Idaho Aviation Foundation

Big Creek Hydroelectric Project

(FERC Project No. P- 10721)

JOINT AGENCY/PUBLIC MEETING

June 7, 2017

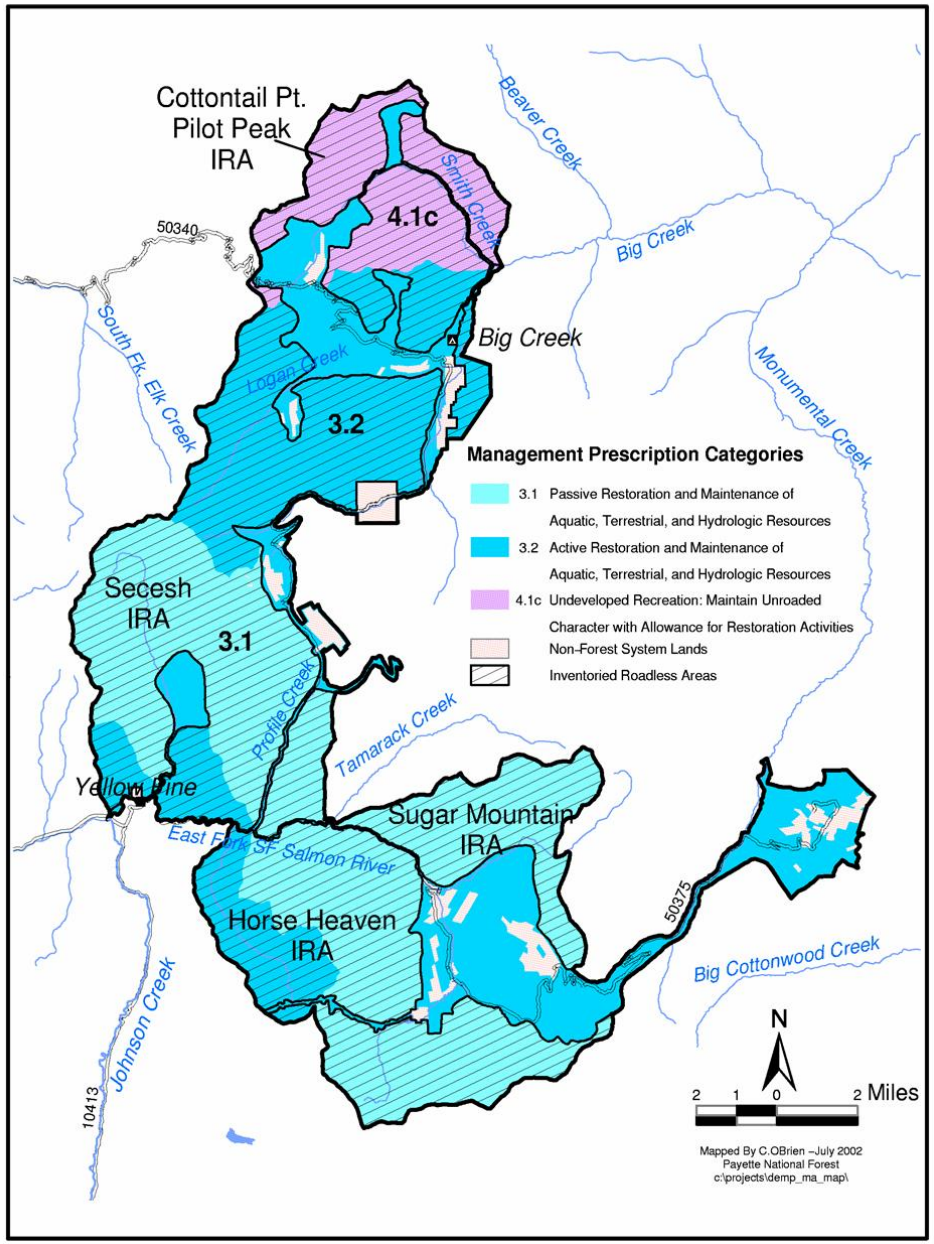
JUNE 7, 2017
2:00 PM MDT
Idaho Department of Aeronautics

