

**APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)**

Project Name: Smith Mountain Project

FERC NO.: 2210

A. APPLICATION

1. Application Type: Application for Amendment of Order Approving Non-Project Use of Project Lands and Waters: Water Withdraw Increase Issued October 10, 2008
2. Applicant: Appalachian Power Company
3. Water Body: Smith Mountain Lake
4. Nearest Town: Bedford
5. County: Bedford
6. State: Virginia

B. PURPOSE AND NEED

Appalachian Power Company (Appalachian), licensee for the Smith Mountain Project (Project), seeks to obtain authorization from the Federal Energy Regulatory Commission (Commission) to grant permission to Bedford Regional Water Authority (BRWA) to increase its withdrawals of water from Smith Mountain Lake for domestic purposes from the current approved maximum daily rate of 2.999 MGD to a maximum daily rate of 12 MGD. Under the conditions of Order Approving Non-Project Use of Project Lands and Waters: Water Withdraw Increase issued October 10, 2008 for the Smith Mountain Project by the Commission, Appalachian granted permission for the Bedford County Public Service Authority (BCPSA) to withdraw water at aforementioned rates from Smith Mountain Lake. Since the issuance of the October 10, 2008 Order, the BCPSA has been replaced by the BRWA due to the city designation for Bedford, Virginia being changed to a town. That change in designation resulted in the water supply systems for the former city and that for Bedford County being combined to form the BRWA. All

agreements between Appalachian and BCPSA regarding the withdrawal of water for domestic purposes from Smith Mountain Lake remain in effect and have been transferred to BRWA. Growth in the area serviced by BRWA has resulted in the identification of the need to expand water withdrawal capabilities for BRWA. The additional withdrawal of water by BRWA will be accomplished under the conditions of the existing agreements between BRWA and Appalachian as modified to accommodate the expanded rates of water withdrawal.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Proposed Action

Appalachian proposes to grant permission to BRWA to install two thirty inch diameter raw water intake pipes and associated forty-eight inch diameter intake screens within the project boundary for the Smith Mountain Project. The proposed intake pipes will replace the existing twelve inch diameter intake pipe and intake screen located in the same vicinity. The proposed intake pipes will provide raw water to a pump station located adjacent to the location for the intake pipes and outside of the project boundary. The raw water pump station, as well as the proposed intake pipes, are to be located on Lakewood Drive, south of High Point Road and west of State Route 654 in Bedford County, Virginia which is the same location for the existing intake pipe and structure. The location for the proposed intake is shown on the figures attached to this Environmental Assessment (EA).

A preliminary plan and cross-section of the proposed intake pipes is presented on Figure No.2 attached as part of this EA. As depicted, the proposed intake pipes are to be located within approximately seventy-five feet of the existing intake pipe and are planned to extend from the 800 foot contour approximately 100 to 125 feet into Smith Mountain Lake. The upper intake is to be at elevation 780 feet NGVD while the lower intake is to be at elevation 772 NGVD. The intake screens are to be designed so the screen openings are not wider than one millimeter, are to be located in excess of four feet above the lake bottom, and have a minimum through screen intake velocity equal or less than 0.50 feet per second.

2. Action Alternatives

As stated in the "Fact Sheet" included in the attachments to this EA and prepared as part of the Draft Modification of Virginia Water Protection (VWP) Individual Permit 96-0707 for the proposed work (also attached to this EA), various alternatives to the installation of the proposed intake pipes were considered. From the assessments made, the determination of the Virginia Department of Environmental Quality (VDEQ) is that the proposed action presents the best option.

3. No-Action Alternative

Should the Commission choose to deny the request, BRWA would be required to obtain water from other sources that have been identified as being less attractive.

D. CONSULTATION

1. Agency Consultation

As part of the review process related to the application for the Modified VWP Individual Permit, comments were requested by VDEQ from the following State agencies: Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Department of Conservation and Recreation (VDCR), Virginia Department of Health (VDH), and Virginia Marine Resources Commission (VMRC). The comments received by VDEQ from the listed agencies are summarized in the draft VWP Individual Permit "Fact Sheet" included as part of this EA.

Information was requested by the U.S. Army Corps of Engineers (USCOE) from BRWA. Responses to the questions raised by USCOE prepared on behalf of BRWA are included also in the Draft Modification of VWP Individual Permit "Fact Sheet".

As part of the filing to the Commission for approval of BRWA's proposal, consultations with agencies and other stakeholders will be expanded to include the U.S. Fish and Wildlife Service (FWS), local governments representing both project and downstream interests, and non-governmental organizations also representing project and downstream interests.

2. Public Notice

As part of the requirements for obtaining the Modification of VWP Individual Permit 96-0707, owners of adjacent properties as well as the local governments were provided notification of the proposed work. Those notifications were accomplished in accordance with VDEQ guidelines. In addition, a public meeting was held regarding the project on February 15, 2011. Summaries of the notifications, comments received, and the public meeting, are included in the Draft Modification of VWP Individual Permit "Fact Sheet".

Also attached to this EA are copies of the press release issued by BRWA on July 16, 2013 regarding the issuance of the Draft Modification to VWP Individual Permit 96-0707. That notice was published in local newspapers including the Bedford Bulletin, the Lynchburg News Advance and the Smith Mountain Eagle. Copies of the related articles as well as excerpts from televised coverage regarding the notice are attached to this EA.

