Draft Environmental Assessment

Rockfall Mitigation Project

Eastern Tutuila, American Samoa

Territorial Office of Fiscal Reform
American Samoa Department of Public Works

July 2014

FEMA

THIS DOCUMENT WAS PREPARED FOR

FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION IX
U.S. DEPARTMENT OF HOMELAND SECURITY
1111 BROADWAY, SUITE 1200
OAKLAND, CA 94607

THIS DOCUMENT WAS PREPARED BY

AECOM

1420 KETTNER BOULEVARD, SUITE 500
SAN DIEGO, CA 92101

FEMA-1859-DR-AS
HAZARD MITIGATION GRANT PROGRAM
CONTRACT NO. HSFEHQ-09-D-1127
TASK ORDER HSFE60-13-J-0002
AECOM # 60284854

COVER PHOTO: ROCKFALL HAZARDS OCCUR AT CLIFFS ADJACENT TO THE NARROW COASTAL HWY 001.

DRAFT ENVIRONMENTAL ASSESSMENT

ROCKFALL MITIGATION PROJECT

EASTERN TUTUILA, AMERICAN SAMOA

TERRITORIAL OFFICE OF FISCAL REFORM

AMERICAN SAMOA DEPARTMENT OF PUBLIC WORKS

FEMA-1859-DR-AS

HAZARD MITIGATION GRANT PROGRAM

JULY 2014

PREPARED BY

AECOM

1420 KETTNER BOULEVARD, SUITE 500

SAN DIEGO, CA 92101

PREPARED FOR

FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION IX

U.S. DEPARTMENT OF HOMELAND SECURITY

1111 BROADWAY, SUITE 1200

OAKLAND, CA 94607

Table of Contents

List of Figures

Acronyms and Abbreviations

APE	area of potential effects
ASCMP	American Samoa Coastal Management Program
ASDPW	American Samoa Department of Public Works
ASEPA	American Samoa Environmental Protection Agency
ASG	American Samoa Government
ASHPO	American Samoa Historic Preservation Office
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DPS	Distinct Population Segment
DMWR	American Samoa Department of Marine and Wildlife Resources
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency

FIRM	Flood Insurance Rate Map
GCR	General Conformity Rule
GHG	greenhouse gas
HMGP	Hazard Mitigation Grant Program
LUP	Land Use Permit
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
N_2O	nitrous oxide
O_3	ozone
PM	particulate matter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
PNRS	Project Notification and Review System
SIP	State Implementation Plan
SO_2	sulfur dioxide
TEMCO	Territorial Emergency Management Coordinating Office
TOFR	Territorial Office of Fiscal Reform

U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
ºC	degrees Centigrade

This page intentionally left blank.

Executive Summary

Through the American Samoa Territorial Office of Fiscal Reform (TOFR), the American Samoa Department of Public Works (ASDPW) has applied to the U.S. Department of Homeland Security Federal Emergency Management Agency (FEMA) for Hazard Mitigation Grant Program (HMGP) funds to implement rockfall mitigation at four locations on Tutuila where steep and rocky slopes abut Highway 001 (the proposed project). FEMA is proposing to obligate these funds under Presidential Disaster declaration FEMA-1859-DR-AS, issued for the September 2009 earthquake, tsunami, and flood event that caused major devastation in the U.S. territory of American Samoa. Provision of this funding is a federal action subject to the National Environmental Policy Act of 1969 (NEPA); thus FEMA has prepared this Environmental Assessment (EA) in compliance with NEPA.

Proposed Project

The proposed project by ASDPW entails implementing rockfall mitigation at four sites along Highway 001 by means of manually scaling loose rock from the slopes and installing wire mesh over the slopes to prevent additional rock from falling down to the adjacent road. The approximate acreages of the project areas include 0.50 acre at Site A, 0.45 acre at Site B, 0.60 acre at Site C, and 1.32 acres at Site D. All rock removed from the four sites would be hauled to the ASDPW yard located in Tafuna and stored for future use by ASDPW. The haul route would follow Highway 001. Staging would occur on previously disturbed areas adjacent to and above (i.e., upslope of) the Highway 001 right-of-way and as close to the construction sites as possible.

Environmental Analysis and Mitigation

The EA presents an examination of the proposed project's environmental effects with respect to the following issue areas: geology, soils, and seismicity; flood hazards; water resources; coastal resources; biological resources; cultural resources; public safety; environmental justice; land use and planning; transportation; noise; air quality and greenhouse gas emissions; and visual resources. The EA identifies several potential adverse effects, but concludes that implementation of best management practices (BMPs) and project-specific mitigation measures would prevent the proposed project from resulting in any adverse effects. As discussed in the respective sections of Chapter 4, BMPs or mitigation measures are identified for the following topics: water resources; coastal resources; biological resources; cultural resources; public safety; transportation; noise; and air quality and greenhouse gas emissions. With implementation of BMPs and mitigation measures, the proposed project would not result in adverse environmental effects.

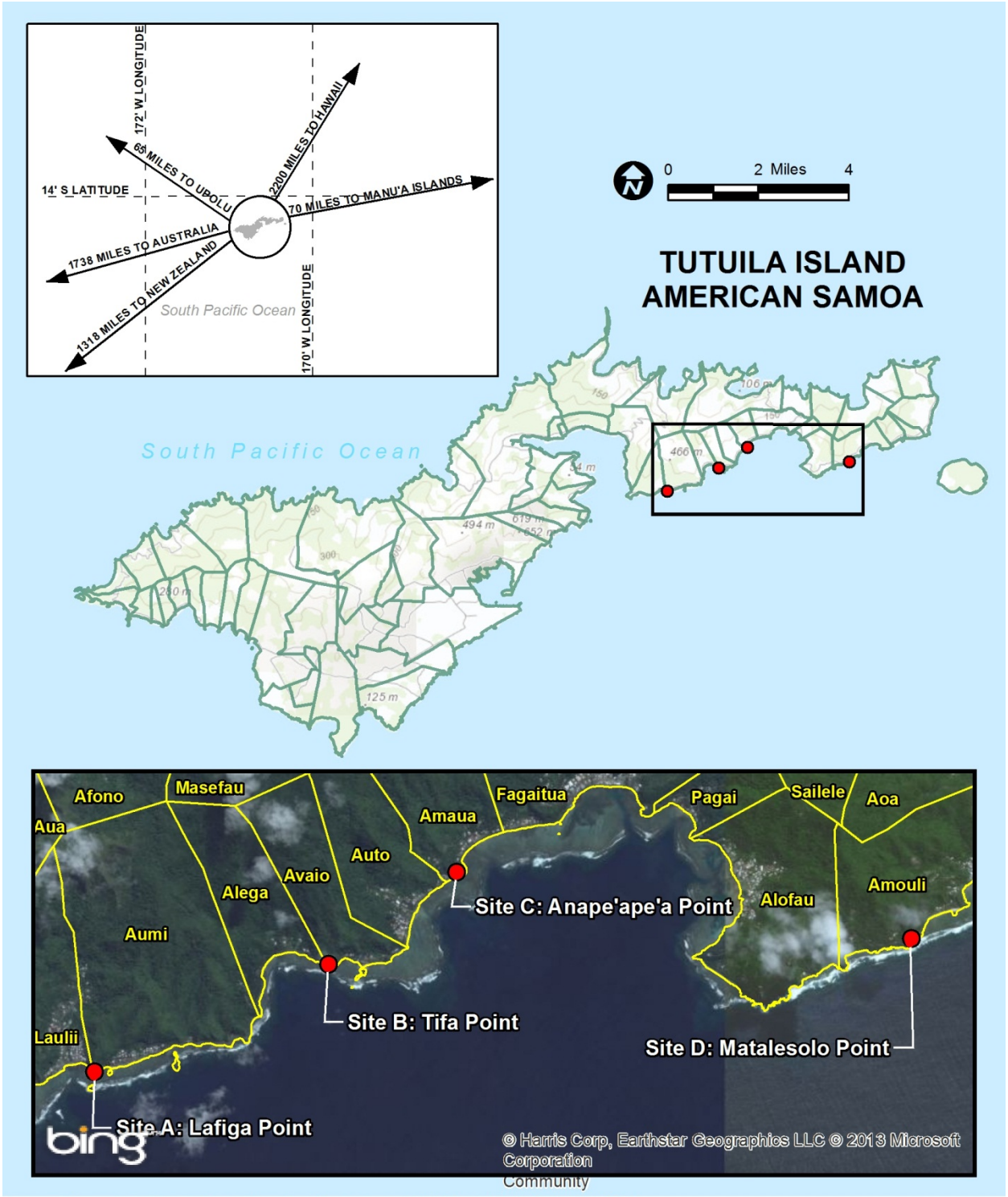
This page intentionally left blank.

1.0 Introduction

Through the American Samoa Territorial Office of Fiscal Reform (TOFR), the American Samoa Department of Public Works (ASDPW) has applied to the U.S. Department of Homeland Security Federal Emergency Management Agency (FEMA) for Hazard Mitigation Grant Program (HMGP) funds to implement rockfall mitigation at four locations on Tutuila where steep and rocky slopes abut Highway 001 (the proposed project). The four rockfall mitigation sites are shown in Figure 1-1. FEMA is proposing to obligate these funds under Presidential Disaster declaration FEMA-1859-DR-AS, issued for the September 2009 earthquake, tsunami, and flood event that caused major devastation in the U.S. territory of American Samoa.

FEMA proposes to provide federal financial assistance to the American Samoa TOFR pursuant to the HMGP, which is set forth in Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (42 U.S. Code [U.S.C.] § 5170c) and Title 44 Code of Federal Regulations (CFR) § 206, Subpart N. FEMA's provision of this funding is a federal action subject to the National Environmental Policy Act of 1969 (NEPA). FEMA has prepared this Environmental Assessment (EA) in compliance with NEPA, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts 1500–1508), and FEMA's implementing regulations (44 CFR Part 10). The EA process provides steps and procedures to evaluate the potential environmental, social, and economic impacts of the proposed project and its alternatives. These potential impacts are measured by their context and intensity, as defined in the CEQ regulations. This process includes an opportunity for the public and local, territorial, and federal agencies to provide input and/or submit comments through scoping meetings and a public comment period.

Any change to the scope of work for the proposed project would require reevaluation for compliance with NEPA, other laws, and Executive Orders (EOs). This EA does not directly address all federal, American Samoa Government (ASG), and local requirements. Acceptance of federal funding requires the recipient to comply with all federal, ASG, and local laws. Failure to obtain all appropriate federal, ASG, and local environmental permits and clearances may jeopardize federal funding.



Source: American Samoa Department of Commerce Web Portal; FEMA; ESRI 2013

Figure 1-1
RockFall Sites Location Map

2.0 Purpose and Need for Proposed Action

2.1 Purpose

The purpose of FEMA's HMGP is to reduce the loss of life and property due to natural disasters and to enable the implementation of long-term hazard-mitigation measures during the recovery period following a Presidential Disaster Declaration. Through the HMGP, FEMA provides funding assistance to States, Territories, Indian Tribal governments, local governments, and eligible private nonprofits to implement measures intended to eliminate long-term risk to people and property.

TOFR and ASDPW have identified a rockfall hazard at four locations on Highway 001. The purpose of the federal action is to provide HMGP funding to the grantee; TOFR; and, consequently, the subgrantee ASDPW, to reduce the rockfall hazard on Highway 001.

2.2 Need

Highway 001 is the sole accessway linking the eastern and western portions of Tutuila. Due to the extremely steep topography of the island, Highway 001 is aligned along a narrow strip of flat grade along the southern coast. At many parts of the roadway, the steep coastal hillsides have been cut to construct the narrow roadway. Four of these locations in particular have loose, unstable rock on steep cliffs that presents an ongoing rockfall hazard to vehicles, vehicle occupants, and pedestrians. These four areas have a history of rockfall incidents that have damaged the road and presented a safety concern to vehicles, vehicle occupants, and pedestrians. The major earthquake that occurred on September 29, 2009, and created a tsunami and flooding disaster (FEMA-1859-DR-AS) made these areas more unstable. Mitigation is needed to prevent future rockfall events at these sites. Preventing future rockfall incidents in these locations would ensure continued safety for vehicles, vehicle occupants, and pedestrians and ensure uninterrupted operation of this critical component of the island's circulation system.

Therefore, action is needed to prevent future rockfall events from negatively affecting the highway and the vehicles, vehicle occupants, and pedestrians travelling the highway.

This page intentionally left blank.

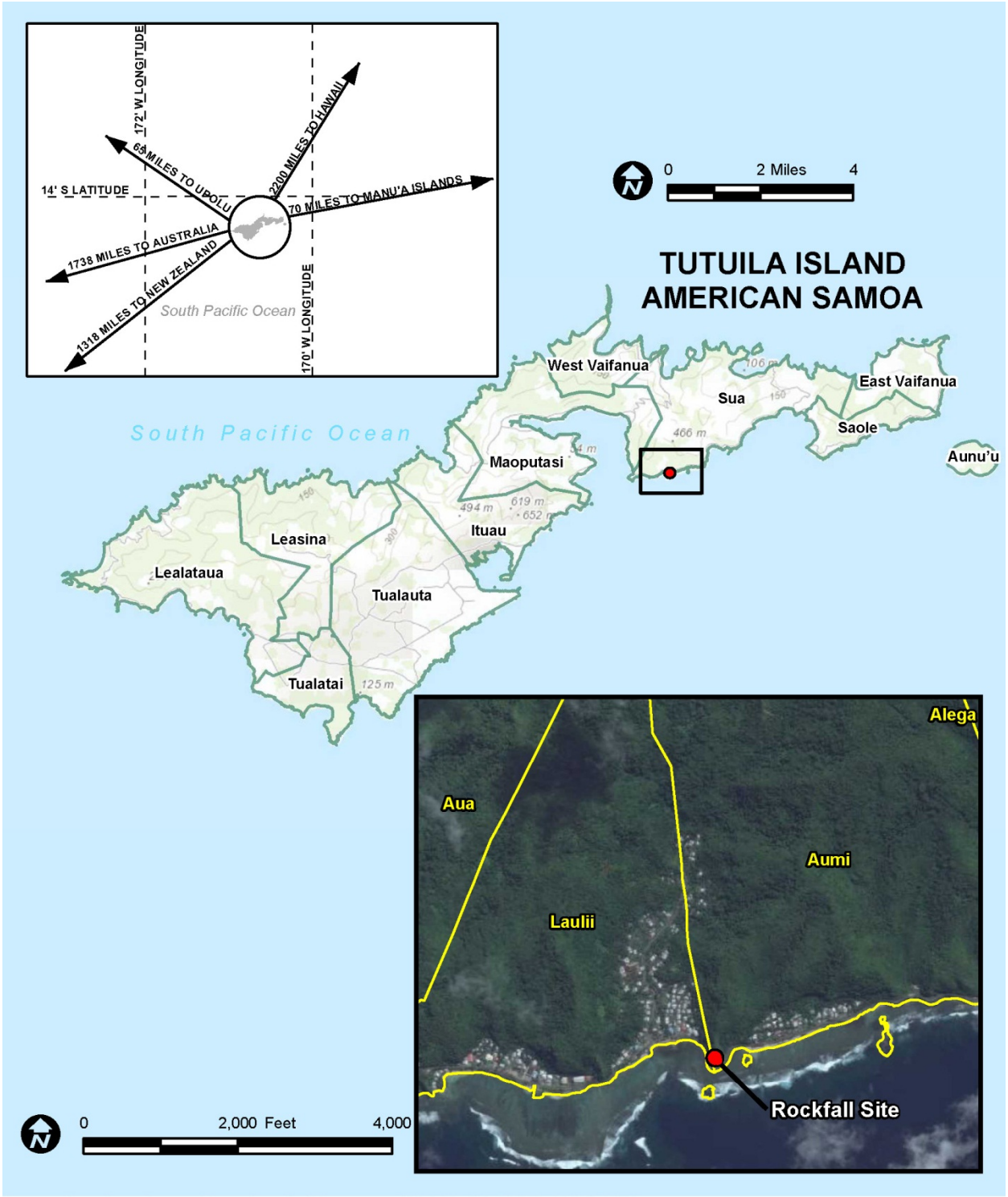
3.0 Alternatives

ASDPW identified four sites along Highway 001 on the island's southern coast where unstable rock on steep cliffs presents a rockfall hazard that could cause significant damage to roadway infrastructure and presents a serious public safety concern to vehicles, vehicle occupants, and pedestrians. These sites, shown in Figure 1-1, are referred to in this report as Site A (Lafiga Point, located in the villages of Lauli'i and Aumi), Site B (Tifa Point, located in the villages of Alega and Avaio), Site C (Anape'ape'a Point, located in the village of Amaua), and Site D (Matalesolo Point, located in the village of Amouli). The four sites are situated on eastern Tutuila's southern coast and represent areas where sharp curves on Highway 001 sit beneath near-vertical slopes with exposed rock. The location and extent of the project-related rockfall areas and representative photographs of the sites are shown in Figures 3-1 through 3-3 (Site A), Figures 3-4 through 3-6 (Site B), Figures 3-7 through 3-9 (Site C), and Figures 3-10 through 3-12 (Site D).

The U.S. Army Corps of Engineers (USACE) requested a preliminary rockfall risk, mitigation concepts, and budget assessment (YKE 2011) that assessed rockfall risk and several options for implementing rockfall mitigation at these four sites. Based on the results of the YKE study, ASDPW identified a preferred alternative for this work that entails manually scaling loose rock and installing wire mesh over the slopes to prevent additional rock from falling to the roadway below. In addition to the selected method assessed in this EA, the geotechnical report (YKE 2011) identified three methods that are not under further consideration and are not assessed in this EA. These methods were determined to be infeasible due to reasons such as undesirable scale of landform alteration, inappropriate topographical conditions at certain sites, and high cost. The three rejected methods are discussed below in Section 3.1. The remaining two alternatives carried forward for consideration in this EA are the No Action Alternative (Alternative 1) and the Proposed Action (Alternative 2), as discussed in detail in Sections 3.2 and 3.3, respectively.

3.1 Preliminary Alternatives Rejected from Further Consideration

One method identified in the YKE report and initially considered by ASDPW was installation of containment ditches between the slopes and the roadway. This method was identified as infeasible at all four sites because the sites lack adequate setback distance between the slopes and the road.



Source: American Samoa Department of Commerce Web Portal; FEMA; ESRI 2013

Figure 3-1
Site A: Lafiga Point Location Map
Villages of Aumi and Lauli'i

Source: American Samoa Department of Commerce web Portal; Yogi Kwong Engineers geotecnical Study, March 2011; ESRI 2013; AECOM

0 50 100 200 Feet

LEGEND

- Photo Point
- Primary Rockfall Zone
- Village Boundary

Figure 3-2
Site A: Project Area

PHOTOGRAPH 1: View to North (Spliced panorama - perspective slightly distorted)

PHOTOGRAPH 2: View to Northwest (Spliced panorama - perspective slightly distorted)

Figure 3-3
Site A Photographs

Source: American Samoa Department of Commerce Web Portal; FEMA; ESRI 2013

Figure 3-4
Site B: Tifa Point Location Map

Source: American Samoa Department of Commerce web Portal; Yogi Kwong Engineers Geotechnical Study, March 2011; Google Earth image dated 9/28/2009; AECOM

0 50 100 200 Feet

LEGEND

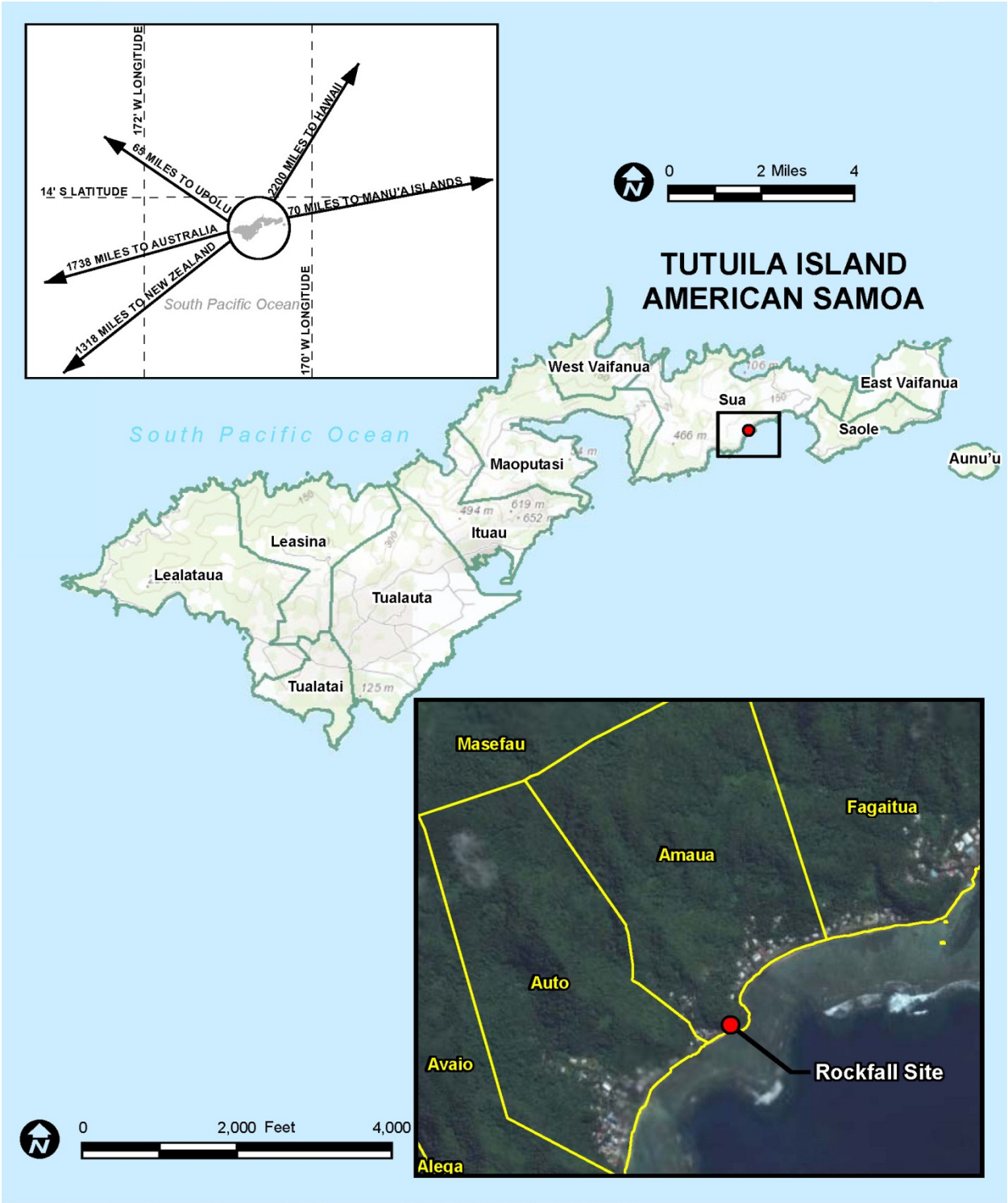
Primary Rockfall Zone
Stream
Village Boundary
Photo Point