MEETING AGENDA

1. Welcome and Call to Order
2. Introductions
3. Review, Revise (if necessary), Approve Agenda
4. Project Location
5. Project Overview
    (a) History
    (b) Idaho Aviation Foundation (IAF)
        1. What is the IAF
        2. Project Involvement
    (c) Pre-2016 System Description and Operation
    (d) 2016 System Description and Proposed Operation
6. Hydropower Alternatives
7. Project Impacts
8. Possible Studies – Discussion
9. Site Visit – Discussion
10. Adjourn

Project Location

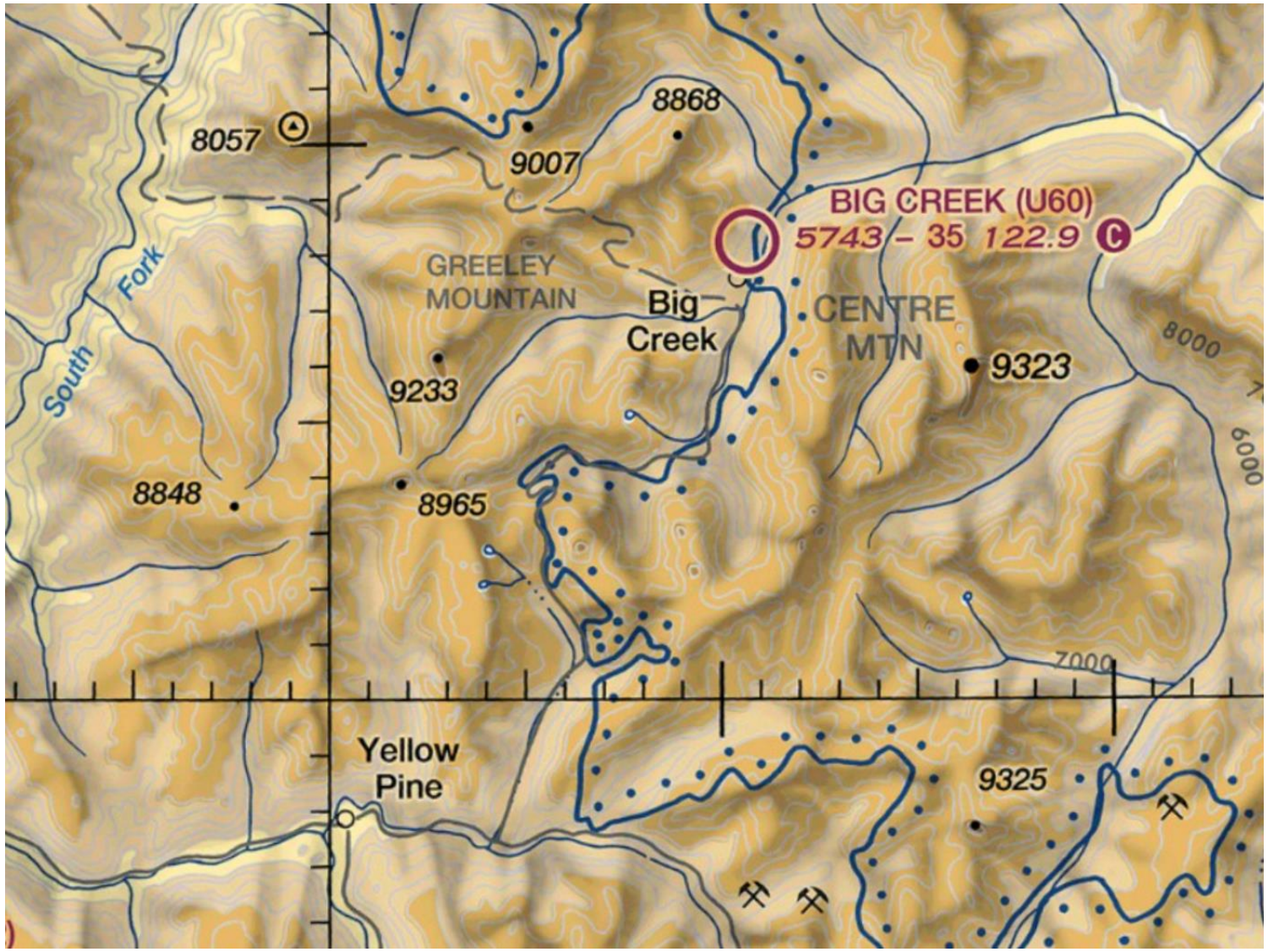
Management Area 13 –Big Creek/Stibnite –Location Map