E. AFFECTED ENVIRONMENT

1. General Project Description

The Smith Mountain Development contains an upper pumped storage development (Smith Mountain) and a lower conventional development (Leesville) and is located on the Roanoke River in south-central Virginia. The proposed raw water intake is to be located within the Smith Mountain Development that includes a reservoir encompassing 20,260 acres and 500 miles of shorelines at an operating elevation of 795 feet NGVD. At elevation 795 feet NGVD, the reservoir for the Smith Mountain Development has a total storage volume of 1,082,480 acre-feet. The project boundary for the Smith Mountain Development is the 800 foot contour elevation.

The terrain around the Smith Mountain Development is rolling to hilly and contains primarily forestland with some grasslands and croplands. Pine and hardwood species are mixed with a secondary growth forest along the reservoir shoreline. The area supports a population of wild turkey, whitetail deer, and upland game species, including rabbit and squirrel. Smith Mountain Lake is surrounded by a variety of recreation facilities that support numerous activities including boating, fishing, swimming, picnicking, camping, and golfing. The Smith Mountain Lake State Park lies along the east side of the reservoir and the Smith Mountain Wildlife Management Area lies along the south side of the reservoir.

2. Proposed Raw Water Intake Site Area

Approximately fifty feet north of the location of the proposed water intake pipes exists a 12-inch diameter HDPE raw water intake pipe that extends approximately 100 feet into Smith Mountain Lake from the shoreline at the normal operating level of 795.0 NGVD. Connected to the pipeline is a 42-inch diameter by 48-inch long wedgewire intake screen suspended by a buoy that keeps the intake screen a minimum 5 feet below the reservoir surface. The existing raw water intake connects to a raw water pump station located outside of the Project Boundary for the Smith Mountain Project. The pump station delivers water to the BRWA water treatment facility located approximately 0.3 miles from the site. Above the normal operating level for the Smith Mountain Development (795.0 ft. NGVD) in the vicinity of the water intake facilities are a number of single family residences. The shoreline has been developed and erosion protection provided consisting primarily of rip-rap. The depth of the water in the area of the existing and proposed intakes is approximately 30 feet. The bottom of the lake has a deep slope that begins immediately at the shoreline and extends out to a depth of approximately 100 feet at the deepest point. According to the Shoreline Management Plan (SMP) for the Smith Mountain Project, the related shoreline is designated for "Low Density Use" which allows for facilities provided for public benefit.

3. Fish and Aquatic Resources

The fish assemblage for Smith Mountain Lake includes more than forty indigenous and introduced species. Native sports species utilizing primarily littoral zone habitats include largemouth bass

(*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), sunfish (*Lepomis* sp.), crappie (*Pomoxis* sp.), and catfish (*Ictalurus* sp.) Multiple tournaments are held each year for a number of the aforementioned species. A number of sport fish taken in 2007 resulted in excess of 170 trophy fish citations for 15 species. Forage fish are dominated by gizzard shad (*Dorosoma cepedianum*) and the introduced anadromous clupeid, alewife (*Alosa pseudoharengus*). Other forage species include the young of the above listed native sports species as well as various cyprinids.

The Smith Mountain Development contains approximately 20,260 acres and 500 miles of shoreline. The total littoral habitat at full pond to 9 feet of depth is approximately 2,898 acres with an average width of 53.4 feet. Based upon surveys taken in 2006, the dominant littoral substrate is sand, followed by bedrock, clay and silt. Small cobbles and detritus were the primary sub-dominant substrates. Softer substrates were found in association with submerged aquatic vegetation (SAV), primarily in the back of coves.

A survey of SAV on Smith Mountain Lake was performed in 2006. A total of 29 SAV beds comprising 33.56 acres of Smith Mountain Lake were found. Most of the beds found were patchy with an average size of 1.16 acres with an areal coverage of approximately 46%. Submerged aquatic vegetation documented included the native species Nitella, Slender Pondweed, Chara, Sago Pondweed, and Water lily as well as non-native species such as Brittle Naiad, Brazilian Elodea and Curly Leaf Pondweed. The non-native Hydrilla was also documented within Smith Mountain Lake in 2007.

The shoreline of Smith Mountain Lake is extensively developed with primarily privately developed residential homes and condominiums. This development has resulted in the shoreline for the lake to have approximately 220.4 miles of riprap protection, 134.5 miles of undercut bank, and 51.2 miles of natural bank. Wetland and woody debris areas occur on approximately 31.2 miles of shoreline for Smith Mountain Lake.

4. Water Resources

The total drainage area into Smith Mountain Lake is 1,029 square miles. Water use within the drainage basin varies as it moves through urban, agricultural, and rural areas. The primary use of water with the Smith Mountain Project is primarily for power generation. Other uses include agricultural and domestic water purposes by individuals residing along Smith Mountain Lake, as well as golf courses, and other commercial operations. Individual use can be associated with watering lawns and gardens and other minor uses.

