TAPOCO PROJECT
SHORELINE MANAGEMENT PLAN

TAPOCO HYDROELECTRIC PROJECT

FERC PROJECT NO. 2169

FINAL OCTOBER 2004

ALCOA POWER GENERATING INC.

TAPOCO DIVISION

ALCOA

Tapoco Project
Shoreline Management Plan

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GLOSSARY OF TERMS

APGI	Alcoa Power Generating Inc.
Conservation Easement	The purpose of a conservation easement is to preserve property in its predominantly undeveloped, natural, scenic, and/or forested condition and to prevent any use of the property that will significantly impair or interfere with the identified Conservation Values of the property. These voluntary restrictions on the use of land are negotiated by the landowner and the organization which will "hold," or enforce, the easement.
Cultural Probability Zone	Area where there is a high, moderate or low probability for the location of previously unrecorded archaeological sites, as identified through the application of a predictive model.
EBCI	Eastern Band of Cherokee Indians.
Eligible Property Owner	A property owner who may be eligible for a private recreation facility permit from Tapoco because of being an adjoining property owner.
Environmental Assessment	A written assessment of the potential impacts to environmental and natural resources resulting from proposed shoreline development.
Federal Power Act	Federal legislation which gave FERC the authority to license non-federal hydropower projects.
FERC	Federal Energy Regulatory Commission.
Full-pool Elevation	All elevations reported in the SMP are based on the USGS datum. When the Tapoco Project was originally constructed, a local survey datum was used for each development. The full-pool reservoir elevations (USGS/local datum) are as follows: Santeetlah 1,940.9 ft / 1,817 ft, Cheoah 1,276.8 ft / 1,154 ft, Calderwood 1,087.8 ft / 965 ft and Chilhowee 874 ft / 874 ft. Regardless which datum is used, the full-pool reservoir elevation reflects the top of the spillway gate elevation or the maximum normal water level for that reservoir.
GSMNP	Great Smoky Mountains National Park.
Industrial Uses/Facilities	Activity or facilities within the Tapoco Project other than private recreation or multi-use facilities.
Lap Trees	Trees, living or dead, overhanging or hanging into the water. Lap trees provide excellent cover and are considered important habitat for fish.
MPDF	Multiple Property Documentation Form.
Multi-use Facility	All public and private recreation and access facilities, other than private or shared piers, designed for community or group use.

National Historic Preservation Act	Federal legislation under which FERC must take into account the effect of license issuance and any related FERC undertaking on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places.
NCDCR	North Carolina Department of Cultural Resources.
NCDENR	North Carolina Department of Environment and Natural Resources.
NCDOT	North Carolina Department of Transportation.
NCDWQ	North Carolina Division of Water Quality.
NCSHPO	North Carolina State Historic Preservation Office.
NCTSI	North Carolina Trophic State Index. NCDWQ has developed an index to examine the level of eutrophication (nutrient enrichment) or "trophic state" of lakes.
NCWRC	North Carolina Wildlife Resources Commission.
NPDES	National Pollutant Discharge Elimination System. NPDES permits are required of all dischargers of municipal and industrial wastewater.
NPS	National Park Service.
NRHP	National Register of Historic Places.
Other/General Development	A classification of shoreline areas that can include, among other things, private or multi-use recreational facilities, shoreline stabilization, vegetation removal and shoreline cleanup, walkways and steps, and excavation. Also included in the Other/General Development classification are the areas immediately adjacent to the Project dams and powerhouses, which Tapoco requires in order to perform the periodic and ongoing operations and maintenance activities associated with the hydroelectric facilities.
Pier	As defined for the purposes of this Shoreline Management Plan, a pier is a private recreation facility including (i) a stationary pier, ramp and floating dock combination (ii) a ramp and floating dock combination, or (iii) a floating dock.
Priority Habitat Area	Important or unique habitats, such as wetlands, shoreline riparian zones, and "drawdown" zones.
Procedures	Tapoco's Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures (Appendix C).
Project or Tapoco Project	A four dam and reservoir hydroelectric project located on the Little Tennessee and Cheoah rivers in western North Carolina and eastern Tennessee. The Tapoco Division of Alcoa Power Generating Inc. operates the Tapoco Project. The Project includes four reservoirs: Santeetlah, Cheoah, Calderwood, and Chilhowee. The Tapoco Project is licensed by the Federal Energy Regulatory Commission (FERC No. 2169).
Project Boundary	The land and water included in the Project as licensed by FERC.

Relicensing Settlement Agreement or RSA	Tapoco Project Relicensing Settlement Agreement filed with FERC on May 7, 2004.
Section 106	Section 106 of the National Historic Preservation Act, which requires all federal agencies to consider the protection of significant historic and pre-historic cultural sites.
Specifications	Tapoco's Specifications for Private Recreation Use Facilities (Appendix B).
Stewardship Area	A classification of shoreline areas that require special protection because of (1) priority aquatic habitats, (2) sensitive and natural terrestrial areas, and/or (3) high or moderate cultural resource probability zones.
Shoreline Stewardship Policy	Tapoco's policies, procedures, and requirements on use of the Project reservoirs, shorelines, and APGI-owned lands (Appendix A).
SMP	Shoreline Management Plan.
THPO	Tribal Historic Preservation Office.
TVA	Tennessee Valley Authority.
TWRA	Tennessee Wildlife Resources Agency.
USACE	U.S. Army Corps of Engineers.
USFS	U.S. Forest Service.
USFWS	U.S. Fish and Wildlife Service.
WS-I Watershed	In June 1989, the North Carolina General Assembly enacted a State law mandating minimum statewide water protection requirements for all surface water supplies used for raw drinking water. Class WS-I waters are protected as water supplies that are in natural and uninhabited watersheds.
WS-III Watershed	In June 1989, the North Carolina General Assembly enacted a State law mandating minimum statewide water protection requirements for all surface water supplies used for raw drinking water. Class WS-III waters are protected as water supplies that are generally in low to moderately developed watersheds.

EXECUTIVE SUMMARY

The Tapoco Division (Tapoco) of Alcoa Power Generating Inc. (APGI), a wholly owned subsidiary of Alcoa Inc. (Alcoa) owns and operates the Tapoco Project (FERC No. 2169). The Tapoco Project (Project) includes four hydroelectric developments. The Santeetlah, Cheoah, Calderwood, and Chilhowee developments are located on the Cheoah and Little Tennessee rivers in western North Carolina and eastern Tennessee. The Project was constructed to support the low cost power needs of the aluminum smelter at Alcoa's Tennessee Operations, located in the foothills of the Great Smoky Mountains.

As a Federal Energy Regulatory Commission (FERC) licensee, Tapoco manages and operates the Project in accordance with the terms of its license and the applicable rules and regulations of FERC. Tapoco is responsible for ensuring that any non-Project uses and activities permitted within the Project Boundary are consistent with its license. To this end, Tapoco worked cooperatively with an Advisory Committee, whose members include representatives of local, state, and federal governments, the Eastern Band of Cherokee Indians, the Friends of Lake Santeetlah, Cross Creek Property Owners Association, The Nature Conservancy of Tennessee, American Rivers, the Sierra Club, and Tennessee Clean Water Network and individual property owners, to develop this Shoreline Management Plan (SMP). Additionally, because the shoreline residents with a private pier who live around Santeetlah Reservoir will be directly affected by a SMP, Tapoco solicited their opinions on shoreline management issues through a mail-back SMP Stakeholder Survey. The survey asked questions about the recreational activities on Santeetlah Reservoir, the priority of shoreline management planning issues, and recommendations for modifications to existing recreation facility specifications.

Generally, Tapoco's management priorities at the Project reservoirs are to protect aquatic and near shore terrestrial habitats for rare, threatened, and endangered species, provide adequate public access and recreational facilities at the Project reservoirs, and protect historic and cultural resources. Because the mainstem reservoirs are undeveloped and surrounded largely by federally owned and managed lands and therefore, provide a unique semi-primitive to primitive recreational experience, an additional management priority for the mainstem reservoirs is to protect the shorelines in a natural and undeveloped state. Protecting the remaining undeveloped shorelines at Santeetlah Reservoir is also a management priority.

There are land and shoreline management issues at the Tapoco Project that are best addressed in a comprehensive shoreline management plan. This SMP helps to balance these diverse interests, which include the protection of environmental, cultural, recreational, and aesthetic resources; land conservation; economic development; and recreational access. Specifically, this SMP establishes a process for reviewing and approving shoreline development uses and activities that encourages responsible development and stewardship of environmental, cultural, recreational, and aesthetic resources by avoiding, offsetting, or mitigating impacts to the resources.

Because there are environmental, cultural, recreational, and aesthetic resources at the Project that will benefit from special consideration and protection, Tapoco has classified the reservoirs' shorelines as 1) Other/General Development, 2) Stewardship Area, or 3) Conservation Easement. Non-Project uses and/or activities in areas classified as Other/General Development can include, among other things, private or multi-use recreational facilities, shoreline stabilization, vegetation removal and shoreline cleanup, walkways and steps, and excavation. These uses and activities may also be permitted in a Stewardship Area, but only if the potential impacts to the identified resources from the proposed use or activity have been avoided or adequately mitigated. Generally, there will be no construction, excavation, cutting or removal, dumping, polluting, vehicles, bikes, horses, and exploration permitted in areas classified as Conservation Easement. Public access, hiking, and hunting may be permitted in these areas.

Tapoco has established procedures for permitting private recreation (individual or shared) and multi-use recreation (public, commercial, or private group) facilities within the FERC-licensed Project Boundary or on APGI-owned lands. Tapoco also has established procedures for approving subdivision access and industrial uses and facilities. These permitting procedures, combined with the classification of shoreline are the means by which all decisions on shoreline development for private recreation and multi-use facilities and other non-Project uses of and activities on Project lands will be made. Appended to this SMP are Tapoco's Shoreline Stewardship Policy – Tapoco Project Reservoirs, Specifications for Private Recreation Use Facilities – Tapoco Project Reservoirs, and Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures – Tapoco Project Reservoirs.

Tapoco will use this SMP as a tool to protect valuable resources, guide future development, and monitor shoreline conditions at the Tapoco Project. Tapoco anticipates that the SMP will not only be a tool for its permitting personnel, but also adjacent property owners, developers, and state and federal resource agencies who have an interest in shoreline management at the Project.

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The Tapoco Project (Project) is licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2169. The Project is owned and operated by the Tapoco Division (Tapoco) of Alcoa Power Generating Inc. (APGI), a wholly owned subsidiary of Alcoa Inc. (Alcoa). As a FERC licensee, Tapoco manages and operates the Project in accordance with the terms of its license and the applicable rules and regulations of FERC granted by the Federal Power Act. Under authority granted by FERC in its license under the standard land use article, Tapoco may authorize certain private, commercial, and industrial uses on Project lands and waters without prior FERC approval, but only if the proposed use is consistent with protecting and enhancing the environmental, cultural, recreational, and aesthetic resources of the Project. Tapoco has no management oversight over any lands owned and managed by the U.S. Forest Service (USFS), the National Park Service (NPS), or Tennessee Valley Authority (TVA).

The Tapoco Project includes four hydroelectric developments located on the Cheoah and Little Tennessee rivers in western North Carolina and eastern Tennessee. The Project was constructed to support the low cost power needs of the aluminum smelter at Alcoa's Tennessee Operations, located in the foothills of the Great Smoky Mountains.

The Project includes four reservoirs: Santeetlah Reservoir on the Cheoah River, and Cheoah, Calderwood, and Chilhowee reservoirs on the Little Tennessee River. The largest reservoir, Santeetlah Reservoir, located in Graham County, North Carolina, is also the only reservoir with private and commercial development along the shoreline. However, because a majority of the Santeetlah Reservoir shoreline (77 percent) is managed as public lands (Nantahala National Forest) by the USFS, approximately 23 percent (18.1 miles) of the shoreline is, or potentially could be, developed. In addition to providing valuable habitat for fish and wildlife, Santeetlah Reservoir is a unique recreational resource with a positive economic effect on the nearby communities.

Under the terms of the Relicensing Settlement Agreement, a conservation easement will be placed on approximately 820 acres of APGI-owned lands in Graham and Swain counties, North Carolina. This easement will create a total of 200 feet of riparian protection on APGI-owned lands along portions of the Santeetlah, Cheoah, and Calderwood reservoirs and the Cheoah River, and other streams, and 100 feet of riparian protection for certain additional tributary streams where Tapoco owns the adjoining property (see Section 3.3.2).

The Cheoah and Calderwood reservoirs are located on the Little Tennessee River mainstem. These reservoirs are both deep, riverine reservoirs surrounded by steep, forested shoreline. The Cheoah Reservoir is bounded on one side by U.S. Highway 129, APGI-owned lands, the Great Smoky Mountains National Park (GSMNP), TVA, and NC Highway 28. The other side of the reservoir is bounded by the Nantahala National Forest, TVA, and APGI-owned lands. The majority of the land on both sides of Calderwood Reservoir is either USFS property or APGI-

owned lands. There is no development along the Cheoah and Calderwood reservoirs other than Project facilities and a few public access recreation areas.

Chilhowee Reservoir is also located on the Little Tennessee River in Blount and Monroe counties, Tennessee. Shoreline development along Chilhowee Reservoir is also limited to several public access recreation areas and one private residence. The reservoir is bounded on one side by U.S. Highway 129, Great Smoky Mountains National Park, and private lands and on the other by APGI-owned lands, private lands, and the Cherokee National Forest.

Under the terms of the Relicensing Settlement Agreement, Conservation Easements will be placed on certain APGI-owned lands in Blount and Monroe counties, Tennessee. These lands include important riparian lands which, together with lands within the Project Boundary, would create a total of 200 feet of protection on significant portions of the shorelines of Calderwood and Chilhowee reservoirs (see Section 3.3.2).

Historically, Tapoco limited its approval of shoreline development at the Tapoco Project to private recreation facilities and a few commercial facilities at Santeetlah Reservoir. All private property owners along Santeetlah Reservoir have been required to obtain a permit to place a pier or any structure within the Project Boundary. Similarly, Tapoco has required a permit be issued for any commercial or industrial facility within the Tapoco Project Boundary. Tapoco's policy has been not to allow private recreation facilities and/or commercial facilities on the mainstem reservoirs.

1.2 Tapoco Project Relicensing Process

The Federal Power Commission, predecessor to FERC, issued Tapoco a license to operate the Tapoco Hydroelectric Project on March 17, 1955. The license expires on February 28, 2005. In 1998, Tapoco began the multi-year process of relicensing the Tapoco Hydroelectric Project using the Applicant Prepared Environmental Assessment (APEA) process. After five years, the relicensing process culminated in Tapoco's filing of an Application for New License and Draft Environmental Assessment (DEA) with FERC in February 2003.

One of the alternatives analyzed in the DEA was the development of a Project shoreline management plan. The DEA concluded that the preservation of the important environmental, recreational, cultural, economic, and aesthetic resources at Santeetlah Reservoir, as well as the other Project reservoirs, would require a careful balancing of the sometimes conflicting, but related resource management objectives. To address these issues and respond to the requests of several relicensing participants, in the license application, Tapoco proposed to develop a comprehensive Shoreline Management Plan (SMP) for the Project after the Application for a New License was filed with FERC in February 2003. Specifically, relicensing participants recommended that Tapoco modify some of its policies regarding private facility development, erosion control, and vegetation removal along the Santeetlah Reservoir shoreline. In April 2003, Tapoco initiated the shoreline management planning process at the Tapoco Project (see Section 1.4).

After filing the license application, Tapoco continued to work with participants towards a negotiated settlement agreement. In May 2004 Tapoco filed a comprehensive Tapoco Project Relicensing Settlement Agreement with FERC. Under the terms of the Settlement Agreement, Tapoco committed to developing a comprehensive SMP for the Project and to file the SMP with FERC as soon as possible. If a SMP for the Tapoco Project is not filed with FERC prior to FERC issuing a new license, the Settlement Agreement requires that Tapoco file a SMP with FERC within three months of the new license being issued.

1.3 Need for a Shoreline Management Plan

During the relicensing of the Tapoco Project it became clear that there are land and shoreline management issues at the Project that would best be addressed in a comprehensive shoreline management plan. First and foremost is the need to protect the environmental, cultural, recreational, and aesthetic resources (discussed in Sections 4.0, 5.0, and 6.0) at the Tapoco Project.

The Southern Appalachians are one of the most unique geographic regions in North America and recent inventories indicate that the Project reservoirs and surrounding shoreline provide valuable habitats for many species of aquatic and terrestrial animals and plants. Several rare, threatened, and endangered (RTE) species are known to occur or potentially occur at the Project including the Bald eagle, Indiana bat, Appalachian elktoe, Virginia spiraea, and several fish species.

Additionally, the Project area, previously occupied both by native Indians and European settlers, is rich in archaeological resources. There are a total of 11 archaeological sites within or in close proximity to the Tapoco Project that are recommended as being either eligible or potentially eligible for the National Register of Historic Places.

Finally, because a significant portion of the reservoirs' shorelines is adjacent to public and/or undeveloped APGI-owned lands, the recreational experience and the scenic character of the Project reservoirs are fairly unique to the region. These resources would benefit from special consideration and protection.

While a majority of the reservoir shorelines are adjacent to public lands, there are some limited opportunities for additional shoreline development around Santeetlah and Chilhowee reservoirs. There is also a need to ensure that shoreline development around the Project reservoirs is consistent with the Conservation Easements included as part of the Relicensing Settlement Agreement. Generally, the purpose of the Conservation Easements is to preserve the riparian lands in an undeveloped, natural condition to protect the conservation values that the riparian lands possess (e.g. open space, forest, wildlife habitat, watershed protection, historic and cultural resources, and educational and/or recreational values).

During the Project relicensing, diverse interests were expressed by participants regarding development around Santeetlah Reservoir. Some relicensing participants expressed an interest in additional shoreline development at Santeetlah Reservoir to bolster the local economy. Others were concerned about the impact that additional shoreline development would have on the natural resources at Santeetlah Reservoir (e.g. the loss of riparian habitats, impact on water

quality, etc.). Additional development around the reservoir could also potentially impact the recreational and scenic appeal of the reservoir.

Tapoco also received several requests to revise its policies regarding permitted activities on Santeetlah Reservoir during the Project relicensing. Specifically, participants asked that Tapoco modify its existing dock specifications and the types of retaining walls permitted, and to provide clear guidance on vegetation management.

Overreaching all of the needs discussed above is Tapoco's responsibility to ensure that shoreline development activities that occur within the Project Boundary are consistent with Project license requirements, purposes, and operations.

1.3.1 Requirements of Tapoco's License Regarding Use of Project Lands and Waters

Tapoco is required to operate and manage the Tapoco Project in accordance with its license requirements and Project purposes. Generally, licensees have a responsibility to provide public access to and recreational opportunities on Project lands and waters. Tapoco developed and helps maintain numerous public access recreation areas on each of the four Project reservoirs (see Section 5.0). The Project offers opportunities for motorized and non-motorized boating, fishing, camping, swimming, sunbathing, and picnicking.

FERC does not require that licensees permit the construction and operation of private or commercial recreation facilities on Project reservoirs, but consistent with its license responsibilities, Tapoco may authorize specific uses and occupancies of the Project's shorelines that are not related to hydroelectric power production or other Project purposes. The standard land use article in FERC licenses gives licensees broad authority to authorize and manage specific shoreline uses and facilities (e.g. boating access facilities, erosion control structures, vegetation removal) without prior FERC approval. Other uses and/or facilities may require FERC's approval. The land use article allows the licensee to establish a program for authorizing specified types of use and occupancy of Project lands and waters. In cases where the licensee does establish such a program, FERC reserves the right to require the licensee to file a description of the program and to require modification of this program. This SMP serves as a description of Tapoco's procedures for executing its authority under the standard land use article of its FERC license.

1.3.2 FERC's Policies Regarding Public Recreation and Use of Project Lands and Waters

Tapoco's existing FERC license expires in February 2005. Under its existing license and the authority granted by FERC in the license, Tapoco has permitted more than 200 private recreation facilities, one marina, one multi-use boat dock, and three other small commercial facilities on Santeetlah Reservoir. Tapoco used general guidelines to permit these facilities. Currently, there are no private or commercial facilities on the three mainstem reservoirs. Consistent with its Application for New License and the terms of the Settlement Agreement, Tapoco's intent is for the mainstem reservoirs to retain much of their existing natural character. To achieve this goal, Tapoco will continue its past practice of not permitting any private or commercial recreation

facilities on the Cheoah, Calderwood, and Chilhowee reservoirs. Tapoco will permit public access recreation facilities included in the Relicensing Settlement Agreement and consider others deemed necessary in the future on the mainstem reservoirs.

Under its new license, Tapoco will implement this SMP, which includes the following shoreline management documents (see Section 7.0 and Appendices A-C) that will be used to permit future uses and activities on APGI-owned lands: 1) Shoreline Stewardship Policy, 2) Specifications for Private Recreation Use Facilities (Specifications), and 3) Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures (Procedures).

The Shoreline Stewardship Policy (Appendix A) describes those uses and activities permitted by Tapoco on APGI-owned lands. The Shoreline Stewardship Policy addresses such issues as shoreline stabilization, excavation, steps and walkways, and vegetation management on the Project reservoirs.

The Specifications for Private Recreation Use Facilities (Appendix B) establishes eligibility requirements for private recreation facilities, as well as, criteria for their design and installation. Tapoco may permit private individual and shared piers without prior notification to FERC. The private recreation facility permitting program is discussed in detail in Section 7.0 and in Appendix B.

Tapoco has also established a process for reviewing and permitting multi-use recreation facilities and for approving subdivision access and industrial uses on APGI-owned lands. The Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures (Appendix C) establishes a permitting program for access from adjacent subdivided property, permitting of multi-use facilities (e.g. marinas, common-use piers for subdivisions, etc.) and industrial facilities (water intakes, sewer lines, bridge replacement, etc.). Depending upon the type of use or activity being proposed, FERC notice and/or approval may be necessary. These Procedures detail the environmental assessment and agency consultation processes required by Tapoco.

Collectively, these individual permitting programs will allow Tapoco to provide recreational opportunities to the public while protecting the environmental, cultural, recreational and aesthetic values of the Project. These programs will be the tools that Tapoco uses on a daily basis to authorize and manage shoreline development activities.

1.3.3 TVA Act Section 26a

Section 26a of the TVA Act is designed to ensure that construction along the shorelines of Tennessee River does not negatively impact TVA's ability to fulfill the expressed intent of the TVA Act: "unified development and regulation of the Tennessee River" (16 U.S.C. 831y-1). Generally, the construction of boat docks, piers, boat ramps, bridges, culverts, commercial marinas, and water intakes and outfalls in the Tennessee River watershed require TVA approval. Specifically, on-reservoir activities that occur in, across, or along TVA reservoirs and regulated rivers and streams in the Tennessee Valley and off-reservoir activities that occur on all other perennial rivers and streams in the Tennessee Valley watershed require TVA approval (Tennessee Valley Authority, website). In response to an inquiry from Tapoco about TVA's

exercise of its authority under Section 26a on the Tapoco Project reservoirs, TVA agreed that Tapoco may continue to approve shoreline water use facilities without Section 26a approval from TVA.

1.4 Shoreline Management Planning Process

FERC expects stakeholders to be involved in the shoreline management planning and development process to ensure that all relevant issues are raised and addressed (Federal Energy Regulatory Commission, 2001). Tapoco initiated the SMP planning process immediately after it filed its Application for New License with FERC in February 2003. In March 2003, Tapoco noticed a Tapoco Project Shoreline Management Plan Pre-Planning Public Meeting. Approximately 30 people attended the April 3, 2003 pre-planning public meeting in Robbinsville, North Carolina. At the meeting, Tapoco offered a "SMP planning primer" and outlined the proposed planning process and schedule. Collectively, Tapoco and those in attendance discussed important planning issues and goals and objectives of the SMP. At the conclusion of the meeting, those interested in working closely with Tapoco to develop the SMP volunteered to participate on a "SMP Advisory Committee". The roles of the Advisory Committee were described as attending planning workshops and public meetings; sharing goals, objectives, and planning issues; reviewing and assessing available data; and providing input on draft documents. The membership of the committee includes representatives from state and federal resource agencies, local governments, the Eastern Band of Cherokee Indians, The Nature Conservancy of Tennessee, American Rivers, the Sierra Club, Tennessee Clean Water Network, the Friends of Lake Santeetlah, Cross Creek Property Owners Association, and individual property owners. One of the early decisions of the Advisory Committee was to first address issues specific to Santeetlah Reservoir and then to focus on any mainstem reservoir issues. A summary of this pre-planning public meeting is included in Appendix E – Consultation Record.

On May 15, 2003, Tapoco hosted the first Santeetlah Reservoir Planning Workshop. The focus of the workshop was a discussion of planning issues, categorized in the following four areas: 1) dock specifications, 2) multi-use facilities, 3) permitted uses, and 4) shoreline stewardship. At the conclusion of this meeting, Tapoco was tasked with developing a strawman proposal for dock specifications and shoreline stewardship based on input received from the Advisory Committee. A summary of the first workshop is included in Appendix E – Consultation Record.

