

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR PRELIMINARY PERMIT
BIG RUN PUMP STORAGE HYDRO
PROJECT

FERC PROJECT NO. P-14889-000

Applicant:
FreedomWorks, LLC

Agent:
Tim Williamson

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BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

Application for Preliminary Permit

1) FreedomWorks, LLC applies to the Federal Energy Regulatory Commission for a preliminary permit for the proposed Big Run Pump Storage Hydro Project, as described in the attached exhibits. This application is made in order that the applicant may secure and maintain priority of application for a license for the project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for a license.

2) **The location of the proposed project is:**

State or territory: WV
County: Tucker County
Township or nearby town: Parsons
Stream or other body of water: N/A

3) **Applicant's Contact Information**

The exact name, business address, and telephone number of the applicant are:

FreedomWorks, LLC.
Tim Williamson
525 Wren Lane
Harpers Ferry, WV 25425
Email: TimWilliamson@FreedomWorks.net
Phone: 202-369-6324

The exact name and business address of each person authorized to act as agent for the applicant is:

Tim Williamson
525 Wren Lane
Harpers Ferry, WV 25425
Email: TimWilliamson@FreedomWorks.net
Phone: 202-369-6324

4) **Statement of Authority:**

FreedomWorks, LLC. is a Corporation located in Harpers Ferry, WV. It is organized under the laws of the State of Delaware and as such, the Applicant is qualified under §4(e) of the Federal Power Act (FPA) to hold hydroelectric licenses issued under Part 1 of the FPA. The Applicant is not claiming preference under §7(a) of the FPA at this time.

5) **The proposed term of the requested permit is 48 Months.**

6) **Existing Dams or Other Project Facilities**

There are no existing dams or project facilities.

A: **Additional Information (18 CFR 4.32)**

1) **The Applicant intends to obtain and will maintain and proprietary rights necessary to construct operate or maintain the project.**

2) The names and mailing addresses of entities affected or used by the proposed project are provided below.

- a) County in which the project would be located:
 - i. Tucker County

3) City, Town or similar local political subdivision

- a) Every City, town or similar political subdivision in which the project would be located:

**197 Center Street
Hambleton, WV 26269
Tucker County**

- b) Every city, town or similar political subdivision that has a population of 5,000 or more people and is located within 15 miles of the project:

There is no city, town or similar political subdivision that has a population of 5,000 or more people within 15 miles of the project.

4) Every irrigation district, drainage district, or similar purpose political subdivision:

- a) in which any part of the project, and any Federal facilities that would be used by the project, would be located, or
- b) that owns, operates, maintains, or uses any project facilities or any Federal facilities that would be used by the project:

There are no known irrigation or drainage districts we are aware of and no federal facilities that would be used in the project.

5) Every other political subdivision in the general area of the project that there is reason to believe would likely be interested in, or affected by, the application:

U.S. Forest Service - Monongahela National Forest

200 Sycamore Street
Elkins, WV 26241

NextEra Energy Resources

Attn: Mountaineer Wind Energy Center
P.O. Box 14000
Juno Beach, FL 33408

WV Water Development Authority

1009 Bullitt Street
Charleston, WV 25301

WV Department of Natural Resources

324 Fourth Avenue
South Charleston, WV 25303

6) All Indian tribes that may be affected by the project.

The Applicant is not aware that the Project affects any Native American tribe.

1.1 General Project Description

Based on current conceptual design, the Big Run Pump Storage Hydro Project involves the construction of a closed-loop pump-storage hydroelectric generating facility capable of producing approximately 1,000 MW using two new approximately 1200-acre sized reservoirs. The basic configuration would include:

- As many as four pumping/generating units contained in as many as one powerhouse
- As many as one Upper Reservoir
 - One approximately 1213-acre upper reservoir created through construction of a circular dam and/or dike retaining approximately 119,387 acre-feet of water
- As many as one Lower Reservoir
 - One approximately 1061-acre lower reservoir created through construction of a semi-circular dam retaining approximately 113,398 acre-feet of water
- A 345-kilovolt primary transmission line that transmits project power from the powerhouse to the existing Big Run substation (a non-project structure) located east of the upper reservoir
- As many as four 144" Penstocks approximately 7,000 feet long. A connection will join the two reservoirs.
- Lower Reservoir will have a gross head of approximately 1,100 feet.
- **The location of emergency spillways is unknown at this time and will be included in the study phase 2.2.7.**

The lower reservoir area is currently owned by U.S. Forest Service.

The Applicant anticipates that the lower reservoir will be filled from local inflow including initial charge from Cheat River and groundwater inputs and operated at a surface elevation between 2250-3350 feet above mean sea level (msl).

Preliminary estimates indicate both the new upper and lower reservoirs will each have a total surface area of approximately 1200 acres and hold approximately 115,000 acre-feet of water storage at a pool. Both reservoirs would potentially be constructed using dam roller compacted concrete or earth and rock excavated from nearby mine site reclamation. Anticipated surface elevation of the upper reservoir is 3350 feet msl. Anticipated surface elevation of the lower reservoir is 2250 feet msl.

Additional technical data for pump storage components and infrastructure is provided in Table 1.1 below.

The Applicant has identified that Dominion Energy and First Energy own one 500-kV transmission line and one substation nearby the Project boundary.

The Applicant has identified that First Energy owns one 500-kV transmission line and one 230-kV transmission line and one substation nearby the Project boundary.

The Applicant has identified that NextEra Energy Resources owns one substation nearby the Project boundary.

The average annual generation from this project would be approximately **4,380,000 MWh** and the cost of the studies vary from \$150,000 to \$400,000.

1.2 RESERVOIRS

The estimated number, surface area, storage capacity, and normal maximum surface elevation (mean sea level) of any reservoirs, whether existing or proposed, that would be part of the project:

Upper Reservoir

One, with a surface Area 1,213 acres
Storage Volume approximately 119,387 acre-feet of water
Surface Elevation approximately 2,250 feet above mean sea level
Composition of Dam Roller-compacted Concrete or Rock-Fill

Lower Reservoir

One, with a surface Area 1,061 acres
Storage Volume approximately 113,398 acre-feet of water
Surface Elevation approximately 3,250 feet above mean sea level
Composition of Dam Roller-compacted Concrete or Rock-Fill

1.3 EXISTING OR PROPOSED TRANSMISSION LINES

The estimated number, length, voltage, interconnections, and, where applicable, age and condition, of any primary transmission lines whether existing or proposed, that would be part of the project [see 16 U.S.C. 796(11)];

- (1) There is one existing transmission line located near the proposed project site. American Electric Power owns one circuit near the site. NextEra Energy Resources Mountaineer Wind Energy Center owns one circuit near the site. The Parsons to Backbone Mountain 138 kV circuit is 4 miles from the project.
- (2) There are three existing transmission lines located near Mt. Storm in proximity to the proposed project site. Dominion Energy owns one circuit near the site. Dominion Energy Resources and First Energy jointly own one circuit near the site. The Mt. Storm to Doubs 500 kV circuit is 17 miles from the project and the Mt. Storm to Meadow Brook 500 kV circuit is also 17 miles from the project site.
- (3) **These sites are located in the general map. While we have only drawn 1 transmission interconnection line to the Mt. Storm Station, we note other possibilities exist within the project boundary indicated and labeled on the map.**
- (4) The Applicant will conduct studies to determine the location, number of circuits, voltage, and configuration of the project's interconnection with the regional utility network.
- (5) This project will also evaluate the use of any Transmission Circuits developed and related to the Ned Power Wind Farm which is adjacent to the project.
- (6) A PJM Generation Interconnection Study is being planned as part of this study.

