

CHAPTER 12.

CULTURAL RESOURCES

12.1 INTRODUCTION

This chapter contains a description of the potential environmental consequences to cultural resources associated with implementation of the alternatives within the region of influence (ROI). For a description of the affected environment for all resources, refer to the respective chapter of Volume 2 (Marine Corps Relocation – Guam). The locations described in Volume 2 include the ROI for the Army Air and Missile Defense Task Force (AMDTF) component of the proposed action; the chapters are presented in the same order as the resource areas contained in this volume. Training for the AMDTF would be co-located with Marine Corps training facilities and is not analyzed in this Volume.

12.2 ENVIRONMENTAL CONSEQUENCES

12.2.1 Approach to Analysis

12.2.1.1 Methodology

The methodology for identifying, evaluating, and mitigating impacts to cultural resources is based on federal laws and regulations including the National Historic Preservation Act (NHPA) and the Archaeological Resource Protection Act (ARPA).

A significant resource is a cultural resource eligible for, or listed on, the National Register of Historic Places (NRHP). A project affects a NRHP-eligible or listed resource when it alters the resource's characteristics, including relevant features of its environment, or use that qualify it as significant according to NRHP criteria. Adverse effects may include the following: physical destruction, damage, or alteration of all or part of the resource; alteration of the character of the surrounding environment that contributes to the resource's qualifications for the NRHP; introduction of visual, audible, or atmospheric elements that are out of character with the resource; neglect of the resource resulting in its deterioration or destruction; or transfer, lease, or sale of the property without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance (36 Code of Federal Regulations [CFR] 800.5(a)(2)).

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts are those that may occur during the construction phase of the project. They may be the result of increased noise or changes from ground disturbing activities involving construction, modification, or the use and maintenance of facilities. Indirect impacts are those that may occur as a result of the completed project such as increased vehicular or pedestrian traffic in the vicinity of the resource that may lead to vandalism or increased erosion. Vandalism is considered to be a significant impact because it damages the integrity of the site, which is the major determinant of NRHP-eligibility. The evidence they left in archaeological sites is finite and cannot renew itself once it has been disturbed. For this reason, federal activities that open areas up to the public or that involve personnel traveling through an area may have an adverse effect if vandalism to NRHP-eligible or listed resources in the vicinity occurs.

12.2.1.2 Determination of Significance

A historic property is a property that is eligible for, or listed on, the NRHP. A significant adverse impact for cultural resources is one that disturbs the integrity of a historic property. If a project disturbs the characteristics that make the property eligible for, or listed on, the NRHP, then it is also considered to be a significant adverse impact.

The Regional Integrated Cultural Resources Management Plan (ICRMP) for Navy property in Guam (Tomonari-Tuggle et al. 2005) has established standard operating procedures for protecting known NRHP-eligible or listed cultural resources; procedures for managing the inadvertent discovery of archaeological resources, inadvertent discovery of human remains, or inadvertent disturbance to historic properties; and for distributing permits for archaeological investigations. In addition, agreements on limitations in training have been made as part of the Mariana Islands Training Range Complex Environmental Impact Statement (EIS) Programmatic Agreement (PA) (Navy 2007). Areas with limited or no training stipulations at Apra Harbor and the Naval Munitions Site are presented in Volume 2, Chapter 12, Figures 12.1-1 and 12.1-2. Acceptable training on Andersen Air Force Base (AFB) and Andersen South are described in Volume 2.

As part of the Section 106 consultation process for this EIS/OEIS, a PA for all military training activities, construction, and operations proposed under the proposed action, which includes additional mitigation measures and procedures is being prepared. Current signatories to this PA are: the Department of Defense (DoD) (Joint Region Marianas; DoD Representative Guam, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, and Republic of Palau; Marines; Navy; Army; Air Force), other federal agencies (United States [U.S.] Environmental Protection Agency [USEPA], Advisory Council on Historic Preservation [ACHP], and the National Park Service [NPS]), and local government agencies (Guam Historic Preservation Officer [HPO], Commonwealth of the Northern Mariana Islands [CNMI] HPO). The PA is scheduled for signature in October 2009, prior to the release of the Final Environmental Impact Statement (FEIS) and the signed PA would be incorporated into the FEIS. Stipulations in the PA include the following:

- The DoD would ensure the identification and evaluation of historic properties within the ROI prior to the initiation of any part of the project with the potential to impact historic properties.
- For areas that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, such areas would also be archaeologically sampled for subsurface sites when easily obtainable (i.e., without having to demolish existing facilities or infrastructure).
- Archaeological probability maps have been generated for all current DoD lands on the Island of Guam. For all other areas and islands impacted by the project, archaeological probability maps would be generated to predict the probability of encountering subsurface cultural resources in three categories (no to low, medium, and high). These maps would be compiled using previous archaeological investigations, historic maps, interviews, ethnohistoric accounts, and in consultation with the HPOs and the NPS.
 - *No to Low Probability Areas*: These areas contain no surface sites and include reclaimed fill lands or heavily disturbed areas. No to low probability areas have been previously tested and were found not to contain subsurface resource. Such areas are not likely to contain subsurface materials based on known social practices or history of the area.

- *Medium Probability Areas:* These areas have not been surveyed and may or may not contain surface sites, but have the potential to encounter subsurface historic resources based on known social practices or history of the area.
- *High Probability Areas:* These areas contain known surface and/or subsurface sites or are areas where old maps, documents, or legends indicate former villages, towns, or other types of activity areas.
- Any properties not evaluated, shall be assessed for NRHP eligibility. These historic properties would be incorporated into existing ICRMPs as they are revised or updated or if a new ICRMP is developed in consultation with the appropriate State Historic Preservation Officers.