While those living adjacent to Santeetlah Reservoir were represented on the Advisory Committee by the Friends of Lake Santeetlah, Cross Creek Property Owners Association, and other shoreline residents, Tapoco desired to give each individual living adjacent to the reservoir with a dock license a voice in the process. Because the dock licensees are among the stakeholders that are directly affected by the proposed SMP, Tapoco wanted to ensure that they had an opportunity, early in the process, to express their interests and raise issues. With the Advisory Committee's support, Tapoco distributed a mail-back survey to the 200+ dock licensees on Santeetlah Reservoir in June 2003. Tapoco received 120 completed surveys for a survey response rate of 54 percent. Tapoco and the Advisory Committee considered the survey responses during the development of the SMP. A copy of the Stakeholder Survey and data analysis are included in Appendix E – Consultation Record.

On July 16, 2003, Tapoco hosted the second Santeetlah Reservoir planning workshop. At this workshop, the Advisory Committee discussed preliminary drafts of the following two documents: "Specifications for Private Recreation Use Facilities" and "Shoreline Stewardship Policy". A summary of this workshop is included in Appendix E – Consultation Record.

The third and final planning workshop was held on September 17, 2003. At this workshop, the Advisory Committee reviewed and discussed a preliminary draft of the "Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures". Specifically, Tapoco described the delineation of Stewardship Areas around Santeetlah Reservoir. A summary of this workshop is included in Appendix E – Consultation Record.

Subsequent to these three planning workshops, Tapoco revised the three shoreline management documents (Specifications, Shoreline Stewardship Policy, and Multi-use Procedures) based on comments received by the Advisory Committee and from the Stakeholder Survey. A draft Tapoco Project SMP was distributed for review and comment in July 2004.

On August 12, 2004, Tapoco hosted a meeting for the SMP Advisory Committee, pier permittees, and the general public to provide detailed information specific to the pier permitting specifications, to answer questions, and solicit comments on the Tapoco Project Draft SMP. Tapoco reviewed the structure and content of the SMP and described how the SMP will be used by Tapoco to balance shoreline development with the protection of valuable resources. A summary of the meeting is included in Appendix E – Consultation Record.

Subsequent to the public meeting, Tapoco revised the Draft SMP based on comments received. A summary of the comments and Tapoco's responses are included in Appendix F - Summary of Public Comment on Tapoco Project Draft Shoreline Management Plan. The final SMP was filed with FERC in October 2004.

1.5 Shoreline Management Plan Goals and Objectives

Generally, a shoreline management plan is a comprehensive management tool useful for managing project resources and addressing multiple demands from various stakeholders. The Tapoco Project SMP is intended to be a management tool that assists Tapoco in managing the reservoir shorelines consistent with its obligations under the Project license, while also addressing the interests and issues raised by resource agencies and other stakeholders.

During the April 2003 pre-planning meeting, Tapoco and those in attendance described and discussed their visions for the Tapoco Project SMP. A few of the visions expressed include:

> "To develop a management tool that is clear, provides consistency and is straightforward to administer, but that also provides reasonable protection of important environmental, recreational, cultural, and aesthetic resources." (Tapoco)
>
> "To responsibly and conservatively manage the reservoir and surrounding lands. To create a document that has vision and foresight that can stand the test of 30-40 years and that is easy to administer for everyone." (Friends of Lake Santeetlah)

"To protect the fishery and wildlife resources of North Carolina." (North Carolina Wildlife Resources Commission)

"To provide guidance on the construction of seawalls and boat docks, as well as shoreline development, around the reservoir." (Town of Lake Santeetlah)

A summary of this "visioning" exercise is included in Appendix E – Consultation Record (see meeting summary dated April 18, 2003 for the Tapoco Project SMP Pre-Planning Public Meeting held on April 3, 2003).

Using the visions as a basis, Tapoco and the stakeholders developed goals for the SMP, which can be summarized as:

1. To balance the protection of the important environmental, cultural, recreational, and aesthetic resources unique to the Tapoco Project with the provision of recreation opportunities.

2. To establish a process for reviewing and approving shoreline development uses and activities that encourage stewardship of environmental, cultural, recreational, and aesthetic resources by avoiding, offsetting, or mitigating impacts to the resources.

The Tapoco Project SMP includes a description of the regional setting and the Tapoco Project (Section 2.0), a discussion of uses of Project lands and waters (Section 3.0), a presentation of environmental, recreational, aesthetic, and cultural resource data (Sections 4.0, 5.0, and 6.0) and a discussion of shoreline management and stewardship (Section 7.0).

1.6 Use of the Shoreline Management Plan

The SMP identifies permitted uses and activities on the Project reservoirs and along the reservoirs' shorelines and outlines permitting procedures for these uses and activities. Tapoco will use this SMP to fulfill FERC's standard land use article. Specifically, Tapoco will use the SMP as a tool to protect valuable resources, guide future development, and monitor shoreline conditions at the Tapoco Project. Tapoco anticipates that the SMP will not only be a tool for its permitting personnel, but also adjacent property owners, developers, and state and federal resource agencies who have an interest in shoreline management at the Project.

2.0 TAPOCO PROJECT DESCRIPTION

2.1 Regional Setting – Little Tennessee River Basin

The Tapoco Project (Project) is located approximately 15 miles south of Maryville, Tennessee, and approximately 90 miles northeast of Chattanooga, Tennessee. The Project is in the western portion of the Little Tennessee Watershed on the Little Tennessee and Cheoah rivers in Graham and Swain counties in North Carolina and Blount and Monroe counties in Tennessee.

The Little Tennessee Watershed is generally oriented in a southeast-northwest direction. Elevations within the watershed vary from about 900 feet to above 6,000 feet along the northeast watershed divide. The watershed encompasses approximately 1,728,000 acres and contains approximately 2,700 miles of freshwater streams and rivers.

The drainage area to the Tapoco Project at Chilhowee Dam (the most downstream of the Tapoco Project developments) is approximately 1,265,280 acres. Excluding the portion of the watershed that lies above Fontana Dam (located immediately upstream of the Project), the area of the watershed that drains directly to the Tapoco Project is 259,840 acres. The major tributaries of the Little Tennessee River above Chilhowee Dam are the Cullasaja, Nantahala, Tuckaseegee, and Cheoah rivers.

The Project is located in the Southern Appalachian physiographic region, which is topographically dominated by the Blue Ridge Mountain Range and characterized by rugged terrain that is heavily forested and interspersed with large valleys. Most of the present-day Project is thought to be comprised of Great Smoky Conglomerate that is described as the "oldest sedimentary deposit coarse gray sandstone and greywacke with many beds of black slate and schist" (Walcott, 1907). In general, the soils of the Project uplands are severely leached, acidic, and low in fertility and the Project valleys are alluvial and moderately to excessively drained.

Land in the watershed is dominated by undeveloped forest lands. Of the 259,840 acres of watershed that drains directly to the Project, the vast majority lies within either the Great Smoky Mountains National Park (GSMNP) (75,600 acres or 29%) or the Nantahala National Forest (89,800 acres or 35%). Although the region is experiencing some development, particularly of vacation and retirement homes, the steep terrain makes much of the land around the Project unsuitable for development. Similarly, agricultural opportunities are limited to small areas of flatter terrain. With the exception of Santeetlah, the Project reservoirs are undeveloped, other than a few recreation facilities and Project works. Within the watershed, land use is approximately 85% forested (49% federal, 36% private), 6% urban/developed, 3% pasture, 3% cropland and 3% other.

The Project is located near two population centers: the nearby cities of Alcoa and Maryville, Tennessee have a combined population of approximately 106,000 (2000) and Robbinsville, North Carolina, located approximately 1 mile south of Santeetlah Reservoir, has a population of approximately 747 (2000). Of the four surrounding counties, Monroe County is the fastest growing in the Project area (28% population change, 1990-2000) (U.S. Census Bureau, website).

2.2 Tapoco Hydropower Developments

2.2.1 Project History

The earliest occupation of the Southern Appalachian region, including the Little Tennessee River Basin occurred during the Paleo-indian period about 12,000-8,000 BC. Since that time, the basin has been occupied by a succession of aboriginal inhabitants. After 1450 AD, native people, historically known as the Cherokee, populated the lower basin. The earliest known European explorers are believed to have visited the Southern Appalachian region in the mid-1500s, but it was not until after 1670 that the British began settling the interior and probably the lower basin.

In 1910, the Tallassee Power Company, later renamed Carolina Aluminum Company, began to survey the Little Tennessee River watershed, exploring and assessing the potential for the integrated development of the waterpower resource. Construction of Cheoah Development, the first hydropower dam on the Little Tennessee River, commenced in 1916 and was completed in 1919. The Tallassee Power Company then followed with the construction of the Santeetlah Development between 1924 and 1928.

The Calderwood Development, built between 1928 and 1930, was constructed by Alcoa and became part of the Knoxville Power Company, a subsidiary of Alcoa. The Knoxville Power Company later became known as Tapoco, Inc. Construction of the last of the four Project dams, the Chilhowee Development, did not begin until 1955 and was completed in 1957. On March 17, 1955, the Federal Power Commission, predecessor to the Federal Energy Regulatory Commission (FERC), issued a 50-year license to the Knoxville Power Company and Carolina Aluminum Company. The Project is currently owned and operated by the Tapoco Division (Tapoco) of Alcoa Power Generating Inc. (APGI), a wholly owned subsidiary of Alcoa Inc.

2.2.2 Hydropower Project Description

2.2.2.1 Project Boundary

The total area within the FERC Project Boundary is approximately 8,300 acres (5,800 acres of water and 2,500 acres of land). The new license is anticipated to add about 147 acres of land within the Project Boundary. The Tapoco Project extends along the Little Tennessee River from about river mile marker 33 located approximately 3,000 feet downstream of Chilhowee Dam to just above river mile marker 60, a little more than a half-mile downstream of the Tennessee Valley Authority's (TVA) Fontana Dam. Chilhowee, Calderwood and Cheoah developments and

Santeetlah Powerhouse are located on the Little Tennessee River. Santeetlah Dam and Reservoir are located on the Cheoah River, a tributary to the Little Tennessee River. Santeetlah Dam is located approximately 9.3 miles upstream of the confluence of the two rivers, which is located just downstream of Cheoah Powerhouse. The Project Boundary also encompasses much of the Cheoah River corridor downstream of the Santeetlah Dam.

2.2.2.2 Santeetlah Development

Santeetlah Dam is located in Graham County, North Carolina on the Cheoah River, just upstream of river mile 9. Santeetlah Reservoir consists of 78.8 miles of shoreline and 2,881 acres of water surface at its full-pool elevation of 1,940.9 feet[1]. The drainage area of Santeetlah Reservoir covers 176 square miles.

The installed capacity of the Santeetlah Development is 49.2 MW. The Santeetlah Powerhouse contains two vertical Francis turbine units directly connected to generators.

2.2.2.3 Little Tennessee Mainstem Reservoirs

Cheoah Development

Cheoah Development is the most upstream of the three Project developments located on the Little Tennessee River. The dam is located in Graham and Swain counties, North Carolina, between river miles 51 and 52, just upstream of the mouth of the Cheoah River. Cheoah Reservoir has 19.6 miles of shoreline and 644 acres of water surface at full-pool (elevation 1,276.8 feet). Cheoah Reservoir has a drainage area of 1,608 square miles.

The installed capacity of the Cheoah Development is 118.0 MW. The Cheoah powerhouse contains five vertical Francis turbine units directly connected to generators.

Calderwood Development

Calderwood Development, the third in the chain of Project developments, is located in Graham and Swain counties, North Carolina, and Blount and Monroe counties, Tennessee between river miles 42 and 44 of the Little Tennessee River. Calderwood Reservoir consists of 16.9 miles of shoreline and 570 acres of water surface at full-pool (elevation 1,087.8 feet). The drainage area of Calderwood Reservoir is 1,856 square miles.

[1] All elevations reported in the SMP are based on the USGS datum. When the Tapoco Project was originally constructed, a local survey datum was used for each development. The full-pool reservoir elevations (USGS/local datum) are as follows: Santeetlah 1,940.9 ft / 1,817 ft, Cheoah 1,276.8 ft / 1,154 ft, Calderwood 1,087.8 ft / 965 ft and Chilhowee 874 ft / 874 ft. Regardless which datum is used, the full-pool reservoir elevation reflects the top of the spillway gate elevation or the maximum normal water level for that reservoir.

Calderwood Development has an installed capacity of 140.4 MW. The Calderwood Powerhouse contains three vertical Francis turbine units directly connected to generators.

Chilhowee Development

Chilhowee is the most downstream of the Project developments. The development is located in Blount and Monroe counties, Tennessee between river miles 33 and 34 of the Little Tennessee River. Chilhowee Reservoir consists of 26.4 miles of shoreline and 1,723 acres of water surface at full-pool (elevation 874.0 feet). The reservoir covers a drainage area of 1,977 square miles.

The installed capacity of Chilhowee Development is 52.2 MW. The Chilhowee Powerhouse contains three Kaplan turbine units directly connected to generators.

2.2.3 Hydropower Project Operations

Santeetlah Reservoir, the largest of the four Project reservoirs, is operated as a storage impoundment in accordance with an annual operating curve, which establishes target seasonal reservoir levels. The current operating curve was adopted in 2004 as part of the Relicensing Settlement Agreement.

Santeetlah Reservoir is operated to maintain high recreational elevations during the summer months, followed by fall drawdown to allow for collection of rainfall and runoff during the late fall, winter and early spring. The current operating curve (Figure 2-1) was developed to also provide protection and enhancement for a variety of other resources and uses, including aquatic species and habitat, water quality, reservoir wetlands, archaeological sites, and scenic appearance throughout the year. During the period April 1 to November 1, the maximum drawdown at Santeetlah Reservoir is 4-5 feet. The reservoir is filled during the month of March at such a rate that by April 1 the maximum drawdown is 5 feet. During the period December 1 to March 1, the maximum drawdown is 10 feet. During the month of November, the reservoir is drawn down at such a rate that by December 1 the maximum drawdown is 10 feet.

Prior to the Relicensing Settlement Agreement, there were no regular flow releases from Santeetlah Dam into the Cheoah River. Water from Santeetlah Reservoir was diverted to the powerhouse located on the Little Tennessee River upstream of Cheoah Dam. The drainage area for the Cheoah River below Santeetlah Dam was made up of leakage from the dam, tributary inflow and occasional spills from the dam.

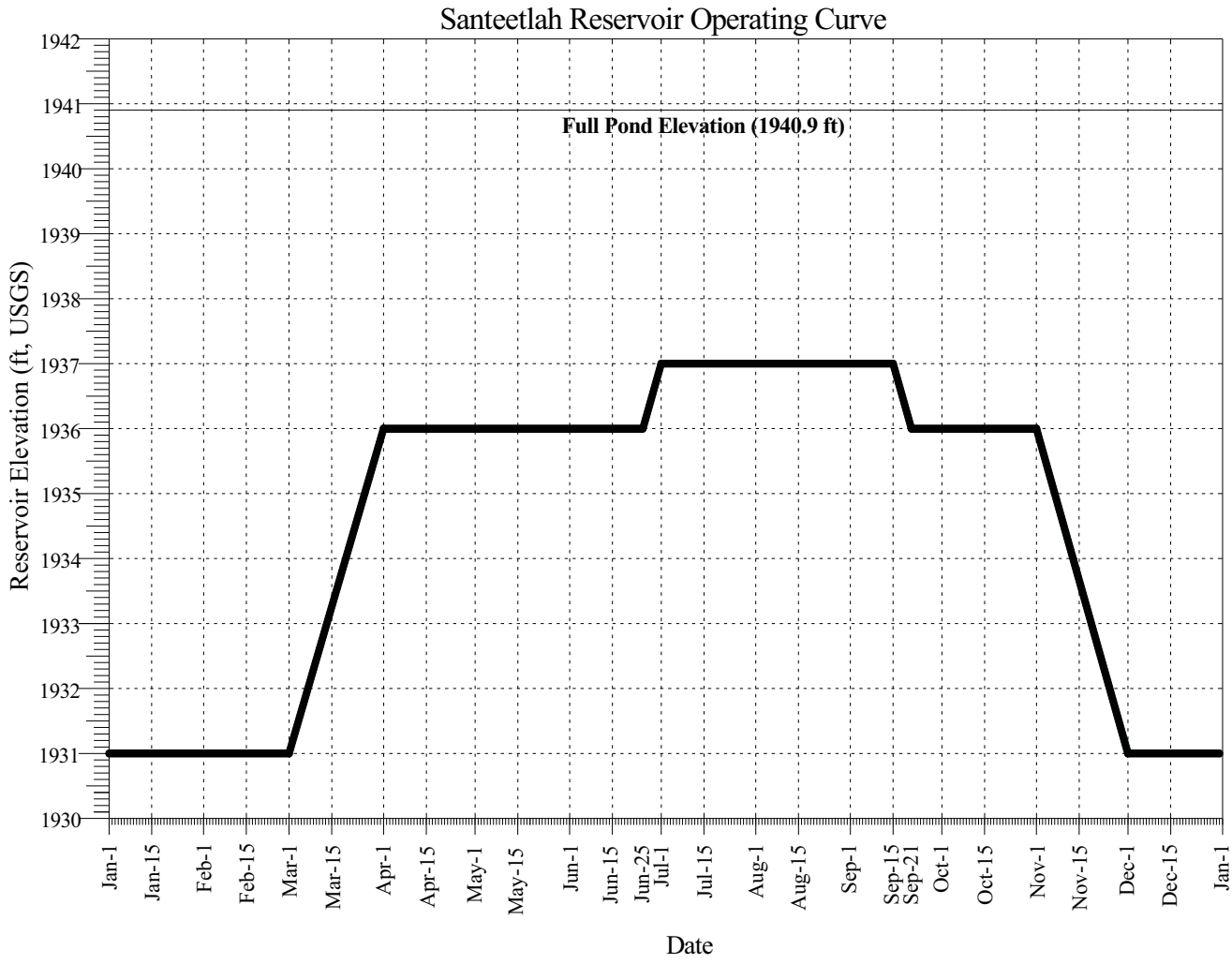
Beginning September 1, 2005 as part of the Relicensing Settlement Agreement, Tapoco will release flows from Santeetlah Dam into the Cheoah River according to Table 2-1. The aquatic base flow for each month is determined by calculating the average daily inflow (ADI) value for the three preceding months using daily measures of change in reservoir elevation and total discharge. If the ADI value is greater than the historic 25th percentile average flow for that month (Table 2-2), Tapoco releases flows according to Tier A of Table 2-1. If the ADI is less than or equal to the historic 25th percentile average flow for that month, flows are released according to Tier B of Table 2-1.

Since TVA's upstream Fontana Dam serves as the primary storage and flow control facility for the lower Little Tennessee River, operations of the Cheoah, Calderwood, and Chilhowee developments are based on Fontana's operation and planned discharges and are essentially operated in a run-of-river mode following the daily-cycle peaking operations of Fontana. During periods of high releases from Fontana, these three developments operate 24 hours per day and water is stored at Santeetlah Reservoir, based on available storage, for subsequent releases. During periods of low releases from Fontana, the Cheoah, Calderwood and Chilhowee developments operate a limited number of hours per day at maximum capacity in a modified run-of-river mode. Due to their limited ability to store water, the Cheoah and Calderwood reservoirs are operated with daily pondage and with maximum drawdowns of 7 feet at Cheoah and 6 feet at Calderwood. There is no seasonal drawdown at either development.

Calderwood Powerhouse and Dam are located on a horse-shoe shaped area of the Little Tennessee River known as the Calderwood Bypass. Water from Calderwood Reservoir flows to the powerhouse through an underground tunnel that cuts across the horseshoe area. This diversion of water from the dam creates a "bypassed" reach of the Little Tennessee River mainstem that extends from the dam to the powerhouse. Prior to the Relicensing Settlement Agreement, water flow in the bypass was limited to leakage from the dam and inflows from two small tributaries. Once the new license for the Tapoco Project is issued from FERC, Tapoco shall maintain minimum instream flows in the Calderwood Bypass.

The Chilhowee Reservoir is operated with daily pondage, a normal fluctuation range of 1 to 2 feet with a minimum outflow, a maximum drawdown of 5 feet from normal full-pool elevation and no seasonal drawdown. At TVA's request, the Chilhowee Development is operated from May 1 to October 31 with a minimum daily average outflow of 1,000 cubic feet per second (cfs) into the Chilhowee tailrace. For the remainder of the year, no minimum flow is required downstream of Chilhowee. TVA's Tellico Dam is located approximately 33 miles downstream of the Chilhowee Dam.

Figure 2-1 Santeetlah Reservoir Operating Curve



Date	Mar-1	Apr-1	Jun-25	Jul-1	Sep-15	Sep-21	Nov-1	Dec-1
Elevation (ft, USGS)	1931	1936	1936	1937	1937	1936	1936	1931

Table 2-1 Aquatic Base Flows

Month	Tier A Flowrate (cfs)	Tier B Flowrate (cfs)
January	50	50
February	100	90
March	100	90
April	100	90
May	90	80
June	60	60
July	60	50
August	50	40
September	50	40
October	50	40
November	50	40
December	60	50

Table 2-2 Historic 25th Percentile Average Flows Based on 31-year Period of Record (1971-2001)

Month	Threshold Flow (cfs)
January	256
February	446
March	484
April	615
May	617
June	526
July	403
August	289
September	208
October	141
November	116
December	148

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3.0 USE OF PROJECT LANDS AND WATERS

3.1 Existing Land Use

3.1.1 Federal Land

The land in the immediate vicinity of the Tapoco Project is dominated by undeveloped forest lands, much of which is located in national forests (Cherokee and Nantahala) or the Great Smoky Mountains National Park (GSMNP) as shown in Figures 3-1 and 3-2. Within the two national forests are located two wilderness areas (the 15,891-acre Citico Creek Wilderness in the Cherokee National Forest and the 17,013-acre Joyce Kilmer-Slickrock Creek Wilderness mainly in the Nantahala National Forest). Development within these federal land preserves is generally limited to public recreation facilities, park and forest administrative structures and some occasional private in holdings.

The 515,000-acre Nantahala National Forest borders the Project Boundary for a distance of approximately 94.5 miles in Graham County, North Carolina. The Santeetlah Reservoir and portions of the Calderwood and Cheoah reservoirs are bounded by Nantahala National Forest land. Approximately 77 percent (60.7 miles) of the Santeetlah Reservoir shoreline is public land managed by the U.S. Forest Service (USFS). A portion of the area included within the boundary of the Project, essentially the Cheoah River corridor (387 acres), is located within the Nantahala National Forest, but there are no Project works occupying USFS lands. The USFS manages the Nantahala National Forest for wildlife, watershed, soil, timber, minerals, cultural resources, wilderness and outdoor recreation, in accordance with the Land and Resource Management Plan for the Nantahala and Pisgah National Forests Amendment 5 (U.S. Forest Service, 1994).

The 304,000-acre Cherokee National Forest borders the Project Boundary for a distance of approximately 2.5 miles in Monroe County, Tennessee partially bordering small amounts of land along the Calderwood and Chilhowee reservoirs. There are no Cherokee National Forest lands within the Project Boundary. The National Forest is managed by the USFS Tellico Ranger District in accordance with the Cherokee National Forest Revised Land and Resource Management Plan (U.S. Forest Service, 2004). Approximately 54 percent of the Tellico Ranger District is suitable for timber management, while the other 46 percent is set aside in special areas, recreation areas, wilderness and scenic areas.

The GSMNP borders the Project Boundary for a total distance of approximately 12.7 miles in Blount County, Tennessee and Swain County, North Carolina along the northeast side of Chilhowee Reservoir and north side of Cheoah Reservoir. The National Park Service (NPS) manages the park in accordance with a General Management Plan (National Park Service, 1982). To carry out the strategies of the plan, management zones have been designated for the various lands and waters of the park to indicate the appropriate uses, activities, and management actions.

Under the original 1955 Tapoco Project license, approximately 110 acres of Project lands on or adjacent to the Chilhowee Reservoir shoreline are owned by the GSMNP. Although Tapoco has the property rights for its Project operations on these parcels of land, the Federal Energy Regulatory Commission (FERC) does not have the authority to license hydroelectric projects inside national parks. To cure the defect in the Project license, pursuant to the terms of the Relicensing Settlement Agreement, Tapoco and designated parties to the settlement agreement are seeking a legislative change to the Great Smoky Mountains National Park owned lands to exclude the Shop Creek, Unnamed Creek, Chilogatee Branch, and Abrams Creek area lands located in the FERC Project Boundary from the Park (Figure 3-3). In exchange, Tapoco will provide to the NPS approximately 186 acres located northeast of U.S. Highway 129.

3.1.2 Tribal Land

There are 20 separate areas of Cherokee Tribal lands located in the vicinity of the Project, specifically, easterly and southerly of the Santeetlah Reservoir, which comprise approximately 1,740 acres. The lands support both forest and agricultural land uses. There are no tribal lands located within the Project Boundary.

3.1.3 Tapoco Project Land

Alcoa Power Generating Inc. (APGI) owns approximately 7,836 acres (94 percent) of the total 8,300 acres of land and water within the Project Boundary (Figures 3-1 and 3-2). The principal areas of APGI-owned Project land include the Santeetlah pipeline/tunnel corridor, the Calderwood Bypass area, along the left shoreline (facing downstream) of Chilhowee Reservoir in the vicinity of Chilhowee Dam, along the right shoreline of Chilhowee Reservoir in the vicinity of Calderwood Village, and areas in the vicinity of the dams. Use of these lands is primarily for dams, switchyards, substations, transmission lines, access roads, and other related facilities associated with the production and transmission of electrical power. Project lands not used in connection with Project facilities are managed as natural areas and are generally available for public recreation use.