1.4 GENERATING EQUIPMENT

Hydroelectric Plant

- (1) Nominal Capacity 1,000 MW
- (2) Number of Units 4 units
- (3) Composition Francis or Pelton
- (4) Diameter 144"

Penstocks

- (5) From Upper Reservoir 4- 144" approximately 7,000 feet

Powerhouse

- (6) Height approximately 25 feet
- (7) Length approximately 600 feet
- (8) Width approximately 50 feet

Average Annual Energy Production

Assuming a twenty-four-hour generation time and based on preliminary design of 500 MW rated-power, the Applicant anticipates an energy output of about **12,000 MWh** per day, or **4,380,000 MWh** annually.

1.5 LANDS OF THE UNITED STATES

- The project area and the proposed project boundary are located on lands of the United States Forest Service.
- There are no known areas within or in the vicinity of the proposed project boundary that are included in or have been designated for study for inclusion in the National Wild and Scenic Rivers System.
- There are no areas within the proposed project boundary that are known to be under the provisions of the Wilderness Act or that have been designated as wilderness area, recommended for designation as wilderness area, or designated as wilderness study area by the United States Forest Service, or United States Department of Interior .

1.6 PUBLIC INTEREST

- The proposed Big Run Pump Storage Project will be achieved by installing a new hydroelectric generator which will utilize modern, state-of-the-art technology to optimize the clean, renewable electricity generating potential of site in a manner that best develops conserves and utilizes this resource for beneficial public use. The proposed project will fulfill the public interest for a less expensive, more reliable and environmentally sound source of renewable energy while creating energy jobs in an economically depressed area which has lost energy related jobs in the transition away from coal.
- The hydraulic capacity of the Big Run Pump Storage Project will develop, conserve, protect and utilize in the public interest the public water resources of the region without damage to the environment. Development of the proposed project will reduce the acid rain and greenhouse effects associated with coal and oil fueled power plants that currently supply a significant portion of the energy needs of West Virginia.
- The benefits of the proposed Big Run Pump Storage Project are directly in keeping with the State of West Virginia's Energy Plan to become the leader in transitioning the United States to a new energy future by supporting new renewable energy projects that create jobs and maximize the States natural resources.
- Providing reliable peak energy on demand
- Creating Emergency and Pre-Emergency Load Response for PJM
- Creating Quick Start Reserves and grid storage for the PJM Grid
- Providing a means to store excess energy especially from intermittent renewable sources such as the Mountaineer, NedPower and New Creek Wind Farms at times when demand is low and large thermal plants cannot shed load.
- Enhancing local economics through creation of jobs during construction and for operations.

EXHIBIT 2 DESCRIPTION OF STUDIES

2.1 STUDIES PROCESS

The Applicant has reviewed substantial topographical, parcel ownership, municipal, economic as well as the mechanical and environmental aspects of the project and conducted a field visit.

The applicant will utilize resources to provide financial, planning and water quality related studies.

2.2. STUDIES TO BE COMPLETED

The studies and related work to be completed will provide the applicant with the necessary information to prepare the application for license and to progress the concept development plan to final design. All work will be conducted in a manner so as not to affect cultural resources or endangered species, if any, and to cause minimal disturbance to the land and water. Any land altered or disturbed will be adequately restored to the satisfaction of the owner. The applicant proposes to carry out the studies below to determine the feasibility of the proposed project and support an application for license.

As the studies are being conducted the applicant will consult with appropriate federal, state, municipal and local agencies. The exact scope and scheduling of studies will be coordinated in accordance with consultation related to the integrated licensing process.

2.2.1 GENERAL PLAN AND SURVEY

A general plan and survey of the proposed project will be prepared to delineate the site topographic characteristics and approximate size, location and elevations of existing and proposed facilities.

2.2.2 GEOTECHNICAL STUDIES

The applicant will have a geotechnical engineer review existing geotechnical information and perform a current review and analysis of the project site. The geotechnical engineer will also analyze the geotechnical suitability of the foundation material for construction of any potential location for powerhouse and other structures.

2.2.3 WATER QUALITY STUDIES

Data collection for water quality will consist of reviewing existing water quality of the lower reservoir as well as performing new field sampling. Water quality characteristics of interest will primarily be related to acidity which may affect the Generation equipment.

2.2.4 RECREATION STUDIES

Analysis will be performed to assess potential use of the project area for to ensure that do not interfere with current recreational activities.

2.2.5 HISTORIC AND ARCHAEOLOGICAL STUDIES

There are no records of archaeological studies as the land has been primarily used for timber logging. Should any such studies exist, the applicant will have a qualified cultural resources firm review any previous studies and other existing documents, as required, to determine if any additional studies are warranted at this time.

2.2.6 FISHERIES STUDIES

As this project is a closed-loop Pump Storage Hydro Project, field investigation will not include a review of fisheries unless the project feasibility study determines that access to an existing stream or river is necessary to perform the initial charge.

2.2.7 PRELIMINARY DESIGN STUDIES

Preliminary engineering design of the proposed powerhouse and electrical faults will be prepared to delineate the scope, cost and schedule for construction. **The location of emergency spillways will be determined and added within the project boundary.** A projection of energy generation will also be made. The preliminary design data will be utilized in the economic analysis to be preformed for the proposed project.

2.2.8 ECONOMIC ANALYSES

Economic analyses of the proposed project will be performed. The analysis will include estimates of power production and power sales rates. A transmission interconnection study will be performed to determine best location for interconnection and feasibility. The Economic criteria such as net revenue, net present value and benefit/cost ratio will be determined.

2.3 ROADS

No new roads will be built for the purpose of conducting the studies referenced herein.

2.4 NEW DAM CONSTRUCTION

The proposed project contemplates the construction of as many as two new reservoirs. Accordingly, The Applicant will be working with approved State of West Virginia Dam consultants to properly determine the location, size and characteristics of the required reservoirs.

2.5 SCHEDULE FOR STUDIES

The following schedule has been developed for conducting the studies and consultations specified herein and leading up to the submission of a license application to the Commission at the conclusion of the requested 48-month term of the permit. This schedule assumes that a permit will be issued to the Applicant by December 7, 2018. Based on the work to be performed under the requested permit, the Applicant will make a determination as to whether it is appropriate to follow the Integrated Licensing Process or request a waiver for either the Alternative or Traditional Licensing Process.