Any updates to the existing Geographical Information System cultural resource layers (such as shape files showing the locations of known archaeological sites, and historic buildings/structures) would be shared with the appropriate HPO or NPS in accordance with 36 CFR 800.11(c). The HPO and the NPS recognize that these layers may contain sensitive information and would not disseminate or make them available to the public without obtaining permission of the appropriate responsible person within the respective jurisdiction. Maps of all areas with archaeological potential and sensitivity for the presence of NRHP-eligible or listed resources would be appended to the PA. No further review under Section 106 is required for areas designated as no to low probability areas. Mitigation measures for medium and high probability areas are stipulated as follows:

- Medium Probability Areas would be subject to monitoring or testing. Prior to any disturbance or excavation, work plans would be developed and reviewed by the appropriate HPO.
- For High Probability Areas, sites would be avoided if possible. If sites are impacted, a mitigation plan would be developed and reviewed by the appropriate HPO and then data recovery excavations would take place.

In recognition of the significance of many historic properties within the area of potential effect (APE) of the proposed action to various cultural and historic groups, the DoD would look favorably on affording access to historic sites to individuals and organizations that attach significance to these historic properties (where security requirements are not prohibitive). The PA also provides stipulations for treatment in case of emergency discoveries, the review process, and report requirements. The Standard Operating Procedures (SOP) in the current Regional ICRMP would be updated and revised and would be attached to the PA. Although probability maps would be generated based on the likelihood of archaeological resources, treatment of known architectural resources and traditional cultural properties as a result of the proposed action would also be stipulated in the PA.

12.2.1.3 Issues Identified During Public Scoping Process

The following analysis focuses on possible impacts to cultural resources, i.e., archaeological, architectural, and traditional cultural properties that could be affected by the proposal. As part of the analysis, concerns relating to cultural resources that were mentioned by the public, including regulatory stakeholders, during scoping meetings were addressed. These include:

- Access to cultural sites and traditional natural resource collection areas
- Construction impacts to cultural and traditional natural resources
- Thorough and adequate data collection
- Public participation in the planning process relating to cultural resources

12.2.2 Headquarters/Housing Alternatives

This description of environmental consequences addresses all components of the proposed actions for the Army AMDTF. This includes the headquarters/housing component and the munitions storage component, each of which has three alternatives. A full analysis of each alternative is presented beneath the individual headings of this chapter. The weapons emplacement component has four alternatives. Detailed information on the weapons emplacements is contained in a Classified Appendix (Appendix L). A summary of impacts specific to each set of alternatives (including an unclassified summary of weapons emplacement impacts) is presented at the end of this chapter.

12.2.2.1 Headquarters/Housing Alternative 1 (Preferred Alternative)

North

NCTS Finegayan

Construction. The activities associated with Alternative 1 are partially located within the Naval Computer and Telecommunications Station (NCTS) Finegayan site. These activities include the construction of the administration/headquarters (HQ), maintenance facilities, associated quality of life (QOL) facilities, bachelor quarters, and family housing. These facilities would be co-located with Marine Corps facilities on the NCTS Finegayan site. The total amount of potentially disturbed areas in the Finegayan area is 2,432 acres (ac) (984 hectares [ha]); Army facilities would only comprise approximately 1.5% of the total area that would be disturbed.

The majority of the AMDTF construction would occur in a low probability area (Figure 12.2-1). NRHP-eligible or listed sites do not occur in this area, and no construction impacts would occur.

Construction of the bachelor quarters facilities construction would impact sites 1021 (artifact scatter) and 1023 (four defensive structures).

Construction at Finegayan also has the potential to require the removal of dukduk trees, a traditional resource used by canoe builders.

Operation. Operations at the AMDTF would include the use of administrative, maintenance, and housing facilities by Army personnel. The AMDTF would increase the population by 1,832 Soldiers, civilian personnel, and associated dependents. This increase in personnel in the area could increase site vandalism and have impacts on the surrounding area. However, this is a small proportion of the total population of military personnel in the area. Disturbance to NRHP-eligible or listed resources through increasing access to the sites and the resulting damage by vandalism is considered to be a significant adverse impact.

South Finegayan

Construction. Construction of Army housing and QOL facilities would impact areas with low archaeological probability at South Finegayan and significant impacts are unlikely. The Army housing would be shared with Marine Corps housing at South Finegayan. Site 811 (Latte Stone Park), a traditional cultural property would be avoided by construction.

Operation. Operation of these facilities would bring additional personnel into the area. This increase in personnel could increase site vandalism and disturb NRHP-eligible sites in the vicinity. Indirect significant adverse impacts could occur to site 811 (Latte Stone Park) and Haputo.