Figure 3-5
Site B: Project Area

PHOTOGRAPH 3: View to Northwest (Spliced panorama - perspective slightly distorted)

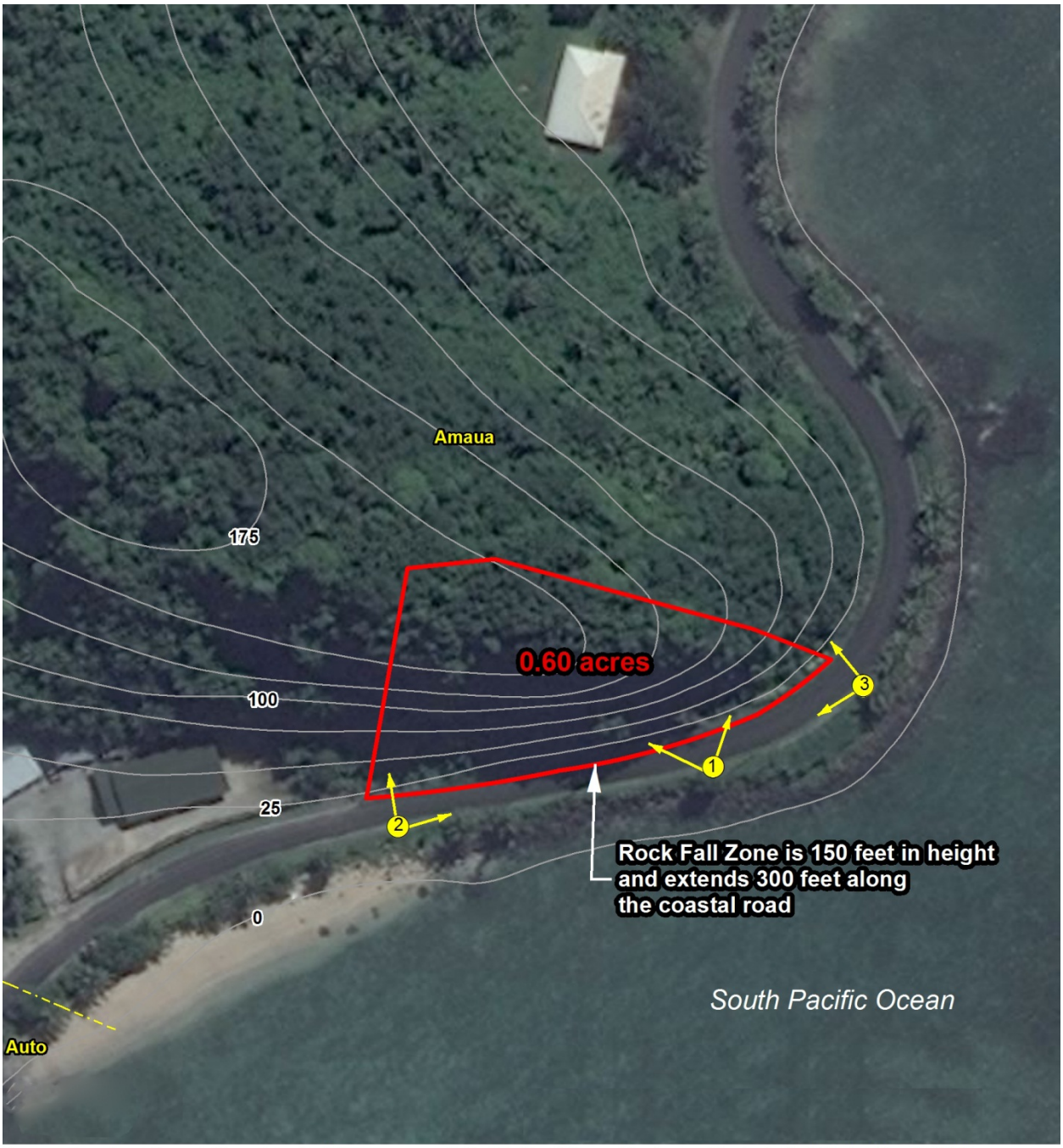
PHOTOGRAPH 4: View to Northeast (Spliced panorama - perspective slightly distorted)

Figure 3-6
Site B Photographs



Source: American Samoa Department of Commerce Web Portal; FEMA; ESRI 2013

Figure 3-7
Site C: Anape'ape'a Point Location Map



Source: American Samoa Department of Commerce web Portal; Yogi Kwong Engineers Geotechnical Study, March 2011; ESRI 2013; AECOM

0 50 100 200 Feet

LEGEND

Primary Rockfall Zone

Village Boundary

1 Photo Point

Figure 3-8
Site C: Project Area

PHOTOGRAPH 5: View to North (Spliced panorama - perspective slightly distorted)

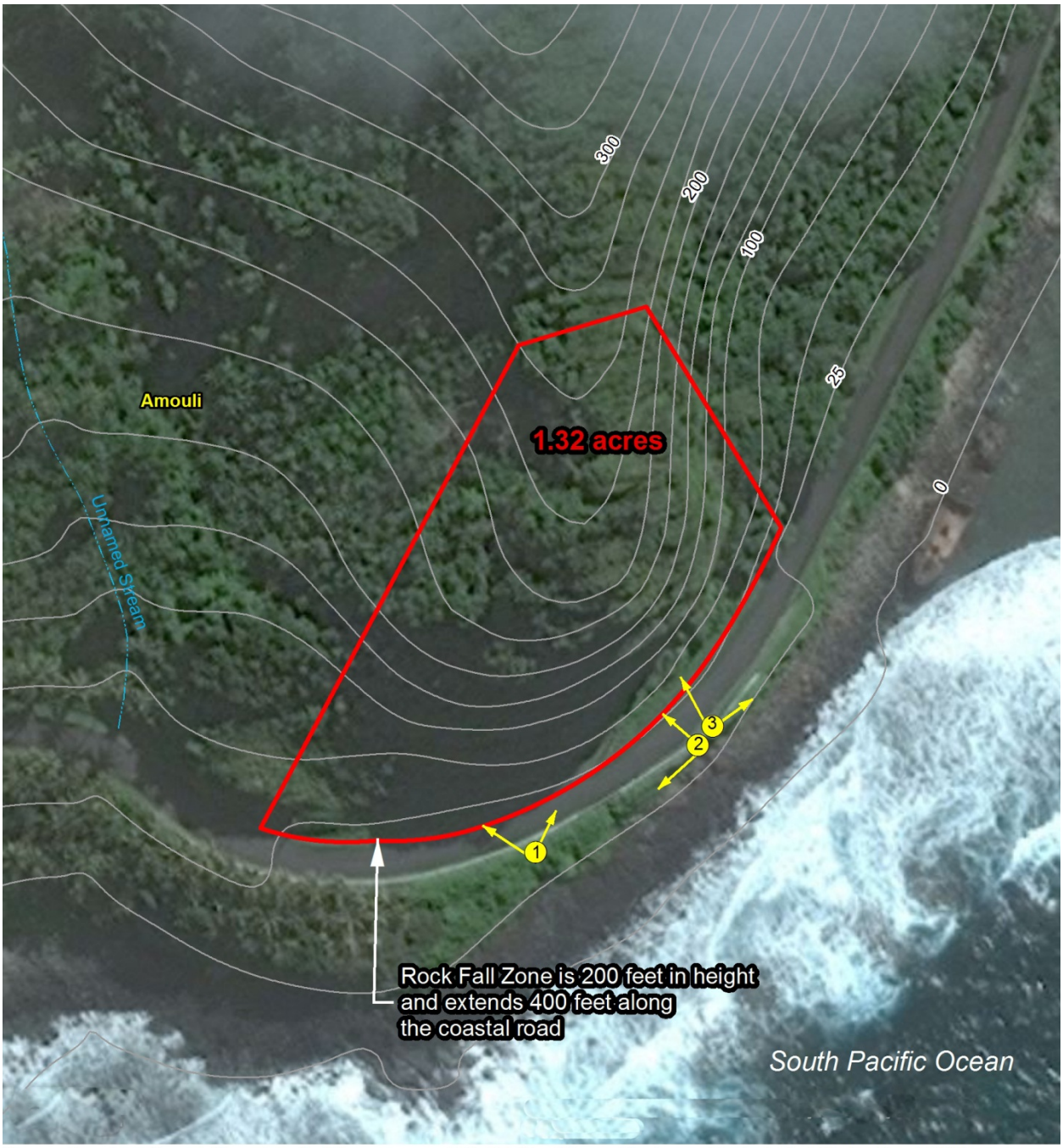
PHOTOGRAPH 6: View to East

PHOTOGRAPH 7: View to West

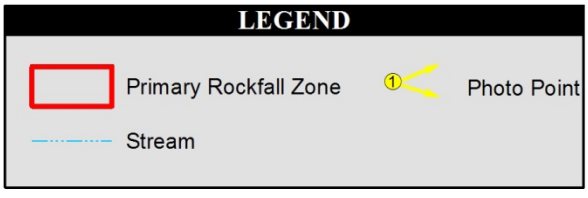
Figure 3-9
Site C Photographs

Source: American Samoa Department of Commerce Web Portal; FEMA; ESRI 2013

Figure 3-10
Site D: Matalesolo Point Location Map
Village of Amouli



Source: American Samoa Department of Commerce web Portal; Yogi Kwong Engineers Geotechnical Study, March 2011; ESRI 2013; AECOM



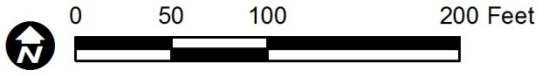


Figure 3-11
Site D: Project Area

PHOTOGRAPH 8: View to North (Spliced panorama - perspective slightly distorted)

PHOTOGRAPH 9: View to West

PHOTOGRAPH 10: View to East

Figure 3-12
Site D Photographs

A second method identified in the YKE report and initially considered by ASDPW was to excavate the slopes to a more gradual and stable angle and more completely eliminate the exposed loose rock formations. Excavation would include cutting benches into the slopes to reduce erosion and create an area to catch rock. This method was identified as infeasible at all locations because it would entail major landform alteration in visibly prominent locations on the island, which would be unacceptable to the public and would have resulted in excessive costs.

A third method identified in the YKE report and initially considered by ASDPW was stabilizing the slopes with a combination of shotcrete and wire mesh. This method was identified as infeasible due to excessive costs, the potential for increased storm water runoff due to the installation of shotcrete, and the undesirable visibility of large areas of shotcrete.

3.2 Alternative 1: No Action

A No Action Alternative is required to be included in the environmental analysis and documentation pursuant to CEQ regulations implementing NEPA. The No Action Alternative maintains the status quo with no issuance of federal financial assistance and no project implementation. The No Action Alternative is used to evaluate the environmental effects of not providing assistance for the proposal.

For the purposes of this EA, under the No Action Alternative, it is assumed that all four rockfall sites would remain unmitigated. Under these conditions, it is extremely likely that rock will continue to fall from these slopes and onto Highway 001, damaging infrastructure and posing a serious safety threat to vehicles, vehicle occupants, and pedestrians.

3.3 Alternative 2: Proposed Project

Alternative 2 entails implementing rockfall mitigation at Site A, Site B, Site C, and Site D by means of manually scaling loose rock from the slopes and installing wire mesh over the slopes to prevent additional rock from falling down to the adjacent road. The approximate extent of the four project sites is identified in Figure 3-2 (Site A), Figure 3-5 (Site B), Figure 3-8 (Site C), and Figure 3-11 (Site D). The approximate acreages of the project areas include 0.50 acre at Site A, 0.45 acre at Site B, 0.60 acre at Site C, and 1.32 acres at Site D. ASDPW would hire a geotechnical specialist to study each site and propose a site-specific solution to prevent major rockfall. ASDPW would obtain the services of a contractor to remove rock based on the recommendations of the geotechnical specialist. The recommendations would be specific to each site and would identify unstable or loose rocks to be removed.

The first step in the rockfall mitigation work would be removal of loose rock or other areas of surface rock that are identified as posing serious hazards in the future, as determined by

ASDPW (including its contractors and agents). Rock removal would be performed by a contractor hired by ASDPW, and could use a combination of methods such as hand scaling, drag scaling, hydraulic splitters, or, where feasible, small-scale blasting. Some minor vegetation removal may be required to clear vegetation in danger of becoming dislodged and to allow for adequate access to loose rock. Most of the work would likely be performed by a crane staged on the roadway below. The methods of work, including use of any power equipment such as backhoes and cranes with a drag scaling system, would be specified in a detailed work plan prepared by the contractor and approved by the ASDPW project engineer before use. The contractor's work plan would specify areas where work could present a hazard to adjacent facilities or resources, and would identify the appropriate protective actions to ensure safe conditions throughout this work. The work plan would identify areas where temporary protective fences would be installed to safely collect falling debris and prevent impacts to the road surface.

If blasting and/or hydraulic splitting is required, the contractor's work plan would specify a detailed plan for this work. ASDPW would require that the explosive force of blasting be limited to what is sufficient to remove the loose rock without damaging surrounding rock. If drilling is required as part of blasting, ASDPW would require that the holes be drilled parallel to the slope face and have a spacing equal to 10 times the drill hole's diameter.

All rock removed from the four sites would be hauled to the ASDPW yard located in Tafuna and stored for future use by ASDPW. The haul route would follow Highway 001 from the rockfall sites to the ASDPW yard.

After the rock is removed and cleared from each site, the next step is installing wire mesh over the slope surfaces to hold rock in place and prevent rock that may be loosened in future conditions from falling down the slope. This work entails inserting tie-down anchors into the rock substrate and attaching steel nets to the anchors. The nets would cover the scaled area plus an approximate 50-foot buffer from the outer edge of the scaled area, or as deemed appropriate by the ASDPW project engineer. ASDPW would monitor the slopes and integrity of the installed structures on an ongoing basis and conduct maintenance as needed. Permanent roadside signs would be installed at each location to warn approaching traffic of potential hazards.

Staging for all project work would occur on previously disturbed areas adjacent to and above (i.e., upslope of) the Highway 001 right-of-way and as close to the construction sites as possible. Staging areas would be identified in consultation with the village *matai* and adjacent residential land owners. It is not anticipated that any additional earth disturbance would be needed to establish these staging areas.

ASDPW would require the contractor to prepare and implement a traffic control plan during all project work, including equipment delivery to the project sites and material hauling to the ASDPW yard. Proper traffic control would ensure continued safety on Highway 001 and any adjacent roads that may be affected by project traffic. The traffic control plan would be submitted to ASDPW and the A.S. Department of Public Safety for review and approval prior to commencing work.

4.0 Affected Environment, Impacts, and Mitigation

The assessment of the Proposed Action consists of a description of existing conditions in the project area; discussions of the two alternatives, including the potential of each to result in direct and indirect effects on the environment; and, if necessary, a description of mitigation measures or best management practices (BMPs) that would be employed to avoid or minimize these effects. The assessment is focused on the environmental resources for which some level of effect may result: geology, soils, and seismicity; flood hazards; water resources; coastal resources; biological resources; cultural resources; public safety; environmental justice; land use and planning; transportation; noise; air quality and greenhouse gas emissions; and visual resources.

4.1 Geology, Soils, and Seismicity

The island of Tutuila is of volcanic origin and is characterized by steep mountainsides, small valleys, and a narrow coastal fringe of relatively level land. The island is a narrow mountain range consisting of basic igneous rock with small amounts of andesite and trachyte. The mountains extend approximately 20 miles from east to west. The highest peak is approximately 2,142 feet, and the land slopes steeply from the tops of the mountain ridges down to the ocean (FEMA 2008).

The four project sites are in a seismically active area. FEMA classifies the entire island of Tutuila as Seismic Zone 3, meaning it will experience earthquake ground shaking of approximately 0.2g peak horizontal acceleration (where g is the unit used to express gravitational force) and has a 1 in 500 chance per year of sustaining light to moderate building damage (i.e., a 10 percent probability of experiencing ground shaking of at least 0.2g every 50 years). This Seismic Zone 3 designation considers all probable earthquake sources affecting American Samoa, local and distant, and translates their effects into different estimates of ground shaking (TEMCO 2008).

The sites are geologically unstable formations where nearly vertical coastal bluffs feature loose rock, some of which is overhanging. The exposed slope faces consist primarily of weathered volcanic rock with interbeds of highly weathered to friable volcanic clinkers and tuff beds. Little to no top soil exists at the sites due to the sheerness of the slope faces, though layers of highly weathered and soil-like volcanic rock was identified interbedded with harder rock at Site B and

Site D. Rock joints in these areas were formed by cooling lava, leaving conditions of nonadherent material, with larger fractures created by seismic shaking, stress relief, and weathering of the rock face. Many loose rocks susceptible to dislodgement, particularly during rainstorms and earthquakes, and due to continuing decomposition or weathering of the lavas and tuff beds, are present on the slope faces. In areas where friable materials support overhanging rock on the steep slope face, further failures are anticipated, resulting in large pieces of rock falling down the slopes (YKE 2011). These failures are natural occurrences, but their location upslope from a frequently travelled roadway creates a serious hazard to roadway infrastructure and to roadway users. These unstable and hazardous geologic conditions are the impetus for implementing the proposed project assessed in this EA.

Alternative 1: No Action

Under Alternative 1, geologic and seismic conditions on the project site would remain the same as under existing conditions. Loose rock that currently exists on the exposed slope faces would continue to be susceptible to being dislodged during earthquakes and heavy rainstorms, and due to continued weathering. This dislodgement would continue to produce falling rock that could damage the roadway below and create a dangerous hazard to vehicles, vehicle occupants, and pedestrians. Therefore, Alternative 1 would have an adverse effect with respect to unstable and hazardous geologic conditions.

Alternative 2: Proposed Project

Alternative 2 would alleviate the hazardous geological conditions existing at the four project sites by removing loose rock and installing wire mesh over exposed areas to prevent rock dislodged in the future from falling down the slope and onto the road below. Existing seismic conditions would not change under Alternative 2, and the area would continue to be susceptible to shaking during an earthquake, but the resulting geological hazards of falling rock would be reduced. Therefore, Alternative 2 would result in a beneficial effect with respect to this hazardous geological condition.

The rock scaling and net installation would be performed pursuant to site-specific plans prepared by qualified geologists and approved by ASDPW. Work would be conducted under supervision of the project geologist and ASDPW. The work plans would identify all loose rock that is to be removed as part of project work and the proper method for safely removing the rock, and would specify suitable anchor locations where the netting anchors would be installed.

Slope disturbance as part of Alternative 2 would result in the potential for leaving the project sites susceptible to loss of soil through water and wind erosion. To minimize potential soil loss caused by construction activities, ASDPW would require preparation of and adherence to an

erosion control plan. The plan would require that all material excavated from the project area be covered and surrounded by a sediment barrier to prevent sediment loss. Additionally, the plan would include a debris-disposal plan to ensure that all scaled and excavated material is transferred to the ASDPW yard or to a designated and preapproved site as described in the American Samoa Environmental Protection Agency (ASEPA) and American Samoa Coastal Management Program (ASCMP) American Samoa Erosion & Sediment Control Field Guide (ASEPA and ASCMP 2011) and the ASEPA Guidance Manual for Runoff Control (ASG and ASEPA 2001). Compliance with the erosion control plan would ensure that Alternative 2 would not result in adverse effects related to soil loss.

4.2 Flood Hazards

EO 11988, Floodplain Management, requires federal agencies to avoid, to the extent possible, the short- and long-term adverse effects associated with the occupancy and modification of floodplains. FEMA's regulations for complying with EO 11988 are found in 44 CFR Part 9, Floodplain Management and Protection of Wetlands (FEMA 2008). FEMA applies an eight-step decision-making process to ensure that funded projects are consistent with EO 11988. FEMA has initiated this decision-making process for the proposed project by commencing the NEPA compliance process.

The FEMA Flood Insurance Rate Maps (FIRMs) for the project sites show the majority of the project limits within Zone X, indicating areas outside the 500-year flood hazard area. Sites A and B have small slivers of the project limits along Highway 001 mapped as Zone VE, which is the coastal area subject to storm wave action, with base flood elevations determined. No structures are within the project limits, so no structures are currently located in this Zone VE designation on Sites A and B.

Alternative 1: No Action

Alternative 1 involves no construction work and would not make any changes to the land that would affect floodplains. Therefore, Alternative 1 would not result in increased flood hazards.

Alternative 2: Proposed Project

Alternative 2 would not make any changes to the land that would affect floodplains. Alternative 2 does not propose to construct new structures within the VE zones on Sites A and B. Temporary construction work at these sites would occur within the VE zones, but work would cease and equipment would be removed from the site during a storm that could produce waves that could inundate the construction site. Therefore, Alternative 2 would not increase flood hazards or have any other effect with respect to flooding. In accordance with EO 11988 and 44 CFR Part 9, FEMA published a cumulative Initial Public Notice for FEMA-1859-DR-AS. TOFR and ASDPW,

with support from FEMA, would be required to publish an individual Final Public Notice before implementation of the proposed project.

4.3 Water Resources

Surface water on Tutuila is primarily in the form of perennial and ephemeral streams that provide habitat for freshwater fish, plants, and invertebrates. Surface waters are also a source of drinking water in some remote parts of the island. All surface waters on the island discharge directly into marine water bodies. Groundwater is the principal source of the domestic and industrial water supply as it is more abundant and has a higher quality than surface water (FEMA 2010).

ASEPA maintains programs to ensure the quality of surface water and drinking water, such as American Samoa Watershed Protection Plan (ASEPA and ASCZMP 2000), Guidance Manual for Runoff Control (ASG and ASEPA 2001), and American Samoa Erosion & Sediment Control Field Guide (ASEPA and ASCZMP 2011). The Guidance Manual for Runoff Control provides direction to property owners, construction contractors, government agencies, developers, and others who are performing activities that could result in pollution of American Samoa's surface and/or groundwater resources as a result of storm water runoff (ASG and ASEPA 2001).

ASEPA has identified three major water quality concerns on Tutuila: (1) sediment generated by improper land use practices that enters streams and coastal waters after heavy rains; (2) nutrient enrichment from human and animal wastes in populated areas; and (3) contamination in Pago Pago Harbor. The harbor is geographically separated from the project sites; therefore it is not relevant to the proposed project. Additionally, household waste and other human-made debris are frequently found in streams and on beaches.

Sections 401 and 404 of the Clean Water Act (CWA) (33 U.S.C. §1251 et seq.) regulate discharge into jurisdictional wetlands and waters of the U.S. to ensure water quality in these surface water features is properly maintained. Section 401 requires discharge activities to acquire water quality certifications from the applicable regulatory agency, which in American Samoa is ASEPA. Section 404 of the CWA requires discharge activities to obtain a permit from USACE.

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES). The purpose of the NPDES program is to reduce point- and nonpoint-source pollutant discharge into water resources. Construction activities that result in 1 acre or more of ground disturbance are regulated under the NPDES program and require an NPDES General Permit,

which outlines conditions to reduce nonpoint-source pollutant discharge. The NPDES program in America Samoa is administered by the U.S. Environmental Protection Agency (USEPA).