Presently, one domestic water intake is located within Smith Mountain Lake. That is the 2.99 MGD intake located at the proposed raw water intake site described in this EA. The referenced water withdrawal is accomplished in accordance with Order Approving Non-Project Use of Project Lands and Waters: Water Withdraw Increase issued October 10, 2008 by the Commission and existing VWP Individual Permit No. 96-0707 issued to BRWA. Water from the existing intake is treated at the existing BRWA treatment facility for domestic and commercial use. The counties surrounding the Smith Mountain Project (Bedford, Franklin, Pittsylvania, Roanoke, and Campbell, Virginia) along with the City

of Roanoke, Virginia are in the process of completing or have completed water system development plans for their jurisdictions. Within those plans, the Smith Mountain Project has been identified as a potential resource for raw water withdrawals. The average annual daily inflow to Smith Mountain Lake is estimated at 976 cfs. That estimate is based upon data collected from the following USGS gauging stations that monitor inflows to Smith Mountain Lake:

Roanoke River at Roanoke	Gage No. 02055000
Back Creek near Dundee	Gage No. 02056650
Blackwater River near Rocky Mount	Gage No. 02056900
Blackwater River near Union Hall	Gage No. 02057000

Historic average daily inflow values by month for Smith Mountain Lake are as follows:

<u>Month</u>	<u>Average Daily Inflow (MGD/cfs)</u>
January	790/1,222
February	952/1,473
March	1,116/1,727
April	1,024/1,585
May	700/1,083
June	505/782
July	332/514
August	375/580
September	342/529
October	429/663
November	462/715
<u>December</u>	<u>564/872</u>
<u>Annual Average</u>	<u>631/976</u>
<u>Max. Mean Daily</u>	<u>33,170/51,322</u>
<u>Min. Mean Daily</u>	<u>33/51</u>

VDEQ collects water quality information from various sites at Smith Mountain Lake. Assessment of the collected data determines the use attainment (support or nonsupport) for aquatic life, wildlife, public water supply, and recreational use. Six fish tissue collection sites provide data for determining attainment of fish consumption use. Virginia's Water Quality Standards (9 VAC 25-260-450 Roanoke River Basin, Roanoke Sub-basin) classify Smith Mountain Lake and its tributaries within five miles of the 795 feet NGVD operating pool as Class IV (Mountainous Zone) with public water supply designation. An additional special standard (9 VAC 25-260-350) designates Smith Mountain Lake and its tributaries (except the Roanoke River) as 'Nutrient Enriched Waters'. In addition, other tributary classifications upstream of the five-mile range are Class III (Non-tidal), Class V (Stockable Trout) or Class VI (Natural Trout) waters. Exceedances of the 0.05 mg/L total phosphorus threshold for reservoirs led to Smith Mountain Lake being designated a "Waters of Concern" for nutrient enrichment. VDEQ has indicated that this nutrient enrichment is primarily due to upstream urban nonpoint source contributions, sewage overflows, and agricultural activities in the upper reaches of Smith Mountain Lake. The bottom stratification layer of the reservoir between the Blackwater River confluence and Smith Mountain Dam, and extending up the Roanoke River arms of the reservoir, is considered by VDEQ to be impaired due to low dissolved oxygen levels < 4 mg/L. Those exceedances are considered by VDEQ to be a natural occurrence associated with stratification.

Under the conditions of Article 404 of Order Issuing New License issued December 15, 2009 by the Commission for the Smith Mountain Project and Order Modifying and Approving Water Management Plan Under Article 404 issued April 19, 2011, Appalachian utilizes an operation model to forecast future Smith Mountain Lake levels and adjust downstream flow releases based upon the probability of levels for Smith Mountain Lake elevations reaching certain levels in the future. Releases for the project are based upon the model and follow the flow release protocol as defined under Virginia Water Protection (VWP) Individual Permit No. 08-0572 which became effective April 1, 2010. A copy of the referenced VWP individual permit is included as an attachment to this EA.

5. Terrestrial Resources

Portions of the shoreline for Smith Mountain Lake are steep, and exposed bedrock is present in some of the steeper areas. Lawns and croplands are present along the portions of the shorelines that have been modified by the landowners. Approximately 61 percent of the total shoreline for Smith Mountain Lake is artificially protected primarily with riprap. In general, where development has taken place, significant portions of the riparian vegetation have been removed. However, relatively large areas of undisturbed forestland still exist in those areas where development has not taken place.

Wetlands are limited due to the steep topography, the extensive development along the shoreline, and bedrock geology of the area. Most wetlands are located at the end of coves where development has been limited as well as recreational boating. Some wetland areas have formed in the upper reaches of Smith Mountain Lake due to sediment inputs that have created shallow water areas with nutrient rich soils. No wetland communities have been identified in the vicinity of the proposed intakes.

6. Rare, Threatened and Endangered Species

Except for occasional transient individuals such as migratory birds, no federally listed or proposed terrestrial rare, threatened, or endangered species are known to exist within the project boundary for the Smith Mountain Project. However, the federally endangered Roanoke logperch has been documented in the Roanoke River drainage. Typical habitats for this darter species are riffles, runs and pools with sand to boulder-strewn bottoms within warm and clear medium-sized streams. No critical habitat for this species has been identified within Smith Mountain Lake and the existence of the species in Smith Mountain Lake is unlikely.

During sampling associated with the ongoing study downstream of the Leesville Development for the Smith Mountain Project to assess the effects of discharges downstream of that development, Roanoke logperch have been found in the area immediately downstream of the Leesville dam and powerhouse. The referenced study is being accomplished in accordance with Article 401 of the license for the Smith Mountain Project and associated VWP Individual Permit No. 08-0572. Appalachian is currently consulting with the U.S. Fish and Wildlife Service (FWS), VDEQ, and VDGIF to determine the potential impacts that find may have on the ongoing study.

7. Recreation

A wide variety of regionally and locally important recreational opportunities are available at sites within the project boundary for the Smith Mountain Development. Nine public recreation sites and numerous commercial operations provide access to Smith Mountain Lake. Smith Mountain Lake provides six public boat launches, four picnic areas, one beach, and one campground. All but one of the sites provide boating access, fishing piers, and/or shoreline angling access to the lake.

