

CHAPTER 14.

CULTURAL RESOURCES

14.1 INTRODUCTION

This chapter describes 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 that volume include the ROI for the utilities and roadway related project components of the proposed action. The chapters are presented in the same order as the resource areas contained in this volume.

14.2 ENVIRONMENTAL CONSEQUENCES

14.2.1 Approach to Analysis

14.2.1.1 Methodology

Utilities

The methodology for identifying, evaluating, and mitigating impacts to cultural resources has been established through federal laws and regulations including the National Historic Preservation Act (NHPA) and the Archaeological Resource Protection Act.

A significant resource is a cultural resource eligible 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 features that qualify it for inclusion on the NRHP. Adverse effects may include the following: physical destruction, damage, or alteration of all or part of the resources; 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; and transfer, lease, or sale of the property (36 Code of Federal Regulations [CFR] 800.5[a][2]) without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts are those that may occur during either the construction or operations phase of the project. They may be the result of increased noise during operations or 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 from ground disturbing activities. Vandalism is considered to be a significant impact because it damages the integrity of the site that 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 impact if vandalism to NRHP-eligible or listed resources in the vicinity occur.

Roadway Projects

All project areas of potential effect (APE) were inspected by cultural resources experts and Guam Historic Preservation Office (GHPO) personnel. In some cases, more fieldwork would be required, as described in the section discussing the Programmatic Agreement (PA). Probability areas were determined in consultation with the GHPO, after review of relevant literature, fieldwork and GHPO records.

NHPA Section 106 allows for projects to result in a finding of “no historic properties affected” (sometimes listed as “no effect”), “no adverse effect,” or “adverse effect,” as defined below.

- **No Historic Properties Affected (No Effect):** There are either no historic properties present in the APE, or there are historic properties present in the APE, but the undertaking would have no effect on them as defined in 36 CFR 800.16(i).
- **No Adverse Effect:** There could be an effect on a historic property, but the effect would not be harmful to those characteristics that qualify the property for inclusion in or eligibility for the NRHP.
- **Adverse Effect:** Project impacts may directly or indirectly alter any of the characteristics that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association, or a property’s ability to offer research potential.

The criteria of adverse effect described in the guidelines for NHPA Section 106 (36 CFR 800.5[a]) define adverse effects to significant cultural resources as any of the following actions, regardless of whether they occur singly or in combination with one another:

- Physical destruction of or damage to all or part of the resource
- Alteration of a resource, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access that is not consistent with the Secretary’s standards for the treatment of historic properties (36 CFR 68) and applicable guidelines
- Removal of the resource from its historic location
- Change of the character of the resource’s use or of physical features within the setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe

Programmatic Agreement

Some properties, such as archaeological sites, may be buried beneath dense vegetation or considerable deposition, and they may not be discovered through archival research and surface surveys. This means that the normal procedures for Section 106 compliance may not identify all properties within the affected environment. For that reason, a PA between the Federal Highway Administration (FHWA) and GHPO is being developed to govern these situations. The Advisory Council on Historic Preservation (ACHP) and National Park Service (NPS) may be invited signatories as well. Through the PA, roadway projects would be designated by their potential to affect undocumented historic properties. This assessment would be compiled using previous archaeological investigations, historic maps, interviews, ethno-historic accounts, and an understanding of post-depositional site formation processes.

Roadways would be characterized as (1) No/Low Probability Areas, (2) Medium Probability Areas, or (3) High Probability Areas.

- **No/Low Probability Areas:** These areas contain no surface sites and include reclaimed fill lands or heavily disturbed areas. No/Low Probability Areas are also areas that have been previously tested and were found not to contain subsurface resources and are areas 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 have the potential to contain sites or are areas that contain no 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.

These probability statements refer to the potential for an area to hold undocumented resources. Some types of roadway projects would not affect such a site, even if one were present. Thus, some areas may be designated High Probability Areas, and they may also be listed with No Historic Properties Affected because of the nature of the proposed project. No further review under Section 106 would be required for areas designated as No/Low Probability Areas. Medium Probability Areas would be subject to inventory, monitoring, or testing. Prior to any disturbance or excavation, work plans would be developed and reviewed by the appropriate GHPO. In High Probability Areas, sites would be avoided if possible. If sites are impacted, a mitigation plan would be developed and concurred upon by the GHPO.

All evaluations would be completed in consultation with the GHPO and appropriate cultural resources stakeholders. The PA would also provide stipulations for treatment in case of emergency discoveries, the review process, and report requirements.

14.2.1.2 Determination of Significance

A historic property is a property that is eligible for or listed on the NRHP. For cultural resources a significant adverse impact 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 on Guam 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, inadvertent disturbance to historic properties; and distributing permits for archaeological investigations (Tomonari-Tuggle et al. 2005). In addition, agreements on limitations in training have been made as part of the Mariana Islands Training Range Complex Environmental Impact Statement PA (Navy 2009). Areas with limited or no training stipulations at Apra Harbor and the Naval Munitions Site (NMS) are presented in Volume 2, Chapter 12, Cultural Resources (Figure 12.1-1 for Apra Harbor and Figure 12.1-2 for the NMS).

As part of the Section 106 consultation process for the Joint Guam buildup, a PA for all military training activities, construction, and operations proposed under the proposed action, preferred alternative that 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 [CNMI], Federated States of Micronesia, and Republic of Palau; Marines; Navy; Army; Air Force), other federal agencies (U.S. Environmental Protection Agency [USEPA], Advisory Council for Historic Preservation [ACHP], and the NPS), and local government agencies (Guam Historic Preservation Officer [HPO], Commonwealth of the Northern

Mariana Islands HPO). The PA is scheduled for signature in October 2009 prior to the release of the Final Environmental Impact Statement and the signed PA would be incorporated into the Final Environmental Impact Statement. Stipulations in the PA include the following:

- The DoD would ensure that the identification and evaluation of historic properties within the APE for the project is completed prior to the initiation of any part of the project with the potential to impact historic properties.
- For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, 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 Navy and Air Force DoD lands on the Island of Guam. For all other areas and islands impacted by the project, archaeological probability maps would be generated that predict the probability of encountering subsurface cultural resources in three categories (no/low, medium, and high). These maps would be compiled using previous archaeological investigations, maps, interviews, and ethnohistoric accounts and in consultation with the HPOs and the NPS.
- *No/Low Probability Areas.* These areas contain no surface sites and include reclaimed fill lands or heavily disturbed areas. No/low probability areas are also areas that have been previously tested and were found not to contain subsurface resources based on known social practices or history of the area.
- *Medium Probability Areas.* These areas have not been surveyed and may have the potential to contain sites (surface and/or subsurface). Also included are areas that contain no surface sites, but have the potential to encounter subsurface archaeological 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 similar activity.
- 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 HPOs.

Any updates to the existing geographical information system cultural resource layers, such as shape files showing the locations of known archaeological sites and buildings and structures, would be shared with the appropriate HPO or NPS (if a property is associated with a National Historic Landmark in accordance with 36 CFR 800.11(c)). The HPOs 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 whose jurisdiction that historic property is under. 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/Low probability areas. Potential mitigation measures for Medium and High probability areas are stipulated as follows:

- High Probability Areas 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.
- 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.

In recognition of the significance that many historic properties within the APE of the proposed action has

to various cultural groups, DoD would generally look favorably on affording access to archaeological 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 (SOPs) in the current regional ICRMP would be updated, revised, and 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.

14.2.1.3 Issues Identified During Public Scoping Process

The following analysis focuses on possible impacts to cultural resources; 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 the public scoping meetings were addressed. These include:

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

14.2.2 Power

14.2.2.1 Interim Alternative 1 (Preferred Alternative)

Interim Alternative 1 would recondition existing combustion turbines and upgrade T&D systems and would not require new construction or enlargement of the existing footprint of the facility. This work would be undertaken by the GPA on its existing permitted facilities. Reconditioning would be made to existing permitted facilities at the Marbo, Yigo, Dededo No. 1, and Macheche combustion turbines. These combustion turbines are not currently being used up to permit limits. T&D system upgrades would be on existing above ground and underground transmission lines. This alternative supports Main Cantonment Alternatives 1 and 2 and Main Cantonment Alternatives 3 and 8 would require additional upgrades to the T&D system.

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

It is anticipated that these facilities would require general overhaul, capability testing, and controlled startup that could take up to 12 months. The amount of improvements needed would not be known until the units are inspected and tested. The NRHP eligibility of the GPA power plants is unknown; however, most are between 15 to 20 years old.

Interim Alternative 1 would also involve transmission and distribution upgrades both above ground and below ground. These upgrades would take place in areas of low, medium, and high archaeological probability in addition to areas that have not been surveyed for archaeological resources.

The locations of the utilities in relation to archaeological probability areas are shown in Figure 14.2-1, 14.2-2, 14.2-3, and Figure 14.2-4. Aside from Marbo on Andersen South, the affected areas have not been surveyed. Marbo has a low probability for archaeological resources.

However, given that the other areas are located on non-DoD lands, it is unlikely that they have been

surveyed for archaeological resources. Surveys are currently being conducted in these areas and more information will be provided in the FEIS.