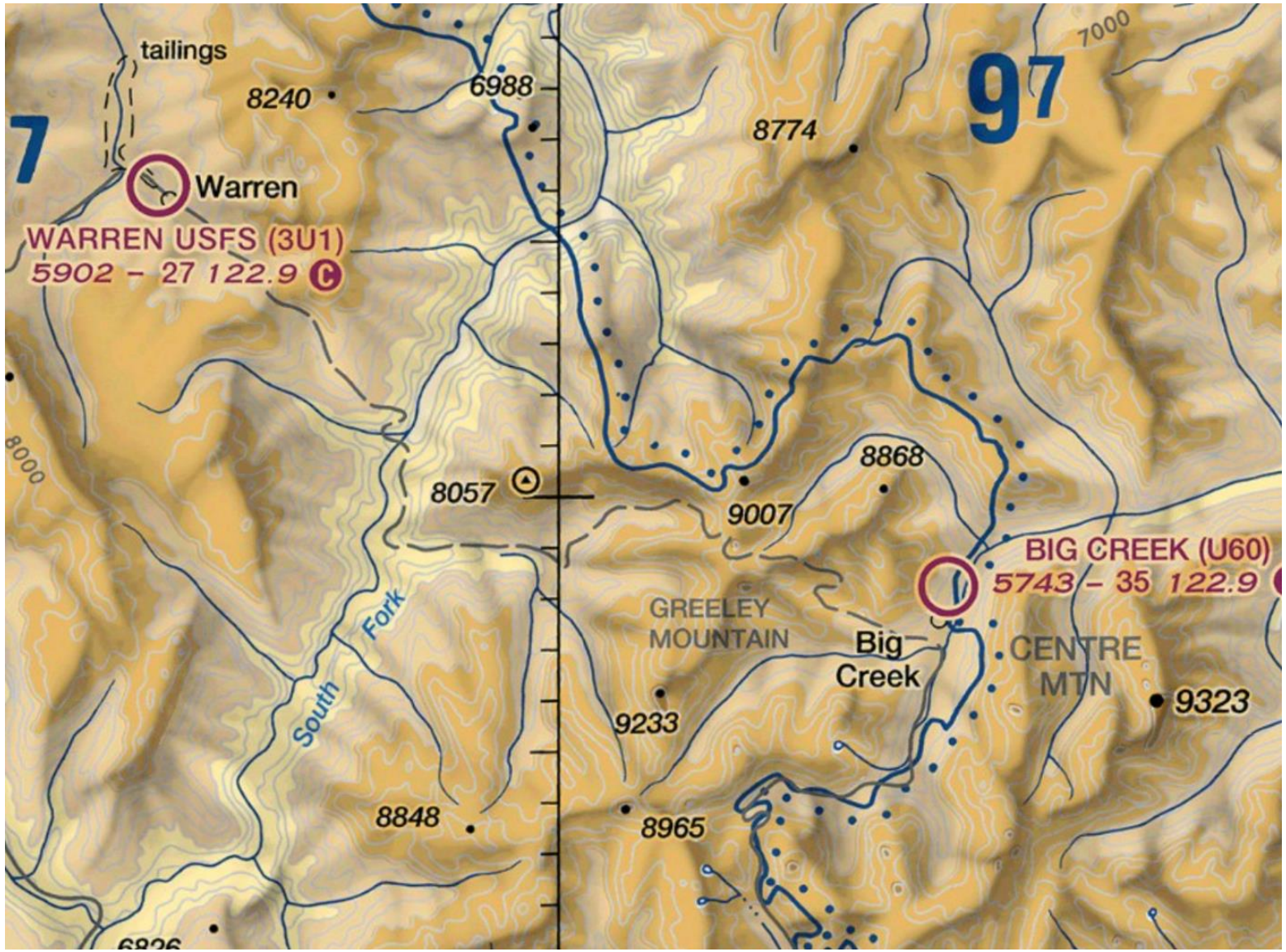
Project Location

Management Area 13 is comprised of lands administered by the Payette National Forest within the upper Big Creek, East Fork South Fork Salmon River, Monumental Creek, and Marble Creek drainages. The area lies in Valley and Idaho Counties, and is part of the Krassel Ranger District. The management area is an estimated 104,500 acres, which includes numerous mining-related private inholdings that, together, make up about 4 percent of the area. This area is adjacent to but has been excluded from the Frank Church-River of No Return Wilderness because of past mining activity and current mining potential. About 17 percent (24,000 acres) of this management area is comprised of Boise National Forest lands that are administered by the Payette. The Boise National Forest borders the area to the west, the Payette National Forest lies to the north, and the Frank Church River of No Return Wilderness Area borders to the east and south. The primary uses or activities in this management area have been mining, dispersed recreation, and watershed restoration.