Permit Issued	Dec 2018
Perform Studies	Jan 2019-Jan 2023
Complete Initial Environmental Analysis	Jan 2021
Initiate License Process	June 2021
File License Application at FERC	Jan 2022

EXHIBIT 3 COST AND FINANCING

3.1. ESTIMATED COSTS

The estimated costs of carrying out and preparing the studies, investigations, tests, surveys, maps, plans and specifications identified in Exhibit 2 is \$178,500.00 allocated as follows.

General Plan and Geotechnical Studies	\$100,000.00
Water Quality Studies	\$1000.00
Recreational Studies	\$7,500.00
Historic and Archaeological Studies	\$0.0
Fisheries Studies	\$0.0
Preliminary Design Studies	\$35,000.00
Economic and Market Analysis	\$35,000.00
Total	\$178,500.00

3.2. FINANCIAL SOURCES

The applicant will provide the necessary financing to conduct the activities identified in Exhibit 2.

3.3. PROPOSED MARKET

Through the development of the proposed Big Run Pump Storage Hydro Project, the applicant will provide an additional source of clean, renewable energy that will provide added stability and capacity to the PJM and or State of West Virginia's energy markets. It is proposed that the electricity generated at the Big Run Pump Storage Hydro Project will be offered to the State or sold at market rates to either an electric utility marketer or through the PJM Independent System Operator for transmission to the electric grid. Based upon available feasibility and marketing studies conducted for the electric power market in the vicinity of the proposed project, project revenues are expected to be adequate to construct and operate the Big Run Pump Storage Hydro Project and to yield a reasonable rate of return on investment.

3.4. NOTARIZED STATEMENT OF SUBSCRIPTION AND VERIFICATION

This (application, etc.) is executed in the:

State of: West Virginia

County of: Jefferson

by: Tim Williamson
525 Wren Lane
Harpers Ferry, WV 25425

being duly sworn, depose(s) and say(s) that the contents of this (application, etc.) are true to the best of (his or her) knowledge or belief. The undersigned applicant(s) has (have) signed the (application, etc.) this 15 day of October, 2016.

By: _____

Subscribed and sworn to before me, a Notary Public [Notary Public, or title of other official authorized by the state to notarize documents, as appropriate] of the State of WV this day of October, 2018.

/SEAL/ [if any]

Victoria C. Walton
(Notary Public, or other authorized official)



4.1 FERC FORM 587

Form FERC-587
OMB No. 1902-0145
(Expires 10/31/2018)

LAND DESCRIPTION

Non-Public Land States
(and Non-Rectangular Survey System Lands in Public Land States)