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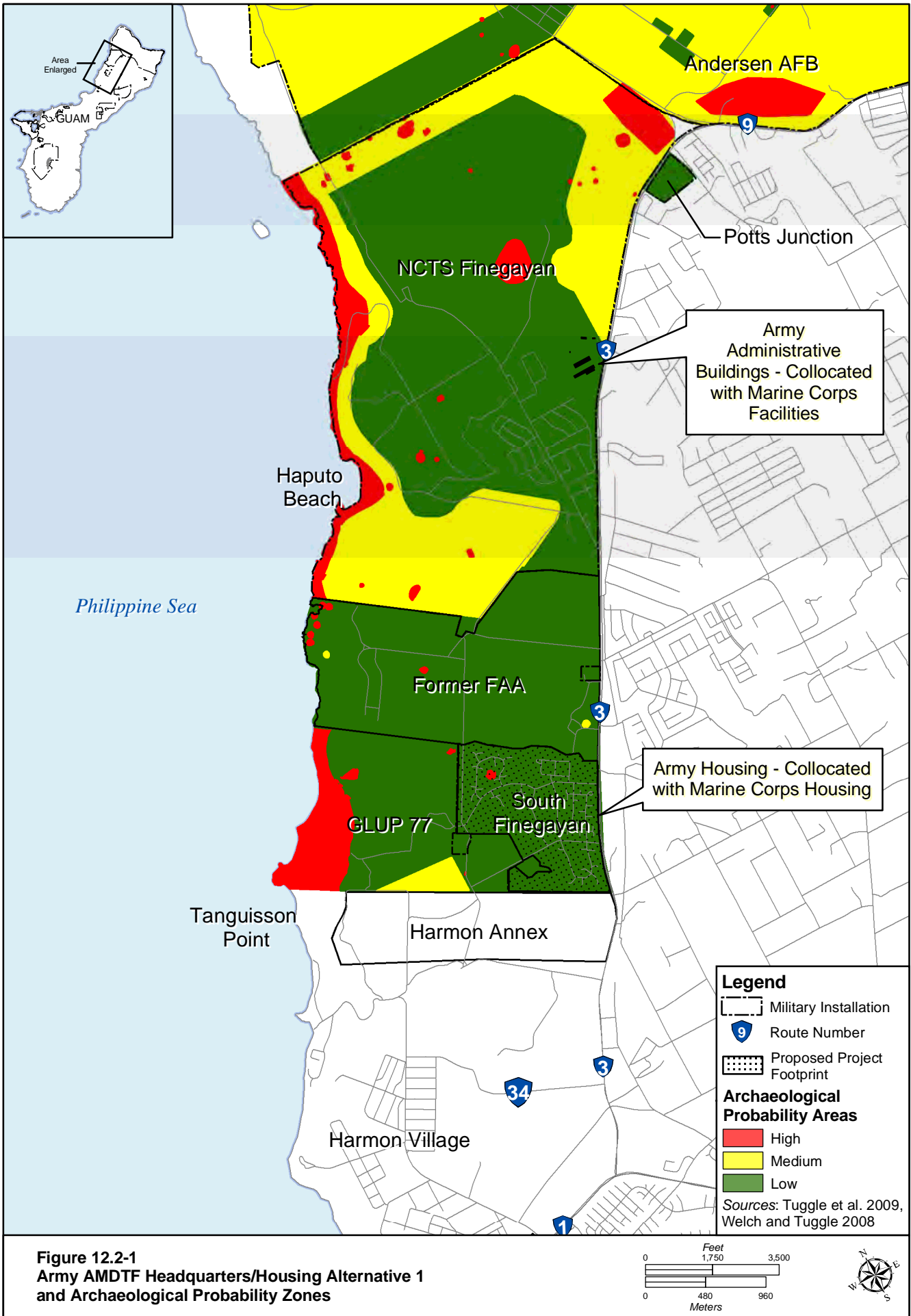


Figure 12.2-1
Army AMDTF Headquarters/Housing Alternative 1
and Archaeological Probability Zones

Central*Navy Barrigada*

No construction or operations at Navy Barrigada would occur under Alternative 1.

Air Force Barrigada

No construction or operations at Air Force Barrigada would occur under Alternative 1.

Alternative 1 Potential Mitigation Measures

Alternative 1 would have significant adverse impacts to cultural resources. However, with implementation of the proposed mitigation measures listed below, these impacts would be resolved through consultation to less than significant levels.

Although the area where Latte Stone Park (site 811) is located is slated for development, the site would be avoided. Also, the signage and plaque for the sign would be corrected and upgraded to enhance the interpretation of the site. Data recovery would be conducted at sites 1021 and 1023. Operational impacts would be mitigated through training of personnel working and living in the area to avoid impacts to archaeological sites.

Impacts to traditional resources such as the nunu tree, dukduk tree, ifit tree, and da'ok tree, would be avoided if possible.

12.2.2.2 Headquarters/Housing Alternative 2

North*NCTS Finegayan*

No construction or operations would occur at NCTS Finegayan under Alternative 2.