Site B and Site D are located near unnamed streams that drain into the ocean. These streams are depicted in the American Samoa Watershed Protection Plan (Pedersen Planning Consultants 2000). The first unnamed drainage (designated as Stream 22B for watershed planning purposes) is located approximately 50 feet west of the project area for Site B in the Alega watershed (see Figure 3-5). The second unnamed drainage (designated as Stream 20B for watershed planning purposes) is located near the west boundary of the Site D project area in the Amouli watershed (see Figure 3-11). In addition to these unnamed streams, human-made ditches exist on the upslope side of the road to channel runoff away from the highway. The project sites are not upstream of any surface water or groundwater resources that are used for drinking water.

Alternative 1: No Action

The No Action Alternative would not result in any ground disturbance on the site; therefore, existing water quality in the nearby water features and percolated groundwater would remain unchanged.

Alternative 2: Proposed Project

Alternative 2 proposes construction work at four sites adjacent to and upslope from the shoreline. Sites B and D are located near unnamed streams that flow into the ocean. Sites A and C are not located near known surface water bodies, with the exception of roadside ditches located on the upslope side of the highway. All sites are located near and upslope of nearshore waters; see Section 4.4 for a discussion of the project's effects on coastal water quality. Construction work on Sites B and D is not proposed within or adjacent to these unnamed streams, but project-related work upslope of the streams could result in a temporary effect on water quality due to erosion, sedimentation, and pollutant runoff.

Because none of the project sites would result in 1 acre or more of disturbance, ASDPW would not be required to obtain an NPDES General Permit under Section 402 of the CWA. The project's temporary effect on water quality would be mitigated by ASDPW's fulfillment of conditions placed on the proposed project by ASG as part of their Project Notification Review System (PNRS) Land Use Permit (LUP) process. ASG would issue site-specific conditions in the LUP requiring ASDPW to ensure that storm water generated on-site is contained on the site. ASDPW would be required to consult with ASEPA on specific BMPs, which must be implemented as directed and approved by ASEPA, and ASDPW would be required to ensure that silt fences, curtains, and other water quality structures are properly installed and maintained

to avoid transport of fill or exposed soils from the construction site. The permit would give the ASCMP authority to stop work, require corrective measures, and seek legal enforcement in the unforeseen event that the BMPs are not effectively controlling water quality on the site. If ASDPW cannot for any reason meet the conditions described in their LUP and if any discharge occurs to waters of the U.S. such that a 401 or 404 permit might be necessary, ASDPW would be required to halt work immediately and notify TOFR, FEMA, and ASEPA or USACE (as appropriate), to determine the proper steps to initiating the relevant CWA permit process.

To meet the conditions that would be placed on the proposed project's LUP, ASDPW would require the construction contractor to prepare and implement an erosion control plan. The plan would require that all material that has been scraped and removed from the slopes be covered and surrounded by a sediment barrier to prevent sediment loss. Additionally, the plan would include a debris-disposal plan to ensure that all excavated material is transferred to a designated and preapproved debris disposal site as described in ASEPA's American Samoa Erosion & Sediment Control Field Guide (ASEPA and ASCMP 2011) and the ASEPA Guidance Manual for Runoff Control (ASG and ASEPA 2001). The erosion control plan would include measures to require the curtailment of work and securing the site during heavy rain, strong wind, or adverse tidal conditions that could carry material into the coastal waters.

As required by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) through coordination pursuant to Section 7 of the Endangered Species Act (ESA), discussed in detail in Section 4.5.1 and listed in Appendix A, ASDPW would prohibit stockpiling project-related materials on the seaward side of Highway 001 and would prohibit fueling of project-related vehicles and equipment in the vicinity of the water. ASDPW would require that the contractor prepare a contingency plan to control petroleum products accidentally spilled during the project and to store absorbent pads and containment booms on-site, and, if appropriate, to facilitate the cleanup of accidental petroleum releases. ASDPW would require that the contractor prepare a litter-control plan to limit the potential effect on water quality.

With the implementation of the erosion control plan and the BMPs stated above, ASDPW would ensure that construction activities would not result in soil, debris, or other fill materials being placed into surface water bodies. Therefore, Alternative 2 would not result in adverse effects on water resources.

4.4 Coastal Resources

American Samoa faces coastal concerns of fishery habitat loss, coral reef health coastal hazards (such as cyclones, flooding, and erosion), marine debris, and solid waste. To help mitigate the effects of human activity, ASG operates the ASCMP as part of the American

Samoa Department of Commerce. The ASCMP designates the entire island of Tutuila and the sea within 3 miles of the shoreline as a coastal zone. The ASCMP oversees all construction and earth-moving activities on the island to ensure coastal resources are not affected by project work.

The United States Congress enacted the Coastal Zone Management Act (CZMA) in 1972 and the Coastal Zone Act Reauthorization Amendments in 1990 in response to the increasing pressures of overdevelopment on the nation's coastal resources. These laws make federal funds available to preserve, protect, develop, and, where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs as well as the fish and wildlife using those habitats.

The CZMA makes federal financial assistance available to any coastal state or territory that is willing to develop and implement a comprehensive coastal management program. These regulations apply to all actions within a designated coastal zone and require that any federal agency whose activities directly affect the coastal zone be consistent, to the maximum extent practicable, with approved state or territory coastal zone management programs (FEMA 2008). The federal consistency provisions of the CZMA require that all federally funded, licensed, or permitted projects affecting the coastal zone of American Samoa be conducted in a manner that is consistent with the federally approved ASCMP (FEMA 2008).

Alternative 1: No Action

Alternative 1 would entail no construction work or modifications of land in the vicinity of the coastal zone; therefore, no effects on the coastal zone would occur.

Alternative 2: Proposed Project

Alternative 2 proposes construction work at four coastal zone sites adjacent to and upslope from the shoreline, with expansive reef systems located in the nearshore waters. Construction work would entail operating machinery and landform disturbance within the coastal zone, which is regulated by the ASCMP. Alternative 2 would have the potential to affect coastal waters through pollutant runoff, and erosion and sediment reaching the nearby ocean waters. Alternative 2 does not entail any permanent features that would present an adverse effect on coastal resources. ASDPW would be responsible for coordinating with and obtaining a federal consistency determination from the ASCMP to ensure the project is in compliance with the CZMA.

The temporary effect on coastal water quality of Alternative 2 would be minimized by the contractor's implementation of an erosion control plan required by ASDPW, as described above in Section 4.1. The erosion control plan would identify site-specific measures to decrease the

potential for erosion and siltation from project-related work, including on-site containment devices and the curtailment of work, and securing the site during heavy rain, strong wind, or adverse tidal conditions that could carry material into the coastal waters. As discussed above in Section 4.3, ASDPW would prohibit stockpiling and staging of equipment and materials on the seaward side of Highway 001, would prohibit fueling of project-related vehicles and equipment in the vicinity of the water, would require that the contractor prepare a contingency plan to control accidental spills of petroleum products, and would require that the contractor prepare a litter-control plan.

Implementation of the erosion control plan and the additional measures requested by USFWS would minimize the potential for Alternative 2 to result in an adverse effect on coastal resources.

4.5 Biological Resources

Biodiversity of terrestrial species on Tutuila is low due to the island's volcanic origin and remote location (Craig 2005). The main vegetation type found on Tutuila is that of a tropical rainforest, but many nonnative plants have outcompeted the native plants in disturbed environments (Whistler 1994). This situation is true at the four proposed mitigation sites, to varying degrees, where the vegetation associations range from disturbed coastal strand to secondary forest communities.

On February 6, 2013, a natural resource reconnaissance survey was conducted for the four sites. The survey found that cliff faces at each of the four sites are either devoid of vegetation or contain introduced vegetation; both unvegetated and nonnative vegetated areas are contiguous with introduced and native vegetation within the project footprints. Vegetation on the four sites is similar and consists of coastal strand scrub and secondary forest, dominated by invasive or ornamental species. Noted examples of vegetation include para grass (*Brachiaria mutica*), Bermuda grass (*Cynodon dactylon*), New Guinea creeper [*'ava niukini*] (*Derris malaccensis*), and coral bean tree [*lopa*] (*Adenanthera pavonina*), as well as many other weedy species. Coconut trees [*niu*] (*Cocos nucifera*) and taro plants (*Colocasia esculenta*) occur sporadically in the project area. No natural drainage features are associated with any of the sites, although human-made roadside ditches currently exist on the upslope side of the roadway at all of the sites to channel runoff away from the highway.

Various seabird and upland bird species were observed at the four sites, including white-tailed tropicbird [*tava'esina*] (*Phaethon lepturus*), sooty tern [*gogo'uli*] (*Sterna fuscata*), wattled honeyeater [*iao*] (*Foulehaio carunculata*), and common myna [*mania fanua*] (*Acridotheres tristis*). Both the Samoan fruit bat [*pe'a vau*] (*Pteropus samoensis*) and the white-naped fruit bat [*pe'a fanua*] (*Pteropus tonganus*) were observed in trees and shrubs adjacent to the exposed

rockfall surfaces at Site A and Site B (see Figures 3-3 and 3-6). Other wildlife resources that were not observed during the surveys but would be expected to occur in the project area based on vegetation type and location include a variety of introduced and native bird species. Common nonnative bird species known from the region include jungle myna (*Acridotheres fuscus*), red junglefowl (*Gallus gallus*), and red-vented bulbul [*manu palagi*] (*Pycnonotus cafer*). Resident bird species known from the area include species such as red-tailed tropicbird [*tava'e'ula*] (*Phaethon rubricauda*) and gray-backed tern [*gogosina*] (*Sterna lunata*).

The vegetation immediately adjacent to each of the four rockfall sites is similar for each location. Secondary forest vegetation occurs on the steep slopes above and to either side of each bare rockfall face. Common secondary forest species include coral bean tree [*lopa*], toog [*'o'a*] (*Bischofia javanica*), perfume tree [*moso'oi*] (*Cananga odorata*), mahogany [*mamala*] (*Dysoxylum* spp.), beach hibiscus [*fau*] (*Hibiscus tiliaceus*), guest tree [*fu'afu'a*] (*Kleinhovia hospita*), macaranga [*lau pata*] (*Macaranga stipulosa*), and neonauclea [*afa*] (*Neonauclea forsteri*). At the lower elevations of the rockfall sites, in proximity to Highway 001, nonnative grasses, shrubs, and trees dominate the vegetated areas. Common nonnative species in these areas include coconut trees [*niu*], banana trees (*Musa paradisiacal*), taro plants, turf, and a variety of weedy species.

A narrow ring around the island contains shallow coastal habitats that support coral reef ecosystems. The proposed sites are located near this habitat but do not extend into the water. Deepwater habitats around the island reach depths of 2,000 feet and are located between 0.5 and 2 miles from the coast (Craig 2005). Therefore, the project area does not contain coral reef or deepwater habitat.

Threatened and Endangered Species

Section 7 of the ESA (16 U.S.C. § 1536(a)(2)) requires federal agencies to determine whether projects they propose to carry out or fund have any potential to affect species listed or proposed for listing as threatened or endangered or designated critical habitat.

FEMA obtained a list of species that are listed as endangered, threatened, or proposed for listing as endangered or threatened under the ESA that may occur in the project vicinity. The sources of the information are from USFWS and NMFS (USFWS 2011a, 2011b; NOAA 2012).

Wildlife and plant species identified as having potential to occur in the project vicinity are under the jurisdiction of USFWS or NMFS under the ESA. A literature review was conducted to identify habitat requirements and distribution of these species.

Based on the data compilation, FEMA and AECOM, as a contractor to FEMA, conducted biological investigations of the four rockfall sites. As a result of the field and background review, FEMA made the initial determination that the project area is in proximity to habitats suitable to support four federally listed wildlife species, 45 wildlife species (coral) recently proposed for listing as threatened or endangered by USFWS or NMFS, and two candidates for listing under the ESA. These species are described below.

Indo-Pacific coral species (Three Proposed Endangered, 42 Proposed Threatened): These coral species are currently distributed within suitable habitats in the Indo-Pacific biogeographic region, which consists of the tropical and subtropical waters of the Indian Ocean, the western and central Pacific Ocean, the seas connecting these two oceans in the vicinity of Indonesia, and the tropical and subtropical waters of the eastern Pacific Ocean. Corals require hard substrate on which to settle and form, and can thrive within a narrow water temperature range from 25 degrees Centigrade (°C) to 30 °C (77–86 °Fahrenheit) (NOAA 2012). The 45 coral species that occur in the waters surrounding American Samoa proposed for federal listing are listed in Appendix B.

Hawksbill sea turtle [*laumei uga*] (*Eretmochelys imbriacata*) (Endangered): Hawksbill sea turtles are distributed worldwide in tropical seas. The species has been documented throughout the Pacific, frequently associated with deepwater coral and seagrass beds. The sandy beaches on American Samoa provide nesting habitat for the hawksbill sea turtle, including approximately 16 kilometers (10.5 miles) of sandy beaches on Tutuila Island (Tuato'o-Bartley et al. 1993). Tutuila supports an estimated 50 nesting female hawksbill sea turtles per year (NMFS and USFWS 1998a). Although no sea turtle nesting sites are located within or immediately adjacent to any of the four rockfall mitigation sites, the American Samoa Department of Marine and Wildlife Resources (DMWR) has identified the beach in Alega (approximately 1,100 feet to the west of Site B at Tifa Point) as a nesting beach for the hawksbill sea turtle (USFWS 2013). The beaches in Amaua and Amouli also provide suitable sea turtle nesting habitat, but nesting has not been documented at these beaches. The beach in Amaua is approximately 250 feet west of Site C at Anape'ape'a Point. The beach in Amouli is approximately 770 feet east of Site D at Matalesolo Point.

Green sea turtle [*laumei ena'ena or fonu*] (*Chelonia mydas*) (Threatened – Pacific Population): The green sea turtle nests on the sandy beaches of American Samoa and forages in the open ocean and coastal waters associated with deepwater coral and seagrass beds. Green sea turtles occur in the waters off Tutuila, with an estimated low nesting population on the island (NMFS and USFWS 1998b).

Leatherback sea turtle (*Dermochelys coriacea*) (Endangered): The leatherback sea turtle has the widest distributional range of all sea turtles. However, the species does not nest on American Samoa. One juvenile leatherback sea turtle has been documented in the waters off of American Samoa, south of Swains Island, caught by a scientific research longline fishing vessel in 1994 (NMFS and USFWS 1998c).

Loggerhead sea turtle (*Caretta caretta*) (Threatened): Loggerhead sea turtles are circumglobal, inhabiting bays, lagoons, and open seas of the Atlantic, Pacific, and Indian oceans. No documented observations of this species have been made on the beaches of American Samoa, or in the waters surrounding the islands (NMFS and USFWS 1998d).

Samoan fruit bat / Flying fox [*pe'a vau*] (*Pteropus samoensis*) (Candidate –Threatened/ Endangered Status Currently under Review): The Samoan fruit bat is distributed across American Samoa and Fiji. In American Samoa, the species has been documented on Tutuila, Ofu, and Ta'u, primarily inhabiting rain forests in which it roosts and forages, but Samoan fruit bats have also been observed in association with secondary forest, plantations, and agro-forests in villages (Wilson and Engbring 1993; IUCN 2013). The ESA listing status of the Samoan fruit bat is currently undergoing review by USFWS (USFWS 1994, 2013). The species is also protected under ASG law.

Pacific sheath-tailed bat [*pe'a vai*] (*Emballonura semicaudata semicaudata*) (Candidate – American Samoa Distinct Population Segment [DPS]): The Pacific sheath-tailed bat is a small bat that appears to be cave-dependent, roosting during the day in a wide range of caves, including overhanging cliffs, crevices, and lava tubes. The Pacific sheath-tailed bat is nocturnal and typically emerges around dusk to forage on insects. The Pacific sheath-tailed bat was once common and widespread in Polynesia and Micronesia. The subspecies that occurs in American Samoa has been categorized as a DPS. In the 1990s, the population on Tutuila went into a drastic decline and may be extirpated from all of American Samoa. Acoustic surveys and visual surveys of caves are being conducted by DMWR throughout the main islands of American Samoa, to determine if the Pacific sheath-tailed bat remains extant within the island chain (USFWS 2010, 2012).

Alternative 1: No Action

Under Alternative 1, no activities would occur; therefore, no effects would occur to species that are federally listed, proposed for listing, or candidates for federal listing under the ESA.

Alternative 2: Proposed Project

The project footprint of proposed work under Alternative 2 consists of work areas at four proposed rockfall mitigation sites, totaling approximately 2.87 acres. The separate site acreages

include 0.50 acre at Site A, 0.45 acre at Site B, 0.60 acre at Site C, and 1.32 acres at Site D. All four sites are located within similar ecological settings. Following the site surveys for the project, FEMA and its contractor, AECOM, initiated coordination with USFWS and NMFS pursuant to Section 7 of the ESA. Emails between USFWS, FEMA, and AECOM regarding the project's Section 7 coordination are provided in Appendix C of this EA. The results of this process are summarized below.

Each rockfall mitigation area consists of a steep eroded rock face, immediately adjacent to secondary forest vegetation, on the upslope side of Highway 001 on the southern side of Tutuila. No suitable sea turtle nesting beaches are located within the project area. No designated critical habitat for the hawksbill sea turtle, green sea turtle, or leatherback sea turtle is located in or adjacent to the project area. Neither NMFS nor USFWS has designated or proposed critical habitat for the loggerhead sea turtle.

While the Pacific sheath-tailed bat is known to have historically roosted within the cave at Site C, the species has not been documented within the cave since the 2009 tsunami scoured the vegetation that kept the cave entrance relatively hidden. ASG DMWR has conducted visual and acoustic surveys of Tutuila over the past several years but has not been able to document the species. Therefore, it is believed that the Pacific sheath-tailed bat has been extirpated from (i.e., it is locally extinct on) the island, and therefore, no direct impacts or indirect (including noise-related) impacts are expected to occur to this species. The Samoan fruit bat was observed during project surveys, roosting in the secondary forest vegetation immediately adjacent to Site A and Site B, and would be expected to similarly roost adjacent to Site C and Site D. However, due to the lack of vegetation, fruit bats would not roost on the bare faces of the rockfall sites. Therefore, no impacts to any bat species would be expected from implementation of the proposed project.

During the ESA Section 7 coordination process, USFWS identified potential indirect effects to the Samoa fruit bat, including disruption of the breeding cycle resulting in abandonment of young during the breeding season (May through August) caused by the possible use of blasting during the rock scaling process, other noise-generating activities, or the use of night lighting during the breeding season. The peak of the breeding season is during the months of May and June, when the majority of birthing and initial care of infant fruit bats occurs. The USFWS has requested that project activities avoid these particularly vulnerable months (Appendix C). Another potential indirect effect of blasting and other rock scaling efforts is the increased potential for accidental rockslides outside of the proposed project boundaries. Such rockslides could result in the loss of trees inhabited by Samoan fruit bats, which have a physiological response of grabbing onto their perch when vegetation moves (primarily from swaying winds,

but including landslides and rockslides) (USFWS 2013) (Appendix C). USFWS highlighted these concerns as potential issues, should the Samoan fruit bat's federal legal status under ESA be elevated from its current Candidate status to Proposed Listed (or higher). If the Samoan fruit bat were to become a Proposed Listed species prior to, or during, the implementation of the proposed project, initiation of the informal consultation/conference process would be required (USFWS 2013) (Appendix C). However, at this time, no additional consultation, conference, or coordination is required for the Samoan fruit bat, beyond the effective implementation of the conservation measures outlined above.

The 45 Indo-Pacific coral species currently proposed for listing as threatened or endangered would potentially occur within the coral reef system that rings Tutuila. None of the four rockfall mitigation sites are located within the coastal waters off of Tutuila; therefore, no direct impacts would occur to any coral species that has been proposed for listing as a threatened or endangered species.

Indirect project impacts have the potential to affect coral species through sediment transport and surface runoff associated with the implementation of the project. Coordination with USFWS and NMFS pursuant to Section 7 progressed into the development of conservation measures that would avoid and minimize potential indirect impacts to species under federal regulatory control.

Per the list of Best Management Practices (BMPs) provided by USFWS and NMFS (Appendix A), ASDPW would prohibit stockpiling project-related materials near the water or on beaches and would prohibit fueling of project-related vehicles and equipment in the vicinity of the water. ASDPW would require that the contractor prepare a contingency plan to control petroleum products accidentally spilled during the project and to store absorbent pads and containment booms on-site, and, if appropriate, to facilitate the cleanup of accidental petroleum releases. ASDPW would require that the contractor prepare a litter-control plan and develop a Hazard Analysis and Critical Control Point Plan to prevent attraction and introduction of nonnative species. Based on direction provided by USFWS and NMFS, ASDPW would also locate all construction staging and stockpile areas above (i.e., upslope of) Highway 001. Based on coordination with USFWS and NMFS, FEMA determined that the proposed project would not affect any federally listed threatened or endangered species, or any species that are proposed for listing, with the effective implementation of these measures. However, both USFWS and NMFS stated that they reserved the right to require ESA consultation if the project description changes, or if new species information becomes available.

To avoid any indirect impacts to sea turtle foraging habitat in the coastal waters and any Indo-Pacific coral species proposed for listing that may occur in the vicinity of the rockfall mitigation sites, ASDPW would require incorporation of standard BMPs into the project design and construction drawings, including implementation of erosion control measures to prevent construction-related sediment transport into the coastal waters. Standard BMPs would follow American Samoa Erosion & Sediment Control Field Guide (ASEPA and ASCZMP 2011), Guidance Manual for Runoff Control (ASG and ASEPA 2001), and measures recommended by USFWS, discussed in Section 4.4 and listed in Appendix A (USFWS 2013). With the implementation of BMP measures to avoid indirect impacts, the proposed project would not directly or indirectly affect any federally listed threatened or endangered species, or any species proposed for federal listing. No candidate species for federal listing would be directly impacted through implementation of the proposed project; however, potential indirect effects could occur to a candidate species (Samoan fruit bat) from rock scaling/blasting activities, or through the use of night lighting. USFWS has determined that FEMA would be required to initiate the informal ESA Section 7 consultation/conference process to devise additional conservation measures only if the candidate Samoan fruit bat were elevated to the status of Proposed Listed (or higher) under the ESA (USFWS 2013) (Appendix C).

Invasive Species

EO 13112, Invasive Species, requires federal agencies to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health impacts that invasive species cause. EO 13112 requires that federal agencies not authorize, fund, or implement actions that are likely to introduce or spread invasive species unless the agency has determined that the benefits of the action(s) outweigh the potential harm caused by invasive species, and that all feasible and prudent measures to minimize harm caused by invasive species would be implemented in conjunction with the action(s).

Alternative 1: No Action

Under Alternative 1, no ground-disturbing activities would occur; therefore, no introduction or spread of invasive species would occur in the project area.

Alternative 2: Proposed Project

Alternative 2 has the potential to contribute to the spread of invasive species in the project area as a result of construction activities. While the majority of the proposed activities would occur in or adjacent to land that has been previously developed or disturbed, construction equipment and vehicles would be required to travel to and from each of the four sites and off-site equipment staging areas (including the ASDPW facility in Tafuna) for the duration of the project.