1. STATE WV 2. FERC PROJECT NO. P-14889-000

3. FEDERAL RESERVATION: Monongahela National Forest

4. FEDERAL LAND HOLDING AGENCY: U.S. Forest Service

5. Counties: Tucker County

6. Check one:
 License
 Preliminary Permit

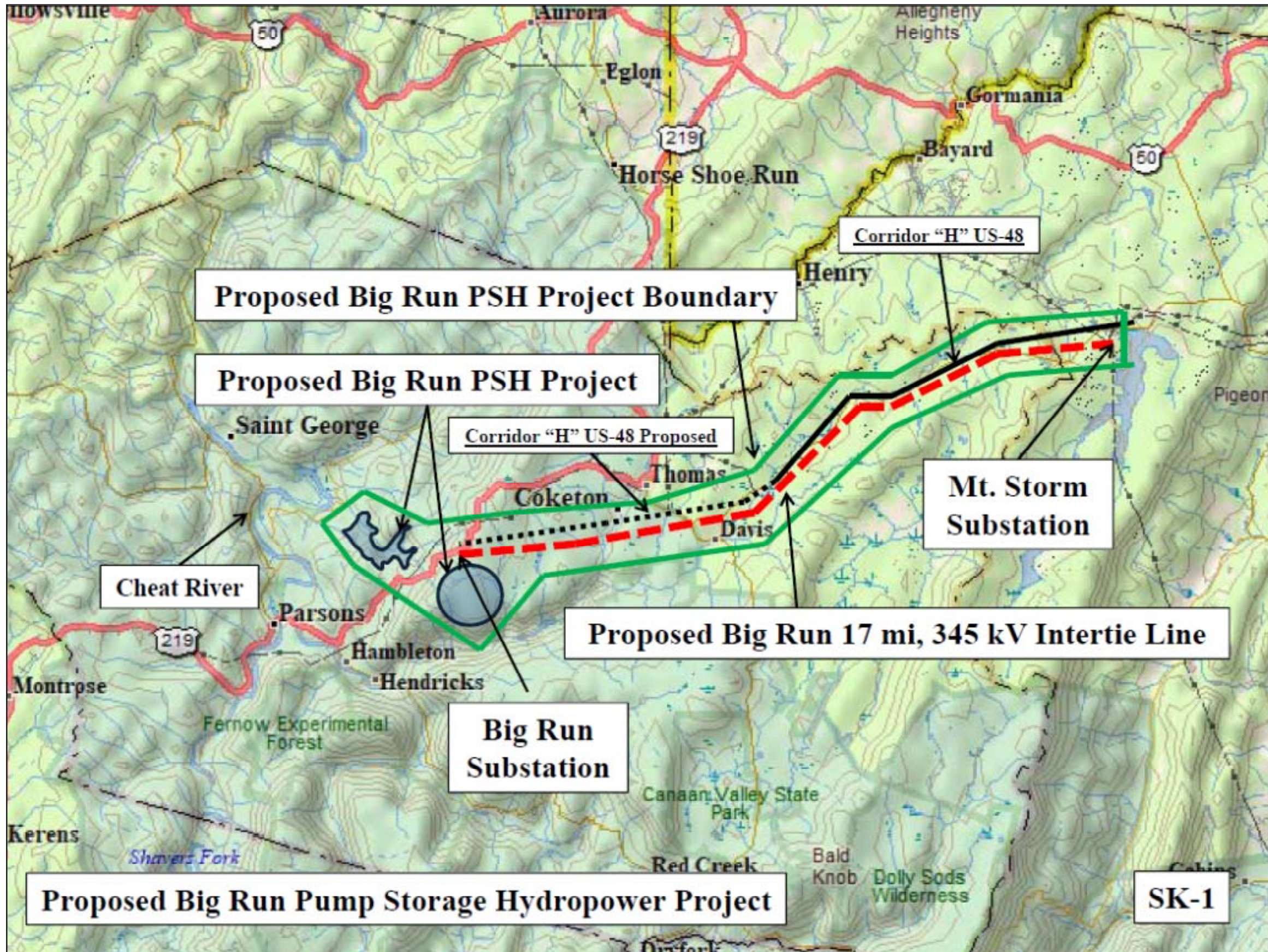
Check one:
 Pending
 Issued

If preliminary permit is issued, give expiration date: _____

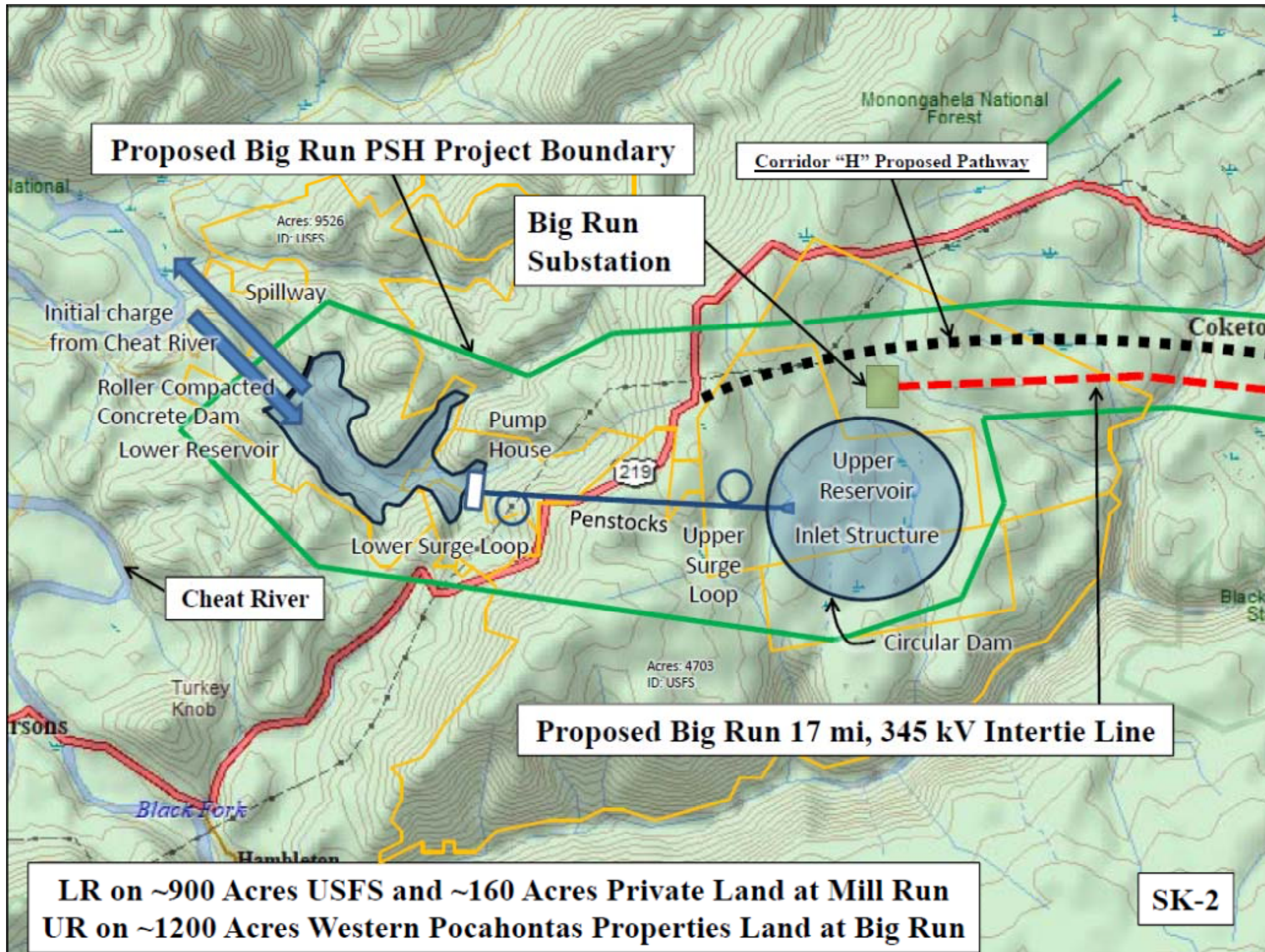
7. Federal Tract(s) Identification	8. Exhibit Sheet Number(s) or Letter(s)
USFS - 4703 Acres	Exhibit 4.2; SK-1 through SK-10
USFS - 9526 Acres	Exhibit 4.2; SK-1 through SK-10

9. contact's name Tim Williamson
telephone no. (202-369-6324)
date submitted October 15, 2018

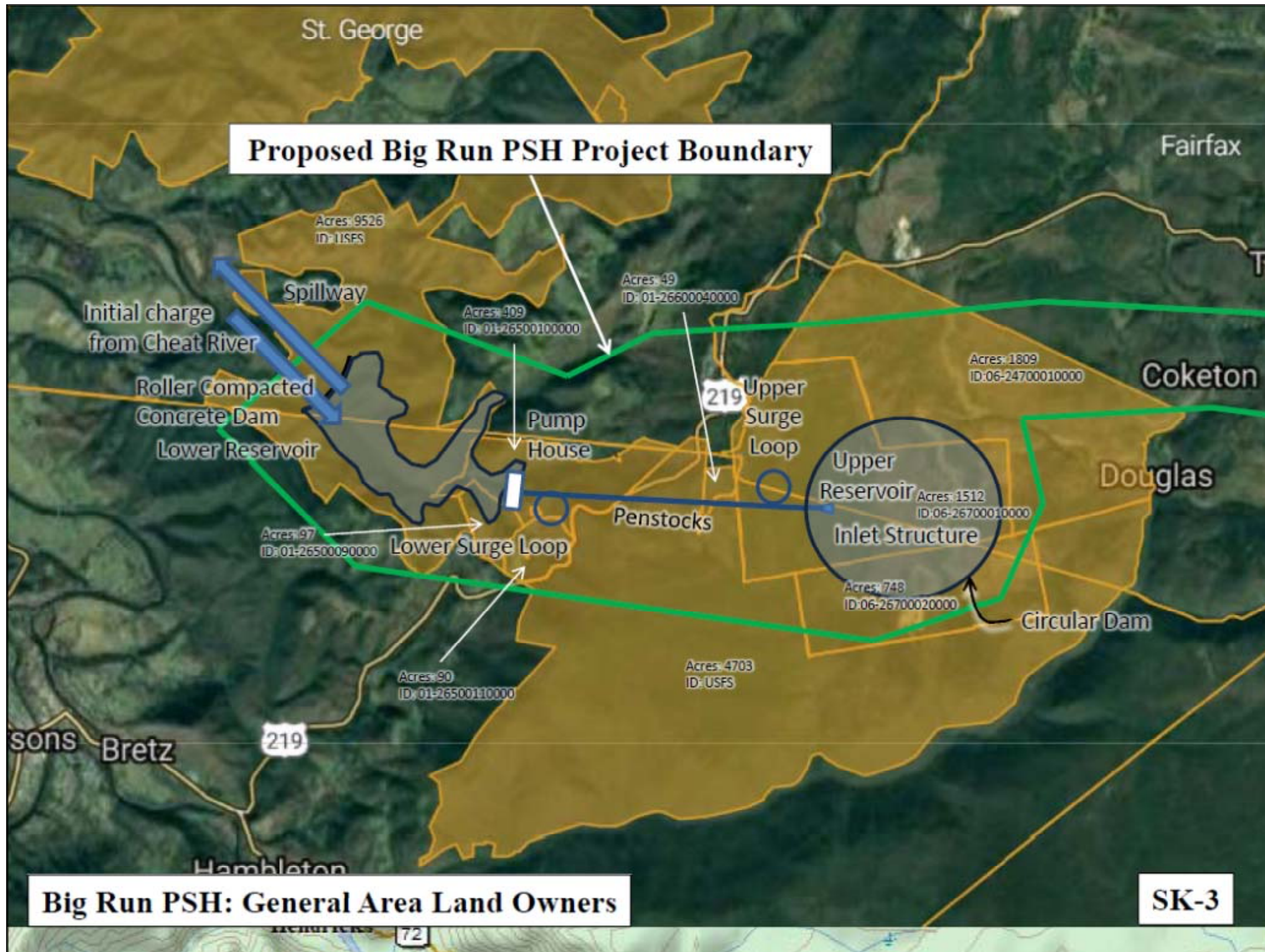
This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.