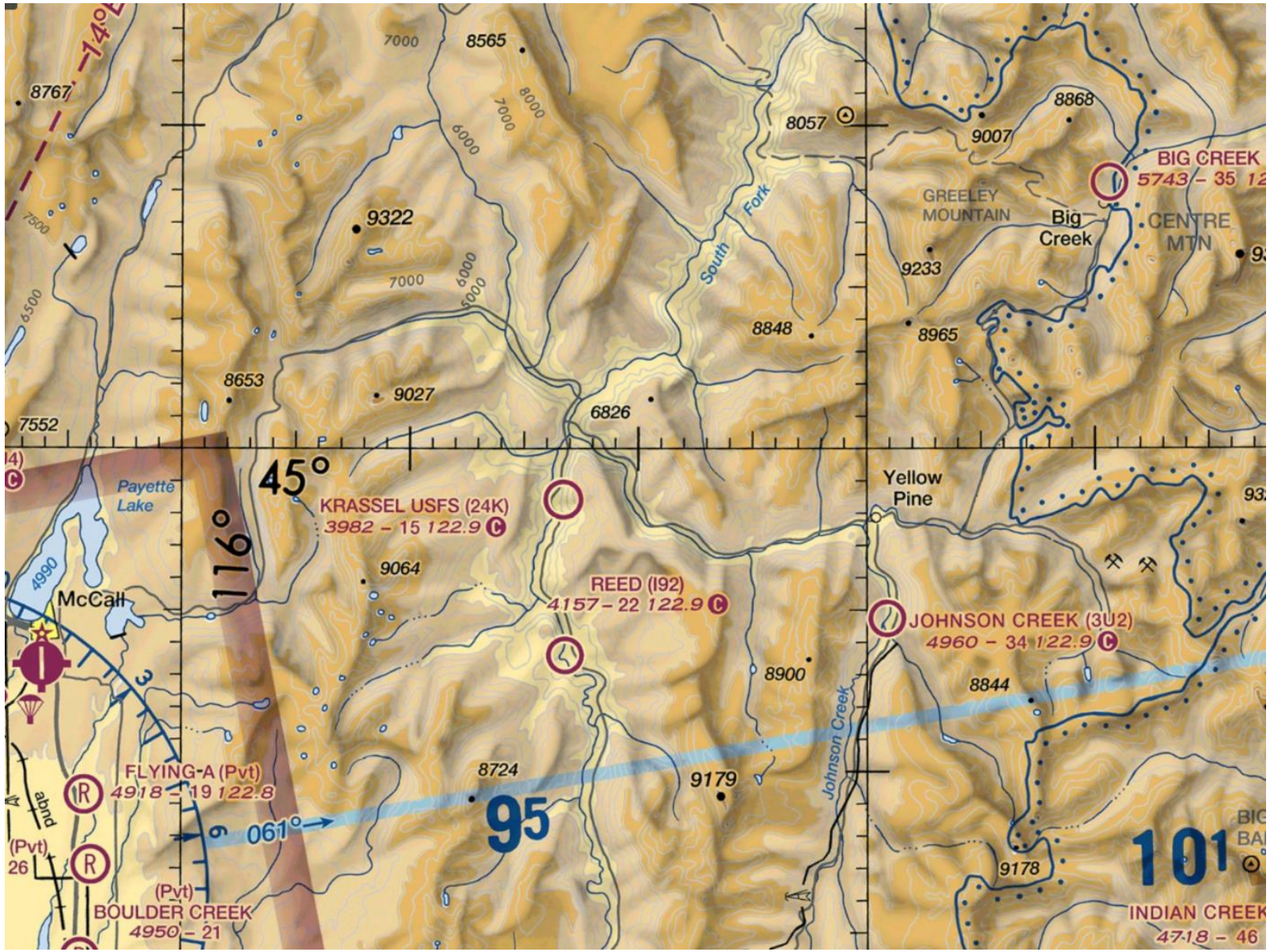
Project Location - Big Creek to Yellow Pine



Project Location - Big Creek to Warren



Project Location - Big Creek to McCall



Project Overview

The need for the Big Creek Hydro Electric Project, FERC Project P-10721, is driven by the electrical power requirements for the Big Creek Lodge.