Transfer of invasive species from equipment used on-site, and transport of invasive plant species off-site via sedimentation and erosion runoff have been identified by USFWS and NMFS as important project issues (USFWS 2013; NMFS 2013). All equipment would be staged on previously developed and/or disturbed areas above (i.e., inland of) Highway 001, as required by USFWS and NMFS per the ESA Section 7 coordination process, in order to minimize potential indirect impacts to federally listed species of sea turtle and proposed listed species of Indo-Pacific coral (Appendix B; USFWS 2013; NMFS 2013). ASDPW would take measures to prevent the introduction of invasive weeds at the construction site, including cleaning all equipment before accessing the site and using only certified, weed-free erosion control materials. Additionally, ASDPW would require incorporation of standard BMPs into the project design and construction drawings, including implementation of erosion control measures to prevent construction-related sediment transport into the bay. Standard BMPs would follow American Samoa Erosion & Sediment Control Field Guide (ASEPA and ASCZMP 2011), Guidance Manual for Runoff Control (ASG and ASEPA 2001), and USFWS Recommended Standard Best Management Practices (USFWS 2013). On completion of construction, any temporarily cleared areas would be revegetated with appropriate native species, thus decreasing the number of invasive species in the project area. ASDPW would ensure that any fill or other construction materials were certified as being free of invasive species.

With the implementation of the proposed measures outlined above, the potential for the proposed project to contribute to the spread of invasive species is minimal, and this alternative would comply with EO 13112. Therefore, the proposed project is anticipated to result in negligible short-term direct and indirect impacts from invasive species.

Protection of Wetlands

EO 11990 requires federal agencies to take action to minimize the destruction or modification of wetlands by considering both direct and indirect impacts to wetlands that may result from federally funded actions. FEMA's regulations for complying with EO 11990 are found in 44 CFR Part 9, Floodplain Management and Protection of Wetlands.

No wetlands were observed during the surveys of the four rockfall mitigation sites within the proposed project area or in a review of the American Samoa wetlands database compiled by the American Samoa GIS User Group (ASDOC GIS 2013). As discussed in Section 4.3, the American Samoa Watershed Protection Plan (Pedersen Planning Consultants 2000) identifies two unnamed drainages in the vicinity of two of the proposed sites, labeled as Stream 22B near the Site B project area (Figure 3-5) and Stream 20B near the Site D project area (Figure 3-11). These streams potentially qualify as jurisdictional waters of the U.S. regulated by USACE via the federal CWA.

Alternative 1: No Action

Under Alternative 1, no ground-disturbing activities would occur; therefore, no impacts to wetlands would occur.

Alternative 2: Proposed Project

Based on the currently proposed work boundaries of the four mitigation sites, Alternative 2 would not result in direct impacts on wetlands or jurisdictional waters. As discussed above, Stream 22B and Stream 20B are just outside of the Site B and Site D work areas, and these features could qualify as jurisdictional waters of the U.S. Expansion of the western Site B or Site D project boundaries could result in direct or indirect effects on the channels of these jurisdictional resources. If subsequent refinements in project plans indicate that the stream would be directly affected by grading, then the proposed project would be required to acquire a permit from USACE under Section 404 of the CWA, and would require a Water Quality Certification from ASEPA pursuant to Section 401 of the CWA. The proposed project would not result in direct or indirect impacts on wetlands, or in the permanent loss of jurisdictional waters. Therefore, the project would comply with EO 11990.

Coral Reef Protection

EO 13089 requires federal agencies to ensure that actions they authorize, fund, or implement will not degrade the conditions of coral reef ecosystems. The island of Tutuila is surrounded by a fringing coral reef. Coral reefs surrounding Tutuila are impacted by poor water quality (USEPA 2007). Natural phenomena such as hurricanes and disease have always taken their toll on reefs, but impacts to reefs are exacerbated by human activities in the ocean and on land. Besides destructive fishing practices and coral collecting, impacts come from sediments eroded from agricultural and construction operations, sewage, and other effluents. The *Coral Reef Ecosystem Monitoring Report for American Samoa: 2002 – 2006* (Brainard 2008) documents the coral reefs surrounding Tutuila. The percentage of live coral along the coastal reef system in proximity to the sites is relatively low, typically 10 to 20 percent live coral. Small pockets of coral reef at the east end of Fagaitua Bay support 40 to 50 percent live coral, approximately 1.5 miles to the east of Site C, and approximately 1.6 miles west of Site D (Brainard 2008).

Alternative 1: No Action

Under the No Action Alternative, no ground-disturbing activities would occur; therefore, no direct impacts would occur to coral reefs.

Alternative 2: Proposed Project

The proposed project would occur away from any documented coral reefs. As such, no direct impacts are anticipated to occur. To avoid any indirect impacts to coral reefs, ASDPW would

require incorporation of BMPs into the project design and construction drawings, including the implementation of erosion control measures to prevent construction-related sediment transport into the harbor. These BMPs would follow American Samoa Erosion & Sediment Control Field Guide (ASEPA and ASCZMP 2011), Guidance Manual for Runoff Control (ASG and ASEPA 2001), and USFWS Recommended Standard Best Management Practices (USFWS 2013), as described in Section 4.4 of this document. With the implementation of measures to avoid indirect impacts, the proposed project would not affect any coral reefs. To minimize sedimentation in Faga'itua Bay and other coastal waters in the vicinity of the sites, ASDPW would be responsible for implementing the erosion control project features referenced in Sections 4.3.2 and 4.4 of this document. ASDPW would also ensure that coral is not a component of fill materials or used in the concrete mixture for the proposed project. Therefore, the proposed project is expected to comply with EO 13089.

Protection of Fisheries Resources

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 as amended (MSA) (16 U.S.C. 1801 et seq.) provides for the conservation and management of sustainable fisheries within the United States' coastal waters. In 1996, the MSA was amended to require the identification and management of Essential Fish Habitat (EFH) for managed species (16 U.S.C. §305[b]). EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The MSA mandates that federal action agencies that fund, permit, or carry out activities that may adversely affect EFH of federally managed fish species consult with NMFS. For the waters surrounding Tutuila, the Western Pacific Regional Fishery Management Council has designated the water column and bottom habitat from the shoreline to the outer boundary of the Exclusive Economic Zone to a depth of 50 fathoms as American Samoa EFH (Blyth-Skyrme et al.).

Alternative 1: No Action

Under the No Action Alternative, no ground-disturbing activities would occur; therefore, no direct impacts would occur to EFH.

Alternative 2: Proposed Project

The proposed project would occur on land, ranging from approximately 45 feet (Sites A and B) to 60 feet (Site D) from the shoreline and a distance from any EFH. To protect the EFH within downstream ocean waters, ASDPW would be required to effectively implement, enforce, and monitor the water quality BMPs described herein, in accordance with the LUP and NPDES permit, which would minimize any project-related effects to EFH.

With the effective implementation of the proposed impact avoidance and minimization measures described in Section 4.3 and Appendix A, no discharge or runoff of sediment would occur to the marine environment due to this project. Therefore, the proposed project would not affect EFH. If ASDPW cannot for any reason implement the proposed project without adversely affecting EFH, work must halt and ASDPW must immediately notify TOFR and FEMA, so that FEMA can consult with NMFS pursuant to the MSA.

Wildlife and Vegetation

The primary special-status biological resources actively monitored on Tutuila by ASG DMWR include colonies of fruit bat, including Samoan fruit bat, and white-naped fruit bat. The natural habitat for the fruit bat is the rainforest, where this species roosts in trees during the day and forages from dusk until dawn. Populations of several species of endemic land snails also inhabit the rainforest and can be found in other wet, moist habitats such as marshes or other wetlands. The proposed project is immediately adjacent to secondary forest vegetation where fruit bats were observed roosting during project surveys. No wetlands are known within or adjacent to the project area; therefore, no endemic land snails would be impacted by the rockfall mitigation project.

Alternative 1: No Action

Under the No Action Alternative, no ground-disturbing activities would occur; therefore, no direct or indirect impacts would occur to wildlife species or vegetation communities.

Alternative 2: Proposed Project

The proposed project would disturb wildlife in the vicinity of the project. Rock scaling, blasting (if deemed necessary), and removal of vegetation associated with establishing anchor points would occur along the perimeter of the work area.

Small mammals, reptiles, amphibians, and insects may suffer injury or mortality during construction from falling rock and vegetation. Ground disturbance during construction would also result in associated loss of some vegetation across all four sites, which may be suitable habitat for these species. During construction, animal species in the vicinity would experience both permanent and short-term loss of habitat. Permanent loss of habitat would be associated with rock scaling and blasting that would remove any vegetation, as well as the loss associated with establishing anchor points for the wire mesh slope stabilization hardware. Therefore, fruit bats could potentially be impacted by the project if rock scaling activities result in the removal or damage of trees with roosting bats. The physiological response by roosting fruit bats to swaying of trees is to hold securely to their perches, which could result in mortality or injury if project activities cause active roost trees to fall. Temporary impacts would be associated with the

harassment of wildlife species from noise and dust generated by equipment use and blasting. Potential indirect effects could occur to the Samoan fruit bat from noise associated with rock scaling/blasting activities or through the use of night lighting. However, USFWS has determined that FEMA would be required to initiate the informal ESA Section 7 consultation/conference process to devise additional conservation measures only if the candidate Samoan fruit bat were elevated to the status of Proposed Listed (or higher) under ESA (USFWS 2013) (Appendix C).

Several bird species, including jungle myna, white-tailed tropicbird [*tava'esina*], wattled honeyeater [*iao*], and red-vented bulbul [*manu palagi*] are expected to occur within and adjacent to the project area. The federal Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703–712) (MBTA) affords protection to a wide variety of both resident and migratory birds. ASDPW would be responsible for complying with the MBTA for all construction-related activities (including those which are noise-related) by avoiding the potential for "take" of MBTA-covered species during the migratory bird breeding season (generally accepted as starting February 15 and ending September 15). Avoidance measures would include scheduling construction outside of the bird nesting season (i.e., avoiding the period from February 15 through September 15). If construction cannot be avoided during the nesting season, preconstruction nesting bird surveys would be required to determine if birds are nesting within the project area and within a 500-foot buffer around the rockfall work boundaries. If nesting is documented, a biologist would be required to monitor any active nests and to coordinate with DMWR, USFWS, ASDPW, and the construction manager to mitigate any potentially adverse effects to MBTA-protected species. The mitigation measures would likely require establishing a nondisturbance buffer around the nest (the size of which would depend on the species but is typically not greater than 500 feet) until nesting activity has been completed at that location.

Therefore, within portions of the 50-foot buffer surrounding each of the bare rockfall faces, rock scaling and the insertion of anchor points associated with implementation of the proposed project could result in direct and indirect temporary and permanent impacts to wildlife and vegetation. Since the loss of wildlife and vegetation is relatively minor in acreage; the vegetation is composed primarily of nonnative, ornamental, and agricultural species; and ASDPW would ensure compliance with the MBTA; direct and indirect impacts to wildlife and vegetation would be considered negligible.

4.6 Cultural Resources

In addition to review under NEPA, consideration of impacts on cultural resources is mandated under Section 106 of the National Historic Preservation Act. Requirements include identifying

significant historic properties that may be affected by a federal undertaking and mitigating adverse effects on those resources.

AECOM, as a consultant to FEMA, conducted a cultural resources investigation for the proposed project and prepared a cultural resources inventory report to summarize the results of the investigation. The cultural resources investigation for the proposed project included coordination with the American Samoa Historic Preservation Office (ASHPO), archival research, and archaeological survey of the four rockfall mitigation sites to identify and evaluate historic properties. The cultural resources inventory report is referenced as Appendix D of this EA.

For purposes of the cultural resources investigation, FEMA defined the area of potential effects (APE) for the four sites as the 5.38 acres subject to ground disturbance. A site reconnaissance was conducted by an archaeologist who meets the Secretary of the Interior's standards at each of the sites on February 5, 2013. Due to the steepness of each of the four mitigation sites, a pedestrian survey of the APE was not performed. No historic properties were identified within the APE during the reconnaissance. Based on the results of the reconnaissance, the steepness of the topography, and information gained from prior archaeological reports and ASHPO, the cultural resources inventory report concluded that no historic properties were anticipated in the APE.

Alternative 1: No Action

Under the No Action Alternative, no construction would occur; therefore, no impacts on cultural resources would occur.

Alternative 2: Proposed Project

No historic or prehistoric cultural resources were identified during archival research, coordination with ASHPO, or site reconnaissance; therefore, the proposed project would not remove, damage, or otherwise affect any known resources. Based on the results of its identification and evaluation effort, FEMA determined that implementation of the proposed project would result in a finding of “no historic properties affected” under 36 CFR 800.4(d). ASHPO issued a concurrence letter for the proposed project on August 12, 2013, which is provided in Appendix D of this EA. ASHPO concurred with the results of the Cultural Resources Inventory Report and confirmed the cultural resources APE delineated in the report. ASHPO also concurred with FEMA’s “no historic properties affected” determination for the proposed project.

Although the potential is low, unexpected subsurface cultural resources could be discovered during implementation of the proposed project. Therefore, ASDPW (including its contractors and agents) would be responsible for halting work in the event of an unanticipated discovery during

construction, and notifying TOFR and FEMA as soon as practicable. If FEMA determines that the discovery has the potential to be a significant historical property, FEMA would require ASDPW to stop all construction in the vicinity of the discovery and to take all reasonable measures to avoid or minimize harm to the property until FEMA concludes consultation with ASHPO, pursuant to 36 CFR Part 800.13(b). Implementation of the measures stated above would ensure that the proposed project would not result in any adverse effects on cultural resources, if discovered. In its concurrence letter for the proposed project, ASHPO agreed with this provision.

4.7 Public Safety

Under existing conditions, the unstable geological conditions at the four project sites pose significant threats to public safety. Rockfall incidents at all four sites have caused rock to fall on Highway 001, representing a hazard to roadway users. A rockfall incident at Avau Point, located approximately 2 miles south of Pago Pago, in October 2001 killed one motorist (Samoa News 2001), highlighting the seriousness of this public safety issue at certain locations on the island.

Alternative 1: No Action

Alternative 1 would entail no mitigation work and would do nothing to alleviate the potential public safety threat that exists at the four project sites, and users of Highway 001 would continue to be exposed to potential injury due to falling rock. Therefore, Alternative 1 would result in an adverse public safety effect.

Alternative 2: Proposed Project

The main purpose of Alternative 2 is to implement rockfall mitigation that would alleviate the existing public safety threat at the four project sites. Therefore, Alternative 2 would have a beneficial effect on public safety.

Alternative 2 construction entails scaling additional rock from the project-related slopes, which could result in a temporary increase in public safety hazards due to rock falling down the slopes, which could affect workers on the site and people travelling past the sites. ASDPW would require the contractor to prepare and implement site-specific work plans for the project that would include measures to control falling rock, identify temporary fence locations where barriers would be erected to ensure proper containment of scaled rock, and ensure the safety of workers and the general public during project construction. ASDPW would require these project plans to identify safety measures the contractor would implement during construction to limit workers' exposure to hazards from falling rock. Proper adherence to these plans would ensure that Alternative 2 would not result in any adverse effects related to these hazardous conditions.

Construction activities would involve the limited transportation, storage, usage, and disposal of hazardous, explosive, reactive, or otherwise dangerous materials on a temporary basis. Small quantities of these materials, such as gasoline and diesel fuel, would be used to power equipment during construction and maintenance activities. All construction activities involving the transportation, usage, and disposal of hazardous, explosive, reactive, or otherwise dangerous materials would be subject to federal and local health and safety requirements. ASDPW would require the construction contractor to prepare a Minor Spill Response Plan that presents the procedures and protocols utilized in the event of a spill resulting from the activities associated with project construction activities. The plan would be reviewed and approved by the Hazardous Materials Branch of ASEPA prior to notice to proceed for project construction. Adherence to this plan would ensure that the proposed project would not result in an adverse public safety effect due to hazardous, explosive, reactive, or otherwise dangerous materials during construction.

4.8 Environmental Justice

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations (FEMA 2008). The population of American Samoa is generally homogeneous regarding ethnicity and income levels.

Demographic data for the villages of Lauli'i and Aumi (Site A), Alega and Avaio (Site B), Amaua (Site C), and Amouli (Site D), where the proposed mitigation would occur, is shown in Appendix E. Generally speaking, the village populations are young and ethnically homogeneous, with most residents identifying themselves as American Samoan. The median incomes reported in the villages range from $22,000 in Amouli to $36,250 in Alega.

Alternative 1: No Action

Under Alternative 1, existing rockfall hazards would continue to affect users of Highway 001 in the vicinity of the four sites, including nearby residents. These hazards would affect all people equally and would not affect one ethnic or income group disproportionately. Therefore, Alternative 1 would not result in an environmental justice concern.

Alternative 2: Proposed Project

Alternative 2 would mitigate the existing rockfall hazard at the four sites and make Highway 001 safer for all users. Minimal construction-related traffic and noise effects, as described in Sections 4.10 and 4.11, respectively, in this EA, could affect some residents of the villages near

the construction sites. These impacts would not affect one ethnic or income group disproportionately. Therefore, Alternative 2 would not result in an environmental justice concern, and the proposed project would comply with EO 12898.

4.9 Land Use and Planning

Land use in American Samoa is regulated by the ASCMP, which evaluates and restricts incompatible development in areas subject to natural hazards including flooding, storm surge, tsunami, landslide, coastal erosion, and salt water intrusion (ASG 2008). To determine compliance with the ASCMP, all projects involving ground disturbance require that an LUP application be submitted for review under the PNRS. In addition to evaluating land use for natural hazards, the PNRS reviews permit applications for compliance with building codes, environmental regulations, infrastructure/utility requirements, historic preservation and public health regulations, and recreational/shoreline accessibility (FEMA 2010).

American Samoa's 2003 Territorial General Plan presents a policy agenda for development, but it does not provide geographically specific land uses or prescribe geographically specific land use zones in the manner of a typical city or county comprehensive or master plan. The Territorial General Plan incorporates specific master and comprehensive plans where they exist, such as the 2003 Pago Pago Bay Shoreline Development Plan or the 1999 Port Master Plan (ASG 2008). A major reason for the lack of territory-wide, comprehensive land use planning and zoning is that over 96 percent of the land in American Samoa is owned in a traditional communal manner, where the village chief [*matai*] regulates the occupancy and use of land within his/her village (FEMA 2008).

The Territorial Emergency Management Coordinating Office (TEMCO) prepared the most recent revision and update of the American Samoa Territory Hazard Mitigation Plan in April 2008 (TEMCO 2008). This document "provides American Samoa with a comprehensive and consensus mitigation strategy for prioritizing projects, programs, and activities that would save lives and reduce losses from the impacts of natural disasters," in fulfillment of FEMA's requirement for maintaining a mitigation planning process (TEMCO 2008). Table 5 and Table 27 of the Hazard Mitigation Plan list a rockfall mitigation project consisting of six sites, including the four sites assessed in this EA, as the fifth overall priority project in the plan, and the second priority for ASDPW. The other two sites listed in the plan are located in the western side of Tutuila, described as Sinamanoo Point between the Villages of Amaluai Village and Asili, and Atauloma (Mu Point) near the Village of Afao. These two western sites were not integrated into this HMGP application. The rockfall mitigation project is described in the Hazard Mitigation Plan

as scaling loose rock, constructing earthen berms to contain fallen rock, and installing signs to warn approaching drivers of rockfall hazards.

Alternative 1: No Action

Alternative 1 would entail no land modification and a PNRS review would not be required. The planned rockfall mitigation anticipated in the Hazard Mitigation Plan would not be implemented, representing a minor inconsistency with that plan.

Alternative 2: Proposed Project

Alternative 2 entails earthwork and installation of wire netting that would occur in the following villages: Lauli'i and Aumi (Site A), Alega and Avaio (Site B), Amaua (Site C), and Amouli (Site D). ASDPW would be responsible for initiating and facilitating the PNRS approval process, which entails coordination with the various village chiefs to obtain agreement from all landowners directly affected by the proposed project. Alternative 2 does not require construction of new buildings, removing existing land uses, instituting new land uses, or changing land ownership on any of the project sites. Therefore, Alternative 2 would not result in adverse land use effects.

Alternative 2 would implement part of a priority mitigation plan anticipated in the Hazard Mitigation Plan. The two western Tutuila sites listed for rockfall mitigation in the Hazard Mitigation Plan would not be implemented as part of Alternative 2 because they are not part of the HMGP application. Alternative 2 is generally compatible with the Hazard Mitigation Plan and the omission of the two additional mitigation sites is not a considerable inconsistency with that plan. Therefore, Alternative 2 would not result in adverse planning effects.

4.10 Transportation

The four sites are located adjacent to Highway 001, which is designated as a federal highway by the Federal Highway Administration. Past rockfall incidents have damaged the road in these areas and presented serious public safety hazards to vehicles, vehicle occupants, and pedestrians, and these hazards persist under existing conditions. The stretch of road at the foot of Site A is approximately 250 feet long and located on a sharp blind curve. The stretch of road at the foot of Site B is approximately 210 feet and is also located on a sharp blind curve. The stretch of road at the foot of Site C is approximately 300 feet long, with a blind curve located immediately east of the project-related stretch of road. The stretch of road at the foot of Site D is approximately 400 feet long and is located along a slightly more gradual curve than the other sites. The presence of these curves in the road at the project locations exacerbates the potential traffic hazards, as drivers would have little warning that they were approaching fallen rock.

Alternative 1: No Action

Alternative 1 would maintain the existing rockfall hazards at all four project sites and continue to present dangerous conditions for roadway users. Therefore, Alternative 1 would result in an adverse traffic effect. Because Alternative 1 would not entail any project-related construction, no temporary lane closures or other effects would occur on Highway 001, except as needed to occasionally clear fallen rocks.

Alternative 2: Proposed Project

Alternative 2 would alleviate hazardous traffic conditions at the four sites by removing loose rock susceptible to rockfall and would install wire netting to ensure that any dislodged rocks do not fall onto the roadway below. Alternative 2 also proposes to add signs along Highway 001 notifying drivers of the potential hazards of falling rock. By making these improvements, Alternative 2 would have a beneficial long-term traffic effect. Alternative 2 would entail infrequent maintenance trips that would not result in a noticeable permanent increase in vehicular traffic.

In the short term, the Alternative 2 construction process would result in temporary effects on Highway 001 transportation. Project-related construction would entail operating a crane staged on the road adjacent to each respective site, which would require localized lane closure. Full closure of Highway 001 is not anticipated during project construction. Equipment delivery would occur along Highway 001 between the staging area and each site. Scaled rock removed from the slopes would be hauled to the ASDPW yard in Tafuna, using Highway 001 as the haul route.

To minimize potential adverse impacts to traffic and circulation during construction, ASDPW would require the contractor to prepare and implement a traffic control plan during all project work, including equipment delivery to the project sites and material hauling to the ASDPW yard. Proper traffic control would ensure continued safety on Highway 001 and any adjacent roads that may be affected by project traffic. The traffic control plan would be submitted to ASDPW and the A.S. Department of Public Safety for review and approval prior to commencing work. In addition to requiring the traffic control plan, ASDPW would provide advance written notice of the construction schedule to residents in the vicinity of the proposed work, as determined in consultation with the *matai* of the affected villages. The written notification would explain the extent and purpose of the work, provide detail on anticipated schedule, and identify a local contact person with ASDPW. Implementation of these measures would ensure Alternative 2 would not result in adverse temporary effects with respect to traffic.