3.1.4 Tapoco Non-Project Land

In addition to Project lands, APGI owns and manages approximately 12,725 acres of non-Project lands in the vicinity of the Project, specifically in the Yellow Creek area, near the Santeetlah Powerhouse, along the north side of Cheoah Reservoir, abutting the Project Boundary along most of Calderwood Reservoir and large portions of Chilhowee Reservoir (Figures 3-1 and 3-2). Non-Project APGI-owned land abuts approximately 30 percent of the Project Boundary. With the exception of lands connected with power generation, transmission or other utility purposes and some small agricultural leases, APGI's non-Project lands are managed as natural forest and are generally available for public use. Under the Relicensing Settlement Agreement, APGI would grant to The Nature Conservancy options to acquire title to a significant portion of this non-Project acreage for reconveyance to a federal or state agency, as may be determined in the future.

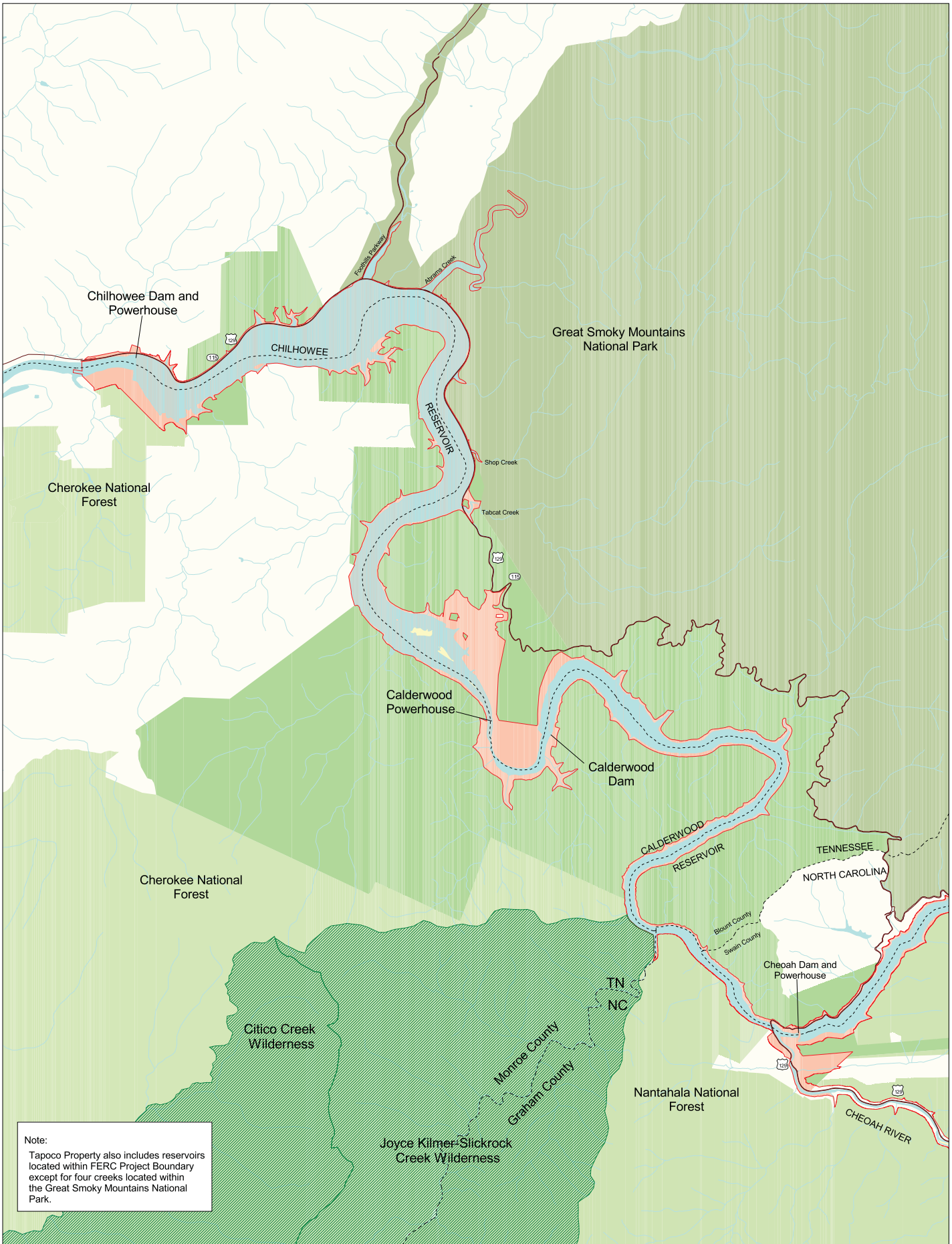
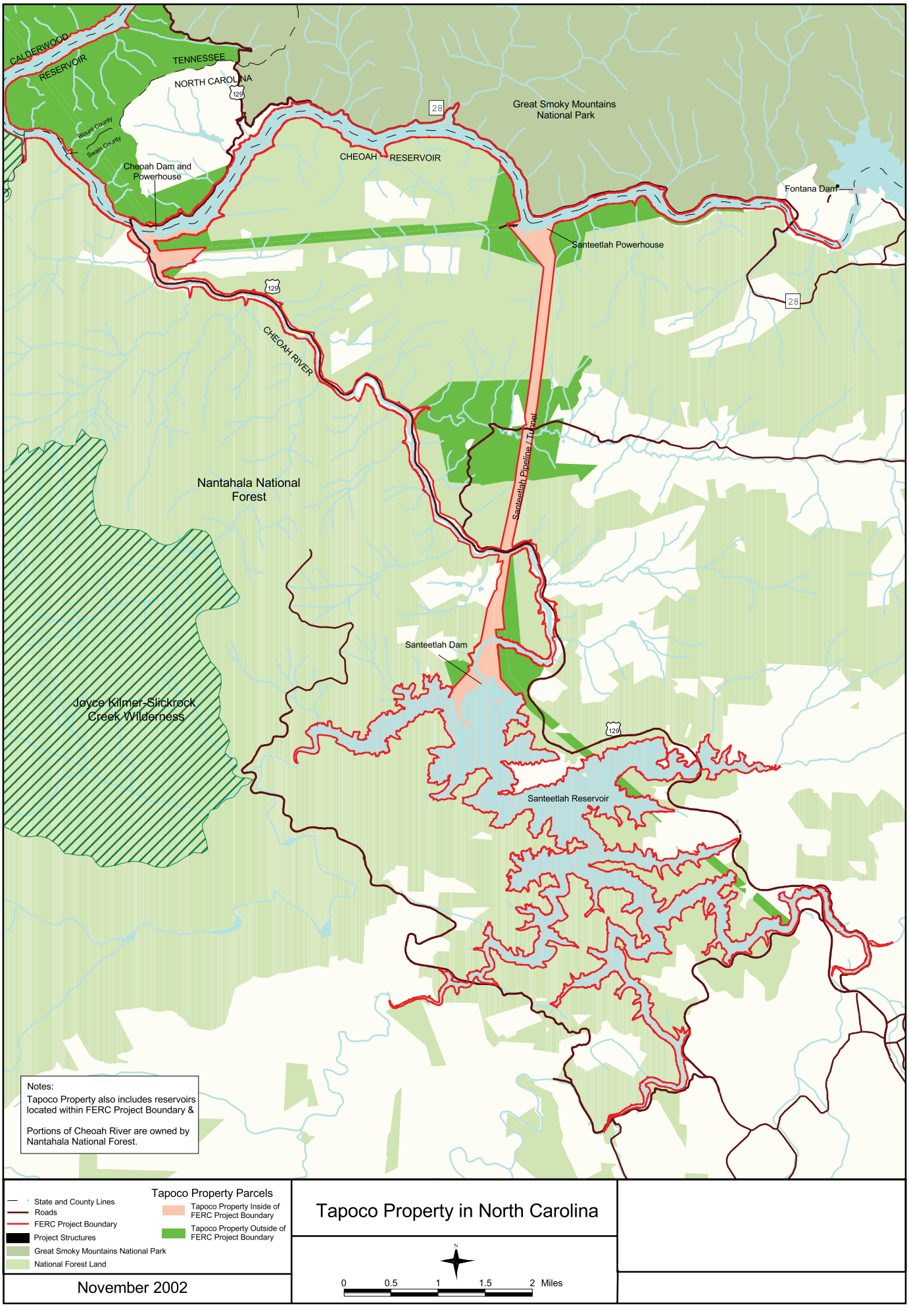
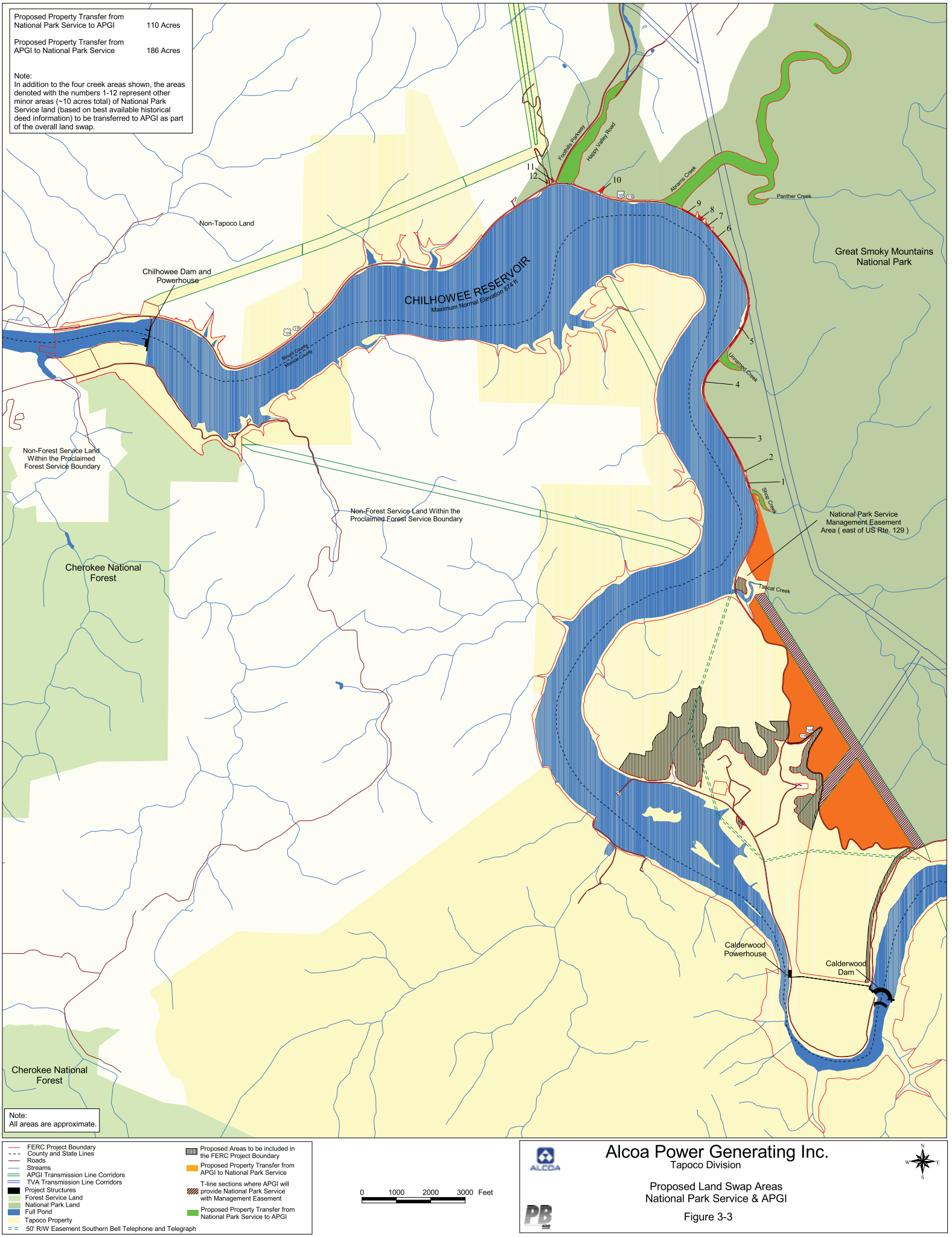

Chilhowee Dam and Powerhouse
CHILHOWEE
RESERVOIR
Foothills Parkway
Abrams Creek
Great Smoky Mountains National Park
Shop Creek
Tabcat Creek
Cherokee National Forest
Calderwood Powerhouse
Calderwood Dam
CALDERWOOD RESERVOIR
TENNESSEE
NORTH CAROLINA
Blount County
Swain County
Cheoah Dam and Powerhouse
Cherokee National Forest
TN
NC
Citico Creek Wilderness
Monroe County
Graham County
Nantahala National Forest
CHEOAH RIVER
Joyce Kilmer-Slickrock Creek Wilderness
Note:
Tapoco Property also includes reservoirs located within FERC Project Boundary except for four creeks located within the Great Smoky Mountains National Park.
State and County Lines
Roads
FERC Project Boundary
Project Structures
Great Smoky Mountains National Park
Cherokee National Forest Land
Tapoco Property Parcels
Tapoco Property Inside of FERC Project Boundary
Tapoco Property Outside of FERC Project Boundary
Land Use Adjacent to Tapoco Project in Tennessee
N
0 0.5 1 1.5 2 Miles
September 2004
Figure 3-1

Figure 3-2 Land Use Adjacent to Tapoco Project in North Carolina




Proposed Property Transfer from National Park Service to APGI 110 Acres
Proposed Property Transfer from APGI to National Park Service 186 Acres
Note:
In addition to the four creek areas shown, the areas denoted with the numbers 1-12 represent other minor areas (~10 acres total) of National Park Service land (based on best available historical deed information) to be transferred to APGI as part of the overall land swap.
Non-Tapoco Land
Chilhowee Dam and Powerhouse
CHILHOWEE RESERVOIR
Maximum Normal Elevation 874 ft
Great Smoky Mountains National Park
Foothills Parkway
Happy Valley Road
Abrams Creek
Panther Creek
Unnamed Creek
Sugar Creek
Tabcat Creek
Blount County
Monroe County
Non-Forest Service Land Within the Proclaimed Forest Service Boundary
Non-Forest Service Land Within the Proclaimed Forest Service Boundary
National Park Service Management Easement Area (east of US Rte. 129)
Cherokee National Forest
Cherokee National Forest
Calderwood Powerhouse
Calderwood Dam
1
2
3
4
5
6
7
8
9
10
11
12
Note:
All areas are approximate.
FERC Project Boundary
County and State Lines
Roads
Streams
APGI Transmission Line Corridors
TVA Transmission Line Corridors
Project Structures
Forest Service Land
National Park Land
Full Pond
Tapoco Property
50' R/W Easement Southern Bell Telephone and Telegraph
Proposed Areas to be included in the FERC Project Boundary
Proposed Property Transfer from APGI to National Park Service
T-line sections where APGI will provide National Park Service with Management Easement
Proposed Property Transfer from National Park Service to APGI
0 1000 2000 3000 Feet
ALCOA
Alcoa Power Generating Inc.
Tapoco Division
Proposed Land Swap Areas
National Park Service & APGI
Figure 3-3
N
W
E
S

3.1.5 Other Private Land

Development (private or commercial) is allowed on or in close proximity to Santeetlah Reservoir, but not the other Tapoco Project reservoirs. Approximately 23 percent (18.1 miles) of the shoreline is, or potentially could be, developed. To date, Tapoco has permitted one marina, one multi-use dock, and three other small commercial facilities on Santeetlah Reservoir or on other lands adjacent to the reservoir. Tapoco has issued approximately 238 private permits for docks and other access facilities clustered primarily in four subdivisions located on the north side of the reservoir.

There is one small parcel of private land located adjacent to the Calderwood Reservoir just downstream from the Cheoah Powerhouse that includes the Tapoco Lodge and a small wastewater treatment facility that serves the lodge.

There are approximately 3,000 acres of undeveloped private land located adjacent to Chilhowee Reservoir in Monroe County near the Chilhowee Dam. Along the stretch of U.S. Highway 129 that travels along the northeast shoreline of the reservoir is one private residence.

3.2 Zoning and Development Regulations

3.2.1 State and Local

Land use and development along the reservoir shorelines outside of the Project Boundary is regulated by the local counties. Each of the counties adjacent to the Project reservoirs has the responsibility for land use regulations governing activities in these areas.

Graham County, North Carolina has not adopted a zoning ordinance or a land use plan. Over one-half of the county is federally owned and managed.

The Town of Lake Santeetlah is a small town incorporated in 1989 located in Graham County, North Carolina on the shores of Santeetlah Reservoir. The town has not adopted a land use plan, but adopted a zoning ordinance and property line set-backs when it was incorporated. The town is zoned for single family residences. As long as a 10-foot property line set-back is met, there is no minimum lot size.

Swain County, North Carolina has not adopted a zoning ordinance or a land use plan. Of relevance to the Project reservoirs is a soil and erosion control ordinance managed in accordance with the North Carolina Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes 113A-50 through 113A-66). If an acre or more of land is graded, a soil and erosion plan is required; while areas less than an acre require the use of best management practices.

Monroe County, Tennessee has not adopted a zoning ordinance or a land use plan, but did adopt subdivision regulations in July 1997 (amended in February 2000). Of relevance to the Project reservoirs is the provision that land deemed topographically unsuitable by the planning

commission shall not be platted for residential occupancy or for any other uses that may endanger health, life or property, or aggravate erosion.

Blount County, Tennessee zoning regulations were amended in June 2002. According to the 2000 Land Use Plan for Blount County, parcels of land in the vicinity of Chilhowee and Calderwood reservoirs are zoned Rural 1 (medium to low density development), Rural 2 (low density development) or National Park (NP) (autonomous planned area). Permitted uses under the Rural 1 and Rural 2 designations include one or two single family dwellings on a single lot, duplex dwellings, customary home occupations, group homes, churches, temples, cemeteries, government and utility uses and accessory structures. Any land use within the Great Smoky Mountains National Park and Foothills Parkway area is not subject to the provisions of the zoning regulations.

3.2.2 Federal

National Forest System lands are managed under a variety of Federal Regulations to include the National Forest Management Act of 1976 (NFMA). NFMA established Land and Resource Management plans (Forest Plans) that guide how the Forest Service will fulfill its stewardship of natural resources. Forest Plans establish management areas that are similar to zones of a city plan. Each management area is developed to achieve different desired conditions, emphasize different activities, permit different uses of the forest, emphasize differing wildlife species and landscape features.

The Land and Resource Management Plan for the Nantahala and Pisgah National Forests Amendment 5 sets the management direction for National Forest System lands that are within and adjacent to the Tapoco Project (U.S. Forest Service, 1994). Of the 18 Management Areas contained in the Forest Plan, the Tapoco Project is within or adjacent to the following management areas:

Management Area 2: Emphasizes pleasant scenery for people who experience the forest by driving (or boating) through it. Secondarily, this Management Area provides an environment of older forests combined with timber management activities sensitive to scenery. Wildlife that are compatible with or that benefit from these conditions, such as squirrels and woodpeckers are likely to be present. Since many of these areas are along well-traveled roads, the visitor is likely to encounter numerous other people and their vehicles.

Management Area 3: Emphasizes a sustainable supply of timber with few open roads and without the disturbance associated with motorized vehicles. This Management Area provides the habitat needs of wildlife such as wild turkey, deer, a variety of small mammals, and other species that will benefit from a managed forest with limited motorized access. The visitor may encounter forest management activities in progress, including timber harvest, road building, and timber stand improvement. Recreationists use this area for hiking, mountain biking, horseback riding, hunting and other activities.

Management Area 4: In this area most of the roads are closed to motor vehicles and a somewhat remote setting is provided, but with timber management in limited areas. In Management Areas 4A and 4C, emphasis is placed on managing for quality scenery. In Management Area 4D, emphasis is on providing high quality wildlife habitat, particularly for black bear. Visitors using these areas for recreation may occasionally encounter other people.

Management Area 7: This area includes the Congressionally designated Wilderness of Joyce Kilmer-Slickrock Creek. This area is managed to perpetuate the naturalness of the area while providing for recreational, scenic, scientific, educational, conservation, and historical use compatible with the wilderness resources and attributes.

Tapoco has no management oversight over National Forest System lands which are managed in accordance with the various laws and regulations established by the U.S. Congress. The Tapoco Project Shoreline Management Plan (SMP) is designed to complement the management of National Forest System lands and promote the stewardship of natural resources.

3.3 Watershed Protection

3.3.1 State Water Supply Protection Requirements

In June 1989, the North Carolina General Assembly enacted a state law, the Water Supply Watershed Protection Act, mandating minimum statewide water protection requirements for all surface water supplies for raw drinking water (North Carolina General Statutes 143-214.5 and 143-214.6). All existing surface water supplies have been reclassified into five categories.

Minimum land use regulations have been established for two areas within each water supply watershed: critical and balance of watershed[2]. More stringent regulations have been established for the critical area, which extends ½ mile from normal full-pool elevation of the reservoir. The balance of watershed area, with less stringent regulations, extends 5 miles from the normal full-pool elevation of the reservoir. In the vicinity of the Tapoco Project, two areas have been given water supply classifications. The Cheoah River upstream of Santeetlah Reservoir is classified WS-III (waters protected that are generally in low to moderately developed watersheds), balance of watershed and Yellowhammer Branch located south of Cheoah Dam is classified WS-I (waters protected that are in natural and uninhabited watersheds), critical area.

According to the water supply watershed protection rules (last amended in June 1995), under the WS-I, critical area designation, there are no discharges, development, or landfills allowed. Under the WS-III, balance of watershed designation, development parameters for low density are 2 dwellings per acre or 24 percent built-upon area is permitted and for high density is 24-50 percent built-upon area. No new discharging landfills are permitted.

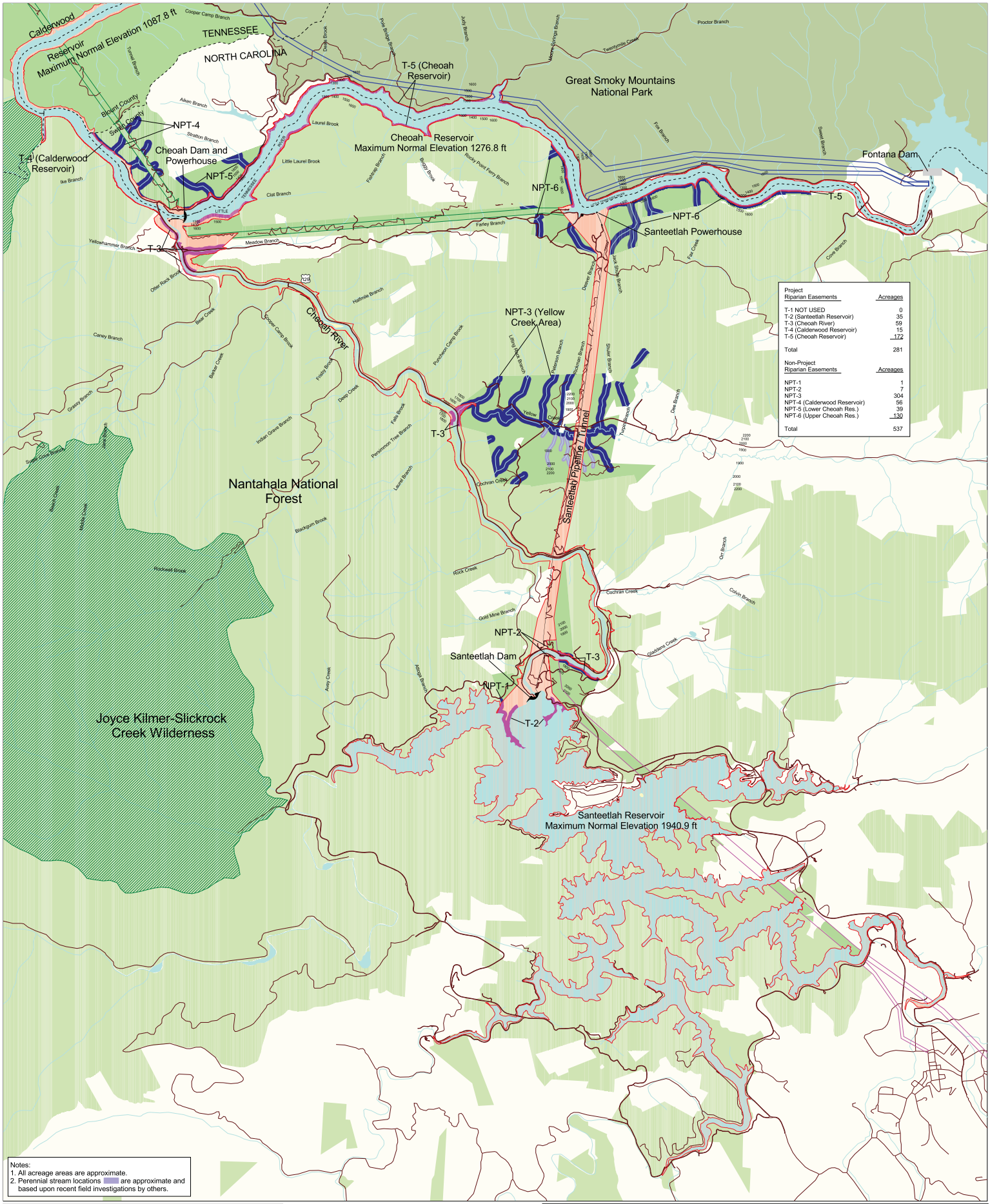
[2] There is also a "protected" designation, which is nearly the same as the "balance of watershed" designation except that the "protected" area is only used with respect to the surface water supply class WS-IV.

