial wildlife would be less than significant. Under the Proposed Action, no significant impacts on archaeological resources are anticipated. Under the Proposed Action, no impacts on architectural resources are anticipated. The three alternative sites are previously undeveloped, and the nearest NRHP-eligible resources are at the Rad Pad site. DPG initiated consultation with the Utah SHPO for GBSD Test Program activities at the post on January 11, 2021. DPG consulted on three potential sites and anticipated utility corridors. DPG made a determination of No Historic Properties Affected for GBSD construction and activities at DPG. The Utah SHPO concurred with DPG's determination of No Historic Properties Affected on January 15, 2021. The Rad Pad and its alternative sites are located in a previously disturbed area and is therefore unlikely to host cryptogamic crust. The Proposed Action would have short-term, negligible, adverse impacts on DPG's hazardous material and waste resources, health and safety, and water resources during site preparation, construction, operations, and maintenance of the GBSD facility. No adverse impacts and long-term, negligible, impacts on the DPG infrastructure would be expected during operations and maintenance of the GBSD facility. Operations of the GBSD facility (live fire, explosives) would result in temporary increased noise levels during each test event.

U.S. Army Garrison–Kwajalein Atoll

Implementation of the Proposed Action within a downrange area would have no significant impact on air quality. Under the Proposed Action, negligible adverse impacts on airspace are expected from the combined Minuteman III and GBSD flight tests that would be conducted at USAG-KA. Over time and through consultation with NMFS and the U.S. Fish and Wildlife Service (USFWS) on Minuteman III activities, USAF has developed several avoidance, minimization, and mitigation measures to minimize the impacts of flight testing on protected species and their habitats. The mitigation measures are listed in **Attachment A** of this document and would be implemented as part of the Proposed Action and included in the Document of Environmental Protection for GBSD Test Program activities at Kwajalein Atoll. Under the Proposed Action, little or no adverse impacts on archaeological or architectural resources would be expected at USAG-KA. At Illeginni Islet, there are no substantive archaeological resources. Use of established standards and procedures for the preservation and protection of cultural resources at USAG-KA would continue throughout the Minuteman III and GBSD flight test programs. No additional hazardous material management plans for flight test or impact activities would be required as a result of the Proposed Action. Under the Proposed Action, no significant impacts on health and safety would be expected at USAG-KA.

No significant impacts to ambient noise levels are anticipated from the flight test segment of the Proposed Action. In general, noise levels associated with post-test operations would be similar to those generated during pre-test preparation. Thus, no significant impacts to ambient noise levels are expected.

USAF initiated coordination with USFWS on August 25, 2020, for GBSD-related actions at Kwajalein Atoll in the Republic of the Marshall Islands (RMI). USAF initiated informal consultation with USFWS Pacific Islands Fish and Wildlife Office for potential effects on UES-consultation species on 16 November 2020. The USFWS issued a Letter of Concurrence on 07 January 2021 (USFWS consultation reference number 01EPIF00-2021-I-0058), concurring with the determination that the Proposed Action is not likely to adversely affect sea turtles at Kwajalein Atoll.

USAF prepared a Biological Assessment to evaluate the effects of proposed activities at USAG-KA on consultation species listed under the USAKA Environmental Standards (UES). USAF initiated coordination with the NMFS Pacific Islands Regional Office on 30 July 2020. USAF initiated formal consultation with the NMFS Pacific Islands Regional Office for potential effects on the UES-consultation species on 16 November 2020. A Biological Opinion is pending and is expected in April 2021.

Broad Ocean Area of the Pacific Region

No exceedances of air quality standards are expected, and no new permanent stationary sources of emissions or changes to air emission permits are required. Under the Proposed Action, long-term, negligible, adverse impacts on airspace are expected within the BOA of the Pacific region. As for other flight test programs, appropriate mitigation measures would also be developed to avoid or minimize the potential impacts to any rare, sensitive, or special status species or protected habitats due to proposed GBSD flight testing. The USAF would conduct the appropriate coordination and/or consultation with regulatory agencies such as the USFWS and NMFS. Under the Proposed Action, no significant impacts on health and safety would be expected within the BOA of the Pacific region.

MITIGATION, MONITORING and ENVIRONMENTAL MANAGEMENT: Although no significant impacts are expected to result from the ongoing MMIII flight and the GBSD Test Program, the USAF identified some specific environmental avoidance, minimization, and mitigation measures and monitoring actions to minimize the level of impacts that might occur at HAFB, VAFB, DPG and at USAG-KA. **Attachment A** of this Draft FONSI summarizes these and other measures to be implemented as part of the Proposed Action.