4.11 Noise

The four project sites are undeveloped. No major noise-generating sources are located in the project area; existing noise is dominated by crashing surf with occasional traffic noise from vehicles traveling Highway 001. Nearby noise receptors include residences located along Highway 001 in both directions of the respective sites. From Site A, the nearest residences are located approximately 350 feet to the west, and 450 feet to the east, located in the villages of Lauli'i and Aumi, respectively. From Site B, the nearest residences are located approximately 150 feet to the west and 350 feet to the east, located in the villages of Alega and Avaio, respectively. From Site C, the nearest residences are located approximately 100 feet to the west and 250 feet to the north, located in the village of Amaua. From Site D, the nearest residences are located approximately 100 feet to the west and 700 feet to the east, located in the village of Amouli.

Alternative 1: No Action

Under Alternative 1, no construction would occur and noise would remain at current levels; therefore, no impacts would occur to existing noise-sensitive receptors.

Alternative 2: Proposed Project

Implementation of Alternative 2 would result in a minor amount of temporary construction noise, particularly during the rock-scaling phase at the respective project sites, with noise emitted from the crane's diesel-powered engine and the metal-on-rock sound of rock scraping. Project-related noise during this phase would also include noise emitted from haul trucks traveling Highway 001 between the project sites, staging areas, and the ASDPW yard in Tafuna. If hydraulic splitting is necessary, noise from this activity would include rock drilling and operation of a diesel-powered splitter machine. If blasting is needed, noise would be generated by rock drilling and small explosions. Due to the limited surface area and depth of rock that would potentially require blasting, the number of blasts and scale of the blasting are anticipated to be very small, if needed at all. Construction activity would generally occur between the hours of 7:00 a.m. and 5:00 p.m. Monday through Friday, though some work outside those times may be necessary. Any deviation from this schedule would require ASDPW to contact the respective village *matai* and nearby residents surrounding the active work site within 24 hours of construction activities to notify them of the anticipated construction schedule.

For the most part, the work areas on the four project sites are remote and separated from nearby residences along Highway 001 by topography. Residences nearest to the proposed work may receive a minor amount of noise during project construction at the respective work sites. Specific staging area locations have not been identified but would be located on flat

ground with direct access to Highway 001 and as close as possible to the project sites. Staging areas are likely to be located near existing residences because the limited areas of flat topography along Highway 001 predominantly support residential land use. Residences near the staging areas would likely experience construction noise from loading and operating delivery trucks and other similar activity. Receptors located adjacent to Highway 001 between the project sites, the staging areas, and the ASDPW yard would experience a minor amount of truck noise from haul traffic, but this would be limited due to the anticipated small scale of hauling. Noise levels would return to preconstruction levels after construction is complete. No long-term noise generation would be associated with Alternative 2.

To reduce the temporary impacts from construction-related noise, ASDPW would require the contractor to implement the following measures to reduce noise levels to the extent practicable:

- All noise-producing project equipment and vehicles using internal combustion engines (including haul trucks) would be fitted with mufflers; air-inlet silencers, where appropriate; and any other appropriate shrouds, shields, or other noise-reducing features. These devices would be maintained in good operating condition to meet or exceed original factory specifications. Mobile or fixed “package” equipment (e.g., arc welders or air compressors) would be equipped with the shrouds and noise control features that are readily available for that type of equipment.

- All mobile or fixed noise-producing equipment used on the project site that is regulated for noise output by a local, territorial, or federal agency would comply with such regulation while used in the course of project activity.

- The use of noise-producing signals, including horns, whistles, alarms, and bells, would be for safety warning purposes only.

In addition to these contractor-implemented measures, ASDPW would provide written notification to property owners and residents near the project sites and staging areas, as determined in consultation with the *matai* of the affected villages. The notice would provide a construction schedule, the required noise mitigation measures for the project, and the name and telephone number of the project manager who can address questions and problems that may arise during construction.

Implementation of these measures would ensure that construction noise would be reduced to the greatest extent feasible and that the public would be kept informed of the project’s noise-related issues. With implementation of these measures, Alternative 2 would not result in adverse noise effects.

4.12 Air Quality and Greenhouse Gas Emissions

The federal Clean Air Act (CAA) of 1970 was enacted to regulate air emissions from area, stationary, and mobile sources. The CAA authorized the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. Six major pollutants of concern, or "criteria pollutants" are identified by USEPA: carbon monoxide (CO), lead, nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), and particulate matter (PM). PM is subdivided as matter less than 10 micrometers (PM_{10}) and matter less than 2.5 micrometers ($PM_{2.5}$).

Specific geographic areas or air basins are designated by USEPA as either in "attainment" if they are within or "nonattainment" if they exceed allowable NAAQS for each criteria pollutant, based on air quality monitoring data submitted to USEPA and the number of days in which standards were exceeded. Areas previously designated as nonattainment, but reclassified from nonattainment to attainment, are designated as "attainment/maintenance" areas. The CAA requires each state or territory to develop a State Implementation Plan (SIP) for areas in nonattainment of NAAQS. Pursuant to current USEPA listings, American Samoa is in attainment for all criteria pollutant NAAQS and, as a result, is not required to have an SIP in place for any criteria pollutant.

The CAA requires USEPA to promulgate rules to ensure that federal actions undertaken in nonattainment or maintenance areas are consistent with the CAA and with federally enforceable air quality management plans, including SIPs. These rules, known as the General Conformity Rule (GCR) (40 CFR Parts 51.850–51.860 and 93.150-93.160), require any federal agency that is responsible for an action in a federal nonattainment or attainment/maintenance area to demonstrate conformity to the applicable SIP, either by determining that the action is exempt from the GCR or by making a formal conformity determination. As stated above, American Samoa is currently classified as in attainment of all NAAQS; therefore, conformity determination requirements currently do not apply to projects in American Samoa.

In addition to criteria air pollutants of direct concern for human health, other air emissions are the result of natural processes and human activities, including greenhouse gases (GHGs), which trap heat in the atmosphere, regulating the earth's temperature. Water vapor is a naturally occurring GHG that accounts for the largest percentage of the greenhouse effect. Other common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Scientific evidence indicates a trend of increasing global temperatures (i.e., global warming) over the past century due to an increase in

global GHG emissions. Climate change associated with global warming is predicted to produce negative environmental, economic, and social consequences across the globe.

The Governor of American Samoa issued EO 10A-2007 to address the issue of climate change in the territory. EO 10A-2007 identified the significant repercussions of global warming and climate change to American Samoa, including loss of land mass and shoreline from sea level rise, increased food cost and dependence on off-island food sources, potential need for population relocation and the resulting loss of spiritual connection to the land, and loss of coral reefs with the resulting increase in mortality and economic loss from lack of reef protection from cyclones.

Alternative 1: No Action

Alternative 1 involves no construction work and no project-related pollutant emissions. Therefore, Alternative 1 would have no effect on air quality or GHG emissions.

Alternative 2: Proposed Project

Implementation of Alternative 2 would result in a minor amount of pollutants on a temporary basis due to construction-related equipment operation at the four sites. The construction effort at each site would be minor, likely involving one crane, ancillary equipment, and worker vehicles, with the potential to also involve a hydraulic splitter. Alternative 2 would also entail hauling removed rock to the ASDPW yard in Tafuna. Project-related excavation and hauling work would be conducted by diesel- or gas-powered engines, which emit air pollutants. Emissions-related impacts would include temporary increases of fugitive dust (PM_{10} and $PM_{2.5}$) and direct emissions related to fossil fuel combustion (CO, NO_2, PM_{10}, $PM_{2.5}$, SO_2, and volatile organic compounds) powering construction equipment and vehicles. Construction would occur at the four proposed sites consecutively, and site work is not likely to overlap.

Due to the small scale of the proposed construction, pollutant emissions would not be of a concentration that would create health concerns or affect air quality. To further minimize temporary air quality effects, ASDPW would require the contractor to employ the following measures to limit emissions, fugitive dust, and exhaust:

- maintain and cover spoils piles,
- cover the load of haul vehicles,
- keep construction equipment properly tuned, and
- place a limitation on idling time for construction vehicles.

The proposed project does not include any considerable source of direct permanent pollutant emissions, and effects would be limited to the temporary emissions during the small-scale construction project. Therefore, the proposed project would not result in permanent increases in pollutant emissions. Furthermore, conformity determination requirements do not currently apply to projects in American Samoa due to the territory's NAAQS attainment status as outlined above.

Similarly, the proposed project would result in a minor amount of temporary GHG emissions during construction. The potential effects of proposed GHG emissions are, by nature, global and cumulative effects, as individual projects or sources of GHG emissions are not large enough to have an appreciable effect on climate change. Thus, an appreciable effect on global climate change would only be measurable if proposed GHG emissions were considered together with all other GHG emissions from human-made activities across the globe.

To date, there are no formally adopted or published NEPA thresholds of significance for GHG emissions. The *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas* issued by CEQ (CEQ 2010) suggests a threshold of 25,000 metric tons of GHG emissions per year as an indicator for GHG impact assessment. The proposed project's GHG emissions would be negligible short-term emissions due to construction activity far below the CEQ threshold. Consequently, the proposed project would not contribute substantially to cumulative impacts associated with global climate change. Furthermore, ASDPW would be responsible for complying with ASG climate change and GHG regulations as outlined in ASG EO 10A-2007. The proposed project would result in minor temporary effects related to GHG emissions and would comply with EO 10A-2007.

4.13 Visual Resources

The four proposed mitigation sites are located along the southern coast of eastern Tutuila, which is generally characterized by steep slopes covered in dense vegetation, with intermittent development in more gently sloping areas. The sites are adjacent to Highway 001, a paved road that winds around the edge of the island and features sharp curves where it approaches steep rocky points, such as occur at the four project sites. The sites have limited visibility because of their remote locations and the intervening topography that prevents direct views from adjacent residences and other areas. There are no offshore viewing areas with a direct line of sight to the sites. All the sites would be immediately visible to users of Highway 001 as they pass the sites.

Site A is located at the tip of Lafiga Point, which juts sharply south from the coastline and is near residential development on the east and west. Most residences in these areas do not have direct views of the Site A work area due to the geography of Lafiga Point, but residences west of

the curved beach that is located west of Site A do have direct views. These viewers are located approximately 800 feet to 1,000 feet from Site A.

Site B is located at the tip of Tifa Point, which juts sharply south from the coastline in a more remote area than Site A. The geography of Tifa Point obstructs direct views from most residences, though the site is partially visible from a few residences located east of the site. West of Site B, the coast curves toward the south, making Site B distantly visible to a few scattered residences and Highway 001 users in that area, at a distance of approximately 1,500 feet or greater.

Site C is located on the southern side of Anape'ape'a Point, which juts east from the coastline on the western side of Faga'itua Bay. A few residences down the coast to the southwest of the site have direct views of the proposed work site.

Site D is located along the southeastern side of Matalesolo Point, which juts gently southeast from the coastline in a remote area. The geography of the area and the orientation of the proposed work area considerably limit the visibility of this site. A few residences approximately 400 feet northeast of the site may have partial views of the eastern portion of the site.

The specific locations of the staging areas have not been identified but would be located on flat ground with direct access to Highway 001 and as close as possible to the project sites. Staging areas are likely to be located near existing residences because the limited areas of flat topography along Highway 001 predominantly support residential land use. Accordingly, construction-related vehicles, equipment, and material would likely be visible to certain residences near the staging areas on a temporary basis.

Alternative 1: No Action

Under Alternative 1, no construction or landform modification would occur; therefore, no effects would occur to existing visual resources.

Alternative 2: Proposed Project

Visible changes as a result of Alternative 2 would include removal of additional rock from areas that have experienced recent rockfall incidents. For the most part, rock removal would be limited to loose pieces that are in danger of becoming dislodged under natural conditions, so the proposed work would not entail major modification of the four landforms. In some cases, work may entail vegetation removal to clear plants on the slopes that are in danger of falling and to allow access to loose rock areas. This rock clearing and vegetation removal may be visible to several residences located near the sites, as described above in the introduction to Section 4.13, and to users of Highway 001 adjacent to the sites. Because most of the project area at

each of the sites are currently visible as exposed rock, the proposed scaling would not present a considerable adverse visual effect to viewers. The wire netting installed on the scaled sites would be visible to Highway 001 users as they pass by the respective sites, but it would not be visible to any residences due to the distance between the viewers and the project sites and the thin profile of the material that would be used. As discussed above, construction-related vehicles, equipment, and material would likely be visible to certain residences near the staging areas on a temporary basis.

Because of the limited visibility of the proposed sites and the limited change to the visual environment that would occur as part of the proposed work, Alternative 2 would not result in an adverse effect on existing visual resources.

4.14 Cumulative Impacts

CEQ defines a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" (40 CFR Part 1508.7). The pace of growth and development in American Samoa has historically been very slow. No known development projects have been proposed or approved for the villages in which the projects are located. Four tsunami-relief reconstruction efforts elsewhere on the island have been proposed for FEMA funding and were the subjects of environmental assessments pursuant to NEPA. These include two school reconstruction projects located in Fagasa and Fagali'i, reconstruction of an ASG administrative building in Tafuna, and reconstruction of a power plant that is proposed to occur on one of five alternative sites, including four sites in the vicinity of Pago Pago Harbor and one in Tafuna. These projects, including all proposed power plant sites, are very distant and geographically separated from the four rockfall sites and would not combine to create cumulative effects to which the rockfall project would contribute. If construction of the rockfall project were to overlap with the power plant reconstruction, some truck traffic from rock hauling could possibly overlap with truck traffic on Highway 001 associated with construction of that project. Due to the limited nature of this traffic, these overlapping trips would not present an adverse effect on Highway 001. Overlapping construction traffic from the power plant project and any other prospective project would be addressed in the traffic control plan to be prepared for the rockfall project.

5.0 Public Participation and Agency Coordination

FEMA is the federal agency responsible for conducting the NEPA compliance process of the proposed project. It is the federal agency's responsibility to expedite the preparation and review of NEPA documents in a way that is responsive to the needs of the villages of Alega, Amauna, Amouli, Aumi, Avaio, and Lauli'I, and of American Samoa residents, while meeting the spirit and intent of NEPA and complying with all NEPA provisions.

FEMA, with the assistance of ASDPW and TOFR, conducted an informal scoping program at the beginning of the NEPA review process. ASDPW and FEMA met with representatives of ASDPW, ASEPA, ASHPO, TOFR, and FEMA on February 11, 2013, to gather their input on the proposed project. In addition, FEMA and/or AECOM, under contract to FEMA, met with representatives of ASEPA, ASHPO, DMWR, and TOFR during the period from February 5 to February 11, 2013, to gather further input on this project. AECOM, as a contractor to FEMA, contacted USFWS on February 13, 2013, and NMFS on February 26, 2013, to notify them of the project and initiate coordination regarding the project's potential issues with respect to sensitive wildlife species and coral species, pursuant to Section 7 of the ESA. On August 1, 2013, FEMA submitted a letter to ASPHO seeking concurrence with its "no historic properties affected" determination for the proposed project. ASHPO issued a response letter on August 12, 2013, in which it concurred with FEMA's determination.

TOFR and FEMA will circulate the Draft EA for a 2-week public comment period. The public will be notified of the Draft EA availability via direct mailings to known interested parties, the FEMA website, and publication of a notice in the *Samoa News*. The list of interested parties can be found in Appendix F.

During the public comment period, FEMA will accept written comments on the Draft EA addressed to: FEMA RIX EHP, ASDPW Rockfall, 1111 Broadway, Suite 1200, Oakland, California 94607; or email to: fema-rix-ehp-documents@fema.dhs.gov. At the end of this period, TOFR and FEMA will review all public comments and consider them in the decision-making process before notifying the public of the final determination.

This page intentionally left blank.

6.0 References

All photographs in this document are courtesy of AECOM 2011 and 2012 except where otherwise noted.

American Samoa Department of Commerce (ASDOC) Geographic Information System (GIS). 2013.

American Samoa Environmental Protection Agency (ASEPA) and American Samoa Coastal Zone Management Program (ASCMP). 2000. *American Samoa Watershed Protection Plan. Volume 1: Watersheds 1-23*. Prepared by: Pedersen Planning Consultants. January.

American Samoa Environmental Protection Agency (ASEPA) and American Samoa Coastal Zone Management Program (ASCMP). 2011. *American Samoa Erosion & Sediment Control Field Guide, Version 1.0 for Contractors and Site Inspectors*. Prepared by Horsley Witten Group, Inc. May.

American Samoa Government (ASG). 2008. *American Samoa Revision and Update of the Territory Hazard Mitigation Plan*. April 28.

American Samoa Government (ASG) and American Samoa Environmental Protection Agency (ASEPA). 2001. *Guidance Manual for Runoff Control: Preventing Erosion, Sedimentation, and Pollution of Receiving Waters in American Samoa*. Prepared by R.M. Towill Corporation. October.

Blyth-Skyrme, V. J., J. J. Rooney, F. A. Parrish, and R. C. Boland. 2013. Mesophotic coral ecosystems – potential candidates as essential fish habitat and habitat areas of particular concern. Pacific Islands Fish. Sci. Cent., Natl. Mar. Fish. Sci. Cent. Admin. Rep. H-13-02, 53 p.

Brainard, R. 2008. *Coral Reef Ecosystem Monitoring Report for American Samoa: 2002 – 2006*. National Oceanic and Atmospheric Administration, Pacific Islands Fisheries Science Center, Coral Reef Ecosystem Division, Special Report.

Council on Environmental Quality (CEQ). 2010. *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gases*. February.

Craig, P., ed. 2005. *Natural History Guide to American Samoa*. 2nd Edition. National Park of American Samoa and Department of Marine and Wildlife Resources.

Federal Emergency Management Agency (FEMA). 2008. *Fagatogo Stormwater Modification Final Environmental Assessment (FEMA-1506-DR-AS, HMGP #1506-4)*. Prepared by URS Corporation, Oakland, CA.

Federal Emergency Management Agency (FEMA). 2010. *Permanent Housing Construction Draft Environmental Assessment (FEMA-1859-DR-AS)*. Prepared by URS Corporation, Oakland, CA.

International Union for Conservation of Nature and Natural Resources (IUCN). 2013. *Pteropus samoensis* (Samoa Flying-fox, Samoan Flying Fox). Accessed March 5, 2013. Available at http://www.iucnredlist.org/details/18757/0.

National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). 1998a. *Recovery Plan for U.S. Pacific Populations of the Hawksbill Turtle* (*Eretmochelys imbricata*). National Marine Fisheries Service, Silver Spring, MD.

National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). 1998b. *Recovery Plan for U.S. Pacific Populations of the Green Turtle* (*Chelonia mydas*). National Marine Fisheries Service, Silver Spring, MD.

National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). 1998c. *Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle* (*Dermochelys coriacea*). National Marine Fisheries Service, Silver Spring, MD.

National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). 1998d. *Recovery Plan for U.S. Pacific Populations of the Loggerhead Turtle* (*Caretta caretta*). National Marine Fisheries Service, Silver Spring, MD.

National Marine Fisheries Service (NMFS). 2013. American Samoa Rockfall Project; Informal Endangered Species Act Section 7 Consultation Between Federal Emergency Management Agency/AECOM, and the National Marine Fisheries Service, Pacific Region Office. March. Conducted via email exchanges and telephone conversations between NMFS (Donald Hubner, Danielle Jayewardene, and Fatima Sauafea-Leau), AECOM (Lyndon Quon), and FEMA (Gen Tamura), discussing conservation measures to avoid and minimize potential project effects associated with the implementation of the proposed project, associated with sedimentation, rock scaling/blasting, and other project features. Informal consultation with NMFS conducted from February 25 through March 13, 2013.

National Oceanic and Atmospheric Administration (NOAA). 2012. Endangered and Threatened Wildlife and Plants; Proposed Listing Determinations for 82 Reef-Building Coral Species;

Proposed Reclassification of *Acropora palmata* and *Acropora cervicornis* from Threatened to Endangered; Proposed Rule. 77 FR 73220.

Samoa News. 2001. "Dangerous Conditions at Avau Point Continue to Plague Motorists," October 19, 2001.

Territorial Emergency Management Coordinating Office (TEMCO). 2008. American Samoa Revision and Update of the Territory Hazard Mitigation Plan. Pago Pago, AS. Prepared by American Samoa Disaster Recovery Office, Pago Pago, AS, and Jamie Caplan Consulting LLC, Northampton, MA.

Tuato'o-Bartley, N., T. E. Morrell, and P. Craig. 1993. Status of Sea Turtles in American Samoa in 1991. *Pac. Sci*. 47:215–221.

U.S. Department of Commerce Census Bureau. 2010. Census Data, American Samoa Demographic Profile. Available from the American FactFinder website at http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t. Last accessed April 3, 2013.

U.S. Environmental Protection Agency (USEPA). 2007. *Climate Change and Interacting Stressors: Implications for Coral Reef Management in American Samoa*. Global Change Research Program, National Center for Environmental Assessment, Washington, DC; EPA/600/R-07/069. Available from the National Technical Information Service, Springfield, VA, and online at the U.S. EPA Environmental Assessment website: http://www.epa.gov/ncea.

U.S. Fish and Wildlife Service (USFWS). 1994. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species. 59 FR 58982.

U.S. Fish and Wildlife Service (USFWS). 2010. Pacific sheath-tailed bat (American Samoa Distinct Population Segment) Species Assessment and Listing Priority Assignment Form. October 22.

U.S. Fish and Wildlife Service (USFWS). 2011a. Pacific Islands – Endangered Species. Threatened and Endangered Animal and Plant Species Listing for Guam, Northern Mariana Islands and American Samoa. Available at http://library.fws.gov/refuges/pacificislands_eslist.pdf. Last accessed November 28, 2011.

U.S. Fish and Wildlife Service (USFWS). 2011b. Pacific Region: Pacific Islands Fish and Wildlife Office. Endangered Species in the Pacific Islands: Threatened and Endangered

Species. Available at the U.S. Fish and Wildlife Service Pacific Islands Fish and Wildlife Office website: http://www.fws.gov/pacificislands/teslist.html. Last accessed November 28, 2011.

U.S. Fish and Wildlife Service (USFWS). 2012. Endangered and Threatened Wildlife and Plants; Review of Native Species that are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions; Proposed Rule. 77 FR 69994.

U.S. Fish and Wildlife Service (USFWS). 2013. American Samoa Rockfall Project; Informal Endangered Species Act Section 7 Consultation Between Federal Emergency Management Agency/AECOM, and the U.S. Fish and Wildlife Service, Pacific Region: Pacific Islands Fish and Wildlife Office. March. Conducted via email exchanges and telephone conversations between USFWS (Anthony Montgomery, Joy Browning, and Nadiera Sukhraj), AECOM (Lyndon Quon), and FEMA (Gen Tamura), discussing conservation measures to avoid and minimize potential project effects associated with the implementation of the proposed project, associated with sedimentation, rock scaling/blasting, and other project features. Informal consultation with USFWS conducted from February 25 through March 4, 2013.

