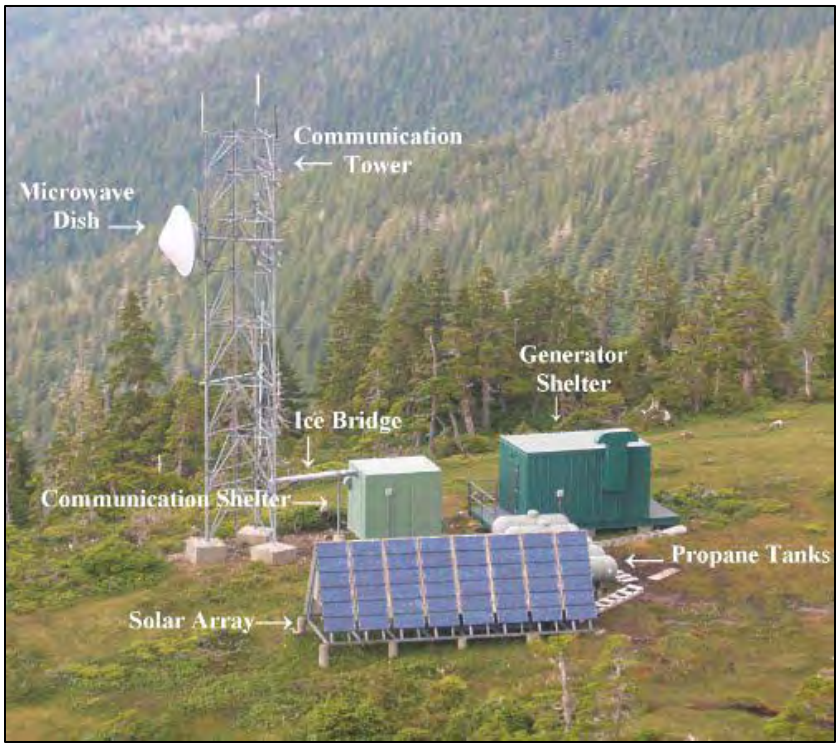
US DEPARTMENT OF HOMELAND SECURITY

United States Coast Guard

US DEPARTMENT OF INTERIOR

National Park Service

ENVIRONMENTAL ASSESSMENT FOR US COAST GUARD RESCUE 21 COMMUNICATION SITE IN GLACIER BAY NATIONAL PARK AND PRESERVE, ALASKA



December 2010

ENVIRONMENTAL ASSESSMENT FOR US COAST GUARD RESCUE 21 COMMUNICATION SITE IN GLACIER BAY NATIONAL PARK AND PRESERVE, ALASKA

United States Coast Guard	National Park Service
US Department of Homeland Security	US Department of the Interior

Note to Reviewers

You may comment online. Go to parkplanning.nps.gov to retrieve this document on the NPS website and provide comments electronically.

Written comments may be mailed to:

William Freeland
Environmental Protection Specialist
US Coast Guard Rescue 21 Project Resident Office
100 Savikko Road
Douglas, AK 99824
907-463-2955
Fax 907-463-2959
William.A.Freeland@uscg.mil

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment – including your personal identifying information – may be made public. While you can ask us to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. We will always make submissions from organizations or businesses, and from individuals identifying themselves as representatives of officials of organizations or businesses, available for public inspection in their entirety.

Front Cover: Typical Rescue 21 communication site

Courtesy: U.S. Coast Guard Rescue 21 PRO Alaska

Table of Contents

Tables

Figures

Acronyms

Acronym	Definition
ADF&G	Alaska Department of Fish & Game
AGM	absorbed glass mat
ANILCA	Alaska National Interest Lands Conservation Act
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
dB	decibel
dBA	A-weighted decibel
DSC	digital selective calling
EA	environmental assessment
EM	electromagnetic
EPA	US Environmental Protection Agency
FCC	Federal Communications Commission
ft	foot/feet
GLBA	Glacier Bay National Park and Preserve
GPS	global positioning system
Ldn	day-night sound level
Leq	equivalent sound level
mi	mile
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
preserve	Preserve unit of Glacier Bay National Park and Preserve
PL	public law
RF	radio frequency
sf	square feet
USCG	US Coast Guard
USFWS	US Fish and Wildlife Service
VHF	very high frequency

1 Introduction

The US Coast Guard (USCG) and the National Park Service (NPS) are conducting a joint environmental review and site selection process for a communication site within Alaska's Glacier Bay National Park and Preserve (GLBA or the park). The site would provide communications in an area of the Gulf of Alaska that is not served by existing facilities (Figure 1-1). The proposed project is part of the National Distress and Response System Modernization Project, now called Rescue 21.

This Environmental Assessment (EA) was prepared to evaluate potential impacts to the environment from the proposed project. The EA complies with the National Environmental Policy Act (NEPA), the Alaska National Interest Lands Conservation Act (ANILCA, 16 USC § 51), the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1508.9), and the GLBA Foundation Statement (GLBA 2010). The US Coast Guard Commandant Instruction M16475.1D and NPS Director's Order No. 12 relate to implementation of NEPA and include both procedures and policies for considering environmental impacts. This EA provides evidence and analysis sufficient to determine whether there is potential for significant impact, thus requiring an Environmental Impact Statement, or whether there is justification to prepare a Finding of No Significant Impact.

The EA provides important information for decisions by the NPS and USCG. The NPS would decide whether to issue a right-of-way permit for construction and operation of the proposed facility in the park (see Appendix A for the permit application). If the NPS decides that the permit should be issued, then the USCG would decide whether to construct, operate, and maintain the proposed communication facility.

1.1 Purpose and Need

The USCG is required by its enabling legislation (14 USC § 2) to evaluate and improve the safety of navigation and vessels. Response to distress signals is a key component in the USCG mission to improve safety. Congress has approved funding in the USCG budget for facilities that would enhance very high frequency (VHF) communications throughout the nation including the southern portions of the State of Alaska, and improve coverage wherever there are gaps in the communication coverage.

The USCG has identified the need for improved maritime distress and response communication coverage in the Fairweather Banks area of the Gulf of Alaska (Figure 1-1). Communication would be improved by establishing a new facility in this area. This area is used by commercial and private vessels (e.g., fishing, tour operators, cruise ships, cargo transport, ferries).

Figure 1-1. Vicinity map for Rescue 21 communication and mobilization sites

1.2 BACKGROUND BEHIND THE PROPOSED COAST GUARD ACTION

The USCG Rescue 21 Alaska program is designed to provide an integrated emergency communication system extending 20 nautical miles (mi) from the facility with services including monitoring of distress calls from vessels (MAYDAY), improvement in communication for other operational missions, and support for US compliance with international treaties (e.g., International Convention for the Safety of Life At Sea). These services would be accomplished by reducing coverage gaps in the current VHF system, increasing channel capacity, providing digital selective calling (DSC) capability, digitally recording communication, reducing system down time and allowing critical function recovery, and improving interoperability (i.e., coordination during incidents) among the USCG and other federal, state, and local communication systems.

The USCG is modernizing the Rescue 21 system by deploying new communication technology throughout the terrestrial regions of the continental US, Alaska, Hawaii, the Caribbean, and Guam (URS 2002). Alternatives for the Supplemental Program Environmental Assessment were developed based on the need for the USCG to modernize the Rescue 21 system with the capacity for two-way voice and data communications between shore stations, vessels, aircraft, and vehicles in the maritime environment. Currently the Rescue 21 system consists of approximately 300 remote VHF communication sites. The USCG estimates that 377 sites are needed nationwide to provide coverage in current gap areas and to resolve localized coverage deficiencies. The USCG intends to modernize the current system by deploying new communications technology to existing communication sites that support the Rescue 21 system. However, because coverage gaps exist in the current system, the USCG must consider additional strategies, including the deployment of new facilities to undeveloped sites or development of existing sites where other equipment may be co-located.

This proposal focuses on the coverage gap in the Gulf of Alaska, Fairweather Banks (Figure 1-1) to be addressed by the proposed action (described in Section 2.2).

These services would be accomplished by the following actions:

- Reducing coverage gaps in the current VHF system
- Increasing channel capacity, which allows for simultaneous communications on multiple channels (including VHF Channel 16)
- Having DSC capability that would quickly provide the vessel's name, exact location, nature of distress, and other vital information when used in conjunction with an integrated global positioning system (GPS) receiver and properly registered Maritime Mobile Service Identity number
- Digitally recording communication for instant playback
- Reducing system down time and allowing critical function recovery

- Improving interoperability among the USCG and other federal, state, and local communication systems

1.3 PURPOSE AND SIGNIFICANCE OF THE PARK AND PRESERVE

Glacier Bay National Monument was created by presidential proclamation in 1925. In 1980, the 2.8-million-acre monument was expanded to 3.3 million acres and redesignated Glacier Bay National Park and Preserve by ANILCA. ANILCA is often called the most significant land conservation measure in the history of the United States. The statute protected over 100 million acres of federal lands in Alaska, doubled the size of the country's national park and refuge system, and tripled the amount of land designated as wilderness. ANILCA expanded the national park system in Alaska by over 43 million acres, created 10 new national parks, and increased the acreage of three existing units. ANILCA also designated 2.77 million acres as wilderness, under the conditions of the 1964 Wilderness Act.

The general purposes of the park and preserve are stated in Section 101 of ANILCA:

> *To preserve for the benefit, use, education, and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally significant natural, scenic, historic, archaeological, geological, scientific, wilderness, cultural, recreational, and wildlife values…*
>
> *To preserve unrivaled scenic and geological values associated with natural landscapes; to provide for the maintenance of sound populations of, and habitat for, wildlife species…including those species dependent on vast relatively undeveloped areas; to preserve in their natural state extensive unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems…*

Section 202(1) of ANILCA also established approximately 57,000 acres of public land as the Glacier Bay National Preserve and indicated that the preserve would be managed to protect wildlife habitats and migration routes. As specified in Section 1313 of ANILCA, the preserve shall be administered and managed as a unit of the National Park System except that the taking of fish and wildlife for sport purposes and subsistence uses shall be allowed under applicable State and Federal law and regulation.

GLBA is managed under the Glacier Bay General Management Plan (NPS 1984) and the GLBA Wilderness Visitor Use Management Plan (GLBA 1989). The General Management Plan "sets the overall direction for management of natural and cultural resources, visitor use, land protection, and facility development." The Wilderness Visitor Use Management Plan establishes management strategies that "reduce the impact of humans and their technology upon the wilderness resource." The plan aims to "preserve the natural and aesthetic values that assure the opportunity for solitude, and that permit ecosystems to function without significant human intervention." The proposed Deception Hills site is outside of but about a half mile from the designated wilderness boundary.

1.4 LAWS, REGULATIONS, AND POLICIES

Applicable environmental requirements are summarized below.

1.4.1 National Environmental Policy Act of 1969

NEPA requires federal agencies to integrate environmental values into their decision-making by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

This EA is a site-specific document tiered to the Supplemental Program Environmental Assessment that addressed the modernization of the USCG Rescue 21 (URS 2002). This assessment addresses the USCG action proposal to locate, construct, operate, and maintain a new communication facility in the preserve unit of GLBA. This EA also addresses the administrative action by the NPS to permit the location of such a facility.

1.4.2 NPS Organic Act

The NPS Organic Act (1916) and the General Authorities Act (1970) prohibit impairment of park resources and values. The NPS Management Policies (NPS 2006) and Director's Order #55 use the terms "resources and values" to mean the full spectrum of tangible and intangible attributes for which the park was established and is managed, including the Organic Act's fundamental purpose and any additional purposes as stated in the park's establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the NPS is to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities to enjoy them.

The evaluation of whether impacts of a preferred alternative would lead to an impairment of park resources and values is included in this EA. Impairment is more likely when there are potential impacts to a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- essential to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- identified as a goal in the park's General Management Plan or other relevant NPS planning documents

1.4.3 Right-of-Way Authority

NPS's statutory authority to authorize the USCG Rescue 21 Site at Deception Hills is at Title 16 of the United States Code, Section 5 (16 USC § 5). The statute allows NPS to issue rights-of-way for communication sites. NPS policy states, "16 USC § 5 will be used for telecommunications and other forms of communication transmitting and receiving

structures and facilities." Regulations implementing the statute are at Title 36 of the Code of Federal Regulations, Part 14.

1.5 IMPACT ISSUE SELECTION

To focus the EA, specific ecological and human-related issues were selected for further analysis and others were eliminated from evaluation. The issues selected for analysis or dismissed were determined through both internal and public scoping prior to preparing the EA.

1.5.1 Issues selected for detailed analysis

Visual resources

Structures at Deception Hills would be visible to viewers in close proximity to the site, including an area of about 250 acres on the ridge immediately to the south within the wilderness area of the park. The facility would also be visible from the west from boats in the Gulf of Alaska.

Soundscape

Construction, operation, and maintenance of the facility at Deception Hills would result in intermittent noise from project-related aircraft operations, and to a lesser degree, from generator operations. The noise produced during construction would be greatest during the slinging of equipment from the mobilization site to the tower site. Once operational, the communication site would experience additional noise from helicopter trips for maintenance or refueling visits approximately 2-3 times a year. The generator would be most active during the winter when solar energy generation is less efficient.

Wildlife

Sixty-four mammal species are known to occur in GLBA, including black and brown bears, red foxes, mountain lions, mountain goats, moose, wolves, coyotes, wolverines, marmots, weasels, pine marten, mink, shrews, and small rodents (GLBA 2009c). Mountain goats have been observed in Deception Hills. The Alsek River corridor, near Deception Hills, provides a passageway through which some of the wide-ranging mammals travel between the interior and the coastal plain through the Saint Elias Mountains. Over 260 bird species use habitats within GLBA (GLBA 2010), and Dry Bay is an important migratory bird nesting and resting area.

Vegetation

Vegetation at the Deception Hills site would be affected by construction over small areas where footings would be located and beneath the shelter and solar array footprints. These areas would be no more than 1,400 sf, the overall footprint of the Deception Hills facility. Once construction was complete and the facility was in place, communication operations would not have any additional impacts to vegetation.

Wilderness

None of the sites associated with the proposed facility are within designated wilderness. However, the Deception Hills facility is within a half mile of the designated wilderness boundary in the park. Visitors to the wilderness area near Deception Hills could be impacted by the construction, operation, and maintenance of the facility at Deception Hills.

Visitor use

Existing visitor use at the Deception Hills site is likely to be low. However, sport hunting for goats could take place on the ridge tops of Deception Hills.

Public health and safety

Potential health impacts of microwave transmission would be addressed by meeting FCC standards for exposure. The enhancement in emergency communication capability would improve public health and safety.

1.5.2 Issues dismissed from further analysis

Air quality

The primary sources of air pollutants would be emissions from helicopters and the propane-fueled generator used to recharge the batteries at the communication site. During construction of the communication site, as many as 30 trips would be required over 1 or 2 days. Once operational, additional emissions would be generated from helicopter trips for maintenance or refueling 2-3 times per year. In addition, the generator would operate, primarily in the winter, for approximately 6 hours at intervals of about 3 days. In total, the effects of these emission sources on air quality in the vicinity of the communication site are virtually unmeasurable at any relevant spatial scale used to assess outdoor air quality.

Global climate change

The consumption of propane fuel to power the communication site generator would generate carbon dioxide, the increase of which is associated with global climate change. Assuming 5,000 gallons of propane are used every 2 years, and using a conversion rate of 13 pounds of carbon dioxide per gallon of propane, the operation of the communication facility could generate 22,500 pounds of carbon dioxide annually. Carbon dioxide emissions of this magnitude would have an inconsequential contribution to global climate change.

Soils

There would be no overall change in the soils at the communication site given the small scale of the project (110 ft^2 of soil would be disturbed from installing footings). The

mobilization site would not be affected because it is an area with previously disturbed soils.

Water resources and water quality

There are no streams, rivers, lakes, or water bodies near the Deception Hills site. The mobilization site is located on stable upland soils near the mouth of the Alsek River. The Yakutat communication link site is not located in a natural area adjacent to any water bodies.

Wetlands

There are no wetlands in the vicinity of the Deception Hills site, mobilization site, or Yakutat communication link site.

Floodplains

The Deception Hills and Yakutat link sites are not located within floodplains. The Dry Bay mobilization site is located within the Alsek River floodplain, but the material storage interval would be short and the floodplain function in this disturbed area would not be adversely impacted.

Fish

There are no water bodies at either the Deception Hills or Yakutat link sites. The mobilization site is located near the mouth of the Alsek River, but mobilization activities would occur in an area with stable upland soil. Therefore, none of the project activities would have any impact on fish.

Threatened and endangered species

Several threatened and endangered fish and marine mammal species may be present in or in the vicinity of GLBA (Table 1-1), but none of these aquatic species would be found in the vicinity of project activities, given the absence of water bodies. Several bird species potentially found in GLBA are Alaska species of special concern or candidate species for protection under the Endangered Species Act (Table 1-1). There is no known habitat for any of these bird species at Deception Hills. There are no known threatened or endangered land mammal species present in GLBA.

Table 1-1. Threatened and endangered species potentially present in or near GLBA

Species	Status	Jurisdiction
Fish		
Lower Columbia River Chinook	Threatened	NOAA (NMFS 2009)
Middle and Lower Columbia River steelhead	Threatened	NOAA (NMFS 2009)
Puget Sound Chinook	Threatened	NOAA (NMFS 2009)

Species	Status	Jurisdiction
Snake River basin steelhead	Threatened	NOAA (NMFS 2009)
Snake River fall Chinook	threatened and Alaska species of special concern	NOAA (NMFS 2009) and ADF&G (2008)
Snake River spring/summer Chinook	threatened	NOAA (NMFS 2009)
Upper Columbia River spring Chinook	Endangered	NOAA (NMFS 2009)
Upper Columbia River steelhead	Endangered	NOAA (NMFS 2009)
Upper Willamette River steelhead	Threatened	NOAA (NMFS 2009)
Marine mammals		
Humpback whale	Endangered	USFWS (Enriquez 2009) and NOAA (NMFS 2009)
Steller sea lion	threatened (eastern distinct population segment) and Alaska species of special concern	USFWS (Enriquez 2009), NOAA (NMFS 2009) and ADF&G (2008)
Birds		
American peregrine falcon	Alaska species of special concern	ADF&G (2008)
Arctic peregrine falcon	Alaska species of special concern	ADF&G (2008)
Kittlitz's murrelet	proposed candidate species	USFWS (Enriquez 2009)
Marbled murrelet	proposed candidate species	ADF&G (2008)
Northern (Queen Charlotte) goshawk	Alaska species of special concern	ADF&G (2008)
Yellow-billed loon	proposed candidate species	USFWS (Enriquez 2009)

ADF&G – Alaska Department of Fish and Game
NMFS – National Marine Fisheries Service
NOAA – National Ocean and Atmospheric Administration
USFWS – US Fish and Wildlife Service

Cultural and historical resources

There is a very low probability that cultural resources of Alaska Native origin would be encountered at the Deception Hills site. It is far removed from the normal location of economic activities oriented to marine fish, mammals, and shellfish. Inland hunting and gathering was a component of the lifestyle; however, the site is distant from the seacoast or rivers that would normally provide access to inland areas. Because of its elevation, the site has very low productivity for animals and food plants. No cultural artifacts of either Alaska Native or historical periods were observed in preliminary surveys of the site during the site selection process.

NPS staff concluded that no historic properties are present in the project area by letter of January 15, 2010 (Appendix B). The Alaska State Historic Preservation Officer concurred with the determination on February 23, 2010 (Appendix B).

Based on these determinations, the facility would not adversely affect historical, archaeological, and cultural resources because of the low probability that such resources would be encountered at the Deception Hill or mobilization sites.

Land use

The proposed site at Deception Hills is in the Preserve Natural Zone, as described in the General Management Plan (NPS 1984). None of the proposed equipment would significantly affect the fundamental resources and values of the GLBA or the diverse range of recreational and educational opportunities to be found there. Therefore, there would be no impact on land use.

Subsistence

The Deception Hills site is distant from coastal and beach areas where the resources subject to subsistence fishing, hunting, and gathering are most likely to occur. The site's relatively high elevation makes it physically difficult to access and it supports low populations of subsistence-related resources. Allowable subsistence activities in the vicinity of the site would not be affected by the installation and may continue without interruption. The enhanced communication capability created with the operation of the Deception Hills site may indirectly increase hunting and fishing, which is considered a minor positive impact. Additional analysis of the potential impact on subsistence use is provided in Appendix C.

Socioeconomics

Construction and operation of the facility would provide few opportunities for employment by local residents. The type of contractor and personnel engaged in communication facility construction are specialized. A skilled and experienced team would be hired for the construction. As a supplement to the construction team, local residents might be hired for certain jobs such as staging and transporting materials. Therefore, adverse impacts to socioeconomics in the vicinity of the Deception Hills site are not expected.

Environmental justice

There would be no disproportionate impacts on minority or low-income populations because there are no such communities in the vicinity of the proposed communication site at Deception Hills.

1.6 PERMITS AND APPROVALS NEEDED TO IMPLEMENT PROJECT

The NPS would issue a right-of-way permit pursuant to 16 USC § 5 (see Section 1.4.3).

2 Alternatives

This section of the EA describes reasonable alternatives. Details are presented for two alternatives, one of which is No Action. Other alternatives considered but not evaluated in detail are discussed in Section 2.4.

2.1 ALTERNATIVE A DESCRIPTION (THE NO ACTION ALTERNATIVE)

As required by the Council of Environmental Quality, a No Action Alternative is evaluated. Under the No Action Alternative (Alternative A), the Rescue 21 system would not be modernized. The system would continue to operate with the existing network of analog transceivers located at existing tower sites. No new communications equipment would be installed and no new antenna tower sites would be constructed.

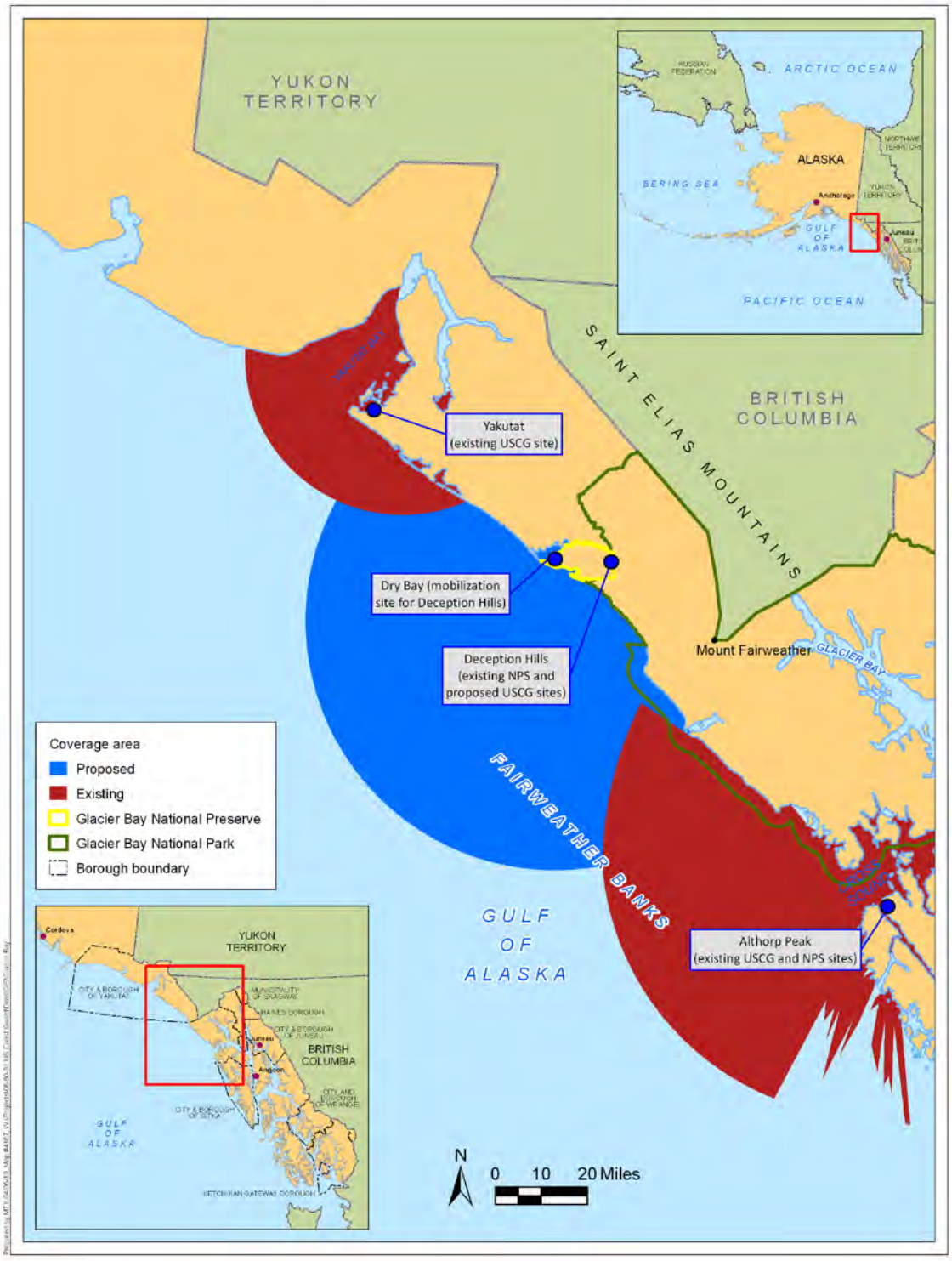
The No Action Alternative provides a baseline for decision-makers and the public. This baseline allows the environmental effects of the Action Alternative to be compared with those of the No Action Alternative.

2.2 ALTERNATIVE B DESCRIPTION (THE PROPOSED ACTION)

Under Alternative B, NPS would issue a right-of-way permit to the USCG authorizing use of the NPS-administered lands in GLBA for the communication site. The NPS is authorized to grant an easement under the Act of March 4, 1911 (as amended) (16 USC § 5).

The proposed USCG action consists of the construction and operation of a communication facility. The facility would be constructed at Deception Hills, which is located in the northwest corner of GLBA, approximately 2/3 mi southwest of the existing NPS radio equipment. This new facility would provide communication coverage in the Fairweather Banks area of the Gulf of Alaska, an area that currently falls in a gap between the coverage areas of existing VHF communication sites at Althorp Peak on northwestern Chichagof Island and at Yakutat 155 mi northwest of Althorp Peak (Figure 2-1). Modifications of the existing communication facility at Yakutat are also proposed to enable connectivity to the Deception Hills site.

The proposed communication facility would consist of a communication tower, communication equipment shelter, generator shelter, propane fuel tanks, solar array, wind generator on a stand-alone tower, and all necessary electronic equipment capable of receiving and transmitting radio signals within the relevant service areas. The site would occupy an area of about 0.25 acre above the timber line. Details are provided below for each component of the proposed facility.



Note: The coverage area depicted is based on a 1-watt handheld device 2 m above sea level, as from a small watercraft.

Figure 2-1. Existing and proposed coverage areas near Deception Hills

2.2.1 Deception Hills site

The Deception Hills site is in the preserve unit of GLBA, which is not designated or eligible wilderness (Figure 2-2). It is about a half mile from the boundary of the National Park, which is designated wilderness (Figure 2-3). A conceptual layout for facility locations at the Deception Hills site is provided in Figure 2-4. Additional construction details, including conceptual drawings and the full site plan, are included in Appendix D. Figure 2-5 shows the existing wind generator and equipment shelter at the site, which are operated by the Geophysical Institute of the University of Alaska, and Figure 2-6 shows the existing NPS radio equipment. Elements proposed for the Deception Hills site are described below and shown in Figure 2-7.