Project Overview – History

Edwardsburg, established in 1904, near the present-day airstrip, along with a general store and post office, became the center of commerce for miners and ranchers attracted to the area.

The USFS established a ranger station at Big Creek in 1920. About a decade later brave pilots began using the adjacent pasture as landing strip.

Project Overview – History

Big Creek Lodge was built in the mid-1930's, and along with the general store and a gas station, provided a sanctuary for those attracted to the Big Creek Valley; miners, ranchers, the residents of Edwardsburg, and all those headed upstream or downstream.

Road access was greatly improved with the completion of a road over Profile Summit from Yellow Pine, as compared to the difficult 40 mile route from Warren.

Project Overview - History

In 1957 the airstrip was completely rebuilt and extended to its' current length of nearly 3600 feet. It was operated by the USFS until 1961 when a special use permit (SUP) was issued to the Idaho Department of Aeronautics, now the Idaho Division of Aeronautics, which continues to manage and maintain the airstrip.

Project Overview - History - Big Creek Airstrip

Project Overview - History

Big Creek Lodge has been unique in being able to encourage public access to the beauty and recreational opportunities of the Big Creek Valley because of the airstrip and road access from Yellow Pine. It was expanded further when, in 1980, the 2.4 million acre River of No Return Wilderness area (renamed in 1984 for Idaho Senator Frank Church) was created by the United States Congress and provided the opportunity for a wilderness experience like few other places in America, and nowhere outside of Alaska.

Project Overview - History

Unfortunately, all this came to an end when, in October of 2008, just as the lodge was being shut down for the season, fire erupted and burned the lodge and a nearby cabin to the ground.

Project Overview – History

The IAF, after being issued a 30-year special use permit (SUP) from the USFS in May 2013, began rebuilding the lodge in 2015; a beautiful log structure with five rooms and a commercial kitchen to feed and house tired and hungry recreationalists once again. It is expected the lodge will be completed in late summer of 2017.

Project Overview - History

Project Overview – Idaho Aviation Foundation
What is the IAF?

The original hydropower project was constructed and began operation in 1968 and operated until 1985. After the lodge was sold to Big Creek Lodge and Outfitters, Inc. they applied for and were issued a minor license for a water power project on March 26, 1992; FERC Project No. P-10721 for a hydro-electric generator unit rated at 22 kW.

Project Overview – Idaho Aviation Foundation
What is the IAF?

The J. Curtis Earl Idaho Aviation Foundation (IAF) was established as a companion organization to the Idaho Aviation Association (IAA). The IAF was formed as a contribution based organization for the purpose of benefiting and preserving all airports within Idaho. It was established as a tax exempt 501(c)(3) foundation to facilitate tax deductible contributions.

Project Overview – Idaho Aviation Foundation
What is the IAF?

From the outset it was envisioned that the IAF would serve as the funding source for airstrip maintenance and improvement projects, educational pursuits, and other beneficial purposes while the IAA, as a not-for-profit organization, but without tax exempt status, would focus its financial resources on political advocacy to protect access to and the continued existence of airstrips within the jurisdiction of the government agencies.

Project Overview – IAF Project Involvement

The IAF funds aviation projects, makes educational grants, and sponsors special initiatives such as the Wilderness Within Reach program, an annual program in partnership with Boise Parks and Recreation that introduces disabled and handicapped individuals to a weekend in the backcountry via small aircraft.

Project Overview – IAF Project Involvement

IAF also strives to make more airstrips accessible to the public, which spurred interest in working with the Forest Service to rebuild the historic Big Creek lodge that burned to the ground in October of 2008. The lodge, through public donations, will be completed in October of 2017, and not only will service and provide backcountry access for pilots, but the general public with road access as well. The IAF has a capable and motivated Board which guides the IAF in its pursuit of projects beneficial to aviation interests and negotiates for the protection and preservation of our precious airstrips.

Project Overview – IAF Project Involvement

Following the fire, Big Creek Lodge owners chose not to rebuild the structures destroyed in the fire, and in a cooperative agreement with the IAF, provided for the transfer of all the remaining infrastructure and personal property to the IAF.