PUBLIC REVIEW AND COMMENT: In accordance with the Council on Environmental Quality and USAF regulations for implementing NEPA, USAF solicited comments on this Draft EA/OEA from interested and affected parties. A Notice of Availability for this Draft EA/OEA, and the Draft FONSI, was published in local and regional newspapers for HAFB, VAFB, DPG, and USAG-KA on or about 19 February 2021 and was made available for review on the internet at gbsdtesteaoea.govsupport.us from 19 February 2021 to 22 March 2021. Tribal letters were

mailed to the federally recognized tribes in California and Utah. Comments can be found in Appendix G of the Final EA/OEA.

POINT OF CONTACT: The point of contact for questions, issues, and information relevant to the GBSD Test EA/OEA is Mr. Allen Holdaway, USAF C AFNWC-NXLR, 6030 Gum Lane, Bldg. 1217, Hill AFB, Utah 84056. Mr. Holdaway also can be reached by calling (801) 777-4752, or by e-mail at allen.holdaway@us.af.mil.

CONCLUSION: Based upon my review of the facts and analyses contained in the attached EA/OEA, I find the Proposed Action to implement booster development and flight testing of the proposed GBSD weapon system will not have a significant impact on the natural or human environment; therefore, an environmental impact statement is not required. This analysis fulfills the requirements of NEPA, the President's Council on Environmental Quality 40 C.F.R. §§ 1500-1508, and the Air Force EIAP regulations 32 C.F.R. § 989.

APPROVED:

_____ _____

[Signature Block] DATE

Attachment A: Mitigation Measures

Below are appropriate mitigation measures that would be implemented to avoid, minimize, monitor, characterize, or mitigate the effects of the GBSD Test Program Proposed Action on the affected environment (i.e., HAFB, VAFB, DPG, and USAG-KA). The mitigation measures included in this appendix were compiled by the EA/OEA Subject Matter Experts, and modified based on Installation and Agency review.

A.1.1 Hill Air Force Base

A.1.1.1 Air Quality – HAFB

Control Fugitive Dust:

- Apply water periodically to disturbed areas.
- Use a gravel apron to reduce mud/dirt trackout from unpaved truck exit routes.
- Replace ground cover in disturbed areas as quickly as possible.
- All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover.
- Comply with the HAFB Fugitive Dust Control Plan.

Reduce carbon monoxide (CO):

- Use hybrid gasoline-electric vehicles (alternate fuel source).
- Use battery electric vehicles.
- Follow vehicle maintenance practices for vehicle efficiency and use of fuel.
- Increase the use of low-carbon fuels.
- Reduce the number of vehicles used by construction workers.
- Use public transit.
- Develop and use transportation strategies to reduce CO production (i.e., car/van pool).

A.1.2 Vandenberg Air Force Base

A.1.2.1 Air Quality – VAFB

A.1.2.1.1 General

Control Fugitive Dust:

- Apply water periodically to disturbed areas.
- Use a gravel apron to reduce mud/dirt trackout from unpaved truck exit routes.
- Replace ground cover in disturbed areas as quickly as possible.
- All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover.
- Comply with the Vandenberg Air Force Base Standard Measure below in section 1.2.2.

Reduce carbon monoxide (CO):

- Use hybrid gasoline-electric vehicles (alternate fuel source).
- Use battery electric vehicles.
- Follow vehicle maintenance practices for vehicle efficiency and use of fuel.
- Increase the use of low-carbon fuels.
- Reduce the number of vehicles used by construction workers.
- Use public transit.
- Develop and use transportation strategies to reduce CO production (i.e., car/van pool).

A.1.2.1.2 Standard VAFB Measures

- All soil excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall be conducted as needed on unpaved/untreated roads and on disturbed soil areas with active operations.
- All clearing, earth moving, and excavation activities shall cease during periods of high winds, if disturbed material is easily windblown, or when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property.
- All fine material transported off-site shall be either sufficiently watered or securely covered to prevent excessive dust.

- All haul trucks shall be required to exit the site via an access point where a gravel pad or grizzly has been installed.
- Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.
- Once initial leveling has ceased, all inactive soil areas within the construction site shall be treated by watering, revegetating, or spreading soil binders until the area is replanted.
- On-site vehicle speed should be limited to 15 miles per hour on unpaved surfaces.
- All areas with regular vehicle traffic should be paved, treated with soil binders, or watered a minimum of twice daily.
- All internal combustion engine powered equipment shall be properly maintained and tuned.
- Employees and subcontractors shall comply with the California Air Resource Board (CARB) idling restrictions for compression ignition engines (5-minute limit on idling).
- Whenever feasible, heavy-duty diesel-powered construction equipment manufactured after 2003 would be used. However, Tier 2 and up compliant vehicles that meet the CARB's In-Use Off-Road Diesel Vehicle Regulation are preferred.
- All applicable 2003 and older engine model diesel-vehicles with a gross vehicle weight rating (GVWR) between 14,001 and 26,000 pounds (e.g., water trucks, cement mixers, and trucks delivering materials) must meet 2010 manufacturing year engine emission standards as specified in the CARB Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles. Vehicles with a GVWR greater than 26,000 pounds (e.g., trucks and buses) must meet particulate matter best available control technology and engine model year emission requirements as specified by CARB.