Whistler, W. A. 1994. *Botanical inventory of the Proposed Tutuila Unit of the National Park of American Samoa.* Coop. National Park Resources Study Unit, Tech. Report #87, Dept. of Botany, Univ. of Hawai'i, Honolulu, Hawai'i. 142 pp.

Wilson, D. E., and J. Engbring. 1993. *Status of the Fruit Bat, Pteropus samoensis, in Samoa*. 47 pp.

Yogi Kwong Engineers, LLC (YKE). 2011. "Briefing Papers, Preliminary rock fall risk and mitigation concepts and budget assessment; Matalesolo, Anapeapea, Tifa, and Lafiga Points; Tutuila, American Samoa." Letter to Richard Sato, P.E., from James Kwong, Ph.D., P.E., March 7, 2011.

7.0 List of Preparers

7.1 Federal Emergency Management Agency

G. Morgan Griffin, Region IX, Deputy Regional Environmental Officer

Alessandro Amaglio, Region IX, Regional Environmental Officer

Robert McCord, Region IX, Senior Mitigation Specialist

Ann Winterman, Region IX, Assistant Regional Counsel

7.2 AECOM

Douglas Bailey, Project Manager

Alex Hardy, Lead Environmental Planner

Lyndon Quon, Lead Biologist

Christy Dolan, Lead Archaeologist

Matt Conrad, GIS Specialist

Therese Tempereau, Technical Editor

Robin Rice, Word Processor and Section 508 Compliance Specialist

This page intentionally left blank.

Appendices

Appendix A: U.S. Fish and Wildlife Service Recommended Standard Best Management Practices

The U.S. Fish and Wildlife Service recommends that the measures below be incorporated into projects to minimize the degradation of water quality and minimize the impacts to fish and wildlife resources.[1]

(1) Turbidity and siltation from project-related work shall be minimized and contained within the vicinity of the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse tidal and weather conditions.

(2) Dredging/filling in the marine environment shall be scheduled to avoid coral spawning and recruitment periods and sea turtle nesting and hatching periods.

(3) Dredging and filling in the marine/aquatic environment shall be designed to avoid or minimize the loss special aquatic site habitat (beaches, coral reefs, wetlands, etc.) and the function of such habitat shall be replaced.

(4) All project-related materials and equipment (dredges, barges, backhoes, etc.) to be placed in the water shall be cleaned of pollutants prior to use.

(5) No project-related materials (fill, revetment rock, pipe, etc.) should be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands, etc.) or on beach habitats.

(6) All debris removed from the marine/aquatic environment shall be disposed of at an approved upland or ocean dumping site.

(7) No contamination (trash or debris disposal, non-native species introductions, attraction of non-native pests, etc.) of adjacent habitats (reef flats, channels, open ocean, stream channels, wetlands, beaches, forests, etc.) shall result from project-related activities. This shall be accomplished by implementing a litter-control plan and developing a Hazard Analysis and Critical Control Point Plan (HACCP – see

[1] This list of measures was provided to AECOM, as consultant to FEMA, during informal consultation on the project pursuant to the Endangered Species Act.

http://www.haccpnrm. org/Wizard/default.asp) to prevent attraction and introduction of non-native species.

(8) Fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored onsite, if appropriate, to facilitate the clean-up of accidental petroleum releases.

(9) Any under-layer fills used in the project shall be protected from erosion with stones (or core-loc units) as soon after placement as practicable.

(10) Any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric etc.) after exposure and stabilized as soon as practicable (with native or non-invasive vegetation matting, hydroseeding, etc.).

Appendix B: List of Indo-Pacific Coral Species Known from the Waters Surrounding American Samoa, Proposed for Listing under the ESA

Scientific and Common Species Names	NMFS Status	Suitable Reef Habitats*
Acanthastrea brevis (starry/spiny cup coral)	PT	*Acanthastrea brevis* has been reported to like shallow reef environments, and all types of reef habitats.
Acanthastrea hemprichii (starry cup coral)	PT	*Acanthastrea hemprichii* grows in most reef environments.
Acanthastrea ishigakiensis (starry cup coral)	PT	*Acanthastrea ishigakiensis* grows in shallow protected reef environments.
Acropora aculeus (bottlebrush acropora)	PT	*Acropora aculeus* has a broad depth range. It is particularly common in shallow lagoons and most areas where it is protected from direct wave action.
Acropora acuminata (no common name)	PT	*Acropora acuminata* has a very broad range and can be found on upper or lower reef slopes ranging in depth from 15 to 20 meters.
Acropora aspera (no common name)	PT	*Acropora aspera* grows in all types of reef environments and habitats. The physical characteristics of colonies can be different depending on their location.
Acropora dendrum (no common name)	PT	*Acropora dendrum* is considered a rare species, and grows on upper reef slopes.
Acropora donei (no common name)	PT	*Acropora donei* grows in subtidal (i.e., below the low tide mark but still shallow and close to shore) areas on upper reef slopes or submerged reefs, apparently restricted to shallow fringing reefs and upper reef slopes where *Acropora* diversity is high. This species is considered uncommon but easy to identify.
Acropora globiceps (no common name)	PT	*Acropora globiceps* has been reported from intertidal (i.e., area between high and low tide marks), upper reef slopes and reef flats.
Acropora horrida (blue staghorn coral)	PT	*Acropora horrida* grows on fringing reefs with murky water, subtidal (i.e., below the low-tide mark but still shallow and close to shore) sheltered habitats, protected deepwater flats, lagoons, and sandy slopes.
Acropora jacquelineae (plating acropora)	PE	*Acropora jacquelineae* grows on subtidal (i.e., below the low tide mark but still shallow and close to shore) walls, ledges on walls, and shallow reef slopes protected from wave action.

Scientific and Common Species Names	NMFS Status	Suitable Reef Habitats*
Acropora listeri (no common name)	PT	*Acropora listeri* has been reported from subtidal (i.e., below the low tide mark but still shallow and close to shore) shallow reef edges, upper reef slopes, and in strong wave action.
Acropora microclados (strawberry shortcake acropora)	PT	Colonies of *Acropora microclados* have been reported to grow on upper reef slopes and subtidal (i.e., below the low tide mark but still shallow and close to shore) reef edges.
Acropora palmerae (no common name)	PT	*Acropora palmerae* grows on reef flats exposed to strong wave action and lagoons and intertidal (i.e., between high and low tide marks), subtidal (i.e., below the low tide mark but still shallow and close to shore), shallow, reef tops, reef flats, and reef edges.
Acropora paniculata (fuzzy table coral)	PT	*Acropora paniculata* grows on upper reef slopes, just subtidal (i.e., below the low tide mark but still shallow and close to shore), reef edges, and sheltered lagoons.
Acropora pharaonis (no common name)	PT	*Acropora pharaonis* grows on sheltered reef slopes and lagoons.
Acropora polystoma (no common name)	PT	*Acropora polystoma* grows on upper reef slopes exposed to strong wave action and intertidal (i.e., between the high and low tide marks), just subtidal (i.e., below the low tide mark but still shallow and close to shore) reef tops, reef edges, and areas with strong currents.
Acropora retusa (no common name)	PT	*Acropora retusa* grows on upper reef slopes and tidal pools.
Acropora rudis (no common name)	PE	*Acropora rudis* grows in shallow to deep rocky foreshores (areas between high and low tide marks) and may be restricted to fringing reefs.
Acropora speciosa (no common name)	PT	*Acropora speciosa* grows in protected environments with clear water and high diversity of *Acropora* and steep slopes or deep, shaded waters.
Acropora striata (no common name)	PT	*Acropora striata* grows on shallow rocky foreshores and shallow reef flats.
Acropora tenella (no common name)	PT	*Acropora tenella* grows on lower slopes below 40 meters, protected slopes and shelves as deep as 70 meters, and apparently prefers calm, deep conditions.
Acropora vaughani (no common name)	PT	*Acropora vaughani* grows on fringing reefs with murky water, protected lagoons and sandy slopes, or protected subtidal (i.e., below the low tide mark but still shallow and close to shore) waters.

Scientific and Common Species Names	NMFS Status	Suitable Reef Habitats*
Acropora verweyi (no common name)	PT	*Acropora verweyi* seems to prefer shallow waters. It lives on upper reef slopes or other parts of the reef where there is good water circulation.
Alveopora allingi (no common name)	PT	*Alveopora allingi* grows in protected reef areas.
Alveopora verrilliana (no common name)	PT	*Alveopora verrilliana* grows in shallow reef areas.
Astreopora cucullata (no common name)	PT	*Astreopora cucullata* grows in protected reef environments.
Barabattoia laddi (no common name)	PT	*Barabattoia laddi* has only been reported to grow in shallow lagoons.
Caulastrea echinulata (trumpet coral)	PT	*Caulastrea echinulata* has been known to grow on horizontal surfaces in cloudy waters that are protected from wave action.
Euphyllia cristata (no common name)	PT	*Euphyllia cristata* grows in shallow reef areas, although this species is found mostly within moderate depths (near the surface down to 35 meters).
Euphyllia paradivisa (frogspawn coral)	PE	*Euphyllia paradivisa* grows in shallow or mid-slope reef areas that are protected from wave action.
Isopora crateriformis (no common name)	PT	*Isopora crateriformis* commonly grows in shallow, high-wave energy environments.
Isopora cuneata (no common name)	PT	*Isopora cuneata* commonly grows in shallow, high-wave energy environments. Although it is occasionally found on sheltered reef slopes and backreef lagoons, it is more typical of reef crests and inner reef flats.
Millepora tuberosa (no common name)	PT	*Millepora tuberosa* grows in a variety of habitats, including the forereef and lagoonal areas.
Montipora angulata (no common name)	PT	*Montipora angulata* grows on fringing reefs and reef flats.
Montipora australiensis (no common name)	PT	*Montipora australiensis* grows in shallow reef environments with high-wave action.
Montipora calcarea (no common name)	PT	*Montipora calcarea* typically grows in shallow reef environments.
Montipora caliculata (no common name)	PT	*Montipora caliculata* colonies can be found in most reef environments.
Montipora lobulata (no common name)	PT	*Montipora lobulata* commonly grows in shallow reef areas.
Pachyseris rugosa (no common name)	PT	*Pachyseris rugosa* may develop into large mound-shaped colonies in shallow water but smaller colonies grow in a wide range of areas including those exposed to strong wave action.
Pavona diffluens (no common name)	PT	*Pavona diffluens* grows in most reef habitats.

Scientific and Common Species Names	NMFS Status	Suitable Reef Habitats*
Pocillopora danae (cauliflower coral)	PT	*Pocillopora danae* grows on partly protected reef slopes.
Porites horizontalata (no common name)	PT	*Porites horizontalata* grows in shallow reef areas.
Porites napopora (no common name)	PT	*Porites napopora* grows in shallow reef areas.
Porites nigrescens (rough finger coral)	PT	*Porites nigrescens* grows on lower reef slopes and lagoons protected from wave action.

* All information summarized from National Oceanic and Atmospheric Administration (NOAA). 2012. Endangered and Threatened Wildlife and Plants; Proposed Listing Determinations for 82 Reef-Building Coral Species; Proposed Reclassification of Acropora palmata and Acropora cervicornis from Threatened to Endangered; Proposed Rule. 77 FR 73220.

Listing Status Designations

Federal (NMFS) Designations
PE: Proposed for Federal listing as an Endangered Species
PT: Proposed for Federal listing as a Threatened Species

Appendix C: U.S. Fish and Wildlife Service Coordination Correspondence

This page intentionally left blank.

QUON, LYNDON

From: Sukhraj, Nadiera <nadiera_sukhraj@fws.gov>
Sent: Thursday, February 14, 2013 10:33 AM
To: Quon, Lyndon
Cc: Tony_Montgomery@fws.gov; Dan Polhemus; Joy Browning; Dan Clark
Subject: Re: American Samoa DPW Rockfall Mitigation

Hi Lyndon-

Thank you for contacting us for early coordination. Yes, USFWS would need to be consulted for this project but I haven't had time to review the attachment in detail. I have copied the head of our bat group on this e-mail as well as the program supervisor so that a lead biologist can be assigned.

I'll try to read through this later today and may be able to provide some additional guidance then. As for your question about the Section 7 consultation, based on the action, our agency most likely would need to provide that technical assistance.

-Nadiera

On Wed, Feb 13, 2013 at 4:12 PM, Quon, Lyndon <Lyndon.Quon@aecom.com> wrote:

Tony & Nadiera:

I am working on a project on behalf of the Department of Homeland Security, Federal Emergency Management Agency (FEMA), on Tutuila, American Samoa (AS). The AS Department of Public Works (DPW) applied for FEMA funding to address four Rockfall Mitigation sites along Highway 1. When I was on island last week, I met with Estella Rubin of DPW, and she informed me that the USFWS was taking jurisdictional review over any project with federal funding, and she also provided both of your names and email addresses so that I can be the biological resources co-ordination/conduit between FEMA/DPW and the USFWS.

I have attached a project description, as well as the preferred methodology for conducting the rockfall mitigation (see file attachment). I also have a representative photo of each rockfall face, which I can also provide, upon request. I did not want to attach the photos to this email, since those files total approximately 25MB, and I did not know if you have a file size limit on your email. As I said, I can provide the photos if you need them. We are also in the process of preparing a map showing the locations along Highway 1, in association with the villages in which the rockfalls occur.

The rockfall mitigation sites are located at the following points along Highway 1, on the south side of Tutuila: 1) Matalesolo Point, 2) Anape'ape'a Point, 3) Tifa Point, and 4) Lafiga Point. My site visits noted fruit bats perched in the vegetation immediately adjacent to the Tifa Point and Lafiga Point rockfall mitigation sites. My research also indicated that Anape'ape'a Point is associated with a cave that historically supported a colony of sheath-tailed bats, but that following the 2009 earthquake and tsunami, that species of bat appeared to have been extirpated not only from this colony site, but possibly from the entire island. Indirect effects of the proposed rockfall mitigation could potentially occur from sedimentation/siltation runoff into the coastal waters, potentially affecting coral reefs, sea turtles, and general water quality. Following a site tour of the four rockfall mitigation areas, I met with the AS Department of Marine and Wildlife Resources (DMWR) Branch Chief biologist, Nicole, to discuss my findings, and to determine what the territorial government was concerned about in terms of biological resources. Nicole informed me that there were no seabird colonies on the south side of the

island, and that no bat breeding colonies were known to her recollection. However, she stated that she would have DMWR's bat specialist, Adam Miles, contact me to provide additional input when he returned from vacation in approximately 3 weeks.

Can you please let me know if either one of you would be the appropriate point of contact for this project? And if neither of you is the correct person, can you direct me to the appropriate USFWS biologist?

I would also like to know if there are other issues with which the USFWS is concerned about for DPW projects on AS, so that we can appropriately cover those concerns in the Environmental Assessment.

Also, I would think that if there would be any Endangered Species Act Section 7 consultation, FEMA and USFWS would be able to conduct an informal Section 7 for this project, correct?

Please let me know if I can provide any further information.

Thank you for your assistance.

Lyndon Quon
Senior Associate
Senior Wildlife Biologist
Design + Planning
D +1 619.764.6886 C +1 619.913.1913
lyndon.quon@aecom.com

AECOM
1420 Kettner Boulevard, Suite 500, San Diego CA 92101 USA
T +1 619.233.1454 F +1 619.233.0952
www.aecom.com

Nadiera C. Sukhraj
Aquatic Ecosystem Conservation
U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd, Room 3-122
Box 50088
Honolulu, HI 96850
Office: (808) 792-9410
E-mail: Nadiera_Sukhraj@fws.gov

QUON, LYNDON

From: Sukhraj, Nadiera <nadiera_sukhraj@fws.gov>
Sent: Monday, February 25, 2013 12:25 PM
To: Quon, Lyndon
Cc: Anthony Montgomery; Dan Polhemus; Daniel Clark; donald.hubner@noaa.gov; Danielle Jayewardene; Kristi Young; Jeff Newman
Subject: American Samoa Rockfall Mitigation

Hi Lyndon-

Thank you again for starting the early coordination for this series of projects on Tutuila. For our agency, please send all future correspondence to Tony Montgomery (Tony_Montgomery@fws.gov) as he will be taking the lead as point of contact for the rockfall mitigation projects.

From the two page summary that was sent over, it was difficult to determine if there would be any in water work or potential impacts to the shoreline adjacent to the rockfall stabilization areas. We're familiar with the areas described based on the shoreline protection fieldwork that we did there for DPW in 2012 and acknowledge that the roads are very narrow in some of those areas. The removal or buildup of some of those areas may encroach on marine and/or terrestrial resources. For the bat issue, I haven't been able to talk to Joy Hiromasa (our office) about any knowledge that she would have for those areas.

For consultation purposes:

Section 7/Endangered Species Act consultation: Send the request to Tony Montgomery who will coordinate with those folks in our office

Sea turtles - if there are any nesting beaches involved contact U. S. Fish and Wildlife Service
- if there are potential impacts to sea turtles in the water contact Don Hubner with the National Marine Fisheries
Service here in Honolulu (donald.hubner@noaa.gov)

Potential sedimentation impacts to nearshore resources: Tony Montgomery, USFWS

Determining if there are any coral species proposed for listing in the potential impact footprints: Tony Montgomery, USFWS and Danielle Jayewardene, National Marine Fisheries Service (danielle.jayewardene@noaa.gov)

Potential impacts from invasive species on equipment, construction materials, etc.: Tony Montgomery, USFWS

If there are any diagrams or constructions plans available, those would be appreciated. It's a little difficult to visualize the scope of the work without them. It may turn out that the project footprint is very small and would only require a comment letter from our agency.

Thanks
-Nadiera

Nadiera C. Sukhraj
Aquatic Ecosystem Conservation
U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd, Room 3-122
Box 50088
Honolulu, HI 96850
Office: (808) 792-9410
E-mail: Nadiera_Sukhraj@fws.gov

QUON, LYNDON

From: Donald Hubner <donald.hubner@noaa.gov>
Sent: Wednesday, February 27, 2013 2:44 PM
To: Danielle Jayewardene - NOAA Affiliate
Cc: Quon, Lyndon
Subject: Re: American Samoa Rockfall Mitigation

Thank you Danielle,
I agree with you in that given the expectation that the work would be well above the water line, that BMP to minimize downstream sedimentation and transport of pollutants would go a long way toward reducing impacts on ESA-listed marine species (including corals proposed for listing).
Don

Donald M. Hubner
Endangered Species Biologist
NOAA/NMFS Pacific Islands Regional Office
1601 Kapiolani Blvd. Ste 1110
Honolulu, HI 96814
(808) 944-2233

On 2/26/2013 6:42 PM, Danielle Jayewardene - NOAA Affiliate wrote:

Hi Lyndon,

Thanks much, no mix up at all. US FWS did forward these as part of their correspondence with you, but my being out of the office using my webased e-mail browser is creating some issue for me in that I seem to miss the attachments. Also, I wanted to establish a direct line of communication with NMFS on this.

My colleague Fatima who is based here in AS, and I are actually planning on driving eastward to Tula on Thursday so we can take a look at each of the rock-fall sites on the way. I agree with Tony, in that is sounds based on your description that work will occur well above the water line, so the only concerns for the marine environment (also probably ESA) is the potential for sedimentation from construction work. Effective BMP's should address this.

I'll touch base next week with any thoughts, copying all, i.e. also US FWS.

Aloha!
Danielle

On Tue, Feb 26, 2013 at 5:05 PM, Quon, Lyndon <Lyndon.Quon@aecom.com> wrote:

Danielle & Don:
Sorry about the mix up. I had assumed that either Tony or Nadiera had forwarded the information to you. Attached are the 2 files that I had originally emailed to the folks at the USFWS.

Hopefully, you will be able to get to the 4 sites, and get a first-hand look at what we're dealing with on this project. Let me know if I can provide any other information to help you with your assessment of the project.

Thanks,

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Danielle Jayewardene - NOAA Affiliate [mailto:danielle.jayewardene@noaa.gov]
Sent: Tuesday, February 26, 2013 5:55 PM
To: Quon, Lyndon
Subject: Re: American Samoa Rockfall Mitigation

Hi Lyndon,

Just a quick message to jump in here from the CC list: would you mind sharing the document you sent US FWS with also Don and I? Don handles NMFS ESA section 7 consultations for marine species, and I the Essential Fish Habitat consultation. With a bit more information, and hopefully maps with location of the proposed action, we can determine whether ESA and EFH consultation may be required with NMFS.

Also, I'm currently in American Samoa, back on Thursday, so I might be able to swing by and take a look at the project sites if I know they are.

Thanks!

Danielle

On Tue, Feb 26, 2013 at 12:14 PM, Quon, Lyndon <Lyndon.Quon@aecom.com> wrote:

Tony:

Thank you for your guidance and the general BMPs. As you surmised, the intent of the project is to restrict the rock scraping and removal (including any blasting, as determined necessary by the engineers and construction contractors) would occur above Highway 1. The American Samoa Government DPW views all of the rock debris as a highly valuable resource, and they will be requiring that the contractor to load and haul all recovered materials from these sites, and stock pile them within the ASG DPW compound in Tafuna. Since ASG DPW has not yet bid the construction/mitigation work at this time, unfortunately there are no detailed project plan drawings. Although there is a possibility that equipment and material staging may ultimately be located immediately off of Highway 1, in relatively close proximity to each of the four sites, either above or below Highway 1, ASG DPW will be requiring that the contractor locate any staging areas within previously disturbed or developed areas.

I will incorporate the pertinent BMPs into our Environmental Assessment for the project. Based on the location of the rock removal efforts, and the requirement that the staging areas be located on previously disturbed/developed areas, I believe that sediment can be contained at the edge of the road, for the most part. There will also be a need to implement BMPs at the staging areas, particularly if any of them are located below Highway 1. Do you think that the staging areas should be required to be located above Highway 1? If so, I will also recommend to ASG DPW that they require the contractor to select staging areas that are not only already disturbed/developed, but also above Highway 1.

I look forward to any guidance from your office, and from National Marine Fisheries, regarding any Endangered Species issues, as well as any guidance/concerns regarding potential project impacts on bat species.

Thanks,

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Montgomery, Anthony [mailto:tony_montgomery@fws.gov]
Sent: Tuesday, February 26, 2013 2:24 PM
To: Sukhraj, Nadiera
Cc: Quon, Lyndon; Dan Polhemus; Daniel Clark; donald.hubner@noaa.gov; Danielle Jayewardene; Kristi Young; Jeff Newman; Joy Browning
Subject: Re: American Samoa Rockfall Mitigation

Lyndon,

Thanks for the information you have provided. One general question I have regarding the project. We this work be above the road or between the road and the water? It seems you are planning work above the road.

If this is the case, then the main issue from my perspective is sedimentation from two sources. One, from the loose rocks that area removed and stock piled. Two, the loose sediment that may wash off the rocks and surrounding area post work. To address this, basic BMPs for sediment control should be sufficient. I would encourage BMPs that prevent any sediment from entering the water. However, if that is not possible or proves to be ineffective, I would recommend sediment curtains at the edge of the water in the immediate area. Hopefully, there is no need for sediment curtains in the water as these can have their own impacts.

Do you think that the sediment can be contained at the road or before it enters the water?