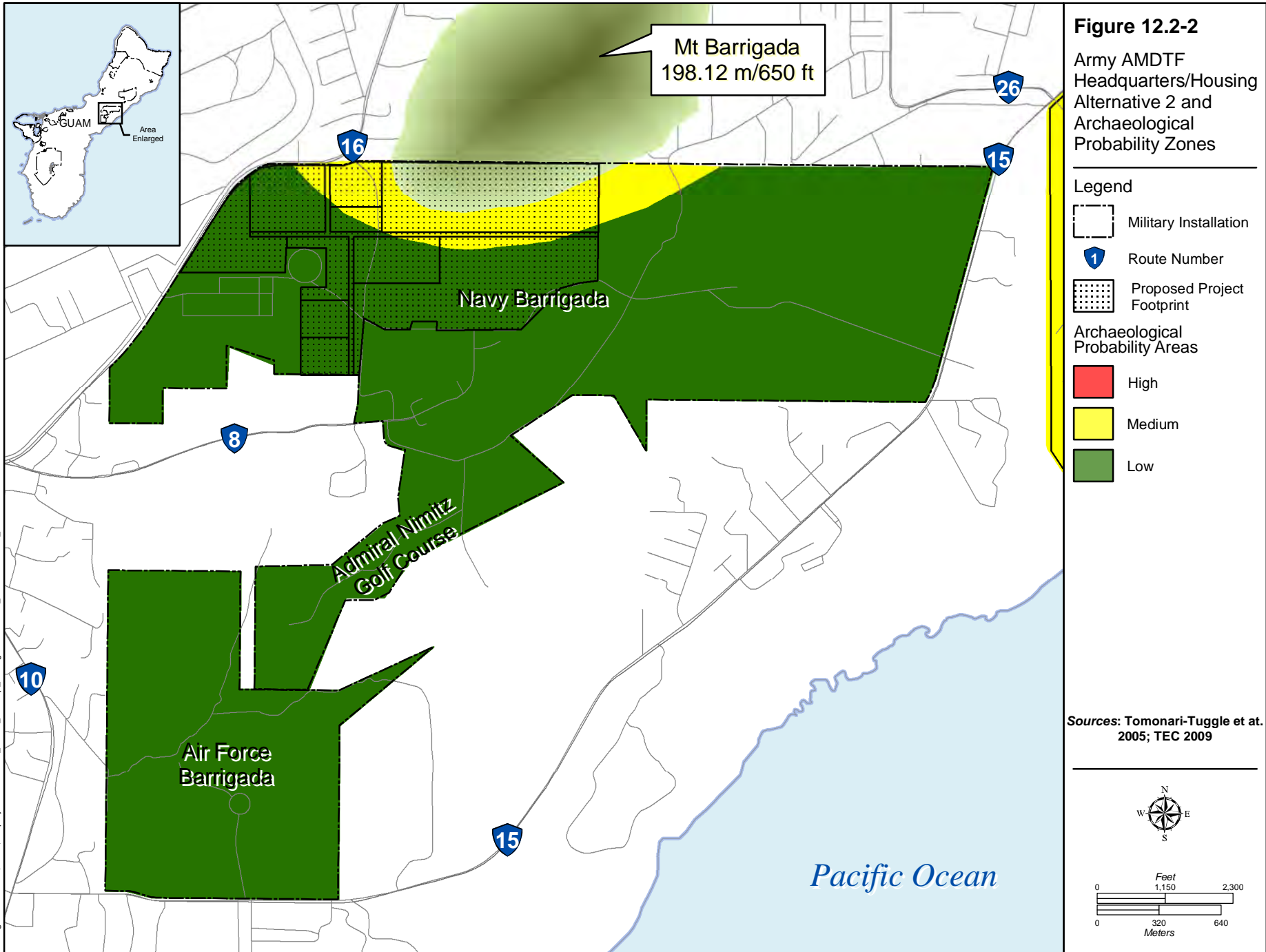
South Finegayan

No construction or operations would occur at South Finegayan under Alternative 2.

Central*Navy Barrigada*

Construction. Alternative 2 would include construction of the administration/HQ, maintenance facilities, associated QOL facilities, bachelor quarters, and family housing at Navy Barrigada. Alternative 2 encompasses 509 ac (206 ha) of ground disturbance. Of these total acres, the administration/HQ and maintenance facilities occupy 28 ac (11.3 ha), and the HSG, QOL facilities, bachelor quarters combine to occupy 481 total ac (195 ha).

Of the 509 total ac (206 ha) included in Alternative 2, the majority of the construction would occur in a low probability area. Construction at the northern boundary of Navy Barrigada would occur at an area considered to be a medium probability area (Figure 12.2-2). This area is also the southwestern corner of Mount Barrigada or Mount Tuyan, a traditional cultural property.



Mt Barrigada
 198.12 m/650 ft

Navy Barrigada

Air Force
 Barrigada

Admiral Nimitz
 Golf Course

Pacific Ocean

The proposed action would place the base gate, bachelor quarters, QOL facilities, and some housing facilities atop the steep slope on the southwestern side of Mount Barrigada. This setting would require a substantial amount of excavation and soil removal and has the potential to adversely affect a traditional cultural property by the removal of 100 ac (40.5 ha) at the foot of the mountain, and disturb an area with medium probability. No NRHP-eligible or listed architectural resources would be impacted by Alternative 2.

Construction at Navy Barrigada also has the potential to require the removal of dukduk trees, a traditional resource used by canoe builders.

Operation. Operation at the AMDTF would include the use of administrative, maintenance, and housing facilities by Army personnel. The AMDTF would increase the population by approximately 630 Soldiers, 130 civilian personnel, and 950 associated dependents. This increase in personnel could increase site vandalism and other impacts on the surrounding area. However, most of the area is situated in a low probability area and NRHP-eligible or listed resources do not occur in this area. Increased population in this area would not adversely impact Mount Barrigada as the operations would not restrict access to the property, which is of importance because of its association with Chamorro legends. Therefore, operations due to Alternative 2 would have a less than significant impact on cultural resources.

Air Force Barrigada

No construction or operations at Air Force Barrigada would occur under Alternative 2.

Alternative 2 Potential Mitigation Measures

Alternative 2 would have significant adverse impacts to one traditional cultural property; however, with implementation of the proposed mitigation measures listed below, these impacts would be resolved through consultation to less than significant levels.