A.1.2.2 Biological Resources – VAFB

A.1.2.2.1 Site Preparation and Construction Mitigation Measures – VAFB

The avoidance, minimization, and monitoring measures listed below would be implemented to avoid, minimize, or characterize the effects of the GBSD Test Program new construction on sensitive vegetation and wildlife and are considered part of the Proposed Action:

- Utilities would be placed in the existing roadway in any areas where necessary to avoid impacts to vernal pool habitat, riparian habitat, Gaviota tarplant, or Lompoc yerba santa.
- Qualified biological monitors shall be present and monitor activities at all times during construction when a VAFB biologist or a project-specific biologist determines that

impacts to protected species are possible. The biological monitors shall be responsible for delineating areas where special-status species are located or concentrated, relocating special-status species during construction activities, and inspecting equipment and equipment laydown areas for cleanliness and gas and oil leaks. Qualified biological monitors shall be individuals who are familiar with and possess necessary qualifications to identify special status species that may occur within the proposed Action Area and, when needed, some will be authorized to capture, handle, and relocate California red-legged frogs. Biological monitors shall be approved by USFWS and 30 SW Installation Management Flight Environmental Conservation (30 CES/CEIEA). Prior to the onset of construction activities, the name(s) and credentials of the biologist(s) who would conduct the monitoring, surveying, species relocation, and other biological field activities shall be submitted to the USFWS for their approval.

- The qualified biological monitor(s) shall brief all project personnel prior to participating in project implementation activities. At a minimum, the training would include a description of the ESA-listed species and sensitive biological resources occurring in the area, the general and specific measures and restrictions to protect these resources during project implementation, the provisions of the ESA and the necessity of adhering to the provisions of the ESA, and the penalties associated with violations of the ESA.
- Disturbances shall be kept to the minimum extent necessary to accomplish project objectives.
- Road and shoulder work west of Rhea Road would be kept to a minimum to minimize impacts to blue butterfly habitat. Seacliff buckwheat would be flagged for avoidance during construction in this area to minimize impacts.
- All excess materials excavated shall be removed and transported to a designated waste or fill site.
- All erosion control materials used would be from weed-free sources and, if left in place following project completion, constructed from 100% biodegradable erosion control materials (e.g., erosion blankets, wattles, etc.).
- All human generated trash at the project site shall be disposed of in proper containers and removed from the work site and disposed of properly at the end of each workday. Large dumpsters can be maintained at staging areas for this purpose. All construction debris and trash shall be removed from the work areas upon completion of the project.
- Equipment vehicles (dozers, mowers, etc.) shall be cleaned of weed seeds prior to use in the project area to prevent the introduction of weeds. Prior to site transport, any skid plates shall be removed and cleaned. Equipment should be cleaned of weed seeds daily especially wheels, undercarriages, and bumpers. Prior to leaving the project area, vehicles with caked-on soil or mud shall be cleaned with hand tools such as bristle brushes and brooms at a designated exit area; vehicles subsequently may be washed at

an approved wash area. Vehicles with dry dusted soil (not caked-on soil or mud), prior to leaving a site at a designated exit area, shall be thoroughly brushed; vehicles may alternatively be air blasted on site.

- Fueling of equipment would be conducted in pre-designated location within the staging area and spill containment materials would be placed around the equipment before refueling.
- A qualified biological monitor shall inspect any equipment left overnight prior to the start of work. Equipment would be checked for presence of special status species in the vicinity and for fluid leaks.
- No holes or trenches would be left open overnight. Plywood sheets or steel plates may be used to cover holes or trenches. Weights or sandbags would be used as necessary to ensure covers remain in place and without gaps. The biological monitor would inspect these locations before resuming work.
- Where construction activities would be near Lompoc yerba santa or vernal pool fairy shrimp habitat, these sensitive areas would be demarcated using high-visibility temporary fencing and signage to prevent vehicles and workers from accidentally accessing these areas.
- Utility lines installed in or adjacent to sensitive habitats, such as maritime chaparral, shall be accessed directly from existing roadways and trails to the maximum degree feasible. Construction and support vehicles will stay on roadways, trails, and mowed ruderal zones to the maximum degree feasible.
- Stormwater retention basins will be kept to the minimum size and depth necessary to contain site storm water runoff from the facility during a 5-year storm event. Basins will allow natural infiltration of water; at least one side will have a slope of no more than 45 degrees to allow easy exit of animals; no fencing will be placed around basins that would impede the movement of small animals such as amphibians. No chemicals harmful to amphibians or invertebrates will be used for management or maintenance of basins and no non-native species (i.e., mosquito fish [*Gambusia affinis*]) will be introduced into basins.
- Stormwater retention basins will be monitored for waterfowl use. If basins are found to consistently attract significant numbers of waterfowl (6 or more ducks, 3 or more geese, or any number of waterfowl staying for more than 48 hours) such that they are deemed to constitute a Bird Air Strike Hazard, a bird abatement plan will be developed in consultation with 30 CES/CEIEA and implemented.
- Each proposed GBSD facility construction site would be encircled with minimum 3-foot high silt fencing, anchored with metal T-posts, and buried along the bottom edge to inhibit terrestrial wildlife, including California red-legged frog, from entering the site. The