Please find our standard recommended BMPs that may be useful. I believe our office assigned any ESA related issues to Joy Browning so she may be contacting you. Please let us know if you need further information. If you would like to talk on the phone to clarify any issues, please give me a call. I understand the urgency of the proposed work.

Aloha

Tony

On Mon, Feb 25, 2013 at 10:25 AM, Sukhraj, Nadiera <nadiera_sukhraj@fws.gov> wrote:

Hi Lyndon-
Thank you again for starting the early coordination for this series of projects on Tutuila. For our agency, please send all future correspondence to Tony Montgomery (Tony_Montgomery@fws.gov) as he will be taking the lead as point of contact for the rockfall mitigation projects.

From the two page summary that was sent over, it was difficult to determine if there would be any in water work or potential impacts to the shoreline adjacent to the rockfall stabilization areas. We're familiar with the areas described based on the shoreline protection fieldwork that we did there for DPW in 2012 and acknowledge that the roads are very narrow in some of those areas. The removal or buildup of some of those areas may encroach on marine and/or terrestrial resources. For the bat issue, I haven't been able to talk to Joy Hiromasa (our office) about any knowledge that she would have for those areas.

For consultation purposes:

Section 7/Endangered Species Act consultation: Send the request to Tony Montgomery who will coordinate with those folks in our office

Sea turtles - if there are any nesting beaches involved contact U. S. Fish and Wildlife Service
- if there are potential impacts to sea turtles in the water contact Don Hubner with the National Marine Fisheries
Service here in Honolulu (donald.hubner@noaa.gov)

Potential sedimentation impacts to nearshore resources: Tony Montgomery, USFWS

Determining if there are any coral species proposed for listing in the potential impact footprints: Tony Montgomery, USFWS and Danielle Jayewardene, National Marine Fisheries Service (danielle.jayewardene@noaa.gov)

Potential impacts from invasive species on equipment, construction materials, etc.: Tony Montgomery, USFWS

If there are any diagrams or constructions plans available, those would be appreciated. It's a little difficult to visualize the scope of the work without them. It may turn out that the project footprint is very small and would only require a comment letter from our agency.

Thanks

-Nadiera

Nadiera C. Sukhraj
Aquatic Ecosystem Conservation
U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd, Room 3-122
Box 50088
Honolulu, HI 96850
Office: (808) 792-9410
E-mail: Nadiera_Sukhraj@fws.gov

Danielle Jayewardene Ph.D.
Coral Reef Ecologist/EFH coordinator
NOAA PIRO Habitat Conservation Division
1601 Kapiolani Blvd, Suite 1110
Honolulu, HI 96814
Ph 808-944 2162

QUON, LYNDON

From: Danielle Jayewardene - NOAA Affiliate <danielle.jayewardene@noaa.gov>
Sent: Thursday, February 28, 2013 12:44 PM
To: Montgomery, Anthony; Quon, Lyndon; donald.hubner@noaa.gov; Joy Browning
Cc: Fatima Sauafea-Leau - NOAA Federal
Subject: Re: American Samoa Rockfall Mitigation

Hi Lyndon and all:

Lyndon, we agree with Tony's comments below.

All: Fatima and I (I'm currently visiting Tutuila from Hawaii), will actually be driving past each of the 4 proposed rockfall sites today on our way to Tula. We will try to stop and take a peak at the sites and share our observations with you.

Aloha,
Danielle

On Thu, Feb 28, 2013 at 7:48 AM, Montgomery, Anthony <tony_montgomery@fws.gov> wrote:
Lyndon,

You can stage equipment below Highway 1 as long as it does not have an effect on the nearby waters. In many cases, I suspect that the area below the highway is very limited to stage, so anywhere you have the option to stage above the highway may have reduced risk of sedimentation in marine waters.

Please keep us in the loop and let us know if we can help in anyway. Thanks!

Aloha
Tony

On Tue, Feb 26, 2013 at 1:14 PM, Quon, Lyndon <Lyndon.Quon@aecom.com> wrote:
Tony:

Thank you for your guidance and the general BMPs. As you surmised, the intent of the project is to restrict the rock scraping and removal (including any blasting, as determined necessary by the engineers and construction contractors) would occur above Highway 1. The American Samoa Government DPW views all of the rock debris as a highly valuable resource, and they will be requiring that the contractor to load and haul all recovered materials from these sites, and stock pile them within the ASG DPW compound in Tafuna. Since ASG DPW has not yet bid the construction/mitigation work at this time, unfortunately there are no detailed project plan drawings. Although there is a possibility that equipment and material staging may ultimately be located immediately off of Highway 1, in relatively close proximity to each of the four sites, either above or below Highway 1, ASG DPW will be requiring that the contractor locate any staging areas within previously disturbed or developed areas.

I will incorporate the pertinent BMPs into our Environmental Assessment for the project. Based on the location of the rock removal efforts, and the requirement that the staging areas be located on previously disturbed/developed areas, I believe that sediment can be contained at the edge of the road, for the most part. There will also be a need to implement BMPs at the staging areas, particularly if any of them are located below Highway 1. Do you think that the staging areas should be required to be located above Highway 1? If so, I will also recommend to ASG DPW that they require the contractor to select staging areas that are not only already disturbed/developed, but also above Highway 1.

I look forward to any guidance from your office, and from National Marine Fisheries, regarding any Endangered Species issues, as well as any guidance/concerns regarding potential project impacts on bat species.

Thanks,

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Montgomery, Anthony [mailto:tony_montgomery@fws.gov]
Sent: Tuesday, February 26, 2013 2:24 PM
To: Sukhraj, Nadiera
Cc: Quon, Lyndon; Dan Polhemus; Daniel Clark; donald.hubner@noaa.gov; Danielle Jayewardene; Kristi Young; Jeff Newman; Joy Browning
Subject: Re: American Samoa Rockfall Mitigation

Lyndon,

Thanks for the information you have provided. One general question I have regarding the project. We this work be above the road or between the road and the water? It seems you are planning work above the road.

If this is the case, then the main issue from my perspective is sedimentation from two sources. One, from the loose rocks that area removed and stock piled. Two, the loose sediment that may wash off the rocks and surrounding area post work. To address this, basic BMPs for sediment control should be sufficient. I would encourage BMPs that prevent any sediment from entering the water. However, if that is not possible or proves to be ineffective, I would recommend sediment curtains at the edge of the water in the immediate area. Hopefully, there is no need for sediment curtains in the water as these can have their own impacts.

Do you think that the sediment can be contained at the road or before it enters the water?

Please find our standard recommended BMPs that may be useful. I believe our office assigned any ESA related issues to Joy Browning so she may be contacting you. Please let us know if you need further information. If you would like to talk on the phone to clarify any issues, please give me a call. I understand the urgency of the proposed work.

Aloha
Tony

On Mon, Feb 25, 2013 at 10:25 AM, Sukhraj, Nadiera <nadiera_sukhraj@fws.gov> wrote:

Hi Lyndon-

Thank you again for starting the early coordination for this series of projects on Tutuila. For our agency, please send all future correspondence to Tony Montgomery (Tony_Montgomery@fws.gov) as he will be taking the lead as point of contact for the rockfall mitigation projects.

From the two page summary that was sent over, it was difficult to determine if there would be any in water work or potential impacts to the shoreline adjacent to the rockfall stabilization areas. We're familiar with the areas described based on the shoreline protection fieldwork that we did there for DPW in 2012 and

acknowledge that the roads are very narrow in some of those areas. The removal or buildup of some of those areas may encroach on marine and/or terrestrial resources. For the bat issue, I haven't been able to talk to Joy Hiromasa (our office) about any knowledge that she would have for those areas.

For consultation purposes:

Section 7/Endangered Species Act consultation: Send the request to Tony Montgomery who will coordinate with those folks in our office

Sea turtlees - if there are any nesting beaches involved contact U. S. Fish and Wildlife Service
- if there are potential impacts to sea turtles in the water contact Don Hubner with the National Marine Fisheries
Service here in Honolulu (donald.hubner@noaa.gov)

Potential sedimentation impacts to nearshore resources: Tony Montgomery, USFWS

Determining if there are any coral species proposed for listing in the potential impact footprints: Tony Montgomery, USFWS and Danielle Jayewardene, National Marine Fisheries Service (danielle.jayewardene@noaa.gov)

Potential impacts from invasive species on equipment, construction materials, etc.: Tony Montgomery, USFWS

If there are any diagrams or constructions plans available, those would be appreciated. It's a little difficult to visualize the scope of the work without them. It may turn out that the project footprint is very small and would only require a comment letter from our agency.

Thanks
-Nadiera

Nadiera C. Sukhraj
Aquatic Ecosystem Conservation
U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd, Room 3-122
Box 50088
Honolulu, HI 96850
Office: (808) 792-9410
E-mail: Nadiera_Sukhraj@fws.gov

Danielle Jayewardene Ph.D.
Coral Reef Ecologist/EFH coordinator
NOAA PIRO Habitat Conservation Division
1601 Kapiolani Blvd, Suite 1110
Honolulu, HI 96814
Ph 808-944 2162

QUON, LYNDON

From: Quon, Lyndon
Sent: Monday, March 04, 2013 4:05 PM
To: 'Joy Browning'; Anthony Montgomery
Cc: Danielle Jayewardene - NOAA Affiliate; donald.hubner@noaa.gov; Fatima Sauafea-Leau - NOAA Federal; Domingo Cravalho
Subject: RE: American Samoa Rockfall Mitigation

Joy:

Thank you very much for your input and guidance. I will incorporate all of the avoidance, minimization, and conservation recommendations provided by everyone at both USFWS and NMFS.

What is the official USFWS position, regarding the Pacific sheath-tailed bat on American Samoa? In particular, the bat cave that was historically used by the species prior to the 2009 tsunami, at Anape'ape'a Point in Amaua? I believe this species remains a Candidate for listing (Federal Register, Vol. 77, No. 225, November 21, 2012 [page 70009]). Are there any impact avoidance, minimization, or conservation measures that can be recommended for the site at Anape'ape'a Point, or for any/all of the other sites?

Thank you,

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Joy Browning [mailto:joy_browning@fws.gov]
Sent: Monday, March 04, 2013 3:33 PM
To: Anthony Montgomery; Quon, Lyndon
Cc: Danielle Jayewardene - NOAA Affiliate; donald.hubner@noaa.gov; Fatima Sauafea-Leau - NOAA Federal; Domingo Cravalho
Subject: RE: American Samoa Rockfall Mitigation

Hi Lyndon,

Of the two fruit bats in American Samoa, only the Pteropus samoensis samoensis is currently under review in the Candidate or Listing Petition Process. The other bat, Pteropus tonganus tonganus is not ESA listed however, they are protected under American Samoa law. If the Pteropus samoensis samoensis is proposed for listing prior to or during implementation of the proposed project, please contact the FWS to determine if conference needs to occur.

Some things to keep in mind, any shaving of rock faces will likely disturb fruit bats immediately adjacent to the mitigation sites. Disturbance during the peak breeding season (approximately May–August), could cause the abandonment of young if adult fruits bats relocate. Night work with lights can also disturb the bats.

A sudden disturbance such as a rock slide which includes the roost tree sliding, could cause the bats to lock their feet on the branches rather than release and fly away. In this instance, the bats would slide down the with the tree. I believe this has occurred in recent history which resulted in 20 dead bats.

Switching from bats to the green sea turtle and hawksbill sea turtle. Although no turtle nesting habitat is present below the highway of the mitigation sites, some sites are adjacent to beaches where nesting could

occur. The beach in Alega has been identified by American Samoa DMWR as a nesting beach. Amouli and Amaua beaches have a high nesting potential. Night work at mitigation sites adjacent or across the water from these beaches may become an issue during the nesting and hatching season. Lights used to light up a rock face create a bigger "source" of light than the actual light bulbs. This can deter females from nesting and it can cause mis- and disorientation in hatchlings at nearby beaches. Lights used should be done so with care to be very task specific.

A formal FWS response can be generated from this email trail.

Aloha,
Joy
Office: (808) 792-9400

From: Montgomery, Anthony [mailto:tony_montgomery@fws.gov]
Sent: Monday, March 04, 2013 9:16 AM
To: Quon, Lyndon
Cc: Danielle Jayewardene - NOAA Affiliate; donald.hubner@noaa.gov; Joy Browning; Fatima Sauafea-Leau - NOAA Federal; Domingo Cravalho
Subject: Re: American Samoa Rockfall Mitigation

Lyndon,
My comments were in the context of clean water act and sedimentation issues. Joy Browning is the contact for ESA issues under the FWS jurisdiction and I can not speak to that. She can let you know the FWS response for ESA issues. Sometimes, we do not provide a formal response depending on the situation, but you would have to speak with her to get specific clarifications. I will talk with her today to find out the status to help facilitate the project.

The BMPs should address the issue of invasive species. The largest issue you should be aware is the transfer of invasive species on equipment. If would you like further information on this topic, one of our biosecurity biologists, Domingo Cravalho, can assist. I can also help facilitate this as well.

Aloha
Tony

On Mon, Mar 4, 2013 at 8:52 AM, Quon, Lyndon <Lyndon.Quon@aecom.com> wrote:

All:
I want to thank both the USFWS and NMFS for their assistance with this project. It appears that both agencies are in agreement that with the proper implementation of the previously mentioned BMPs, the project would not affect any species listed as threatened or endangered, or otherwise a candidate species for listing as threatened or endangered, under the Federal Endangered Species Act. If this is an accurate statement, would it be possible to obtain a formal letter from the USFWS and NMFS (or a separate letter from each agency, if that works better for you) that I can put into the project file for FEMA's administrative record?

If there is any information, or formal request, that you need submitted by myself or FEMA before you can provide a formal response, please let me know. I will be glad to prepare a formal submittal with as much detail as can be generated at this time.

And I'm also curious about the following issues:

1. Has the USFWS had a chance to coordinate with your bat biologist(s) to see if there were any concerns about the Rockfall Mitigation affecting any of the bat species on the island?

2. Tony, will the implementation of the BMPs be sufficient to address the issue of minimizing the spread of invasive species?

Thanks again for the current and ongoing assistance.

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Danielle Jayewardene - NOAA Affiliate [mailto:danielle.jayewardene@noaa.gov]
Sent: Thursday, February 28, 2013 12:44 PM
To: Montgomery, Anthony; Quon, Lyndon; donald.hubner@noaa.gov; Joy Browning
Cc: Fatima Sauafea-Leau - NOAA Federal
Subject: Re: American Samoa Rockfall Mitigation

Hi Lyndon and all:

Lyndon, we agree with Tony's comments below.

All: Fatima and I (I'm currently visiting Tutuila from Hawaii), will actually be driving past each of the 4 proposed rockfall sites today on our way to Tula. We will try to stop and take a peak at the sites and share our observations with you.

Aloha,
Danielle

On Thu, Feb 28, 2013 at 7:48 AM, Montgomery, Anthony <tony_montgomery@fws.gov> wrote:

Lyndon,

You can stage equipment below Highway 1 as long as it does not have an effect on the nearby waters. In many cases, I suspect that the area below the highway is very limited to stage, so anywhere you have the option to stage above the highway may have reduced risk of sedimentation in marine waters.

Please keep us in the loop and let us know if we can help in anyway. Thanks!

Aloha
Tony

On Tue, Feb 26, 2013 at 1:14 PM, Quon, Lyndon <Lyndon.Quon@aecom.com> wrote:

Tony:

Thank you for your guidance and the general BMPs. As you surmised, the intent of the project is to restrict the rock scraping and removal (including any blasting, as determined necessary by the engineers and construction contractors)

would occur above Highway 1. The American Samoa Government DPW views all of the rock debris as a highly valuable resource, and they will be requiring that the contractor to load and haul all recovered materials from these sites, and stock pile them within the ASG DPW compound in Tafuna. Since ASG DPW has not yet bid the construction/mitigation work at this time, unfortunately there are no detailed project plan drawings. Although there is a possibility that equipment and material staging may ultimately be located immediately off of Highway 1, in relatively close proximity to each of the four sites, either above or below Highway 1, ASG DPW will be requiring that the contractor locate any staging areas within previously disturbed or developed areas.

I will incorporate the pertinent BMPs into our Environmental Assessment for the project. Based on the location of the rock removal efforts, and the requirement that the staging areas be located on previously disturbed/developed areas, I believe that sediment can be contained at the edge of the road, for the most part. There will also be a need to implement BMPs at the staging areas, particularly if any of them are located below Highway 1. Do you think that the staging areas should be required to be located above Highway 1? If so, I will also recommend to ASG DPW that they require the contractor to select staging areas that are not only already disturbed/developed, but also above Highway 1.

I look forward to any guidance from your office, and from National Marine Fisheries, regarding any Endangered Species issues, as well as any guidance/concerns regarding potential project impacts on bat species.

Thanks,

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Montgomery, Anthony [mailto:tony_montgomery@fws.gov]
Sent: Tuesday, February 26, 2013 2:24 PM
To: Sukhraj, Nadiera
Cc: Quon, Lyndon; Dan Polhemus; Daniel Clark; donald.hubner@noaa.gov; Danielle Jayewardene; Kristi Young; Jeff Newman; Joy Browning
Subject: Re: American Samoa Rockfall Mitigation

Lyndon,

Thanks for the information you have provided. One general question I have regarding the project. We this work be above the road or between the road and the water? It seems you are planning work above the road.

If this is the case, then the main issue from my perspective is sedimentation from two sources. One, from the loose rocks that area removed and stock piled. Two, the loose sediment that may wash off the rocks and surrounding area post work. To address this, basic BMPs for sediment control should be sufficient. I would encourage BMPs that prevent any sediment from entering the water. However, if that is not possible or proves to be ineffective, I would recommend sediment curtains at the edge of the water in the immediate area. Hopefully, there is no need for sediment curtains in the water as these can have their own impacts.

Do you think that the sediment can be contained at the road or before it enters the water?

Please find our standard recommended BMPs that may be useful. I believe our office assigned any ESA related issues to Joy Browning so she may be contacting you. Please let us know if you need further information. If you would like to talk on the phone to clarify any issues, please give me a call. I understand the urgency of the proposed work.

Aloha
Tony

On Mon, Feb 25, 2013 at 10:25 AM, Sukhraj, Nadiera <nadiera_sukhraj@fws.gov> wrote:

Hi Lyndon-

Thank you again for starting the early coordination for this series of projects on Tutuila. For our agency, please send all future correspondence to Tony Montgomery (Tony_Montgomery@fws.gov) as he will be taking the lead as point of contact for the rockfall mitigation projects.

From the two page summary that was sent over, it was difficult to determine if there would be any in water work or potential impacts to the shoreline adjacent to the rockfall stabilization areas. We're familiar with the areas described based on the shoreline protection fieldwork that we did there for DPW in 2012 and acknowledge that the roads are very narrow in some of those areas. The removal or buildup of some of those areas may encroach on marine and/or terrestrial resources. For the bat issue, I haven't been able to talk to Joy Hiromasa (our office) about any knowledge that she would have for those areas.

For consultation purposes:

Section 7/Endangered Species Act consultation: Send the request to Tony Montgomery who will coordinate with those folks in our office

Sea turtles - if there are any nesting beaches involved contact U. S. Fish and Wildlife Service
- if there are potential impacts to sea turtles in the water contact Don Hubner with the National Marine Fisheries
Service here in Honolulu (donald.hubner@noaa.gov)

Potential sedimentation impacts to nearshore resources: Tony Montgomery, USFWS

Determining if there are any coral species proposed for listing in the potential impact footprints: Tony Montgomery, USFWS and Danielle Jayewardene, National Marine Fisheries Service (danielle.jayewardene@noaa.gov)

Potential impacts from invasive species on equipment, construction materials, etc.: Tony Montgomery, USFWS

If there are any diagrams or constructions plans available, those would be appreciated. It's a little difficult to visualize the scope of the work without them. It may turn out that the project footprint is very small and would only require a comment letter from our agency.

Thanks
-Nadiera

Nadiera C. Sukhraj
Aquatic Ecosystem Conservation
U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd, Room 3-122
Box 50088
Honolulu, HI 96850

Office: (808) 792-9410
E-mail: Nadiera_Sukhraj@fws.gov

Danielle Jayewardene Ph.D.
Coral Reef Ecologist/EFH coordinator
NOAA PIRO Habitat Conservation Division
1601 Kapiolani Blvd, Suite 1110
Honolulu, HI 96814
Ph 808-944 2162

QUON, LYNDON

From: Quon, Lyndon
Sent: Wednesday, March 06, 2013 5:36 PM
To: 'Fatima Sauafea-Leau - NOAA Federal'
Cc: Danielle Jayewardene - NOAA Affiliate; Tony; Joy_Browning@fws.gov; Estela Rubin; Donald Hubner - NOAA Federal; Tamura, Gen
Subject: RE: American Samoa Rockfall Mitigation project

Fatima:

Thank you for your assistance on the Rockfall Mitigation project. I am including the FEMA point of contact, Gen Tamura, on the distribution of this email, as you requested. The concerns that you have raised (water quality, sedimentation, contaminated runoff, etc.) have also been brought up by the USFWS. We (FEMA and AECOM) will be preparing the NEPA environmental document, which will incorporate required BMPs, based on the list provided to me by the USFWS, as well as standard BMPs from the ASEPA American Samoa Erosion & Sediment Control Field Guide, and the ASEPA Guidance Manual for Runoff Control.

In our discussions with ASDPW, they have identified a 4 month construction window, which would optimally avoid the cyclone season (i.e., avoid the period from November through March). Taking into account the USFWS' recommendation of avoiding the peak breeding season of the fruit bat (i.e., avoiding the period from approximately May through August), there will need to be some degree of overlap between the 4-month construction period and the cyclone season, in order to avoid the peak fruit bat breeding season.

We will continue to provide both NMFS and USFWS with project details as they are developed.

Again, thank you for your assistance.

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Fatima Sauafea-Leau - NOAA Federal [mailto:fatima.sauafea-leau@noaa.gov]
Sent: Wednesday, March 06, 2013 4:38 PM
To: Quon, Lyndon
Cc: Danielle Jayewardene - NOAA Affiliate; Tony; Joy_Browning@fws.gov; Estela Rubin; Donald Hubner - NOAA Federal
Subject: American Samoa Rockfall Mitigation project

Talofa Lyndon,

Danielle and I had visited the sites where the proposed work for the Rock Mitigation project will be undertaken and took photos of each of the four sites. We would like to share with you the photos we took and also our comments on the project based on the information provided and our observations at the sites.

The attached photos show the project sites very near the coastline, above the narrow roads adjacent to the sites, and very few small areas along the coastline and across from the project sites for any possible staging. The Site 2-Anape'ape'a Point photo shows a cave and Danielle pointing at fruit-bats flying over us.

Due to the project's location near coastal waters, it is necessary to ensure that construction activities will be carried out in a manner that will not adversely affect water quality, marine habitat and resources. The potential adverse impacts to water quality and marine habitat and resources include discharges of contaminated runoff and sedimentation during construction and as a result of grading along the side of the road and the use of heavy equipment (fuel and oil leaks). In addition, the areas where the proposed project sites are located do not appear big or wide enough to stage construction equipment and materials. These staging areas should if possible be located away from the coastline, landward of the highway. Best management practices should be implemented to prevent deposition, spill or discharge of any liquid or solid into the sea.