Operations of Interim Alternative 1 would not have significant impacts on cultural resources, as operations would not bring an influx of people into the area and operational activities are unlikely to cause erosion. Because it is an existing activity, operations would not change the visual or audible setting near NRHP-eligible or listed resources that are important for these reasons.

Potential Mitigation Measures

Areas where new construction would take place on non-DoD lands would follow the stipulations of the PA. For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, areas would also be archaeologically sampled for subsurface sites when easily obtainable (i.e., without having to demolish existing facilities or infrastructure). Any properties that have not been previously evaluated would be assessed for eligibility for inclusion on the NRHP. If NRHP eligible sites are impacted, data recovery excavation would take place as necessary.

Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

14.2.2.2 Interim Alternative 2

Interim Alternative 2 is a combination of reconditioning of existing permitted GPA facilities, an increase in operational hours for existing combustion turbines, and upgrades to existing T&D systems. Interim Alternative 2 would not require new construction or enlargement of the existing footprint of the facility. Reconditioning would be performed on the existing permitted GPA facilities at the Marbo, Yigo, and Dededo combustion turbines. This alternative supports Main Cantonment Alternatives 1 and 2 and Main Cantonment Alternatives 3 and 8 would require additional upgrades to the T&D system.

Impacts to the area include subgrade construction, cut and fill activities, and brush clearing.

Interim Alternative 2 would also involve transmission and distribution upgrades both above ground and below ground. These upgrades would take place in areas of low, medium, and high archaeological probability in addition to areas that have not been surveyed for archaeological resources. These upgrades have the potential to impact NRHP-eligible archaeological sites.

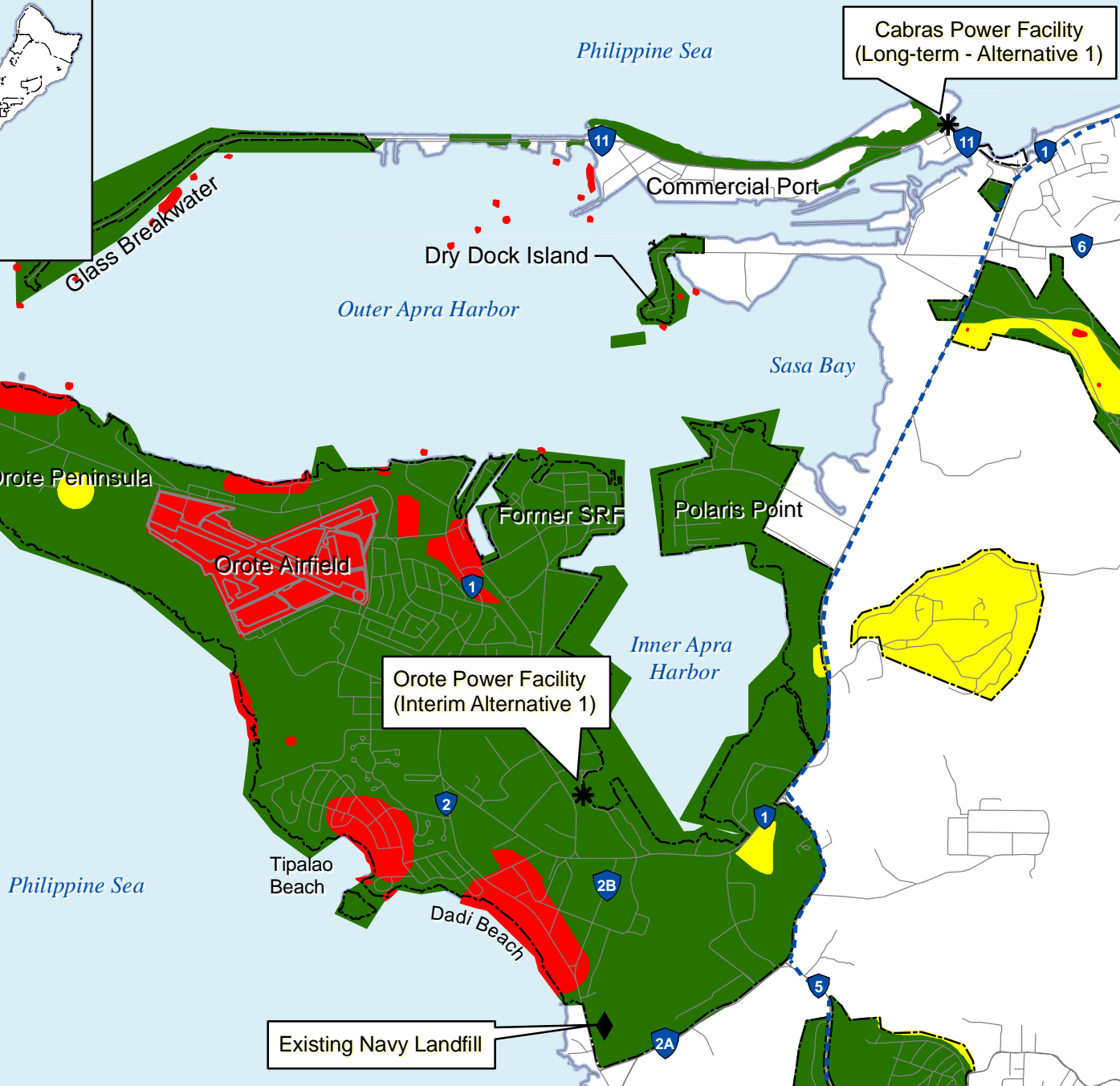
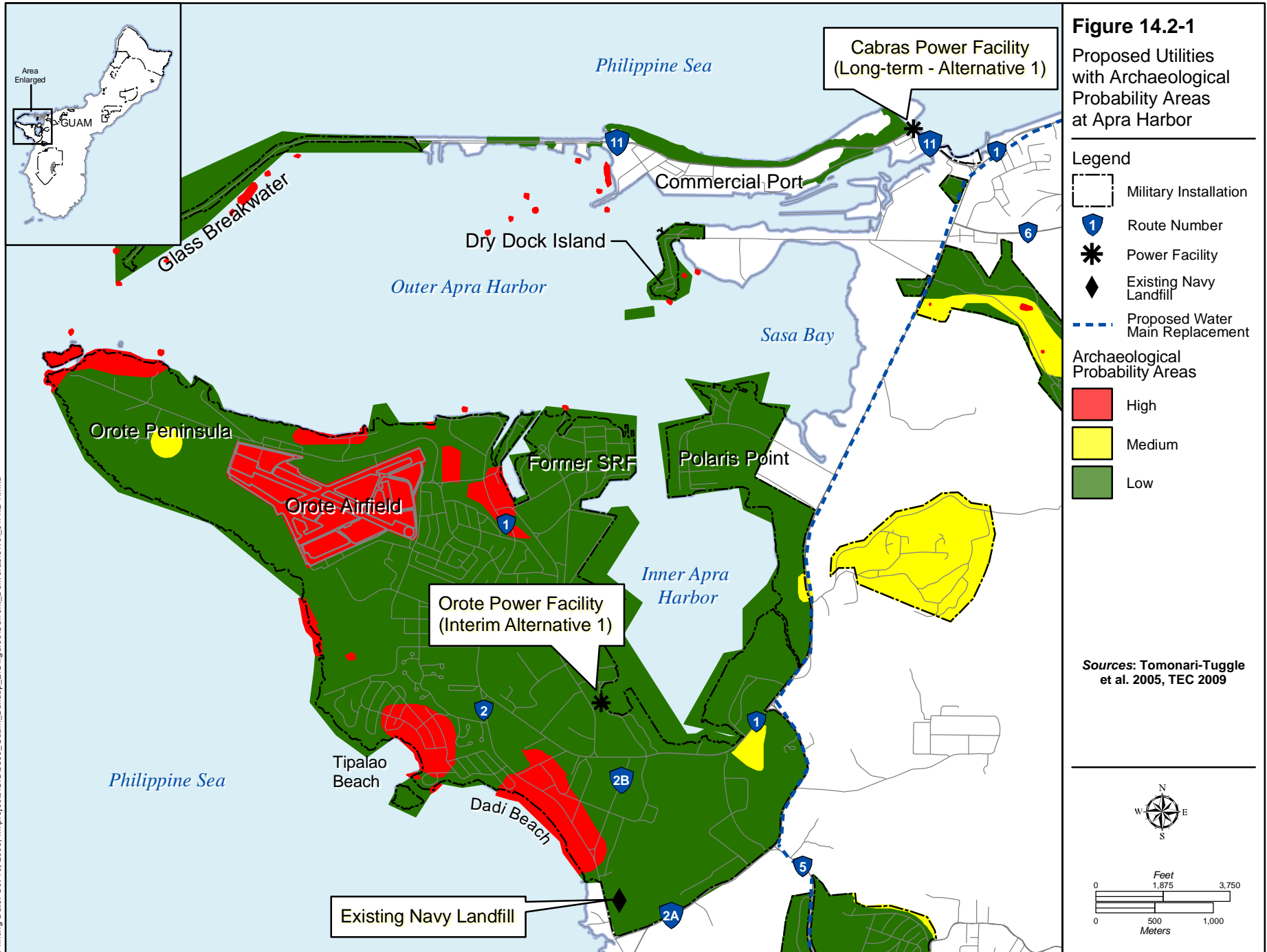