The annual recreation use estimates for Smith Mountain Lake are as follows:

<u>Source</u>	<u>Recreation Days</u>
Public Access Sites	577,840
Commercial Operators	1,744,721
<u>Shoreline Property Owners</u>	<u>2,777,000</u>
Total	5,099,561

A recreation day is defined as each visit by a person to a development for recreational purposes during any portion of a 24-hour period.

Boating, in particular motor-boating, is a prime recreation activity for Smith Mountain Lake. Counts of boats on Smith Mountain Lake were made during the summer of 2006. Those counts occurred on

holidays, weekdays, and weekends in order to ascertain usage at different times. Boating densities were greatest in the areas between Smith Mountain Lake State Park and the new Franklin County Park, and the open water areas near the confluence of the Roanoke and Blackwater rivers. The 2006 counts resulted in an observed 10-20 acres of open water per boat in Smith Mountain Lake. The conclusion of the counts suggests that the suite of boating activities could be accommodated at existing use levels based upon the ranges developed by the Bureau of Outdoor Recreation (Urban Research and Development Corporation, 1977). Essentially, even on the most crowded days in the most crowded areas, there is sufficient space for all boaters to recreate safely without compromising their overall safety or enjoyment.

8. Socioeconomics

The Smith Mountain Project lies primarily within Bedford, Campbell, Franklin and Pittsylvania counties, Virginia. The four-county region experienced a sizable population growth from 2000 through 2005, with an overall increase of 22 percent. During that same period, the four county region exhibited a slower growth in the labor force and a higher growth in unemployment than the state average. In 2005, the sectors with the largest employment included construction, manufacturing, and retail trade.

The additional raw water intake will provide the opportunity for expansion of the public water supplies for both Bedford and Franklin counties in Virginia. Estimates of population growth in these areas and the providing of water to previously self-supplied users substantiate the need for expanding the capabilities of the public water supply for the Bedford and Franklin counties areas. A description of the project demands and how they were determined is provided in the "Fact Sheet" for Draft Modification of VWP Individual Permit No. 96-0707 which is provided as an attachment to this EA.

The Smith Mountain Project provides a significant contribution to the regional economy indirectly through revenues generated by businesses, an increased tax base, and the establishment of many jobs throughout the project area. It is recognized that drinking water obtained from the Smith Mountain Project will have a significant impact on the growth of the surrounding areas as well as associated economic implications.

9. Cultural Resources

During the process of developing the Shoreline Management Plan (SMP) for the Smith Mountain Project, the Federal Energy Regulatory Commission (Commission), in consultation with the Virginia State Historic Preservation Office (SHPO) for the Commonwealth of Virginia developed a Programmatic Agreement (PA) for historic properties potentially affected by the Smith Mountain Project. The PA defined the Area of Potential Effect (APE) for the SMP as it relates to cultural resources, defined studies to be conducted, and recommended development of a Historic Properties Management Plan (HPMP). The HPMP for the Smith Mountain Project was approved under Order Approving Historic Management Plan Pursuant to Article 414 issued February 4, 2013 by the Commission. The HPMP identifies how implementation of the HPMP would work in conjunction with other plans for the Smith Mountain Project including shoreline management along the project reservoir.

According to the PA, the APE for the SMP for the Smith Mountain Development is the 800-foot contour elevation. The APE includes those lands permanently inundated by Smith Mountain Lake. Within the SMP areas are designated 'Impact Minimization Zone'. The 'Impact Minimization Zone' includes areas within 100 feet of a known cultural resource site contained in the Virginia SHPO files. Those areas are protected, thus any development within those areas can only be accomplished after approval by the Commission after consultation with the SHPO.

F. ENVIRONMENTAL IMPACTS

I. Proposed Action

Installation of the proposed raw water intake line at the location described above includes: (1) installation of two parallel thirty-inch diameter pipelines partially below the bottom of Smith Mountain Lake and partially supported on foundations maintaining the pipelines above the lake bottom, each pipeline extending approximately 120 feet into the lake; (2) connecting 48-inch diameter wedgewire intake screens to the intake pipelines; and (3) placing riprap having a minimum size of 18 inches over filter fabric to protect the shoreline where the pipelines are to be placed in trenches. Construction will take place both on the water and along the shoreline.

1. Temporary Construction Impacts

The Draft Modification of VWP Individual Permit No. 96-0707 authorizes the total permanent impact to 0.69 acres of open water to allow for installation of the intake pipes and screens. Potential temporary construction related impacts include scattered debris in the area if not properly managed. Some fish and wildlife species in the area may also be temporarily displaced during the proposed work. The conditions of "Order Amending Shoreline Management Plan" issued February 23, 2007 by the Commission for the Smith Mountain Project read as follows:

"All in-water construction, within areas identified as "Conservation/Environmental" or "Impact Minimization Zone" within the Shoreline Management Plan as currently exists or as modified in the future shall be prohibited from February 15 through June 15. In-water construction will be permitted in all other areas identified within the Shoreline Management Plan. During the period April 15 through June 15, the licensee shall ensure that prior to the work taking place, the locations of the proposed work be inspected for the presence of largemouth bass nests. If a largemouth bass nest is detected where the work is to take place, the work shall be modified to not disturb the nest or the work delayed until after June 15."