Please let us know if you should have any questions and keep us informed when you have more information on the scope of work (e.g. proposed sites for staging areas, how long the work will take, the equipment that will be used, etc.) so we can provide further potential comments and recommendations for the project.

We noticed that FEMA is the Federal Action Agency for this project. Could you please provide the point of contact(s) from FEMA so we can include them in future correspondence?

Thank you for sharing the information and the opportunity to provide comments on these series of projects in American Samoa.

Fa'afetai,
Fatima

QUON, LYNDON

From: Quon, Lyndon
Sent: Thursday, March 14, 2013 9:15 AM
To: 'Donald Hubner'
Cc: Danielle Jayewardene - NOAA Affiliate; Montgomery, Anthony; Joy Browning; Fatima Sauafea-Leau - NOAA Federal; Patrick Opay
Subject: RE: American Samoa Rockfall Mitigation

Don:

Thank you for your response. I would agree that based on the current project description, including the proper implementation of the BMPs, the project would have no effect on ESA-listed species. If anything changes regarding the project description, we will inform the Services as soon as possible, to determine if additional BMPs or discussions are required.

I would like to thank both NMFS and USFWS staff for providing their input and guidance on this project.

Sincerely,

Lyndon Quon
Senior Wildlife Biologist
Senior Associate

From: Donald Hubner [mailto:donald.hubner@noaa.gov]
Sent: Wednesday, March 13, 2013 8:27 PM
To: Quon, Lyndon
Cc: Danielle Jayewardene - NOAA Affiliate; Montgomery, Anthony; Joy Browning; Fatima Sauafea-Leau - NOAA Federal; Patrick Opay
Subject: Re: American Samoa Rockfall Mitigation

Hello Lyndon,

I apologize for only now responding to your March 4th e-mail. I am one of the ESA consultation biologists in the NMFS PIRO Protected Resources Division, which is the division that would complete consultation under the endangered species act (ESA) should FEMA determines that the proposed rockfall mitigation work at Tutuila, American Samoa may affect ESA-listed marine species and request consultation.

I've been following the discussions about the proposed action, and have not commented because the resource agencies have been well represented by Tony and Joy for USFWS, and by Danielle and Fatima for NMFS, that the work to be done would all take place above and out of the water, and would include BMP to minimize or prevent impacts to the marine environment.

If FEMA determines, based on the type and location of the work to be done, including BMPs, that the project would have no effect on ESA-listed marine species under NMFS jurisdiction (specifically green and hawksbill sea turtles in the water), then no consultation with NMFS under the ESA is required. Based on the information shared about this project, I would not disagree with that determination. However, NMFS does not issue letters making no effect determinations. That is the responsibility of the action agency. Nor do we typically issue concurrence letters for no effect determinations. If based on the best information available, FEMA believes that this project would have no effect on ESA-listed marine species, FEMA should document that determination in the project records and include any supporting information it feels is important to the determination.

Alternatively, if FEMA believes that the action may affect those species, but it is not likely to adversely affect them, then FEMA should document that determination, provide an assessment to support the determination that the project would have insignificant effects, or that the likelihood of effect is discountable, and request concurrence from our office for that determination (informal consultation).

I am available to answer any questions you may have about informal consultation under the ESA should FEMA decide to request ESA consultation with NMFS.

V/R, Don

Donald M. Hubner
Endangered Species Biologist
NOAA/NMFS Pacific Islands Regional Office
1601 Kapiolani Blvd. Ste 1110
Honolulu, HI 96814
(808) 944-2233

On 3/4/2013 8:52 AM, Quon, Lyndon wrote:
All:

I want to thank both the USFWS and NMFS for their assistance with this project. It appears that both agencies are in agreement that with the proper implementation of the previously mentioned BMPs, the project would not affect any species listed as threatened or endangered, or otherwise a candidate species for listing as threatened or endangered, under the Federal Endangered Species Act. If this is an accurate statement, would it be possible to obtain a formal letter from the USFWS and NMFS (or a separate letter from each agency, if that works better for you) that I can put into the project file for FEMA's administrative record?

If there is any information, or formal request, that you need submitted by myself or FEMA before you can provide a formal response, please let me know. I will be glad to prepare a formal submittal with as much detail as can be generated at this time.

And I'm also curious about the following issues:
1. Has the USFWS had a chance to coordinate with your bat biologist(s) to see if there were any concerns about the Rockfall Mitigation affecting any of the bat species on the island?
2. Tony, will the implementation of the BMPs be sufficient to address the issue of minimizing the spread of invasive species?

Thanks again for the current and ongoing assistance.

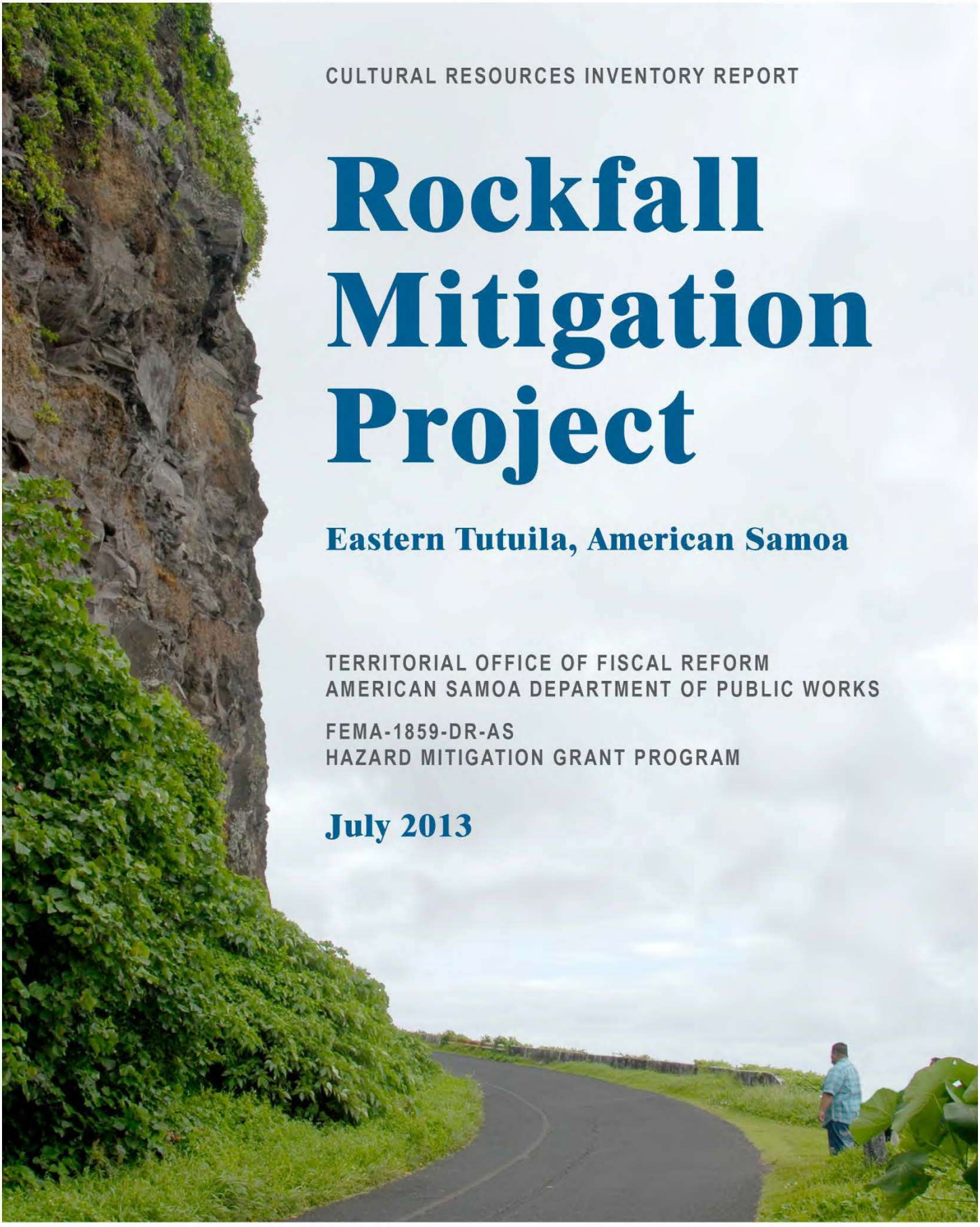
Lyndon Quon
Senior Wildlife Biologist
Senior Associate

This page intentionally left blank.

Appendix D: Cultural Resources Inventory Report and FEMA-ASHPO Consultation Letters

Cultural Resources Inventory Report Bound Separately (RESTRICTED DISTRIBUTION)

This page intentionally left blank.



CULTURAL RESOURCES INVENTORY REPORT

Rockfall Mitigation Project

Eastern Tutuila, American Samoa

TERRITORIAL OFFICE OF FISCAL REFORM
AMERICAN SAMOA DEPARTMENT OF PUBLIC WORKS

FEMA-1859-DR-AS
HAZARD MITIGATION GRANT PROGRAM

July 2013

FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION IX
U.S. DEPARTMENT OF HOMELAND SECURITY
1111 BROADWAY, SUITE 1200
OAKLAND, CA 94607

FEMA

THIS DOCUMENT WAS PREPARED FOR

FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION IX
U.S. DEPARTMENT OF HOMELAND SECURITY
1111 BROADWAY, SUITE 1200
OAKLAND, CA 94607

THIS DOCUMENT WAS PREPARED BY

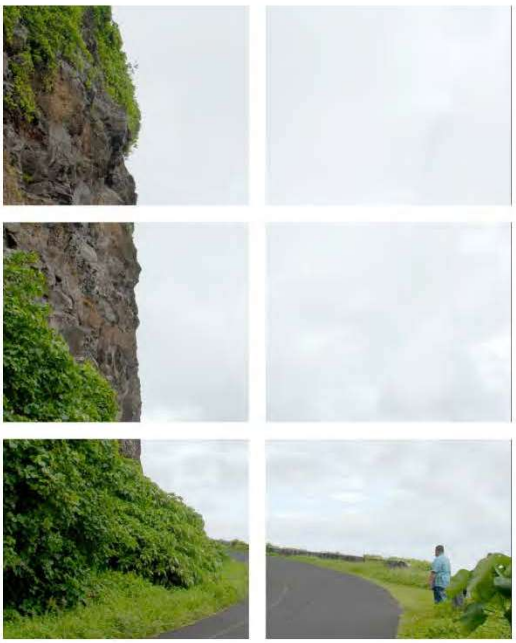
AECOM

1420 KETTNER BOULEVARD, SUITE 500
SAN DIEGO, CA 92101

FEMA-1859-DR-AS
HAZARD MITIGATION GRANT PROGRAM
CONTRACT NO. HSFEHQ-09-D-1127
TASK ORDER HSFE60-13-J-0002
AECOM # 60284854

KEYWORDS: TUTUILA EAST USGS 7.5' QUADRANGLE, 5.38 ACRES, ARCHAEOLOGICAL SITE RECONNAISSANCE, ROCKFALL MITIGATION, LAFIGA POINT (VILLAGES OF AUMI AND LAULI'I), TIFA POINT (VILLAGES OF AVAIO AND ALEGA), ANAPE'APE'A POINT (VILLAGE OF AMAUA), AND MATALESOLO POINT (VILLAGE OF AMOULI)

COVER PHOTO: ROCKFALL HAZARDS OCCUR AT CLIFFS ADJACENT TO THE NARROW COASTAL HWY 001.



U.S. Department of Homeland Security
Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

August 1, 2013

Mr. David Herdrich
Historic Preservation Officer
American Samoa Historic Preservation Office
Executive Office of the Governor
American Samoa Government
Pago Pago, American Samoa 96799

Re: Rockfall Mitigation Project, Hazard Mitigation Grant Program
FEMA-1859-DR-AS
Subgrantee: American Samoa Department of Public Works

Dear Mr. ~~Herdrich~~ David:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide financial assistance to the American Samoa Department of Public Works (ASDPW), through the Territorial Office of Fiscal Reform (TOFR), to prevent future rockfall events at four sites along Highway 001 in Eastern Tutuila. This funding would be provided by FEMA's Hazard Mitigation Grant Program, which was made available as a result of the September 29, 2009, earthquake, tsunami, and flooding designated a Presidentially declared disaster (FEMA-1859-DR-AS).

ASDPW proposes to implement rockfall mitigation at four sites including Site A - Lafiga Point (Villages of Aumi and Lauli'i), Site B - Tifa Point (Villages of Avaio and Alega), Site C - Anape'ape'a Point (Village of Amaua), and Site D - Matalesolo Point (Village of Amouli) by means of manually scaling loose rock from the slopes and installing wire mesh over the slopes to prevent additional rock from falling down to the adjacent road (Undertaking).

This letter, supported by the enclosed Cultural Resources Inventory Report, serves as FEMA's request for consultation with your office in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations (36 CFR Part 800).

The Undertaking includes, at each of the four sites, removal of loose rock or other areas of surface rock that are identified as posing serious hazards in the future. Wire mesh would be installed over the slope surfaces by inserting tie-down anchors into the rock substrate and attaching steel nets to the anchors. Staging for all project work would occur on previously disturbed areas adjacent to the Highway 001 right-of-way and as close to the construction site as possible. A detailed description of the Undertaking is provided in the enclosed Cultural Resources Inventory Report.

FEMA determined that the area of potential effects (APE) is defined as the total area encompassing 5.38 acres potentially subject to ground disturbance due to the Undertaking. The 5.38-acre APE consists of the primary rockfall zone that abuts Highway 001 at each of the four sites plus an additional 50-foot buffer for potential ground disturbance to each side and upslope of each of the four sites. The APE is delineated in Figure 3, Figure 6, Figure 9, and Figure 12 of the enclosed Cultural Resources Inventory Report.

FEMA's archaeological consultant, AECOM, conducted background and archival research in an effort to identify and evaluate historic properties. Due to the steepness of each of the four sites, a pedestrian survey of the 5.38-acre APE was not conducted for the Undertaking; however, a site reconnaissance was conducted for each of the sites on February 5, 2013. No historic properties were identified in the APE. Methods and results are documented in the enclosed Cultural Resources Inventory Report.

Based on the results of its research, reconnaissance, identification, and evaluation effort, FEMA has determined that implementation of the Undertaking would result in "no historic properties affected".

Although unanticipated based on archival research and site investigation as well as unlikely due to the steep terrain of the APE, unexpected subsurface historic properties could be discovered during ground-disturbing activities. Therefore, ASDPW (including its contractors and agents) would be responsible for halting work in the event of an unanticipated discovery during vegetation clearing or ground disturbance and notifying TOFR and FEMA as soon as practicable. If FEMA determines that the discovery has the potential to be a significant historical property, FEMA would require ASDPW to stop all construction in the vicinity of the discovery and to take all reasonable measures to avoid or minimize harm to the property until FEMA concludes consultation with your office, pursuant to 36 CFR Part 800.13(b).

FEMA requests your review and concurrence regarding these findings. Unless your office objects to FEMA's determinations within 30 days of receipt of this request, FEMA may consider its responsibilities under Section 106 of the NHPA complete and fund the Undertaking. If you have any questions regarding this request or require additional information, please do not hesitate to contact me at (510) 627-7033, morgan.griffin@fema.dhs.gov, or the letterhead address.

Sincerely,

G. Morgan Griffin
Deputy Regional Environmental Officer

Enclosure

cc: Lima Fiatoa, TOFR

Hon. Lolo Matalasi Moliga
Governor

Lemanu Peleti Mauga
Lieutenant Governor

Executive Offices of the Governor
American Samoa Historic Preservation Office
American Samoa Government
Pago Pago, American Samoa 96799

David J. Herdrich
Historic Preservation Officer

Phone: (684) 699-2316
Fax: (684) 699-2276

August 12, 2013

121-13HP

Mr. G. Morgan Griffin
Deputy Regional Environmental Officer
U.S. Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

Re: Rockfall Mitigation Project, Hazard Mitigation Grant Program
FEMA-1859-DR-AS
Subgrantee: American Samoa Department of Public Works

Dear Mr. Griffin:

Thank you for your letter dated August 12, 2013 concerning the Federal Emergency Management Agency's (FEMA) proposal to provide financial assistance to the American Samoa Department of Public Works (ASDPW) through the Territorial Office of Fiscal Reform (TOFR) to prevent future rockfall events at four sites along Highway 001 in Eastern Tutuila, American Samoa (Undertaking). I have reviewed your letter, the AECOM Cultural Resources Inventory Report, entitled, *Rockfall Mitigation Project: Eastern Tutuila, American Samoa,* and offer the following comments.

I concur with your determination of the area of potential effects (APE), as per the documentation included with your letter.

I also concur with your determination of "no historic properties affected" because the Cultural Resources Inventory Report found no evidence of historic properties within the four APEs.

In addition, I concur with FEMA recommendation that if during vegetation clearing and ground disturbing activities ASDPW, and/or its contractors and agents, discover an unanticipated historic property, ASDPW (including their contractors and agents) will be responsible for halting work and notifying TOFR and FEMA as soon as possible. If FEMA determines that the discovery has the potential to be a significant historic property, FEMA shall require ASDPW to stop all construction in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the property until FEMA concludes consultation with the ASHPO pursuant to 36 CFR § 800.13(b)

Thank you for your time and attention. This information has been provided upon the request of the Federal Emergency Management Agency in order to assist FEMA with its Section 106

responsibilities under the National Historic Preservation Act of 1966, as amended and specified in the 36 CFR § 800 regulations.

If you have any questions concerning this correspondence please do not hesitate to contact me at (684) 699-2316.

Sincerely,

David J. Herdrich
Historic Preservation Officer

cc: Paula Falk Creech, American Samoa and Micronesia Program Manager, NPS
Lima Fiatoa, TOFR

Appendix E: Demographic Information for Rockfall Mitigation Villages

Location	Total Pop	Median Age	American Samoan %	Other Races/ Ethnicities	Empl. %	Median Income	% of Individuals Below Poverty Level
American Samoa	55,519	22.4	88.9		52.9	$23,892	57.3
Alega	54	29	70.4	Asian (1), White (9)	57.5	$36,250	40.7
Amaua	96	32	92.7	Tongan (1), Asian (1)	43.4	$31,250	35.4
Amouli	920	20.7	89.7	Niuean (2), Tongan (21), Asian (44), White (5)	53.3	$22,000	64.0
Aumi	186	19.2	94.6	Tongan (2), Asian (3), Black (1)	54.3	$27,500	56.5
Avaio	44	26.5	90.9	Asian (1), White (2)	48.1	$33,750	36.4
Lauli'i	892	22.2	96.1	Fijian (1), Tongan (6), Asian (13), White (2)	48	$24,375	52.4

Source: U.S. Department of Commerce Census Bureau, 2010 American Samoa Demographic Profile.

This page intentionally left blank.

Appendix F: Distribution List

This page intentionally left blank.

Distribution List

Notice of Availability of Draft Environmental Assessment
Rockfall Mitigation Project
FEMA-1859-DR-AS, HMGP 1859-9

Federal Agencies

Michael Tosatto, Regional Administrator
Pacific Islands Regional Office
National Marine Fisheries Service
NOAA Inouye Regional Center
1845 Wasp Boulevard, Building 176
Honolulu, HI 96818

michael.tosatto@noaa.gov

Danielle Jayewardene, Coral Reef Ecologist
Pacific Islands Regional Office, Habitat Branch
National Marine Fisheries Service
1845 Wasp Boulevard, Building 176
Honolulu, HI 96818

danielle.jayewardene@noaa.gov

Fatima Sauafea-Le-au, Fisheries Biologist
American Samoa Field Office, Habitat Branch
National Marine Fisheries Service
Pago Plaza, Suite 202
Pago Pago, AS 96799

fatima.sauafea-leau@noaa.gov

George Young, P.E., Chief
Regulatory Branch
U.S. Army Corps of Engineers,
Honolulu District
Building 230
Fort Shafter, HI 96858-5440

george.p.young@poh01.usace.army.mil

James M. Munson, Environmental Protection Specialist
Environmental Review Office
U.S. Environmental Protection Agency Region 9
CED-2, 75 Hawthorne Street
San Francisco, CA 94105

munson.james@epa.gov

Loyal Mehrhoff, Field Supervisor
Pacific IslandsFish and Wildlife Office
United States Fish and Wildlife Service
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000

loyal_mehrhoff@fws.gov

Joy Browning, Wildlife Biologist
Pacific Islands Fish and Wildlife Office
United States Fish and Wildlife Service
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000

joy_browning@fws.gov

Tony Montgomery, Wildlife Biologist
Pacific Islands Fish and Wildlife Office
United States Fish and Wildlife Service
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000

tony_montgomery@fws.gov

American Samoa Government Offices

Keniseli Lafaele, Director
American Samoa Department of Commerce
A.P. Lutali Executive Building
Pago Pago, AS 96799

kenisei.lafaele@doc.as

Dr. Salu Hunkin-Finau, Director
American Samoa Department of Education
American Samoa Government, Utulei
Pago Pago, AS 96799

hunkfina252@gmail.com

Ruth Matagi-Tofiga, Ph.D., Director
American Samoa Department of Marine & Wildlife Resources
P.O. Box 3730
Pago Pago, AS 96799

matagi_tofiga_ruth@yahoo.com

Maeata'anoa Pili Gaoteote, Director
American Samoa Department of Parks & Recreation
American Samoa Government, Tafuna
Pago Pago, AS 96799

piligaoteote@yahoo.com

William Haleck, Commissioner
American Samoa Department of Public Safety
P.O. Box 1086
Pago Pago, AS 96799

Faleosina F. Voight, Director
American Samoa Department of Public Works
American Samoa Government, Tafuna
Pago Pago, AS 96799

faleosina@asgdpw.org

Ameto Pato, Director
American Samoa Environmental Protection Agency
P.O. Box PPA
Pago Pago, AS 96799

ametop@yahoo.com

David J. Herdrich, Historic Preservation Officer
American Samoa Historic Preservation Office
Executive Offices of the Governor, ASG
Pago Pago, AS 96799

tavita22@yahoo.com

Satele Galu T. Satele, Secretary of Samoan Affairs
American Samoa Office of Samoan Affairs
Department of Local Governments, Utulei
Pago Pago, AS 96799

Fiu J. Saelua, Chief of Staff
American Samoa Office of the Governor
Department of Local Governments, Utulei
Pago Pago, AS 96799

chiefofstaff@americansamoa.gov

Taimalelagi Dr. Claire T Poumele, Director
American Samoa Port Administration
P.O.Box 639
Pago Pago, AS 96799

ctpoumele@gmail.com

Utu Abe Malae, Chief Executive Officer
American Samoa Power Authority
P.O. Box PPB
Pago Pago, AS 96799

utum@aspower.com

Moefa'auo Bill Emmesley, Executive Director
American Samoa Telecommunications Authority
P.O. Box M
Pago Pago, AS 96799

b.emmsley@gmail.com

Alfonso P. Galea'I, Director
Territorial Office of Fiscal Reform
P.O. Box 997653
Pago Pago, AS 96799

alfonso.galeai@tofr.as.gov