

FAA KUIU ISLAND SELF-SUSTAINING OUTLET (SSO) REPLACEMENT



PROJECT NAME

FAA Kuiu Island Self-Sustaining Outlet (SSO) Replacement

LOCATION

Kuiu Island, AK

OWNER

Federal Aviation Administration

CLIENT

Parsons TSSC III

CONTRACT NO.

AL-14-5964

PROJECT VALUE

\$404,949

YEAR COMPLETED

2014

NAICS

238910

Ahtna successfully executed the demolition and construction of a replacement Self-Sustained Outlet (SSO) Radio Communications Facility on mountaintops as high as 3,400-foot and 3,065-foot located adjacent to the Tebenkof Bay Wilderness Area of the Tongass National Forest. The SSOs provide a reliable radio communication for small aircraft traveling through remote areas of Alaska to ensure safety. Ahtna completed this project despite multiple challenges including near zero visibility at times due to heavy fog, 80+ mph winds, rain, and snow; lack of infrastructure on the mountaintop; and the location having the highest concentration of black bears in the world. We performed detailed planning for every stage of the project, which began with a pre-construction site visit to gain an in-depth understanding of the terrain, soils, and other factors that could affect project execution, safety, and success. To execute the work, Ahtna planned for three helicopter mobilizations to perform slinging operations of 68,000 lbs of all materials, supplies, and equipment from a barge to the mountaintop in one, 8-hour day via a total of 53 helicopters slings, keeping the project on schedule.

Onsite, the work area was approximately 180 x 50 feet in size with varying elevations (as much as 30 feet of change in elevation across the site). We excavated 16 holes between 1 and 3 feet deep down to bedrock. We then drilled holes for installing ¾" all thread rock anchors with specialized epoxy. After the epoxy cured overnight, we placed precast concrete foundations then backfilled the foundation areas with the excavated soil.

We then erected the solar array and hang panels, which required work at heights to erect a 16-ft high by 24-ft wide aluminum structure. The solar array frame is designed to withstand extreme winter weather conditions, which sometimes resulted in ice and winds in excess of 130 mph. The equipment building is an 8' x 6' x 16' fiberglass structure which was rigged and flown into the site by helicopter. We installed a complete counterpoise grounding system around the equipment building and solar array frame. After grounding was completed and tested, we constructed the 20' x 20' helicopter pad. The old site was then completely demolished and decommissioned.

Ahtna implemented our innovative design alternative for the structural foundations that reduced the duration of fieldwork by 60% and significantly reduced mobilization costs by avoiding the need to transport bags of concrete and additional heavy equipment to the site. In addition, it minimized risk in the quality of the foundations as well as the overall project schedule, since site conditions were not always favorable for pouring concrete. This design has become the standard that the FAA uses on all similar SSO sites.

This project received the 2014 Construction Excellence Award from the Associated General Contractors of Alaska.