Project Overview – IAF Project Involvement

On February 1, 2013 the IAF announced a plan to rebuild Idaho's historic Big Creek Lodge. For over 74 years the lodge provided meals and lodging to miners, geologists, loggers, sportsmen, horsemen, hikers, ATV and snowmobile riders, and pilots. Big Creek is special from an historic standpoint, but the mountain views, wildlife, and a rustic lodge on a beautiful state maintained backcountry airstrip made the Big Creek experience a memorable one and worthy of being preserved for future access and enjoyment.

Project Overview – IAF Project Involvement

A 30 year Special Use Permit was signed and awarded to the IAF by the USFS on May 31, 2013 for the lodge site. A separate Special Use Permit was issued for the hydro-electric project that expires on February 28, 2022, which is the expiration date for the FERC issued hydro-power license. Lodge construction supported by public donations began during the summer of 2015, and is expected to be completed in October of 2017. The “Rebuild Big Creek Lodge” project has been undertaken by the IAF to promote Idaho aviation’s image with the general public and enable users of all kinds (the lodge is accessible by both vehicle and airplane) to again enjoy the recreation and beauty of this remote site.

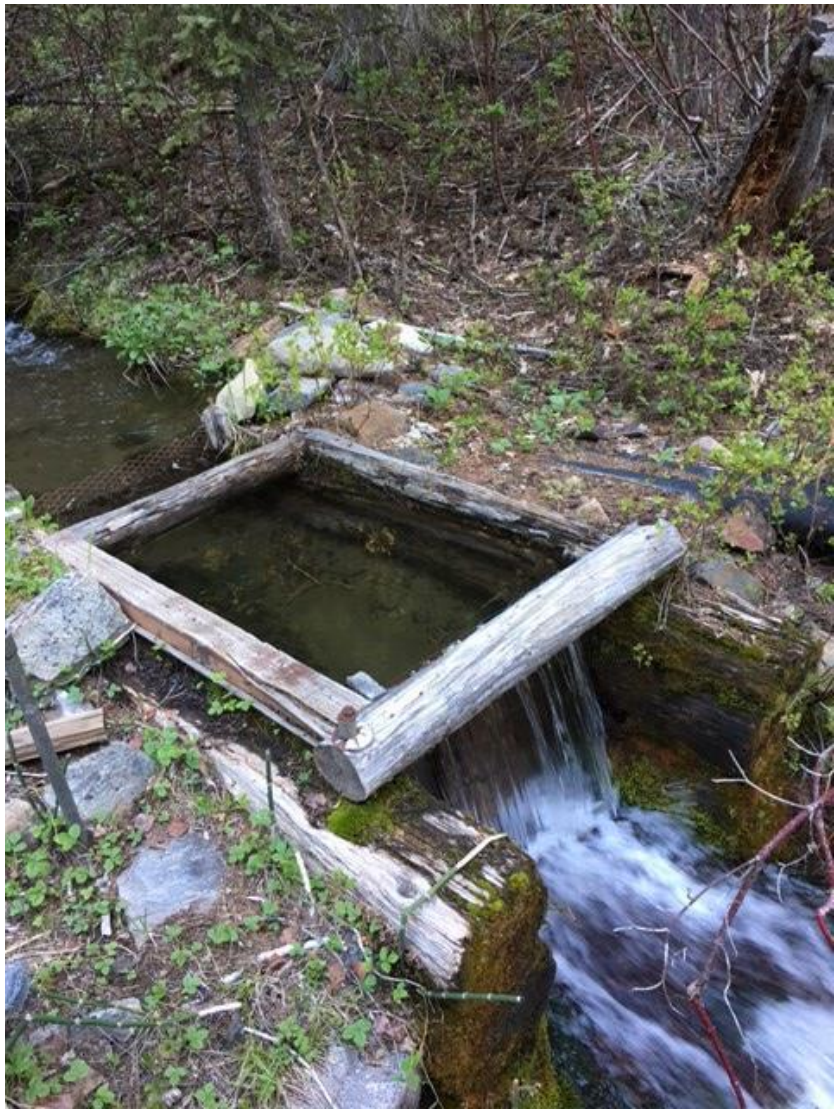
Project Overview – Pre-2016 System Description and Operation

The Big Creek Project draws water from McCorkle Creek at a diversion built into the banks of the creek.