SK-1 Big Run Pump Storage Hydro Project General Facility Area



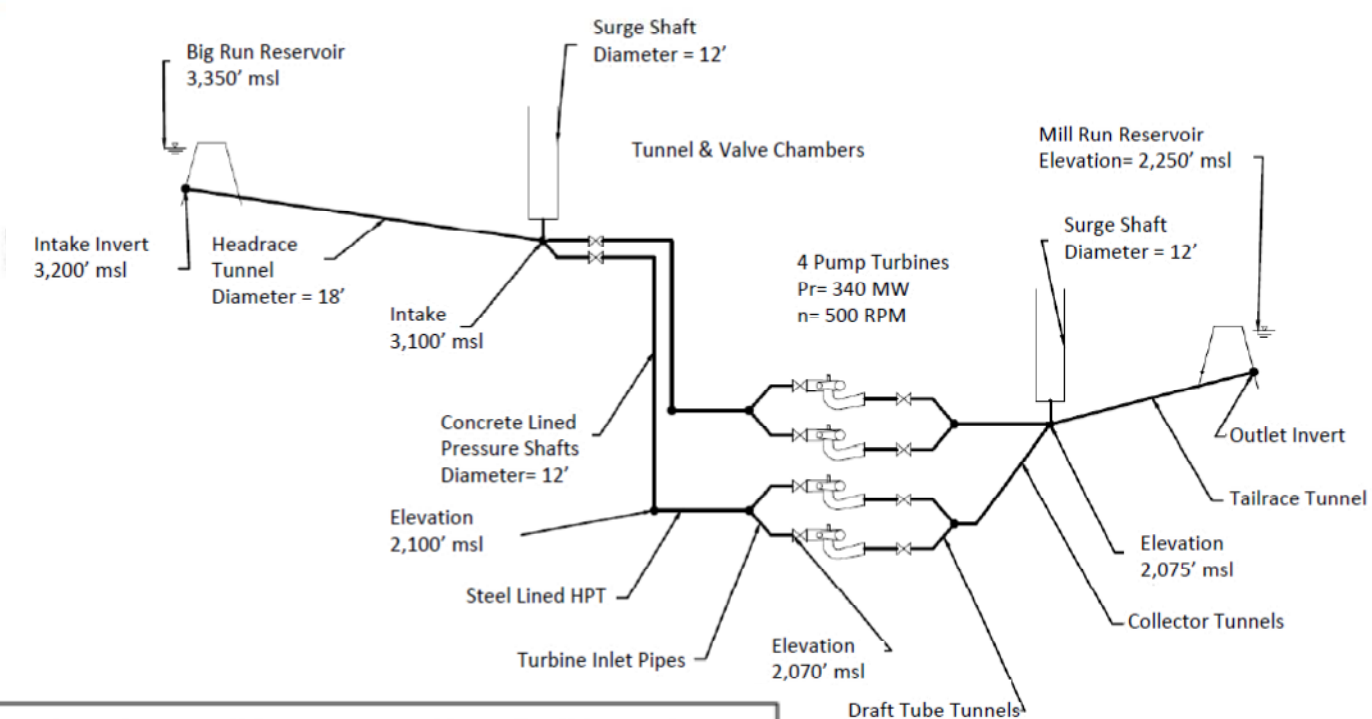
SK-2 Big Run Pump Storage Hydro Project Detailed Facility Area



Big Run PSH: General Area Land Owners

SK-3

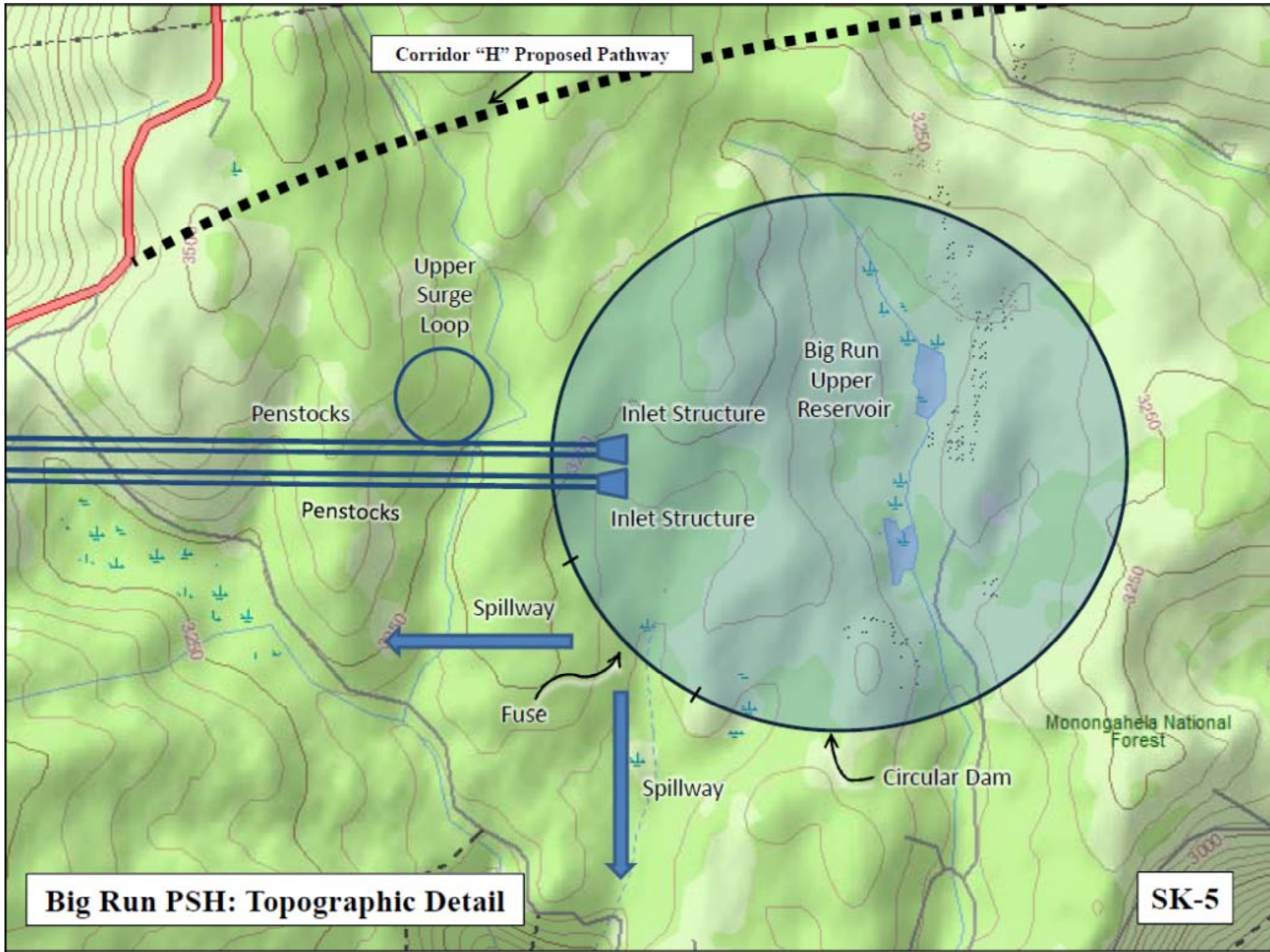
SK-3 Big Run Pump Storage Hydro Project General Area Land Owners