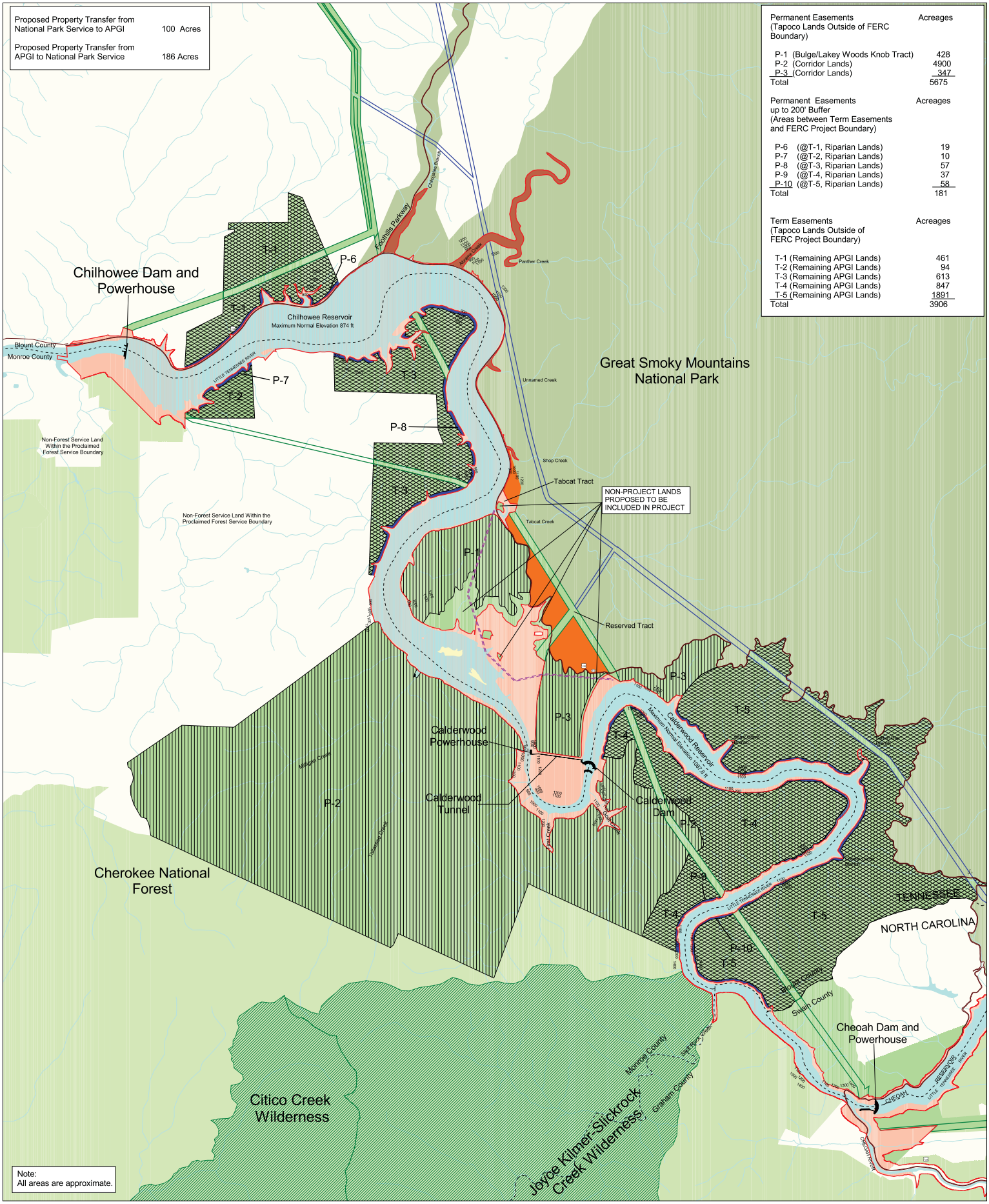
Currently, Tennessee does not have a comparable watershed classification system (Moss, 2004).

3.3.2 Land and Watershed Protection Provisions of the Tapoco Project Comprehensive Settlement Agreement

On April 16, 2004, APGI and the parties involved in the recent relicensing of the Tapoco Project entered into a comprehensive Relicensing Settlement Agreement regarding the continued operation of the Project. Shortly thereafter, APGI filed the Relicensing Settlement Agreement with FERC as an Offer of Settlement, intended to resolve all issues related to the relicensing of the Project. An essential component of the Relicensing Settlement Agreement is its provisions with regard to land and watershed protection at the Project's four reservoirs. Under the terms of the Relicensing Settlement Agreement, APGI would place permanent or term Conservation Easements on certain non-Project lands. The protection of the Little Tennessee and Cheoah River watersheds and riparian buffers will provide water quality benefits within the watersheds and will assist in the long-term protection of natural resources within the Project Boundary and on existing non-Project APGI-owned lands. The general locations of the lands referenced in this section are shown on Figures 3-4 and 3-5.

Some of the lands protected by the Conservation Easements are located along the shorelines of the Tapoco Project reservoirs and therefore, the Conservation Easements are considered in this SMP. Any uses of and activities on these lands are governed by the specific terms of the Conservation Easements (copies of all Conservation Easements when executed will be available at the county real estate records office or from Tapoco by calling either Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063). In general, the Conservation Easements will prohibit physical development or alteration of the lands, including but not limited to logging, mining, road building and construction of buildings but will allow, where applicable, continued management of the lands in the Tennessee Foothills Wildlife Management Area (Figure 3-6), subject to Tapoco's reserved rights which include uses necessary to operate the Project, power and utility purposes, and access to its transmission lines and other Project areas as needed.


Calderwood Reservoir Maximum Normal Elevation 1087.8 ft
TENNESSEE
NORTH CAROLINA
T-5 (Cheoah Reservoir)
Great Smoky Mountains National Park
Blount County
Swain County
NPT-4
Cheoah Dam and Powerhouse
NPT-5
T-4 (Calderwood Reservoir)
Cheoah Reservoir Maximum Normal Elevation 1276.8 ft
Fontana Dam
NPT-6
T-5
Santeetlah Powerhouse
T-3
Cheoah River
NPT-3 (Yellow Creek Area)
Santeetlah Pipeline / Tunnel
Nantahala National Forest
Joyce Kilmer-Slickrock Creek Wilderness
NPT-2
Santeetlah Dam
NPT-1
T-2
Santeetlah Reservoir Maximum Normal Elevation 1940.9 ft
Project Riparian Easements Acreages
T-1 NOT USED 0
T-2 (Santeetlah Reservoir) 35
T-3 (Cheoah River) 59
T-4 (Calderwood Reservoir) 15
T-5 (Cheoah Reservoir) 172
Total 281
Non-Project Riparian Easements Acreages
NPT-1 1
NPT-2 7
NPT-3 304
NPT-4 (Calderwood Reservoir) 56
NPT-5 (Lower Cheoah Res.) 39
NPT-6 (Upper Cheoah Res.) 130
Total 537
Notes:
1. All acreage areas are approximate.
2. Perennial stream locations are approximate and based upon recent field investigations by others.
State and County Lines
Major and Minor Roads
FERC Project Boundary
Great Smoky Mountains National Park
National Forest Land
APGI Transmission Line Corridors
TVA Transmission Line Corridors
Duke Transmission Line
Tapoco Property Parcels
Tapoco Property Inside of FERC Project Boundary
Tapoco Property Outside of FERC Project Boundary
Up to 200' Conservation Easements on Non-Project Tapoco owned land
Up to 100' Conservation Easements on Non-Project Tapoco owned land
Up to 200' Conservation Easements on Project Tapoco owned land
Project Structures
0 0.5 1 1.5 2 Miles
ALCOA
Alcoa Power Generating Inc.
Tapoco Division
PB
Proposed Land Conveyances in North Carolina
Figure 3-4

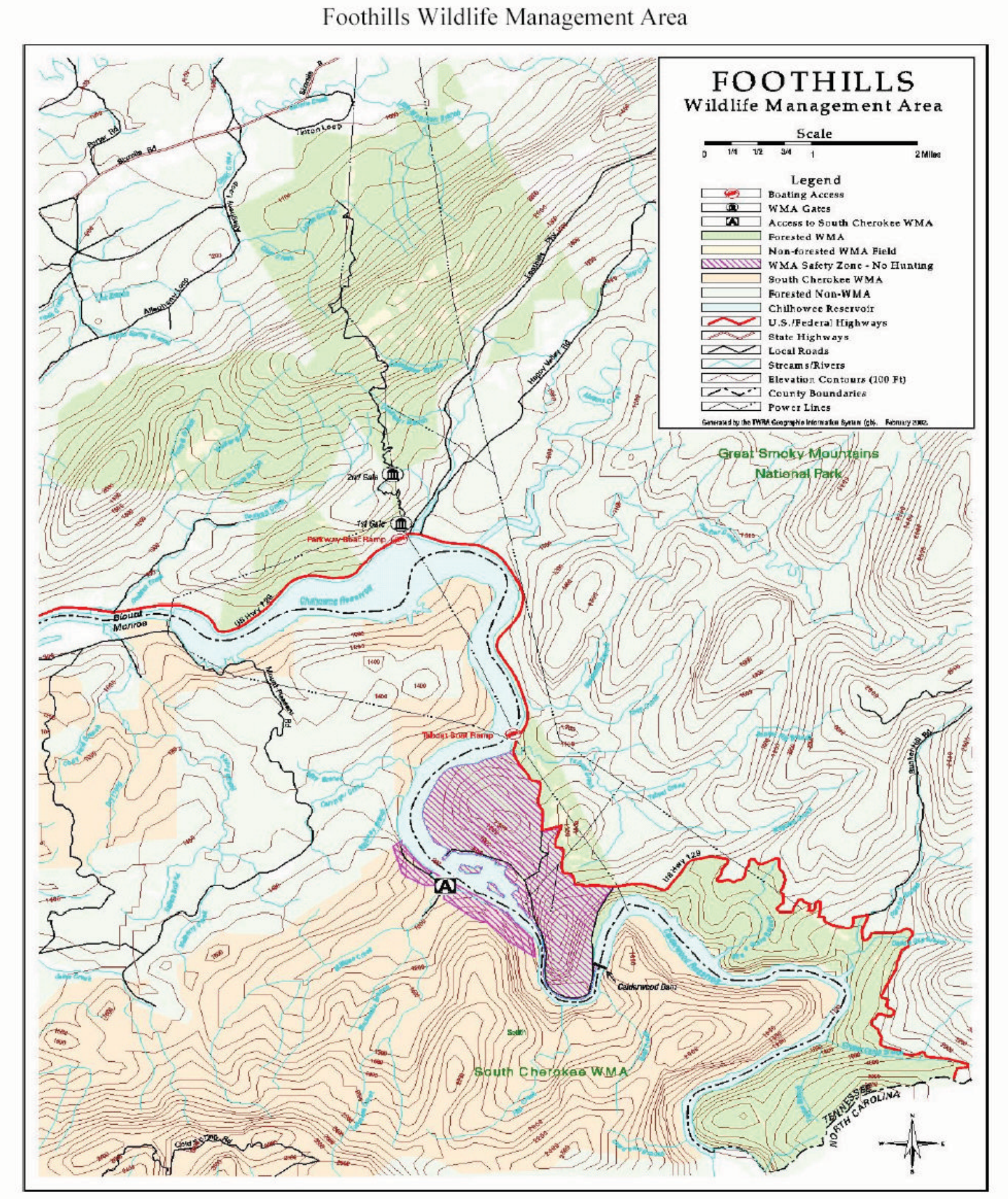

Proposed Property Transfer from National Park Service to APGI 100 Acres
Proposed Property Transfer from APGI to National Park Service 186 Acres
Permanent Easements (Tapoco Lands Outside of FERC Boundary) Acreages
P-1 (Bulge/Lakey Woods Knob Tract) 428
P-2 (Corridor Lands) 4900
P-3 (Corridor Lands) 347
Total 5675
Permanent Easements up to 200' Buffer (Areas between Term Easements and FERC Project Boundary) Acreages
P-6 (@T-1, Riparian Lands) 19
P-7 (@T-2, Riparian Lands) 10
P-8 (@T-3, Riparian Lands) 57
P-9 (@T-4, Riparian Lands) 37
P-10 (@T-5, Riparian Lands) 58
Total 181
Term Easements (Tapoco Lands Outside of FERC Project Boundary) Acreages
T-1 (Remaining APGI Lands) 461
T-2 (Remaining APGI Lands) 94
T-3 (Remaining APGI Lands) 613
T-4 (Remaining APGI Lands) 847
T-5 (Remaining APGI Lands) 1891
Total 3906
Chilhowee Dam and Powerhouse
Chilhowee Reservoir
Maximum Normal Elevation 874 ft
Blount County
Monroe County
Foothills Parkway
Great Smoky Mountains National Park
Non-Forest Service Land Within the Proclaimed Forest Service Boundary
Tabcat Tract
NON-PROJECT LANDS PROPOSED TO BE INCLUDED IN PROJECT
Reserved Tract
Calderwood Powerhouse
Calderwood Tunnel
Calderwood Dam
Calderwood Reservoir
Maximum Normal Elevation 1065.8 ft
Cherokee National Forest
Citico Creek Wilderness
Joyce Kilmer-Slickrock Creek Wilderness
TENNESSEE
NORTH CAROLINA
Swain County
Monroe County
Graham County
Cheoah Dam and Powerhouse
Note:
All areas are approximate.
State and County Lines
Roads
FERC Project Boundary
Project Structures
Great Smoky Mountains National Park
Cherokee National Forest Land
APGI Transmission Line Corridors
TVA Transmission Line Corridors
50' R/W Easement Southern Bell Telephone and Telegraph
Tapoco Property Parcels
Tapoco Property Inside of FERC Project Boundary
Tapoco Property Outside of FERC Project Boundary
Proposed Property Transfer from APGI to National Park Service
Proposed Property Transfer from National Park Service to APGI
Permanent Easement - up to 200 ft buffer (Non-Project Tapoco Property)
Permanent Easement
Term Easement
0 2000 4000 Feet
Alcoa Power Generating Inc.
Tapoco Division
Proposed Land Conveyances in Tennessee
Figure 3-5

3.4 Wildlife Management Areas

Tapoco currently has cooperative wildlife management agreements with the Tennessee Wildlife Resources Agency (TWRA) for nearly 14,000 acres of its non-Project and Project property in Blount and Monroe counties, Tennessee located between the Great Smoky Mountains National Park and Cherokee National Forest known as the Foothills Wildlife Management Area as shown in Figure 3-6. Specifically, the Wildlife Management Area abuts the entire north shore of Calderwood Reservoir and large portions of both shorelines of Chilhowee Reservoir. TWRA manages the land for the protection, propagation and harvest of wildlife. Acreage not included in the agreement and therefore excluded from the Foothills Wildlife Management Area is used for power generation facilities, power lines, and rights-of-way. Land uses and activities on shoreline areas within the Wildlife Management Area will be managed in accordance with TWRA rules and regulations. If any of the purchase options contemplated in the Relicensing Settlement Agreement are exercised by The Nature Conservancy for reconveyance to a federal or state agency, it is expected that arrangements with TWRA will continue so long as consistent with the management objectives of a federal or state agency acquiring title.

The North Carolina Wildlife Resources Commission (NCWRC) has a voluntary "gamelands" program whereby private lands can be managed by NCWRC to provide publicly accessible land for hunting and fishing.

Figure 3-6 Foothills Wildlife Management Area



3.5 Uses of Project Waters

Tapoco Project waters are used primarily for hydropower production and public recreation. Boating, fishing, swimming and other forms of water-based recreation and associated land-based recreation occur throughout the Project.

Presently, there are no permitted water withdrawals within the Project Boundary. Aside from some private water withdrawals for minor irrigation that may exist on Santeetlah Reservoir, no other water withdrawals are known to exist within the Project Boundary.

Wastewater discharges within the vicinity of the Project are listed in Table 3-1. Seven of the fourteen discharge to tributaries of Santeetlah Reservoir.

Table 3-1 National Pollutant Discharge Elimination System (NPDES) and Permitted Discharges in the Lower Little Tennessee River Basin in the Vicinity of the Tapoco Project

Permit	Facility	County	Type	Design flow (million gallons per day)	Receiving Stream
NC0025879	Robbinsville WWTP	Graham, NC	Municipal	0.63	Long Creek
NC0083071	Robbinsville WTP	Graham, NC	Municipal	0.01	Rock Creek
NC0078719	Riverbend Trout Farm	Graham, NC	Non-municipal	Not limited	West Buffalo Creek
NC0084981	Darren Stewart Trout Farm	Graham, NC	Non-municipal	Not limited	West Buffalo Creek
NC0081035	Hemlock Trout Farm	Graham, NC	Non-municipal	Not limited	West Buffalo Creek
NC0078638	Holders Trout Farm	Graham, NC	Non-municipal	Not limited	West Buffalo Creek
NC0079090	Wide Creek Trout Sales	Graham, NC	Non-municipal	Not limited	Snowbird Creek
NC0023086	Peppertree-Fontana Village	Graham, NC	Non-municipal	0.304	Little Tennessee
NC0023291	Tapoco Lodge WWTP	Graham, NC	Non-municipal	0.02	Little Tennessee
NC0027341	Fontana Hydro Plant	Graham, NC	Non-municipal	Not limited	Little Tennessee
NCG500050	Santeetlah Hydro Plant	Graham, NC	Non-municipal	Not limited	Little Tennessee
NCG500049	Cheoah Hydro Plant	Graham, NC	Non-municipal	Not limited	Little Tennessee
TN0065510	Calderwood Powerhouse	Blount, TN	Non-municipal	Not limited	Little Tennessee
TN0065528	Chilhowee Powerhouse	Blount, TN	Non-municipal	Not limited	Little Tennessee

Source for North Carolina Discharges: Little Tennessee River Basinwide Water Quality Management Plan. North Carolina Division of Water Quality, 2002.

4.0 ENVIRONMENTAL AND NATURAL RESOURCES

The Tapoco Project reservoirs possess many natural and environmental features that make them important habitat for plants, fish and wildlife. The important natural features are discussed in general in this section. Descriptions of these features are based on many of the 30 studies conducted by Tapoco during the Project relicensing, in support of its Application for a New License.

4.1 Water Quality

Water quality in the Project reservoirs is variable and is generally considered very good to good. Overall, water quality is best in Chilhowee, Calderwood and Cheoah reservoirs and worst in Santeetlah Reservoir.

North Carolina water quality standards are established according to North Carolina Administrative Code (15A NCAC 02B.200). In general, the water quality standards for all fresh surface waters are the basic standards applicable to Class C waters. More stringent standards are applicable to the other freshwater classifications, Class B (primary recreation) and Trout Waters (Tr). In addition to water quality classifications and standards, the North Carolina Division of Water Quality (NCDWQ) has developed an index to examine the level of eutrophication (nutrient enrichment) or "trophic state" of lakes. The North Carolina Trophic State Index (NCTSI) score and associated trophic classification for each Project reservoir is shown in Table 4-1.

Tennessee water quality criteria are set according to Rules of Tennessee Department of Environment and Conservation Tennessee Water Quality Control Board Division of Water Pollution Control (Chapter 1200-4-3), as mandated by the Tennessee Water Quality Control Act (T.C.A. 69-3-101 et seq). Waters are classified and criteria assigned according to designated uses. Since most waters are classified for more than one use, the most stringent criteria are applied. All Tennessee waters are classified for the following uses: domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife, navigation, and trout stream. The most stringent criteria applicable in Tapoco Project reservoirs are associated with uses for fish and aquatic life, including trout.

An overview of water quality conditions based on the sampling conducted by Normandeau Associates Inc. (NAI) in 1997 and 1998 as part of the Tapoco Project relicensing is summarized in Table 4-1 and described in Sections 4.11 and 4.1.2 (Normandeau Associates, 1999).

Table 4-1 Water Quality Summary for the Tapoco Project Reservoirs

Parameter[1]	Santeetlah	Cheoah	Calderwood	Chilhowee
Surface Area	2,881 acres	644 acres	570 acres	1,723 acres
State Classification	B-Tr, WS-III	C-Tr, WS-I (on nearby stream)	C-Tr (NC); Fish and Aquatic Life, Trout (TN)	Fish and Aquatic Life, Trout
Sampling Period	May – Oct 1998	May – Oct 1998	May – Oct 1998	May – Oct 1998
NCTSI	-3.5 to -1.8	-3.9 to -3.1	-3.7 to -3.5	-3.3 to -3.2
Trophic State	Oligotrophic (unproductive lake)	Oligotrophic (unproductive lake)	Oligotrophic (unproductive lake)	Oligotrophic (unproductive lake)
Secchi Depth	1.8-6.15 meters	2.45-6.1 meters	2.35-5.75 meters	2.35-5 meters
Dissolved Oxygen	0.20-12.49 mg/l[2]	3.89-12.76 mg/l[2]	4.0-12.93 mg/l[2]	7.21-12.79 mg/l[2]
Temperature	6.2-29.59 ºC	8.29-23.34 ºC	8.14-27.76 ºC	9.63-27.81 ºC
pH	5.4-9.28 su	5.32-7.41 su	5.61-7.87 su	5.77-7.48 su
Total Phosphorus	< 0.02-2.08 mg/l[2]	< 0.02-0.55 mg/l[2]	< 0.02-0.12 mg/l[2]	< 0.02-0.8 mg/l[2]
Total Kjeldahl Nitrogen	< 0.05 – 2.14 mg/l[2]	< 0.05 mg/l[2]	< 0.05 mg/l[2]	< 0.05 mg/l[2]
Chlorophyll *a*	< 0.20-16.8 µg/l[3]	< 0.20-3.6 µg/l[3]	< 0.20-3.6 µg/l[3]	< 0.16-3.2 µg/l[3]

Source: Tapoco Project Water Quality Analysis Report. Normandeau Associates, 1999.
[1]Values for all parameters are from sampling period May-October 1998. Ranges are the low and high values from all depths for the sampling period.
[2]mg/l = milligram/liter
[3]µg/l = microgram/liter

4.1.1 Santeetlah Reservoir

The Santeetlah Reservoir is a deep reservoir with a maximum depth of approximately 213 feet and an average depth of 56 feet. Retention time in Santeetlah Reservoir averages 161 days. The reservoir has a drainage area of approximately 176 square miles. Inflow to Santeetlah Reservoir comes from the surrounding major tributaries, namely, Cheoah River, Santeetlah Creek, West Buffalo Creek and Snowbird Creek. Santeetlah Reservoir has a water quality classification of Class B-Tr (primary recreation/trout) and is classified by the NCDWQ as an oligotrophic lake, meaning that nutrient enrichment (eutrophication) of the lake is low.

Like many deep oligotrophic lakes, Santeetlah Reservoir stratifies during the warm summer months. During the 1998 monitoring season, the reservoir exhibited strong stratification by mid to late summer, with low dissolved oxygen concentrations (0-5 mg/l) occurring near the bottom in the deepest portions of the reservoir. By January 1999, however, the reservoir had turned over and was nearly uniform in temperature (6.7-7.7 ºC) from top to bottom at the deepest reservoir sampling station. Stratification and the resulting differences in water temperature and dissolved oxygen concentrations from surface to bottom waters is a natural phenomenon, and is not, in itself a water quality problem. Water quality problems can arise when low dissolved oxygen waters are withdrawn from deep in the reservoir and released downstream. Although water is withdrawn from the reservoir through a relatively deep intake, Tennessee Valley Authority (TVA) long-term monitoring of the Santeetlah Powerhouse tailwater indicate that low dissolved oxygen releases from Santeetlah are infrequent. (Tennessee Valley Authority, 1990)

While the mainstem reservoir is in general continuing to support its designated uses, portions of the reservoir, specifically the West Buffalo Creek arm, and to a lesser extent, the Snowbird Creek arm, suffer from eutrophication and algal blooms which are enhanced by nutrient inputs from upstream trout farms. The West Buffalo Creek arm of the reservoir is considered impaired and is on North Carolina's year 2000 303(d) list; while Snowbird Creek has reached its capacity to assimilate nutrients without violations of water quality standards.

Of the four Project reservoirs monitored, the highest concentrations of nutrients and chlorophyll *a* (an indicator of phytoplankton) were observed in samples taken from Santeetlah Reservoir, specifically at the monitoring stations located in the West Buffalo Creek and Snowbird Creek arms of Santeetlah Reservoir. For example, during the period May through October 1998, chlorophyll *a* concentrations in West Buffalo and Snowbird creeks generally ranged between 2 and 6 µg/l (1.60-16.80 µg/l and 1.20-6.80 µg/l respectively); whereas, chlorophyll *a* concentrations at stations in the mainstem of the reservoir generally ranged between the detection limit of 0.20 and 3.0 µg/l. The water quality standard for chlorophyll *a* in lakes classified as trout waters is 15 µg/l and there was only one instance when this standard was exceeded (16.8 µg/l). The NCTSI score for Santeetlah Reservoir ranged between –3.5 and –1.8, indicative of mesotrophic (moderately productive) to oligotrophic (unproductive) conditions.