Figure 14.2-1
Proposed Utilities with Archaeological Probability Areas at Apra Harbor

Legend

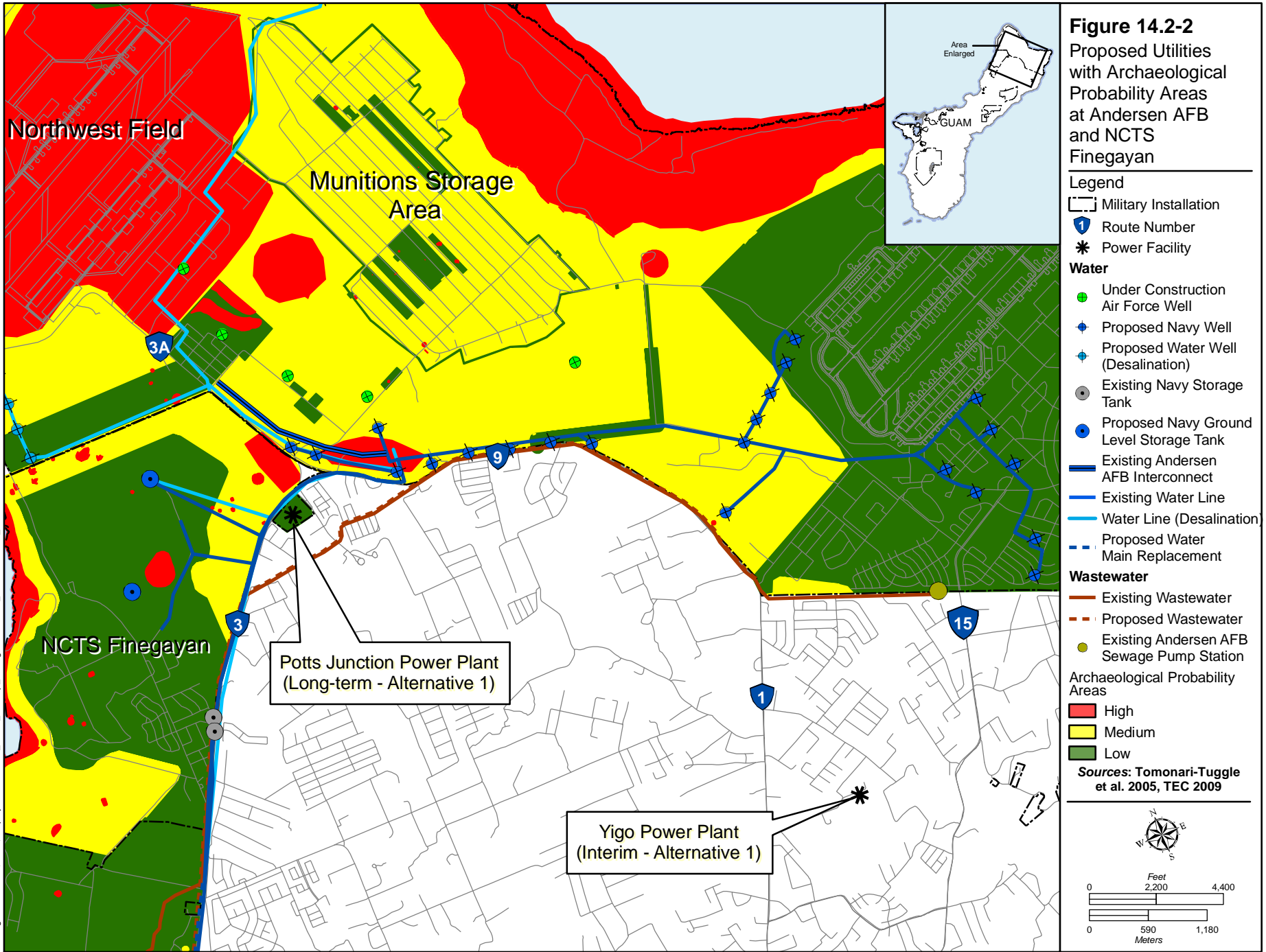
- Military Installation
- Route Number
- Power Facility
- Existing Navy Landfill
- Proposed Water Main Replacement

Archaeological Probability Areas

- High
- Medium
- Low

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

0 500 1,000
0 1,875 3,750
Meters Feet



Northwest Field

Munitions Storage Area

NCTS Finegayan

Potts Junction Power Plant (Long-term - Alternative 1)

Yigo Power Plant (Interim - Alternative 1)

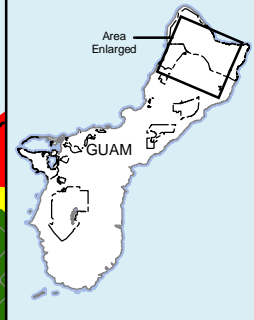


Figure 14.2-2 Proposed Utilities with Archaeological Probability Areas at Andersen AFB and NCTS Finegayan

- Legend
Military Installation
Route Number
Power Facility
Water
Under Construction Air Force Well
Proposed Navy Well
Proposed Water Well (Desalination)
Existing Navy Storage Tank
Proposed Navy Ground Level Storage Tank
Existing Andersen AFB Interconnect
Existing Water Line
Water Line (Desalination)
Proposed Water Main Replacement
Wastewater
Existing Wastewater
Proposed Wastewater
Existing Andersen AFB Sewage Pump Station
Archaeological Probability Areas
High
Medium
Low
Sources: Tomonari-Tuggle et al. 2005, TEC 2009

Scale bar in feet (0-4400) and meters (0-1180), and a north arrow.

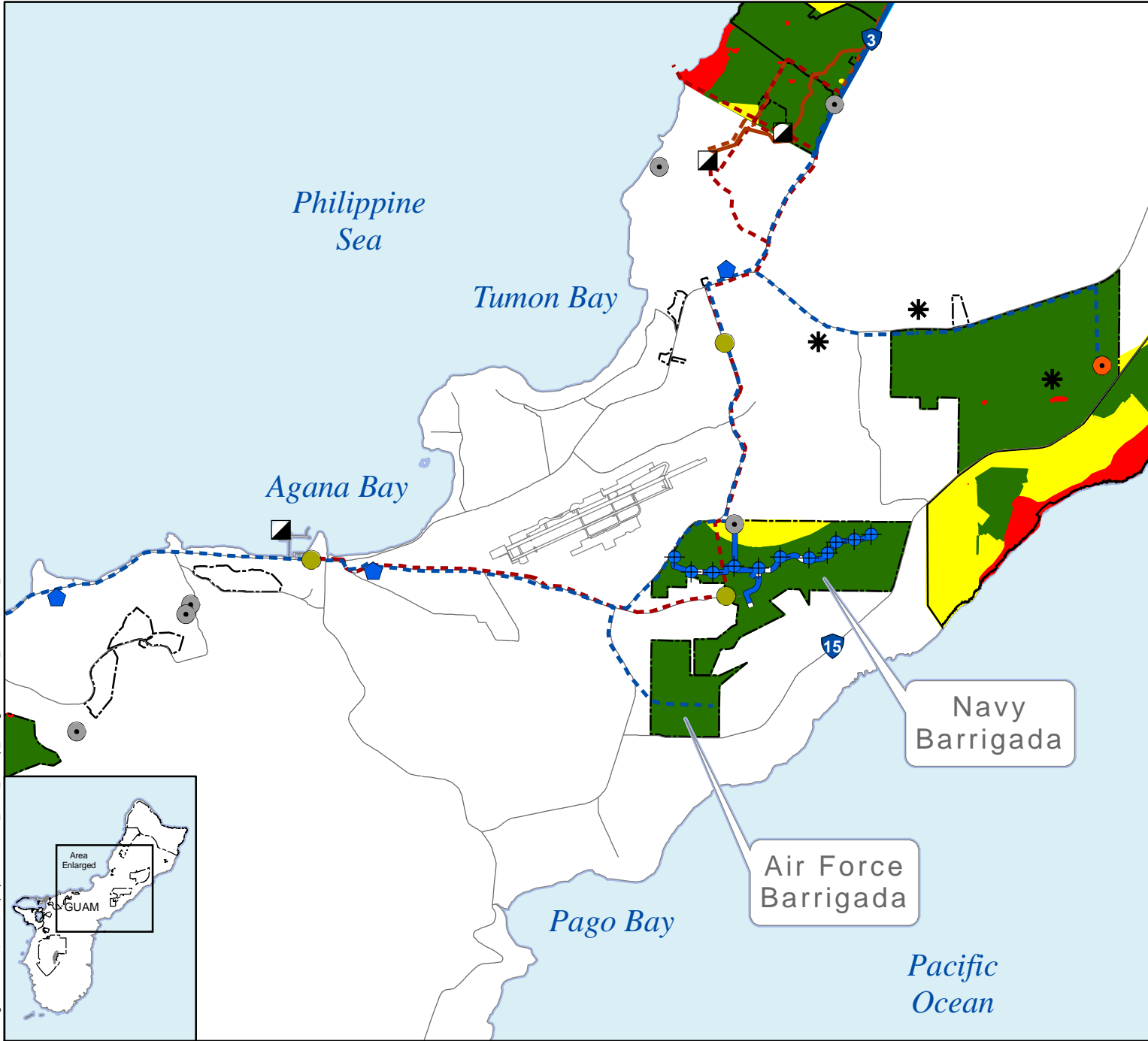
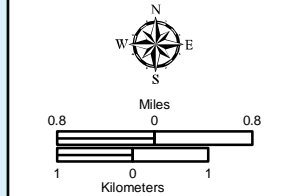