Above Diversion Box

Diversion Box

Project Overview – Pre-2016 System Description and Operation



Diversion Box

Above Powerhouse

Project Overview – Pre-2016 System Description and Operation

The penstock, which is 4” PVC, extends through the wall of the diversion approximately 2”, and is 12” up from the diversion floor. A screened metal cover is attached to the side of the diversion, positioned over the 4” penstock to prevent aquatic life (none due to the high gradient of the stream) and debris from being transported through the system. A diversion check gate is used to build the water level in the diversion to above the penstock inlet, allowing flow through the system. 0.75 cfs of water flow is used for generation, and with a mean annual creek flow of 3.0 cfs, it insures that the instream flow below the diversion does not drop below aquatic base flow due to hydraulic withdrawal.

Project Overview – Pre-2016 System Description and Operation

From late October through mid-May (off-season) the diversion check gate is removed, allowing 100% of stream flow to remain within the creek bed, dropping the water level passing through the diversion to well below the penstock inlet. The penstock inlet is sealed with plastic and clamps to prevent anything from entering the system during the off season and all water is drained from the line at the Generator House.
In the late spring the penstock seal is removed, the check gate re-installed, and water once again fills the system.

Project Overview – Pre-2016 System Description and Operation

Water flows through 1,340’ of buried 4” PVC penstock to the generator house. A 4” flow regulation and isolation valve and a downstream ½” pressure gage isolation valve is installed just outside the west wall. Pre-2016, a 4” line is connected to the water inlet of a single Pelton Wheel Turbine and belt-driven generator rated at 22 kW (tests conducted in 2015 demonstrated an actual generating capacity of 0.75 kW from the old, extremely inefficient Pelton Wheel Turbine) .

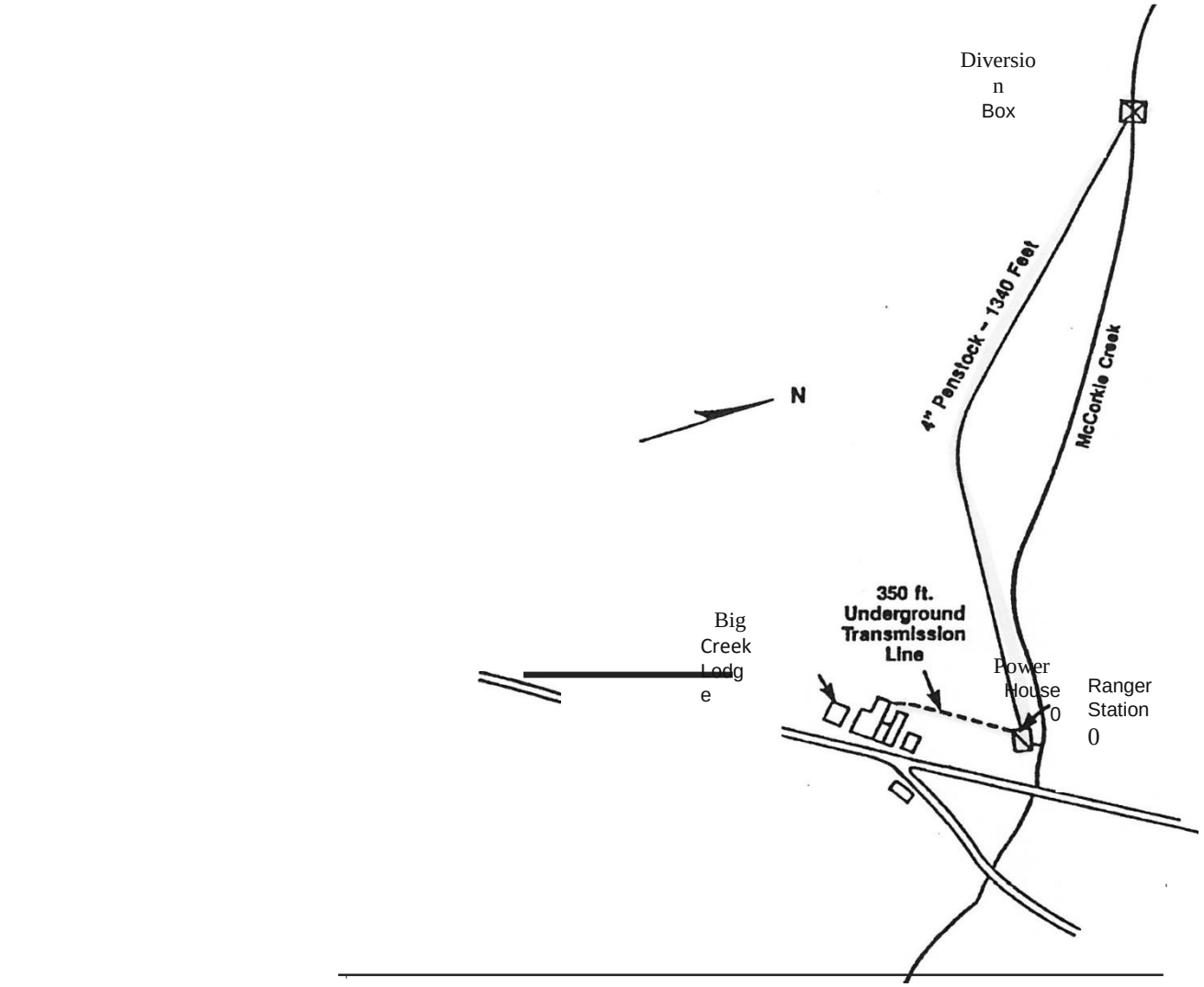
The Generator House is a 10’x12’ log structure with a metal covered gable roof to shed the winter snow. It is built on a concrete slab foundation and floor. A man door in the middle of the south wall provides access for people and equipment. Electricity produced by the generator is sent to the lodge through approximately 350’ of buried cable in 2” PVC conduit.