4.1.2 Little Tennessee Mainstem Reservoirs

4.1.2.1 Cheoah Reservoir

Cheoah Reservoir has a maximum depth of 197 feet and an average depth of 131 feet. Sampling of Cheoah Reservoir was last conducted by NAI in 1997 and 1998. The major source of inflow to Cheoah Reservoir is releases from TVA's Fontana Dam, followed by discharges from Santeetlah Powerhouse and a number of tributaries, namely Llewellyn Branch, Twentymile Creek, and Farley Branch. The Cheoah Reservoir is classified C-Tr.

Dissolved oxygen and temperature monitoring indicates that the Cheoah Reservoir is generally well mixed in the upper portions of the reservoir. Short periods of weak stratification can occur in the deepest portions of the lower reservoir near the dam, but stratification is generally not present in the reservoir and certainly not as pronounced as that observed at Santeetlah Reservoir. Water temperatures in Cheoah Reservoir are generally very cold, rarely exceeding 20 ºC, even during the summer months near the surface, and are overwhelmingly driven by deep, cold-water releases from Fontana Dam. Monitoring conducted by NAI in 1997 and 1998 of the Cheoah Powerhouse tailwaters indicated that the dissolved oxygen concentrations in waters released downstream are generally very good.

Chlorophyll *a* concentrations were found to be low at all sampling stations. Reservoir-wide pH ranged from 5.32 to 7.41 su. Total phosphorus concentrations were generally found to be similar to those in the upper stations of Santeetlah Reservoir. Total Kjeldahl nitrogen and ammonia levels were similar to those found at Santeetlah, while nitrate nitrogen concentrations were higher at Cheoah. The NCTSI score for Cheoah Reservoir ranged between –3.9 and –3.1, indicative of unproductive (oligotrophic) conditions.

4.1.2.2 Calderwood Reservoir

Calderwood Reservoir is narrow and deep with a maximum depth of about 148 feet and an average depth of 95 feet. The portion of the reservoir located in North Carolina is classified C-Tr. The Tennessee portion of the reservoir is classified for a number of designated uses; the most stringent criteria applicable to Calderwood Reservoir are associated with uses for fish and aquatic life, including trout. Inflow to Calderwood Reservoir is dominated by discharge from the Cheoah Powerhouse, followed by the many tributaries feeding into the reservoir, which include the Cheoah River, Slickrock Creek, Dalton Gap Branch, and Shaw Grave Branch.

The dissolved oxygen and temperature monitoring conducted by NAI in 1997 and 1998 suggest that the reservoir is not stratified in the vicinity of Slickrock Creek, but is weakly stratified in the deepest part of the reservoir near the dam. Dissolved oxygen concentrations at the Slickrock Creek sampling station during the period May through October 1998 ranged between 6.91 and 12.08 mg/l, whereas dissolved oxygen concentrations near the dam showed a much wider range of 4.0 mg/l at the reservoir bottom to 12.93 mg/l. Temperatures reservoir-wide ranged between approximately 8 ºC and 27 ºC. Like Cheoah Reservoir, Calderwood Reservoir water temperatures are quite cold as a result of upstream releases from Fontana Dam.

Algal concentrations in Calderwood Reservoir are low. For the period May through October 1998, chlorophyll *a* concentrations ranged between < 0.20 to 3.6 µg/l. Of the four Project reservoirs, Calderwood and Chilhowee reservoirs generally had the lowest total phosphorus levels. Nitrogen concentrations were found to be similar among Cheoah, Calderwood and Chilhowee. Like Cheoah Reservoir, the range of NCTSI scores for Calderwood Reservoir (–3.7 to –3.5) is indicative of oligotrophic conditions.

4.1.2.3 Chilhowee Reservoir

Chilhowee Reservoir is riverine in nature, but is not as narrow and deep as the Calderwood or Cheoah reservoirs. Chilhowee Reservoir has a maximum depth of about 59 feet and an average depth of about 20 feet. Inflow to Chilhowee Reservoir is dominated by discharges from the Calderwood Powerhouse, followed by inflow from the major tributaries, namely Abrams Creek, Tallassee Creek, and Tabcat Creek.

NAI's monitoring of dissolved oxygen and temperature conditions for the period May through October 1998 indicate that the Chilhowee Reservoir is generally well mixed and does not stratify at the upper end but, like Calderwood Reservoir, does undergo weak temperature stratification at the lower end from Abrams Creek to the dam. Because the stratification in Chilhowee Reservoir is not pronounced, dissolved oxygen concentrations in waters released downstream are generally very good.

Algal concentrations in the Chilhowee Reservoir are low. Chilhowee Reservoir had total phosphorus concentrations similar to Calderwood. Like Cheoah and Calderwood reservoirs, the range of NCTSI scores for Calderwood Reservoir (–3.3 to –3.2) is indicative of oligotrophic conditions.

4.2 Fisheries

4.2.1 Santeetlah Reservoir

Santeetlah Reservoir supports a warm-water fishery managed by the North Carolina Wildlife Resources Commission (NCWRC). According to the NCWRC Fisheries and Wildlife Management Plan for the Cheoah River Basin and Lower Little Tennessee River, fish species that are actively managed in Santeetlah Reservoir include walleye, smallmouth bass, largemouth bass, white and black crappie, bluegill, and redbreast sunfish (NCWRC, 2000). Gizzard shad and threadfin shad are also managed as forage species for game fish. NCWRC's management of fish populations at Santeetlah have included aquatic habitat improvements to provide habitat and cover for juvenile and adult fish, including adding Christmas tree bundles to shallow coves and cutting and cabling trees along the shoreline. For the near-term, NCWRC plans on continuing these habitat improvements.

Although brook and rainbow trout were stocked in the reservoir in the 1940s and 1950s, they did not become established but have access to the reservoir through the major tributaries and are caught by anglers in the tributary arms. Until recently, threadfin shad was the only species that the NCWRC continued to stock in the reservoir. This species has not become established because it cannot survive cold winters. The NCWRC intends to monitor the effect of the shad stocking to determine if they have a positive impact on game fish abundance and growth (NCWRC, 2000).

The current operating curve for Santeetlah Reservoir adopted in 2004 was designed to provide protection and enhancement for aquatic species and habitat in addition to a number of other resources (see Section 2.2.3). Drawdowns can impact fish populations by interfering with spawning requirements or reducing cover benefiting larger predatory fish. The current operating regime was adopted to reduce impacts on the spawning requirements of black and white crappie, redbreast sunfish, bluegill, smallmouth bass, walleye, and gizzard shad. The critical spawning period for management species is April through May.

The Cheoah River supports a cool-water fishery that is managed by the NCWRC primarily for smallmouth bass and rock bass. The existing recreational fishery is dominated by smallmouth bass and rock bass, although occasional trout are found. Santeetlah Reservoir anglers rated the quality of fishing at Santeetlah favorably with an overall satisfaction rating of 65%, which is higher than several other reservoirs in western North Carolina (NCWRC, 2002).

4.2.2 Little Tennessee Mainstem Reservoirs

4.2.2.1 Cheoah Reservoir

The Cheoah Reservoir aquatic conditions are greatly influenced by TVA's Fontana Dam located just upstream. The intakes at Fontana are very deep and water temperatures discharged to Cheoah Reservoir from Fontana are quite cold.

Cheoah Reservoir supports a cold-water fishery that is actively managed by the NCWRC. The fishery of Cheoah Reservoir is best described as a put-take stocked trout fishery. Dominant fish species in Cheoah Reservoir include white suckers, rock bass, river chub, rainbow trout, and smallmouth bass. Cheoah Reservoir anglers rated the quality of fishing at Cheoah favorably (68% of the respondents) (NCWRC, 2002).

4.2.2.2 Calderwood Reservoir

The Calderwood Reservoir extends upstream to the base of the Cheoah Dam. Like the Cheoah Reservoir, Calderwood Reservoir supports a cold-water fishery managed jointly by the NCWRC and the Tennessee Wildlife Resources Agency (TWRA). The NCWRC manages Calderwood similar to Cheoah and stocks the reservoir with brook trout, rainbow trout, and brown trout. Although it does not have a formal management plan, TWRA also manages Calderwood Reservoir as a stocked trout fishery and has made regular stockings over the past 10 years.

Since Cheoah Reservoir resembles Calderwood in size and hydrology, their fish populations are probably very similar. The dominant species found in Calderwood Reservoir during a study conducted in June 2001 were white suckers, rock bass, warpaint shiner (near mouth of Cheoah River), mottled sculpin, and river chub (Normandeau Associates, 2002).

4.2.2.3 Chilhowee Reservoir

The Chilhowee Reservoir extends upstream to the Calderwood Powerhouse and represents a thermal transition area in the Little Tennessee River Basin. Cold-water releases from Fontana Dam are transported through Cheoah and Calderwood Reservoirs and cool the upper portion of Chilhowee Reservoir. The upper portion of the reservoir supports a cold- to cool-water fishery. Since the reservoir is relatively shallow, reservoir waters warm as they move down the reservoir. Therefore, the lower portion supports more of a cool-water fishery. Chilhowee Reservoir is actively managed by TWRA. Although there is no formal management plan for the reservoir, TWRA intends to continue to manage the upper portion of Chilhowee Reservoir as a stocked trout fishery annually stocking rainbow trout. Spotfin shiner was the dominant fish species collected in the spring of 2001, but was only found in the Abrams Creek embayment. Rock bass, bluegill, and smallmouth bass were the dominant species collected reservoir-wide.

Abrams Creek is the largest tributary to Chilhowee Reservoir and of interest to state and federal fishery managers because the lower portion of the creek is the site of an ongoing aquatic restoration effort within the Great Smoky Mountains National Park (GSMNP). In June 1957, a joint effort of the GSMNP, U.S. Fish and Wildlife Service (USFWS), TVA and TWRA eliminated all fish (31 species) so that the newly formed reservoir could be stocked with rainbow trout. By the mid-1980s, 27 of the 31 species originally eliminated from Abrams Creek had been re-established in the stream. The GSMNP initiated efforts to reintroduce several species back into their historic range. Reintroduction efforts have focused on the smoky madtom, duskytail darter, yellowfin madtom, and spotfin chub. Based on information from the GSMNP, these efforts appear to be succeeding. Compared to the upper portion of Chilhowee Reservoir, fish

species found in the Abrams Creek embayment are more representative of a cool- to warm-water assemblage.

4.3 Terrestrial

4.3.1 Wildlife

Tapoco Project lands and waters provide habitat for many terrestrial wildlife species. In total, the Project Boundary includes over 2,000 acres of land, mainly found in narrow strips along the margins of the reservoirs. As technical resource studies were conducted by Tapoco and its consultants, hundreds of species of terrestrial mammals, reptiles, amphibians, and birds were observed or recorded at the Project. Beaver, muskrat, otter, raccoon, turtles, hummingbirds, butterflies and numerous bird mammal, reptile and amphibian species were found. Table 4-2 lists terrestrial wildlife species using or potentially using priority habitats within the Project Boundary (see Section 4.4).

Table 4-2 Wildlife Species Occurring or Potentially Occurring in Priority Habitats at the Tapoco Project

Type of Wildlife	Species Common Name	Type of Wildlife	Species Common Name
Frog	American toad	Bird	Great blue heron
Frog	Fowler's toad	Bird	Green-backed heron
Frog	Cricket frog	Bird	Canada goose
Frog	Gray treefrog	Bird	Wood duck
Frog	Spring peeper	Bird	Mallard
Frog	Mountain chorus frog	Bird	Turkey vulture
Frog	Upland chorus frog	Bird	Osprey
Frog	Bullfrog	Bird	Bald eagle
Frog	Green frog	Bird	Broad-winged hawk
Frog	Wood frog	Bird	American kestrel
Frog	Southern leopard frog	Bird	Ruffed grouse
Frog	Pickerel frog	Bird	Wild turkey
Salamander	Spotted salamander	Bird	Northern bobwhite
Salamander	Marbled salamander	Bird	Kildeer
Salamander	Mole salamander	Bird	American woodcock
Salamander	Hellbender	Bird	Rock dove
Salamander	Seepage salamander	Bird	Mourning dove
Salamander	Dusky Complex salamander	Bird	Yellow-bellied cuckoo
Salamander	Shoveled-nose salamander	Bird	Eastern screech owl
Salamander	Seal salamander	Bird	Great horned owl
Salamander	Ocoee salamander	Bird	Barred owl

Type of Wildlife	Species Common Name	Type of Wildlife	Species Common Name
Salamander	Black-bellied salamander	Bird	Chuck-will's widow
Salamander	Two-lined salamander	Bird	Whip-poor-will
Salamander	Three-lined salamander	Bird	Chimney swift
Salamander	Junaluska salamander	Bird	Ruby-throated hummingbird
Salamander	Long-tailed salamander	Bird	Belted kingfisher
Salamander	Spring salamander	Bird	Red-headed woodpecker
Salamander	Four-toed salamander	Bird	Red-bellied woodpecker
Salamander	Mud salamander	Bird	Downy woodpecker
Salamander	Red salamander	Bird	Hairy woodpecker
Salamander	Tellico salamander	Bird	Northern flicker
Salamander	Zigzag salamander	Bird	Pileated woodpecker
Salamander	Southern Appalachian salamander	Bird	Eastern wood-pewee
Salamander	Southern red-backed salamander	Bird	Acadian flycatcher
Salamander	Mudpuppy	Bird	Willow flycatcher
Salamander	Eastern newt	Bird	Eastern pheobe
Snake	Water snake	Bird	Great crested flycatcher
Snake	Queen snake	Bird	Eastern kingbird
Snake	Brown snake	Bird	Tree swallow
Snake	Redbelly snake	Bird	Northern rough-winged swallow
Snake	Eastern garter snake	Bird	Cliff swallow
Snake	Eastern smooth earth snake	Bird	Barn swallow
Snake	Eastern hognose	Bird	Blue jay
Snake	Northern ringneck snake	Bird	American crow
Snake	Eastern worm snake	Bird	Carolina chickadee
Snake	Northern black racer	Bird	Tufted titmouse
Snake	Rough green snake	Bird	White-breasted nuthatch
Snake	Corn snake	Bird	Carolina wren
Snake	Black rat snake	Bird	House wren
Snake	Northern pine snake	Bird	Blue-gray gnatcatcher
Snake	Black kingsnake	Bird	Eastern bluebird
Snake	Eastern milk snake	Bird	Wood thrush
Snake	Mole snake	Bird	American robin
Snake	Scarlet kingsnake	Bird	Gray catbird
Snake	Scarlet snake	Bird	Northern mockingbird
Snake	Southeastern crowned snake	Bird	Brown thrasher
Snake	Eastern ribbon snake	Bird	Cedar waxwing
Snake	Copperhead	Bird	Loggerhead shrike
Snake	Timber rattlesnake	Bird	European starling
Lizard	Green anole	Bird	White-eyed vireo

Type of Wildlife	Species Common Name	Type of Wildlife	Species Common Name
Lizard	Fence lizard	Bird	Solitary vireo
Lizard	Six-lined racerunner	Bird	Yellow-throated vireo
Lizard	Ground skink	Bird	Red-eyed vireo
Lizard	Five-lined skink	Bird	Northern parula warbler
Lizard	Southeastern five-lined skink	Bird	Yellow warbler
Lizard	Broadhead skink	Bird	Black-throated green warbler
Lizard	Coal skink	Bird	Yellow-throated warbler
Lizard	Slender glass lizard	Bird	Pine warbler
Turtle	Common snapper	Bird	Prairie warbler
Turtle	Common musk turtle	Bird	Black and white warbler
Turtle	Stripeneck musk turtle	Bird	Worm-eating warbler
Turtle	Eastern mud turtle	Bird	Swainson's warbler
Turtle	Bog turtle	Bird	Ovenbird
Turtle	Box turtle	Bird	Louisiana waterthrush
Turtle	Common map turtle	Bird	Kentucky warbler
Turtle	Ouchita map turtle	Bird	Common yellowthroat
Turtle	Cumberland slider turtle	Bird	Hooded warbler
Turtle	River cooter	Bird	Yellow-breasted chat
Turtle	Painted turtle	Bird	Summer tanager
Turtle	Eastern spiny softshell turtle	Bird	Scarlet tanager
Mammal	Virginia opossum	Bird	Northern cardinal
Mammal	Masked shrew	Bird	Blue grosbeak
Mammal	Long-tailed shrew	Bird	Indigo bunting
Mammal	Smoky shrew	Bird	Eastern towhee
Mammal	Southern pygmy shrew	Bird	Chipping sparrow
Mammal	Southeastern shrew	Bird	Field sparrow
Mammal	Southern water shrew	Bird	Grasshopper sparrow
Mammal	Northern short-tailed shrew	Bird	Song sparrow
Mammal	Southern short-tailed shrew	Bird	Red-winged blackbird
Mammal	Least shrew	Bird	Eastern meadowlark
Mammal	Hairy-tailed mole	Bird	Common grackle
Mammal	Eastern mole	Bird	Brown-headed cowbird
Mammal	Star-nosed mole	Bird	Orchard oriole
Mammal	Gray bat	Bird	Baltimore oriole
Mammal	Eastern small-footed bat	Bird	House finch
Mammal	Little brown bat	Bird	American goldfinch
Mammal	Northern long-eared bat/Keen's	Bird	House sparrow
Mammal	Indiana myotis	Bird	Red-tailed hawk
Mammal	Silver-haired bat	Butterflies/Moths	Pipevine swallowtail

Type of Wildlife	Species Common Name	Type of Wildlife	Species Common Name
Mammal	Eastern pipistrelle	Butterflies/Moths	Zebra swallowtail
Mammal	Big brown bat	Butterflies/Moths	Black swallowtail
Mammal	Eastern red bat	Butterflies/Moths	Eastern tiger swallowtail
Mammal	Hoary bat	Butterflies/Moths	Spicebush swallowtail
Mammal	Seminole bat	Butterflies/Moths	Checkered white
Mammal	Eastern big-eared bat	Butterflies/Moths	West Virginia white
Mammal	Evening bat	Butterflies/Moths	Cabbage white
Mammal	New England cottontail	Butterflies/Moths	Falcate orangetip
Mammal	Eastern cottontail	Butterflies/Moths	Clouded sulphur
Mammal	Allegheny cottontail	Butterflies/Moths	Orange sulphur
Mammal	Snowshoe hare	Butterflies/Moths	Cloudless sulphur
Mammal	Eastern chipmunk	Butterflies/Moths	Little yellow
Mammal	Woodchuck	Butterflies/Moths	Sleepy orange
Mammal	Eastern gray squirrel	Butterflies/Moths	Harvester
Mammal	Fox squirrel	Butterflies/Moths	Brown elfin hairstreak
Mammal	Red squirrel	Butterflies/Moths	White M hairstreak
Mammal	Carolina northern flying squirrel	Butterflies/Moths	Gray hairstreak
Mammal	Southern flying squirrel	Butterflies/Moths	Red-banded hairstreak
Mammal	Beaver	Butterflies/Moths	Banded hairstreak
Mammal	Woodland jumping mouse	Butterflies/Moths	Early hairstreak
Mammal	Meadow jumping mouse	Butterflies/Moths	Hickory hairstreak
Mammal	March rice rat	Butterflies/Moths	Edward’s hairstreak
Mammal	Eastern harvest mouse	Butterflies/Moths	King’s hairstreak
Mammal	White-footed mouse	Butterflies/Moths	Juniper hairstreak
Mammal	Deer mouse	Butterflies/Moths	Eastern tailed-blue
Mammal	Golden mouse	Butterflies/Moths	Spring azure
Mammal	Hispid cotton rat	Butterflies/Moths	Summer azure
Mammal	Southern Appalachian woodrat	Butterflies/Moths	Appalachian azure
Mammal	Allegheny woodrat	Butterflies/Moths	Dusky azure
Mammal	Southern red-backed vole	Butterflies/Moths	Silvery blue
Mammal	Southern rock vole	Butterflies/Moths	Variegated fritillary
Mammal	Woodland/Pine vole	Butterflies/Moths	Gulf fritillary
Mammal	Meadow vole	Butterflies/Moths	Diana fritillary
Mammal	Muskrat	Butterflies/Moths	Great spangled fritillary
Mammal	Southern bog lemming	Butterflies/Moths	Aphrodite fritillary
Mammal	Coyote	Butterflies/Moths	Silvery checkerspot
Mammal	Red wolf	Butterflies/Moths	Pearl crescent
Mammal	Red fox	Butterflies/Moths	Tawny crescent
Mammal	Gray fox	Butterflies/Moths	Question mark

Type of Wildlife	Species Common Name	Type of Wildlife	Species Common Name
Mammal	Black bear	Butterflies/Moths	Eastern comma
Mammal	Raccoon	Butterflies/Moths	Gray comma
Mammal	Long-tailed weasel	Butterflies/Moths	Green comma
Mammal	Least weasel	Butterflies/Moths	Mourning cloak
Mammal	Mink	Butterflies/Moths	American lady
Mammal	River otter	Butterflies/Moths	Painted lady
Mammal	Striped skunk	Butterflies/Moths	Red admiral
Mammal	Eastern spotted skunk	Butterflies/Moths	Common buckeye
Mammal	Bobcat	Butterflies/Moths	Baltimore checkerspot/Baltimore
Mammal	White-tailed deer	Butterflies/Moths	Red-spotted purple
Butterflies/Moths	Silver-spotted skipper	Butterflies/Moths	Astyanax red-spotted purple
Butterflies/Moths	Golden-banded skipper	Butterflies/Moths	Hackberry emperor
Butterflies/Moths	Hoary edge	Butterflies/Moths	Creole pearly eye
Butterflies/Moths	Southern cloudywing	Butterflies/Moths	Gemmed satyr
Butterflies/Moths	Northern cloudywing	Butterflies/Moths	Carolina satyr
Butterflies/Moths	Dreamy duskywing	Butterflies/Moths	Little wood satyr
Butterflies/Moths	Sleepy duskywing	Butterflies/Moths	Common wood nymph
Butterflies/Moths	Juvenal's duskywing	Butterflies/Moths	Monarch
Butterflies/Moths	Horace's duskywing	Butterflies/Moths	Clouded skipper
Butterflies/Moths	Zarucco duskywing	Butterflies/Moths	Fiery skipper
Butterflies/Moths	Wild indigo duskywing	Butterflies/Moths	Sachem skipper
Butterflies/Moths	Common sootywing	Butterflies/Moths	Zabulon skipper
Butterflies/Moths	Hayhurst's scallopwing	Butterflies/Moths	Dun skipper
Butterflies/Moths	Common checkered-skipper	Butterflies/Moths	Pepper and salt skipper
Butterflies/Moths	Hobomok skipper		

Source: Terrestrial Study 1: Riparian Habitat Assessment Final Report. Normandeau Associates, 2001.

Tapoco currently has a cooperative wildlife management agreement with the TWRA for much of its property in Blount and Monroe counties, Tennessee, known as the Foothills Wildlife Management Area. In accordance with the agreement, TWRA manages and operates land between the Great Smoky Mountains National Park and the Cherokee National Forest (see Section 3.4).

During the relicensing process, exotic terrestrial animal species that may occur within the Project were identified and evaluated for the threat posed to native wildlife (University of Tennessee at Knoxville and The Nature Conservancy of Tennessee, 2001b). Only nine exotic animal species were determined to potentially occur on Tapoco Project lands. These included the house mouse, Norway rat, roof rat, European wild boar, house finch, rock dove, house sparrow, European starling, and Gypsy moth. All species except the European wild boar were determined to be of a very low threat to native wildlife. Management of the European wild boar is not of high importance at this time since eradication of the wild boar is considered impossible.

4.3.2 Plants

Vegetation on the Tapoco Project lands was classified using The Nature Conservancy classification system (The Nature Conservancy, 1999). The plant communities above full pond within a 200-foot band of the reservoirs and a 100-foot band of the Cheoah River consist of hardwood forest (cold deciduous forest), softwood forest (needle-leaved temperate or sub-polar forest), mixed forest (mixed needle-leaved evergreen forest/mixed needle-leaved evergreen woodland), and fields (grasslands). Wetland types occurring above and below full pond are composed of emergent, shrub-scrub, and forested wetlands.

Fourteen priority invasive exotic plant species (IEPPs) found within the Project Boundary are of concern (University of Tennessee at Knoxville and The Nature Conservancy of Tennessee, 2001a). All occurrences of these species are directly related to the creation and/or maintenance of disturbed habitats, such as road construction, residential and commercial development, maintenance of transmission line right-of-ways, and reservoir impoundments. Greatest IEPP occurrences are found along shorelines and adjacent to areas of high disturbance such as highways and other human development. The 14 priority IEEP species and their priority rank are listed in Table 4-3.

Table 4-3 Priority Invasive Exotic Plant Species Found on Tapoco Project Lands

Scientific Name	Common Name	Priority Rank
Murdannia keisak	Asian spiderwort	High
Paulownia tomentosa	Princess tree	High
Pueraria montana	Kudzu	High
Ailanthus altissima	Tree of Heaven	Medium
Albizia julibrissin	Mimosa	Medium
Celastrus orbiculata	Oriental bittersweet	Medium
Ligustrum spp.	Privet	Medium
Lonicera japonica	Japanese honeysuckle	Medium
Rosa multiflora	Multiflora rose	Medium
Microstegium vimineum	Japan grass	Low
Elaeagnus umbellata	Autumn olive	Low
Lespedeza cuneata	Sericea lespedeza	Low
Sorghum halapense	Johnson grass	Low
Verbascum thapsus	Common mullein	Low

Source: Terrestrial Study 2: Vegetation Management Evaluation and Exotics Survey, Part 1 – Invasive Exotic Plant Species on Tapoco Project Lands. University of Tennessee at Knoxville and The Nature Conservancy of Tennessee, 2001a.