biological monitor would inspect the fence daily and direct maintenance to ensure its efficacy.

- All work would occur during daylight hours during periods where there is no rainfall.
- Initial vegetation removal on all sites would either occur outside of bird nesting season or vegetation to be removed would be surveyed for nesting birds by a qualified biologist prior to removal.
- A qualified biologist would survey all potentially impacted areas in or near suitable Lompoc yerba santa habitat prior to vegetation removal or other construction related impacts to ensure that no Lompoc yerba santa plants are present.
    - If a new population is found within the work area during pre-work surveys, it will be avoided to maximum extent feasible and work would only proceed after coordination with 30 CES/CEIEA and USFWS. Any impacts to such Lompoc yerba santa would be minimized by implementing the following:
        - A Service Approved Biologist would monitor ground-disturbing work within occupied areas. Monitors would mark plants for avoidance and document damage to individual plants or rhizomes during work.
        - The Service Approved Biologist could remove and replace soil around in or adjacent to the work area as necessary to determine underground characteristics. Soil removal and replacement would be done without removal or damage to rhizomes or individual plants. This would facilitate avoidance and salvage efforts.
        - If Lompoc yerba santa are present that cannot be avoided, such rhizomes or plants would be salvaged, prepared for planting, and planted in nearby suitable habitat where the USAF does not anticipate future disturbance.
- The qualified biological monitor would be present to verify that the distance between the known Lompoc yerba santa population at 35th Street and the construction activities north of 35th Street remains at least 150 ft. Construction activities within 150 ft of plants would be restricted to the existing 35th Street roadway or on the south side of 35th Street.
- If the Alternative 2 Laydown Area for the Component Operations Facility were used for the Proposed Action in its entirety or in part, the following measures would be implemented to preserve potential maritime chaparral habitat:
    - All chaparral shrubs in this area would be hand cut during late summer or dormant period. Cut shrubs shall be properly pruned with a sharp blade and shall have a clean, smooth cut. No large shrub, trunk, branch, or stump shall be left with frays, incisions, or scars.

  - Any soil removed or graded off an area shall be salvaged in an area free of weeds. Prior to replacing the soil, the ground shall be properly prepared for native seed germination.
  - Protective construction matting such as Dura-Base mats that are designed for vegetation protection shall be used in the entire laydown area. Construction mats shall be removed as soon as possible.
  - A restoration plan covering at least 2 years shall be developed and approved by 30 CES/CEIEA. The plan shall, at a minimum, include weed control measures.

- Clearing vegetation in areas known to support or with potential to support Gaviota tarplant would occur after seed has set (October) and before the rainy season to the maximum degree feasible. A USFWS-qualified biologist would determine when a particular area has gone to seed and inform project proponents and contractors of the optimal period to work in the subject area; however, project activities may occur any time of year, including while the ground is wet or while the plants are flowering.
- Where construction activities create a temporary soil disturbance in known occupied Gaviota tarplant habitat, a qualified biologist would monitor a bulldozer equipped with a flat scraper that would preserve the seedbank by lightly scraping the topsoil, setting it aside, and replacing it after completing the project. Prior to replacement of reserved topsoil, the site would be properly prepared for seed germination. Gaviota tarplant habitat would be enhanced by the removal of invasive plants in areas adjacent to occupied Gaviota tarplant habitat along Point Sal Road in the vicinity of Casmalia Beach, Globe, and/or Oculto Roads. The removal of invasive plants, particularly iceplant, would occur at a 2:1 ratio (habitat enhanced: habitat affected). Sites would be seeded with a native grass seed mix using a formulation approved by the VAFB botanist to prevent reinfestation.
- To determine the location(s) and extent of Gaviota tarplant and seedbank within the Action Area historic Gaviota tarplant occurrence data would be used in conjunction with surveys of suitable habitat in the Action Area north of the Point Sal and El Rancho Road intersection. Surveys would be conducted during the summer/fall preceding construction. In combination these data would be used to identify areas requiring topsoil preservation and the extent of habitat enhancement required.
- One day prior to any vegetation removal within 0.1 mi (0.2 km) of Shuman Creek and the drainage northwest of GBSD Schoolhouse location and within or adjacent to areas subject to seasonal inundation and/or dominated by riparian vegetation, a qualified biological monitor would conduct surveys for California red-legged frogs within the area to be cleared. Any red-legged frogs present would be captured by the qualified biologist, if possible, and released at the nearest suitable habitat outside the area where vegetation is to be cleared. Because ground conditions change depending on rainfall and season, most of these locations cannot be identified in advance. The monitor would