Big Run Project Schematic & Section

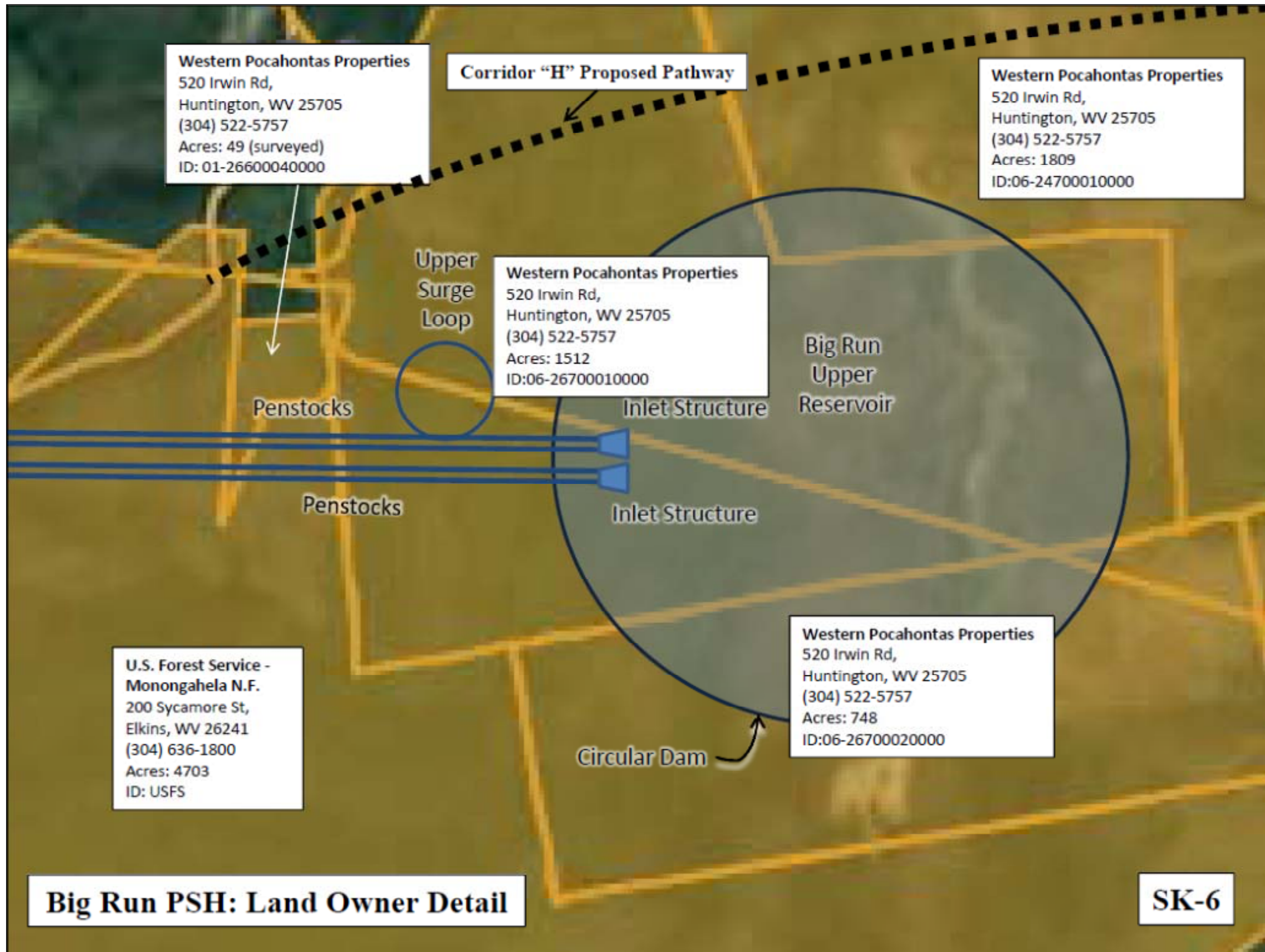
SK-4

SK-4 Big Run Pump Storage Hydro Project Schematic and Section

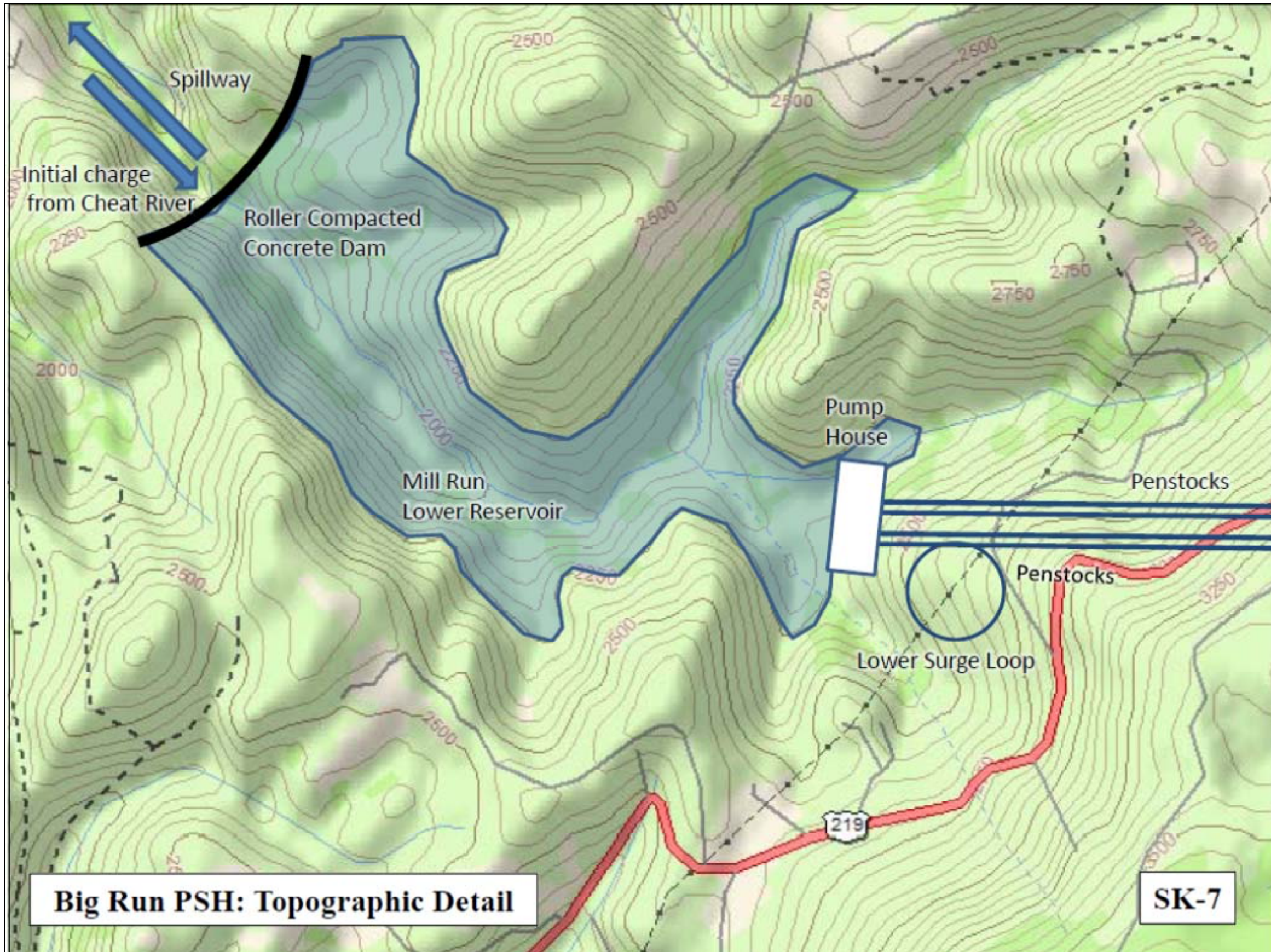