Figure 14.2-3
 Proposed Utilities
 with Archaeological
 Probability Areas
 in Central Guam

- Legend**
- Military Installation
 - Route Number
 - Power Facility
- Water**
- Proposed Navy Well
 - Existing Storage Tank #4
 - Existing Navy Storage Tank
 - Proposed Navy Ground Level Storage Tank
 - Navy Island Wide System Station
 - Proposed Water Main Replacement
 - Proposed Basic Alternative 2 Water
- Wastewater**
- Existing Wastewater
 - Proposed Wastewater
 - Sewage Pump Station
 - Proposed WWTP
- Archaeological Probability Areas**
- High
 - Medium
 - Low

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



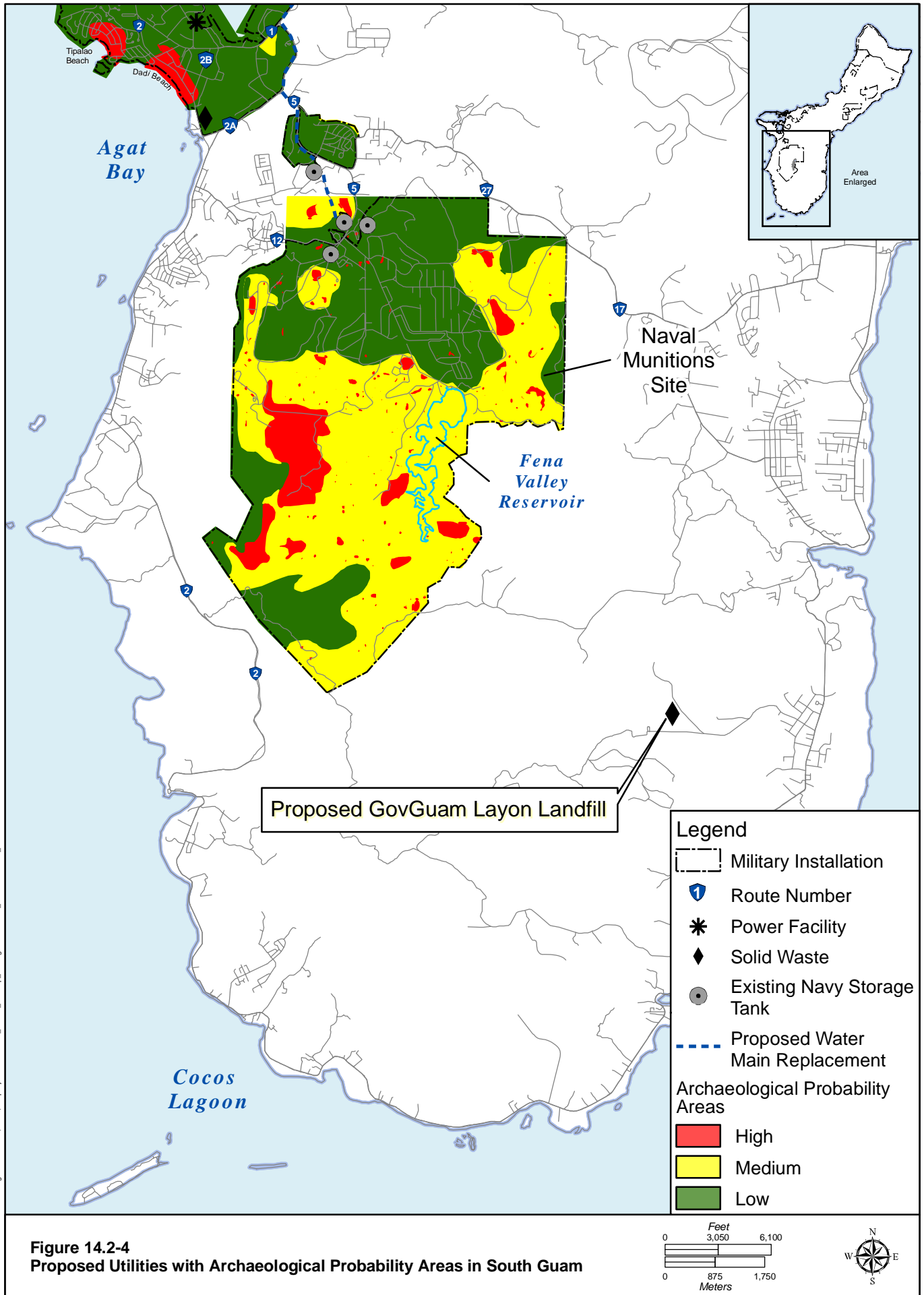


Figure 14.2-4
Proposed Utilities with Archaeological Probability Areas in South Guam

The locations of the utilities in relation to archaeological probability areas are shown in Figure 14.2-1 and 14.2-2. Other than Marbo on Andersen South, the affected areas have not been surveyed. Marbo has a low probability for archaeological resources. However, given that the other areas are located on non-DoD lands, it is unlikely that they have been surveyed for archaeological resources. Surveys are currently being conducted in these areas and more information will be provided in the FEIS. Therefore, the impacts from subgrade construction, cut and fill activities, and brush clearing on historic properties are unknown.

Operations of Interim Alternative 2 would not have significant impacts on cultural resources in the area, as operations would not bring an influx of people into the area and operational activities are unlikely to cause erosion. Because it is an existing activity, operations would not change the visual or audible setting near NRHP-eligible or listed resources that are important for these reasons.

Potential Mitigation Measures

Areas where new construction would take place on non-DoD lands would follow the stipulations of the PA. For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, areas would also be archaeologically sampled for subsurface sites when easily obtainable (i.e., without having to demolish existing facilities or infrastructure). Any properties that have not been previously evaluated would be assessed for eligibility for inclusion on the NRHP. If NRHP eligible sites are impacted, data recovery excavation would take place as necessary.

Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

14.2.2.3 Interim Alternative 3

Interim Alternative 3 is a combination of reconditioning existing GPA permitted facilities at Marbo, Yigo, and Dededo and upgrades to the DoD power plant at Orote. Upgrades would be made to existing T&D. The proposed reconditioning to the existing power generation facilities at Marbo, Yigo, and Dededo would not require new construction or enlargement of the existing footprint of the facility. For the Orote power plant, upgrades would include a new fuel storage facility to facilitate longer run times between refueling. This would disturb approximately 1 acre (4,047 square m). This alternative supports Main Cantonment Alternatives 1 and 2 and Main Cantonment Alternatives 3 and 8 would require additional upgrades to the T&D system.

Interim Alternative 3 would also involve transmission and distribution upgrades both above ground and below ground. These upgrades would take place in areas of low, medium, and high archaeological probability in addition to areas that have not been surveyed for archaeological resources. Surveys are currently being conducted in these areas and more information will be provided in the FEIS. These upgrades have the potential to impact NRHP-eligible archaeological sites.

Locations of utilities in relation to archaeological probability areas are shown in Figure 14.2-1 and 14.2-2. Other than Marbo, that has a low probability for archaeological resources, the affected areas have not been surveyed. Therefore, potential impacts from subgrade construction, cut and fill activities, and brush clearing on historic properties are unknown.

Figure 14.2-1 shows the proposed project location in relation to the archaeological probability areas at Apra Harbor. The location of the Orote Power Plant is in a low probability area for archaeological resources. No archaeological or traditional cultural properties are known in this area. Therefore, no direct or indirect impacts to NRHP-eligible or listed cultural resources in the area would result from implementation of this component of the alternative.

Operations of Interim Alternative 3 would not have significant impacts on cultural resources in the area, as operations would not bring an influx of people into the area and operational activities are unlikely to cause erosion.

Potential Mitigation Measures

Areas where new construction would take place on non-DoD lands would follow the stipulations of the PA. For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, areas would also be archaeologically sampled for subsurface sites when easily obtainable (i.e., without having to demolish existing facilities or infrastructure). Any properties that have not been previously evaluated would be assessed for eligibility for inclusion on the NRHP. If NRHP eligible sites are impacted, data recovery excavation would take place as necessary.

Traditional resources such as the dukduk tree, ifit tree, and da’ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

14.2.2.4 Summary of Impacts

Table 14.2-1 summarizes the potential impacts of each interim alternative. A text summary is provided below.