Project Overview – Pre-2016 System Description and Operation

Powerhouse

Project Overview – Pre-2016 System Description and Operation

Location of Project Features of the Big Creek Hydroelectric Project P-10721



Project Overview – Pre-2016 System Description and Operation

The Big Creek Project has and will continue to operate run-of-river (no reserve water capacity).

Major appliances (refrigerator, freezer, ranges, grills, and hot water heater) were propane powered, and with a low power production (0.75kW) there was regular use of the propane fuel backup/auxillary generator.

Project Overview – 2016 System Description and Proposed Operation

The system up to the point of water connection to the hydro-electric power unit is identically the same as that previously described for the pre-2016 system.

The IAF has purchased and installed a Canyon Hydro Pelton turbine and Marathon Magnaplus generator (cost approximately $50,000) to replace the old and very inefficient pre-2016 generating equipment. The nameplate capacity of the generator is 8kW, but due to water diversion limitations, gross head, and pipe configuration, actual capacity is approximately 3.5kW.

Project Overview – 2016 System Description and Proposed Operation

Since major appliances (refrigerator, freezer, ranges, grills, and hot water heater) will be propane powered, the estimated 3.5kW of renewable energy generating capacity of the newly installed high efficiency generator should be adequate for the expected electrical loads, reducing fossil fuel emissions. There will still be a backup propane fuel generator (10kW) that can be used during periods of higher electrical demand.

Project Overview – 2016 System Description and Proposed Operation

New Turbine and Generator

Hydropower Alternatives

- Remote location
- Off-grid facility
- On-site generation is the only practical source of electrical power
- Generator can be driven by
    1. Water
    2. Propane
    3. Diesel

Clearly, hydro-power is the preferred and best alternative.

Project Impacts

- Hydro vs. Fossil Fuel.
- Mature project - no construction in project area.
- Upgraded hydro-generation unit – more power per unit of water flow.
- Impact on fish – none per USFS DNA study.
- Reduction in water flow in McCorkle Creek between diversion and powerhouse. However, water used for hydro-generation is non-consumptive, and minimum stream-flow is maintained below diversion.

Possible Studies – Discussion

There have been no issues or potential studies identified that are associated with the currently licensed Big Creek Project. There are no known negative environmental impacts to the resource area that are identified as possible areas for further study. This project was installed and became operational almost 49 years ago and is a fully mature installation with no additional modifications planned. With the system's small size, non-consumptive and non-polluting use of water and mandatory minimum stream bed flow requirements, there just isn't much that can go wrong and damage the environment, wildlife, etc.

The turbine and generator replacement previously described will allow more power production from a renewable hydro energy source and reduce emissions from the backup/emergency fossil fuel powered generator, providing a positive improvement in area air quality. The IAF has invested $50,000 in upgrading to an efficient hydro-generating source because of the real environmental benefits that will be realized.

Site Visit – Discussion

Adjourned

Thank you to all who participated in this Big Creek Project Joint Meeting!