- **Communication Tower –** An unlighted and unpainted 60-ft, self-supporting, galvanized steel lattice tower on single-leg foundations with a triangular base approximately 10 ft on each side would be built. A steel ladder would be positioned inside the structure. The tower would provide support for six USCG VHF antennas each 5 ft tall and 2.75 inches in diameter (including DSC and National Weather Service broadcasts), one ultra-high-frequency antenna 4 ft tall and 2.75 inches in diameter, and one microwave dish 8 ft in diameter. The microwave dish would be mounted about 35 ft above the ground. The tower would include lightning protection, an ice shield, and an ice bridge connecting the tower to the communication shelter. A grounding loop (laid on top of the ground) with 5 to 10 grounding rods (driven up to 3 ft below ground) would be installed around the tower and structures. The tower would include space for the NPS radio antenna and Geophysical Institute equipment, should the latter be relocated to the proposed communication site at Deception Hills.
- **Communication Shelter –** An 8-ft-by-10-ft-by-8-ft-tall shelter would house the electronics equipment required to transmit and receive signals, and transfer these signals to the Yakutat communication site and then to the USCG control center. The shelter would be green, double-walled, insulated fiberglass due to the availability, weight, and life span of this material. This facility would not be heated due to the heat generated by the electronics equipment. The shelter foundation would consist of four concrete pedestals, each 12 to 18 inches in diameter, anchored to bedrock. The floor of the shelter would vary from approximately 1 to 3 ft above the natural ground line. The communication shelter would include space for the NPS radio equipment and Geophysical Institute equipment, should the latter be relocated to the proposed communication site at Deception Hills.

Figure 2-2. Proposed locations for Deception Hills communication and mobilization sites

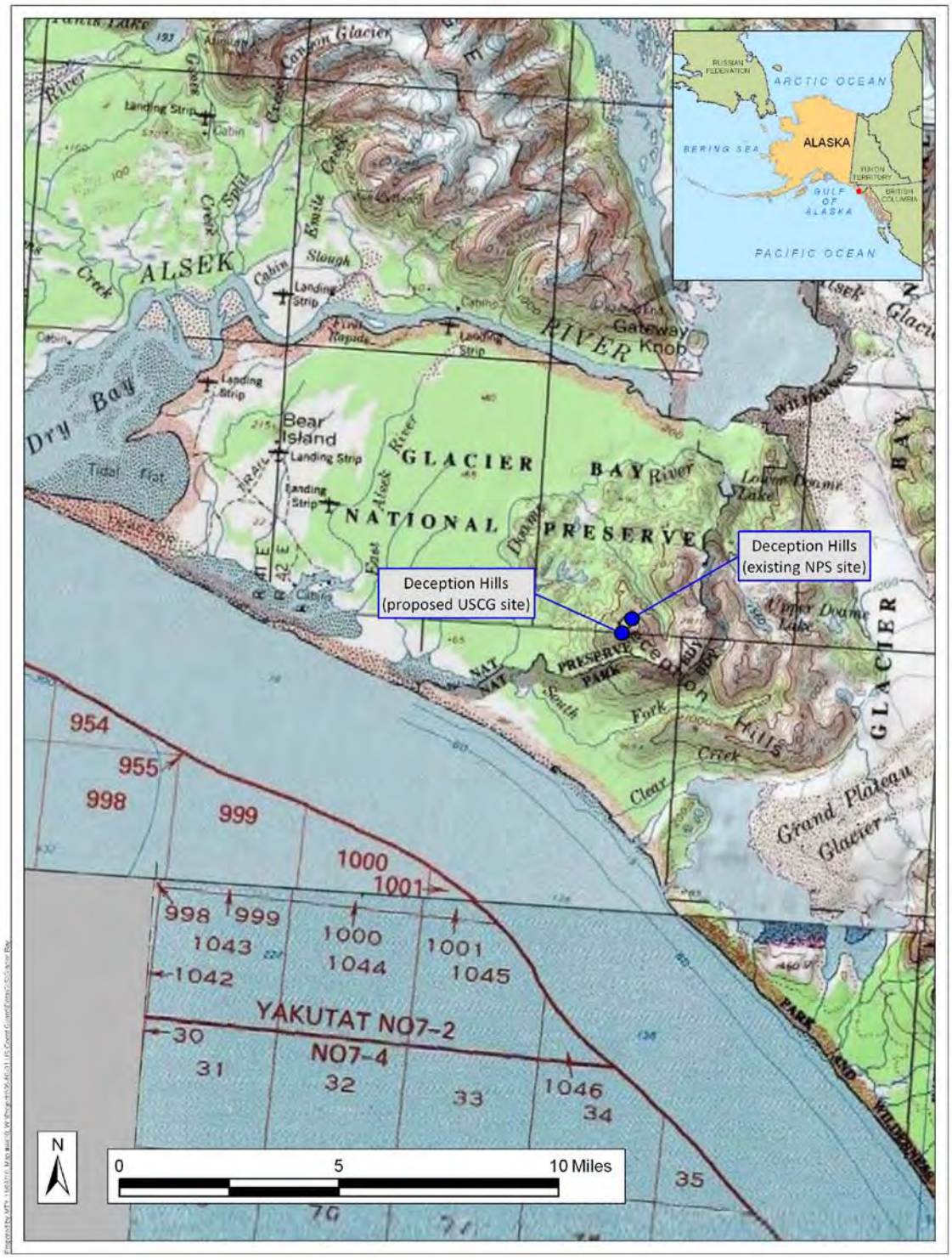


Figure 2-3. Proposed location for Deception Hills communication site

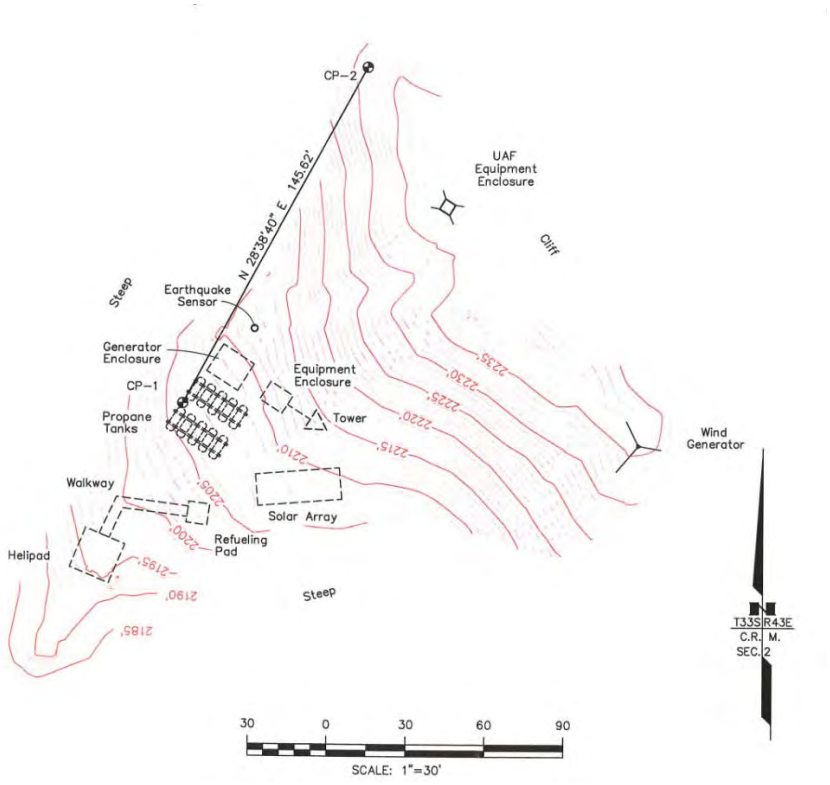


Figure 2-4. Conceptual site layout for Deception Hills site

Figure 2-5. Existing Geophysical Institute wind generator and equipment shelter at Deception hills site

Figure 2-6. Existing NPS radio equipment 2 mi NE of the Deception Hills site

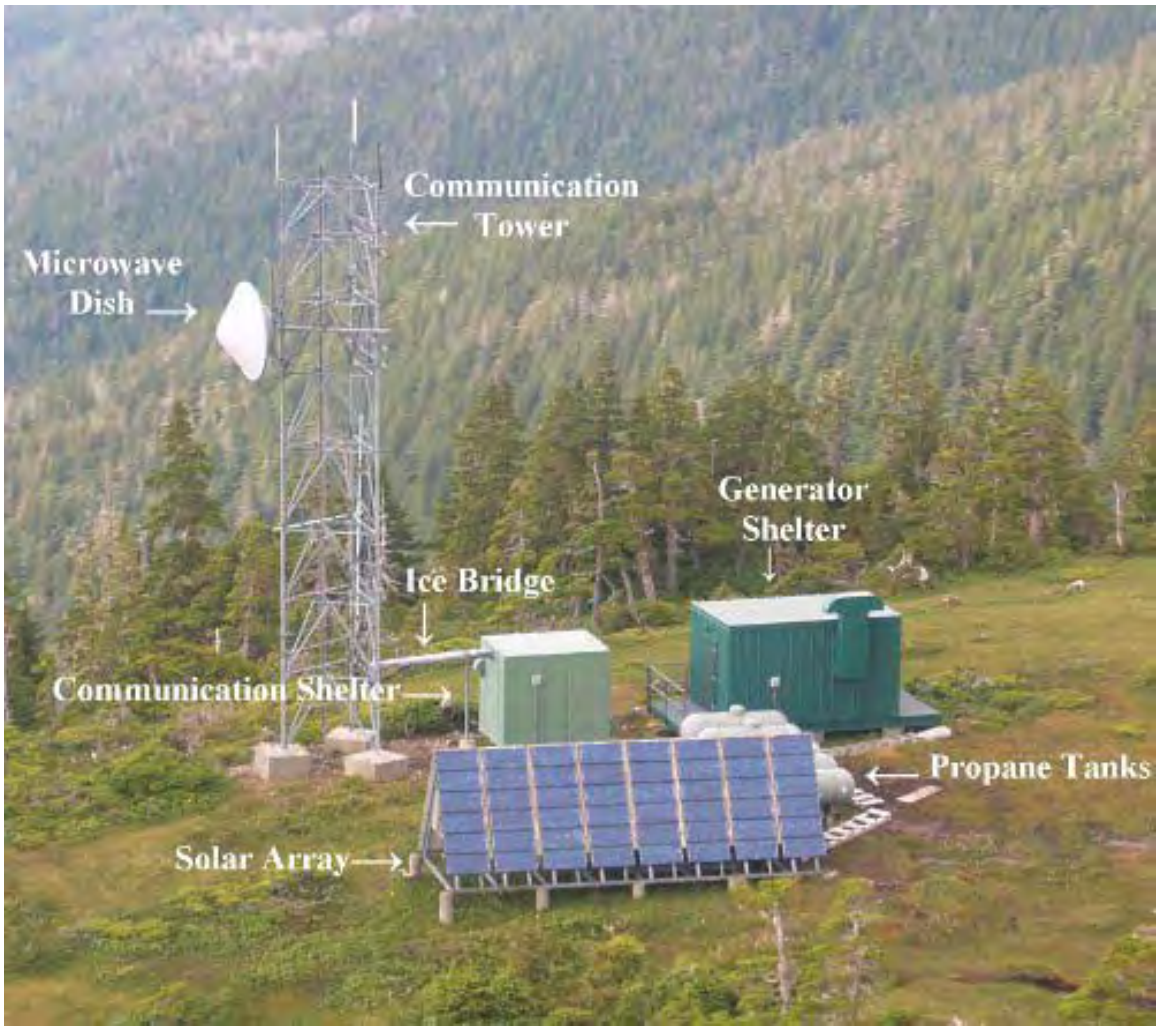


Figure 2-7. Typical communication site similar to the proposed Deception Hills site

- **Generator Shelter –** A heated 10-ft-by-16-ft-by-8-ft-tall shelter with an open, attached 4-ft porch extending from each end for an approximate total length of 24 ft would house two generators that would run alternately as required, and two sets of battery packs to power the communication shelter and its electronic equipment. The shelter would be made of green coated metal and the generator would produce 7 kW of electricity. Batteries would be sealed, non-spilling, absorbed glass mat (AGM) type. There would be two banks of 100A17 batteries. Each bank would consist of 12 two-volt cells and would weigh approximately one ton. The generators would have mufflers to reduce the noise and would run only when batteries need to be charged. Solar panels would minimize the need to run the generators in the summer. In the winter, when solar panels are less effective, generators would run more frequently, with average run times of 6 hours at 3-day intervals. The generator shelter foundation would consist of six to

eight concrete pedestals, each 16 to 20 inches in diameter, anchored to bedrock. The floor of the shelter would vary from approximately 1 to 3 ft above the natural ground line.

- **Solar Array –** A projected 3-kW solar array with an approximate collector surface of 384 square feet (sf) would be installed. The angle of the solar array would be approximately 60 degrees. The solar array would provide the majority of the site power during the summer months, and supplemental power during the spring and fall. The foundations for the array would consist of approximately ten concrete pedestals, each 16 inches in diameter, anchored to bedrock.
- **Propane Tanks –** Ten 500-gallon, or five 1,000-gallon propane tanks would be installed to provide fuel for the generators. The approximate footprint for the propane tanks would be 275 to 310 sf. The foundations for the tanks would consist of 8 to 16 concrete pedestals, each 16 inches in diameter, anchored to bedrock and treated lumber cribbing. The lumber would be treated with a typical copper-based preservative (that does not contain creosote or arsenic) and would not have contact with the ground.
- **Refueling Pad –** A refueling pad 10 ft by 10 ft would be installed near the propane tanks to provide a level and stable surface on which transfer tanks could be set during refueling operations. The pad would be made from pressure-treated lumber, with foundations consisting of concrete pedestals anchored to bedrock. The lumber would be treated with a typical copper-based preservative and would not have contact with the ground.
- **Wind Generator Tower –** A new 20-ft, self-supporting lattice tower to support a vertical-axis wind generator may be installed. The wind generator (non-reflective steel) would provide an alternate power source to recharge the batteries in the generator shelter, so as to reduce fuel use by and run time of the propane generator. The USCG is currently testing wind generators for their efficacy in supplying supplemental power.
- **Helicopter Landing Area –** A helicopter landing pad 20 ft by 20 ft would be installed southwest of the tower and equipment area. The topography in the area requires provision of a constructed pad for safety reasons. It would be made from either pressure-treated lumber or galvanized-expanded metal. The foundation would consist of concrete pedestals anchored to bedrock. A raised walkway approximately 40 ft long would connect to the refueling pad.
- **Relocation of Existing Seismic Monitoring Site –** An existing seismic monitoring site operated by the Geophysical Institute of the University of Alaska-Fairbanks is present at the proposed Deception Hills site. If the character of vibration from the communication site cannot be effectively distinguished from seismic activities, the seismic monitoring equipment may be relocated to a

nearby site where vibrations from the propane and wind generators would not adversely affect the operation of the existing monitoring station.

Generally, the Deception Hills site would be accessed by the USCG or its contractors twice each year for preventive maintenance and operational checks. Each maintenance session would require one helicopter trip. The propane tanks would require refueling once every 2 years, depending on the effectiveness of solar-and wind-powered battery recharge. Refueling would take place during the summer to take advantage of good weather; portable tanks would be sling-loaded to the site by helicopter and contents transferred to the permanent tanks. The refueling process would require 8 to 12 helicopter flights which would begin outside of GLBA.

The USCG would leave the generator shelter doors unlocked year-round for emergency access by people in distress.

A camp for four to five construction workers would be established at the Deception Hills site, or contractor may choose to house construction workers at Dry Bay (see Section 2.2.2) and helicopter them to the site, requiring about two daily round trips over a 2-3 week period. The area of an onsite construction camp would be 0.25 acre or less, typically consisting of a tent 10 ft by 20 ft on a temporary wood platform used for sleeping, cooking, and personal item storage. A portable toilet would be placed at the site. The contents would be flown out of GLBA by helicopter. Multiple smaller tents could be used dependent on conditions at the site (wind, fog) and safety concerns.

Excess construction materials and waste produced from construction would be removed from the site after construction has been completed, and disposed of appropriately. No fuel, other than the propane tanks, would be left at the Deception Hills site. Very small quantities of oil (approximately 1 gallon) and anti-freeze (approximately 5-6 gallons) would be stored in the generator shelter.

Mobilization and construction are temporary activities. Foundations would be installed over a 1-week period, followed by a break for the concrete to cure. Subsequent completion of construction would take approximately 1 week.

2.2.2 Deception Hills mobilization site (Dry Bay)

A temporary mobilization site would be necessary, allowing construction materials to be transported first to a nearby site near sea level and then by helicopter to the top of the ridge. The mobilization site would be at the existing Dry Bay air strip, on disturbed ground near the runway (Figures 2-8 and 2-9). Materials would be delivered to the mobilization site by airplane. Materials would not be moved overland on trails in the Dry Bay area. Slinging would be completed in 1 or 2 days, requiring up to 30 round trips.

Figure 2-8. Dry Bay mobilization site

Figure 2-9. Photo of mobilization site at Dry Bay

2.2.3 Yakutat communication link (for Deception Hills site)

To provide microwave communication with the site on Deception Hills, one microwave dish 8 ft in diameter would be installed at the existing 190-ft self-supporting tower located east of Yakutat on non-NPS land. Associated electronic equipment would be located in the existing equipment building.

2.3 MITIGATION MEASURES (NOT ALREADY PROPOSED AS A PROJECT DESIGN FEATURE)

Potential mitigation measures have been addressed for the following elements of the environment:

- To address potential impacts related to unexpected encounter of cultural resources during construction, standard USCG contract specifications would provide for stopping work until appropriate surveys and characterization of resources are performed by qualified specialists. Alternatives would be evaluated and in consultation with the State Historic Preservation Officer and affected stakeholders, including Alaska Natives, the project would either be modified to avoid such resources, or a program of conservation and preservation would be implemented.
- Helicopter trips would not occur during the peak visitor season (June and July).

- Helicopter trips approaching goat-occupied areas would be avoided during construction, maintenance, and refueling trips.
- Noise produced by the generators would be reduced by installing mufflers.
- Environmental effects of the construction, operation, and maintenance of the facility would be examined in the field. Monitoring would be scheduled during construction (for spills, noise measurements, cleanup/area policing effectiveness), during operation (for propane generator run time, wind generator output), and during scheduled maintenance (for animal damage, weather damage, general condition of facility, and general condition of the surrounding vegetation and environment). Vigor of re-established species in areas of disturbed soil would be checked, and the surrounding area would be monitored for invasive species.
- The layout of the Rescue 21 facility is conceptual. If the Geophysical Institute facility remains in the existing location, the layout could be changed to position the generator shelter farther from the seismic sensor to avoid interference. The power generator design could also be required to incorporate vibration dampening material.
- To avoid introduction of invasive species, workers would inspect personnel boots, building materials, and equipment to ensure that no plants or seeds are transported to the communication site. Material and equipment would be washed, as needed, to prevent the introduction of non-native vegetation.
- No outdoor lighting or signal lighting would be installed, thereby preserving GLBA's undisturbed night sky viewsheds.

2.4 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

As part of project scoping, several alternative site locations identified were ultimately dismissed from further consideration because they did not meet the project objectives. These alternative sites are named below with the reason for rejection.

The sites examined for coverage of the Fairweather Banks area of the Gulf of Alaska included the following:

- Akwe River Forest Service site – lack of adequate space for construction
- Existing NPS site in Deception Hills – lack of adequate space for construction
- Three other locations in Deception Hills – lack of adequate space for construction or within designated wilderness area

2.5 SUMMARY OF ENVIRONMENTAL IMPACTS

A summary of the environmental impacts for the issues carried forward in this EA (see Section 1.5.1) is presented in Table 2-1. Appendix E presents the determination of

impairment to these resources, pursuant to NPS requirements to assess effects on the park's resources and values.

Table 2-1. Impact summary matrix

Impact Topic	Impacts	
	No Action (Alternative A)	Proposed Action (Alternative B)
Visual resources	No modification of any site would take place and no impacts to this resource would occur.	Structures at Deception Hills would be visible to viewers in close proximity to the site. The project would result in minor visual impacts from viewpoints within the preserve unit and wilderness of GLBA, given the small area affected and the very low probability that observers would be present. Impacts at the mobilization site would be temporary and negligible.
Soundscape	No modification of any site would take place and no impacts to this resource would occur.	There would be an increase in noise from helicopters during construction but the noise would be temporary. Noise from long-term operations would be infrequent and negligible. Overall impacts would be minor.
Wildlife	No modification of any site would take place and no impacts to this resource would occur.	The proposed facility would not adversely affect wildlife in GLBA because the facility's footprint would be small relative to the surrounding area and would not change habitat area. The facility and tower may present a striking hazard to some birds flying at night, in twilight, or in foggy weather conditions but this effect is expected to be minor. The overall impacts would be minor.
Vegetation	No modification of any site would take place and no impacts to this resource would occur.	Vegetation at the Deception Hills site would be affected by construction over small areas where footings would be located and beneath the shelter and solar array footprints (minor amount). Impacts to vegetation at the mobilization site would be negligible given the previous disturbances at this site.
Wilderness	No modification of any site would take place and no impacts to this resource would occur.	The Deception Hills, Deception Hills mobilization, and Yakutat communication link sites are not within designated wilderness areas. Impacts on the nearby wilderness area south of the proposed site would be minor.
Visitor use	No modification of any site would take place and no impacts to this resource would occur.	Visitor use would not be adversely impacted at the Deception Hills site, nearby wilderness area, or the Dry Bay mobilization site. The facility may enhance recreation use by providing emergency communication in the Gulf of Alaska.
Public health and safety	There would be no impact to public health. Public safety might be negatively impacted because of the gap in emergency communication.	The proposed facility would have a beneficial impact on public health and safety of mariners on the Fairweather Banks.

GLBA – Glacier Bay National Park and Preserve

3 Affected Environment

This chapter provides a description of the project area, presents the relevant resource components of the existing environment, and provides a baseline for the comparison of alternatives presented in Chapter 4, Environmental Effects.

3.1 VISUAL RESOURCES

Topics analyzed in this section include the visual character of the project site and surrounding area, including viewer groups, views, and existing sources of light and glare. The assessment of visual quality is subjective, as the person perceiving the visual environment brings personal and cultural frames of reference to the discernment and evaluation of visual information. There is, however, broad agreement in federal, state, and local regulations, as well as research, which establishes a general public consensus of what constitutes a desirable visual environment.

There are three critical parameters of the visual experience:

- Visual character
- Visual quality
- Viewer response

Visual character refers to the relationships between elements of the visual environment, including the position of an individual element; apparent scale or size relationships; the number, variety, and intermixing of elements in a view; and the maintenance of visual relationships (Blair 1988). These parameters allow consideration of a variety of visual elements such as the seven key factors identified in the Bureau of Land Management (BLM) visual resource management system: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications (BLM 1980).

Visual quality refers to the value of the visual experience to the public. Studies of the American public and across cultures demonstrate strong agreement about preferred qualities of the visual experience (Jacques 1980; Kaplan 1985; Real et al. 2000). Elements of visual quality include the vividness or distinctive and memorable visual patterns in the landscape, integrity of visual patterns whether natural or built, and the extent to which the landscape is free from encroaching elements. Visual coherence and compositional harmony define the unity of the landscape considered as a whole. It refers to the fit between elements of the landscape but does not connote uniformity in design or character (Blair 1988).

The park's Foundation Statement (GLBA 2010) includes the following policy addressing visual quality: "The park preserves the natural sounds, air quality and the opportunities to see pristine night skies."

3.1.1 Deception Hills site

The ridge on which this site is located is about 3 mi east of the coast of the Gulf of Alaska. It is about 11 mi south of the Alsek River and 5 mi north of the Grand Plateau Glacier. It is 2 mi south of the north fork of the Doame River and about 2 mi from the south fork (Figure 2-2). It is a western projecting ridge at an elevation of about 2,200 ft among a cluster of peaks that range up to about 3,500 ft. The ridge is visible from a viewshed to the north, east, and southwest comprising about 150 square mi, although the area within a radius of 5 mi in which features on the ridge would be potentially visible is about 40 square mi. Views south of the Grand Plateau Glacier are generally blocked by higher ridges to the south of the glacier.

Views of the site from within the wilderness area to the south and southeast are available from the ridge at an elevation of about 1,500 to 2,000 ft. Views are limited to the top of the ridge and a portion of the northward-facing slopes. At lower elevations the view of the site is blocked by the topography and vegetation. The site is visible from an area of about 250 acres on the ridge immediately to the south. Views of the existing NPS antenna site are generally available from the same area.

Proceeding south, the next ridge within the wilderness area lies between the South Fork of the Doame River and the Grand Plateau Glacier, about 4.5 mi from the site. Even though the ridge is somewhat higher than the site, with a maximum elevation of about 3,500 ft, the height of the intervening ridge would block most direct views of the site except for an area of about 300 acres. There are no views of the site from the Grand Plateau Glacier because views are blocked by the intervening ridges. Views from ridges to the northeast in the vicinity of Upper Doame Lake 2 to 4 mi from the site and at an elevation of up to 3,000 ft are similarly blocked by the high point of the ridge to the east of the site and other intervening ridges within the preserve. Viewers on high points such as Mount Hay, Mount Lodge, Mount Root, or Mount Fairweather, which are 23 to 27 mi from the site, would be too far away to distinguish the site. In addition, the lines of sight from these distant viewpoints are at a shallow angle such that they are blocked by intervening ridges.

The ridge is likely to be visible from the west from boats in the Gulf of Alaska. When weather conditions allow, the views from the Gulf of Alaska are dominated by the peaks to the north and the broad expanse of the Grand Plateau Glacier. These higher ridges and peaks rise to a base elevation of around 5,000 ft and continue to the peak of Mount Fairweather at 15,300 ft. On clear days, the higher elevation icefields and peaks dominate distant views. The Grand Plateau Glacier is a prominent feature of the view due to its scale. The glacier is about 3 mi wide at the outwash plain and rises to an elevation of about 2,500 ft in a valley surrounded by higher ridges with higher glaciers and peaks further inland.

The Deception Hills site is on one of a complex of eight to ten ridges and peaks that rise to a 3,600 ft elevation visible from the coastal lowlands. The ridge on which the

communication tower would be located is not substantially greater in height, prominence, or vividness. The site is not likely to be distinguished by most viewers because it is a minor element in a series of ridges that rise from the Gulf of Alaska and extend to the northeast about 15 mi to Mount Fairweather on the British Columbia border. It is silhouetted in views to the west and northwest from the vicinity of Dry Bay and the Alsek river because it projects to the west but it generally blends with ridges in the background to the southeast that are up to 1,000 ft taller. Overall, it forms one element of an integrated pattern of bare or snowcapped ridges extending to the horizon. The most vivid feature of views from a distance of 3 to 5 mi is not individual peaks but the abrupt increase in elevation from the lowland of the entire west-facing ridge complex.

The viewing population is most likely to include persons on vessels in the Gulf of Alaska up to a distance of several miles offshore and persons in the lowlands along the shoreline and the Doame River. Visitors to Dry Bay and Alsek River at a distance of 11 mi could not readily distinguish the ridge or the antennas from other natural ridges in the complex. The potential to view the site is also limited by weather conditions in the Gulf of Alaska, which are subject to frequent fog and low-lying cloud cover, as well as rain that often obscures views.

3.1.2 Deception Hills mobilization site (Dry Bay)

Dry Bay along the mouth of the Alsek River is a flat outwash plain with dense evergreen and deciduous tree cover in upland areas farther away from the coast. In some areas, the dense tree cover blocks views a short distance from open areas. A variety of human-altered landscape features are present in the area. These features include 13 areas identified as operational or former airstrips, two lodges, about 20 other fish camps including cabins and other buildings, and a seafood processing facility (GLBA 2007). The area has an integrated natural character except when viewed from close to a developed area.