Mechanical and/or herbicide treatments were determined to be appropriate means for controlling or eliminating the identified IEPPs. Virginia spiraea, which occurs along the Cheoah River, was the only rare, threatened, or endangered (RTE) species identified as having the potential to be negatively impacted by IEPPs. It is vulnerable to Princess tree, Kudzu, and multiflora rose.

4.3.3 Rare, Threatened, and Endangered Species

In 1998 and 1999, Tapoco conducted an inventory of all species of plants or animals considered rare, threatened or endangered at the state or federal level on Project lands and waters. Of the 23 RTE species located, 12 were animal species (3 birds, 3 salamanders, 3 mammals, 2 fish, and 1 lizard) and 11 were plant species (5 herbaceous flowering species, 2 trees, 2 ferns, 1 moss, and 1 hornwort) as listed in Table 4-4 (The Nature Conservancy of Tennessee, 1999).

All of the species listed in Table 4-4 warrant formal protection under state or federal statutes. The bald eagle is federally listed as "threatened", but has been proposed for delisting. Although the peregrine falcon was removed from federal listing, it remains state listed in both North Carolina and Tennessee. Additionally, the Junaluska salamander and the Southern Appalachian woodrat are listed as "Federal Species of Concern". All other species are listed at the state level.

Table 4-4 Federally or State Listed Rare, Threatened, and Endangered Species Located in 1999 within the Tapoco Project Boundary

Species	Family	Rank and Listing	Habitat Requirements
Animal Species			
Peregrine Falcon (*Falco peregrinus*)	Bird	Very rare and critically imperiled; endangered (NC and TN)	Nests are usually situated over lakes, marshes, swamps, rivers, as well as over coniferous and riparian forests adjacent to the nesting habitat
Bald Eagle (*Haliaeetus leucocephalus*)	Bird	Federally listed as Threatened; extremely rare and critically imperiled and threatened (TN); imperiled and endangered (NC)	Near seacoasts, rivers, and large lakes breeding in tall trees or on cliffs
Osprey (*Pandion haliaetus*)	Bird	Very rare and imperiled; threatened (TN)	Rivers, lakes, coasts
Hellbender (*Cryptobranchus alleganiensis*)	Salamander	Rare and uncommon (NC and TN); deemed in need of management (TN); species of special concern (NC)	Clear, fast-flowing streams and rivers with rocky bottoms; adjacent terrestrial habitat
Blackbelly Salamander (*Desmognathus quadramaculatus*)	Salamander	Very rare and imperiled; deemed in need of management (TN)	Sizable swift and boulder-strewn mountain streams, at elevations of 1,600-5,000 feet
Junaluska Salamander (*Eurycea Junaluska*)	Salamander	Federal species of concern; extremely rare and critically imperiled; deemed in need of management (TN); imperiled species of special concern (NC)	Lower elevations of the Appalachian Mountains under logs and rocks along streams
River Otter (*Lutra Canadensis*)	Mammal	Rare and uncommon; threatened (TN)	Streams, lakes, ponds, swamps, marshes, estuaries
Southern Appalachian Woodrat (*Neotoma floridana* ssp. *haematoreia*)	Mammal	Federal Species of Concern; extremely rare and imperiled; deemed in need of management (TN); imperiled species of concern (NC)	Rock strewn sites, usually mountaintops and valley sides

Species	Family	Rank and Listing	Habitat Requirements
Meadow Jumping Mouse (*Zapus hudsonius*)	Mammal	Widespread, abundant, and apparently secure; deemed in need of management (TN); rare or uncommon watch species (NC)	Open grassy fields; abundant in thick vegetation near ponds, streams, and marshes in woodland areas
Indiana Bat (*Myotis sodalis*)[1]	Mammal	Federally listed as Endangered; endangered (TN and NC)	During the summer, roost and forage in floodplain and riparian forests. Trees normally used as primary roosts are dead and have a diameter at breast height greater than 12 inches. During the winter, roost sites are in caves or mines that maintain temperatures between 37°F and 43°F.
Smoky Dace (*Clinostomus funduloides* ssp.)	Fish	Extremely rare and critically imperiled; deemed in need of management (TN); imperiled; special concern (NC)	Sand and rock-bottomed pools and backwaters of clear, cool, swift shallow streams of small to medium size
Tuckaseegee Darter (*Etheostoma blennioides* ssp. *gutselli*)	Fish	Widespread, abundant, and apparently secure; endangered (TN)	Swift riffle areas with boulder, bedrock, or coarse cobble substrates in small to moderate rivers
Green Anole (*Anolis carolinensis*)	Lizard	Rare and uncommon; deemed in need of management (TN)	This species is arboreal, selecting moist habitats with trees, shrubs, and vine tangles; also found on man-made structures such as fences, homes, bridges
Appalachian Elktoe (*Alasmidonta raveneliana*)[1]	Mussel	Federally listed as Endangered; endangered (TN and NC)	Native to streams and rivers of the southern Appalachian region. Most often found in riffles, runs, and shallow flowing pools with stable, relatively silt-free, coarse sand and gravel substrate associated with cobble, boulders, and/or bedrock. Known to be endemic only to the upper Tennessee River system.
Plant Species			
Climbing Fumitory (*Adlumia fungosa*)	Herbaceous	Very rare and imperiled; threatened (TN); imperiled; significantly rare (NC)	Woods, moist coves, and rock outcrops
White-leaved Leatherflower (*Clematis glaucophylla*)	Herbaceous	Extremely rare and critically imperiled; threatened proposed endangered (TN); candidate species (NC)	Moist woods and along streams
Branching Whitlow Grass (*Draba ramosissima*)	Herbaceous	Very rare and imperiled; species of special concern (TN); imperiled and significantly rare (NC)	Dry mountain woodlands, over limestone
Buffalo Clover (*Trifolium reflexum*)	Herbaceous	Rare and uncommon; species of special concern (TN); critically imperiled; watch species (NC)	Open woods and clearings
Eastern Turkey beard (*Xerophyllum asphodeloides*)	Herbaceous	Rare and uncommon; threatened (TN); threatened watch species (NC)	Pine barrens, dry oak-hickory forest with a strong pine component

Species	Family	Rank and Listing	Habitat Requirements
Carolina-star Moss (*Plagiomnium carolinianum*)	Moss	Extremely rare and critically imperiled; species of special concern (TN); imperiled candidate species (NC)	Moist, granitic rock (or humus-covered rock), especially on cliff ledges near streams or waterfalls
Chalk Maple (*Acer saccharum*)	Tree	Very rare and imperiled; uncommon species (TN)	Rocky woods, along the banks of streams, rocky gorges, in moist soil; often at the base of rocky bluffs
Butternut (*Juglans cinerea*)	Tree	Federal Species of Concern; very rare and imperiled and threatened (TN); imperiled and rare (NC)	Moist, rich soils; will also grow on drier, rocky limestone soils
American Pillwort (*Pilularia americana*)	Fern	Extremely rare and critically imperiled; species of special concern (TN)	Edges of ponds, reservoirs (in draw down zones), vernal pools, pools on granitic outcrops
Dwarf Bristle Fern (*Trichomanes petersii*)	Fern	Very rare and imperiled; threatened (TN); critically imperiled threatened (NC)	Cliffs and overhanging ledges or sometimes epiphytic on the bases of tree trunks; also in moist ravines, or on the faces of sandstone, igneous or metamorphic boulders; ledges overhanging streams
Megaceros aenigmaticus	Hornwort	Extremely rare and critical; uncommon (TN); imperiled candidate species (NC)	Rocks along small, fast-flowing mountain streams and the spray zones around waterfalls and cascades; mature forest canopy and moist conditions
Virginia Spiraea (*Spiraea virginiana)* [1]	Shrub	Federally listed as Threatened; endangered (TN and NC)	Disturbed areas along rivers and streams. Flood scouring is essential since it inhibits competition. Also found along slow changing, dependable riparian areas.

Source: Tapoco Project Rare, Threatened, and Endangered Species Inventory Final Report. The Nature Conservancy of Tennessee, 1999.

[1]Although these species were not located within the Project Boundary during the 1999 Inventory referenced above, they are included in this table based upon studies conducted during the relicensing of the Tapoco Project and after the 1999 Inventory.

In addition to the RTE inventory, the likely status of "special interest species" was evaluated within the Project Boundary. The 181 animal and 153 plant "special interest species" were determined to be "Known", "Possible", or "Unlikely" within the Project Boundary (The Nature Conservancy of Tennessee, 2002). State and federal resource agencies reviewed these evaluations. Twenty-five of these species of special concern were identified as "nexus focus" species being of particular concern with respect to potential impacts resulting from continued Project operations.

During the relicensing process, intensive studies were conducted within the Project Boundary for the Indiana bat, Appalachian elktoe, Red-cockaded woodpecker, Virginia spiraea, Junaluska salamander, and Blue-winged warbler.

The Indiana bat is an endangered species that is known to occur within the region of the Project but was not located within the Project Boundary (The Nature Conservancy of Tennessee and

Eco-Tech, 2001). Continued operation of the Project is not expected to adversely impact the species.

The Appalachian elktoe is an endangered rare freshwater mussel known to occur in the Cheoah River. The Cheoah River from Santeetlah Dam to the confluence with the Little Tennessee River was designated as critical habitat for this species in 2002. Modifications to the flow regime of the Cheoah River as part of the Relicensing Settlement Agreement were designed with this species under consideration.

The Red-cockaded woodpecker is an endangered species that was studied intensively during the relicensing process (Center for Conservation Biology, 2002a). No Red-cockaded woodpeckers and no evidence of the species were found in the Project area. Since no areas of suitable habitat were found within the Project Boundary, it was concluded that this species no longer exists in the forests surrounding the Project.

Virginia spiraea is a threatened shrub found along disturbed areas along rivers and streams or slow changing, dependable riparian areas. Flood scouring is essential to this plant's survival because it eliminates competition. Previous Project operations created infrequent high flows in the Cheoah River resulting in significant vegetation growth and competition for the Virginia spiraea along the river channel while still supporting several significant colonies of this species along the Cheoah River.

The Junaluska salamander is a "Federal Species of Concern" historically known to inhabit the upper reaches of the Cheoah River just below Santeetlah Dam. The species is likely to still inhabit the Cheoah River but may not still inhabit the upper river near Santeetlah Dam.

The Blue-winged warbler is a species of special concern that utilizes weedy, shrubby, and second growth habitats. No Blue-winged warblers were found in potential habitat areas within the Project Boundary (Center for Conservation Biology, 2002b).

4.4 Priority Areas / Habitats

As part of the relicensing, Tapoco conducted a study to assess the impact of current reservoir operations for all four Tapoco Project reservoirs on wildlife resources and their habitats, including important or unique habitats, such as wetlands, shoreline riparian zones, and "drawdown" zones (Normandeau Associates, 2001). 97 priority wetland and riparian habitats were identified within the Project reservoirs, the Cheoah River, and the Calderwood Bypass that have the potential to be affected by reservoir water levels or river flows. Eleven of the 97 priority habitats were selected to be representative of the range of conditions that occur throughout the 97 habitat sites. A summary of habitat features at each of the 11 representative priority habitats is provided in Table 4-5.

Table 4-5 Summary of Eleven Tapoco Project Representative Priority Habitats

Priority Habitat	Location	Habitat Type	Description Summary
CAL-17	Calderwood Bypass at Goat Creek	Shrub-Scrub Wetland	On Calderwood bypass at Goat Creek. Bed of Little Tennessee River had negligible flow, with isolated shallow pools, rock outcrops and boulders grading to cobble and silt. Dense floodplain shrub community and herbaceous species, primarily associated with pools.
CHER-5	Cheoah River at Cochran Creek	Shrub-Scrub Wetland	Cheoah River in vicinity of Cochran Creek. River bed supports shrub-scrub wetland on higher elevations, emergents in depressions of exposed fine sediment and sparse growth of aquatic plants in pools. Hummingbird and butterfly species evident.
CHI-19	Chilhowee Reservoir; Chilogatee Branch Embayment	Emergent Wetland	Back of the embayment supports dense aquatic plant bed fringed with emergents and shrub-scrub wetland. Level bottom consists of fine particulate substrate. Woody wetland and riparian growth is young. Beaver and muskrat sign evident.
CAL-10	Calderwood Reservoir at Dalton Branch Gap	Emergent Wetland	Wetland located at mouth of Dalton Gap Branch which has deposited a large ovoid sedimentation delta of silty sand on rocks. Sparse herbaceous plant cover on delta, surrounded by upland riparian forest.
CHE-25	Cheoah Reservoir at Fox Creek	Emergent Wetland	Emergent wetland at the mouth of Fox Creek occupies a peninsula of silt trained parallel to the upland shoreline by current and wave action. Several shallow water herbaceous species inhabit the site as do some deeper water plant species. Wood duck nest boxes and beaver sign evident. Butterflies evident.
CHE-31	Cheoah Reservoir Island at Sweet Branch	Forested Wetland with Emergent Fringe	Forested island dominated by birch and sycamore. Smaller tree species occupy the edges. The lake bottom is gently sloping silty sand covered by patches of the aquatic plant *Vallisneria*. Otter and beaver sign evident. Other wildlife usage apparent.
SAN-31	Santeetlah Reservoir; Upper Snowbird Creek Embayment	Forested Wetland with Unvegetated Stream Bottom	Embayment closely surrounded by road and houses. Forest community between road and water including some large specimens of *Acer rubrum*. Along reservoir shoreline numerous tree species and a dense undergrowth of *Rhododendron maximum*. Moderate amount of dead wood. No aquatic vegetation in the reservoir at the creek mouth.

Priority Habitat	Location	Habitat Type	Description Summary
SAN-52	Santeetlah Reservoir; Upper East Buffalo Creek Embayment	Forested Wetland with Unvegetated Stream Bottom	The upper end of the East Buffalo Creek embayment just above the bridge. Flooded *Salix nigra* to 10 inches dbh. No aquatic vegetation apparent. Negligible dead woody material. Drawdown exposes a streamside, silty “flat" stabilized by *Eleocharis acicularis*. Beaver and raccoon sign evident. Numerous bird species evident.
CHI-17	Chilhowee Reservoir; Abrams Creek Embayment (includes Panther Creek)	Unvegetated Flat	Upper end of Abrams and Panther Creek embayments. Gravelly, sand sediment base overlain with patches of organic material. No aquatic vegetation present. No dead wood observed in embayment or surrounding forest. Surrounding upland shoreline primarily young forest. Numerous bird species evident. Turtles evident.
CAL-6	Calderwood Reservoir at Slickrock Creek	Unvegetated Flat	Embayment with shallow, cobble-rock sandy bottom almost level from head of embayment to mouth. No aquatic vegetation present due to periodic inflow and scour. Bordering embayment is young forest. Low amounts of dead wood. Various bird species evident.
SAN-33	Santeetlah Reservoir; Upper Cheoah River Embayment	Unvegetated Flat	Inflowing river runs fast over bare boulders interspersed with silt pockets. No aquatic vegetation observed. No wetland vegetation, though reservoir may periodically inundate some surrounding forest areas. Surrounding forest vegetation interspersed with woody understory and herbaceous ground cover. Raccoon sign evident. Various bird species observed.

Source: Terrestrial Study 1: Riparian Habitat Assessment Final Report. Normandeau Associates, 2001.

These 11 priority habitats can be combined into five general types: scrub-shrub, emergent wetland, forested wetland with emergent fringe, forested wetland with unvegetated stream bottom, and unvegetated flat. Following are brief descriptions of each of the five types including the percentage of the 97 priority sites represented by each type:

1. Scrub-shrub wetland is a wetland plant community representing a zone between the forested and emergent wetland types in its tolerance to inundation. In the Tapoco Project area, this community includes species such as smooth alder, silky dogwood, and small willows along most shorelines. A total of 19% of the habitat sites identified belong to this type. Human disturbance sometimes augments this type by maintaining the scrub component at unnaturally high levels. Wetland tree species, such as red maple, river birch, and sycamore, may be cut back leaving a shrub-like cover of stump sprouts.

2. Emergent wetlands typically form a narrow fringe along the water’s edge. Very few locations in the Project area have level areas extensive enough near the

summertime water level to promote a significant development of this habitat type. A total of 8% of the habitat sites identified belong to this type.

3. Forested wetlands with an emergent fringe are found in the Project area extending landward from the water's edge along swales and moist ravine bottoms. Favorable conditions for this community are found near open water. This habitat type may extend beyond the emergent zone under water in the form of aquatic beds comprised primarily of submergent species, particularly in the Chilhowee Reservoir. A total of 17% of the habitat sites identified belong to this type.

4. Forested wetland with unvegetated stream bottom is an expected transition in wetland habitat changing down gradient from woody to herbaceous growth. This expected transition often does not appear in the Project area even where suitable shallow, level bottoms are present. There is often an abrupt discontinuity between wetland vegetation and open water. A total of 46% of the habitat sites identified belong to this type.

5. Unvegetated flats usually occur as a shallow at the mouth of any major tributary stream with a steeply sloping bed at the point of discharge. They are the most barren wetland environments in the Project area. Physical factors, such as scouring velocity of stream flow along shallow, level bottoms, can make conditions too unstable for plants to become established. A total of 10.3% of the habitat sites identified belong to this type.

The priority habitats potentially provide habitat to 80 species of amphibians and reptiles (4 of special concern), numerous bird species (none are listed or of special concern), 54 mammal species (23 are listed, or have potential for listing, or are of special concern), and 79 species of butterflies (12 are of special concern). The quality of the wildlife habitat provided at each of the 11 priority sites was evaluated under existing conditions compared to those that would be provided under an alternative "unmanaged" scenario, dams in place, but reservoirs maintained at full pond (Normandeau Associates, 2001). The conclusion was that full pond conditions (mainly Cheoah, Calderwood and Chilhowee developments) would result in the disappearance or reduction of priority habitats. In the case of Santeetlah Reservoir, the effect of Project operations prior to the adoption of the current operating curve (see Section 2.2.3) on the priority habitats was, for the most part, not favorable due to seasonal drawdown of the reservoir.

5.0 RECREATION AND AESTHETIC RESOURCES

5.1 Existing Recreation Facilities

5.1.1 Multi-Use Facilities

5.1.1.1 Public Access Recreation Areas

There are currently 37 recreation facilities and access areas located on the Project reservoirs, which provide a variety of recreational opportunities. These multi-use facilities for public use located at each of the four Project reservoirs are listed in Tables 5-1 through 5-4 and shown in Figures 5-1 and 5-2. These facilities and access areas include boat launch ramps, picnic facilities, campsites, swimming areas, bank fishing areas, and trails. Tapoco operates and maintains solely or in cooperation with state and/or federal resource agencies 21 of these areas, while the others are managed by the U.S. Forest Service (USFS), Tennessee Valley Authority (TVA), North Carolina Wildlife Resource Commission (NCWRC), or North Carolina Department of Transportation (NCDOT).

Of the four Tapoco Project reservoirs, Santeetlah Reservoir receives considerable recreational use and is the most heavily utilized. Santeetlah Reservoir is accessible from numerous public access points (Table 5-1, Figure 5-1) which are managed by Tapoco, NCWRC, and the USFS. There are 18 multi-use access areas open to the public on the reservoir, three of which provide boat launching areas. Public recreation facilities also provide areas for fishing, camping, swimming, and picnicking.

Table 5-1 Santeetlah Reservoir Multi-Use Recreation and Access Facilities Available for Public Use

Site	Type	Fee	Ramp	Lane	Park-ing	Boat Temporary Tie-up Docks	Campsites
Santeetlah Dam Overlook	Access				10		
Cheoah Point Boat Access	Boat Launch Ramp		1	1	38	1	
Cheoah Point Campground	Camping	Yes			26		26
Cheoah Point Day Use Area	Swimming, Picnicking, Access				33		
East Buffalo Branch Campsites	Camping						9
Ted Jordan Wayside Area	Access (visual only)				10		
Massey Branch Wayside Picnic Area	Picnicking				10		
Massey Branch Wayside Camping	Camping				1		1
Massey Branch Boat Access Area	Boat Launch Ramp		1	1	15	1	
Snowbird Picnic Area	Picnicking				5		

Site	Type	Fee	Ramp	Lane	Park-ing	Boat Temporary Tie-up Docks	Campsites
Long Hungry Road Camping	Camping						6
Santeetlah Road Wayside	Access (visual only)				6		
Rattler Ford Group Camp	Camping	Yes					16
Horse Cove Campground	Camping	Yes					18
Joyce Kilmer Trailhead Parking	Access				25		
Avey Branch Boat Access	Boat Launch Ramp		1	1	35		
Atooga Branch Camping Area	Camping						2
Santeetlah Reservoir Dispersed Campsites	Camping						53
FACILITY TOTAL	18	3	3	3	214	2	131

Source: Recreation Facilities Inventory. EDAW, 2002a.

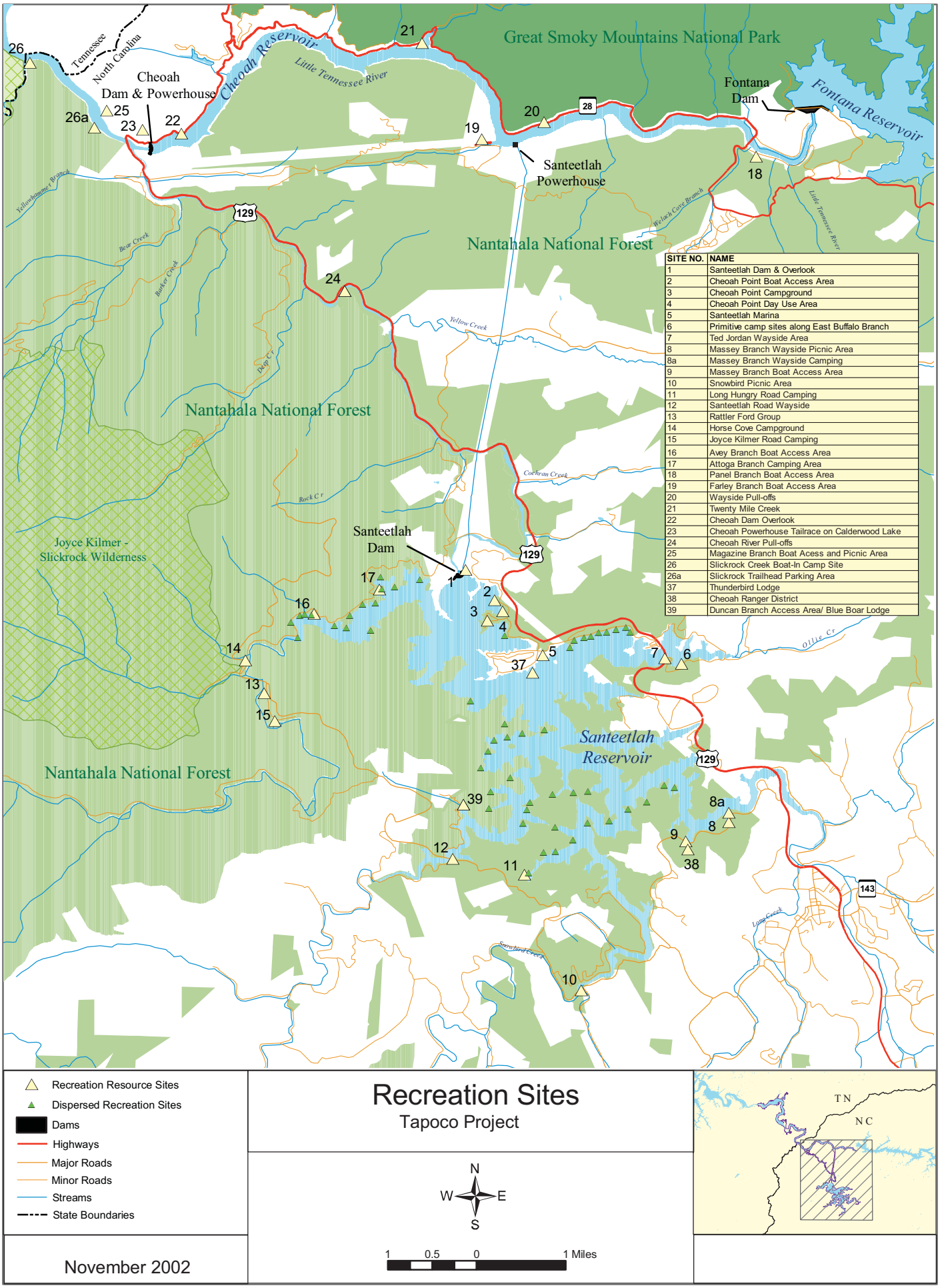
Of the four Project reservoirs, Cheoah Reservoir receives the least amount of recreational use (Table 5-2, Figure 5-1). Despite its limited use, the reservoir provides a significant recreation resource for boating and fishing in a very pristine and undeveloped setting. The most popular recreation activity on the Cheoah Reservoir is fishing and there are three facilities on the reservoir for launching boats (one of which is unimproved). Two other modest access areas provide visual access to Cheoah.