also be present during vegetation removal to capture and relocate California red-legged frogs that may be encountered, to the extent that safety precautions allow. This monitor would also search for injured or dead California red-legged grogs after vegetation removal to document take.

- Any open holes or trenches would be securely covered with plywood or metal sheets if left overnight to minimize the risk of entrapment of frogs. A qualified biological monitor would search any open holes and trenches the following morning for entrapped animals.
- If any California red-legged frogs are encountered during construction activities that need to be moved out of harm's way, a qualified biological monitor would capture and relocate them to the nearest suitable habitat. The risk of introducing or spreading chytrid fungus would be reduced by requiring implementation of the Declining Amphibian Populations Task Force (DAPTF) Fieldwork Code of Practice (DAPTF 1998).
- During construction of the GBSD facilities at LF-4, the GBSD Schoolhouse location west of California Boulevard, and the Component Operations Facility and adjacent laydown areas, a qualified biological monitor would survey the site, including any open holes or trenches, each day prior to initiation of work.
- Where occupied vernal pool fairy shrimp habitat is to be preserved within 25 feet of a construction area, appropriate sedimentation barriers would be placed down-slope of the project site and construction fencing or other appropriate protective fencing would be placed around pools. Fencing would be used in locations where project equipment and/or personnel are situated adjacent to, or in the near vicinity of, vernal pool fairy shrimp habitat. Work would be avoided within occupied habitat to be preserved until the soil is dry to the touch. Fill material would not be placed into vernal pool habitats to be preserved.
- If project activities may result in the alteration of the hydrological integrity of the area feeding pools, wet season surveys would be conducted in affected pools prior to construction to document baseline conditions. After construction, the area of impact would be reevaluated for two seasons post construction to determine if the hydrology of the pool has been affected.
    - Potential impacts to pool hydrology are expected to be restricted to pools near the proposed Component Operations Facility. These pools were both assessed during wet season vernal pool fairy shrimp surveys in the 2015-2016 wet season during which they did not hold water (MSRS 2019a) and in the 2018-2019 wet season during which they did hold water (MSRS 2019b). Vernal pool fairy shrimp were not detected during 2018-2019 wet season. Hydroperiod data collected during these seasons and the season preceding construction would be analyzed in conjunction with VAFB rainfall data and compared to data collected post construction to determine if hydrological impacts may have occurred.

- If excavation is required within occupied vernal pool fairy shrimp habitat during the dry season, the cyst bank in the area impacted would be removed before the project begins. Using a hand trowel, one-liter volume sample per pool/swale of the top 0.4 to 1.2 inches of pool sediment would be collected. Whenever possible, soil samples shall be collected in chunks to best protect the cysts. Soil samples containing any residual moisture shall be allowed to air dry thoroughly before storage of the sample. The bags containing the soil samples shall be kept out of direct sunlight to avoid excessively heating the sample. Samples would be retained and used to reinoculate the impacted pool or retained for use in other impacted pools.
- If the work impacts a pool during the wet season, the impacted pool would be surveyed for two wet seasons with at least average rainfall to determine vernal pool fairy shrimp presence. If, after 2 years of survey, no vernal pool fairy shrimp are detected, then seed cysts from a nearby occupied pool would be collected and used to restore the impacted pool. The pool would then be surveyed for another two seasons to monitor occupancy.
- If permanent loss or impacts occur to an occupied or potentially occupied vernal pool fairy shrimp pool, habitat would be enhanced at a 3:1 ratio (habitat enhanced: habitat affected). Habitat would be enhanced through the removal of invasive trees and other invasive plant species adversely affecting occupied or potentially occupied vernal pool fairy shrimp habitat between New Mexico Avenue and California Boulevard and/or along Nevada Avenue on VAFB.

A.1.2.2.2 Flight Test and Launch Activities Mitigation Measures - VAFB

The avoidance, minimization, and monitoring measures detailed in the VAFB Marine Mammal Protection Act LOA (NMFS 2019) would be implemented as part of the Proposed Action and include:

- The USAF would monitor launch acoustics and pinniped response following approved launch monitoring protocols for VAFB during the first three GBSD launches between January 1 and July 31, and would likely monitor more than three launches if the GBSD vehicle launch were louder than Minuteman III launches.
- Helicopters and other aircraft would fly at least 1,000 feet from recognized seal haul outs and rookeries; including Purisima Point, Rocky Point, Point Sal, and Lion's Head, as required under the current Marine Mammal Protection Act LOA.