3.1.3 Yakutat communication link site

Views at this site consist of commercial and infrastructure features.

3.2 SOUNDSCAPE

Background information on noise terminology and descriptors as well as a regulatory overview are provided in Appendix F. Sound levels in areas without human influence are considered to be in the range of 20 to 30 A-weighted decibels (dBA) in calm weather. A number of natural phenomena can, however, produce substantially higher noise levels. The most pervasive source of natural sound is the wind. Wind through foliage or over bare surfaces generates noise levels that relate to the speed of the wind and, to a lesser degree, the extent to which topography or other features channel winds. The noise associated with winds on level ground have been measured at about 35 to

45 dBA at wind speeds of 5 to 10 mph and at 55 to 65 dBA at wind speeds of 20 to 30 mph (Bolin 2006; Illingworth and Rodkin 2006; Illingworth & Rodkin 2006). Rain and marine water movement are also common elements of background sound in Glacier Bay.

The vocalizations of birds, amphibians, and other animals are generally understood to be features of the natural soundscape that are at relatively low ambient levels. However, higher sound levels can be produced intermittently by mating calls of birds or seabird colonies, where levels in excess of 55 dBA at a distance of 50 ft may be sustained during daytime hours (Feare et al. 2003). Sound levels may also be elevated near Steller sea lion haulouts, such as at the Marble Islands.

The loudest potential source of noise in the area is likely to be low-altitude airplane overflights and landings. A single-engine flyover 1,000 ft above an observer may have a peak noise level of 80 dBA for a very short period, with a more extended period of lower noise levels when the airplane is at a greater distance (Schulten 1997). Park visitors often comment about scenic air touring aircraft because the aircraft circle repeatedly over specific points. Direct pass-through flights receive less comment.

Noise from vessel traffic is highly variable, depending upon the size of the vessel and type of propulsion. Generally, noise from ships is related to engines, propellers, whistles, and signals. Noise levels at a distance of 500 ft are typically in the range of 55 to 60 dBA, falling to 35 to 45 dBA at distances of 0.25 to 0.5 mi (Miller 2008). Topography, such as fjord walls, also influences the distance from which vessels may be heard.

3.2.1 Deception Hills site

Noise levels at the site may be expected to be between 20 and 30 dBA in calm winds and up to 40 to 50 dBA in moderate to strong winds. The loudest potential source of noise in the area is likely to be overflights of airplanes accessing the Dry Bay and Doame River areas. These areas offer extensive opportunities for fishing and hunting, at both recreational and subsistence levels. The majority of air traffic in and out of Dry Bay is from the north, shuttling visitors and clients from commercial jets landing in Yakutat. Small aircraft approaching from the south follow the coastline. If good weather permits, they go up Glacier Bay and through the Fairweather Range passes. Alaska Airlines jets often follow the coastline.

3.2.2 Deception Hills mobilization site (Dry Bay)

Noise levels at the Dry Bay mobilization site may be expected to be between 20 and 30 dBA in areas away from human activity and in the range of 45 to 60 dBA near areas of greatest human activity, such as fishing camps and rafting pull-out areas. Four-wheel all-terrain vehicles are a common source of noise in Dry Bay because they are the primary mode of transportation. Generators are also common at the fish processing plant and at the NPS ranger station. Airplane noise is likely to be loudest during

takeoffs; however, most receivers are likely to be at substantial distance and are not likely to experience levels higher than 65 dBA.

3.2.3 Yakutat communication link site

Noise levels in the semi-urbanized setting of the existing Yakutat communication facility are likely to range between 55 and 65 dBA.

3.3 WILDLIFE

3.3.1 Land mammals

Sixty-four mammal species are known to occur in GLBA, including black and brown bears, red foxes, mountain lions, mountain goats, moose, wolves, coyotes, wolverines, marmots, weasels, pine marten, mink, shrews, and small rodents (GLBA 2009c). In an aerial survey in the summer of 1984, 58 mountain goats were identified in the Deception Hills area (ADF&G 1984a). In winter of the same year, very low goat numbers were found in the Deception Hills area and goat populations were observed closer to Alsek Lake (ADF&G 1984b). The Alsek River corridor provides a passageway through which some of the wide-ranging mammals travel between the interior and the coastal plain through the Saint Elias Mountains. Among these mammals are brown bear, black bear, wolf, wolverine, red fox, lynx, river otter, pine marten, mink, snowshoe hare, beaver, and moose. The seasonal salmon spawning runs in the Alsek and East Alsek rivers attract many predatory and scavenger species from other parts of the preserve, including brown bear, river otter, mink, and wolverine.

Riparian and wetland habitats in GLBA provide travel and foraging areas for moose, bear, and small mammals. Small mammal species include red-backed and long-tailed vole, little brown myotis, red squirrel, and shrew. Beavers have also colonized riparian areas in the preserve. Wetlands provide high-quality foods and some security for moose in spring and summer. Along the dunes and beach edges, brown bear and moose may be found. Bears use these areas to search for fish carcasses or dig for tuberous plants (GLBA 2007).

3.3.2 Birds

Over 260 bird species use habitats within GLBA (GLBA 2010), and Dry Bay is an important migratory bird nesting and resting area. The area is used during the spring and fall migration by many shorebirds and waterfowl, including dunlin, black-bellied plovers, greater and lesser yellowlegs, Canada geese, mallards, teal, and trumpeter swans. Trumpeter swans winter in the coastal areas of the preserve. The peak of the spring migration occurs in the first 10 days of May. Breeding birds, including a wide variety of songbirds, waterfowl, and shorebirds, nest and rest along the river channels and inland (GLBA 2004).

Bald eagles, ravens, and gulls range over much of GLBA. They can be found along many rivers feeding on carrion, salmon, and the occasional stranded marine mammal. Eagles roost and nest in cottonwood and coniferous trees along the river corridor and along the shorelines of Glacier Bay.

River drainage areas provide riparian migratory, breeding, and feeding habitat. Riparian habitats produce much of the invertebrate food required by passerine birds and waterfowl. Mallard, green-winged teal, Barrow's goldeneye, American widgeon, and gadwall commonly nest and raise broods in riparian wetlands. Predatory birds, including northern goshawk, use the mature woodlands for roosting and nesting. Migratory raptors, including peregrine falcon, sharp-shinned hawk, northern harrier, and red-tailed hawk, pass through GLBA in spring and fall. Falcons and goshawks prey upon congregating migratory shorebirds, waterfowl, and passerine birds in the Dry Bay floodplain. Owl species reported within the park include the saw-whet, boreal, barred, short-eared, great horned, and screech, and occasionally northern hawk and snowy in winter.

Beach dunes provide resting areas for migratory seabirds and shorebirds that also feed in the estuaries. Birds present during breeding season include parasitic jaeger, Arctic tern, whimbrel, and glaucous-winged gull. Short-eared owl and northern harrier range from open plains into the estuarine fringes, foraging for small mammal prey. The estuaries and marine shore provide significant stopover areas for migratory shorebirds. In 1996 and 1997, it was estimated that more than 350,000 shorebirds used forelands habitat, which was then qualified as a habitat of international significance (GLBA 2004).

Summer nesting birds may be present during planned construction activities, but only limited nesting habitat is present at the proposed site.

3.4 VEGETATION

3.4.1 Deception Hills site

A site survey conducted in August 2008 found that the vegetation at the Deception Hills site is primarily low-growing grasses and sedges, perennial and annual forbs, and evergreen and deciduous tundra vegetation (SAGE 2008). No trees are present at the site (SAGE 2008). Examples of vegetation at the Deception Hills site are shown in Figure 3-1.

3.4.2 Deception Hills mobilization site (Dry Bay)

Vegetation at the Dry Bay mobilization site includes grasses, mosses, beach strawberry plants, scattered moss campion, *Potentilla* spp., willow thickets, Sitka alder, black cottonwood, mountain ash, ground cone, salmonberry, blueberry, devil's club, and Sitka spruce (GLBA 2004). Several invasive plant species are also present, including bigleaf lupine, oxeye daisy, common dandelion, and pineapple weed.

Figure 3-1. Typical vegetation at the Deception Hills site

3.4.3 Yakutat communication link site

The Yakutat communication link site is located in a disturbed area where no wetlands or sensitive vegetation exist.

3.5 WILDERNESS

The proposed site is not within a wilderness area but is about a half mile from the National Park Boundary, which is designated wilderness. The Wilderness Act of 1964 allows for the establishment of wilderness on federally-owned lands designated by Congress. Areas designated as wilderness are to be administered in such a manner as to leave the lands unimpaired for future use and enjoyment by the public as wilderness, and to provide protection of these areas for the preservation of their wilderness character.

The fundamental attributes of the wilderness resource are described in the Wilderness Act, Section 2(c)

> *A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain.*

An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

For the purpose of management, these features are often referred to in other terms:

- Untrammeled— "An area where the earth and its community of life are untrammeled by man," and "generally appears to have been affected primarily by the forces of nature." In short, wilderness is essentially unhindered and free from modern human control or manipulation. This quality is degraded by modern human activities or actions that control or manipulate the components or processes of ecological systems inside the wilderness.
- Natural—Wilderness is "protected and managed so as to preserve its natural conditions." In short, wilderness ecological systems are substantially free from the effects of modern civilization. This quality is degraded by intended or unintended effects of modern people on the ecological systems inside the wilderness that have occurred since the area was designated.
- Undeveloped—Wilderness is "undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation," "where man himself is a visitor who does not remain," and "with the imprint of man's work substantially unnoticeable." This quality is degraded by the presence of structures, installations, and habitations, and by the use of motor vehicles, motorized equipment, or mechanical transport that increases people's ability to occupy or modify the environment.
- Offering solitude or a primitive and unconfined type of recreation—The Wilderness Act states that wilderness has "outstanding opportunities for solitude or a primitive and unconfined type of recreation." This quality addresses the opportunity for people to experience wilderness; it is not directly about visitor experiences per se. This quality is degraded by settings that reduce these opportunities, such as visitor encounters, signs of modern civilization, recreation facilities, and management restrictions on visitor behavior.

In addition, wilderness values may be enhanced by special or unique biophysical or cultural features (e.g., wildlife concentrations, rare or dramatic landforms, cultural sites).

GLBA "preserves one of the largest units of the national wilderness preservation system, encompassing more than 2.7 million acres of glacially influenced marine, terrestrial, and freshwater ecosystems." Glacier Bay is a "place of hope – for it preserves a sample of wild America." Fundamental resources and values include intact natural ecosystems, marine wilderness, natural conditions, inspirational and challenging recreation, and scientific research (GLBA 2010).

3.5.1 Deception Hills site and mobilization site (Dry Bay)

These areas are within the preserve unit of GLBA and are not designated wilderness; however, the site is located a half mile from the park wilderness boundary and is visible from portions of the wilderness area, as discussed in Section 3.1. The mobilization site on Dry Bay is not visible from the park wilderness because of distance and the lack of a direct line-of-sight.

3.5.2 Yakutat communication link site

This site is not in an area of federal land.

3.6 VISITOR USE

3.6.1 Deception Hills site

Existing visitor use at the Deception Hills site is likely to be low. Information on backcountry hiking in the area is not kept. The ridge is not particularly distinguished and would not likely be singled out as a destination for ascent by mountain climbers. The area is not listed as a destination in the online Glacier Bay mountaineering history (Unertl 2009). There is no evidence of trails or other signs of use in the immediate vicinity. It is likely that persons seeking a primitive wilderness recreational experience would seek such experiences in more isolated portions of the 3.3 million acres of the park, where the imprint of man is not as readily apparent.

The major recreation use in the vicinity within the preserve is hunting, fishing, and river rafting in lowland areas. Sport hunting for goats could take place on the ridge tops of Deception Hills. The Doame River near the site is listed as a destination for float plane transportation to fishing areas (YCA 2009).

3.6.2 Deception Hills mobilization site (Dry Bay)

Existing visitor use of the Dry Bay area at the mouth of the Alsek River includes hunting, fishing, wildlife observation, and photography. A takeout area used by Alsek River rafting groups and a camping area are located in the vicinity (GLBA 2004). Historically, this area is part of a larger sport hunting area known as the Yakutat Forelands; it provides habitat for the largest moose population in southeast Alaska. The GLBA Foundation Statement (GLBA 2010) includes the objective of managing visitor

use of the Alsek River to create a challenging recreational experience to explore the power and immensity of primeval vastness.

3.6.3 Yakutat communication link site

There is no recreational use in the immediate vicinity of the existing communication tower at Yakutat. The tower is located in a rural residential area near the municipal water tank.

3.7 PUBLIC HEALTH AND SAFETY

There are no current public health issues related to the communication site. The existing communication facility at Yakutat generates no waste or other materials of concern to public safety.

Existing public safety issues relate to the current gap between the coverage areas of nearby VHF communication sites in the Gulf of Alaska. The Gulf of Alaska is a major maritime route used by commercial freight, oil tankers, barges, fishing vessels, and recreational vessels. The lack of adequate communication facilities in this area constitutes a public safety threat for vessels in distress.

4 Environmental Effects

This section provides an evaluation of the potential effects of the proposed action and No Action Alternative on each impact topic described in Section 3, following the impact criteria summarized below. Both direct and indirect effects are discussed, followed by a discussion of cumulative effects from other past, present, and reasonably anticipated future uses.

4.1 METHODOLOGY AND IMPACT CRITERIA

The analyses and conclusions presented in this section are based upon the professional knowledge of the analysts; their review of existing plans, research, or industry literature; and measurable parameters (or comparability with similar activities) associated with the subject matter. Some speculation is provided about the numbers of human or wildlife individuals that may be present in the vicinity of the facility. Conclusions, such as whether an effect or impact is negligible, minor, moderate, or major are based upon the analyst's judgment of the magnitude of the change in the surrounding environment without the facility or with the facility, the context of the impact, and the duration of an activity. Threshold impact levels are defined in Table 4-1.

Table 4-1. Impact levels summary

Negligible	Minor	Moderate	Major
Impacts are generally extremely low in intensity (often they cannot be measured or observed), are temporary, and do not affect unique resources.	Impacts tend to be of low intensity or short duration, although common resources may have more intense, longer-term impacts.	Impacts can be of any intensity or duration, although common resources are affected by high-intensity, longer-lasting impacts while unique resources are affected by medium- or low-intensity, shorter-duration impacts.	Impacts are generally of medium or high intensity, of long-term duration or permanent, and affect important or unique resources.

The NPS must consider the impacts of the proposed action and determine that such activity would not lead to an impairment of park resources and values (Appendix E). It is assumed that if no activity takes place at a site, then there is no impairment of a resource or value. It is also assumed that when there is negligible effect on a resource, there would be no impairment, based upon the context or duration of that particular activity.

Effects or changes that are minor, moderate, or major are examined to determine whether they are unacceptable, but not raised to the level of impairment. Therefore, unacceptable impacts are impacts that, individually or cumulatively, would fall into any of the following categories:

- Be inconsistent with the park's purposes or values

- Impede the attainment of the park's desired future conditions for natural or cultural resources as identified through the park's planning process, or create an unsafe or unhealthful environment for visitors or employees
- Diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources
- Unreasonably interfere with any of the following:
  - Park programs or activities
  - An appropriate use
  - The atmosphere of peace and tranquility; the natural soundscape maintained in wilderness; or natural, historic, or commemorative locations within the park
  - NPS concessioner or contractor operations or services (NPS 2006)

NEPA requires that incremental effects of an action be considered cumulatively with other closely related actions taken by federal or state agencies, private organizations, and individuals in the recent past, underway, in a planning stage, and in the reasonably foreseeable future. Cumulative impacts are defined as the incremental impacts to the environment resulting from adding the proposed action to other past, present, and reasonably foreseeable future actions (also referred to as regional actions), regardless of what agency (federal or non-federal) or person undertakes those actions. Cumulative impacts may result from singularly minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

It is the practice of the USCG to co-locate antennas and share infrastructure with other federal (such as NPS) and state agencies whenever feasible. As such, some level of cumulative impacts can be anticipated at shared sites. However, these cumulative impacts would be lower than those associated with multiple projects that do not share infrastructure. The cumulative effects analysis does not address the co-location of existing facilities found in the vicinity of Dry Bay. Since the construction, operation, and maintenance of these facilities involves commercial or private equipment, they would not be co-located with USCG equipment. There have been no proposals to co-locate any commercial facilities. There would be no construction of typical access routes such as roads or trails, so there is no need to address these routes.

Following the 1989 grounding of the Exxon Valdez and oil spill cleanup response, the Alaska Region of the NPS prioritized the expansion of park backcountry communication networks to enhance resource protection and environmental response. Glacier Bay's existing radio repeaters were placed into service during this period. In addition to the VHF radio repeaters and the Deception Hills seismic sensor, existing permanent installations present in the Glacier Bay backcountry include small marine navigation aids, range markers, an anchored ranger cabin/raft, and approximately 20 passive climate monitoring stations. Ongoing marine mammal, seabird, or fishery

research projects place telemetry receivers/data loggers or GPS receivers for short periods.

4.2 VISUAL RESOURCES

4.2.1 Alternative A (the No Action Alternative)

Under the No Action Alternative, no modification of any of the sites would take place and no changes in visual resources would occur.

4.2.2 Alternative B (the Proposed Action)

The criteria for determining visual resource impact levels are:

- Negligible impact would occur if the level of change would generally be overlooked by an observer.
- Minor impact would occur if the level of change would not attract the attention of an observer. The change would likely be noticed only if pointed out by another observer.
- Moderate impact would occur if the level of change would attract the attention of most observers.
- Major impact would occur if the level of change dominates the view and demands attention of the observer. The change becomes the primary focus of the observer.

Potential visual impacts also account for interference with visibility due to weather conditions.

Direct and indirect effects

The largest potential viewing population is people on vessels in the Gulf of Alaska that are more than 4 mi from the site and persons in the lowlands along the shoreline that are 2 to 3 mi from the site. Due to the distance, most viewers would overlook manmade communication facilities such as those proposed at the Deception Hills site. The proposed 60-ft tower would barely be distinguishable. Some observers may be able to perceive a small vertical projection that would contrast with natural features as the only vertical element in the landscape. The microwave dish on the tower would be the feature that most contrasts with the pattern of natural elements. The dish covering would be non-reflective or darkened to minimize visibility. These elements, however, would be a very small feature within any view of the series of ridges visible from vessels in the Gulf of Alaska. In most cases, other ridges further to the east would be the most visible skyline features. The tower and antennas would tend to blend into the higher background topography. The proposed facility would not attract the attention of an observer on vessels and would be noticed only if pointed out by another observer.

Viewers in the lowland areas adjacent to the coast within 2 to 4 mi of the Deception Hills site would experience a minor visual impact. The tower and other features would not initially attract the attention of a casual observer unless pointed out by another observer. In the scope of views available from the lowland areas of the multiple ridges in the vicinity of the project site, the facility at the project site would not stand out as a prominent feature. Because of the lack of vegetation on the ridge, the full length of the 60-ft tower would be visible. On clear days from locations with a high angle of view looking up at the ridge, the tower would be silhouetted against the sky rather than the higher, more distant peaks. As the sole vertical element in a location above the tree line, it would contrast with the natural lines of the top of the ridge. It would, however, be a small portion of any view of the series of ridges visible from the surrounding lowlands and not distinct enough to draw attention from other elements of the landscape. On clear days, the facility would be a minor element as compared with the vivid distant features of higher-elevation icefields and the 15,300-ft peak of Mount Fairweather.

The facility at Deception Hills would be visible from the summit of ridges about 1.5 and 4.5 mi to the south, inside the designated wilderness. Visual impacts would result primarily from the lattice tower and the microwave dish antenna. The equipment shelters and helicopter landing pad would be close to the ground and much less visually prominent. Because of the relative elevations of the installation and surrounding topography, views of the tower from the wilderness area would be limited to an area of 250 acres on the north side and summit of the ridge immediately to the south, at an elevation of about 1,800 ft or greater. From elevations lower than about 1,800 ft, the tower (base elevation of approximately 2,260 ft) would not be visible because existing topography and tree cover would block the line of sight. There would an area of about 300 ft from which the facility would be visible on the ridge about 4.5 mi from the site that lies between the South Fork of the Doame River and the Grand Plateau Glacier. Views from ridges to the northeast in the vicinity of Upper Doame Lake are blocked by the high point of the ridges to the east of the site. Viewers on high points such as Mount Hay, Mount Lodge, Mount Root, or Mount Fairweather, 23 to 27 mi from the site, are too far away to distinguish the proposed facility. The tower, antennas and other features would have no reflective surfaces that would be eye-catching from that distance. In addition, the lines of sight from these distant viewpoints are at a shallow angle such that they are blocked by intervening ridges.

Views of helicopters visiting the Deception Hills site would be possible over a relatively large portion of the preserve and wilderness area; however, most locations from which they would be visible also afford views of other human alterations and activities, as discussed below. The expected two helicopter visits per year represent a very small incremental increase in aircraft viewings in the general area.

The impact of views of the Deception Hills communication facility from the 250-acre portion of the wilderness area must be evaluated from the perspective of other elements of the landscape that are readily apparent. The ridgetops in the wilderness area from

which the communication facility would be visible has clear views to the southwest of the Gulf of Alaska with its considerable marine traffic of not only recreational boats but also commercial vessels and barges traveling between the lower 48 states and Alaska. The airstrip east of Dry Bay is readily visible from the affected portions of the wilderness area as a manmade change to the landscape. Seaplanes landing at Dry Bay and at the lagoon at the mouth of the Doame River can also be observed from that portion of the wilderness area. In addition, a small NPS radio facility is currently near the proposed antenna site as well as a small geophysical monitoring facility.

Materials staged at Dry Bay might attract the attention of an observer (local resident or visitor). The storage of materials at fish camps and rafting haulout areas is a typical feature in the Dry Bay area. The amount of material present for the communication facility construction, however, would be greater than that commonly stored in the open by anglers, hunters, or rafters. Materials would be staged for approximately 2 to 8 weeks between the time of delivery and transport to the facility site. Materials would be stored in areas previously cleared and would not result in a change in land cover or long-term appearance of the area. After completion of the project, the mobilization site would return to its previous condition (i.e., a grassy area). The level of visual impact would be negligible because of the confined size of the activity in an actively used site with similar activities. This is a short duration activity.

An additional microwave dish on the existing tower at the Yakutat communication link site and additional equipment located in an existing building would produce a negligible change in the visual environment.

Cumulative effects

No cumulative impacts would occur to visual resources because there are no past, present, or known future projects proposed for the Deception Hills area. The potential relocation of the existing NPS radio facility to the Rescue 21 site could result in a reduction in cumulative visual impacts because the existing facility would be dismantled. The potential co-location of the existing Geophysical Institute sensor with the Deception Hills facility would not be a change to cumulative impacts to visual resources because this sensor is not visible to visitors outside the immediate vicinity of the sensor.

Conclusion

The project would result in minor visual impacts from viewpoints within the preserve unit and wilderness of GLBA, given the small area affected and the very low probability that observers would be present.

4.3 SOUNDSCAPE

4.3.1 Alternative A (the No Action Alternative)

Under the No Action Alternative, no modification of any of the sites would take place and no soundscape changes would occur.

4.3.2 Alternative B (the Proposed Action)

The communication and mobilization sites would experience additional noise from helicopter trips during construction, for maintenance visits approximately twice a year, and from refueling of the propane tanks once every 2 years. The noise level produced by a typical helicopter is about 90 dBA at 300 ft and about 83 dBA at 1,000 ft (FAA 2004). In comparison, seaplanes at takeoff average about 90 to 95 dBA at 300 ft and 80 to 90 dBA at 1,000 ft (Faegre 2002). The noise produced during construction would be of greatest duration during the slinging of equipment from the mobilization site to the tower site. As many as 30 trips would be required over 1 or 2 days. In addition, workers would need to be ferried to the work camp near the site for initial installation of foundations, for placement of structures, and for installation and testing of equipment.

Noise from construction of the tower and related structures would involve portable gasoline-powered equipment, voices, and a variety of sounds associated with the construction camp. The sound levels would be higher than ambient natural levels, but temporary.

Operational noise would be produced primarily from the generator used to recharge batteries. Battery charging in winter typically involves running the propane-powered internal combustion engine for 6 hours at intervals of about 3 days. During the summer, a substantial proportion of the electrical needs would be met by solar or wind generation, and use of the propane-powered generators would be much less. In some cases, generator units would not run for several weeks. A similar facility at the USCG Rescue 21 facility near Juneau created noise levels on the side opposite the exhaust of 76 dBA at a distance of 10 ft, and 55 dBA at a distance of 50 ft. On the side adjacent to the exhaust discharge, noise levels were 85 dBA at 10 ft and 57 dBA at 50 ft. Generator noise can be expected to attenuate to near background levels of 30 to 35 dBA at a distance of 500 to 550 ft, based on standard reductions of 5 to 6 dBA for each doubling of distance (Truax 1999).

Noise from the proposed vertical-axis wind generator is expected to be very low, in the range of 30 to 40 dB. Wind turbine noise is due primarily to the wind as it passes over moving turbine blades. The distance of the blades from the fulcrum of the wind generator is a few feet, resulting in little noise from wind. The noise from mechanical components is from moving parts and is very low (Windside 2009).

The character of human-induced noises varies in frequency from that of natural noise. Natural sounds produced by wind tend to be in the low-frequency range. Noise

produced by insects, birds, and animals tends to be of higher frequency, much of which is above the range of human hearing (Miller 2008). The engine noise from the propane-powered generator is dominated by low-frequency components, with a maximum in the range 50 to 100 Hz. High-frequency component sounds attenuate over shorter distances than low-frequency component sounds, which tend to dominate at greater distances (Harrison et al. 1980).

Direct and indirect effects

Installation of the proposed tower and equipment at Deception Hills would result in locally higher noise levels during helicopter slinging operations. Non-workers are very unlikely to be present during construction or at any other time, due to the low existing and expected visitor use in the vicinity. There is a slight chance that visitors would be present during the high-helicopter-noise periods of maintenance visits (twice yearly) and propane refueling events (once every two years). Overall, noise impacts from helicopter access to the site would occur much less often than those from aircraft already accessing the area for visitor uses within the preserve. Within the nearby wilderness area, the noise levels are likely to be similar to those currently experienced from aircraft flying near the wilderness boundary.

Noise from the propane-powered generator at Deception Hills would affect the immediate vicinity within several hundred feet before falling to levels near those from natural sources. Noise would be unlikely to be heard by humans since there is little or no human use of the site. If hiking or other human activity occurred in the vicinity, it would likely occur during the summer, when solar and wind power would substantially reduce the use of propane-powered generators. Generator noise would have a minor effect on animals in the vicinity (see Section 4.4). The overall level of impact would be minor because noise generated at the facility would be intermittent (up to 6 hours at intervals of about 3 days when solar and wind power is not available) and would attenuate to background levels within 500 ft from the facility. The proposed action would not result in any impairment to the overall quality of the park's soundscape, thereby fulfilling the purpose and intent of the park for these sites.

During construction, noise due to helicopters slinging materials from the mobilization site to the construction site would affect the greatest number of potential receivers at Dry Bay, where levels of recreational, subsistence, and commercial fishing use are highest and where there is a fish processing plant. Noise levels during construction would be in approximately the same range as ambient noise levels from float planes and airplanes using landing strips. The noise would occur most intensively over a period of 1-2 days, then intermittently for 2-3 weeks. The noise levels experienced would not disrupt visitor activities.

The minor level of impact on soundscape during the mobilization of materials would not influence visitors' use of the immediate vicinity of Dry Bay.

Addition of a microwave dish to the existing communication tower at the Yakutat communication link site would not cause noise inconsistent with levels currently experienced in the area. No noise would be produced after installation; therefore, the level of impact would be negligible.