Table 5-2 Cheoah Reservoir Multi-Use Recreation and Access Facilities Available for Public Use

Site	Type	Fee	Ramp	Lane	Park-ing	Boat Temporary Tie-up Docks	Campsites
Panel Branch Boat Access Area	Boat Launch Ramp		1	1	25		
Farley Branch Boat Access Area	Boat Launch Ramp		1	1	8	1	
NC Highway 28 Wayside Pull-offs	Access (visual only)				7		
Twenty-Mile Creek Lake Access Area	Launch (unimproved), Access		1	1	4		1
Cheoah Dam Overlook	Access (visual only)				16		
FACILITY TOTAL	5		3	3	60	1	1

Source: Recreation Facilities Inventory. EDAW, 2002a.

Figure 5-1 Recreation Sites at Santeetlah and Cheoah Reservoirs



Calderwood Reservoir is the most remote of the four Project reservoirs and receives the second to the least amount of recreational use. Other than the public recreation access area for camping, picnicking and boat launching at the upper end of the reservoir, there is no development on the reservoir and most of the lands surrounding the reservoir are owned by Alcoa Power Generating Inc. (APGI). Despite its remoteness and limited use, Calderwood provides a significant recreation resource for fishing and boating. Table 5-3 and Figure 5-2 show several other public access facilities for Calderwood, including pull-offs on U.S. Highway 129 for picnicking, a campsite, and fishing access.

Table 5-3 Calderwood Reservoir Multi-Use Recreation and Access Facilities Available for Public Use

Site	Type	Fee	Ramp	Lane	Park-ing	Boat Temporary Tie-up Docks	Campsites
Magazine Branch Boat Access and Picnic Area	Boat Launch Ramp (one of which is unimproved), Picnicking		2	2	15	1	5
Slickrock Creek Boat-in Campsite	Launch (unimproved), Camping		1	1			1
Cheoah Powerhouse Tailrace Fishing Access	Fishing, Access				15		
Slickrock Creek Trailhead Parking	Access				16		
U.S. Highway 129 Pull-offs	Picnicking				12		
Calderwood Overlook	Access (visual only)				6		
FACILITY TOTAL	6		3	2	64	1	6

Source: Recreation Facilities Inventory. EDAW, 2002a.

Of the four Project reservoirs, Chilhowee Reservoir receives the second greatest amount of recreational use. Popular recreational uses of the reservoir include boating and fishing. Table 5-4 lists the public recreation access facilities for Chilhowee, including six boat launch sites (two of which are unimproved), two camping areas, and several picnicking areas. Most of these sites are located within the Project Boundary and provide direct access to Project lands and waters (Figure 5-2).

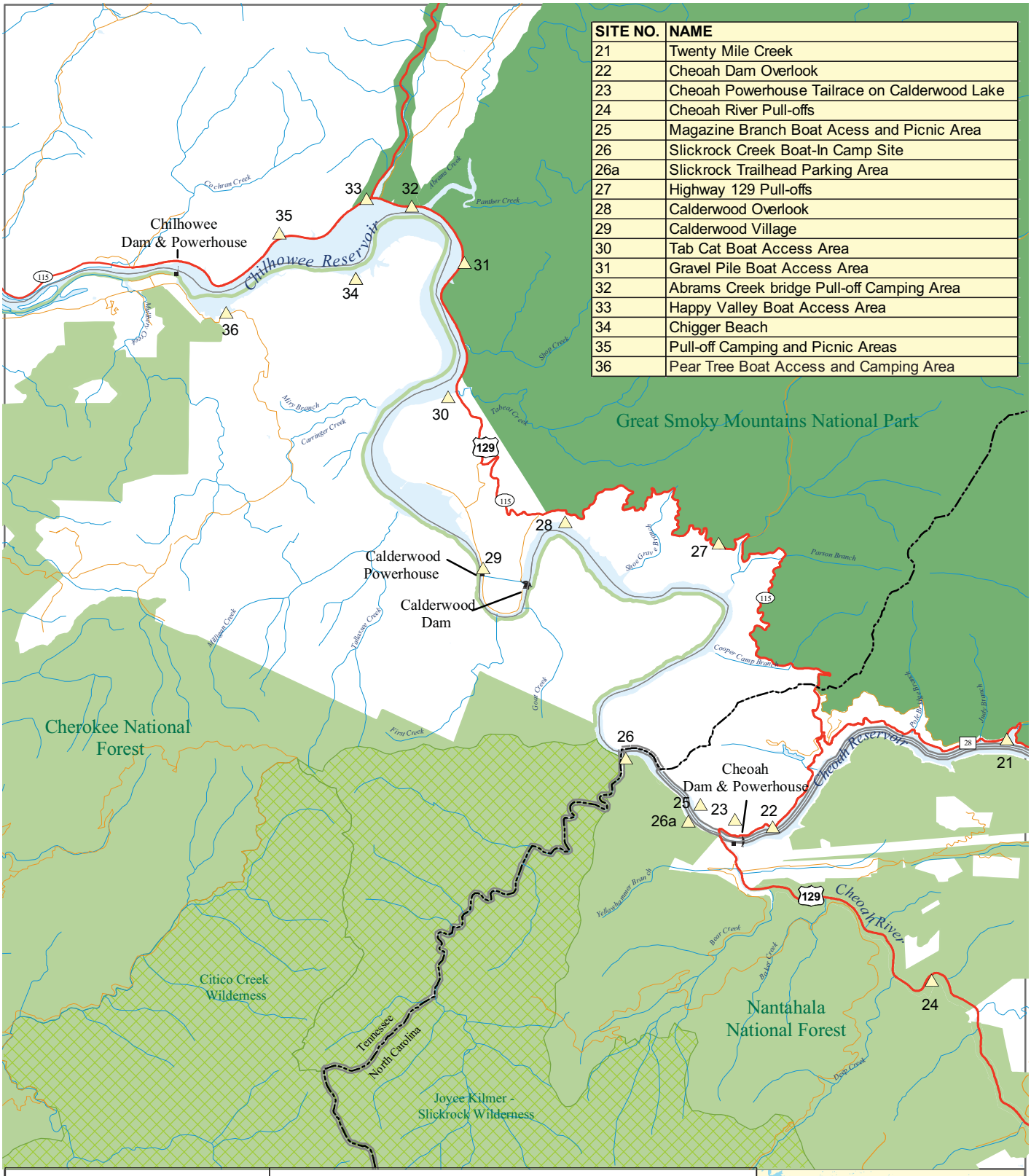
Table 5-4 Chilhowee Reservoir Multi-Use Recreation and Access Facilities Available for Public Use

Site	Type	Fee	Ramp	Lane	Park-ing	Boat Temporary Tie-up Docks	Campsites
Calderwood Village Day Use Area	Picnicking					1	
Tab Cat Boat Access Area	Boat Launch Ramp		1	1	11		
Gravel Pile Boat Access Area	Boat Launch Ramp, Picnicking		1	1	11		
Abrams Creek Bridge Pull-off Access Area	Launch (unimproved), Access		1	1			
Happy Valley Boat Access Area	Boat Launch Ramp		1	1	6	1	
Chigger Beach Boat-in Access Area	Launch (unimproved)		1	1			
U.S. Highway 129 Pull-off Camping and Picnicking Areas	Access, Picnicking, Camping				6		6
Pear Tree Boat Access and Camping Area	Boat Launch Ramp, Camping		1	1	20		10
FACILITY TOTAL	8		6	6	54	2	16

Source: Recreation Facilities Inventory. EDAW, 2002a.

5.1.1.2 Commercial Recreation Areas

In addition to the numerous recreation facilities located around the Project reservoirs and available to the general public, there are four privately owned and operated multi-use recreation facilities located on Santeetlah Reservoir or on other Tapoco lands adjacent to the reservoir. Santeetlah is the only one of the four Project reservoirs where Tapoco has permitted any commercial development. The four facilities include Santeetlah Marina, Blue Boar Inn, Thunderbird Resort, and Deyton Marina.



SITE NO.	NAME
21	Twenty Mile Creek
22	Cheoah Dam Overlook
23	Cheoah Powerhouse Tailrace on Calderwood Lake
24	Cheoah River Pull-offs
25	Magazine Branch Boat Acess and Picnic Area
26	Slickrock Creek Boat-In Camp Site
26a	Slickrock Trailhead Parking Area
27	Highway 129 Pull-offs
28	Calderwood Overlook
29	Calderwood Village
30	Tab Cat Boat Access Area
31	Gravel Pile Boat Access Area
32	Abrams Creek bridge Pull-off Camping Area
33	Happy Valley Boat Access Area
34	Chigger Beach
35	Pull-off Camping and Picnic Areas
36	Pear Tree Boat Access and Camping Area

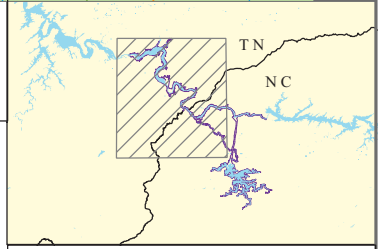
Recreation Resource Sites
Dams
Highways
Major Roads
Minor Roads
Streams
State Boundaries

Recreation Sites

Tapoco Project

N
W E
S

1 0.5 0 1 Miles



November 2002

Figure 5-2

5.1.2 Private Recreation Facilities

Santeetlah is the only Project reservoir where the Tapoco Division (Tapoco) of APGI has allowed private recreation facility development. No private recreation facilities are permitted on Cheoah, Calderwood and Chilhowee reservoirs. Currently, there are about 238 private permits for docks and other private access facilities on Santeetlah Reservoir (see Figure 5-3)[3]. All private property owners adjacent to Santeetlah Reservoir are required to obtain a permit from Tapoco to place a pier within the Project Boundary or on other APGI-owned lands. The current permits were issued under Tapoco's previous specifications for private recreational facilities.

As part of this Shoreline Management Plan (SMP), Tapoco has updated and revised the Specifications for Private Recreation Use Facilities (Specifications) attached as Appendix B (also see Section 7.0). These specifications set forth private facility eligibility and design requirements for adjoining property owners seeking to install private recreation facilities. The only new facilities permitted are (i) a stationary pier, ramp and floating dock combination, (ii) a ramp and floating dock combination or (iii) a floating dock (all three are referred to as a "pier"). No other facilities, structures or uses are permitted, unless authorized under Tapoco's Shoreline Stewardship Policy or Tapoco's Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures (see Appendices A and C). Piers must be designed, constructed, and maintained in accordance with the Specifications (Appendix B).

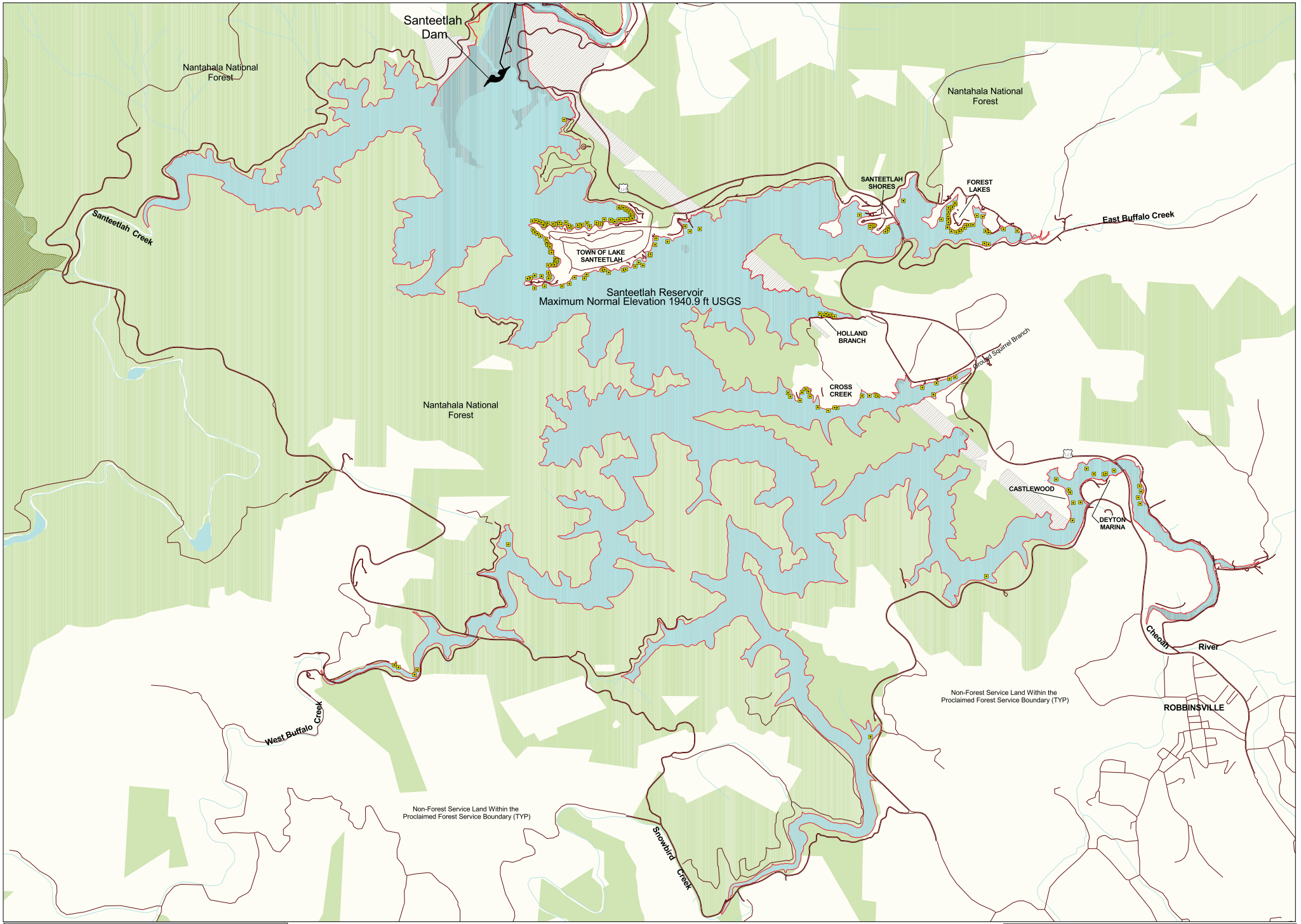
5.2 Planned Public Recreation Facilities and Facility Improvements

The Tapoco Project Relicensing Settlement Agreement identified specific new public recreation facilities and upgrades to existing facilities along with recreational funding commitments for facility enhancements and upgrades from Tapoco, USFS, NCWRC, and Tennessee Wildlife Resources Agency (TWRA).

New public recreation facilities and upgrades anticipated at Santeetlah Reservoir include: expansion/improvement of the Massey Branch Boat Launch, improvements at the Cheoah Point Boat Access, improvements at Cheoah Point Campground, dispersed campsite improvements at 20 sites identified by USFS, improvements at Avey Branch Boat Launch, and improvements for bank fishing. Along the Cheoah River, proposed public recreation facilities include: a trail along the river, a fishing pier at the river trail, two additional gravel pull-off areas along U.S. Highway 129, a put-in facility for non-motorized boating below Santeetlah Dam, and a non-motorized boating take-out facility at the Magazine Branch Boat Access.

[3] Figure 5-3 is based on aerial photographs taken in 1996. Tapoco has issued 238 private permits for docks and other private access facilities on Santeetlah Reservoir as of the filing date of this Tapoco Shoreline Management Plan with the Federal Energy Regulatory Commission.

Anticipated new public recreation facilities and upgrades at Cheoah Reservoir include a canoe portage around Cheoah Dam, improved bank fishing facilities, and relocation of the Panel Branch Boat Access to Llewellyn Branch. Proposed new facilities at Calderwood include five primitive campsites, a canoe/kayak take-out at Calderwood Dam, and a fish delivery chute near Calderwood Dam (installed). Anticipated new public recreation facilities and upgrades at Chilhowee Reservoir include a canoe portage around Chilhowee Dam, two accessible fishing piers on the reservoir, and improved day use areas along U.S. Highway 129.


Santeetlah Dam
Nantahala National Forest
Nantahala National Forest
Nantahala National Forest
Santeetlah Creek
SANTEETLAH SHORES
FOREST LAKES
East Buffalo Creek
TOWN OF LAKE SANTEETLAH
Santeetlah Reservoir
Maximum Normal Elevation 1940.9 ft USGS
HOLLAND BRANCH
Ground Squirrel Branch
CROSS CREEK
CASTLEWOOD
DEYTON MARINA
Cheoah River
ROBBINSVILLE
West Buffalo Creek
Snowbird Creek
Non-Forest Service Land Within the Proclaimed Forest Service Boundary (TYP)
Non-Forest Service Land Within the Proclaimed Forest Service Boundary (TYP)
Piers and Docks (NAI Survey Dec 2000)
FERC Project Boundary
Roads
Streams
Wilderness Areas
Forest Service Land
National Park Land
Project Structures
Maximum Normal Elevation
Tapoco Property
Inside FERC Boundary
Outside FERC Boundary
0 2000 4000 6000 8000 Feet
Private Recreation Facilities at Santeetlah Reservoir
Figure 5-3

5.3 Recreational Use

5.3.1 Non-resident Use

The summer recreation season at the Project reservoirs is from May 15 to September 15 with a winter season from September 15 to May 15. Of the four Project reservoirs, Santeetlah Reservoir receives considerable recreational use and is the most heavily utilized followed by Chilhowee, Calderwood and Cheoah. Popular recreational uses on Project lands include fishing, camping, boating, hiking, swimming, and picnicking. Of the users who recreate on Santeetlah Reservoir, non-resident visitors provide the greatest economic effect on Graham County.

As shown in Table 5.5, estimated annual Project-wide daytime recreation use by visitors for 2000 ranged from 68,034 to 97,370 days (EDAW, 2002a). A recreation day is defined as one visit by one person for recreational purposes during the day.

Table 5-5 Estimated Range of Annual Visitor Use Estimated for 2000

Reservoir	Low Estimate (based on 2000 spot count data)	High Estimate (based on 1996-97 use estimates inflated 10%)
Santeetlah	33,248	44,995
Cheoah	3,502	6,807
Calderwood	11,410	8,984
Chilhowee	19,874	36,584
Total for Tapoco Project	68,034	97,370

Source: Recreation Use Assessment. EDAW, 2002a.

5.3.2 Resident Use

A resident is defined as someone who has a residence (either seasonal or permanent) that has direct access to the reservoir. Some of the recreational use on Santeetlah Reservoir is by the 238 permittees of private recreation facilities who have direct access to the reservoir. However, most recreational use of Santeetlah originates at one of the public recreation areas scattered around the reservoir. Since there are no private recreational facilities allowed on the other three Tapoco Project reservoirs, residential use figures are based on Santeetlah Reservoir only. Estimated annual Project-wide daytime recreation use by residents on Santeetlah Reservoir for 2000 was 26,616 days (EDAW, 2002a). A recreation day is defined as one visit by one person for recreational purposes during the day.

5.3.3 Recreational Carrying Capacity

Recreational carrying capacity on reservoirs generally has two important components, the carrying capacity of the facilities designed to allow public recreation access to the reservoirs and the carrying capacity of the reservoirs themselves, in terms of the level of use in relation to the size of the reservoir. In general, visitor and resident surveys revealed that the perception of crowding is relatively low throughout the Tapoco Project.

The average percent capacity determined for public recreational facilities throughout the Project was 50% or lower. Only two types of public recreational facilities, marinas and swimming facilities, located at Santeetlah Reservoir reach an average capacity of 50% (EDAW, 2002a). Current boating use of Santeetlah Reservoir averages approximately 100 boats observed on a holiday recreation day, which does not exceed the physical carrying capacity of about 300 boats.

Santeetlah Reservoir receives the most recreation use of the four Project reservoirs, followed by Chilhowee, where the average capacity is 46% for camping areas and 46% for tent/RV/trailer sites. Cheoah and Calderwood reservoirs do not exceed an average capacity of 25% for any type of recreational facility.

The Recreation Opportunity Spectrum (ROS) is a mechanism for characterizing the level of development and the desired recreation experiences on National Forest lands. When Tapoco surveyed recreational users, the results indicated that the experience of most recreational users of Santeetlah Reservoir (the most heavily utilized Project reservoir) is consistent with the ROS classification of "roaded natural". This classification is characterized by the opportunity to interact with others but some chance of privacy; mostly natural-appearing environment; interaction among users is of moderate importance; motorized travel and access; rustic facilities with use of native materials; moderate site modification for facilities; and simple wayside exhibits. When surveyed about the type of recreation experience desired versus their actual experience at Santeetlah, most recreational users indicated that the recreation experience at Santeetlah Reservoir is consistent with the ROS classification "roaded natural". They also indicated a preference for less developed recreation setting than currently exists (not more developed).

5.4 Aesthetics

The Tapoco Project reservoirs are set in the mountains of the southern Appalachians and are of high visual quality. Santeetlah Reservoir is irregularly shaped with a relatively undeveloped shoreline surrounded by steep mountain terrain. The reservoir is visible from many locations and adds to the visual quality of the area.

The mainstem Project reservoirs, Cheoah, Calderwood and Chilhowee, are all of high visual quality. Cheoah Reservoir is a long and narrow reservoir set in the Little Tennessee River gorge that has retained much of its riverine character. The reservoir is highly visible from NC Highway 28 that parallels the reservoir. Except for the Santeetlah Powerhouse and a few modest public recreation areas, the shoreline is undeveloped.

Calderwood Reservoir is even more pristine than Cheoah. Like Cheoah Reservoir, Calderwood is narrow and riverine set within the Little Tennessee River gorge. Unlike Cheoah, there is virtually no road access to Calderwood Reservoir and views from the road are limited to several areas. There is no development on Calderwood, except for the Magazine Branch Boat Access and Picnic area. The shoreline of the reservoir is steep.

Chilhowee Reservoir is a broader, shallower reservoir than either Cheoah or Calderwood. The upper end of the reservoir marks the downstream end of the Little Tennessee River gorge, and the terrain surrounding Chilhowee is more moderate. U.S. Highway 129 runs almost the entire length of the reservoir, providing nearly continuous views of the reservoir for several miles. There is limited development (several modest recreation areas) along the Chilhowee shoreline.

The USFS has established a program and methodology for the inventory and assessment of visual resources called the Scenery Management System (SMS). The SMS replaces the old Visual Management System (VMS). Since the Cherokee and the Nantahala National Forests have not revised their respective Forest Plans under the new program, the old VMS Visual Quality Objectives (VQOs) were used in a study to assess the consistency of these views with USFS VQOs for various Project areas (EDAW, 2002b). Of the 21 Project sensitive viewpoints evaluated, 15 are in compliance with applicable USFS VQOs. Although six are not in compliance with USFS VQOs, only two are actually on or directly viewed from USFS lands. The Santeetlah pipeline crossing of U.S. Highway 129 has high visibility structural and vegetation contrasts in a Partial Retention VQO (management activities are visually subordinate to the landscape); while Santeetlah Reservoir at low pool as seen from Cheoah Point Day Use Area parking lot results in a small expanse of reservoir visible for a short duration in a Retention VQO (management activities are not visually evident).

There are no Tapoco Project facilities visible from important observation points within the Great Smoky Mountains National Park.

6.0 CULTURAL RESOURCES

Prehistoric Overview

The Tapoco Project is located in the Southern Appalachian Region. The earliest documented occupation of this Region occurred at the end of the last glacial advance and is referred to as the Paleo-Indian period (12,000 – 8,000 BC). Paleo-Indian culture consisted of small nomadic bands that subsisted by hunting and gathering. Several Paleo-Indian sites have been documented in the Little Tennessee River Valley, although none are recorded in the Project area.

During the period 8,000 to 1000 BC (the Archaic Period), environmental warming resulted in cultural adaptation. During the early Archaic, the dominant subsistence source was big game hunting, although plant foods, aquatic resources, and small game were used to supplement. The Middle Archaic Period brought increasing importance to plant foods and aquatic resources and a change in settlement along rivers. By the late Archaic Period there is evidence of plant cultivation, including cultivated squash and several annual plants such as sunflower and sump weed.

The Woodland period (1000 BC –AD 900) brought about the development of pottery and the bow and arrow. There is evidence that the focus of settlement moved increasingly to the bottomlands and presumably reflects the growing dependence upon horticulture. Woodland cultures are further marked by population growth, permanent settlement and subsistence on agriculture, as well as hunting and gathering. Maize was introduced during the period, although wild resources continued to be the major food sources.

Late Prehistoric/Protohistoric Overview

The Mississippian period (900 –1650 AD) defines the Late Prehistoric Era. Increasing dependence on corn agriculture supplemented by hunting and gathering provided a stable and plentiful food supply that supported an increased population. The period is noted for complex societies organized in chiefdoms, platform mounds associated with a public plaza, and houses constructed of wattle and daub.

After AD 1450, native people who are historically known as the Cherokee populated the Southern Appalachian Region. The most diagnostic attribute of the Cherokee culture is their ceramic tradition. The cultural materials from Cherokee sites included lithic artifacts, ground stone Celts, pipes, discs and chunky stones as well as European trade goods. Other European influences on the Cherokee were the exposure to Old World diseases that decimated the population and settlement that encroached upon Indian territories.

Historic Overview

The earliest known European explorers are believed to have visited the Southern Appalachian Region in the 16th century. It was not until after 1670, when the Spanish relinquished their claims, that the British began settling the interior.