Restrictions identified in the Draft Modification of VWP Individual Permit No. 96-0707 restricts in-water activities to between June 16 and February 14 which is consistent with the above described limitations related to the Shoreline Management Plan for the Smith Mountain Project. Other limitations established under the referenced draft permit include: (1) allowing no activities that cause more than a minimal effect on navigation; (2) all excavation, dredging, or filling of surface waters being accomplished in a manner that minimizes bottom disturbance and turbidity; (3) minimizing the introduction of

construction materials or waste materials from entering surface waters; (4) all fill material placed in surface waters being clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations; (5) employing measures to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters; and (6) temporary in-stream construction features such as cofferdams being made of non-erodible materials.

The additional noise, vehicular traffic, and other activities associated with the construction of the proposed facilities may have a temporary, minor adverse impact on some nearby residents. Compliance with the various the various Federal, State, and local requirements and permits for the work should minimize these construction impacts.

2. Fish and Aquatic Resources

Under the conditions of the Draft Modification of VWP Individual Permit No. 96-0707, the maximum through screen intake velocity shall not exceed 0.5 feet per second, unless the intake screens are constructed less than 4 feet from the bottom of the lake. In the latter case, the maximum through screen intake velocity shall not exceed 0.25 feet per second. In all cases, the intake screens shall be designed so that the screen openings are not wider than one millimeter. Those conditions are stipulated in order to minimize the potential for impingement and entrainment of fish eggs, larvae and other aquatic life.

From the results of the surveys completed in 2006, there are no SAV beds, wetlands, or debris areas that would be affected by the proposed work.

3. Water Resources

Under the conditions of the Draft Modification of VWP Individual Permit No. 96-0707, the maximum annual water withdrawals from Smith Mountain Lake resulting from the increase proposed by BRWA shall not exceed 12 MGD. Attachment-A to the "Fact Sheet" provides information regarding the estimated effects on water levels resulting from the proposed increase in water withdrawals from Smith Mountain Lake. The overall effect of the proposed increase in domestic water withdrawal is estimated to result in an additional drop of 2.73 to 3.23 inches in the reservoir elevation for Smith Mountain Reservoir during an extended drought period. This is consistent with the sensitivity analysis of total net withdrawals conducted as part of the process for obtaining the new license issued December 15, 2009 by the Commission for the Smith Mountain Project. Within Attachment-A to the "Fact Sheet", reference is made to a graph on page 433 of "P-2210 Flood & Drought Management Low Flow Operating Protocol Report" which presents the effects of a 12.5 MGD withdrawal for domestic purposes. The referenced graph is provided as an attachment to this EA. As part of the relicensing effort for the Smith Mountain Project, an analysis was done to determine at what total withdrawal rate would no impact to water resources including minimum flow requirements, be experienced. The results of that study indicate that at a minimum, once a total withdrawal in excess of 12.5 MGD is experienced, there potentially could be an impact. Being that the withdrawal by BRWA at the site referenced in this EA represents the only

domestic withdrawal from Smith Mountain Lake, Appalachian does not believe that there should be any impact from the BRWA's proposal.

The Water Management Plan for the Smith Mountain Project establishes "trigger" events for determining under various inflow conditions the releases required from the Leesville Development. Under the conditions of the Draft Modification of VWP Individual Permit 96-0707 for the water withdrawals proposed by BRWA, a "Trigger 3" drought event as declared by Appalachian in accordance with the Water Management Plan will require that BRWA implement certain conservation measures. Based upon the proposed withdrawal by BRWA resulting in less than 12.5 MGD being withdrawn from the Smith Mountain Project, the results of the assessment performed by BRWA for Draft Modification of VWP Individual Permit No. 96-0707, and the limitations established by that permit, the proposal made by BRWA would not be expected to impact water resources for the project including minimum flow requirements.

4. Terrestrial Resources

The shoreline at the location of the proposed work has been disturbed previously and consists primarily of riprap. Therefore, there are no expected impacts to terrestrial resources from the proposed work. Should there be any disturbance of vegetation along the shoreline associated with the work, mitigation will be required.

5. Rare, Threatened and Endangered Species

There are no impacts to rare, threatened or endangered species that are expected from the proposed work. As noted previously, no rare, threatened or endangered species are known to exist within the project boundary for the Smith Mountain Project. Activities proposed by BRWA will also not impact water releases downstream from the Leesville Development and thus would not be expected to effect the Roanoke logperch.

According to the VDCR in its letter dated September 4 2012, there is no information currently in their files documenting natural heritage resources in the project area.

6. Recreation

There have been no reports of any effects on recreation activities, including boating related to the existing water intake facilities in the same area where the installation of the new intake lines is to take place. The existing intake structures maintain a minimum of five feet between the reservoir level and the top of any part of the structures. As shown on the drawings provided by BRWA, the centerline elevation for the upper intake is 780 NGVD which is seven feet below what is considered the minimum operating level for Smith Mountain Reservoir. To ensure that the proposed intake facilities do not create a safety concern for boaters, it will be required that no part of the intake structures protrude above elevation 782.0 NGVD which is 5 feet below elevation 787.0 NGVD. It should be noted that the

lowest recorded water surface elevation recorded for Smith Mountain Reservoir was 787.60 NGVD which occurred in January 1970.

7. Socioeconomics

The proposed raw water intake would contribute to the amount of treated domestic water to both Bedford County and Franklin County, Virginia. The distribution of treated water in these areas is expected to contribute to growth thereby creating much needed jobs. Construction activities related to the installation of the proposed raw water intake will also result in the creation of jobs, albeit short term. Overall, the proposed raw water intake should be an economic benefit to the area.