Cumulative impacts

Helicopter landings in the GLBA backcountry are rare, perhaps one or two per year (Banks 2010a). The typical helicopter landing in GLBA backcountry would be to drop off or pick up staff and equipment or to service the NPS repeaters. The average transit time for such flights would be approximately 2 hours. Co-locating radios in the same shelter would provide an opportunity for the USCG and NPS to share maintenance flights. In addition, the Geophysical Institute sensor maintenance helicopter trips could be coordinated with the USCG and NPS maintenance trips. These collaborations would reduce the total number of helicopter flights needed during any period of regular maintenance.

Conclusion

The project would result in minor intermittent impacts on soundscape from project-related aircraft operations, and to a lesser degree, from generator operations.

4.4 WILDLIFE

4.4.1 Alternative A (the No Action Alternative)

Under the No Action Alternative, no modification of any site would take place and no changes to fish and wildlife populations, communities, or species would occur.

4.4.2 Alternative B (the Proposed Action)

Direct and indirect effects

Construction noise may disturb nearby animals, but this impact would be temporary with no long-term adverse effects. The sudden onset of generator noise may startle wildlife passing through the area, but this occurrence is expected to be infrequent and result in a minor impact. Daily operations at the facility would have a minor effect on land mammals. Potentially harmful equipment, such as electrical cabling, would be reinforced to minimize the potential for adverse effects, particularly for bears. Helicopter flights would disturb local wildlife, particularly kid goat populations in the spring, when they are present at or near the site during flights. Mountain goats are particularly sensitive to disturbance during the winter months because of nutritional deprivation (Hurley 2004). According to a 1984 study, mountain goats are not likely to be present at the Deception Hills site during the winter because the aspect is not ideal for winter habitat (ADF&G 1984b). If goats are present, impacts would be minor.

Murrelets present around the mobilization site would not be affected by the planned work because construction and mobilization would occur on land, where water bird use would be minimal to nonexistent. The greatest numbers of seabirds are present in the waters around GLBA during the winter, when no construction activities are planned. Construction and helicopter noise may disturb migratory birds at or flying near the construction sites but only temporarily; such disturbance would not have long-term adverse effects.

Because of the specific placement of the site, potential bird habitat would not be removed or disturbed. Risks to birds would be minimal because the communication towers would be self-supporting (not guyed), would not be lighted, and are not a source of attraction at night or during conditions of poor visibility. Furthermore, the tower would be well below the threshold height (500 ft) generally thought to pose the greatest risk to migrating birds (Woodlot 2003).

Yellow-billed loon, a candidate species for protection under the Endangered Species Act, would not be affected because the species is not present during the summer construction season.

Flight patterns of birds may be disrupted by construction activities and helicopter noise. Construction-related activities are temporary and would have no long-term adverse effects. A small amount of potential bird habitat (i.e., approximately 1,400 sf, the footprint of the facility) could be removed or disturbed. Towers and associated structures may present a striking hazard to some birds flying at night, in twilight, or in foggy weather conditions.

Cumulative effects

The potential co-location of the existing NPS repeater and Geophysical Institute sensor with the Deception Hills facility would not be a change to cumulative impacts to wilderness because the existing facilities do not have a negative impact on wildlife resources. No other projects are proposed for this area.

Conclusion

The project would have a minor effect on land animals and birds because the footprint of the facility is small relative to the surrounding area and does not remove habitat. The minor level of impact to wildlife resources would not result in any changes to populations or communities of GLBA's biological resources, thereby fulfilling the purpose and intent of the park.

4.5 VEGETATION

4.5.1 Alternative A (the No Action Alternative)

Under the No Action Alternative, no modification of any site would take place and no changes to vegetation would occur.

4.5.2 Alternative B (the Proposed Action)

Direct and indirect effects

Vegetation at the Deception Hills site would be disturbed by construction, but to minimal effect because the footprint of the facility is small relative to the surrounding areas. Once construction was complete and the facility was in place, communication operations would not disturb vegetation. Therefore, long-term operations would not create any adverse change in vegetation. The minor level of impact on vegetation would not result in any impairment to the overall quality of vegetation in the park, thereby fulfilling the purpose and intent of the park for these sites.

The Dry Bay mobilization site would be located in a disturbed area, without vegetation or wetlands. Mobilization at Dry Bay would occur near a gravel runway at the airstrip. Rotor wash from the helicopters may disturb local vegetation but this effect would be temporary. Therefore, the level of impact would be negligible.

The Yakutat communication link site is located in a disturbed area with existing facilities. Construction is not expected to change the vegetation at Yakutat. Therefore, the level of impact would be negligible.

Cumulative impacts

The potential co-location of the existing NPS repeater and Geophysical Institute sensor with the Deception Hills facility would result in a minor improvement to vegetation in the Deception Hills vicinity because the vegetation that has been previously disturbed by these existing facilities would recover to its natural state. No other projects are proposed for this area.

Conclusion

There would be a minor effect to the vegetation at the Deception Hills site from the construction that would occur over small areas where footings would be located and beneath the shelter and solar array footprints. Impacts to vegetation at the mobilization site would be negligible because the vegetation in this area has been previously disturbed.

4.6 WILDERNESS

As noted in Section 3.5, wilderness value is based on the criteria of being untrammeled, natural, and undeveloped, and of having opportunities for solitude or a primitive and unconfined type of recreation. These values and others are fundamental to the mission of GLBA, as noted in its Foundation Statement (GLBA 2010).

4.6.1 Alternative A (the No Action Alternative)

Under the No Action Alternative, no construction would take place at any of the sites and therefore no changes in wilderness character would occur.

4.6.2 Alternative B (the Proposed Action)

Direct and indirect effects

None of the areas associated with the proposed action (i.e., Deception Hills, mobilization site, and Yakutat link site) have been designated as wilderness and therefore the proposed activities should not cause any changes to their wilderness character.

The facility at Deception Hills would be visible from an area of about 250 acres on the ridge immediately south of the wilderness area boundary and about 1 mi from the site. The proposed 60-ft high antenna with related equipment would be a prominent man-made intrusion. This area, however, is likely to have little or no visitor use that relies on the wilderness qualities of solitude. Views from this ridge include various human alterations to the landscape and ongoing human activities in the preserve area to north, including the landing strip near Dry Bay, the fish processing facility on Dry Bay, roads in the preserve, aircraft flights to and from the area, vessels in the Gulf of Alaska, and commercial air flights that travel parallel to the coast. Visitors to the area of about 3,000 acres in the next ridge to the south can observe the site at a distance of about 4.5 mi. In this area, the views of the antenna and other features are less prominent than views from the ridge immediately to the south of the site. The areas within the wilderness from which the proposed communication facility could be viewed also provide views of the existing NPS communication facility nearby. The sum effect of these existing visible features and activities would be to diminish current opportunities for solitude and a primitive recreation experience, such that persons seeking a primitive wilderness recreational experience are likely to seek such experiences in more isolated portions of the 3.3 million acres of the park where the imprint of man is not as readily apparent. See Section 4.2 for additional discussion of the wilderness areas from which visitors can view the proposed site.

Noise may carry to the wilderness area near the site and affect the element of solitude important to its wilderness character. For example, helicopter flights to the Deception Hills site for construction and maintenance would be heard from inside the designated wilderness. The proposed maintenance flights would be of short duration and would occur approximately twice a year for maintenance and once every other year for refueling the propane tanks.

The operation of propane-powered electrical generators would also produce noise, however distance attenuation would reduce levels to near background levels of 30 to 35 dBA at a distance of 500 to 550 ft. The character of the noise, however, would be different than natural sources of noise and would be distinguishable from the noises within wilderness area, although it would be similar in character to other current human sources of noise in the area. See Section 4.3 for additional discussion of effects from noise.

The existing NPS radio facility at Deception Hills near the proposed site may be co-located with the proposed USCG facility. Co-location would be a minor benefit in reducing the number of individual man-made facilities visible from the wilderness area.

Cumulative effects

Given the existing frequency of noise from aircraft accessing the landing strip at Dry Bay and water landing areas in the vicinity, noise impacts from flights related to the proposed communication facility represent a negligible additional impact. Another source of noise in the wilderness area is gunshots from hunting within the preserve to the north. The wide variety of noise currently experienced substantially reduces the potential for experiencing solitude as an element of a primitive recreational experience in the portion of the wilderness area affected by the proposed communication facility.

Conclusion

The new facility would be prominent in the views from the adjacent ridge, but there are existing impacts from human facilities and activities that currently substantially limit opportunities for solitude. Therefore, impacts on the nearby wilderness area south of the proposed site would be minor due to the fact that the installation does not affect the wilderness features of "untrammeled," "natural," or "undeveloped" and because no facilities are located within the wilderness area.

4.7 VISITOR USE

The majority of the visitors to Glacier Bay National Park (GBNP) are passengers on cruise ships (422,919 in 2009; Banks 2010b). Glacier Bay is one stop on an itinerary, but often the main attraction. Specifically, the major attraction of the cruise is the tidewater glaciers near the north end of the bay. Relatively few cruise ships continue north of Glacier Bay and transit the Gulf of Alaska adjacent to Deception Hills (GLBA 2002).

The 10,000 land visitors to GLBA are largely concentrated in the Bartlett Cove area and would not see the proposed facility.

The backcountry and kayak visitors are attracted by the 760 mi of coastland, the opportunities to view tidewater glaciers, and the wilderness experience in more remote areas (Lewis et al. 2007). There is no record of backcountry use in the immediate vicinity of the site. An important part of the GLBA recreational experience is viewing pristine wilderness. The effects on wilderness and visual impacts are discussed elsewhere, and summarized here as they relate to recreation. Of the three important elements of the recreational wilderness experience (evidence of human use, encounters with other persons or groups, and the freedom to move freely) (Lawson and Manning 2002), only evidence of human use would be affected. If visitors viewed the facility, then they could lose the feeling that they are the first persons to set foot in the area.

The major recreational uses in the vicinity within the Preserve are hunting, fishing, and river rafting in lowland areas. The Doame River near the site is listed as a destination for float plane transportation to fishing areas (YCA 2009).

4.7.1 Alternative A (the No Action Alternative)

Under the No Action Alternative, no construction at any of the sites would take place and no changes in opportunities for recreation would occur.

4.7.2 Alternative B (the Proposed Action)

Direct and indirect effects

The location of a communication facility at the Deception Hills site would not affect overall recreation use of the preserve area. There is no evidence of trails or other signs of recreational use in the vicinity of the site. If there is backcountry hiking in the area, the location of a tower on this particular ridge could lead hikers to either choose other ridges for ascents, or ascend to the site out of curiosity. The likelihood that this area is a destination for mountaineers is very low, given the proximity of much more challenging and interesting alternative ascents (Unertl 2009). The location of the facility would not affect the amount of use or the quality of the experience of the major recreation uses in the vicinity, which are hunting, fishing, and river rafting in lowland areas below the site. The project would be a negligible to minor element in the viewshed and would generally be overlooked unless pointed out by another observer (see the visual quality analysis in Section 4.2).

Within the nearby wilderness area of GLBA, the Deception Hills communication facility would be a visible human feature from an area of about 250 acres on the ridge immediately to the south, about 1 mi from the facility, and an area of about 300 acres on the ridge south of the Doame River, about 4.5 mi from the site. As discussed in Section 4.6 (Wilderness) and Section 4.3 (Soundscape), the impact on potential primitive recreation that relies on solitude must be evaluated from the context of the large array of human features and activities already discernible from the areas of concern. These features include activity in the Gulf of Alaska and in Dry Bay area, alterations to the natural vegetation and landscape of the landing strip and roads in the area, structures that serve fish processing and recreation uses, and aircraft flights using the landing strip and water landing areas. Human noise from activities in the area, including aircraft noise and gunshots, also augment the visual perceptions. As a result of this readily discernible human activity, the availability of a primitive recreational experience in the affected area is considerably reduced. Persons seeking such a primitive recreational experience are likely to seek it in more isolated portions of the park where the imprint of man is not as readily apparent.

Benefits of enhanced capability for emergency rescue or quicker response in case of unanticipated events may encourage a broader use of recreational opportunities in

GLBA. In addition, the recreation user would have an enhanced capability for routine hailing for non-emergency assistance.

The temporary storage of materials in the Dry Bay area at the mouth of the Alsek River would not affect hunting, fishing, or recreational river rafting in the area. The existing character of the area reflects many human features, including a fish processing plant. The attraction of the area for a variety of recreational uses would not be affected by the storage of materials or noise from airlifting materials to the facility site. The level of impact would be negligible because of the short duration of the storage.

There is not likely to be visitor use in the immediate vicinity of the existing communication tower at Yakutat. The level of impact would be negligible because the area does not attract visitors.

Cumulative impacts

The potential co-location of the existing NPS repeater and Geophysical Institute sensor with the Deception Hills facility would not be a change to cumulative impacts to visitor use because the existing facilities do not have a negative impact on this resource. No other projects are proposed for this area.

Conclusion

The facility would have a minor effect on the type of or level of impact on recreation in GLBA, such as hunting and recreational boating, that involves a relatively high level of technology for access and pursuit.

4.8 PUBLIC HEALTH AND SAFETY

The installation of microwave dishes introduces a potential public safety concern regarding exposure to electromagnetic (EM) radiation. Thus, these dishes are mounted above heights frequented by people. The term radio frequency (RF) environment is used to refer to EM radiation emitted by radio waves and microwaves on the human and biological environment. Adverse biological effects associated with RF energy are typically related to the heating of tissue by RF energy. This is typically referred to as a "thermal" effect, where the EM radiation emitted by an RF antenna passes through and rapidly heats biological tissue, similar to the way a microwave oven cooks food. The Health Physics Society indicates that numerous studies have shown that environmental levels of RF energy routinely encountered by the general public are typically far below levels necessary to produce significant heating and that increased body temperatures associated with such effects generally occur in workplace environments near high-powered RF sources used for molding plastics or processing food products (Classic 2009).

4.8.1 Alternative A (the No Action Alternative)

Under the No Action Alternative, no new communication facilities would be installed.

Public safety issues caused by the gaps in the coverage areas of nearby existing VHF communication sites in the Gulf of Alaska and Glacier Bay would persist. Potential risk exposure of vessels in the area due to unanticipated conditions or mishaps would remain undiminished.

None of the goals of the Rescue 21 system would be met. Specifically, the coverage gaps in the current VHF system would not be reduced; the channel capacity would not be increased; DSC capability would not be provided, digital recording communication would not be provided; system down time would not be reduced; and interoperability among USCG and federal, state and local communications systems would not be improved.

Conclusion

For vessels in distress on the Fairweather Banks, the lack of a Rescue 21 facility at Deception Hills would pose serious consequences.

4.8.2 Alternative B (the Proposed Action)

The proposed action achieves multiple goals of the emergency communication system:

- The coverage gaps in Fairweather Banks would be reduced
- Channel capacity would be improved
- The system would include DSC capability to provide the vessel's name, exact location, nature of distress, and other vital information
- Digital recording communication for instant playback would be provided
- System down time and critical function restoration following natural disaster, accidents, and the like would be improved
- The system would provide interoperability among the USCG and federal, state, and local communications systems, in particular the NPS communication system.

Direct and indirect effects

The installation of the proposed communication facility at Deception Hills with batteries charged by solar panels, wind generators, or propane generators involves potential public safety issues for persons who might be exposed to fluids in the batteries. This potential exposure would be addressed by using sealed, non-spilling AGM-type batteries that are extremely unlikely to result in spills.

Accidental spills of fuel or other fluids are possible at the construction and mobilization sites. The fluids most likely to be present are lubricants and fuel for gas-powered portable equipment. This type of spill would be addressed by construction spill prevention plans and a containment area for fluid storage. Given the low likelihood of such a spill, the overall level of impact would be negligible. The use of propane to fuel

generators that recharge the communication system batteries would eliminate the risk of liquid fuel spillage during post-construction operations.

There is some concern that signals from some RF devices could interfere with pacemakers or other implanted medical devices. However, it has never been demonstrated that signals from a microwave oven are strong enough to cause such interference (FCC 1999). Furthermore, EM shielding has been incorporated into the design of modern pacemakers to prevent RF signals from interfering with their electronic circuitry (FCC 1999).

The FCC is responsible for licensing frequencies and ensuring that the approved uses do not interfere with television or radio broadcasts or substantially affect the natural or human environment. The FCC adopted recognized safety guidelines for evaluating RF exposure in 1996. These guidelines incorporate the American National Standards Institute guidelines to evaluate exposure due to RF transmitters, the Institute of Electrical and Electronics Engineers standard, and the National Council of Radiation Protection and Measurements exposure guidelines. There are two tiers or exposure limits: occupational or "controlled" and general or "uncontrolled." Occupational exposure occurs when persons are exposed to RF fields as a part of their employment, having been made fully aware of the potential exposure and capable of exercising control over their exposure. Uncontrolled exposure occurs when the general public is exposed or when persons employed are not made fully aware of the potential for exposure or cannot exercise control over their exposure (FCC 1999).

Microwave dishes at the Yakutat communication link would be mounted above the area frequented by people. Preventive measures would be installed to ensure that people would not attempt to climb to such heights. Given the precautions required when adding a microwave dish, the level of impact would be negligible.

Cumulative impacts

The potential co-location of the existing NPS repeater and Geophysical Institute sensor with the Deception Hills facility would not be a change to cumulative impacts to public health and safety. The functionality of the existing sites, which currently contribute to public safety, would not change with co-location. No other projects are proposed for this area.

Conclusion

The proposed facility would have a beneficial impact on public health and safety of mariners on the Fairweather Banks.

5 Consultation and Coordination

Both internal and public scoping were conducted prior to preparing the EA. Members of the USCG, Windward Environmental LLC, and Parametrix, Inc. met with representatives of GLBA on October 15th, 2009 to discuss the scope of the proposed action. Invitations to comment on the proposal were mailed in the form of a scoping letter on October 22nd, 2009, to federal, state, and local governments as well as members of local organizations, universities, and tribal organizations and private individuals. The mailing list was compiled based on previous mailing lists used by the NPS, USFWS, and Federal Aviation Administration. Recipients were asked to indicate whether they would like to remain on the mailing list. Recipients who indicated in the affirmative will be sent a copy of the EA. Approximately 1,000 scoping letters were distributed. Comments were requested by November 20, 2009. Approximately 20 comments were received. The scoping letter is included as Appendix G. The scoping letter was also posted on the NPS Planning, Environment & Public Comment website (parkplanning.nps.gov).

The scoping letter distributed to the public included proposed communication sites located at Beartrack and Willoughby Island, within the wilderness boundary in Glacier Bay National Park. As part of subsequent internal scoping conducted between USCG and the NPS, these wilderness sites were removed from this EA, which is now focused solely on the Deception Hills site.

Several local and state agencies were consulted in the preparation of this document, as presented in Table 5-1.

Table 5-1. Agencies contacted for the preparation of this EA

Agency	Subject	Contact Information
Alaska Division of Community and Regional Affairs	Land use, socioeconomics	http://www.commerce.state.ak.us
Alaska Department of Fish & Game	Land use, fish and wildlife, threatened and endangered species	http://www.adfg.state.ak.us/
Alaska Department of Labor and Workforce Development	Socioeconomics, environmental justice	http://labor.alaska.gov
Alaska Department of Transportation and Public Facilities	Socioeconomics	http://www.dot.state.ak.us
Alaska Public Lands Information Centers	Land use	http://www.alaskacenters.gov
American Cetacean Society	Threatened and endangered species	http://www.acsonline.org
Glacier Bay Ecosystem Partnership members	Land use; historical, archaeological, and cultural resources	http://www.inforain.org

Agency	Subject	Contact Information
Hoonah Indian Association	Cultural resources, subsistence	254 Roosevelt Street Hoonah, AK 99829 (907) 945-3545
National Park Service	Fish and wildlife, threatened and endangered species	http://www.nps.gov
SHPO	Historical, archaeological, and cultural resources	Judith E. Bittner State Historic Preservation Officer Alaska Office of History and Archaeology 500 West 7th Ave., Suite 1310 Anchorage, AK 99501-3565
US Bureau of Land Management	Visual resources	http://www.blm.gov
US Environmental Protection Agency	Air quality, environmental justice,	http://www.epa.gov
US Fish and Wildlife Service	Threatened and endangered species	Richard Enriquez Conservation Planning Assistance Biologist Juneau Fish and Wildlife Field Office Juneau, AK 99801-7100 (907) 780-1162 Richard_Enriquez@fws.gov
World Wildlife Fund	Threatened and endangered species	http://www.panda.org
Yakutat Tlingit Tribe	Cultural resources, subsistence	716 Ocean Cape Road Yakutat, AK 99689 (907) 784-3238

A list of EA preparers is presented in Table 5-2.

Table 5-2. EA preparers

Name	Company	Education	Area of Responsibility
William Freeland, R.E.M.	USCG	BS, Wildlife Biology Post-Grad: planning (NEPA)	US Coast Guard Project Environmental manager
Dan Slagle	USCG	ASEET, DeVry Electronic Engineering	US Coast Guard Project Design
Allison Banks	NPS	BS, Wildlife Sciences	National Park Service Environmental Protection
Tad Deshler	Windward Environmental	BA, Aquatic Biology MS, Animal Science	Consultant project manager
Sarah Fowler	Windward Environmental	BS, Environmental Science and Toxicology	Soils and geology, floodplains, wetlands and vegetation, water resources and water quality, hazardous materials and waste management
Chelsea Lorenz	Windward Environmental	BS, Aquatic and Fishery Sciences	Fish, wildlife and threatened and endangered species

Name	Company	Education	Area of Responsibility
David Sherrard	Parametrix	BA, Geography	Land use; wilderness; recreation use; visual resources; air quality; noise; socioeconomics; environmental justice; public health and safety; transportation
Nicholas Parker	Parametrix	BA, Earth Science Geography MA, Archaeology	Historical, archaeological and cultural resources

ASEET – Associate of Science in Electrical Engineering Technology
BS – Bachelor of Arts
BS – Bachelor of Science
MA – Master of Arts
MS – Master of Science
REM – Registered Environmental Manager

6 References

ADF&G. 1984a. Deception Hills mountain goat census field records, July 24, 1984 (unpublished data). Alaska Department of Fish & Game, Juneau, AK.

ADF&G. 1984b. Letter dated 10-17-84 from B. Dinneford to G. Vequist, Glacier Bay National Park, regarding goat aerial survey results, March-September 1984. Area Game Biologist, Alaska Department of Fish & Game, Juneau, AK.

ADF&G. 2008. Alaska species of special concern (effective November 27, 1998) [online]. Division of Wildlife Conservation, Alaska Department of Fish & Game, Anchorage, AK. Updated 8/11/08. Available from: http://www.adfg.state.ak.us/special/esa/.

Banks A. 2010a. Personal communication (e-mail dated 7/23/2010 to T. Deshler, Windward Environmental, regarding followup on comment letter for Glacier Bay environmental assessment). Environmental Protection Specialist, Glacier Bay National Park and Preserve, Gustavus, AK.

Banks A. 2010b. Personal communication (e-mail message to W Freeland, US Coast Guard, regarding Glacier Bay comments and park use statistics). Outdoor Recreation Specialist, Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK. April 9, 2010.

Blair W. 1988. FHWA Publication HI-88-054. Federal Highway Administration. Visual impact assessment for highway projects; FHWA Publication HI-88-054. Federal Highway Administration, Washington, DC.

BLM. 1980. Visual Resource Management Program (VRM) [online]. US Bureau of Land Management, Washington DC. [Cited 12-19-09.] Available from: http://www.blm.gov/nstc/VRM/.

Bolin K. 2006. Masking of wind turbine sound by ambient noise. Kungliga Teknisa Hogskolan, School of Enginnering Science, Wallenberg Laboratory for Sound and Vibration Research, Stockholm, Sweden.

Classic K. 2009. Radiofrequency (RF) radiation [online]. Health Physics Society, McLean, VA. [Cited 12/29/09.] Available from: http://hps.org/hpspublications/articles/rfradiation.html.

Enriquez R. 2009. Personal communication (e-mail to T. Deshler, Windward Environmental, regarding information on potential impacts to threatened or endangered species). Conservation Planning Assistance Biologist, US Fish and Wildlife Service, Juneau, AK. October 27, 2009.

FAA. 2004. Report to Congress: nonmilitary helicopter urban noise study. Federal Aviation Administration, Washington, DC.

Faegre A. 2002. Seaplane noise [online]. Aron Faegre & Associates, Portland, OR. Updated 9/10/02. [Cited 7/28/10.] Available from: https://www.seaplanes.org/UserFiles/File/SeaplaneNoise.pdf.

FCC. 1999. Questions and answers about biological effects and potential hazards of radiofrequency electromagnetic fields. OET bulletin 56, fourth edition. Office of Engineering and Technology, Federal Communications Commission, Washington, DC.

Feare CJ, Henriette E, Feare SEA. 2003. Variation in sound levels produced within a sooty tern colony. Waterbirds 26(4):424-428.

GLBA. 1989. Wilderness visitor use management plan. Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK.

GLBA. 2002. Cruise ship routes, May 18 to June 22, 2002. Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK.

GLBA. 2004. Environmental assessment: Dry Bay facility improvements, Glacier Bay National Park and Preserve. Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK.

GLBA. 2007. Glacier Bay National Preserve off-road vehicle use plan environmental assessment. Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK.

GLBA. 2009a. Glacier Bay National Park and Preserve foundation statement. Draft. Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK.

GLBA. 2009b. Glacier Bay National Park and Preserve: birds [online]. National Park Service, Washington, DC. Updated 1/9/08. [Cited 12/14/09.] Available from: http://www.nps.gov/glba/naturescience/birds.htm.

GLBA. 2009c. Glacier Bay National Park and Preserve: mammals [online]. National Park Service, Washington, DC. Updated 1/9/08. [Cited 12/14/09.] Available from: http://www.nps.gov/glba/naturescience/mammals.htm.

GLBA. 2010. Glacier Bay National Park and Preserve foundation statement. Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK.

Harrison RT, Clark RN, Stankey GH. 1980. Predicting impact of noise on recreationalists. ED&T project no. 2688. Forest Service - US Department of Agriculture, Equipment Development Center, San Dimas, CA.

Hurley K. 2004. NSWGC position statement on helicopter-supported recreation and mountain goats. Proceedings of the 14th Biennial Symposium, Northwestern Wild Sheep and Goat Council, May 15-22, 2004, Inside Passage, Alaska.

Illingworth & Rodkin. 2006. PdV wind energy project, Kern County, California [online]. Illingworth & Rodkin, Inc., Petaluma, CA. Updated August 29, 2006. Available from:

http://www.co.kern.ca.us/planning/pdfs/eirs/PdV/Vol%20II_15%20Appendix%20E%20Noise%20Tech%20Report.pdf.

Illingworth and Rodkin I. 2006. Appendix E. Noise technical report PdV Wind Energy Project. Illingworth and Rodkin, Inc., Petaluma, CA.

Jacques JL. 1980. Landscape appraisal: The case for a subjective theory. J Environ Manage 6L:153-170.

Kaplan R. 1985. The analysis of perception via preference: a strategy for studying how the environment is experienced. Landsc Plan 12:161-176.

Lawson SR, Manning RE. 2002. Tradeoffs among social, resource, and management attributes of the Denali wilderness experience: a contextual approach to normative research. Leisure Sci 24:297-312.

Lewis TM, Drumheller NK, Banks AH. 2007. Wilderness camp impacts: assessment of human effects on the shoreline of Glacier Bay. In: Piatt JF, Gende SM, eds, Proceedings of the Fourth Glacier Bay Science Symposium, October 26-28, 2004. US Geological Survey Scientific Investigations Report 2007-5047, pp 208-212.