Big Run PSH: Topographic Detail

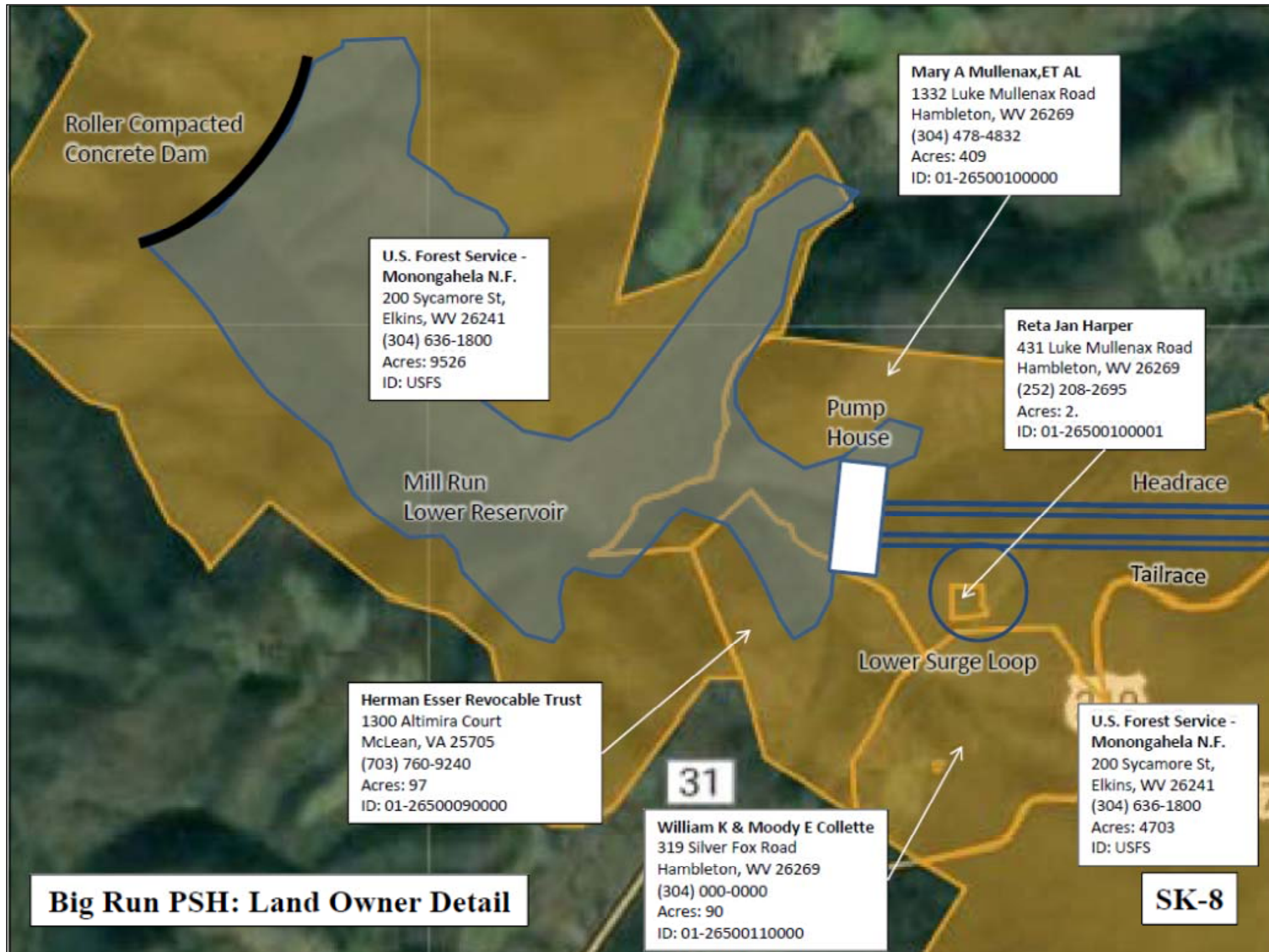
SK-5



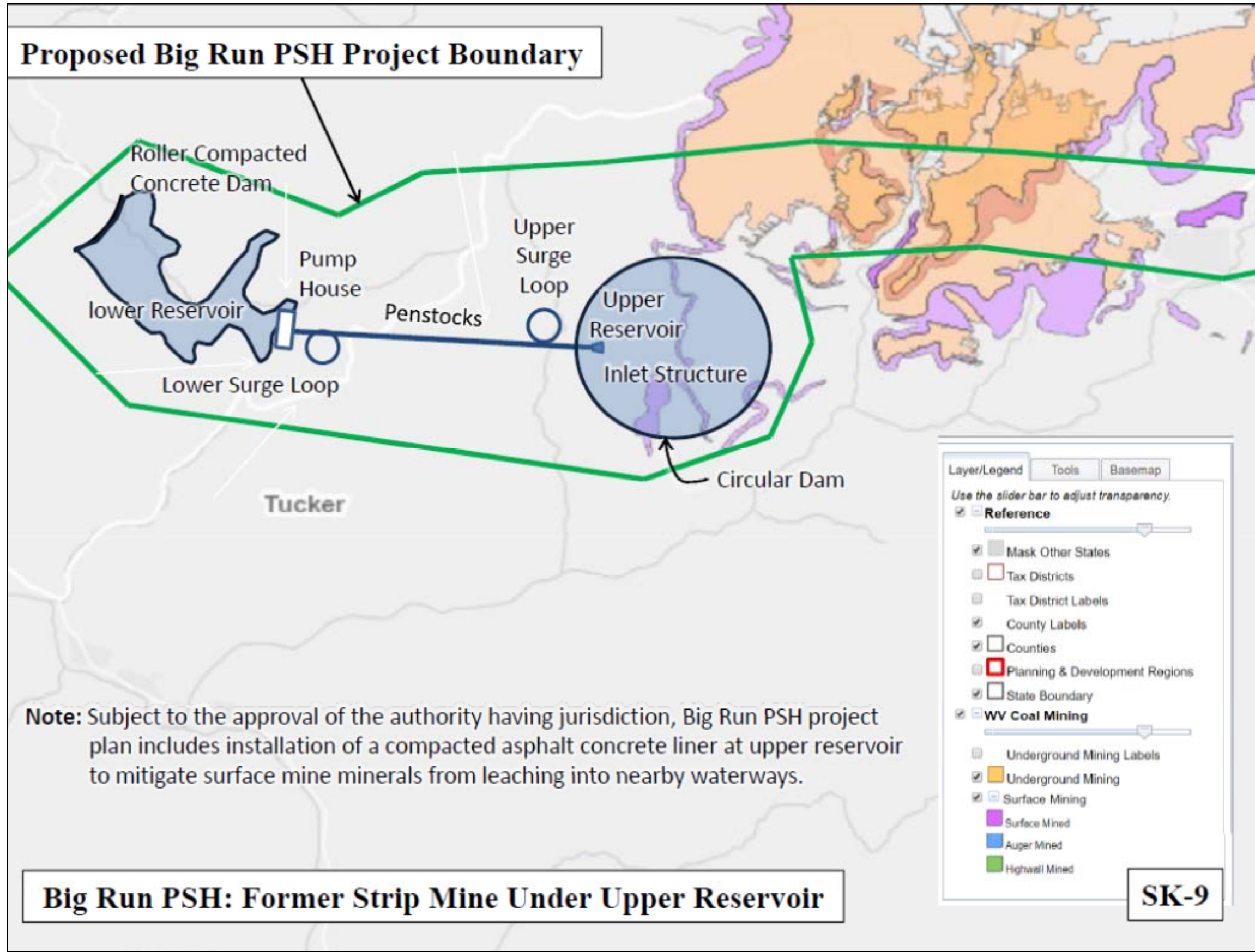
SK-6 Big Run Pump Storage Hydro Project Land Owner Detail

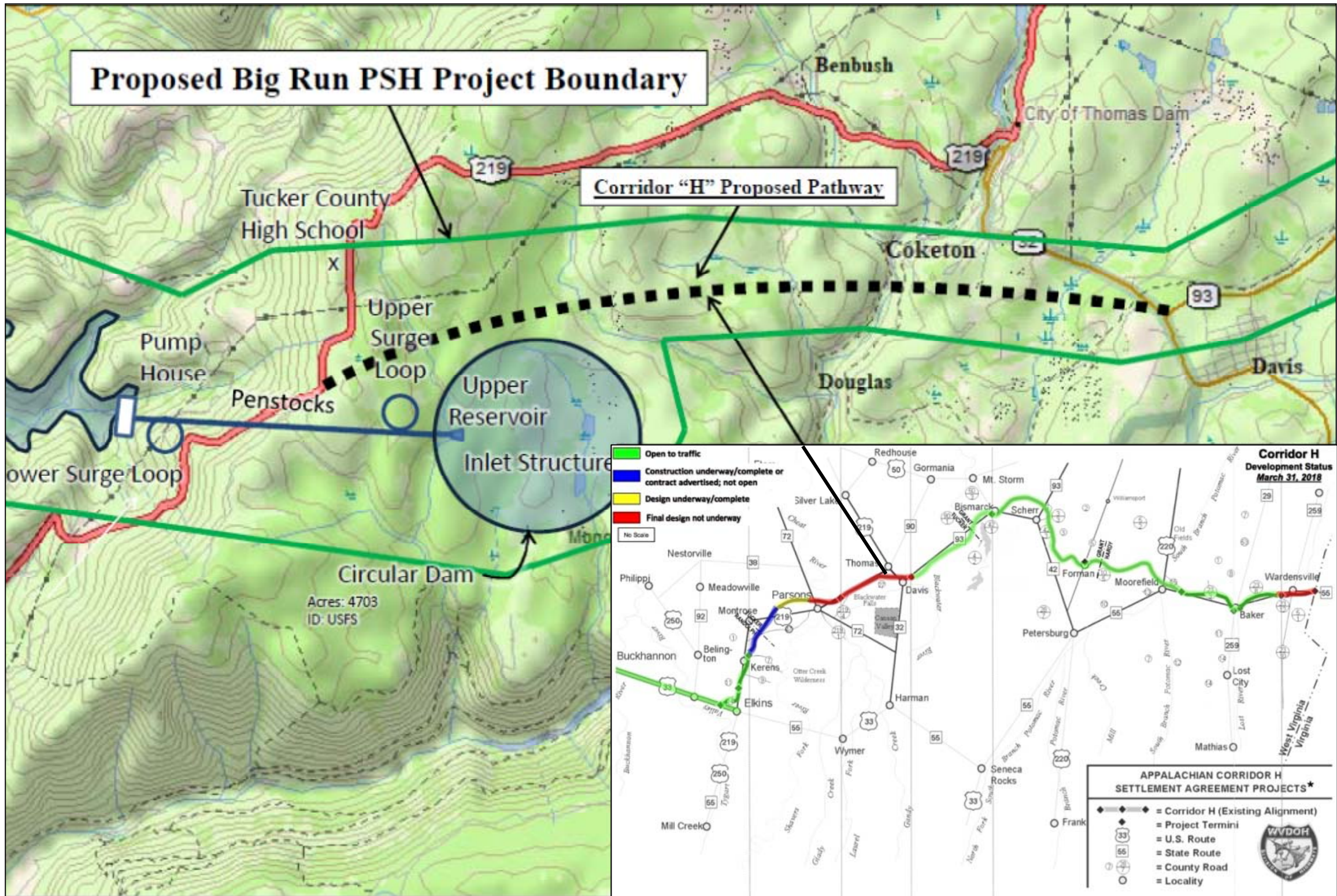


SK-7 Big Run Pump Storage Hydro Project Topographic Detail



SK-8 Big Run Pump Storage Hydro Project Land Owner Detail





Big Run PSH: Indications of Corridor "H" Proposed Pathway

SK-10