Table 14.2-1. Summary of Potential Impacts to Cultural Resources- Power

<i>Interim Alternative 1*</i>	<i>Interim Alternative 2</i>	<i>Interim Alternative 3</i>
Archaeological Resources		
SI-M <ul style="list-style-type: none"> Unknown impacts at Finegayan and on non-DoD land in areas that have not been previously surveyed 	SI-M <ul style="list-style-type: none"> Unknown impacts on non-DoD land in areas that have not been previously surveyed 	SI-M <ul style="list-style-type: none"> Unknown impacts on non-DoD land in areas that have not been previously surveyed
Architectural Resources		
NI <ul style="list-style-type: none"> No adverse impacts to architectural resources at North, South, or Central Guam 	NI <ul style="list-style-type: none"> No adverse impacts to architectural resources at North, South, or Central Guam 	NI <ul style="list-style-type: none"> No adverse impacts to architectural resources at North, South, or Central Guam
Submerged Resources		
NI <ul style="list-style-type: none"> No adverse impacts to submerged resources or objects 	NI <ul style="list-style-type: none"> No adverse impacts to submerged resources or objects 	NI <ul style="list-style-type: none"> No adverse impacts to submerged resources or objects
Traditional Cultural Properties		
NI <ul style="list-style-type: none"> Traditional resources such as the dukduk tree, ifit tree, and da’ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action 	NI <ul style="list-style-type: none"> No adverse impacts to Traditional Cultural Properties 	NI <ul style="list-style-type: none"> Traditional resources such as the dukduk tree, ifit tree, and da’ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action

Legend: SI-M = Significant Impact Mitigable to Less than Significant, NI = No Impact. *Preferred Alternative.

Construction and operation of Power Interim Alternative 1 could result in significant impacts to unknown archaeological sites in areas that have not been surveyed. However these impacts are mitigable to less than significant levels through consultation as stipulated by the PA. No impacts to architectural, submerged resources, or traditional cultural properties are expected. Mitigation would include avoidance, survey, monitoring during construction, evaluation, and data recovery, documentation if appropriate.

Construction and operation of Power Interim Alternative 2 could result in significant impacts to unknown archaeological sites in areas that have not been surveyed through ground disturbance. However these impacts are mitigable to less than significant through consultation as stipulated by the PA. No impacts to architectural, submerged resources or traditional cultural properties are expected. Mitigation would include avoidance, survey, monitoring during construction, evaluation, and data recovery, documentation if appropriate.

Interim Alternative 3 could result in significant impacts to archaeological resources. However, these impacts are mitigable to less than significant through consultation as stipulated by the PA. No impacts to submerged resources, architectural resources, or traditional cultural properties are expected.

14.2.3 Potable Water

14.2.3.1 Basic Alternative 1 (Preferred Alternative)

Basic Alternative 1 would consist of installation of up to 22 new potable water supply wells at Andersen AFB, rehabilitation of existing wells, interconnection with the GWA water system, and associated T&D systems. A new 5 MG (19 ML) water storage tank would be constructed at ground level at Finegayan.

Impacts to the areas include subgrade construction, cut and fill activities, and brush clearing. No structures would be modified or demolished for this action.

Figure 142-2 shows the proposed project locations in relation to the archaeological probability areas at Andersen AFB. Overall, this area is considered to have low and high probability for archaeological resources, although most areas are low. One well is in a high probability area and would impact two NRHP-eligible archaeological resources—Torres Farmhouse (PN-2) and the Guerrero Water Catchment (081344). A second well is located near a high probability area but the site located near this well can be avoided by project activities. The remainder of the wells are located in low probability areas and would not have an adverse impact on archaeological, architectural, or traditional cultural properties. There are many new water storage components in Alternative 1. These components include installing two treated water transmission mains (including a connection to the Guam Waterworks Authority [GWA] system), constructing a network of water distribution pipes on both DoD and non-DoD lands, and one ground level water storage tank at Finegayan). Impacts to the areas include tree removal, cut and fill activities, and subgrade construction.

Figure 4.2-2 and 4.2-3 show the proposed project locations in relation to archaeological probability areas on Andersen AFB and Finegayan. Overall, the areas affected by this component are located in low, medium, and some high probability areas. Approximately 10 ac (4 ha) of medium probability area would be impacted by the proposed water line on Andersen AFB and 4 ac (1.6 ha) would be impacted on NCTS Finegayan. The archaeological probability is unknown for the locations of the water distribution systems on non-DoD lands because they have not been surveyed for archaeological resources. The storage tank at Finegayan has the potential to impact one site, 1024 a mortar/*lusong*. Construction at Finegayan has the potential to require the removal of dukduk trees, a traditional resource used by canoe builders. A water main that runs along the northern boundary of Andersen South would be replaced. The water main along the eastern border would also be replaced. A traditional cultural property (Latte Park, site 811) is located

approximately 0.5 mile (0.8 kilometer) away in South Finegayan and would not be impacted by construction of the new water distribution pipes.

Operation of the new water supply and water storage facilities would take place at various locations under Basic Alternative 1 and would bring additional personnel into these areas. This increase in personnel in these areas could increase site vandalism that would be an indirect impact to NRHP-eligible or listed sites.

Potential Mitigation Measures

In accordance with the PA under Section 106 of the NHPA, where the potential is low, no mitigation measures or further review under Section 106 are required for archaeology. However, the areas that have medium probability would be subject to survey (areas on Andersen AFB) or monitoring (on NCTS Finegayan). Prior to any disturbance or excavation, work plans would be developed and reviewed by the appropriate HPO. Sites would be avoided if possible in areas with high probability. If sites are impacted, data recovery excavations would take place.

Areas where new construction would take place on non-DoD lands would follow the stipulations of the PA. For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, areas would also be archaeologically sampled for subsurface sites when easily obtainable without having to demolish existing facilities or infrastructure. Any that have properties not been previously evaluated would be assessed for NRHP eligibility.

Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

14.2.3.2 Basic Alternative 2

Basic Alternative 2 would consist of installation of up to 20 new potable water supply wells at Andersen AFB, up to 11 new potable water supply wells at Barrigada, rehabilitation of existing wells, interconnection with the GWA water system, associated transmission and distribution systems upgrades. Additionally, new 3.6 MG (13.6 ML) and 1 MG (3.8 ML) water storage tanks would be constructed at ground level at Finegayan and Barrigada, respectively.

Figure 14.2-2 shows the proposed project locations in relation to the archaeological probability areas at Andersen AFB. Overall, this area is considered to have low and high probability for archaeological resources, although most areas are low. One well is in a high probability area and would impact two NRHP-eligible archaeological resources—Torres Farmhouse (PN-2) and the Guerrero Water Catchment (081344). A second well is located near a high probability area but the site located near this well can be avoided by project activities. The remainder of the wells are located in low probability areas and would not have an adverse impact on archaeological, architectural, or traditional cultural properties.

The storage tank at Finegayan has the potential to impact one site, 1024 a mortar/*lusong*. Construction at Finegayan has the potential to require the removal of dukduk trees, a traditional resource used by canoe builders. The new storage tank at AF Barrigada would be installed in an area of low archaeological probability and would therefore have no impact to cultural resources. Likewise the new wells at Navy Barrigada would be located in areas of low archaeological probability and would therefore have no impact to cultural resources.

Potential Mitigation Measures

In accordance with the stipulations of the PA where the potential is low, no mitigation measures or further

review under Section 106 is required for archaeology. However, the areas that have medium probability would be subject to survey (Andersen AFB) or monitoring (Finegayan). Prior to any disturbance or excavation, work plans would be developed and reviewed by the appropriate HPO. Sites would be avoided, if possible, in areas with high probability. If NRHP-eligible sites are impacted, data recovery excavations would take place. Areas where new construction would take place on non-DoD lands would follow the PA under Section 106 of the NHPA. For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, areas would also be archaeologically sampled for subsurface sites when easily obtainable (i.e., without having to demolish existing facilities or infrastructure). Any properties not evaluated would be assessed for NRHP eligibility.

Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

14.2.3.3 Summary of Impacts

Table 14.2-2 summarizes the potential impacts of each action alternative.

Table 14.2-2. Summary of Potential Impacts to Cultural Resources-Potable Water

<i>Basic Alternative 1*</i>	<i>Basic Alternative 2</i>
Archaeological Resources	
SI-M <ul style="list-style-type: none"> Direct and indirect impacts to 1 archaeological sites at Finegayan and 2 at Andersen AFB and areas with medium archaeological probability at Andersen AFB, Finegayan. 	SI-M <ul style="list-style-type: none"> Direct and indirect impacts to 1 archaeological sites at Finegayan and 2 at Andersen AFB and areas with medium archaeological probability at Andersen AFB, Finegayan, and Barrigada.
Architectural Resources	
NI <ul style="list-style-type: none"> No adverse impacts to architectural resources at North, South, or Central Guam 	NI <ul style="list-style-type: none"> No adverse impacts to architectural resources at North, South, or Central Guam
Submerged Resources	
NI <ul style="list-style-type: none"> No adverse impacts to submerged resources or objects 	NI <ul style="list-style-type: none"> No adverse impacts to submerged resources or objects
Traditional Cultural Properties	
SI-M <ul style="list-style-type: none"> Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action. 	SI-M <ul style="list-style-type: none"> Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

Legend: SI-M = Significant Impact Mitigable to Less Than Significant, NI = No Impact. *Preferred Alternative.