Miller NP. 2008. US national parks and management of park soundscapes: a review. Appl Acous 69(2):77-92.

NMFS. 2009. Letter dated October 22, 2009 to T. Deshler, Windward, from K. Savage, regarding threatened and endangered species around Kodiak Island and Glacier Bay National Park. Marine Mammal Specialist, National Marine Fisheries Service, Juneau, AK.

NPS. 1984. General management plan, Glacier Bay National Park and Preserve. National Park Service, Washington, DC.

NPS. 2003. Explore natural sounds: laws and policies [online]. National Park Service, Washington, DC. Updated 11/13/03. [Cited 12/19/09.] Available from: http://www.nature.nps.gov/naturalsounds/laws_policies/.

NPS. 2006. Management Policies 2006. National Park Service, US Department of the Interior, Washington, DC.

Real E, Arce C, Sabucedo JM. 2000. Classification of landscapes using qualitative and categorical data and prediction of their scenic beauty in Northwestern Spain J Environ Psych 20(4):355-373.

SAGE. 2008. USCG Rescue-21 Alaska: site survey report for Deception Hills high site (proposed site - Juneau area). SAGE Systems Technologies, LLC, Manassas, VA.

Schulten J. 1997. Computation of aircraft noise propagation through the atmospheric boundary layer. Fifth International Congress on Sound and Vibration, December 15-18, 1997, University of Adelaide, Australia.

Truax B, ed. 1999. Handbook for acoustic ecology [online]. 2nd edition. Simon Fraser University, Vancouver, BC. Cited 7/28/10.] Available from: http://www.sfu.ca/sonic-studio/handbook/index.html.

Unertl K. 2009. Glacier Bay mountaineering history [online]. Glacier Bay National Park and Preserve, National Park Service, Gustavus, AK. [Cited 12/19/09.] Available from: http://www.nps.gov/glba/planyourvisit/upload/Mountaineering_History_corrected.pdf.

URS. 2002. Supplemental program environmental assessment, National Distress and Response System Modernization Project. Prepared for the US Coast Guard. URS Corporation, San Antonio, TX.

US Census Bureau. 2002. United States Census 2000 [online]. US Census Bureau, Washington, DC. [Cited 12/19/09.] Available from: http://www.census.gov/main/www/cen2000.html.

USCG. 2000. Commandant instruction M16475.1D. National Environmental Policy Act implementing procedures and policy for considering environmental impacts. US Coast Guard, Washington, DC.

Windside. 2009. Windside wind turbines: technical data, Model WS-0,30 and 3B [online]. Oy Windside Production Ltd., Viitasaari, Finland. [Cited 12/29/09.] Available from: http://www.windside.com/old/technic/tecnical.htm#WS-0,30C.

Woodlot. 2003. An assessment of factors associated with avian mortality at communication towers - a review of existing scientific literature and incidental observation. Prepared in response to the August 20, 2003 Notice of Inquiry Issued by the Federal Communications Commission (FCC) WT Docket No. 03-187 Woodlot Alternatives, Inc., Topsham, ME.

YCA. 2009. Flights to Yakutat's best fishing spots [online]. Yakutat Coastal Airlines, Yakutat, AK. [Cited 12/16/09.] Available from: http://www.flyyca.com/yakutat_fishing.html.

APPENDIX A. STANDARD FORM 299: APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS

STANDARD FORM 299 (1/2006)
Prescribed by DOI/USDA/DOT
P.L. 96487 and Federal
Register Notice 5-22-95

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS

FORM APPROVED
OMB NO. 1004-0189
Expires: November 30, 2008

FOR AGENCY USE ONLY

Application Number

Date filed

NOTE: Before completing and filing the application, the applicant should completely review this package and schedule a preapplication meeting with representatives of the agency responsible for processing the application. Each agency may have specific and unique requirements to be met in preparing and processing the application. Many times, with the help of the agency representative, the application can be completed at the preapplication meeting.

1. Name and address of applicant *(include zip code)*

USCG Rescue 21 Real Property
1301 Clay Street, Suite 700N
Oakland, CA 94612

2. Name, title, and address of authorized agent if different from Item 1 *(include zip code)*

Dan Slagle, Rescue 21 Alaska, 1301 Clay Street, Suite 700N, Oakland, CA 94612

3. TELEPHONE *(area code)*

Applicant **510 637-5480**

Authorized Agent **510 637-5429**

4. As applicant are you? *(check one)*

- a. ☐ Individual
- b. ☐ Corporation*
- c. ☐ Partnership/Association*
- d. ☐ State Government/State Agency
- e. ☐ Local Government
- f. ☑ Federal Agency

* *If checked, complete supplemental page*

5. Specify what application is for: *(check one)*

- a. ☑ New authorization
- b. ☐ Renewing existing authorization No.
- c. ☐ Amend existing authorization No.
- d. ☐ Assign existing authorization No.
- e. ☐ Existing use for which no authorization has been received*
- f. ☐ Other*

* *If checked provide details under Item 7*

6. If an individual, or partnership are you a citizen(s) of the United States? ☐ Yes ☐ No

7. Project description *(describe in detail):* (a) Type of system or facility, *(e.g., canal, pipeline, road);* (b) related structures and facilities; (c) physical specifications *(length, width, grading, etc.);* (d) term of years needed; (e) time of year of use or operation; (f) Volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for construction *(Attach additional sheets, if additional space is needed.)*

(a) USCG Rescue 21 communication site at existing NPS Bear Track communications facility.
(b) One communications tower, one communications shelter, one generator - power building, ten propane tanks, solar array, helo pad, and propane refueling pad. Please see attached drawing.
(c) Proposed 60-ft tower (~ 10-ft base), 8-ft x 10-ft comms shelter, 10-ft x 14-ft gen building, ten 500 gallon propane tanks, 12-ft x 32-ft solar array, 16-ft x 16-ft helo pad, 10-ft x 10-ft propane refueling pad, small wind generator.
(d) 20+ years
(e) Un-manned continuous operation by microwave link from Bear Track to Gustavus.
(f) ~ 1/2 Acre.
(g) Estimate 90-days mid - late summer 2010 or 2011.
(h) Work crew(s) are expected to camp & work at site ~ one week at a time. Estimate 8 one week periods.
(i) Materials and supplies for site construction require multiple helicopter lifts from Gustavus or Beartrack cove barge
(j) Routine maintenance visits twice a year (late spring & early fall)
(k) Propose NPS radios be intergrated into USCG facility and NPS shelter and tower be removed.
(l) Propane refueling at 1 - 2 year intervals.

8. Attach a map covering area and show location of project proposal

9. State or local government approval: ☐ Attached ☐ Applied for ☑ Not required

10. Nonreturnable application fee. ☐ Attached ☑ Not required

11. Does project cross international boundary or affect international waterways? ☐ Yes ☑ No *(If "yes," indicate on map)*

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

U.S. Coast Guard Rescue 21 Program.
Federal funded program

(Continued on page 2)

This form is authorized for local reproduction.

13a. Describe other reasonable alternative routes and modes considered.

All other locations that would provide acceptable VHF communications within Glacier Bay are totally "Green".
Requested location at Bear Track is an existing designated communications site.

b. Why were these alternatives not selected?

Other locations including Willoughby Island, Drake Island, and "Point" near Sebree Island are currently "Green".

c. Give explanation as to why it is necessary to cross Federal Lands

To provide Search And Rescue (SAR), Environmental Response (ER), and Law Enforcement (LE) communications within Glacier Bay. The USCG currently has minimal - no emergency communications capability within Glacier Bay.

14. List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency. *(Specify number, date, code, or name)*

Cape Gull SAR communications site within Katmai National Park. Lease DTCG-Z71117-07-RP-175P
Althorp Peak SAR communications site south of Cape Spencer on Forest Service land.
Robert Barron Peak SAR communications site west of Juneau on Forest Service land.

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal *(construction, operation, and maintenance);* (b) estimated cost of next best alternative; and (c) expected public benefits.

USCG currently has minimal - no communications capability within Glacier Bay for Search And Rescue, Environmental Response, and LE.
(a) Estimate $1.5M construction, estimate annual maintenance & operation of $50K
(b) Estimate similar costs for most alternate locations. Alternate locations would have additional negative impacts to wilderness lands.
(c) Significant improvement for USCG response to Search And Rescue, and Environmental Response (spills).

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

Minimal - no negative effects on population in the area. There are no nearby populations, and Gustavus is ~ 12 miles south.
Expect positive impacts for a large area from 24/7 emergency communications with USCG.

17. Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability.

(a) Minor impact on air quality when propane generators run about 6 hours every 4 days. Some visual impact as upper half of tower may be seen with use of binoculars. (c) Very minimal. (d) No effect on any stream or waters. (e) Helo & other noise levels during construction and twice a year maintenance. Cycle charge propane generator to run ~ 6 hours every 4 days. (f) Concrete piers for equip will effect vegetation.

18. Describe the probable effects that the proposed project will have on (a) populations of fish, plantlife, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

(a) No effect on fish and marine life. Expect short term minor effect to local wildlife. Unkown at this time on threatened and endangered species, NEPA process necessary. (b) No effect expected to marine mannals.

19. State whether any hazardous material, as defined in this paragraph, will be used, produced, transported or stored on or within the right-of-way or any of the right-of-way facilities, or used in the construction, operation, maintenance or termination of the right-of-way or any of its facilities. "Hazardous material" means any substance, pollutant or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations. The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. 9601 et seq., and its regulations. The term hazardous materials also includes any nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq. The term does **not** include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under CERCLA Section 101(14), 42 U.S.C. 9601(14), nor does the term include natural gas.

Communication site will utilize a large bank of sealed Valve Regulated Lead Acid (VRLA) batteries. These batteries contain sulfuric acid absorbed in a glass mat within the sealed cases.

20. Name all the Department(s)/Agency(ies) where this application is being filed.

National Park Service
Alaska Regional Office
2525 Gambell Street
Anchorage, AK 99513

I HEREBY CERTIFY, That I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and believe that the information submitted is correct to the best of my knowledge.

Signature of Applicant: Daniel C. Sleight, USCG, R21 | Date: 30 Sept 2009

Title 18, U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 3)

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS

GENERAL INFORMATION
ALASKA NATIONAL INTEREST LANDS

This application will be used when applying for a right-of-way, permit, license, lease, or certificate for the use of Federal lands which lie within conservation system units and National Recreation or Conservation Areas as defined in the Alaska National Interest Lands Conservation Act. Conservation system units include the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, and National Forest Monuments.

Transportation and utility systems and facility uses for which the application may be used are:

1. Canals, ditches, flumes, laterals, pipes, pipelines, tunnels, and other systems for the transportation of water.
2. Pipelines and other systems for the transportation of liquids other than water, including oil, natural gas, synthetic liquid and gaseous fuels, and any refined product produced therefrom.
3. Pipelines, slurry and emulsion systems, and conveyor belts for transportation of solid materials.
4. Systems for the transmission and distribution of electric energy.
5. Systems for transmission or reception of radio, television, telephone, telegraph, and other electronic signals, and other means of communications.
6. Improved rights-of-way for snow machines, air cushion vehicles, and all-terrain vehicles.
7. Roads, highways, railroads, tunnels, tramways, airports, landing strips, docks, and other systems of general transportation.

This application must be filed simultaneously with each Federal department or agency requiring authorization to establish and operate your proposal.

In Alaska, the following agencies will help the applicant file an application and identify the other agencies the applicant should contact and possibly file with:

Department of Agriculture
Regional Forester, Forest Service (USFS)
Federal Office Building, P.O. Box 21628
Juneau, Alaska 99802-1628
Telephone: (907) 586-7847 *(or a local Forest Service Office)*

Department of the Interior
Bureau of Indian Affairs (BIA)
Juneau Area Office
9109 Mendenhall Mall Road, Suite 5, Federal Building Annex
Juneau, Alaska 99802
Telephone: (907) 586-7177

Bureau of Land Management (BLM)
222 West 7th Ave., Box 13
Anchorage, Alaska 99513-7599
Telephone: (907) 271-5477 *(or a local BLM Office)*

National Park Service (NPS)
Alaska Regional Office, 2525 Gambell St., Rm. 107
Anchorage, Alaska 99503-2892
Telephone: (907) 257-2585

U.S. Fish & Wildlife Service (FWS)
Office of the Regional Director
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: (907) 786-3440

Note-Filings with any Interior agency may be filed with any office noted above or with the: Office of the Secretary of the Interior, Regional Environmental Officer, Box 120, 1675 C Street, Anchorage, Alaska 99513.

Department of Transportation
Federal Aviation Administration
Alaska Region AAL-4,222 West 7th Ave., Box 14
Anchorage, Alaska 99513-7587
Telephone: (907) 271-5285

NOTE - The Department of Transportation has established the above central filing point for agencies within that Department. Affected agencies are: Federal Aviation Administration (FAA), Coast Guard (USCG), Federal Highway Administration (FHWA), Federal Railroad Administration (FRA).

OTHER THAN ALASKA NATIONAL INTEREST LANDS

Use of this form is not limited to National Interest Conservation Lands of Alaska.

Individual departments/agencies may authorize the use of this form by applicants for transportation and utility systems and facilities on other Federal lands outside those areas described above.

For proposals located outside of Alaska, applications will be filed at the local agency office or at a location specified by the responsible Federal agency.

SPECIFIC INSTRUCTIONS
(Items not listed are self-explanatory)

Item

7 Attach preliminary site and facility construction plans. The responsible agency will provide instructions whenever specific plans are required.

8 Generally, the map must show the section(s), township(s), and ranges within which the project is to be located. Show the proposed location of the project on the map as accurately as possible. Some agencies require detailed survey maps. The responsible agency will provide additional instructions.

9, 10, and 12 - The responsible agency will provide additional instructions.

13 Providing information on alternate routes and modes in as much detail as possible, discussing why certain routes or modes were rejected and why it is necessary to cross Federal lands will assist the agency(ies) in processing your application and reaching a final decision. Include only reasonable alternate routes and modes as related to current technology and economics.

14 The responsible agency will provide instructions.

15 Generally, a simple statement of the purpose of the proposal will be sufficient. However, major proposals located in critical or sensitive areas may require a full analysis with additional specific information. The responsible agency will provide additional instructions.

16 through 19 - Providing this information in as much detail as possible will assist the Federal agency(ies) in processing the application and reaching a decision. When completing these items, you should use a sound judgment in furnishing relevant information. For example, if the project is not near a stream or other body of water, do not address this subject. The responsible agency will provide additional instructions.

Application must be signed by the applicant or applicant's authorized representative.

If additional space is needed to complete any item, please put the information on a separate sheet of paper and identify it as "Continuation of Item".

(For supplemental, see page 4)

SUPPLEMENTAL		
NOTE: The responsible agency(ies) will provide additional instructions	CHECK APPROPRIATE BLOCK	
I - PRIVATE CORPORATIONS	ATTACHED	FILED*
a. Articles of Incorporation	☐	☐
b. Corporation Bylaws	☐	☐
c. A certification from the State showing the corporation is in good standing and is entitled to operate within the State.	☐	☐
d. Copy of resolution authorizing filing	☐	☐
e. The name and address of each shareholder owning 3 percent or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote and the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.	☐	☐
f. If application is for an oil or gas pipeline, describe any related right-of-way or temporary use permit applications, and identify previous applications	☐	☐
g. If application is for an oil and gas pipeline, identify all Federal lands by agency impacted by proposal.	☐	☐
II - PUBLIC CORPORATIONS		
a. Copy of law forming corporation	☐	☐
b. Proof of organization	☐	☐
c. Copy of Bylaws	☐	☐
d. Copy of resolution authorizing filing	☐	☐
e. If application is for an oil or gas pipeline, provide information required by Item "I-f" and "I-g" above.	☐	☐
III - PARTNERSHIP OR OTHER UNINCORPORATED ENTITY		
a. Articles of association, if any	☐	☐
b. If one partner is authorized to sign, resolution authorizing action is	☐	☐
c. Name and address of each participant, partner, association, or other	☐	☐
d. If application is for an oil or gas pipeline, provide information required by Item "I-f" and "I-g" above.	☐	☐

* If the required information is already filed with the agency processing this application and is current, check block entitled "Filed." Provide the file identification information (e.g., number, date, code, name). If not on file or current, attach the requested information.

(Continued on page 5)

NOTICES

NOTE: This applies to the Department of the Interior/Bureau of Land Management (BLM).

The Privacy Act of 1974 provides that you be furnished with the following information in connection with the information provided by this application for an authorization.
AUTHORITY: 16 U.S.C. 310 and 5 U.S.C. 301.
PRINCIPAL PURPOSE: The primary uses of the records are to facilitate the (1) processing of claims or applications; (2) recordation of adjudicative actions; and (3) indexing of documentation in case files supporting administrative actions.
ROUTINE USES: BLM and the Department of the Interior (DOI) may disclose your information on this form: (1) to appropriate Federal agencies when concurrence or supporting information is required prior to granting or acquiring a right or interest in lands or resources; (2) to members or the public who have a need for the information that is maintained by BLM for public record; (3) to the U.S. Department of Justice, court, or other adjudicative body when DOI determines the information is necessary and relevant to litigation; (4) to appropriate Federal, State, local, or foreign agencies responsible for investigating, prosecuting violation, enforcing, or implementing this statute, regulation, or order; and (5) to a congressional office when you request the assistance of the Member of Congress in writing.
EFFECT OF NOT PROVIDING THE INFORMATION: Disclosing this information is necessary to receive or maintain a benefit. Not disclosing it may result in rejecting the application.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The Federal agencies collect this information from applicants requesting right-of-way, permit, license, lease, or certifications for the use of Federal Lands.
Federal agencies use this information to evaluate your proposal.
No Federal agency may request or sponsor and you are not required to respond to a request for information which does not contain a currently valid OMB Control Number.

BURDEN HOURS STATEMENT: The public burden for this form is estimated at 25 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to: U.S. Department of the Interior, Bureau of Land Management (1004-0189), Bureau Information Collection Clearance Officer (WO-630) 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

A reproducible copy of this form may be obtained from the Bureau of Land Management, Land and Realty Group, 1620 L Street, N.W., Rm. 1000 LS, Washington, D.C. 20036.

(SF – 299, page 5)

APPENDIX B. DETERMINATION OF HISTORIC PROPERTIES

2/23 3130-1R NPS

United States Department of the Interior

NATIONAL PARK SERVICE
Glacier Bay National Park and Preserve
P.O. Box 140
Gustavus, Alaska 99826-0140

Tel: 907-697-2230 · Fax: 907-697-2654

IN REPLY REFER TO:
H4217

JAN 15 2010

RECEIVED
JAN 23 2010

Ms. Judith E. Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
500 West 7th Ave., Suite 1310
Anchorage, AK 99501-3565

No Historic Properties Affected
Alaska State Historic Preservation Officer
Date. 2/23/10
File No.. 3130-1R NPS TK

Dear Ms. Bittner:

This letter is to inform you of a proposed action by the National Park Service (NPS) in collaboration with the United States Coast Guard within Glacier Bay National Park and Preserve. The agencies are currently conducting an environmental review that explores the possibility of locating two communication stations to provide service for areas that are currently poorly served for marine communications. The proposed project is part of a much larger National Distress and Response System Modernization Project, called Rescue 21.

The USCG Rescue 21 program is designed to provide an integrated emergency communication system extending 30 nautical miles from the coastline to provide monitoring of distress calls from vessels, improve communication for other operational missions, and to ensure US compliance with international treaties. Rescue 21 has identified gaps in existing coverage and is designed to reduce gaps in the current VHF-FM system, increase channel capacity, integrate GPS capability to acquire any distressed vessel's name, exact location and the nature of distress in case of emergency, provide digital recordings for instant playback, reduce system down time, and provide for improved interoperability among USCG, federal, state and local communication systems. Currently, two of the areas with the largest gaps in this coverage are the central Gulf of Alaska coastline north of Cape Fairweather and south of Yakutat, and within Glacier Bay proper. Both areas are located on or near major shipping lanes, and Glacier Bay is a major destination for cruise ships and recreational craft.

The facility to provide coverage in the Gulf of Alaska is proposed for an upland alpine tundra-covered ridge in the Deception Hills, while the Glacier Bay facility is proposed for one of two locations – either atop an alpine tundra and spruce forest-covered ridge on Willoughby Island in the middle part of Glacier Bay, or on an alpine ridge on the flank of the Beartrack Mountains where a telecommunication site already exists. The proposed communication installations would consist of an arrangement including either a 60 foot (for Deception Hills) or 30 foot (for Willoughby and Beartrack) self-supporting communication towers, a communication equipment shelter, a generator shelter, a bank of fuel propane tanks, a cluster of solar arrays, a wind generator, a fueling dock and electronic equipment capable of receiving and transmitting radio signals. A helicopter landing pad would be built for the Deception Hills facility, but not for the options within Glacier Bay proper, as

TAKE PRIDE® IN AMERICA

these sites are located within designated wilderness. Each site would permanently occupy an area of about one-quarter acre, with the installations built on concrete pilings and lumber sills, without the need to grade any of the site area (see attached illustrations for typical installations). Mobilization and construction would occur in three one-week episodes – foundations, construction of buildings and platforms, and installation of electronic equipment. During operation, the facilities would be visited by helicopter about twice per year for refueling (portable propane tanks slung from a helicopter), inspection and maintenance.

The Deception Hills site is located on a mountaintop above 2200 ft. elevation. Because of its remoteness and difficult terrain, it will be necessary to work from a staging area to be located in Dry Bay (about 12 miles away), most likely adjacent to the existing airstrip and NPS Ranger Station. This staging area would be located in a developed area, and would not result in any ground disturbing activities. Currently there is a seismic monitoring site monitored by the University of Alaska near the proposed construction site. If it is found that vibrations from operation of the Rescue 21 facility might affect readings at the seismic station, it will be necessary to relocate it to an adjacent hilltop, an action that could be accomplished with a helicopter and without ground disturbing activities. During construction there would also be a temporary construction camp, less than an acre in size and comprised of portable tents and latrine. It is also possible the construction camp would be located at the staging area in Dry Bay. The microwave communication link to tie the Deception Hills site into the Rescue 21 network would consist of two 8-ft. diameter dishes installed on an existing tower just east of Yakutat.

The Willoughby Island site would be located at an elevation of about 1600 ft. near the northern end of the island. The facility would be virtually identical to the Deception Hills facility, with the exception of shorter tower and no helipad. A temporary construction camp might occupy the construction site, although the contractor could also house the crew at nearby Gustavus and transport them to the site by helicopter. For staging the contractor would explore one of two options: either from a barge anchored nearby at Fingers Bay or Johnson Cove, or from a developed site in Gustavus. Mobilization time would be the same as described for the Deception Hills project. The microwave link to connect the Willoughby Island site to the Rescue 21 network would be a 6-ft. diameter radio dish installed on an existing 80-ft. self-supporting tower just east of the Gustavus School.

The Beartrack Mountain site, located at an elevation of 2400 ft., would be identical to the Willoughby Island site in virtually all aspects. One exception is that the Beartrack site would be situated adjacent to an existing NPS radio communication station.

A review of the park's historic site records indicates there are no archaeological sites recorded in or near any of the three locations. In addition, park staff visited the Willoughby Island site on August 14, 2009, and the Beartrack and Deception Hills sites on August 19, to inspect them for any resource concerns. The park's archaeologist, Wayne Howell, was present for the August 14 visit, and determined there were no cultural materials present on the Willoughby Island site, and the fact that the island was glaciated as recently as 250 years ago the virtual absence of sediments precludes the chance for buried materials. Howell was not available for the August 19 visits, but park staff members who did visit those sites were instructed on what to look for, and reported no directly observable cultural materials and depositional environments comparable to the Willoughby Island site – thin vegetative mats on thin sediments overlying bedrock. In summary there are no physical cultural materials present on any of the proposed facility locations. This was expected to be the case, as they are in isolated upland settings, far from food resources commonly exploited by subsistence

groups, and lack mineral or other resource values that might be exploited by others. Also, the depositional environments at all of the sites are not likely to contain buried materials.

A project information announcement was sent to all Native Alaska organizations in Southeast Alaska who might have any interest in the lands where the undertaking is proposed. More detailed explanations of the proposed undertaking were presented to representatives of the federally recognized tribes within whose traditional territories the project is proposed: the Yakutat Tlingit Tribe for the Deception Hills site and the Hoonah Indian Association for the Glacier Bay sites. Prior ethnographic work in all three areas where the proposed facilities would be located did not identify any sites which might be considered as Traditional Cultural Properties, and feedback from both tribal governments in this regard corroborates this negative determination.

Based on a review of site files, field examinations and consultation with the concerned federally recognized tribes, I have determined that no historic properties will be affected by the proposed undertaking. I am seeking your concurrence on this determination.

Sincerely,

Cherry Payne
Superintendent

Attachments:

1) General map of project area
2) Photograph of a typical Rescue 21 facility after completion
3) Map of the proposed Deception Hills site
4) Photograph of the proposed Deception Hills site location
5) Map of the proposed Rescue 21 sites in lower Glacier Bay
6) Photograph of the proposed Willoughby Island site
7) Photograph of the proposed Beartrack site

APPENDIX C. SUBSISTENCE EVALUATION PURSUANT TO 16 USC § 3120 (ANILCA SECTION 810)

Appendix C. Subsistence Evaluation Pursuant to 16 USC Section 3120 (ANILCA Section 810)

I. INTRODUCTION

In compliance with Title VIII, Section 810 of ANILCA, this section evaluates potential subsistence restrictions which could result from the proposed development and operation of USCG communication sites in Glacier Bay National Park and Preserve, Alaska. This analysis does not evaluate state-authorized subsistence use and activities on adjacent private, borough, or state lands.

II. THE EVALUATION PROCESS

16 USC Sec. 3120 (Section 810 of ANILCA states):

(a) In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands…the head of the Federal agency… over such lands… shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be effected until the head of such Federal agency:

(1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to section 3115 of this title;

(2) gives notice of, and holds, a hearing in the vicinity of the area involved; and

(3) determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

(b) Environmental impact statement. If the Secretary is required to prepare an environmental impact statement pursuant to section 4332(2)(C) of title 42, he shall provide the notice and hearing and include the findings required by subsection (a) of this section as part of such environmental impact statement.

(c) State or Native Corporation land selections and conveyances. Nothing herein shall be construed to prohibit or impair the ability of the State or any Native Corporation to make land selections and receive land conveyances pursuant to the Alaska

Statehood Act or the Alaska Native Claims Settlement Act (43 U.S.C. 1601 et seq.).

(d) Management or disposal of lands. After compliance with the procedural requirements of this section and other applicable law, the head of the appropriate Federal agency may manage or dispose of public lands under his primary jurisdiction for any of those uses or purposes authorized by this Act or other law.

Presidential proclamations of 1925 and 1939 established and expanded Glacier Bay National Monument. ANILCA created new units and additions to existing units of the national park system in Alaska. More specifically, Section 202 of ANILCA expanded Glacier Bay National Monument by the addition of an area containing approximately 523,000 acres. ANILCA redesignated the monument was as "Glacier Bay National Park." Along the south bank of the Alsek River at Dry Bay, Alaska, approximately 57,000 acres was designated as Glacier Bay National Preserve.

ANILCA and NPS regulations do not authorize subsistence uses on federal public lands in Glacier Bay National Park. However, ANILCA (Sections 1313) and Title 36 Code of Federal Regulations (Section 13.41) authorize subsistence uses on federal lands in Glacier Bay National Preserve.

Glacier Bay National Park and Preserve was established for the following purposes:

To protect a segment of the Alsek River, fish and wildlife habitats and migration routes and a portion of the Fairweather Range including the northwest slope of Mount Fairweather. Lands, waters and interests therein within the boundary of the park and preserve which were within the boundary of any national forest are hereby excluded from such national forest and the boundary of such national forest is hereby revised accordingly.