8. Cultural Resources

According to the maps for the SMP, the area where the proposed work is to take place is designated as "Low Density Use". Not being designated "Impact Minimization Zone", no known cultural resource site as contained in the Virginia SHPO files is has been identified in the work area. In addition, the area of the proposed work has been disturbed and the potential for the existence of cultural resources is minimal. However, in the event that any known or unknown cultural resource materials are discovered, all work will be stopped and Appalachian notified. At that time, the Virginia SHPO will be consulted and those consultations completed before the work is allowed to continue. In addition:

A. BRWA may be required to employ an archaeologist who meets or exceeds the qualifications described in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) to assess the eligibility of the resource for inclusion in the National Register.

B. If the resource is determined to be eligible for inclusion in the National Register, and BRWA desires to continue with the work, BRWA shall ensure that an archaeologist who meets or exceeds the qualifications described in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) shall prepare a plan for its avoidance, protection, or recovery of information. The Virginia SHPO shall approve such plan, prior to implementation.

C. Work in the affected area shall not proceed until either: (a) appropriate data recovery or other approved mitigation procedures are developed and implemented; or (b) the determination is made that the located resources are not eligible for inclusion on the National Register.

II. No-Action Alternative

The BRWA would be required to find another location for a raw water intake. It is likely that another location would require the disturbance of areas that have not been previously disturbed resulting in potential impacts to vegetation, recreation, etc. that are not associated with the proposed installation site.

G. CONCLUSION

The construction and operation of the proposed facilities under the conditions described by this EA should not have any significant impacts on environmental resources or properties in the area. Based upon this analysis, approving the proposed action would not constitute a major Federal action significantly affecting the quality of the human environment.

H. LIST OF PREPARERS

American Electric Power Service Corporation

REFERENCES

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Appalachian Power Company. August 2007. Water Withdrawal Study.

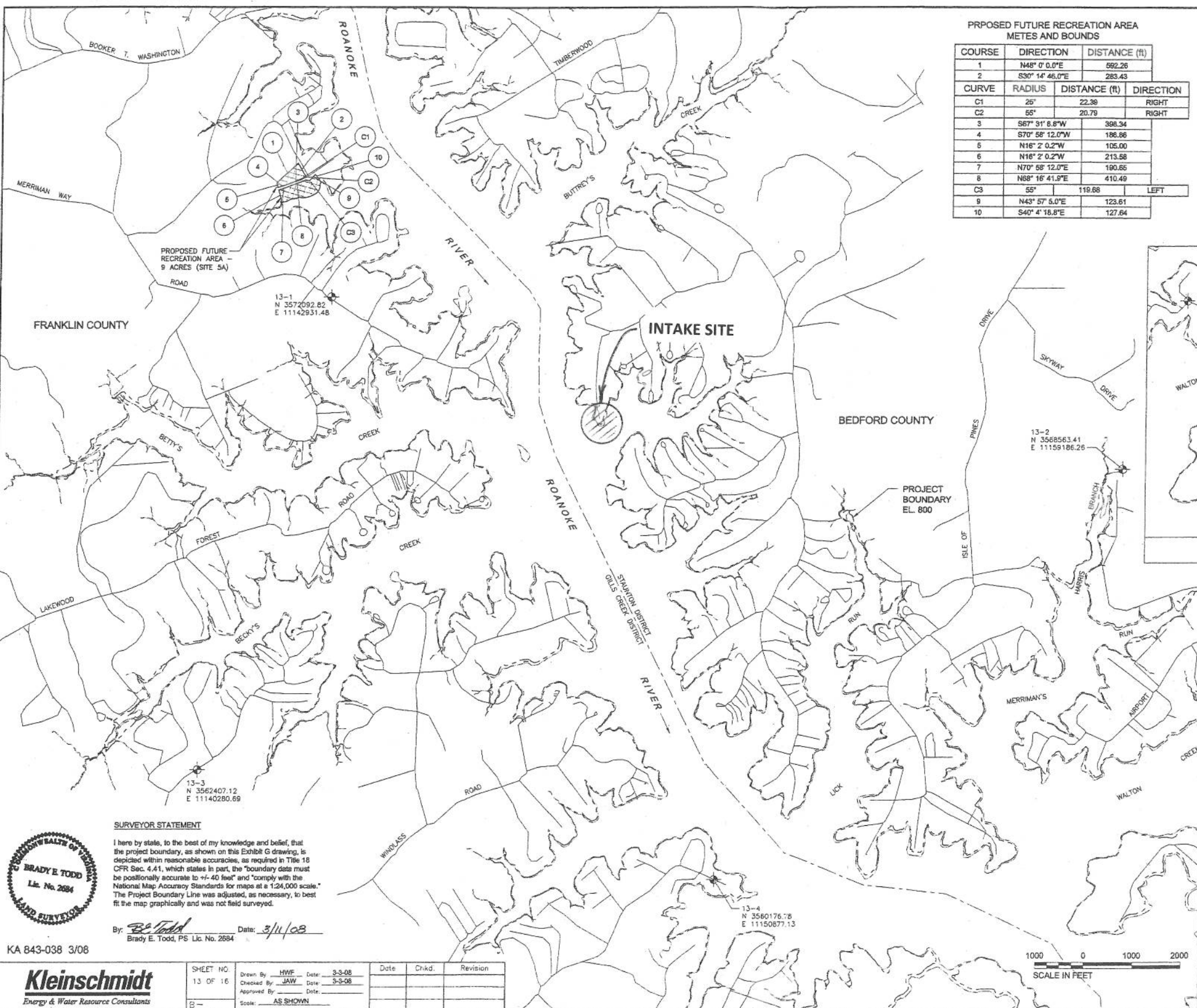
Appalachian Power Company. March 2008. Smith Mountain Project No. 2210, Application for New License for Major Project – Existing Dam, Volume II, Exhibit E, Environmental Report.

APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)

ATTACHMENT NO. 1
FIGURES

<u>Number</u>	<u>Title</u>
1	Smith Mountain Project No. 2210 – Exhibit G (Sheet 13 of 16)
2	Preliminary Intake Options
3	Shoreline Classification (From Smith Mountain Shoreline Management Plan)
4	Bathymetry at Intake Site (From 2006 Survey)
5	Shoreline Protection Classification (From Erosion Study – Kleinschmidt, August 2007)
6	Submerged Aquatic Vegetation Bed Locations (From Aquatic Vegetation Study – Devine Tarbell, December 2007)
7	Littoral Zone (From Littoral Zone Habitat and Fish Spawning and Rearing Assessment Study – Devine Tarbell, December 2007)

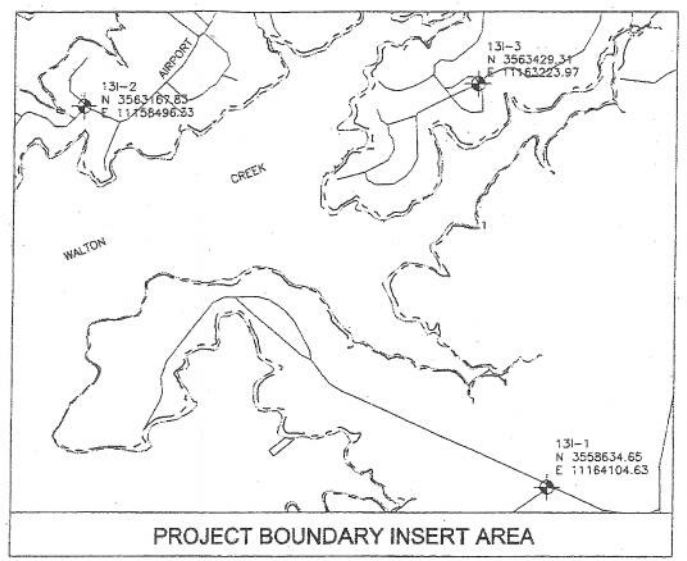
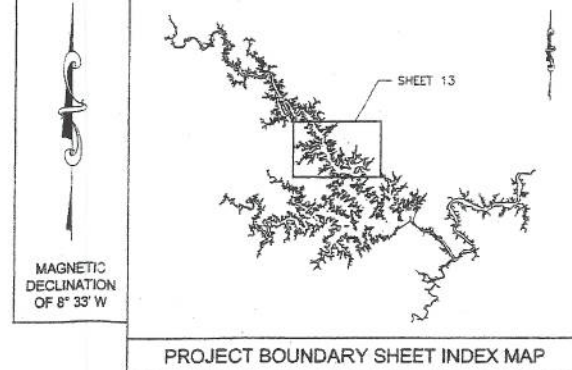
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PROPOSED FUTURE RECREATION AREA METES AND BOUNDS

COURSE	DIRECTION	DISTANCE (ft)
1	N48° 0' 0.0"E	592.26
2	S30° 14' 46.0"E	283.43

CURVE	RADIUS	DISTANCE (ft)	DIRECTION
C1	25'	22.38	RIGHT
C2	55'	20.79	RIGHT
3	S67° 31' 8.8"W	398.34	
4	S70° 58' 12.0"W	186.86	
5	N16° 2' 0.2"W	105.00	
6	N16° 2' 0.2"W	213.58	
7	N70° 58' 12.0"E	190.65	
8	N88° 16' 41.9"E	410.49	
C3	55'	119.88	LEFT
9	N43° 57' 5.0"E	123.61	
10	S40° 4' 18.8"E	127.64	



LEGEND

- PROJECT BOUNDARY (dashed line)
- PROJECT BOUNDARY AREA - SEE INSERT ABOVE (dotted line)
- SHORELINE/WATER'S EDGE (solid line)
- COUNTY LINES (dash-dot line)

SURVEYOR STATEMENT

I here by state, to the best of my knowledge and belief, that the project boundary, as shown on this Exhibit G drawing, is depicted within reasonable accuracies, as required in Title 18 CFR Sec. 4.41, which states in part, the "boundary data must be positionally accurate to +/- 40 feet" and "comply with the National Map Accuracy Standards for maps at a 1:24,000 scale." The Project Boundary Line was adjusted, as necessary, to best fit the map graphically and was not field surveyed.