Construction and operation of Basic Alternative 1 would result in significant impacts to three NRHP-eligible or listed archaeological resources. Construction of new water supply wells and water storage facilities could result in significant impacts to archaeological sites in areas with medium archaeological probability. However, these impacts are mitigable to less than significant through consultation as stipulated by the PA. This alternative would not affect architectural resources, submerged resources, or traditional cultural properties. Mitigation would include avoidance, survey, monitoring during construction, evaluation, and data recovery.

Construction and operation of Basic Alternative 2 would result in significant impacts to archaeological resources. Construction of new water supply wells and water storage facilities would result in significant

impacts to three NRHP-eligible archaeological sites and areas with medium archaeological probability. However, these impacts are mitigable to less than significant through consultation as stipulated by the PA. This alternative would not affect architectural resources, submerged resources, or traditional cultural properties. Mitigation would include avoidance, survey, monitoring during construction, evaluation, and data recovery, documentation if appropriate.

14.2.4 Wastewater

14.2.4.1 Basic Alternative 1a (Preferred Alternative) and 1b

Basic Alternative 1 (Alternative 1a supports Main Cantonment Alternatives 1 and 2; and Alternative 1b supports Main Cantonment Alternatives 3 and 8) combines upgrade to the existing primary treatment facilities and expansion to secondary treatment at the Northern District Wastewater Treatment Plant (NDWWTP). The difference between Alternatives 1a and 1b would be a requirement for a new sewer line from Barrigada housing to NDWWTP for Alternative 1b.

There would be no impacts to cultural resources during the construction. The construction of the collection system from Finegayan would take place in areas of low, medium and high archaeological sensitivity and areas that have not yet been surveyed for cultural resources. Surveys of utility corridors are on-going and more information will be provided in the FEIS. The construction of the sewer line has the potential to impact NRHP-eligible cultural resources. Operations of Basic Alternative 1 would not have significant impacts on cultural resources in the area, as operations would not bring an influx of people into the area and operational activities are unlikely to cause erosion.

Potential Mitigation Measures

Areas where new construction would take place on non-DoD lands would follow the stipulations of the PA. For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, areas would also be archaeologically sampled for subsurface sites when easily obtainable (i.e., without having to demolish existing facilities or infrastructure). Any properties that have not been previously evaluated would be assessed for eligibility for inclusion on the NRHP. If NRHP eligible sites are impacted, data recovery excavation would take place as necessary.

Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

14.2.4.2 Basic Alternative 1b

Under Basic Alternative 1b, the only difference with Basic Alternative 1a would be the additional new sewer and pump stations to convey wastewater from Barrigada to NDWWTP.

This sewer line would pass through areas that have not been surveyed for archaeological resources. Surveys of utility corridors are on-going and more information will be provided in the FEIS. The construction of the sewer line has the potential to impact NRHP-eligible cultural resources. Operations of Basic Alternative 1b would not have significant impacts on cultural resources in the area, as operations would not bring an influx of people into the area and operational activities are unlikely to cause erosion.

Potential Mitigation Measures

Areas where new construction would take place on non-DoD lands would follow the stipulations of the PA. For areas or properties that have not been inventoried for historic properties, the DoD would record surface sites and, when possible, areas would also be archaeologically sampled for subsurface sites when easily obtainable (i.e., without having to demolish existing facilities or infrastructure). Any properties that

have not been previously evaluated would be assessed for eligibility for inclusion on the NRHP. If NRHP eligible sites are impacted, data recovery excavation would take place as necessary.

Traditional resources such as the dukduk tree, ifit tree, and da'ok tree, are recognized by the DoD and would be made available to local people prior to their removal for construction of the proposed action.

14.2.4.3 Summary of Impacts

Table 14.2-3 summarizes the potential impacts of each interim alternative. A text summary is provided below.

Table 14.2-3. Summary of Potential Impacts to Cultural Resources – Wastewater

<i>Potentially Impacted Resource</i>	<i>Basic Alternative 1a*</i>	<i>Basic Alternative 1b</i>
Archaeological Resources	SI-M <ul style="list-style-type: none"> Possible disturbance to high archaeological probability areas at Finegayan 	SI-M <ul style="list-style-type: none"> Possible disturbance to areas not previously surveyed for archaeological resources
Architectural Resources	NI <ul style="list-style-type: none"> No adverse impacts to architectural resources at North, South, or Central Guam 	NI <ul style="list-style-type: none"> Possible disturbance to areas not previously surveyed for archaeological resources
Submerged Resources	NI <ul style="list-style-type: none"> No adverse impacts to submerged resources or objects 	NI <ul style="list-style-type: none"> No adverse impacts to submerged resources or objects
Traditional Cultural Properties	NI <ul style="list-style-type: none"> No adverse impacts to traditional cultural properties 	NI <ul style="list-style-type: none"> No adverse impacts to traditional cultural properties

Legend: SI-M = Significant Impact Mitigable to Less Than Significant, NI = No Impact.

*Preferred Alternative

Construction and operation of Wastewater Basic Alternative 1a could result in significant impacts to archaeological resources. Ground disturbance would take place in areas that have not been surveyed for archaeological resources and are in the vicinity of NRHP-eligible archaeological resources. However these impacts are mitigable to less than significant through consultation as stipulated by the PA. This alternative would not impact traditional cultural properties or submerged resources. Mitigation would include avoidance, survey, monitoring during construction, and data recovery.

Construction and operation of Wastewater Basic Alternative 1b could result in significant impacts to archaeological resources. Ground disturbance would take place in areas that have not been surveyed for archaeological resources and are in the vicinity of NRHP-eligible archaeological resources. However these impacts are mitigable to less than significant through consultation as stipulated by the PA. This alternative would not impact traditional cultural properties or submerged resources. Mitigation would include avoidance, survey, monitoring during construction, and data recovery.

14.2.5 Solid Waste

14.2.5.1 Basic Alternative 1 (Preferred Alternative)

This alternative assumes that the Navy would continue to use the landfill at Apra Harbor until the new landfill at Layon would be ready. There would be no ground disturbing activities done at the Apra Harbor landfill and the GovGuam Layon Landfill is currently under construction.

Figure 14.2-1 provides the proposed project location in relation to the archaeological probability areas. Overall, this area is considered to be low probability. No archaeological or traditional cultural properties are known from this area. Therefore, no adverse direct or indirect impacts to significant cultural resources would result from implementation of this component.

Mitigation Measures

In accordance with the PA under Section 106, since the potential in the construction area is low, no mitigation measures or further review under Section 106 are required for archaeology.

Table 14.2-4. Summary of Potential Impacts to Cultural Resources – Solid Waste

<i>Potentially Impacted Resource</i>	<i>Basic Alternative 1*</i>
Archaeological Resources	NI <ul style="list-style-type: none"> • No adverse impacts to architectural resources at North, South, or Central Guam
Architectural Resources	NI <ul style="list-style-type: none"> • No adverse impacts to architectural resources at North, South, or Central Guam
Submerged Resources	NI <ul style="list-style-type: none"> • No adverse impacts to submerged resources or objects
Traditional Cultural Properties	NI <ul style="list-style-type: none"> • No adverse impacts to traditional cultural properties

Since this alternative requires no construction, would use one existing facility, would use one facility that is currently under construction through non-project authorization and independent NEPA review, and would provide only for an increased volume of solid waste, there would be no impacts to cultural resources.

14.2.6 Off Base Roadways

14.2.6.1 Alternative 1

North

Numerous archaeological surveys have been completed at military facilities in the North Region, many of which include haul-road corridors. These are summarized in Yee and Tomonari-Tuggle (2009:34). They include NCTS Finegayan and South Finegayan along Route 3, Potts Junction (intersection of Routes 3 and 9), and at Andersen South between Routes 1 and 15. Tomonari-Tuggle and Tuggle (2003) present an integrated cultural resources management plan for AAFB that includes summary information and management recommendations for areas of the installation along Routes 3A and 9. Recent, more focused studies and overview surveys for AAFB include survey along a lengthy portion of Route 9. Alternative 1 includes 13 road improvement projects in the North Region.

No known historic properties are within the APE for any roadway project in the North Region (Figure

14.2-5). Table 14.2-5 summarizes Section 106 findings. Figure 14.2-6 illustrates the cultural resources probability areas for all of the road projects, from no/low to medium. None of the projects in the North Region are located within high probability areas.

Ten (10) projects are located within medium probability areas. GRN #8, 23, and 117 would have no impacts to archaeological resources, architectural resources, submerged resources, or traditional cultural properties. No mitigation measures are required.