Construction of facilities in the north of Navy Barrigada that would require leveling a portion of Mount Barrigada would be redesigned to avoid disturbing this area, if possible. If impacted, a mitigation plan would be developed and reviewed by the Guam HPO and other interested parties and then appropriate documentation or interpretation would take place.

Operational impacts would be mitigated through training of personnel working and living in the area to avoid impacts to archaeological sites.

Impacts to traditional resources such as the nunu tree, dukduk tree, ifit tree, and da'ok tree, would be avoided if possible.

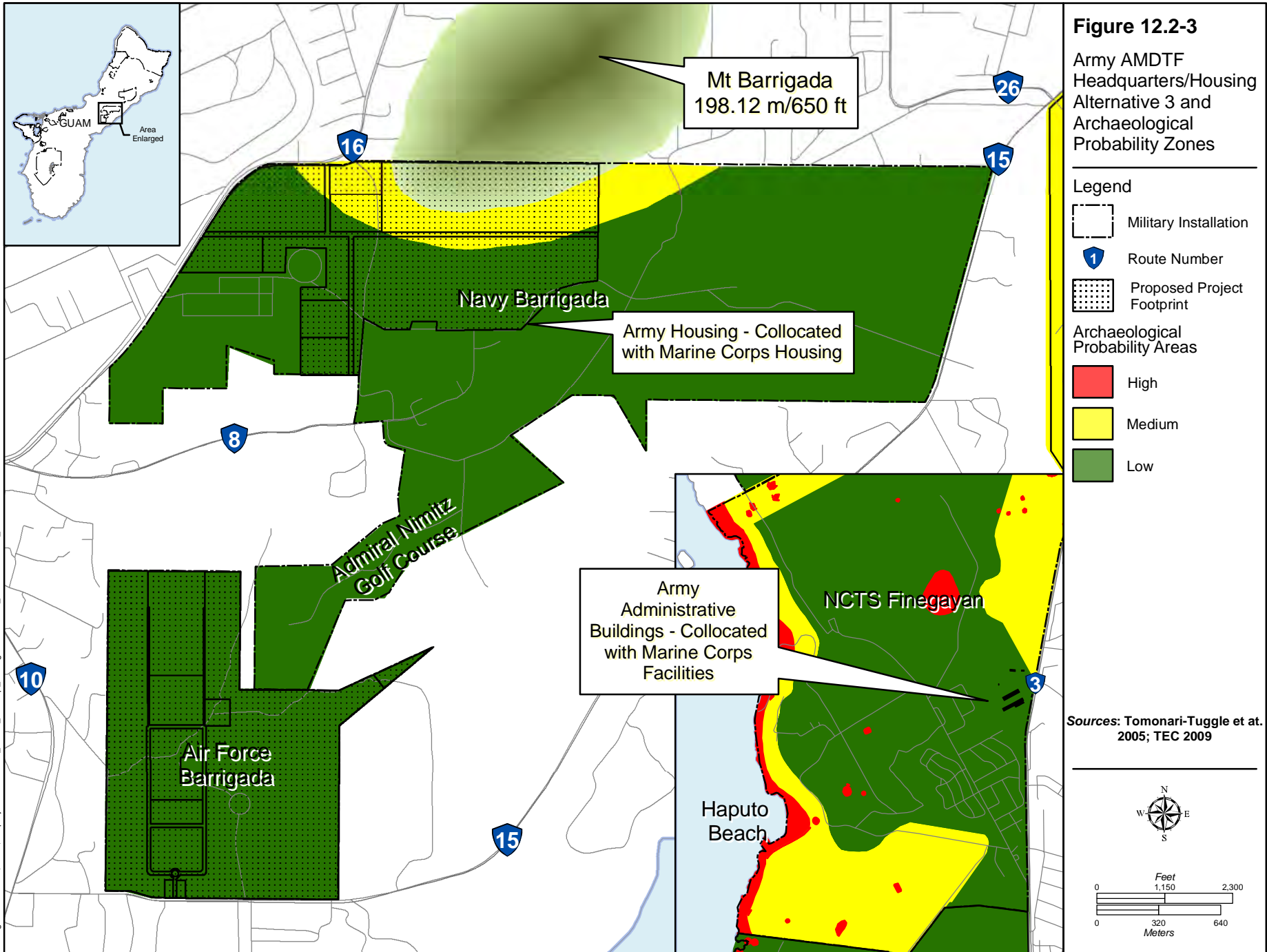
12.2.2.3 Headquarters/Housing Alternative 3

North

NCTS Finegayan

Construction. The activities associated with Alternative 3 are partially located within the NCTS Finegayan site (Figure 12.2-3). These activities include the construction of the administration/HQ, maintenance facilities, and bachelor quarters, and family housing. Under this alternative these facilities would be co-located with Marine Corps facilities as NCTS Finegayan.

The majority of the AMDTF construction would occur in a low probability area. No NRHP-eligible or listed architectural resources would be impacted by Alternative 3.



Mt Barrigada
198.12 m/650 ft

Navy Barrigada

Army Housing - Collocated
with Marine Corps Housing

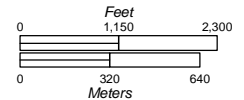
Admiral Nimitz
Golf Course

Air Force
Barrigada

Army
Administrative
Buildings - Collocated
with Marine Corps
Facilities

NCTS Finegayan

Haputo
Beach



Construction of the bachelor quarters facilities would impact areas with medium archaeological probability. This setting has the potential to adversely affect sites 1021 (artifact scatter) and 1023 (four defensive structures). Construction of HSG and education facilities would avoid site 811 (Latte Stone Park), a traditional cultural property.