By: *Brady E. Todd* Date: 3/11/08
 Brady E. Todd, PS Lic. No. 2884



KA 843-038 3/08

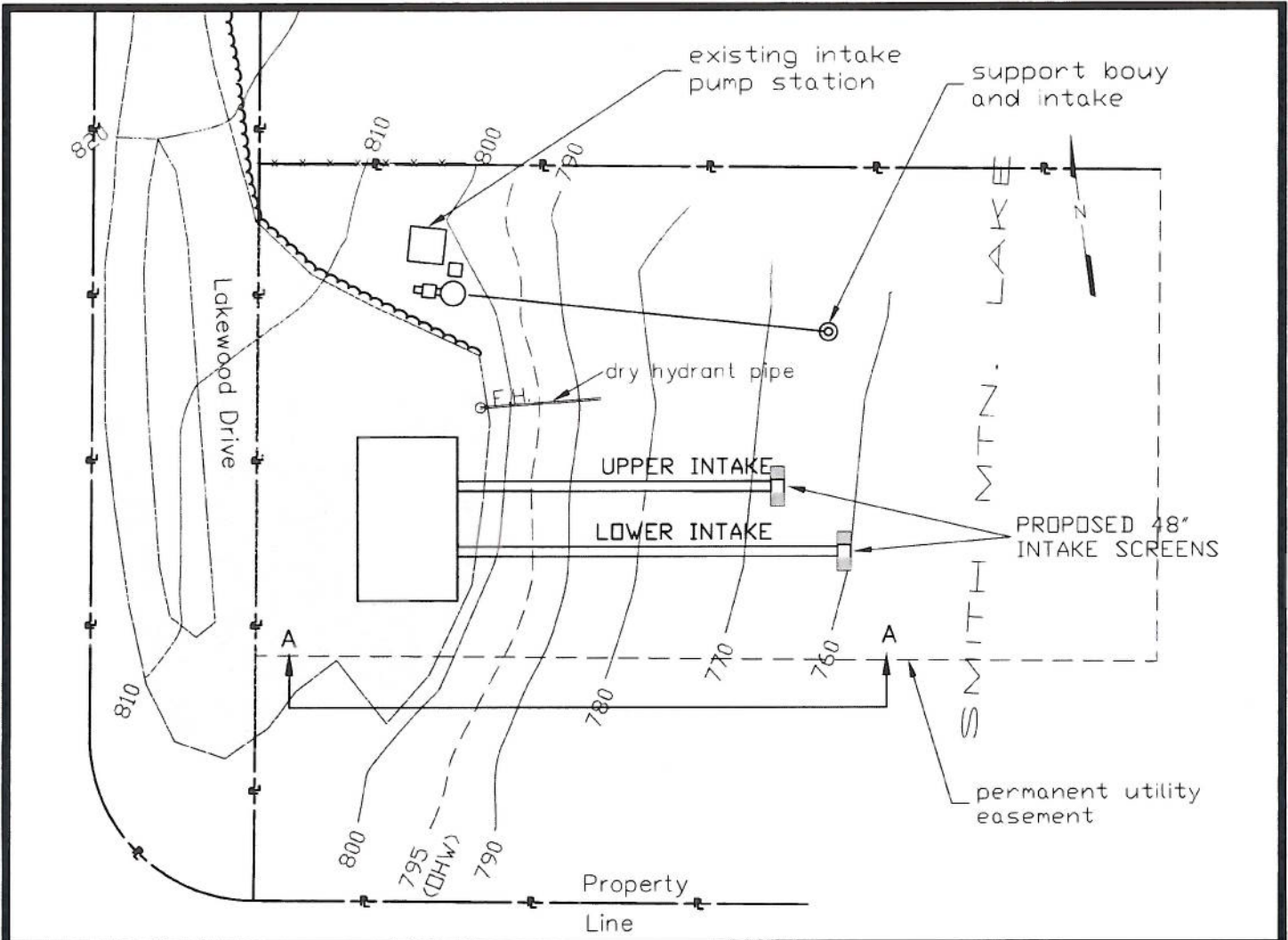
Kleinschmidt
 Energy & Water Resource Consultants

SHEET NO	Drawn By	Date	Date	Chkd.	Revision
13 OF 16	HWF	3-3-08			
	JAW	3-3-08			
	AS SHOWN				

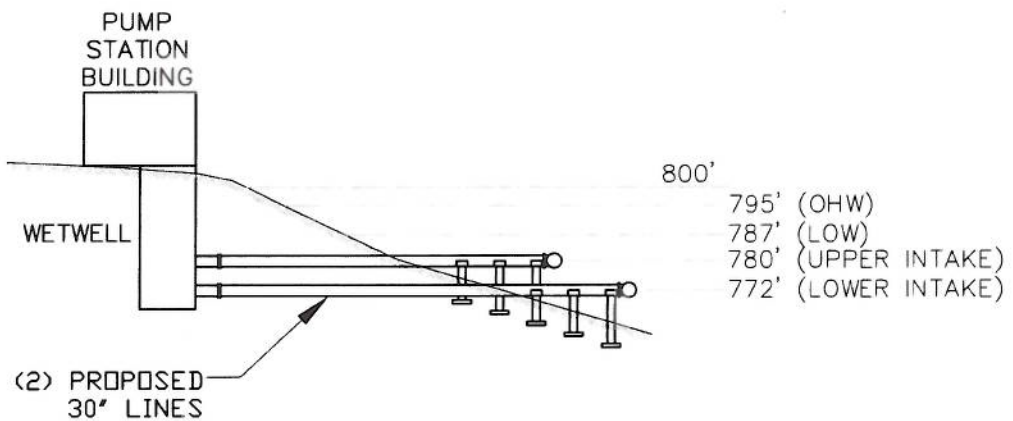


EXHIBIT G SMITH MOUNTAIN DEVELOPMENT SHEET 13 OF 16
 HYDROELECTRIC PROJECT FERC NO. 2210-VA
 PROJECT AREA AND BOUNDARY MAP
 APPALACHIAN POWER COMPANY
 ROANOKE, VIRGINIA

FIGURE NO. 1



CROSS SECTION A-A



**PRELIMINARY INTAKE OPTIONS
HIGH POINT WATER INTAKE SITE
FIGURE 2 - PLAN AND CROSS SECTION**



ANDERSON & ASSOCIATES, INC.

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540-552-5592

DRAWN	SCALE	DATE	DOCUMENT NO.
DCI	1"=50'	11 MAR 13	28883-102