Section 205 of ANILCA directed the Secretary of the Interior to:

take no action to restrict unreasonably the exercise of valid commercial fishing rights or privileges obtained pursuant to existing law, including the use of public lands for campsites, cabins, motorized vehicles, and aircraft landings on existing airstrips, directly incident to the exercise of such rights or privileges, except that this prohibition shall not apply to activities which the Secretary . . . finds constitute a significant expansion of the use of park lands beyond the level of such use during 1979.

Section (Section 810(a)) of ANILCA directed the Secretary of the Interior to:

The potential for significant restriction must be evaluated for the proposed action's effect on, ".. . subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate the use."

Section 810(a)) of ANILCA 816 (a) states:

All national parks and park monuments in Alaska shall be closed to the taking of wildlife except for subsistence uses to the extent specifically permitted by this Act. Subsistence uses

and sport fishing shall be authorized in such areas by the Secretary and carried out in accordance with the requirements of this title and other applicable laws of the United States and the State of Alaska.

With regards to Glacier Bay National Preserve, Section 1313 of ANILCA states:

A National Preserve in Alaska shall be administered and managed as a unit of the National Park System in the same manner as a national park except as otherwise provided in this Act and except that the taking of fish and wildlife for sport purposes and subsistence uses, and trapping shall be allowed in a national preserve under applicable State and Federal law and regulation. Consistent with the provisions of Section 816, within national preserves the Secretary may designate zones where and periods when no hunting, fishing, trapping, or entry may be permitted for reasons of public safety, administration, floral and faunal protection, or public use and enjoyment.

Except in emergencies, any regulations prescribing such restrictions relating to hunting, fishing, or trapping shall be put into effect only after consultation with the appropriate State agency having responsibility over hunting, fishing, and trapping activities.

ANILCA Sections 1314 (c) states:

The taking of fish and wildlife in all conservation system units; and in national conservation areas, national recreation areas, and national forests, shall be carried out in accordance with the provisions of this Act and other applicable State and Federal law. Those areas designated as national parks or national park system monuments in the State shall be closed to the taking of fish and wildlife, except that--

(1) notwithstanding any other provision of this Act, the Secretary shall administer those units of the National Park System and those additions to existing units, established by this Act and which permit subsistence uses, to provide an opportunity for the continuance of such uses by local rural residents; and

(2) fishing shall be permitted by the Secretary in accordance with the provisions of this Act and other applicable State and Federal law.

The potential for significant restriction must be evaluated for the proposed action's effect on "subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives that would reduce or eliminate the use."

III. PROPOSED ACTION ON FEDERAL LANDS

The USCG proposes to modernize the Rescue 21 system by deploying new communications technology throughout the US. The USCG intends to modernize the current system by deploying the new communications technology to existing antenna tower sites that support the Rescue 21 system.

Alternative A Description (The No Action Alternative)

Under the No Action Alternative, the Rescue 21 system would not be modernized. The system would continue to operate with the existing network of analog transceivers located at existing tower sites. No new communications equipment would be installed and no new antenna towers would be constructed on undeveloped sites.

Alternative B Description (Proposed Action)

This proposed action consists of the construction of a communication facility by the USCG (Figure 1-1).

The facility would be constructed at Deception Hills (Figure 2-3), which is located in the Preserve near the northwest corner of Glacier Bay National Park and Preserve. This would provide communication coverage in the Fairweather Banks area of the Gulf of Alaska. This is an area that is currently between the coverage areas of existing VHF-FM communication sites at Althorp Peak on Chichagof Island and at Yakutat 155 mi northwest of Althorp Peak (Figure 1-1). A temporary mobilization site would be established at Dry Bay.

Not addressed in this determination are minor modifications to facilities outside the park and preserve consisting of the existing communication facility at Yakutat (for connectivity to the Deception Hills site).

The proposed communication facility would consist of a communication tower, communication equipment shelter, generator shelter, propane fuel tanks, solar array, wind generator on a stand-alone tower, and all necessary electronic equipment capable of receiving and transmitting radio signals within the relevant service areas. The site would occupy an area of about 0.25 acre.

IV. AFFECTED ENVIRONMENT

Subsistence uses, as defined by ANILCA, Section 810, means:

> *The customary and traditional use by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade." Subsistence activities include hunting, fishing, trapping and collecting berries, edible plants, and wood or other materials.*

Residents of such communities as Gustavus (population 429), Hoonah (860), Elfin Cove (32), Pelican (163), Excursion Inlet (10), Sitka (8,835) and Yakutat (680) engage in subsistence uses near the boundaries of Glacier Bay National Park (US Census Bureau 2002). Community subsistence resource activities include hunting; fishing; and gathering gull eggs, shellfish, firewood, wild plants, and berries. Historical resource utilization patterns, such as gull egg gathering, fish camps, or communal marine

mammal and deer hunts, are linked to traditional social and subsistence use patterns. Sharing of resources occurs between communities, as well as within communities throughout the region.

ANILCA and NPS regulations authorize subsistence use of resources in all Alaska national parks, monuments, and preserves with the exception of Glacier Bay National Park, Katmai National Park, Kenai Fjords National Park, Klondike Gold Rush National Historical Park, "old" Mount McKinley National Park, and Sitka National Historical Park (codified in 36 CFR 13). Glacier Bay National Park is closed to subsistence use pursuant to 36 CFR 13. Some of the major resources historically used for subsistence in these communities are bears (black and brown), deer, goat, moose, furbearers, ptarmigan, waterfowl, marine mammals, salmon, trout, halibut, crab, clams, berries and other edible plants (such as wild celery, ferns, and kelp), alder, spruce, and other wood resources.

Within Glacier Bay National Preserve, Deception Hills, and Dry Bay, the principal subsistence activities include hunting, fishing, trapping, and collecting berries, edible plants, and wood or other materials. Historical resource utilization patterns, such as fish camps or communal deer hunts, are linked to traditional social and subsistence use patterns. The principal subsistence species harvested within the region on federal lands and waters include salmon, moose, waterfowl, mountain goat, deer and marine mammals.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impacts on existing subsistence activities for the proposed action, the following evaluation criteria were examined:

1. The potential to reduce important subsistence fish and wildlife populations by (a) reductions in number, (b) redistribution of subsistence resources, or (c) habitat losses
2. The effect the action might have on subsistence angler or hunter access
3. The potential for the action to increase angler or hunter competition for subsistence resources.

Glacier Bay National Preserve, Deception Hills and Dry Bay

1. The potential to reduce populations:

   (a) Reduction in Number. The proposed action is not expected to significantly reduce wildlife abundance in the affected area. Any population reduction would be so small that no change would occur to the ongoing regional subsistence pattern. Natural cycles would continue.

(b) Redistribution of Resources. The proposed communication tower and temporary mobilization site are not expected to significantly redistribute, displace, or stress subsistence wildlife resources.

(c) Habitat Loss. The proposed action is not expected to cause the loss of beneficial or critical habitat for subsistence species such as bears, deer, goat, moose, waterfowl, marine mammals, fish, shellfish, edible plants, alder, spruce, and other wood resources. The proposed action would not manipulate subsistence habitats or result in development of a scale that would have any measurable impacts on subsistence resources.

2. Restriction of access:

(a) The proposed action is not expected to significantly change current subsistence use patterns. It is unlikely that substantial use occurs at the high altitude site. The proposed communication facility will add structures at the site, but have no effect on access for subsistence uses.

(b) The availability of emergency communication facilities may facilitate continued subsistence uses of water-related resources in area by providing additional confidence that emergency response will be available during adverse conditions, although it is unlikely to increase the amount of subsistence use in the area.

3. Increase in competition:

The proposed actions are not expected to significantly restrict or increase competition for ANILCA Title VIII subsistence resources on federal lands within the region.

VI. ALTERNATIVES CONSIDERED

As part of project scoping, several alternate site locations were identified, but ultimately not carried forward in this EA because they did not meet the project objectives.

- Akwe River site – lack of adequate space for construction
- Existing NPS site in Deception Hills – lack of adequate space for construction
- Three other locations in Deception Hills – lack of adequate space for construction or within designated wilderness area

VII. FINDINGS

This analysis concludes that the proposed action would not result in a significant restriction of subsistence uses.

APPENDIX D. CONCEPTUAL PLANS AND DRAWINGS OF PROPOSED CONSTRUCTION

Appendix D. Advantages of Co-Location with NPS Facilities and Conceptual Plans and Drawings of Proposed Construction

This appendix contains information on the advantages of co-locating the NPS facility with the proposed USCG facility, and additional conceptual construction details, including plans and drawings of the proposed facility.

List of materials for Appendix D:

1. Some advantages for the co-location of facilities within GLBA
2. Additional construction details
3. Site layouts for Deception Hills are conceptual layouts. Final site layout will be determined during the final design process.
4. Site plans and drawings
5. Conceptual drawings for the Deception Hills tower
6. Photos of a typical ice bridge and ice shield

ADVANTAGES OF CO-LOCATION

There are several advantages, primarily to the NPS, from co-locating the existing repeater site at Deception Hills with the proposed USCG facility at Deception Hills:

- NPS could choose to add a marine radio to their land-based equipment for improved coverage of vessel traffic.
- Provides emergency coverage by USCG in areas that are not now covered when there is no NPS personnel to monitor the base station at Park headquarters.
- There would be better coverage by NPS radios because the antennas would be located higher above tree line on the USCG tower.
- NPS personnel would have direct communications with USCG assets through marine radios (in NPS boats) during search and rescue operations.
- Space, power, and tower for NPS equipment would be provided by USCG at no charge. There would be more reliability because of redundant power sources (i.e., solar, propane, and possibly wind) providing battery recharge throughout the year. No NPS upgrades for these would be needed.
- Annual maintenance of radios could occur simultaneously by having an NPS contract with the USCG maintenance contractor to do any work on NPS radios during one site trip. Helicopter trips would be minimized by doing work simultaneously.
- Emergency radio maintenance could occur quicker if the NPS had a contract with USCG maintenance contractor since the radio maintenance technician is located in Juneau rather than Anchorage. Weather conditions for a helicopter trip can be more easily monitored from Juneau and response time would be quicker.
- No need for NPS to periodically replace batteries.
- NPS avoids having to replace equipment shelters if damaged.
- Shelters are open for either NPS or USCG crews who get stuck at the site because of weather conditions. There is enough room for 3-4 persons to stretch out for the night if necessary and there is emergency water and rations kept in the shelter for people in distress.
- The NPS could choose to take advantage of co-location at Deception Hills and Althorp. The NPS and the USCG have had informal conversations about co-location at Althorp for several years (not part of this current proposal). The precedent has been set on co-location at other sites.

ADDITIONAL CONSTRUCTION DETAILS

The USCG will install a communication site ground system that meets the requirements of NFPA-70 (National Fire Protection Association), NEC (National Electric Code) and performs as a single point "Common" ground system. The purpose of the external

ground system is for personnel safety, and to provide a common or single point low resistance ground system for the communications equipment. This requires installing a copper ground ring of either #2 solid or 1/0 stranded copper wire just under the earth surface around each structure at the site. Each corner or point of the ground rings are connected to 5/8-inch copper clad ground rods driven into the earth 8-ft or until rock is reached. All of the ground rings are then tied together twice with #2 or 1/0 copper cable just under the earth surface. Additional detailed information is available within Motorola R56, Standards And Guideline For Communication Sites, MIL-HDBK419, and MIL-STD-188.

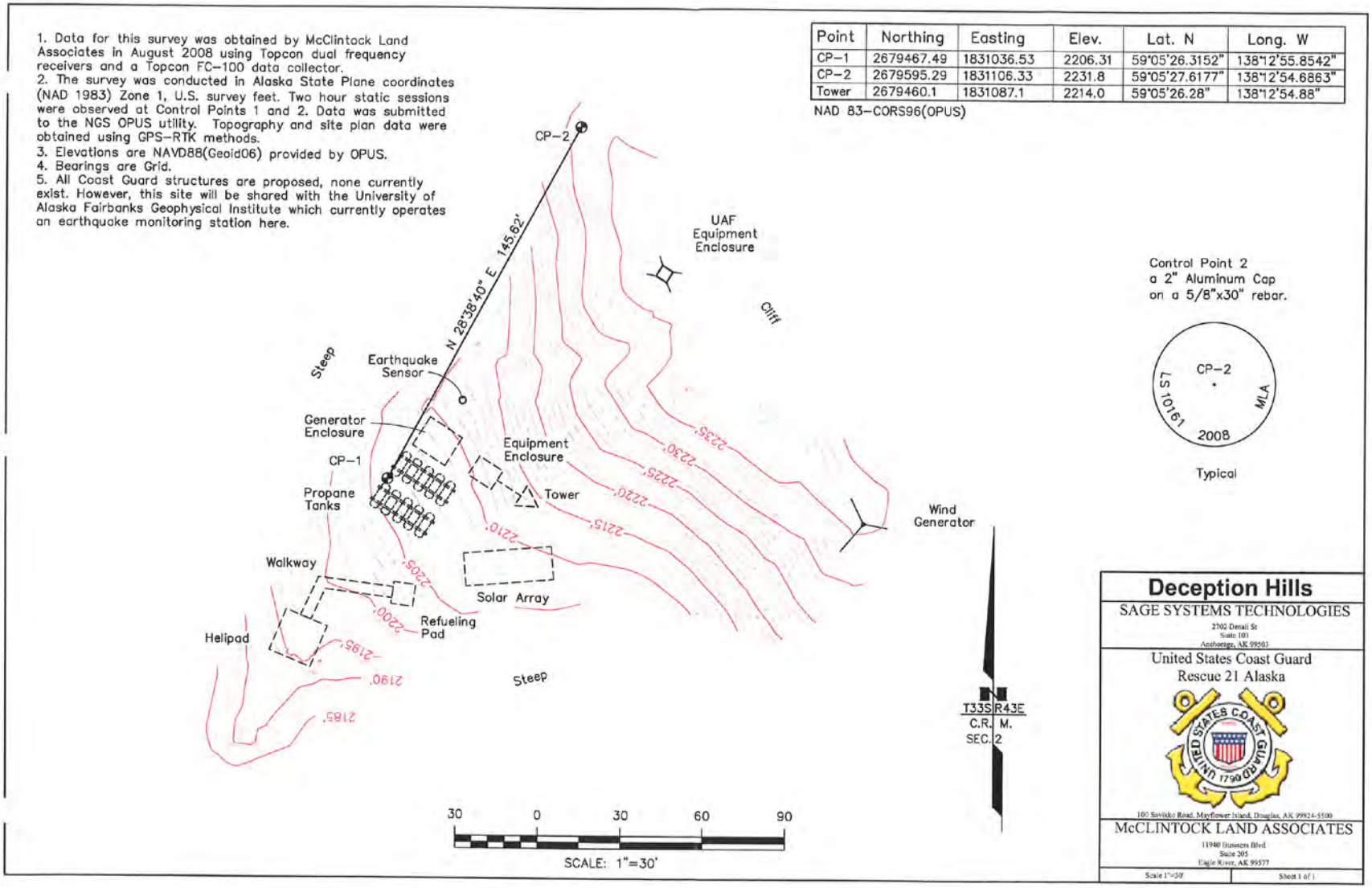

1. Data for this survey was obtained by McClintock Land Associates in August 2008 using Topcon dual frequency receivers and a Topcon FC-100 data collector.
2. The survey was conducted in Alaska State Plane coordinates (NAD 1983) Zone 1, U.S. survey feet. Two hour static sessions were observed at Control Points 1 and 2. Data was submitted to the NGS OPUS utility. Topography and site plan data were obtained using GPS-RTK methods.
3. Elevations are NAVD88(Geoid06) provided by OPUS.
4. Bearings are Grid.
5. All Coast Guard structures are proposed, none currently exist. However, this site will be shared with the University of Alaska Fairbanks Geophysical Institute which currently operates an earthquake monitoring station here.
Point | Northing | Easting | Elev. | Lat. N | Long. W
CP-1 | 2679467.49 | 1831036.53 | 2206.31 | 59°05'26.3152" | 138°12'55.8542"
CP-2 | 2679595.29 | 1831106.33 | 2231.8 | 59°05'27.6177" | 138°12'54.6863"
Tower | 2679460.1 | 1831087.1 | 2214.0 | 59°05'26.28" | 138°12'54.88"
NAD 83-CORS96(OPUS)
CP-2
N 28°38'40" E 145.62'
UAF Equipment Enclosure
Cliff
Steep
Earthquake Sensor
Generator Enclosure
CP-1
Propane Tanks
Equipment Enclosure
Tower
Wind Generator
Walkway
Solar Array
Refueling Pad
Helipad
Steep
2235'
2230'
2225'
2220'
2215'
2210'
2205'
2200'
2195'
2190'
2185'
30 0 30 60 90
SCALE: 1"=30'
T33S R43E
C.R.M.
SEC. 2
Control Point 2
a 2" Aluminum Cap
on a 5/8"x30" rebar.
CP-2
LS 10161
MLA
2008
Typical
Deception Hills
SAGE SYSTEMS TECHNOLOGIES
2702 Denali St
Suite 101
Anchorage, AK 99503
United States Coast Guard
Rescue 21 Alaska
100 Savikko Road, Mayflower Island, Douglas, AK 99824-5500
McCLINTOCK LAND ASSOCIATES
11940 Business Blvd
Suite 205
Eagle River, AK 99577
Scale 1"=30'
Sheet 1 of 1

Figure D-1

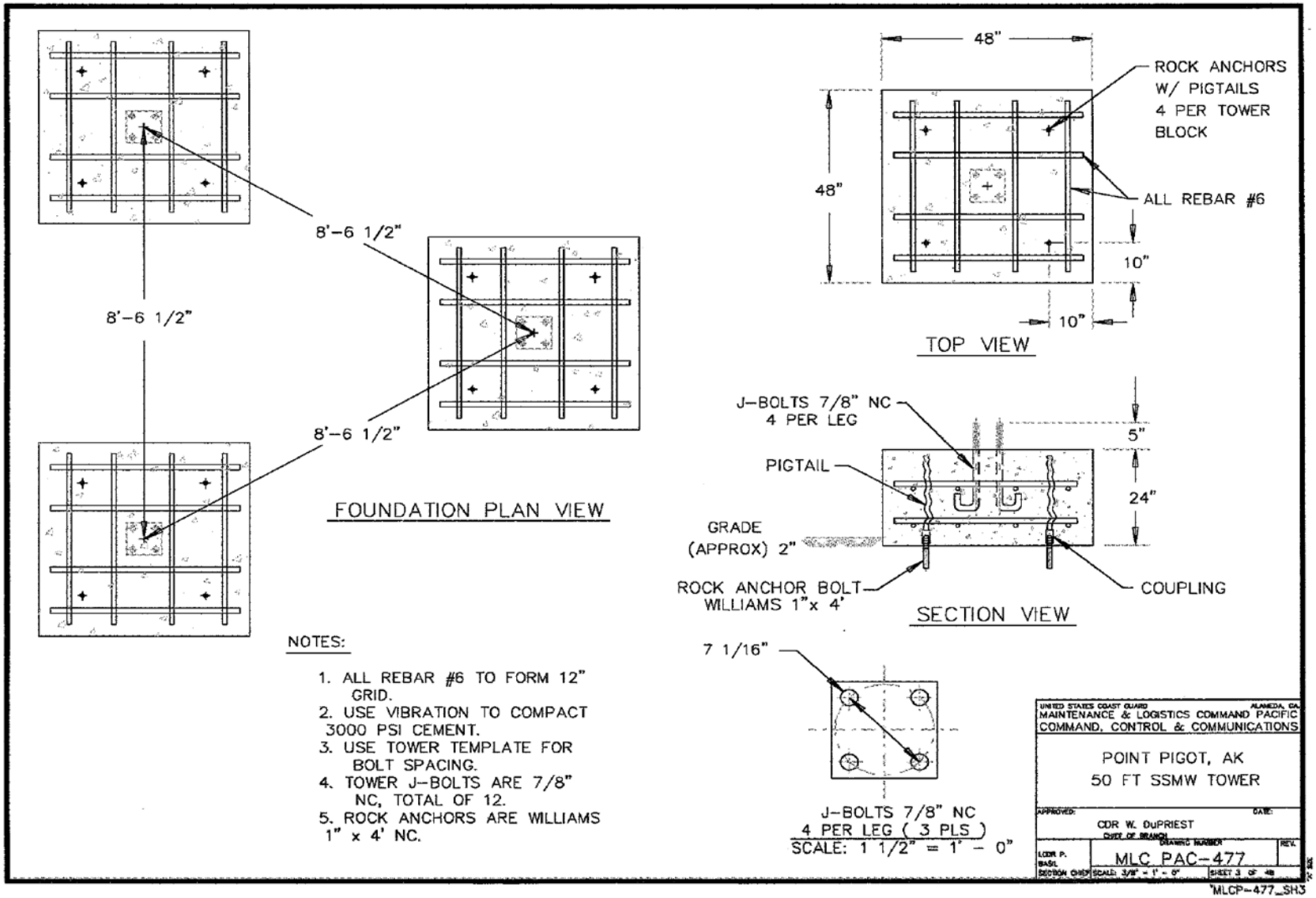

8'-6 1/2"
8'-6 1/2"
8'-6 1/2"
FOUNDATION PLAN VIEW
48"
48"
ROCK ANCHORS
W/ PIGTAILS
4 PER TOWER
BLOCK
ALL REBAR #6
10"
10"
TOP VIEW
J-BOLTS 7/8" NC
4 PER LEG
PIGTAIL
GRADE
(APPROX) 2"
ROCK ANCHOR BOLT
WILLIAMS 1"x 4'
5"
24"
COUPLING
SECTION VIEW
7 1/16"
J-BOLTS 7/8" NC
4 PER LEG (3 PLS)
SCALE: 1 1/2" = 1' - 0"
NOTES:
1. ALL REBAR #6 TO FORM 12" GRID.
2. USE VIBRATION TO COMPACT 3000 PSI CEMENT.
3. USE TOWER TEMPLATE FOR BOLT SPACING.
4. TOWER J-BOLTS ARE 7/8" NC, TOTAL OF 12.
5. ROCK ANCHORS ARE WILLIAMS 1" x 4' NC.
UNITED STATES COAST GUARD ALAMEDA, CA.
MAINTENANCE & LOGISTICS COMMAND PACIFIC
COMMAND, CONTROL & COMMUNICATIONS
POINT PIGOT, AK
50 FT SSMW TOWER
APPROVED: DATE:
CDR W. DuPRIEST
CHIEF OF BRANCH
DRAWING NUMBER
MLC PAC-477
REV.
SHEET 3 OF 4B
"MLCP-477_SH3"

Figure D-2

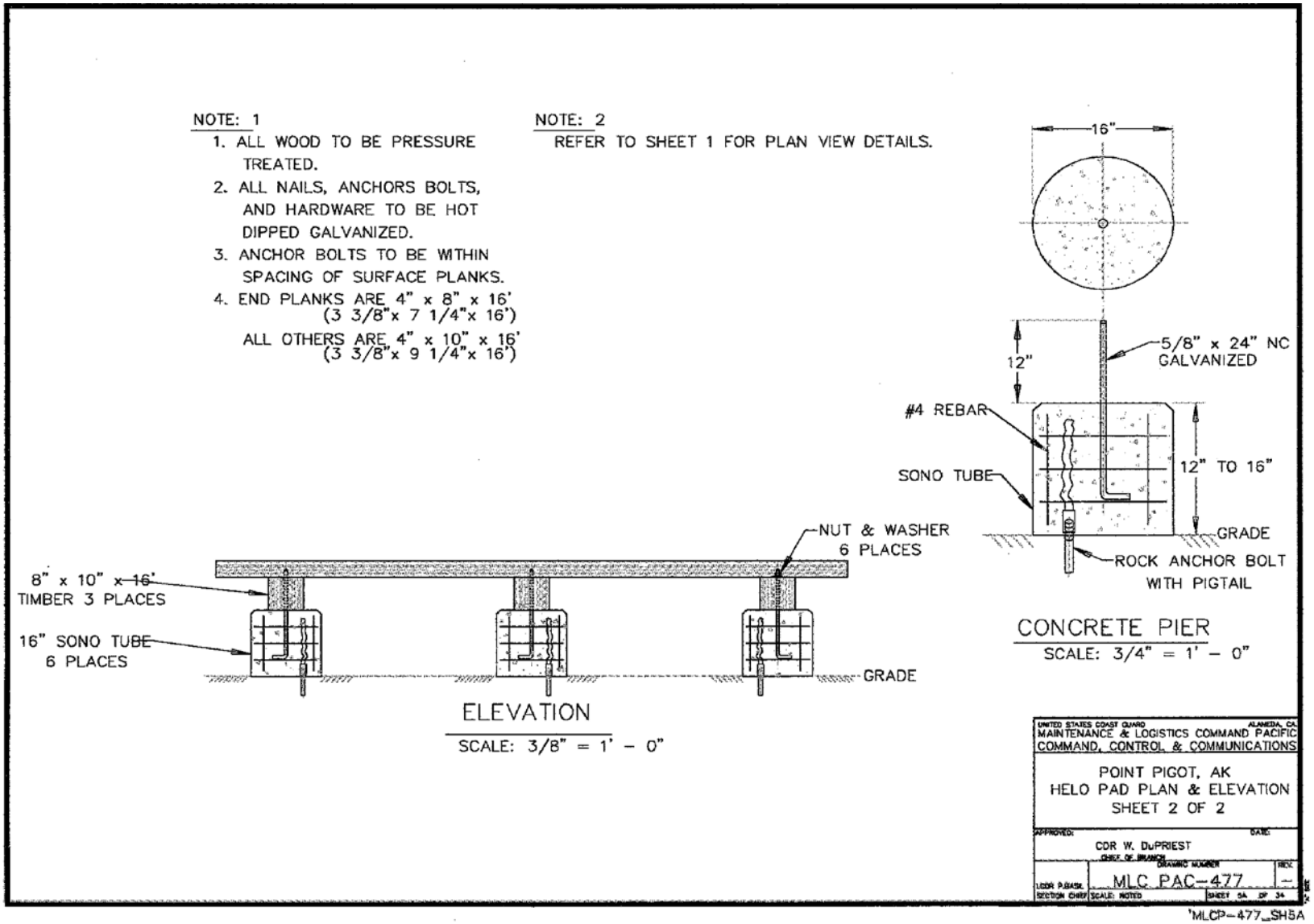

NOTE: 1
1. ALL WOOD TO BE PRESSURE TREATED.
2. ALL NAILS, ANCHORS BOLTS, AND HARDWARE TO BE HOT DIPPED GALVANIZED.
3. ANCHOR BOLTS TO BE WITHIN SPACING OF SURFACE PLANKS.
4. END PLANKS ARE 4" x 8" x 16' (3 3/8"x 7 1/4"x 16')
ALL OTHERS ARE 4" x 10" x 16' (3 3/8"x 9 1/4"x 16')
NOTE: 2
REFER TO SHEET 1 FOR PLAN VIEW DETAILS.
16"
12"
5/8" x 24" NC GALVANIZED
#4 REBAR
SONO TUBE
12" TO 16"
GRADE
ROCK ANCHOR BOLT WITH PIGTAIL
CONCRETE PIER
SCALE: 3/4" = 1' - 0"
NUT & WASHER 6 PLACES
8" x 10" x 16' TIMBER 3 PLACES
16" SONO TUBE 6 PLACES
GRADE
ELEVATION
SCALE: 3/8" = 1' - 0"
UNITED STATES COAST GUARD ALAMEDA, CA
MAINTENANCE & LOGISTICS COMMAND PACIFIC
COMMAND, CONTROL & COMMUNICATIONS
POINT PIGOT, AK
HELO PAD PLAN & ELEVATION
SHEET 2 OF 2
APPROVED: DATE:
CDR W. DuPRIEST
CHIEF OF BRANCH
DRAWING NUMBER
MLC PAC-477
REV.
-
LCDR P.BASH
SECTION CHIEF
SCALE: NOTED
SHEET 5A OF 34
'MLCP-477_SH5A