Construction at Finegayan has the potential to require the removal of dukduk trees, a traditional resource used by canoe builders.

Operation. Operation at the AMDTF would include the use of administrative and maintenance facilities by Army personnel. The AMDTF would increase the population by a portion of the 630 Soldiers, 130 civilian personnel, and 950 associated dependents. This increase in personnel in the area has the potential to increase site vandalism and have impacts on the surrounding area. Most of the area is situated in medium and low probability areas and NRHP-eligible or listed resources do occur in this area.

South Finegayan

No construction or operations at South Finegayan would occur under Alternative 3.

Central

Navy Barrigada

The activities associated with Alternative 3 are partially located within the Navy Barrigada site. These activities include the construction of the housing and QOL facilities.

Construction. The majority of the construction would occur in a low probability area. The proposed action would take place partially near the foot of Mount Barrigada. This setting would require a substantial amount of excavation and soil removal, and has the potential to adversely affect a traditional cultural property by the removal of 100 acres (ac) (40.5 hectares [ha]) at the foot of the mountain, and disturb an area with medium probability. No NRHP-eligible or listed architectural resources would be impacted by Alternative 3.

Construction at Navy Barrigada has the potential to require the removal of dukduk trees, a traditional resource used by canoe builders.

Operation. Operations at the AMDTF would include the use of housing by Army personnel. However, most of the area is situated in a low probability area and NRHP-eligible or listed resources do not occur there. Therefore, operations due to Alternative 3 at Navy Barrigada would have a less than significant impact on cultural resources.

Air Force Barrigada

Construction. The activities associated with Alternative 3 are partially located within the Air Force Barrigada site. These activities include the construction of the housing and QOL facilities. Most of the area is situated in a low probability area and NRHP-eligible or listed resources do not occur in the area. No NRHP-eligible or listed architectural resources would be impacted by Alternative 3 at Air Force Barrigada.

Operation. Operation at the AMDTF would include the use of housing by Army personnel. However, most of the area is situated in a low probability area and NRHP-eligible resources or listed do not occur in the area. Therefore, operations due to Alternative 3 at Air Force Barrigada would have less than significant impact on cultural resources.

Alternative 3 Potential Mitigation Measures

Alternative 3 would have significant adverse impacts to cultural resources. However, with implementation of the proposed mitigation measures listed below, these impacts would be resolved through consultation to less than significant levels.

Although the area where Latte Stone Park (Site 811) is located is slated for development, the site would be avoided. Also, the signage and plaque for the sign would be corrected and upgraded to enhance the interpretation of the site. Data recovery would be conducted at site 1021 and 1023. Operational impacts would be mitigated through training of personnel working and living in the area to avoid impacts to archaeological sites.

Impacts to traditional resources such as the nunu tree, dukduk tree, ifit tree, and da'ok tree, would be avoided if possible.

12.2.3 Munitions Storage Alternatives

12.2.3.1 Munitions Storage Alternative 1 (Preferred Alternative)

Construction

Construction of additional storage in the Munitions Storage Area (MSA) would impact high and low probability areas. Ground excavation and soil removal associated with buildings and utilities construction would adversely impact NRHP-eligible archaeological resources known in the project area, including site T-3-1. Figure 12.2-4 shows the new earth-covered magazines that would be located in the eastern area of Andersen Air Force Base (AFB) near the intersection of Routes 3, 3A and 9.

Operation

Operations of the munitions storage facilities would bring additional personnel into the area. This increase in personnel has the potential to increase site vandalism. Disturbance to NRHP-eligible resources, either directly through operations or indirectly through increasing access to the sites and the resulting damage by vandalism, is considered to be a significant adverse effect.

12.2.3.2 Munitions Storage Alternative 2

Construction

Construction of additional storage in the MSA would impact high and low probability areas. Ground excavation and soil removal associated with buildings and utilities construction would adversely impact NRHP-eligible archaeological resources known in the project area, including site T-3-1 (see Figure 12.2-4).

Operation

Operations of the munitions storage facilities would bring additional personnel into the area. This increase in personnel has the potential to increase site vandalism. Disturbance to NRHP-eligible resources, either directly through operations or indirectly through increasing access to the sites and the resulting damage by vandalism, is considered to be a significant adverse effect.