Avoidance and minimization measure specified in the USFWS Programmatic Biological Opinion (USFWS 2018, USFWS 2015) which are relevant to the Proposed Action and would be implemented include:

- The fueling of vehicles and equipment would occur on impervious surfaces to the maximum extent practicable. Spill containment equipment would be present at all project sites where fuels or other hazardous substances are brought to the site. In addition, qualified personnel would conduct daily inspections of the equipment and the staging and maintenance areas for leaks of hazardous substances.
- Project proponents would clean all equipment and vehicles frequently to reduce the spread of invasive plant species.
- Routine flight operations would be restricted along the coast from Minuteman Beach to 3.7 mile south of the Santa Ynez River and Jalama Beach. A 500-foot minimum altitude requirement is in effect year-round in these areas. All non-mission essential aircraft must maintain a minimum altitude of 1,900 feet at Purisima Point and the neighboring terrain along the shoreline to LF-576E from March 1 through September 30.

A.1.2.3 Cultural Resources – VAFB

Mitigation activities for adverse effects under Section 106 will be developed by VAFB in consultation with the California State Historic Preservation Office and documented in a Memorandum of Agreement. Present recommendations include the following:

- Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) Level II or III documentation of MAF-D0 and LF-26
- Historical interpretive brochure for LF-04
- Light Detection and Ranging (LiDAR) documentation of LF-04, LF-26, and MAF-D0
- Preparation of a Historic Properties Treatment Plan to guide archaeological data recovery
- Development of a Native American Graves Protection and Repatriation Act Written Plan of Action
- Archaeological and Native American monitoring of ground disturbance at culturally sensitive locations.

A.1.2.4 Water Resources – VAFB

The following measures will be implemented to minimize impacts on water resources during construction activities:

- Implement Best Management Practices (BMPs) to prevent soil, chemicals or other pollutants from entering into the storm water system, natural surface water drainages or groundwater.
- BMPs will include erosion and sediment controls, tracking controls, vehicle and equipment fueling and maintenance, spill prevention and control, solid waste management, liquid waste management, concrete waste management, stockpile management and septic waste management as applicable.
- BMPS shall be effectively implemented and maintained as described in a current California Stormwater BMP Manual (California Stormwater Quality Association or similar).
- Erosion and sediment control measures will be in place throughout grading and development of the sites until all disturbed areas are permanently stabilized. Only 100-percent biodegradable erosion control materials would be left in place following project completion.
- Exposed soils will be permanently stabilized with vegetation to prevent erosion and, if applicable, meet the NPDES Construction General Permit Notice of Termination requirements.
- Dust emissions will be controlled.
- Trash will be contained and regularly disposed of. Any trash that escapes from containers shall be collected daily.
- All temporary sediment and erosion control devices including silt fence and wattles with plastic netting will be removed upon project completion.
- Construction materials will be stored in a manner that prevents contact with stormwater. Liquids, petroleum products and hazardous materials will be stored in approved containers and drums and placed in proper containment facilities covered prior to rain events.
- Conduct fueling in a designated location with appropriate spill prevention and control.
- Properly manage concrete curing compound, concrete waste and washout water to prevent pollution. Contain concrete washout water for evaporation in a temporary pit in the staging area or washout trucks off-base. (updated 9/20).
- Portable toilets will have secondary containment and be secured to the ground to prevent falling.

- The placement of poles and access roads, vegetation removal, and heavy equipment access would be completely avoided in surface water drainages to the ordinary high-water mark. This includes dry drainages and drainage areas.
- The VAFB Post-Construction Storm Water Standard requires Low Impact Development measures to maintain or restore, to the maximum extent technically feasible, the predevelopment flow hydrology of the drainage area or areas. A Storm Water Control Plan will be prepared for approval by 30 CES Water Resources.
- Preservation of existing vegetation to the extent feasible.
- Each facility or proximate facilities with construction activity that disturbs one acre or more of soil would obtain coverage under the NPDES Construction General Permit. Contact 30 CES/CEIE Water Resources to begin the process or determine if a permit exemption applies. Drafts and final Storm Water Pollution Prevention Plan or Erosivity Waiver documents shall be provided to 30 CES/CEIE. 30 CES will electronically submit final documents to the SWRCB via their SMARTS system. The Contractor shall assist 30 CES/CEIE with the Notice of Intent and file the associated annual fee with the SWRCB. The contractor will implement the SWPPP including BMPs, monitoring, reporting, and sampling and analysis requirements.