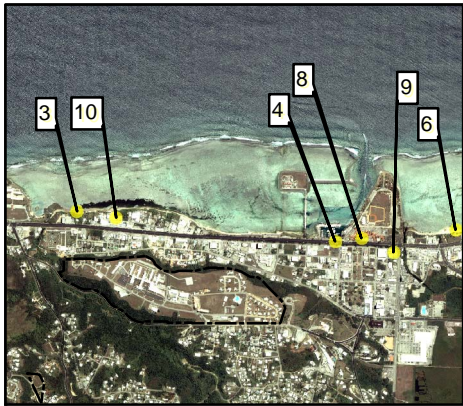
Table 14.2-5. Section 106 Effects in the North Region, Alternative 1

<i>GRN #</i>	<i>Known Historic Properties</i>	<i>Probability Area</i>	<i>Section 106 Finding</i>
08	None	No/Low	No Historic Properties Affected
09	None	Medium	Inventory, possible testing necessary
10	None	Medium	Inventory, possible testing necessary
22	None	Medium	Inventory, possible testing necessary
22A	None	Medium	Inventory, possible testing necessary
23	None	No/Low	No Historic Properties Affected
38A	None	Medium	Inventory, possible testing necessary
39A	None	Medium	Inventory, possible testing necessary
41A	None	Medium	Inventory, possible testing necessary
42	None	Medium	Inventory, possible testing necessary
57	None	Medium	Inventory, possible testing necessary
117	None	No/Low	No Historic Properties Affected
124	None	Medium	Inventory, possible testing necessary

Central

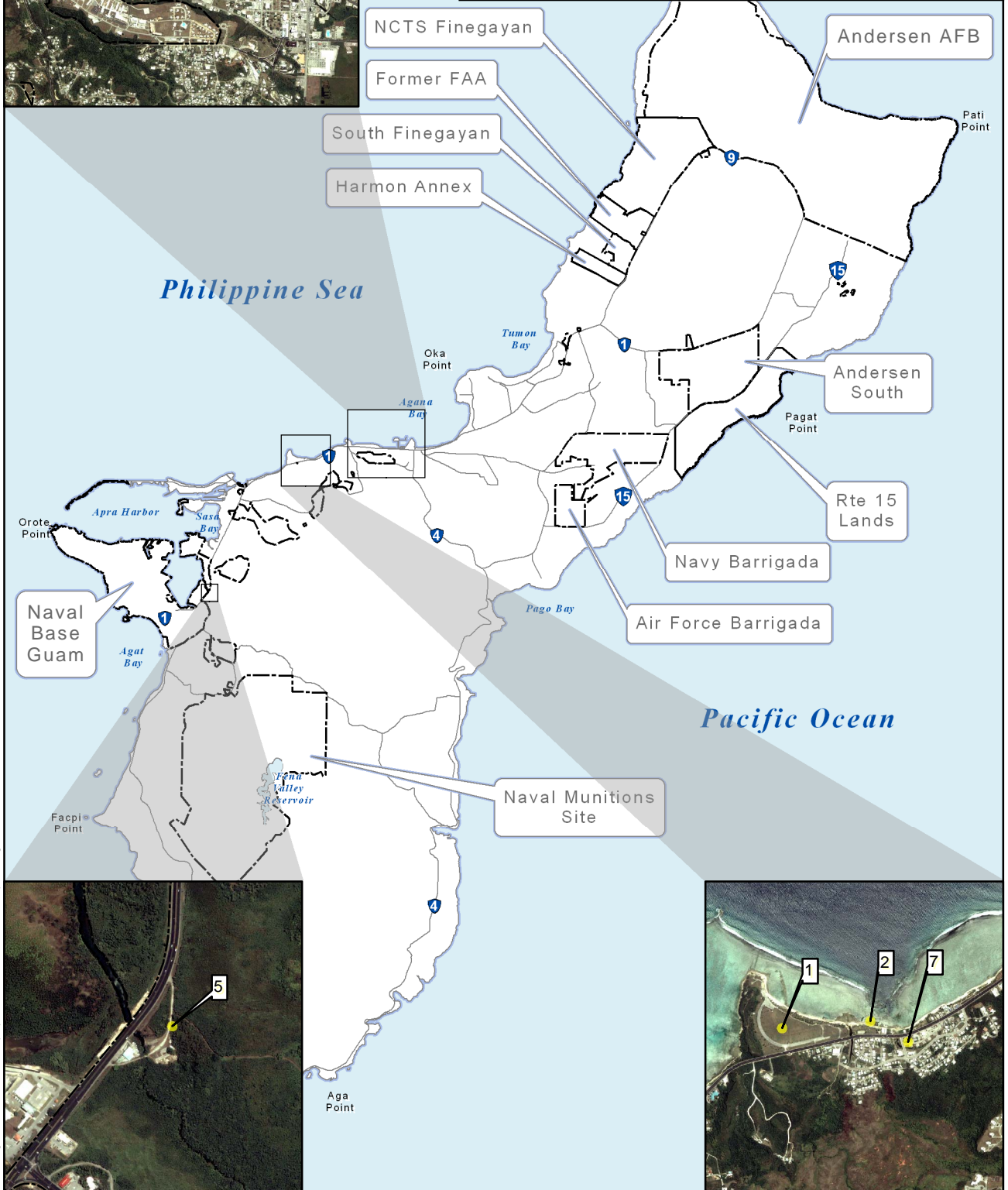
Recent archaeological research in the Central Region has included investigations for non-military and military purposes. Yee and Tomonari-Tuggle (2009:38-40) detail these efforts. Briefly, there have been several projects within the heavily developed area of downtown Agaña particularly along Route 1. Archeological data recovery excavations and monitoring has been conducted along Marine Drive from Route 8 to Camp Watkins Road in connection with Route 1 reconstruction. Most of the cultural deposits were found in the Apurguan area near the east end of Agaña Bay, but one site was located in the Agaña area. Most of the archaeological work in the Agaña area found evidence of historic period occupation.

Alternative 1 includes 27 road improvement projects in the Central Region. Section 106 findings are summarized in Table 14.2-6. Figure 14.2-5 plots known historic properties in relation to road projects. Figure 14.2-6 illustrates the cultural resources probability areas for all of the road projects. GRN #6, 13, 14, 15, 35, and 36 would pass through high probability areas. GRN# 6, 13, 14 and 15 have known historic properties in their APE, so they are marked as high probability Areas; however, in these cases, GHPO has reviewed the project descriptions and determined that they would not have any impact to historic properties. Therefore, they would also would have no impacts to archaeological resources, architectural resources, submerged resources, or traditional cultural properties. No mitigation measures are required. GRN #35 and 36, that are also in high probability areas, could impact resources eligible to the NRHP. Mitigation measures would be required prior to construction. Nineteen (19) projects would have no impacts to archaeological resources, architectural resources, submerged resources, or traditional cultural properties. No mitigation measures are required.



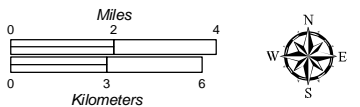
Legend

-  Military Installation
-  Route Number
- 1 Asan Invasion Beach/War in the Pacific NHP
- 2 Memorial Beach Park/War in the Pacific NHP
- 3 Toves House
- 4 Agana Spanish Bridge
- 5 Atantano Shrine
- 6 Cormoran Monument/US Naval Cemetery
- 7 Asan Patriots of World War II Memorial
- 8 Guam Heroes Memorial/Skinner Plaza
- 9 Taitano House
- 10 Garrido House



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**Figure 14.2-5
Historic Properties in the Area of Potential Effect (APE)**