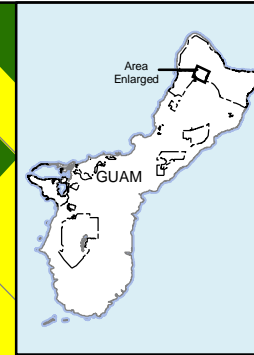
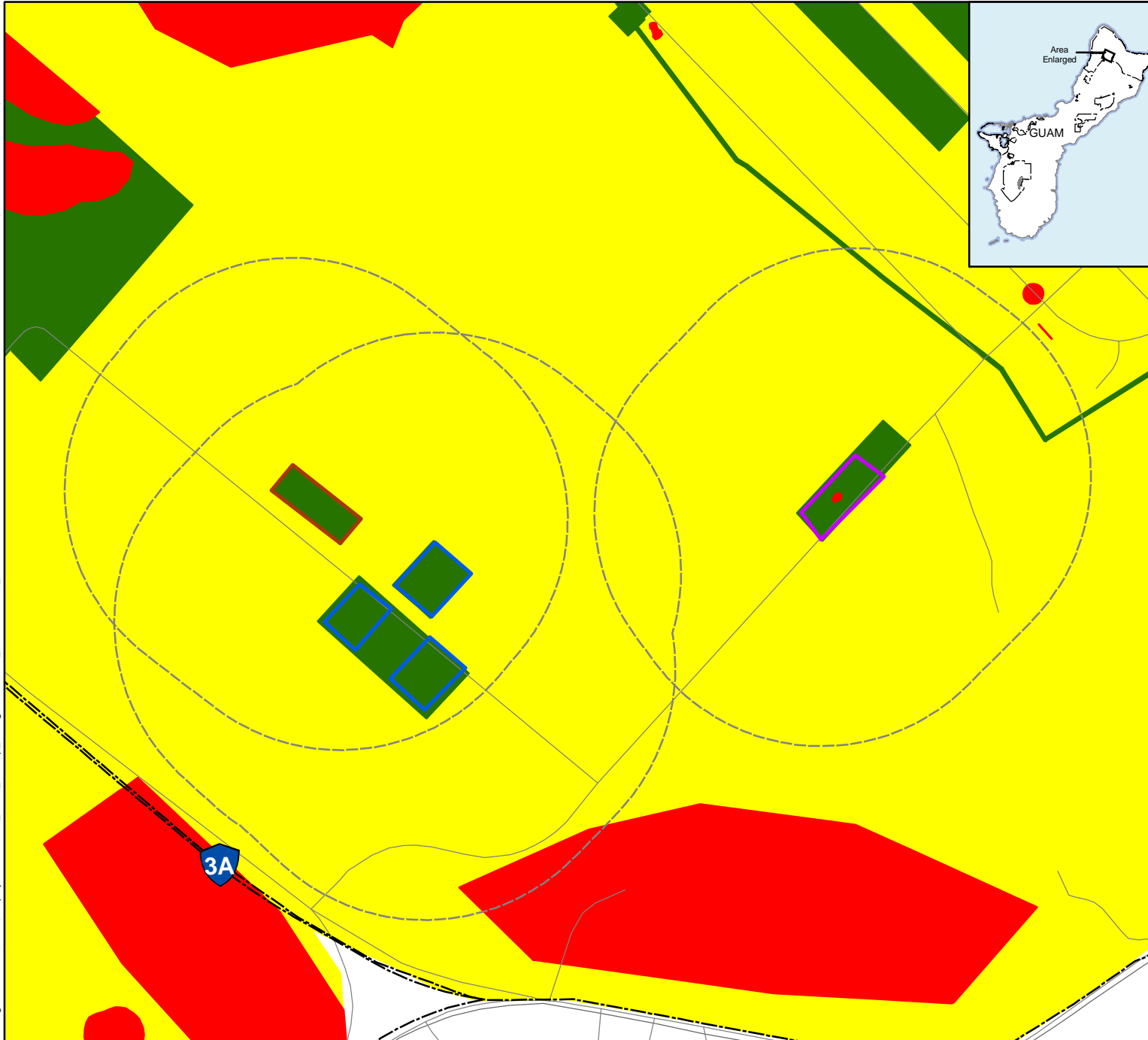









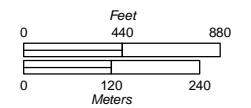


Figure 12.2-4
Army AMDTF
Munitions Storage
Alternatives
and Archaeological
Probability Zones

Legend

-  Military Installation
-  Route Number
-  IBD ESQD Arc
-  Alternative 1
-  Alternative 2
-  Alternative 3
- Archaeological Probability Areas**
-  High
-  Medium
-  Low

Sources: Tomonari-Tuggle et al.
2005; TEC 2009



12.2.3.3 Munitions Storage Alternative 3

Construction

Construction of additional storage in the MSA would impact high and medium probability areas. Ground excavation and soil removal associated with buildings and utilities construction would adversely impact NRHP-eligible archaeological resources known in the project area, including site T-3-1 (see Figure 12.2-4).

Operation

Operation of the munitions storage facilities would bring additional personnel into the area. This increase in personnel has the potential to increase site vandalism. Disturbance to NRHP-eligible resources, either directly through operations or indirectly through increasing access to the sites, and the resulting damage by vandalism, is considered to be a significant adverse effect.

12.2.4 Weapons Emplacement Alternatives

Detailed information on the weapons emplacements is contained in a Classified Appendix (Appendix L). An unclassified summary of impacts specific to each set of alternatives is presented at the end of this chapter.

12.2.5 No-Action Alternative

Under the no-action alternative, no construction or operations associated with the AMDTF would occur. Existing operations at the proposed project areas would continue. Therefore, the no-action alternative would not have adverse impacts to significant cultural resources.

12.2.6 Summary of Impacts

Tables 12.2-1, 12.2-2, 12.2-3 summarize the potential impacts of each major component – headquarters/housing, munitions storage, and weapons emplacement, respectively. A text summary is provided below.