A.1.3 Dugway Proving Ground

A.1.3.1 Air Quality – DPG

A.1.3.1.1 **Dust control measures during high wind:**

- Have a water truck on site for daily maintenance of roads during heavy traffic times or high wind days.
- Limit activities during a high-wind event.
- Consider the use of artificial wind barriers to disrupt the erosive flow of wind over unprotected areas.
- Reduce the number of trips on access roads.
- Reduce vehicle speed.

A.1.3.2 Biological Resources – DPG

A.1.3.2.1 **Site Preparation and Construction Mitigation Measures – DPG**

The avoidance, minimization, and monitoring measures listed below would be implemented to avoid, minimize, or characterize the effects of the GBSD Test Program on biological resources and are considered part of the Proposed Action:

- Disturbance shall be kept to the minimum extent necessary to accomplish project objectives and laydown areas should be located in previously disturbed areas when possible.
- All excess materials excavated shall be removed and transported to a designated waste or fill site.
- All erosion control materials used would be from weed-free sources and, if left in place following project completion, constructed from 100% biodegradable erosion control materials (e.g., erosion blankets, wattles, etc.).
- Equipment vehicles (dozers, mowers, etc.) shall be cleaned of weed seeds prior to use in the project area to prevent the introduction of weeds. Prior to site transport, any skid plates shall be removed and cleaned. Equipment should be cleaned of weed seeds daily especially wheels, undercarriages, and bumpers. Prior to leaving the project area, vehicles with caked-on soil or mud shall be cleaned with hand tools such as bristle brushes and brooms at a designated exit area; vehicles may subsequently be washed at an approved wash area. Vehicles with dry dusted soil (not caked-on soil or mud), prior to leaving a site at a designated exit area, shall be thoroughly brushed; vehicles may alternatively be air blasted on site.
- Fueling of equipment would be conducted in pre-designated location within the staging area and spill containment materials would be placed around the equipment before refueling.
- Heavy equipment operators would inspect and clean equipment for fuel or fluid leaks prior to use or transport and would not intentionally discharge fuels or waste materials into the environment.
- Hazardous material and waste would be handled in adherence with the Best Management Practices detailed in **Section 4.2.3.5** (Hazardous Materials and Waste).

A.1.4 U.S. Army Garrison Kwajalein Atoll

A.1.4.1 Biological Resources – USAG-KA

A.1.4.1.1 Flight Test Mitigation Measures – USAG-KA

The following measures would be implemented as part of the Proposed Action and would be included in the Document of Environmental Protection for GBSD Test Program activities at Kwajalein Atoll.

Marine Mammal and Sea Turtle Protection Measures

- During travel to and from impact zones, including Illeginni Islet, ship personnel would monitor for marine mammals and sea turtles to avoid potential ship strikes. Vessel

operators would adjust speed or raft deployment based on expected animal locations, densities, and/or lighting and turbidity conditions.

- United States Army Garrison Kwajalein Atoll (USAG-KA) personnel would conduct a helicopter or fixed-wing aircraft overflight of the impact area three times over the week preceding a flight test and as close to launch as safely practical to survey for marine mammals and sea turtles. The final overflight would be within 1 day of the proposed launch. If personnel observe marine mammals or sea turtles in the vicinity, they would report such findings to the USAG-KA Environmental Office.
- Any observations of marine mammals or sea turtles during ship travel or overflights would be reported (including location, date, time, species or taxa, and number of individuals) to the USAG-KA Environmental Engineer who would maintain records of these observations and report sightings to that National Marine Fisheries Service (NMFS) and/or USFWS.
- Pre-flight monitoring by qualified personnel will be conducted on Illeginni Islet for sea turtles or sea turtle nests. For at least 8 weeks preceding the launch, Illeginni Islet would be surveyed by pre-test personnel for sea turtles, sea turtle nesting activity, and sea turtle nests. If possible, personnel will inspect the area within days of the launch. If sea turtles or sea turtle nests are observed near the impact area, observations would be reported to appropriate test and USAG-KA personnel for consideration in approval of the launch, and to USFWS and NMFS.
- Personnel will report any observations (including location, date, time, species, and number of individuals) of sea turtles or sea turtle nests on Illeginni Islet to the USAG-KA Environmental Engineer who would maintain records of these observations and report sightings to USFWS.
- Although unexpected, any dead or injured marine mammals or sea turtles sighted by post-flight personnel would be reported to the USAG-KA Environmental Office and USASMDC, who would then inform NMFS and USFWS. USAG-KA aircraft pilots otherwise flying in the vicinity of the impact and test support areas would also similarly report any opportunistic sightings of dead or injured marine mammals or sea turtles.
- Human activity and equipment operation would avoid use or modification of the beach/dune environment during peak sea turtle nesting or hatching season (October through March).
- No native dune vegetation would be removed.
- If a basking sea turtle is found within the project area, all human activity and equipment operation within 100 feet of the animal or between the animal and the ocean would cease until the animal voluntarily leaves the area.