Figure D-3

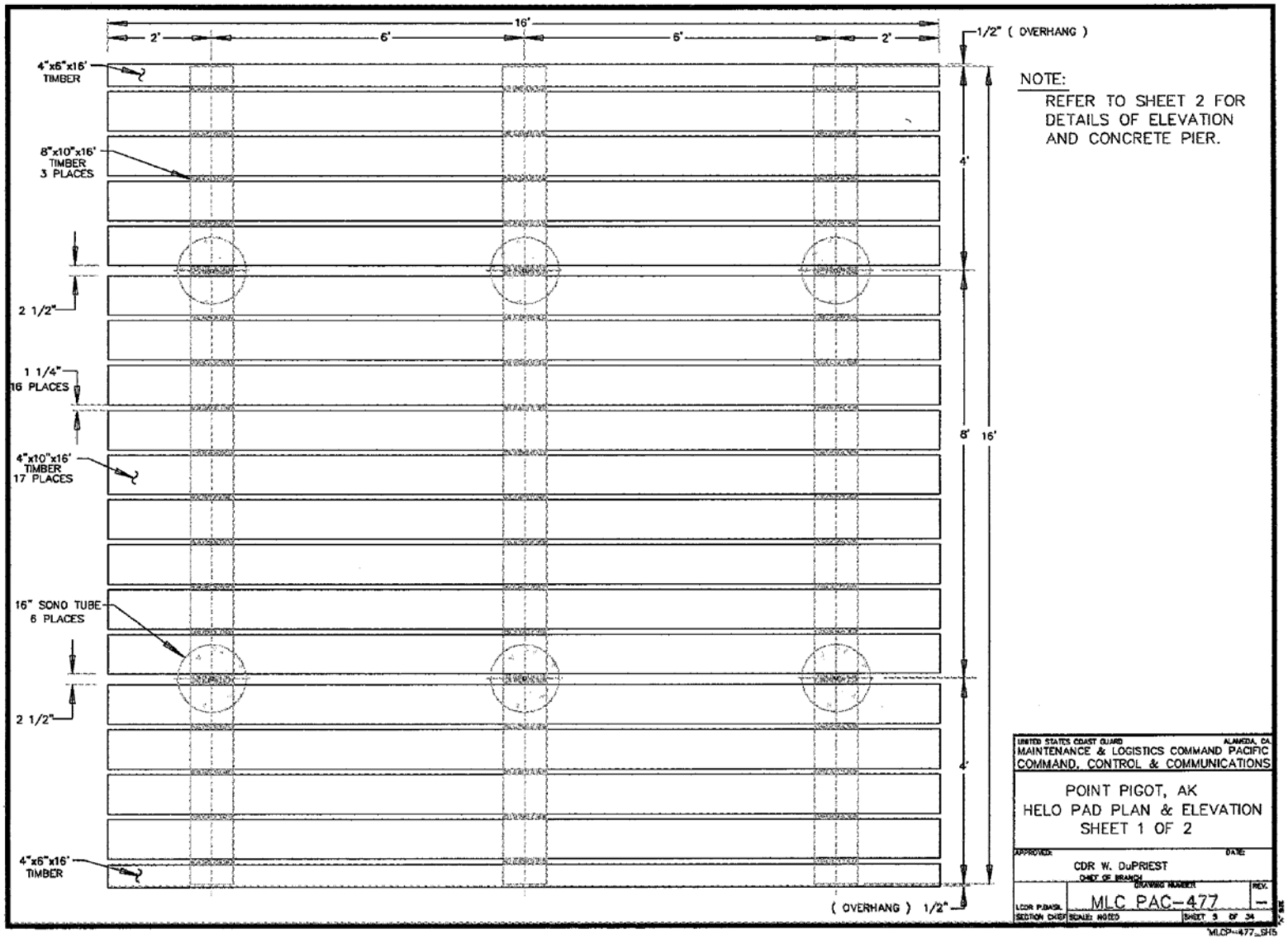

16'
2'
6'
6'
2'
1/2" (OVERHANG)
4"x6"x16' TIMBER
8"x10"x16' TIMBER 3 PLACES
2 1/2"
1 1/4" 16 PLACES
4"x10"x16' TIMBER 17 PLACES
16" SONO TUBE 6 PLACES
2 1/2"
4"x6"x16' TIMBER
(OVERHANG) 1/2"
4'
8' 16'
4'
NOTE:
REFER TO SHEET 2 FOR DETAILS OF ELEVATION AND CONCRETE PIER.
UNITED STATES COAST GUARD
ALAMEDA, CA
MAINTENANCE & LOGISTICS COMMAND PACIFIC
COMMAND, CONTROL & COMMUNICATIONS
POINT PIGOT, AK
HELO PAD PLAN & ELEVATION
SHEET 1 OF 2
APPROVED:
DATE:
CDR W. DuPRIEST
CHIEF OF BRANCH
DRAWING NUMBER
REV.
MLC PAC-477
-
LCDR P.BASIL
SECTION CHIEF
SCALE: NOTED
SHEET 3 OF 34
"MLCP-477_SH1"

Figure D-4

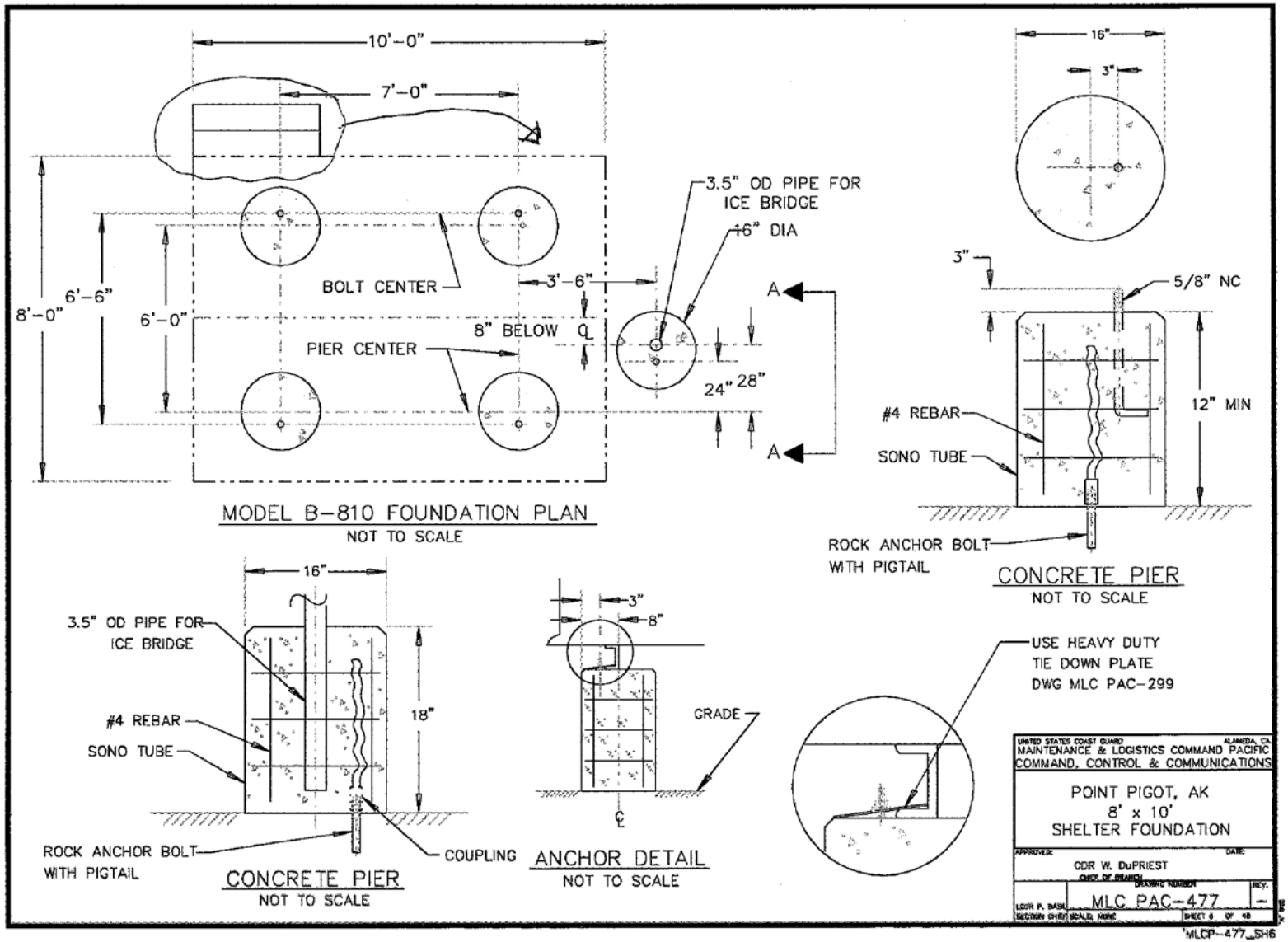

10'-0"
7'-0"
8'-0"
6'-6"
6'-0"
BOLT CENTER
PIER CENTER
3'-6"
8" BELOW ℄
3.5" OD PIPE FOR ICE BRIDGE
16" DIA
24" 28"
A
A
MODEL B-810 FOUNDATION PLAN
NOT TO SCALE
16"
3"
5/8" NC
12" MIN
#4 REBAR
SONO TUBE
ROCK ANCHOR BOLT WITH PIGTAIL
CONCRETE PIER
NOT TO SCALE
16"
3.5" OD PIPE FOR ICE BRIDGE
#4 REBAR
SONO TUBE
18"
ROCK ANCHOR BOLT WITH PIGTAIL
COUPLING
CONCRETE PIER
NOT TO SCALE
3"
8"
GRADE
℄
ANCHOR DETAIL
NOT TO SCALE
USE HEAVY DUTY TIE DOWN PLATE DWG MLC PAC-299
UNITED STATES COAST GUARD
ALAMEDA, CA
MAINTENANCE & LOGISTICS COMMAND PACIFIC
COMMAND, CONTROL & COMMUNICATIONS
POINT PIGOT, AK
8' x 10'
SHELTER FOUNDATION
APPROVED:
DATE:
CDR W. DuPRIEST
CHIEF OF BRANCH
DRAWING NUMBER
REV.
MLC PAC-477
LCDR P. BASH
SECTION CHIEF
SCALE: NONE
SHEET 6 OF 48
MLCP-477_SH6

Figure D-5

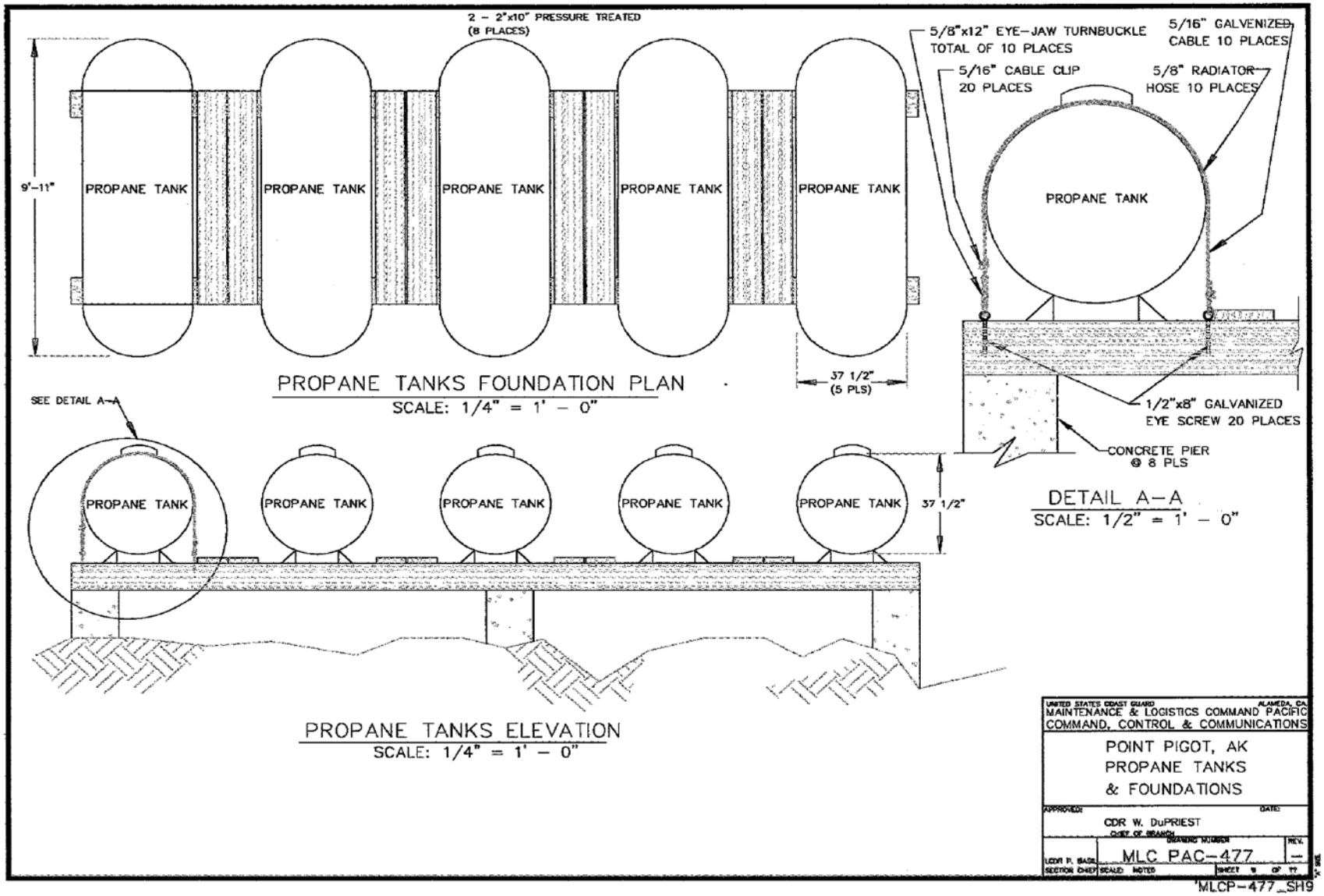

2 – 2"x10" PRESSURE TREATED
(8 PLACES)
9'–11"
PROPANE TANK
PROPANE TANK
PROPANE TANK
PROPANE TANK
PROPANE TANK
37 1/2"
(5 PLS)
PROPANE TANKS FOUNDATION PLAN
SCALE: 1/4" = 1' – 0"
5/8"x12" EYE–JAW TURNBUCKLE
TOTAL OF 10 PLACES
5/16" GALVENIZED
CABLE 10 PLACES
5/16" CABLE CLIP
20 PLACES
5/8" RADIATOR
HOSE 10 PLACES
PROPANE TANK
1/2"x8" GALVANIZED
EYE SCREW 20 PLACES
CONCRETE PIER
@ 8 PLS
DETAIL A–A
SCALE: 1/2" = 1' – 0"
SEE DETAIL A–A
PROPANE TANK
PROPANE TANK
PROPANE TANK
PROPANE TANK
PROPANE TANK
37 1/2"
PROPANE TANKS ELEVATION
SCALE: 1/4" = 1' – 0"
UNITED STATES COAST GUARD
ALAMEDA, CA
MAINTENANCE & LOGISTICS COMMAND PACIFIC
COMMAND, CONTROL & COMMUNICATIONS
POINT PIGOT, AK
PROPANE TANKS
& FOUNDATIONS
APPROVED:
DATE:
CDR W. DuPRIEST
CHIEF OF BRANCH
DRAWING NUMBER
MLC PAC–477
REV.
–
LCDR P. BAER
SECTION CHIEF
SCALE: NOTED
SHEET 9 OF 11
MLCP–477_SH9

Figure D-6

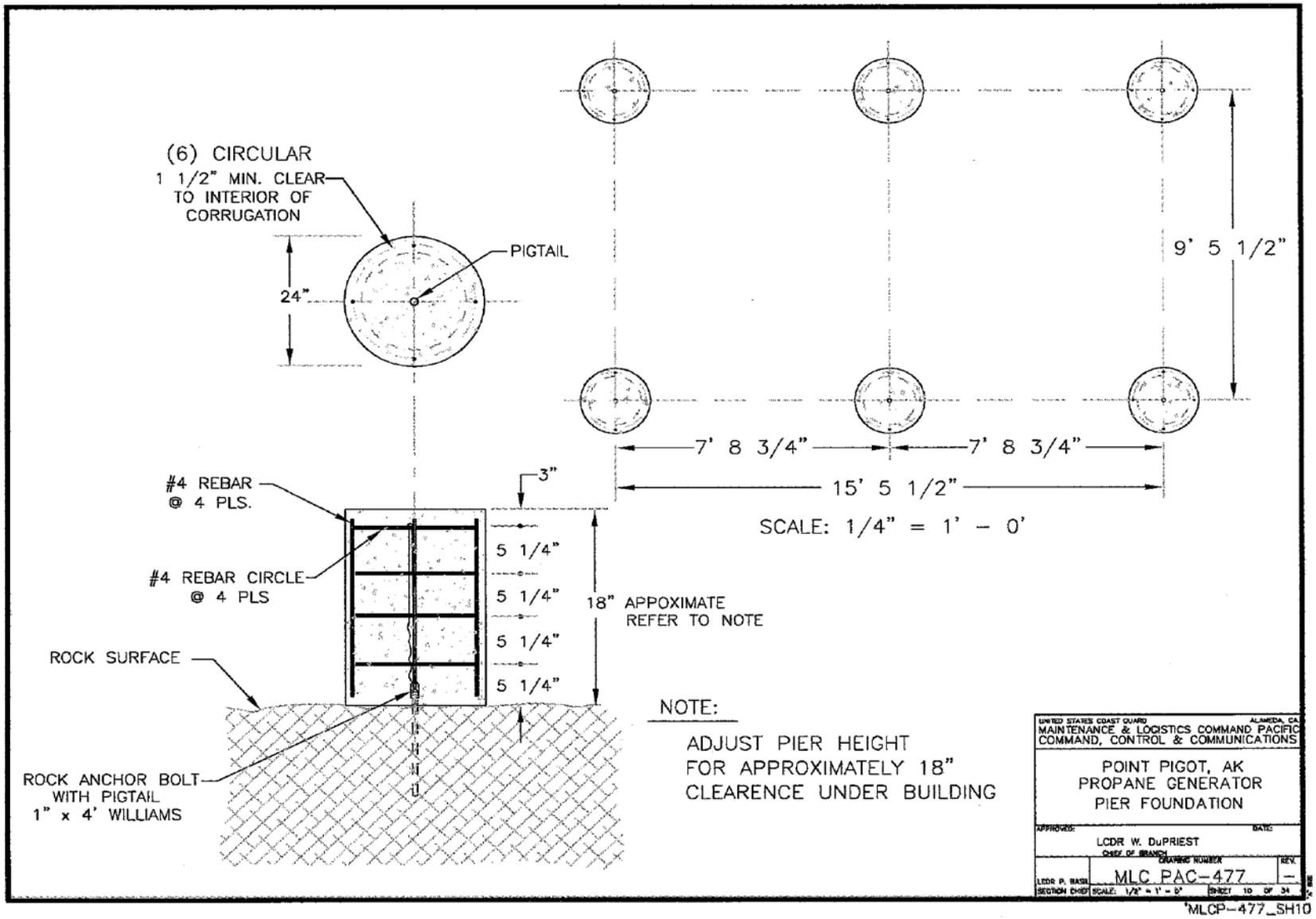

(6) CIRCULAR
1 1/2" MIN. CLEAR TO INTERIOR OF CORRUGATION
PIGTAIL
24"
9' 5 1/2"
7' 8 3/4"
7' 8 3/4"
15' 5 1/2"
SCALE: 1/4" = 1' - 0'
#4 REBAR @ 4 PLS.
#4 REBAR CIRCLE @ 4 PLS
3"
5 1/4"
5 1/4"
5 1/4"
5 1/4"
18" APPOXIMATE REFER TO NOTE
ROCK SURFACE
ROCK ANCHOR BOLT WITH PIGTAIL 1" x 4' WILLIAMS
NOTE:
ADJUST PIER HEIGHT FOR APPROXIMATELY 18" CLEARENCE UNDER BUILDING
UNITED STATES COAST GUARD
ALAMEDA, CA
MAINTENANCE & LOGISTICS COMMAND PACIFIC
COMMAND, CONTROL & COMMUNICATIONS
POINT PIGOT, AK
PROPANE GENERATOR
PIER FOUNDATION
APPROVED:
DATE:
LCDR W. DuPRIEST
CHIEF OF BRANCH
DRAWING NUMBER
MLC PAC-477
REV.
-
LCDR P. WASH
SECTION CHIEF
SCALE: 1/4" = 1' - 0"
SHEET 10 OF 34
'MLCP-477_SH10

Figure D-7

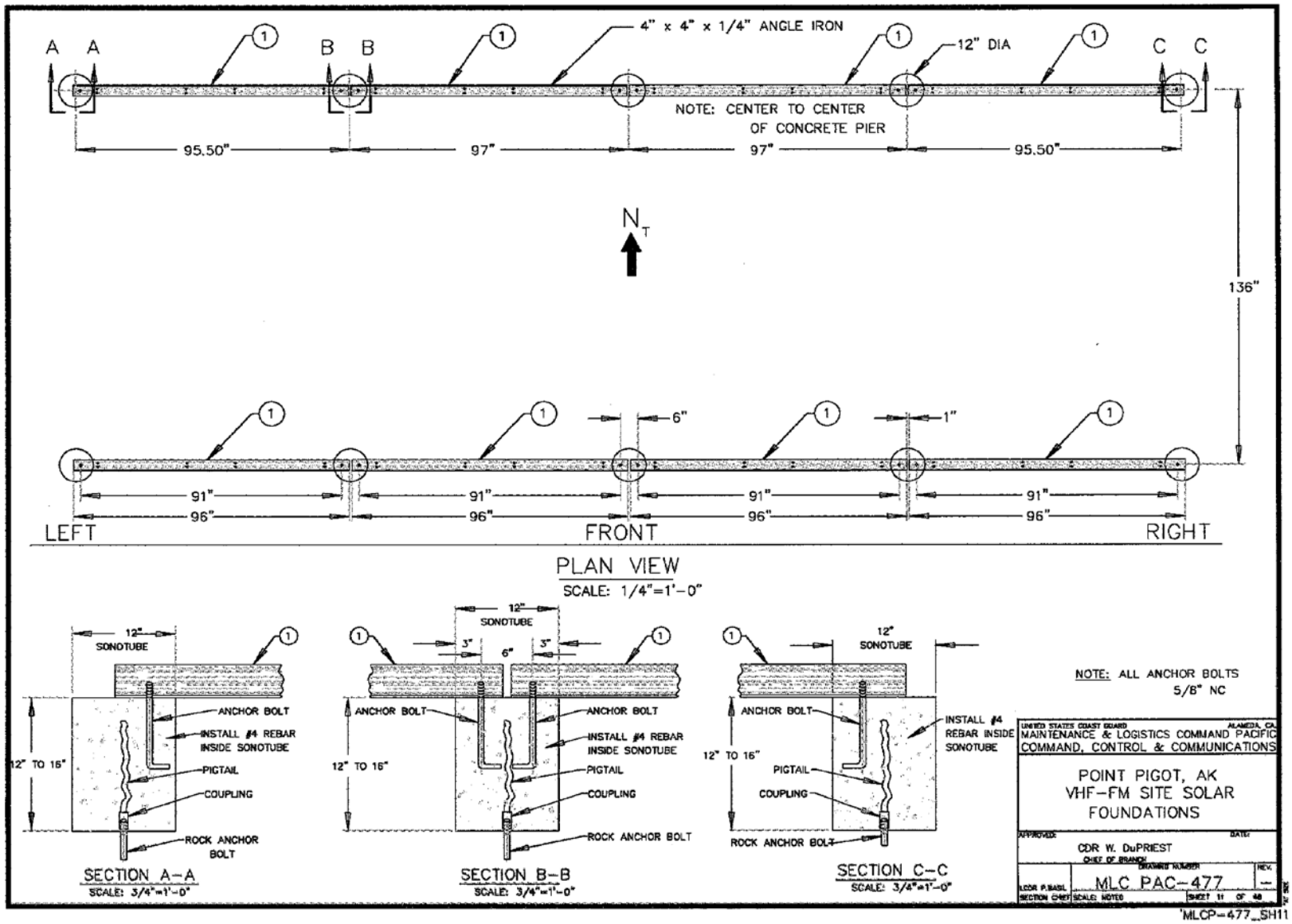

A A
B B
C C
4" x 4" x 1/4" ANGLE IRON
12" DIA
NOTE: CENTER TO CENTER
OF CONCRETE PIER
95.50"
97"
97"
95.50"
136"
6"
1"
91"
96"
LEFT
FRONT
RIGHT
PLAN VIEW
SCALE: 1/4"=1'-0"
12" SONOTUBE
ANCHOR BOLT
INSTALL #4 REBAR INSIDE SONOTUBE
PIGTAIL
COUPLING
ROCK ANCHOR BOLT
12" TO 16"
SECTION A-A
SCALE: 3/4"=1'-0"
3"
6"
SECTION B-B
SCALE: 3/4"=1'-0"
SECTION C-C
SCALE: 3/4"=1'-0"
NOTE: ALL ANCHOR BOLTS 5/8" NC
MAINTENANCE & LOGISTICS COMMAND PACIFIC
COMMAND, CONTROL & COMMUNICATIONS
POINT PIGOT, AK
VHF-FM SITE SOLAR
FOUNDATIONS
CDR W. DuPRIEST
MLC PAC-477
MLCP-477_SH11