Table 12.2-1 Summary of Headquarters/Housing Impacts – Alternatives 1, 2, and 3

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
Construction		
SI-M <ul style="list-style-type: none"> • Direct and indirect significant adverse impacts to two NRHP-eligible archaeological sites on NCTS Finegayan mitigated to less than significant through data recovery 	SI-M <ul style="list-style-type: none"> • Direct significant adverse impacts to one traditional cultural property at Navy Barrigada 	SI-M <ul style="list-style-type: none"> • Direct and indirect impacts to areas with two NRHP-eligible archaeological sites on NCTS Finegayan mitigated to less than significant through data recovery • Direct significant adverse impacts to one traditional cultural property at Navy Barrigada
Operation		
SI-M <ul style="list-style-type: none"> • Indirect significant adverse impacts to one traditional cultural property on NCTS Finegayan 	SI-M <ul style="list-style-type: none"> • Indirect significant impacts to one traditional cultural property at Navy Barrigada 	SI-M <ul style="list-style-type: none"> • Indirect significant impacts to one traditional cultural property at Navy Barrigada • Indirect significant adverse impacts to one traditional cultural property on NCTS Finegayan

Legend: SI-M = Significant impact mitigable to less than significant.

Table 12.2-2. Summary of Munitions Storage Impacts – Alternatives 1, 2, and 3

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
Construction		
SI-M <ul style="list-style-type: none"> • Direct and indirect significant adverse impacts to one NRHP eligible archaeological site 	SI-M <ul style="list-style-type: none"> • The impacts would be the same as Alternative 1 	SI-M <ul style="list-style-type: none"> • The impacts would be the same as Alternative 1
Operation		
SI-M <ul style="list-style-type: none"> • Indirect adverse impacts to one NRHP eligible archaeological site 	SI-M <ul style="list-style-type: none"> • The impacts would be the same as Alternative 1 	SI-M <ul style="list-style-type: none"> • The impacts would be the same as Alternative 1

Legend: SI-M = Significant impact mitigable to less than significant.

Table 12.2-3. Summary of Weapons Emplacement Impacts – Alternatives 1, 2, 3 and 4

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 4</i>
Construction			
SI-M <ul style="list-style-type: none"> Significant adverse impacts to NRHP-eligible archaeological sites mitigated to less than significant through data recovery Significant adverse impacts to traditional cultural property 	SI-M <ul style="list-style-type: none"> Significant adverse impacts to traditional cultural property The impacts would be the same as Alternative 1 	SI-M <ul style="list-style-type: none"> The impacts would be the same as Alternative 1 The impacts would be the same as Alternative 1 	SI-M <ul style="list-style-type: none"> The impacts would be the same as Alternative 1 The impacts would be the same as Alternative 1
Operation			
NI <ul style="list-style-type: none"> There would be no impacts due to operations 	NI <ul style="list-style-type: none"> The impacts would be the same as Alternative 1 	NI <ul style="list-style-type: none"> The impacts would be the same as Alternative 1 	NI <ul style="list-style-type: none"> The impacts would be the same as Alternative 1

Legend: SI-M = Significant impact mitigable to less than significant, NI = No impact.

Construction and operation of Headquarters/Housing Alternative 1 would result in significant impacts to two archaeological sites and one traditional cultural property. Construction of the co-located Army facilities at Finegayan would involve ground disturbance, erosion, and an increase in population in relation to NRHP-eligible or listed sites. However, these impacts could be resolved through the consultation process to less than significant levels. Potential mitigation would include avoidance, monitoring during construction, data recovery, public education, and training of Marines and Soldiers to prevent vandalism.

Construction and operation of Headquarters/Housing Alternative 2 at Navy Barrigada would result in significant impacts to one traditional cultural property. However, this impact could be resolved through the consultation process to less than significant levels. Potential mitigation would include avoidance and public education.

Construction and operation of Headquarters/Housing Alternative 3 would result in significant impacts to two archaeological sites and one traditional cultural property. Construction of the co-located Army facilities at Finegayan would involve ground disturbance, erosion, and an increase in population in relation to NRHP-eligible or listed sites. Construction at Navy Barrigada in areas of medium archaeological probability could result in significant impacts. Construction and operation of the alternative in this area would also change the setting of a potential traditional cultural property. Construction and operation of additional storage in the MSA under all three alternatives would result in significant impacts to one NRHP-eligible archaeological site. Construction and operation of the weapons emplacement facilities would have significant and no impacts upon cultural resources, respectively. However, these impacts could be resolved through the consultation process to less than significant levels. Potential mitigation would include avoidance, monitoring during construction, data recovery, public education, and training of Marines and Soldiers to prevent vandalism.

12.2.7 Summary of Potential Mitigation Measures

Table 12.2-4 summarizes the potential mitigation measures for each action alternative.

Table 12.2-4. Summary of Potential Mitigation Measures

<i>Headquarters/Housing Alternatives</i>	<i>Munitions Storage Alternatives</i>	<i>Weapons Emplacement Alternatives</i>
Archaeological Resources		
<ul style="list-style-type: none"> • Data recovery of sites 1021 and 1023 • Cultural resources education training of Marines and Soldiers to promote protection of sensitive sites 	<ul style="list-style-type: none"> • Data recovery of site T-3-1 • Cultural resources education training of Marines and Soldiers to promote protection of sensitive sites 	<ul style="list-style-type: none"> • Cultural resources education training of Marines and Soldiers to promote protection of sensitive sites
Architectural Resources		
<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Submerged Resources and Objects		
<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Traditional Cultural Properties		
<ul style="list-style-type: none"> • Impacts to traditional resources such as the nunu tree, dukduk tree, ifit tree, and da'ok tree, would be avoided if possible 	<ul style="list-style-type: none"> • Impacts to traditional resources such as the nunu tree, dukduk tree, ifit tree, and da'ok tree, would be avoided if possible 	<ul style="list-style-type: none"> • Impacts to traditional resources such as the nunu tree, dukduk tree, ifit tree, and da'ok tree, would be avoided if possible