Hazardous Materials and Waste Measures

- Vessel and equipment operations would not involve any intentional discharges of fuel, toxic wastes, or plastics and other solid wastes that could harm terrestrial or marine life.
- Any accidental spills from support equipment operations would be contained and cleaned up and all waste materials would be transported to Kwajalein Islet for proper disposal.
- Hazardous materials would be handled in adherence to the hazardous materials and waste management systems of USAG-KA. Hazardous waste incidents would comply with the emergency procedures set out in the Kwajalein Environmental Emergency Management Plan and the UES.
- Vessel and heavy equipment operators would inspect and clean equipment for fuel or fluid leaks prior to use or transport and would not intentionally discharge fuels or waste materials into terrestrial or marine environments.
- All equipment and packages shipped to Kwajalein Atoll will undergo inspection prior to shipment to prevent the introduction of alien species into Kwajalein Atoll.
- Following a land-impact test, the USAF and USAG-KA would collect soil and groundwater samples at various locations around the impact site and test the samples for beryllium, depleted uranium, and other metals. Testing results that exceed UES criteria would require a soil investigation as detailed in the UES and may require subsequent soil removal or other remediation.
- All project related debris, trash, and equipment would be removed from the beach and dunes if not actively being used.
- No project-related materials or equipment would be stockpiled or stored in the intertidal zone, reef flats, sandy beach and adjacent vegetated areas, or stream channels.

Reef Protection Measures

- To avoid impacts on coral heads in waters near Illeginni Islet, sensor rafts would not be located in waters less than 10 feet deep.
- When feasible, within 1 day after the land impact test at Illeginni Islet, USAG-KA environmental staff would survey the islet and the near-shore waters for any injured wildlife, damaged coral, or damage to sensitive habitats (i.e., reef habitat). Any impacts to biological resources would be reported to the Appropriate Agencies, with USFWS and NMFS offered the opportunity to inspect the impact area to provide guidance on mitigations.
- If an inadvertent impact occurs on the reef, reef flat, or in shallow waters less than 10 feet deep, an inspection by project personnel would occur within 24 hours. Representatives from NMFS and USFWS would also be invited to inspect the site as

soon as practical after the test. The inspectors would assess any damage to coral and other natural and biological resources and, in coordination with USAF, USAG-KA, and RTS representatives, decide on any response measures that may be required.

- If any man-made debris were to enter the marine environment and divers were required to search for payload debris on the adjacent reef flat, they would be briefed prior to operations about coral fragility and provided guidance on how to carefully retrieve the very small pieces of payload debris that they would be looking for.

Protective Measures for Birds

- Payload impact would be in the non-forested area.
- The impact zone would be searched for black-naped tern nests and chicks prior to any pre-flight equipment mobilization. Any discovered nests would be covered with an A-frame structure per current USFWS guidance. The area would be monitored to ensure no black-naped tern nests were disturbed during heavy equipment use.
- To prevent birds from nesting on the support equipment after initial setup, the equipment would be appropriately covered with tarps or other materials and "scare" techniques (e.g., scarecrows, mylar ribbons, and/or flags) would be used on or near the equipment.

General Measures at Illeginni Islet

- At Illeginni Islet, should any missile components or debris impact areas of sensitive biological resources (i.e., sea turtle nesting habitat or coral reef), a USFWS or NMFS biologist would be allowed to provide guidance and/or assistance in recovery operations to minimize impacts on such resources. To the greatest extent practicable, protected marine species including invertebrates will be avoided or effects to them will be minimized. This may include movement of these organisms out of the area likely to be affected.
- Debris recovery and site cleanup would be performed for the land impact. To minimize long-term risks to marine life, all visible project-related man-made debris would be recovered during post-flight operations. In all cases, recovery and cleanup would be conducted in a manner to minimize further impacts on biological resources.
- For recovery and rehabilitation of any injured migratory birds or sea turtles found at Illeginni Islet, USFWS and NMFS would be notified to advise on best care practices and qualified biologists would be allowed to assist in recovering and rehabilitating any injured sea turtles found.
- During post-test recovery and cleanup, should personnel observe endangered, threatened, or other species requiring consultation moving into the area, work would be delayed until such species were out of harm's way or leave the area.

- Project activities would incorporate the applicable USFWS "Recommended Standard Best Management Practices" regarding work in aquatic environments including:
    - Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.
    - Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods.
    - Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.
    - All project-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see https://www.fws.gov/policy/A1750fw1.html) can help to prevent attraction and introduction of non-native species.
    - Project-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (e.g., with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.
    - Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.
    - All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

This page intentionally left blank