Figure D-8

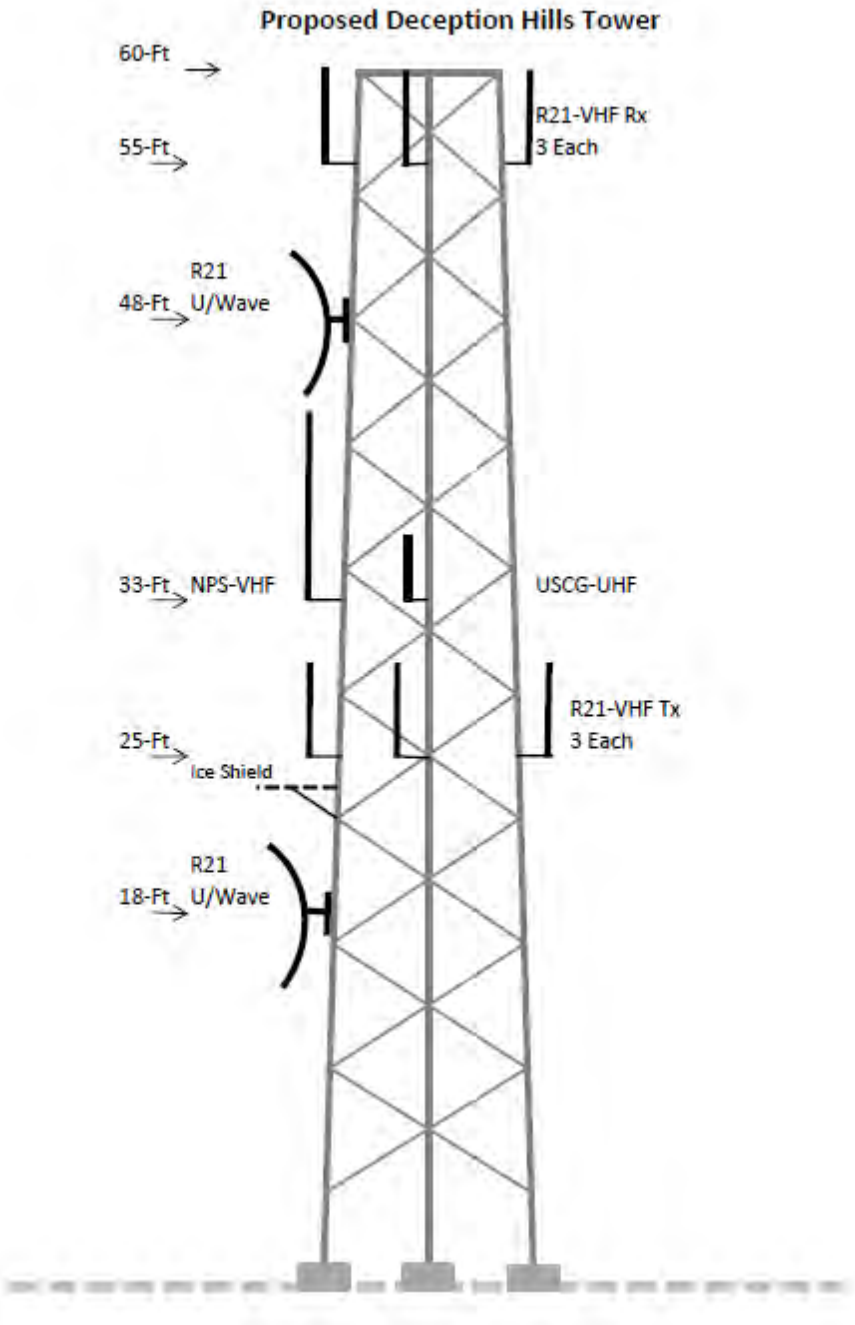

Proposed Deception Hills Tower
60-Ft
55-Ft
R21-VHF Rx
3 Each
R21
48-Ft U/Wave
33-Ft NPS-VHF
USCG-UHF
R21-VHF Tx
3 Each
25-Ft
Ice Shield
R21
18-Ft U/Wave

Figure D-9

Figure D-10 Photo showing ice bridge

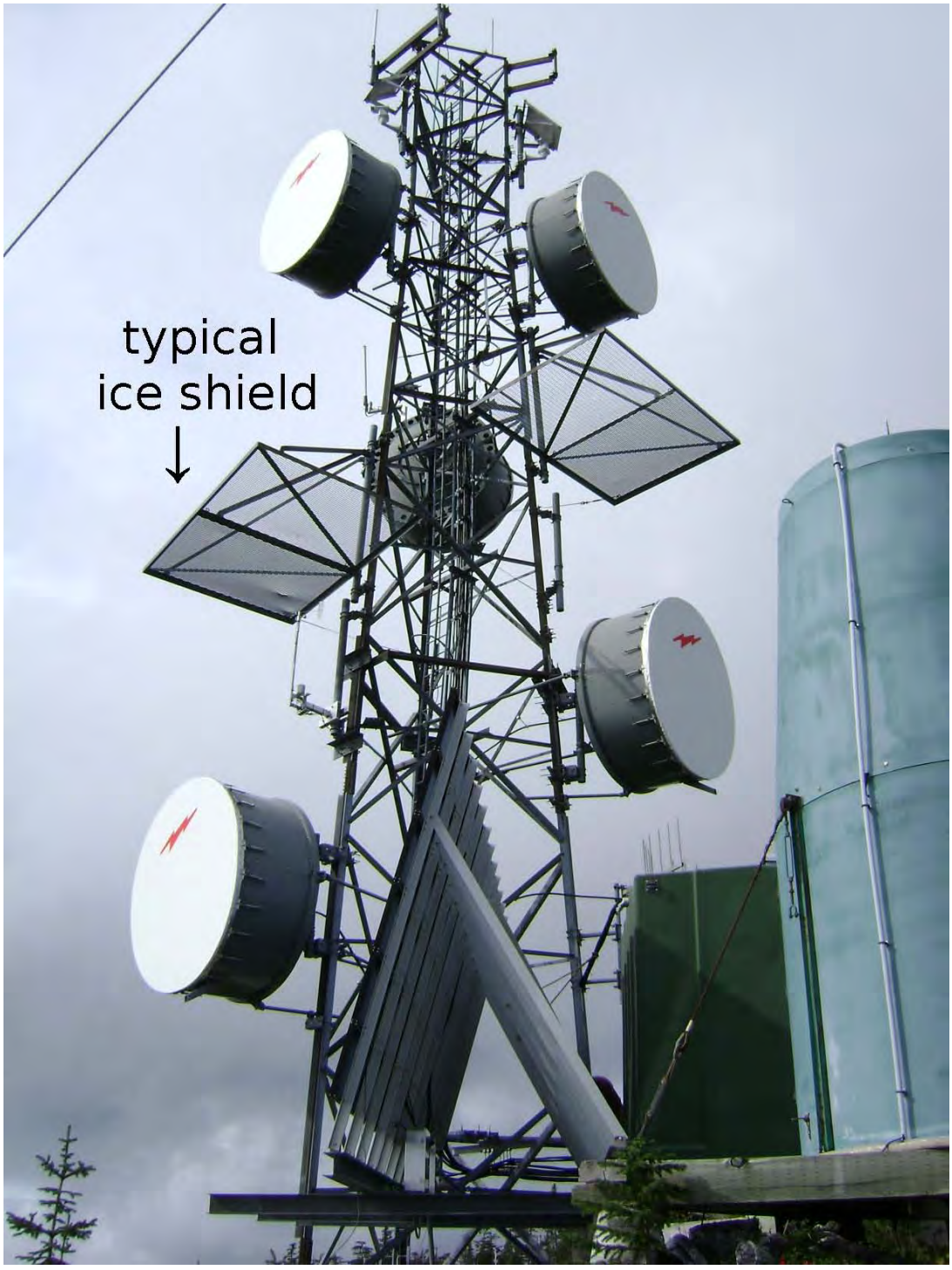


Figure D-11 Photo showing typical ice shield

APPENDIX E. EFFECTS DETERMINATION

Appendix E. Impairment of National Park Resources

In addition to determining the environmental consequences of implementing the preferred and other alternatives, NPS Management Policies (NPS 2006) requires analysis of potential effects to determine whether or not proposed actions would impair a park's resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management the discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park. That discretion is limited by the statutory requirement that the NPS must leave resources and values unimpaired unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values (NPS 2006). Whether an impact meets this definition depends on the particular resources that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact on any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- identified in the park's general management plan or other relevant NPS planning documents as being of significance

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

Impairment findings are not necessary for visitor use, socioeconomics, public health and safety, environmental justice, land use, etc., because impairment findings relate back to park resources and values. These impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired the same way that an action can impair park resources and values.

DETERMINATION OF IMPAIRMENT – US COAST GUARD RESCUE 21 COMMUNICATION SITE IN DECEPTION HILLS, GLACIER BAY NATIONAL PARK AND PRESERVE

A determination of impairment is made for each of the resource impact topics carried forward and analyzed in the environmental assessment for the preferred alternative. The description of park and preserve significance in Section 1.3 was used as a basis for determining if a resource is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- identified in the park's general management plan or other relevant NPS planning documents as being of significance

Visual resources

The ridge on which the proposed Deception Hills site would be located is about 3 mi east of the coast of the Gulf of Alaska. It is a western projecting ridge at an elevation of about 2,200 ft among a cluster of peaks that range up to about 3,500 ft. Structures at Deception Hills would be visible to viewers in close proximity to the site, including an area of about 250 acres on the ridge immediately to the south within the wilderness area of the park. The facility would also be visible from the west from boats in the Gulf of Alaska. The Dry Bay mobilization site along the mouth of the Alsek River is a flat outwash plain with dense evergreen and deciduous tree cover in upland areas farther away from the coast. A variety of human-altered landscape features are present in the area. Views at the Yakutat site consist of commercial and infrastructure features.

The largest potential viewing population is people on vessels in the Gulf of Alaska that are more than 4 mi from the Deception Hills site and persons in the lowlands along the shoreline that are 2 to 3 mi from the site. Due to the distance, most viewers would overlook manmade communication facilities such as those proposed at the Deception Hills site. The project would result in minor visual impacts from viewpoints within the preserve unit and wilderness of GLBA, given the small area affected and the very low probability that observers would be present. Viewers in the lowland areas adjacent to the coast within 2 to 4 mi of the Deception Hills site would experience a minor visual impact. Materials staged at Dry Bay might attract the attention of an observer (local resident or visitor). Impacts at the mobilization site would be temporary and negligible. The proposed action would not result in impairment to visual resources.

Soundscape

Construction, operation, and maintenance of the facility at Deception Hills would result in intermittent noise from project-related aircraft operations, and to a lesser degree, from generator operations. The noise produced during construction would be greatest during the slinging of equipment from the mobilization site to the tower site. Once operational, the communication site would experience additional noise from helicopter trips for maintenance or refueling visits approximately 2-3 times a year. The generator would be most active during the winter when solar energy generation is less efficient. During construction, noise due to helicopters slinging materials from the mobilization site to the construction site would affect the greatest number of potential receivers at Dry Bay. Noise levels during construction would be in approximately the same range as ambient noise levels from float planes and airplanes using landing strips. Addition of a microwave dish to the existing communication tower at the Yakutat communication link site would not cause noise inconsistent with levels currently experienced in the area.

There would be an increase in noise from helicopters during construction but the noise would be temporary. Noise from the propane-powered generator at Deception Hills would affect the immediate vicinity within several hundred feet before falling to levels near those from natural sources. Noise from these long-term operations would be infrequent and negligible. The minor level of impact on soundscape during the mobilization of materials would not influence visitors' use of the immediate vicinity of Dry Bay. No noise would be produced after installation of the microwave dish at Yakutat; therefore, the level of impact would be negligible. Overall impacts would be minor and the proposed action would not result in impairment to the soundscape.

Wildlife

Sixty-four mammal species are known to occur in GLBA, including black and brown bears, red foxes, mountain lions, mountain goats, moose, wolves, coyotes, wolverines, marmots, weasels, pine marten, mink, shrews, and small rodents (GLBA 2009c). Mountain goats have been observed in Deception Hills. The Alsek River corridor, near Deception Hills, provides a passageway through which some of the wide-ranging mammals travel between the interior and the coastal plain through the Saint Elias Mountains. Over 260 bird species use habitats within GLBA (GLBA 2009b), and Dry Bay is an important migratory bird nesting and resting area.

Construction noise may disturb nearby animals, but this impact would be temporary with no long-term adverse effects. The proposed facility would not adversely affect wildlife in GLBA because the facility's footprint would be small relative to the surrounding area and would not change habitat area. The facility and tower may present a striking hazard to some birds flying at night, in twilight, or in foggy weather conditions but this effect is expected to be minor. The overall impacts would be minor and the proposed action would not result in impairment to wildlife resources.

Vegetation

A site survey conducted in August 2008 found that the vegetation at the Deception Hills site is primarily low-growing grasses and sedges, perennial and annual forbs, and evergreen and deciduous tundra vegetation (SAGE 2008). No trees are present at the site (SAGE 2008).Vegetation at the Deception Hills site would be affected by construction over small areas where footings would be located and beneath the shelter and solar array footprints. These areas would be no more than 1,400 sf, the overall footprint of the Deception Hills facility. Once construction was complete and the facility was in place, communication operations would not have any additional impacts to vegetation. The Dry Bay mobilization site would be located in a disturbed area, without vegetation or wetlands. Mobilization at Dry Bay would occur near a gravel runway at the airstrip. The Yakutat communication link site is located in a disturbed area where no wetlands or sensitive vegetation exist.

Vegetation at the Deception Hills site would be affected by construction over small areas where footings would be located and beneath the shelter and solar array footprints (minor amount). The minor level of impact on vegetation would not result in any impairment to the overall quality of vegetation in the park, thereby fulfilling the purpose and intent of the park for these sites. Impacts to vegetation at the mobilization site would be negligible given the previous disturbances at this site. Rotor wash from the helicopters may disturb local vegetation during mobilization at Dry Bay but this effect would be temporary. Therefore, the level of impact would be negligible at Dry Bay. The proposed action would not result in impairment to vegetation resources.

Wilderness

None of the sites associated with the proposed facility are within designated wilderness. However, the Deception Hills facility is within a half mile of the designated wilderness boundary in the park. Visitors to the wilderness area near Deception Hills could be impacted by the construction, operation, and maintenance of the facility at Deception Hills. The areas within the wilderness from which the proposed communication facility could be viewed also provide views of the existing NPS communication facility nearby.

The new facility would be prominent in the views from the adjacent ridge, but there are existing impacts from human facilities and activities that currently substantially limit opportunities for solitude. Therefore, impacts on the nearby wilderness area south of the proposed site would be minor and the proposed action would not result in impairment to wilderness resources.

Summary

As described above, adverse impacts anticipated as a result of implementing the preferred alternative on resources or values whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park,

key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or identified as significant in the park's general management plan or other relevant NPS planning documents, would not rise to levels that would constitute impairment.

APPENDIX F. BACKGROUND MATERIAL FOR SOUNDSCAPE ANALYSIS

Appendix F. Background Material for Soundscape Analysis

F.1 NOISE TERMINOLOGY AND DESCRIPTORS

The decibel (dB) scale used to describe sound is a logarithmic scale that provides a convenient system for considering the large differences in audible sound intensities. When addressing the effects of noise on people, one must consider the "frequency response" of the human ear, or those sounds that people hear best. To address the frequency response, instruments that measure sounds are designed to "weight" measured sound levels based on emphasizing the frequencies people hear best and de-emphasizing those frequencies people do not hear as well. The frequency-weighting most often used to evaluate environmental noise is A-weighting, and measurements from instruments using this system are reported in "A-weighted decibels" (dBA). All sound levels in this evaluation are reported in dBA.

Many regulatory agencies use the equivalent sound level (Leq) to evaluate noise impacts and potential community response to noise. The Leq is the level of a constant sound that has the same sound energy as the actual fluctuating sound. As such, the Leq can be considered an energy-average sound level. When referring to sound levels, it is important to identify the time period being considered, with Leq(24), for example, being the equivalent sound level for a 24-hour period. The day-night sound level (Ldn) is similar to an Leq(24), except that the calculation involves adding 10 dBA to sound levels measured between 10 pm and 7 am to account for potential sleep interference.

F.2 REGULATORY OVERVIEW

The proposed USCG communication facilities are located on both federal and non-federal land. Neither the City of Yakutat nor the State of Alaska have adopted noise standards.

The Noise Control Act was passed in 1972 in response to a congressional finding that unchecked noise presents a danger to the nation's health and welfare. The act directs federal agencies to comply with all regulations aimed at noise reduction but allows the President to exempt any activity or facility of the executive branch, including noise emission sources, if the paramount interest of the country would be served.

The US Coast Guard Commandant Instruction M16475.1D relates to implementation of NEPA and includes both procedures and policy for considering environmental impacts. In relation to noise, Chapter 2, Subsection D Special Areas of Consideration, Item 9.c directs consideration of conformity to adopted noise standards and compatibility, if appropriate, with different land uses (USCG 2000).

The NPS Organic Act mandates the preservation and/or restoration of natural resources within parks, including the acoustical environment. Noise can impact the

acoustical environment much like smog impacts the visual environment. The NPS program to protect and enhance park resources and visitor experiences differentiates between physical sound sources and human perceptions of those sounds. The combination of physical sound resources, or acoustic resources, at a particular location creates what is known as the acoustical environment. Acoustic resources include both natural sounds (wind, water, wildlife, vegetation) and cultural and historic sounds (battle reenactments, tribal ceremonies, quiet reverence). The human perception of the acoustical environment is referred to as the soundscape. Relevant policies and regulations include the following (NPS 2003):

- NPS Soundscape Management Policy 4.9 provides that, "The Service will preserve, to the greatest extent possible, the natural soundscapes of parks."
- NPS Cultural Soundscape Management Policy 5.3.1.7 states that, "The Service will preserve soundscape resources and values of the parks to the greatest extent possible to protect opportunities for appropriate transmission of cultural and historic sounds that are fundamental components of the purposes and values for which the parks were established."
- NPS Director's Order #47 - Soundscape Preservation and Noise Management articulates NPS operational policies that will require, to the fullest extent practicable, the protection, maintenance, or restoration of the natural soundscape resource in a condition unimpaired by inappropriate or excessive noise sources.
- The park's Foundation Statement (GLBA 2009a) includes the following policy addressing noise: "The park preserves the natural sounds, air quality and the opportunities to see pristine night skies."

APPENDIX G. SCOPING LETTER

U.S. Department of Homeland Security

United States Coast Guard

U.S. Department of the Interior
National Park Service

Glacier Bay National Park and Preserve

October 22, 2009

Commanding Officer
USCG Rescue 21
Project Resident Office Alaska
100 Savikko Road
Douglas, Alaska 99824

Superintendent
Glacier Bay National Park and Preserve
1 Park Road, P.O. 140
Gustavus, AK 99826

Dear Interested Party:

The U.S. Coast Guard and the National Park Service are seeking your input on a proposal to permit, construct, operate and maintain search and rescue communication facilities in Glacier Bay National Park and Preserve.

The National Park Service has received a Right-of-Way application under ANILCA 1310(b) from the U.S. Coast Guard to site up to two facilities within the Park and Preserve. One proposed site is located on the park's outer coast in the Deception Hills area within the Glacier Bay National Preserve. A second proposed site would be located within designated wilderness surrounding Glacier Bay at either the existing NPS radio repeater site at Beartrack Mountain or on Willoughby Island.

Why is the Coast Guard Proposing New Facilities?

The U.S. Coast Guard has identified the need to modernize and replace its antiquated maritime search and rescue communications system in Alaska as part of a nationwide mandate. New locations and new equipment will fill existing coverage gaps in Very High Frequency (VHF-FM) marine communications used for Coast Guard operational missions, including search and rescue, maritime pollution prevention and response, maritime law enforcement, and homeland security. The system, known as "Rescue 21," is the maritime equivalent of a "911" communications system, enhancing maritime safety by helping to minimize the time that search and rescue teams spend looking for people in distress.

Additionally, the National Park Service has identified areas where communications are typically poor. Some of the Park's management objectives that could be achieved through a coordinated project are:

- Provide improved ability to respond to environmental emergencies and protect park resources,
- Provide visitors with a safe and enjoyable visit, and
- Determine if facilities such as Rescue 21 installations are necessary, appropriate and

consistent with the area's setting and purpose as directed by ANILCA Section 1310(b).

These facilities would provide improved day-to-day operational (command and control) capabilities for both the Coast Guard and the National Park Service.

What is the U.S. Coast Guard Proposing?

The proposed action is to install Coast Guard VHF-FM communication sites in the vicinity of Glacier Bay National Park and Preserve, Southeast Alaska. One facility would provide radio coverage for the Fairweather Banks region of the Gulf of Alaska, and has the potential of providing VHF and telephone service to the Dry Bay area. The second facility would provide additional VHF radio coverage for the inside waters of Glacier Bay and improve radio coverage for Muir Inlet and Tarr Inlet.

A typical communications facility for these areas would include two 12' long x 13' wide x 16' high solar arrays, a 10'x 16' generator hut, a 8' x 10' communication hut, an approximately 60' self-supporting tower, a wind generator and tower, a ten (10) 500 gal. propane tank array, and a 16' x 16' helicopter pad depending on terrain.

Enclosed are maps displaying the proposed sites.

What Happens Next?

The U.S. Coast Guard and the National Park Service will conduct the required National Environmental Policy Act (NEPA) compliance measures to decide whether to issue the ROW permit and to authorize the construction, operation, and maintenance of those facilities. This Environmental Assessment (EA) will analyze the effects of construction, including the staging and mobilization of materials and construction forces, and the eventual operation and annual maintenance that would be performed. The EA will also examine the advantages and disadvantages of co-locating NPS radio communication equipment in the same facilities.

The U.S. Coast Guard will prepare written project proposals and potential environmental effects in accord with the National Environmental Policy Act (40 CFR 1500-1508) and as required by USCG COMDTINST M16475.1D, and the NPS DO-12 Handbook.

A preliminary review of communication coverage identified potential locations for remote fixed facilities. Options for staging materials and mobilizing construction workforces will also be included in the EA analyses. The proposed facilities were analyzed for reception from a 1-watt radio held 2 meters above the surface of the water. The potential locations would not require new repeater facilities to connect (link) into the existing Coast Guard system. Radio coverage using more powerful equipment was also analyzed to gauge the ability of larger vessels to communicate during emergency situations.

Alternatives to the proposed action may be developed depending on issues identified during this initial "scoping" period. At this time, we would like to hear any comments, issues, and concerns you have that would help shape or further develop the project proposals.

We are contacting you so your concerns or ideas can be considered early in the development of the project proposals. Your comments will be most useful if they are received by November 20, 2009. However, comments will be accepted and reviewed up until the time the decisions on the projects are made.

Please send comments to William Freeland, Environmental Protection Specialist, U.S. Coast Rescue 21 PRO Alaska, 100 Savikko Rd., Douglas, AK 99824. Comments may be written, sent by e-mail (William.A.Freeland@uscg.mil), or faxed to this address at 907-463-2959 (Attention: Glacier Bay Rescue 21 Communication Facilities). Questions may be directed to William Freeland at 907-463-2955 or to Allison Banks, Glacier Bay National Park, at 907-697-2611. Comments may also be posted on the National Park Service Planning, Environment and Public Comment (PEPC) website at http://parkplanning.nps.gov/publicHome.cfm if you go to the Glacier Bay National Park and Preserve page.

This is not the only opportunity you will have to comment on this project. When the EA has been prepared and distributed, you will have an opportunity to make further comments. If you would like to be kept informed about this project, please complete and return the attached "Interest Response Form" and you will be placed on the mailing list.

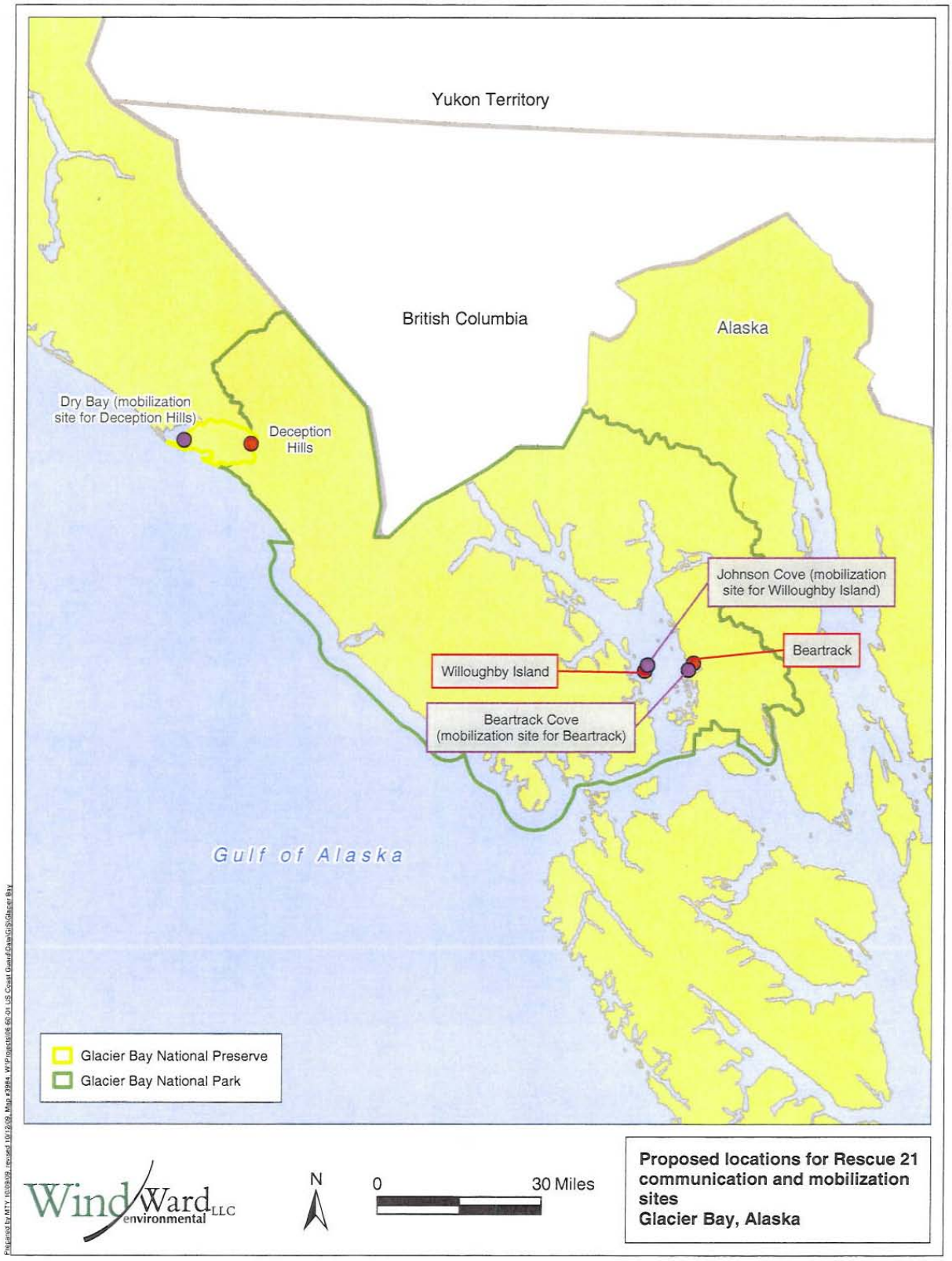
Pursuant to 7 CFR Part 1, Subpart B, Section 1.27, all written submissions in response to this notice will be made available for public inspection, including the submitter's name and address, unless the submitter specifically requests confidentiality. If you wish to withhold your name or address from public review or from disclosure under the Freedom of Information Act, you must state this at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses submitted on official letterheads and from individuals identifying themselves as representatives or officials of organizations or businesses will be made available for public inspection in their entirety.

Sincerely,

Joseph S. Calnan, Commander
Commanding Officer
US Coast Guard Rescue 21
Project Resident Office Alaska
Douglas, Alaska

Sincerely,

Cherry Payne
Superintendent
Glacier Bay National Park
and Preserve
Gustavus, Alaska


Yukon Territory
British Columbia
Alaska
Dry Bay (mobilization site for Deception Hills)
Deception Hills
Johnson Cove (mobilization site for Willoughby Island)
Beartrack
Willoughby Island
Beartrack Cove (mobilization site for Beartrack)
Gulf of Alaska
Glacier Bay National Preserve
Glacier Bay National Park
Wind Ward environmental LLC
N
0
30 Miles
Proposed locations for Rescue 21 communication and mobilization sites
Glacier Bay, Alaska

Interest Response Form

Please include me on the mailing list for

☐ **ENVIRONMENTAL ASSESSMENT FOR PROPOSED**

U. S. COAST GUARD COMMUNICATION SITES IN

GLACIER BAY AND AT FAIRWEATHER BANKS, ALASKA

as described in the attached letter.

Complete this form and return to:

U.S. Coast Guard
Rescue 21 PRO Alaska
100 Savikko Rd.
Douglas, AK 99824

Please Print Clearly:

Name: _____

Street: _____

City, State, Zip Code: _____

e-mail address: _____

We are trying to save paper and conserve resources. Please respond if you wish to be kept informed and receive future mailings for this project. Please indicate if you would like a paper copy, CD, or can download website copy of notices, documents, and decision records.

☐ **Paper copy** ☐ **CD** ☐ **Download web content**