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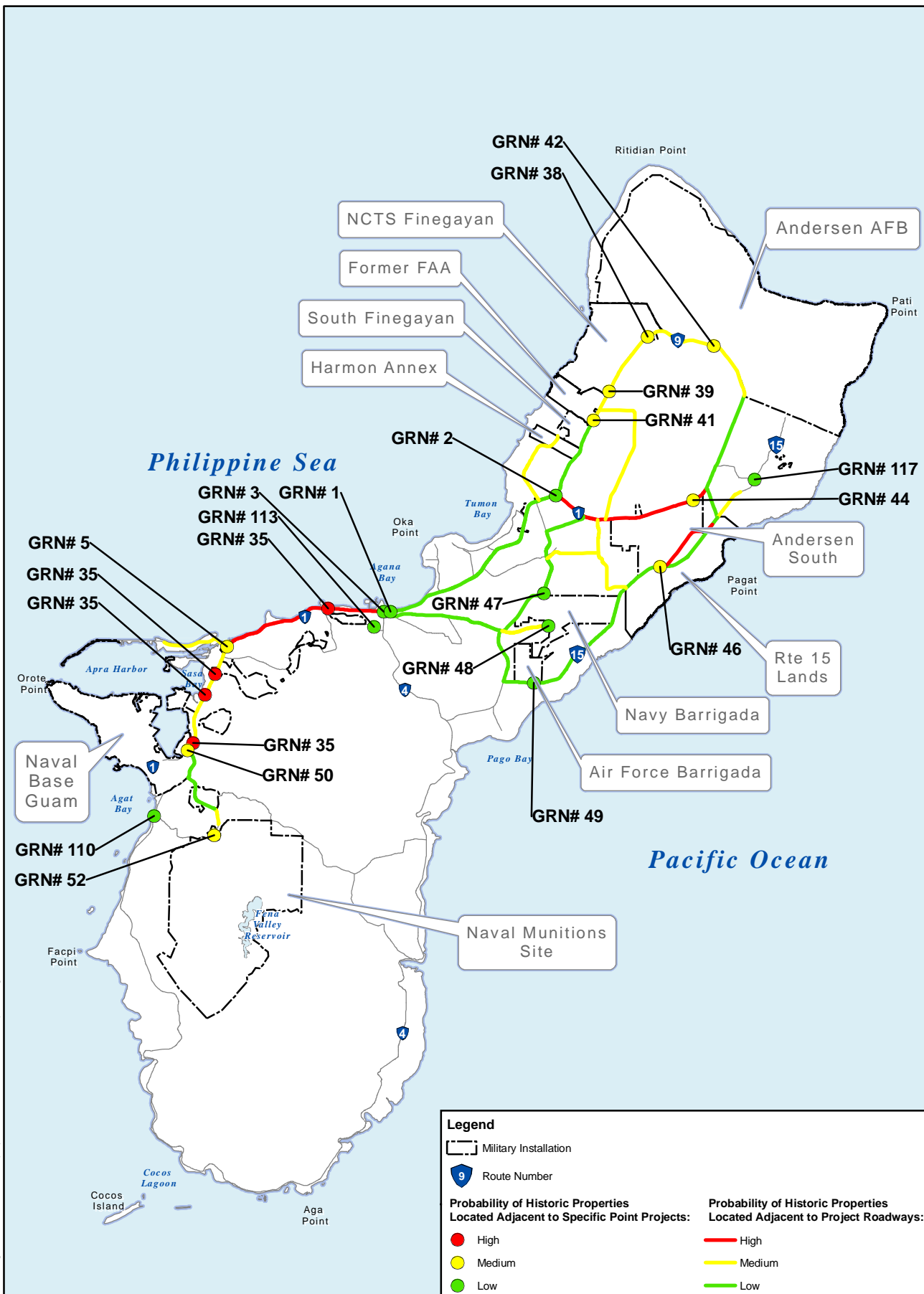


Figure 14.2-6
Probability Areas for Roadway Projects

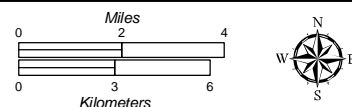


Table 14.2-6. Section 106 Effects Central Area, Alternative 1

GRN #	Known Historic Properties	Probability Area	Section 106 Finding
01	Cormoran Monument, U.S. Naval Cemetery	No/Low	No Adverse Effect. Although this is a pavement strengthening project and the improvements do not extend beyond the existing roadway, the geographic information system right-of-way (ROW) parcel line appears to indicate that the existing roadway is built partially inside the cemetery ROW. Approximately 600 square feet (ft ²) (56 square meters [m ²]) of land would need to be acquired to correct this situation. The Cormoran Monument would not be affected
02	None	No/Low	No Historic Properties Affected
03	None	No/Low	No Historic Properties Affected
06	None	High*	No Historic Properties Affected
07	None	No/Low	No Historic Properties Affected
11	None	No/Low	No Historic Properties Affected
12	None	Medium	Inventory, possible testing necessary
13	Asan Invasion Beach, Memorial Beach Park, War in the Pacific National Historical Park (NHP), one archaeological site	High*	No Historic Properties Affected
14	Asan World War II Memorial, two archaeological sites	High*	No Historic Properties Affected
15	San Nicholas Bridge, Agana Spanish Bridge, Guam Heroes Memorial and Skinner Plaza, Taitano House, Garrido House, Toves House	High*	No Historic Properties Affected
16	None	No/Low	No Historic Properties Affected
17	None	No/Low	No Historic Properties Affected
18	None	No/Low	No Historic Properties Affected
19	None	No/Low	No Historic Properties Affected
20	None	No/Low	No Historic Properties Affected
21	None	No/Low	No Historic Properties Affected
28	None	Medium	Inventory, possible testing necessary
29	None	Medium	Inventory, possible testing necessary
30	None	No/Low	No Historic Properties Affected
31	None	No/Low	No Historic Properties Affected
32	None	No/Low	No Historic Properties Affected
33	None	No/Low	No Historic Properties Affected
35	None	High	Examine banks, monitor construction
36	One archaeological site	High	Survey, testing, possible data recovery necessary
44	None	Medium	Inventory, possible testing necessary
46	None	Medium	Inventory, possible testing necessary
113	None	No/Low	No Historic Properties Affected

* Some roadway projects are categorized as High Probability Areas because known historic properties are present, but in these cases, the project would not affect any historic properties.

Apra Harbor

Extensive archaeological overviews and surveys have been undertaken in and around Apra Harbor. Five surveys have been completed in the Route 1/2A/5 area. The Route 1 and 2A corridors inland of Apra Harbor have been identified in previous archaeological and paleoenvironmental surveys as the locales of early Pre-Latte Period sites. Yee and Tomonari-Tuggle (2009:43) present a summary of previous investigations.

Alternative 1 includes five road improvement projects in the Apra Harbor Region. Effects on known historic properties are summarized in Table 14.2-7. Figure 14.2-5 plots known historic properties in relation to road projects. Figure 14.2-6 illustrates the cultural resources probability areas for all of the road projects. The Atantano Shrine is located within a parcel adjacent to GRN #24, but it is located well away from the roadway and would not be affected by the project. All of the projects are located in medium and no/low probability areas.

Table 14.2-7. Section 106 Effects in the Apra Harbor Region from Alternative 1

<i>GRN #</i>	<i>Known Historic Properties</i>	<i>Probability Area</i>	<i>Section 106 Finding</i>
04	None	Medium	Inventory, possible testing
05	None	Medium	Inventory, possible testing
24	Atantano Shrine	Medium	No Historic Properties Affected for the Shrine; Inventory, possible testing elsewhere
26	None	No/Low	No Historic Properties Affected
50	None	Medium	Inventory

South

Alternative 1 includes four road improvement projects in the South Region. There are no known historic properties within the APE of any project in the South Region. Table 14.2-8 summarizes Section 106 findings in the South Region. Figure 14.2-6 illustrates the cultural resources probability areas for all of the road projects. All of the projects are located in no/low and medium probability areas.

Table 14.2-8. Section 106 Effects on Known Historic Properties in the South Region from Alternative 1

<i>GRN #</i>	<i>Known Historic Properties</i>	<i>Probability Area</i>	<i>Section 106 Finding</i>
25	None	No/Low	No Historic Properties Affected
27	None	Medium	Inventory, possible testing, possible monitoring
52	None	Medium	Inventory, possible testing, possible monitoring
110	None	No/Low	No Historic Properties Affected

Potential Mitigation Measures

Alternative 1 would have no adverse effects on any known historic properties. Most of the projects have findings of No Historic Properties Affected; however, Alternative 1 still has potential to impact undocumented historic properties. Pursuant to the PA between FHWA and the GHPO mentioned above, FHWA may be responsible for further work in medium and high probability areas. Data recovery measures would be implemented where appropriate, as determined through Section 106 consultation with the GHPO, as per 36 CFR 800, and other cultural resources stakeholders. Monitoring may be required for some projects. If adverse effects are identified, then a Memorandum of Agreement (MOA) between FHWA and the GHPO would be drafted to formalize precise measures to mitigate adverse effects. The

MOA would be a separate document from the PA, because the MOA would provide mitigation for specific adverse effects on specific Haul Road projects, whereas the PA also applies to other FHWA projects.

14.2.6.2 Alternative 2 (Preferred Alternative)

Peak construction and permanent impacts on cultural resources under Alternative 2 would be similar to those described under Alternative 1 because the same projects, except for varying locations of the MAPs at NCTS Finegayan, are proposed under this alternative. Potential mitigation measures for Alternative 2 would be the same as those proposed for Alternative 1.

14.2.6.3 Alternative 3

Peak construction and permanent impacts on cultural resources under Alternative 3 would be similar to those described under Alternative 1 because the same projects are proposed under this alternative with a few projects more or less than Alternative 1 that would be built as part of the GRN improvements program. Potential mitigation measures for Alternative 3 would be the same as those proposed for Alternative 1.

14.2.6.4 Alternative 8

Peak construction and permanent impacts on cultural resources under Alternative 8 would be similar to those described under Alternative 1 because the same projects are proposed under this alternative with a few projects more or less than Alternative 1 that would be built as part of the GRN improvements program. Potential mitigation measures for Alternative 8 would be the same as those proposed for Alternative 1.

14.2.6.5 Summary of Impacts

Table 14.2-9 summarizes the potential impacts of each alternative.

Table 14.2-9. Summary of Potential Impacts to Cultural Resources-Roadway Project

<i>Potentially Impacted Resource</i>	<i>Alternative 1</i>	<i>Alternative 2*</i>	<i>Alternative 3</i>	<i>Alternative 8</i>
Cultural Resources	NI	NI	NI	NI

Legend: NI = No Impact. *Preferred Alternative.