Over 60 Cherokee settlements were located in the southeastern region of North America during the 18th century. The settlements clustered in three regions: the Lower, Middle or Valley and Overhill settlements. The Tapoco Project is located in the Overhill region of Tennessee and the Valley region of North Carolina. Overhill refers to being geographically located "over" the Appalachian Mountains. Most Overhill towns were located along the Little Tennessee and Tellico Rivers. Three Overhill Cherokee towns are located in the Project area. These are Chilhowee and Tallassee and an unnamed settlement. All three are inundated beneath Chilhowee Reservoir. The North Carolina Valley town is known either as Cheoah or Buffalo Town and is submerged under Santeetlah Reservoir.

Anglo-American Settlement in the Tennessee Project Area

Blount County, created in 1795, is one of the oldest counties in Tennessee. Settlement of the Blount/Monroe areas began in 1785 mainly with Scotch-Irish Presbyterians from Virginia and North Carolina. Permanent European settlement was limited prior to the American Revolution but increased after the Cherokee Removal of 1837.

John Hardin is believed to be the first white man to own land in the Chilhowee/Calderwood areas. He owned and operated a large farm later sold to WW Howard in the 1800s. The Howard family sold the farm to Alcoa in 1910. Alcoa used the Howard Farm as a starting point for establishing an industrial town call Calderwood, and headquarters for the construction of the reservoirs. By the 1930s, Calderwood's population grew to nearly 3,000 persons. The town had a barbershop, restaurant, theater, hospital, school, clubhouse, and hotel. A railroad was built in the early 1900s and operated from the Tennessee Carolina and Southern Railroad terminus at Chilhowee to Cheoah and Santeetlah powerhouses and dams in North Carolina.

Cherokee Settlement in the Project Area

After the 1819 Treaty of Washington, the Cheoah Towns received large numbers of Cherokee from the Middle Towns and Overhill Towns whose lands had been ceded to the United States. Census records show that emigrants from Cowee, Chilhowee and Citicorp resettled in Cheoah Valley. In the early 1820s, a post office and store was set up in the present-day Robbinsville. Initially the post office was named Cheoah Valley, was changed to Fort Montgomery in 1849 and to Robbinsville in 1874. The trading post became the central meeting place for people who lived in the Cheoah Valley.

On December 29, 1835, the Treaty of New Echota was signed ceding all Cherokee lands east of the Mississippi River to the United States in exchange for 5 million dollars and a common joint interest in land in Arkansas and Oklahoma and a tract in Kansas. In 1838 the Tatham Gap Road was marked and constituted the first 12 miles of the "Trail of Tears", the road by which the United States government forced the removal of the Cherokee from their homelands in the Appalachians.

After Removal, a number of Cherokee households from the Valley River and Nottely River settlement joined Buffalo Town, forming an enclave that eventually became known as the Snowbird Band of Cherokees. They consolidated with the Qualla Cherokees in 1889 to form the Eastern Band of Cherokee Indians (EBCI). Today, the Cherokees of Graham County hold sizable tracts of trust lands along Snowbird Creek and maintain a number of tribal-run facilities for the benefit of band members. In addition, Cherokee lands, known as preemptions held in trust by the federal government, are located in the vicinity of Santeetlah Reservoir, though not within the Project Boundary.

Photographs of the North Carolina Cherokee in the early 1900s show log cabin homesteads along small creeks, or on small level areas adjacent to sloped land. Other buildings include overshot watermills adjacent to small streams and near farm building and sawmills.

Anglo-American Settlement in the North Carolina Project Area

White settlers began moving into the Cheoah Valley in the late 1800s. Graham County was created in 1872. In the 20th century, lumber companies bought land, built logging roads, and constructed railroads in Cheoah Valley. Around 1915, the Tallassee Power Company began acquiring lands around the Cheoah River. Construction started on Cheoah Dam in 1916. Part of the plan was to arrange with the Southern Railway Company for an extension of the Chilhowee Branch to Alcoa (later Tapoco) and then to the mouth of the Cheoah River in North Carolina. Train service between Knoxville and Alcoa started and reached the Cheoah Dam site in 1916. During this period worker houses and other facilities at Alcoa and the Cheoah Dam site were constructed. Cheoah Dam was in operation by 1919 and Santeetlah Dam was completed in 1928.

6.1 Eligible Archaeological Sites

In the years 2002-2004, the Tapoco Division (Tapoco) of Alcoa Power Generating Inc. (APGI) has conducted four surveys of archaeological resources in connection with the relicensing of the Project. These surveys identified a total of 11 archaeological sites within or in close proximity to the Project Boundary that are recommended as being either eligible or potentially eligible for the National Register of Historic Places (NRHP).

- In 2002, Tapoco conducted a Phase 1 archaeological survey of the drawdown zones of Chilhowee, Calderwood and Cheoah Reservoirs as well as 37 dispersed campsites on U.S. Forest Service (USFS) lands abutting Santeetlah Reservoir. This survey identified a total of six eligible or potentially eligible sites on Chilhowee, Calderwood and Santeetlah Reservoirs. Phase 1 Archaeological Survey for the Relicensing of the Tapoco Hydroelectric Project. (Legacy Research Associates, 2002) (hereinafter the 2002 Phase 1 Survey).

- In February 2003, Tapoco surveyed 58 areas in the drawdown zone of Santeetlah Reservoir in order to ground-truth the cultural resources predictive model developed for Santeetlah Reservoir. The survey identified four eligible or potentially eligible sites. Predictive Model Survey at Santeetlah Reservoir (Legacy Research Associates, 2003a) (hereinafter Predictive Model Survey).

- In December 2003, Tapoco surveyed three previously recorded archaeological sites on Chilhowee Reservoir that were not accessible during the 2002 Survey. This survey did not identify any eligible or potentially eligible sites. Archaeological Assessment Survey Associated with the Maintenance Drawdown of Chilhowee Reservoir (Legacy Research Associates, 2003b) (hereinafter 2003 Chilhowee Survey).

- In February 2004, Tapoco conducted Phase II Archaeological Testing and Evaluation of Eight Archaeological Sites at Santeetlah Reservoir in Graham County, North Carolina (hereinafter 2004 Santeetlah Phase 2 Survey). This survey identified one additional eligible or potentially eligible site on Santeetlah Reservoir.

Chilhowee Reservoir

The archaeological surveys on Chilhowee have identified one potentially eligible site and one eligible site. The McMurray Cemetery, a potentially eligible site, is a historic private cemetery that contains approximately 45 burials, three of which were marked with gravestones with inscribed dates from 1912 to 1917.

The Tallassee (Hardin Farm Site) is considered an eligible site and consists of a prehistoric open habitation/village and earth mound; Contact Period and Historic Cherokee town; a historic rural domestic farmstead and urban industrial abandoned town. This site yielded information indicative of a Late Prehistoric (Woodland and Mississippian) occupation and a Historic Cherokee village known as Tallassee. In addition, a later historic period component was documented, including the archaeological remains of the 1870-1920 Howard Farm and the subsequent 1920-1950 Calderwood Village, which is associated with the construction of the Cheoah and Santeetlah Reservoirs in North Carolina. As a result of these finds, this site is also considered a contributing element to the Tapoco Project Multiple Property Documentation Form (MPDF).

Calderwood Reservoir

The 2002 Phase 1 Survey identified two potentially eligible sites located along the Calderwood shoreline. One site is a historic railroad bed and tunnel built during the 1920s to facilitate the construction at Cheoah Dam. An additional potentially eligible site consists of prehistoric lithic scatters and an abandoned Black worker's camp associated with the construction of the Cheoah Dam. It appears to have the potential to yield important information about construction workers' culture, and possibly the participation of African Americans, during the development phase of hydroelectric power in the Southern Appalachian Region. These sites are also considered as contributing elements to the Tapoco Project MPDF.

Cheoah Reservoir

The archaeological surveys conducted in connection with the relicensing of the Project did not identify any eligible or potentially eligible sites at Cheoah.

Santeetlah Reservoir

The eight eligible or potentially eligible sites at Santeetlah are either located in the drawdown zone and/or are located on USFS lands abutting the Reservoir. In several cases, the sites are located at USFS dispersed campsites along the Reservoir shoreline.

The majority of the sites consist of prehistoric and protohistoric lithic scatters and, in some instances, early historic ceramics. These finds suggest that the sites contain information about the prehistoric and possible early historic occupation of the area.

One site consists of a historic cemetery located on USFS lands. The cemetery appears to be connected with early Anglo-European settlers in the area. Finally, one eligible site is the location of a 19th to early 20th century historic farmstead. This site is located on USFS lands.

6.2 Cultural Resources Probability Model for Santeetlah Reservoir

As part of the relicensing of the Project, Tapoco, in consultation with North Carolina State Historic Preservation Office (NCSHPO), USFS, EBCI Tribal Historic Preservation Office (THPO) and other interested parties developed and tested a cultural resources probability model as a tool for assisting in the identification of eligible and potentially eligible sites on Santeetlah Reservoir. The model identifies those areas on Santeetlah where there is a high, moderate or low probability for the location of previously unrecorded archaeological sites in the drawdown zone. Criteria such as landforms, distance from water, distance from stream confluence, slope, and the location of previously identified eligible or potentially eligible sites were used to delineate areas of high and moderate probability. All other areas were then delineated as low probability areas.

Tapoco has added the relevant historical and cultural resource data from the model to its Geographic Information System (GIS) and applied the model criteria for each geographical variable to the shoreline. This has resulted in a map that depicts the location of all moderate and high probability areas along the Santeetlah shoreline (see Figure7-3 in Section 7.0).

The majority of the shoreline is designated as low probability. There are several areas, however, that are considered moderate to high probability areas. The largest of these areas are found primarily on the tributaries, including the Cheoah River, Ground Squirrel and East Buffalo Creek. Other high to moderate probability areas include smaller portions of Snowbird Creek, West Buffalo Creek, Santeetlah Creek, and the main body of the Reservoir. As discussed later in the SMP, the probability maps will be used to guide Tapoco in the management of Santeetlah and assessment of subdivisions, multi-use facilities and industrial uses/facilities.

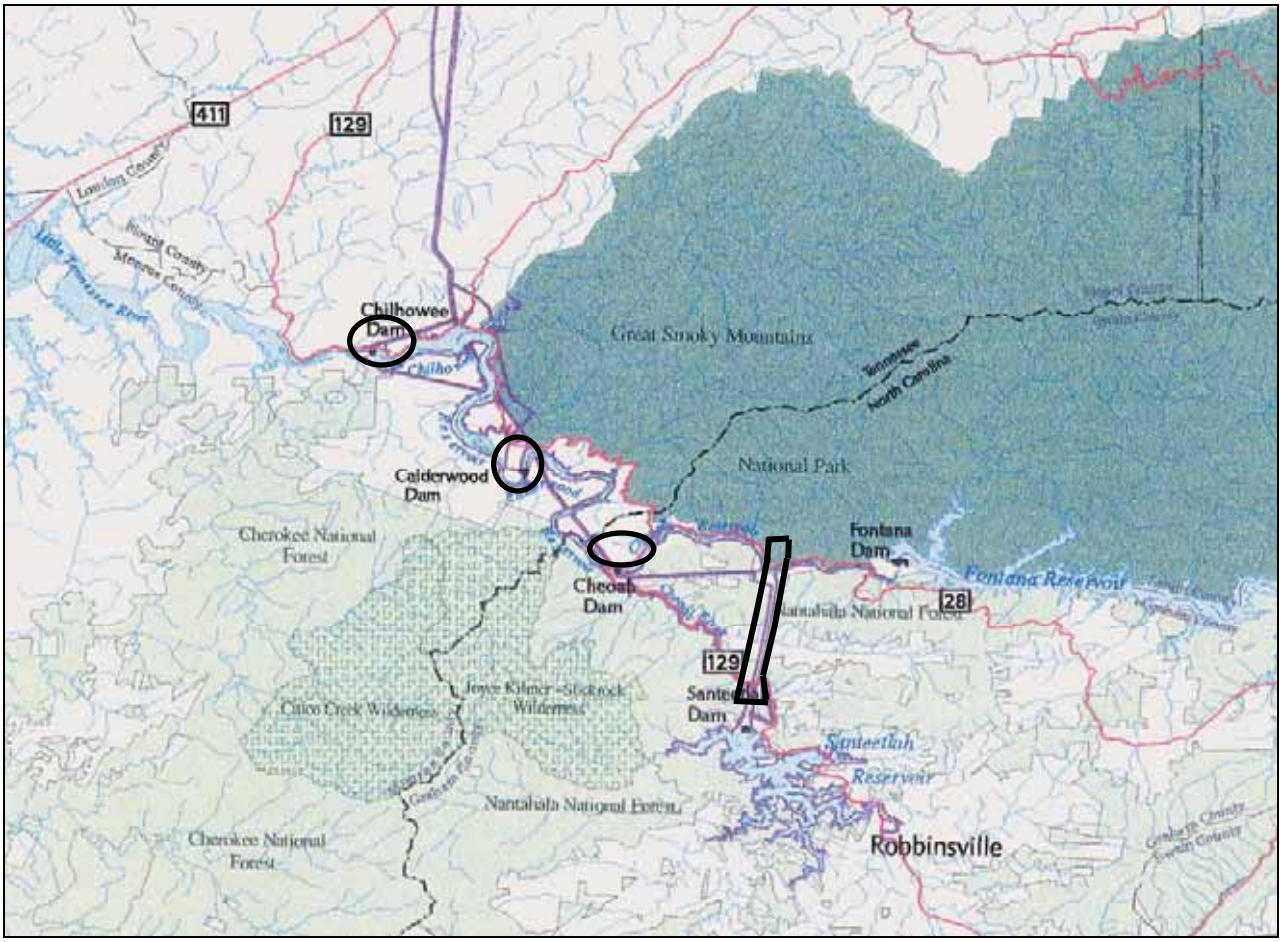
6.3 Historic Sites (Multiple Property Nomination)

In connection with the relicensing of the Project, Tapoco conducted an assessment of the eligibility of the Project's structures for listing on the NRHP. Buildings and structures evaluated during this study included powerhouses, dams, pipelines and other associated properties. (Thomason and Associates, 2002) (hereinafter referred to as the 2002 Eligibility Study).

The 2002 Eligibility Study concluded that all of the dams, powerhouses, and adjacent ancillary buildings and structures of the Tapoco Project meet the eligibility criteria of the NRHP. From this assessment, a National Register MPDF for the "Tapoco Hydroelectric Project" was prepared in 2002, which included individual nominations for the Santeetlah, Cheoah, Calderwood, and Chilhowee developments. Also included within the MPDF was a nomination for the "Tapoco Lodge Historic District". Originally built in 1930 as a conference center and retreat for Tapoco personnel, the Tapoco Lodge is now privately owned. This facility is located directly adjacent to the Cheoah Dam and Powerhouse in Graham County, North Carolina.

The boundaries of eligible properties with the Tapoco Project MPDF are shown on Figure 6-1.

Figure 6-1 National Register-Eligible Properties Associated with the Tapoco Project



6.4 Historic Properties Management Plan / Programmatic Agreement

Section 106 of the National Historic Preservation Act requires the Federal Energy Regulatory Commission (FERC) to take into account the effect of its undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment. For hydropower licensing actions, FERC typically completes Section 106 by entering into a Programmatic Agreement or Memorandum of Agreement (MOA) with the licensee, the Advisory Council on Historic Preservation and the State and/or Tribal Historic Preservation Officer. FERC typically requires the licensee to develop and implement a Historic Properties Management Plan (HPMP) as a license condition. Through an approved HPMP, FERC can require consideration and management of effects on historic properties for the license term; thus, meeting the requirements of Section 106 for its undertakings.

On August 25, 2004 FERC executed a Programmatic Agreement for the Tapoco Project. The Programmatic Agreement, signed by FERC, the NCSHPO, the USFS, and APGI, was subsequently sent to the Advisory Council on Historic Preservation on September 9, 2004. The Programmatic Agreement outlines stipulations that must be followed by Tapoco during the term of its new license. The Programmatic Agreement specifically discusses management of historic properties, interim treatment of historic properties, and the development and implementation of a HPMP. Any shoreline uses and/or activities that may affect Historic Properties[4] must be consistent with the stipulations outlined in the Programmatic Agreement, and subsequently, the HPMP.

A HPMP implemented under a license is a plan for considering and managing the effects of hydropower facility activities (such as construction, operation, and maintenance) on historic properties. Historic properties include properties listed in or eligible for listing in the National Register of Historic Places. The HPMP establishes a decision-making process for considering the potential effects on historic properties and should manage the effects of implementing the license over its entire term on historic properties. While the Programmatic Agreement does and HPMP will outline specific policies and procedures for the protection of historic properties, because cultural resources may occur along the reservoir shorelines, this SMP includes certain provisions for considering potential impacts to those cultural resources associated with shoreline development activities.

[4] "Historic Property" means any prehistoric or historic district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places within the Project's Area of Potential Effect.

7.0 SHORELINE MANAGEMENT AND STEWARDSHIP

7.1 Shoreline Management Goals and Objectives

As a Federal Energy Regulatory Commission (FERC) licensee, Alcoa Power Generating Inc. (APGI), through its Tapoco Division (Tapoco) manages Santeetlah, Cheoah, Calderwood and Chilhowee reservoirs in accordance with the terms of its license and applicable rules and regulations of FERC. This responsibility includes providing adequate public access and public recreation facilities, and protecting important environmental, cultural, and aesthetic resources at the Tapoco Project. Tapoco takes its responsibility very seriously and is committed to the protection and enhancement of these resources within the FERC-licensed Project Boundary (Project Boundary) and on APGI-owned lands.

Generally, a shoreline management plan (SMP) is a comprehensive management tool useful for managing project resources and addressing multiple demands from various stakeholders. The Tapoco Project SMP is intended to be a management tool that assists Tapoco in managing the reservoir shorelines consistent with its obligations under the Project license, while also accommodating uses consistent with those obligations. Tapoco's vision for the SMP is "To develop a management tool that is clear, provides consistency, is straightforward to administer and that also provides reasonable protection of important environmental, recreational, cultural, and aesthetic resources." To this end, the goals of the Tapoco Project SMP are:

1. To balance the protection of the important environmental, cultural, recreational, and aesthetic resources unique to the Tapoco Project with the provision of recreation opportunities.

2. To establish a process for reviewing and approving shoreline development uses and activities that encourages stewardship of environmental, cultural, recreational, and aesthetic resources by avoiding, offsetting, or mitigating impacts to the resources.

7.2 Reservoir Management Priorities

The largest reservoir, Santeetlah Reservoir, consists of 78.8 miles of shoreline and 2,881 acres of water surface at its full-pool elevation of 1,940.9-ft. Santeetlah Reservoir is also the only reservoir with private development and private recreational facilities along the shoreline. Because a majority of the Santeetlah Reservoir shoreline (77 percent) is managed as public lands (Nantahala National Forest) by the United States Forest Service (USFS), approximately 23 percent (18.1 miles) of the shoreline is, or potentially could be, developed. The mainstem reservoirs remain largely undeveloped with little to no private development and no private or commercial recreation facilities.

Generally, the management priorities at the Project reservoirs are to protect aquatic and near shore terrestrial habitats for rare, threatened, and endangered and other species, provide adequate public access and recreational facilities at the Project reservoirs, and protect historic and cultural resources. Because the mainstem reservoirs are undeveloped and surrounded largely by federally owned and managed lands and therefore, provide a unique semi-primitive to primitive recreational experience, an additional management priority for the mainstem reservoirs is to protect the shorelines in a natural and undeveloped state. Protecting the remaining undeveloped shorelines at Santeetlah Reservoir is also a management priority.

7.3 Project Security Considerations

Based on recent FERC guidance on critical energy infrastructure information (CEII guidance, 18 CFR Parts 375 and 388), Tapoco will maintain and operate the four Project developments (i.e. dams, powerhouses, and ancillary structures) to minimize the vulnerability of the Project to potential security threats. Tapoco will maintain security buffer areas around the Project developments by not allowing third party, non-Project development of lands included in the FERC Project Boundary and associated APGI-owned non-Project lands.

7.4 Shoreline Classification

There are important environmental, recreational, cultural and aesthetic resources along the reservoir shorelines that are worthy of special consideration and protection. For purposes of future planning and management, the reservoir shoreline around the Project reservoirs has been classified as 1) Other/General Development, 2) Stewardship Area or 3) Conservation Easement (see Table 7-1 and Figures 7-4 through 7-7). Permitted non-Project uses and activities in areas classified as "Other/General Development" can include, among other things, private or multi-use recreational facilities, shoreline stabilization, vegetation removal and shoreline cleanup, walkways and steps, and excavation. Also included in the Other/General Development classification are the areas immediately adjacent to the Project dams and powerhouses, which Tapoco requires in order to perform the periodic and ongoing operations and maintenance activities associated with the hydroelectric facilities. All shoreline areas not classified as "Stewardship Area" or "Conservation Easement" are classified as "Other/General Development". The shoreline areas that require special protection have been designated as "Stewardship Areas". These areas support one or more of the following: important or sensitive natural areas or habitats, such as wetlands; aquatic and terrestrial habitats; and/or cultural resources. Additionally, all shoreline areas adjacent to the Nantahala National Forest on Santeetlah Reservoir have been classified as Stewardship Area. As discussed in Sections 1.1 and 3.3.2., there are numerous shoreline areas that will be in term or permanent conservation easements, contemplated in the Relicensing Settlement Agreement. These shoreline areas have been classified as "Conservation Easement". Generally, there is no construction, excavation, cutting or removal, dumping, polluting, vehicles, bikes, horses, and exploration permitted on the Conservation Easements. Public access, hiking, and hunting are permitted consistent with the appropriate Conservation Easement document.

Table 7-1 Reservoir Shoreline Classifications

Reservoir	Other/General Development (miles)	Stewardship Area (miles)	Conservation Easement (miles)	Total (miles)
Santeetlah	12.0	64.7	2.1	78.8
Cheoah	0.8	5.6	13.2	19.6
Calderwood	0.7	14.2	2.0	16.9
Chilhowee	0.4	25.8	0.2	26.4

From a management perspective, the classification of shoreline areas as a Stewardship Area or Conservation Easement is intended as a planning tool to highlight that there are important or sensitive resources in the reservoir, along the reservoirs shorelines, or on APGI-owned lands that may require special consideration or protection. Proposals for developments that may occur wholly or partly within a Stewardship Area will require the development of an Environmental Assessment by a qualified environmental professional. To the extent that development within a Stewardship Area is permitted, potential impacts to the resource must be avoided, offset or mitigated to the satisfaction of state and federal resource agencies and the Eastern Band of Cherokee Indians (EBCI) Tribal Historic Preservation Office (THPO), as applicable. No construction, excavation, cutting or removal, dumping, polluting, vehicles, bikes, horses, and exploration will be allowed in shoreline areas classified as Conservation Easement. All other non-Project uses and activities (e.g. public access, hiking, or hunting) within a Conservation Easement will be governed by the appropriate Conservation Easement document.

Regardless of an area's classification, potential impacts to identified resources from proposed development will have to be avoided or mitigated to the satisfaction of state and federal resource agencies and the EBCI THPO, as applicable. However, it is anticipated that mitigation requirements in Stewardship Areas will be significantly greater than mitigation that may be required for proposed development outside of Stewardship Areas.

7.4.1 Shoreline Classification at Santeetlah Reservoir

Areas along the Santeetlah Reservoir shoreline that are classified as Stewardship Areas include important aquatic habitat locations, sensitive and natural terrestrial areas, and high and moderate probability areas for cultural resources. Two peninsulas, located southwest and southeast of Santeetlah Dam, owned by APGI, are included in the North Carolina Riparian Lands Conservation Easement (negotiated as part of the Relicensing Settlement Agreement) – see Figure 7-4. This area, which covers approximately 2.0 shoreline miles, is classified as Conservation Easement. Uses and activities within this Conservation Easement must be in accordance with the North Carolina Riparian Lands Conservation Easement. All other areas on Santeetlah Reservoir are classified as Other/General Development.

7.4.1.1 Aquatic Habitat Criteria for Santeetlah Reservoir Shoreline Classifications

Normandeau Associates used the following criteria for selecting important aquatic habitats to be c classified as Stewardship Areas on Santeetlah Reservoir:

- Stream confluences that provide good to excellent aquatic habitat. Several of the tributary streams have excellent rock habitat (gravel, cobble, and boulder) near the confluence with the reservoir. These stream confluences provide access to spawning sites and refugia for some aquatic biota.

- All significant gravel beds, i.e. at least 100 linear feet of gravel. This rock habitat type is very limited in Santeetlah Reservoir and is important spawning habitat and cover for fish and macroinvertebrates.

- Extensive cobble beds (500 linear feet or greater) with at least 3 heavy branched trees for fish and habitat for other aquatic biota.

- Key priority wetland habitats identified in Terrestrial Study 1: Riparian Habitat Assessment Final Study Report (Normandeau Associates, 2001).

Based on these criteria, Normandeau Associates identified the following important aquatic habitat areas (see Figure 7-1):

<u>Cheoah River</u>

The stream confluence and three segments meet one or more of the criteria for fish habitat.

1. Segment 1 is a large area over 500 feet long with cobble and boulders that are covered with a considerable amount of medium and heavy branched trees.

2. Segment 2 has a gravel bed, boulder field, cobble, and the cove is covered in heavy branched trees. Although the trees are not spread over the surface of the rock habitat, the trees are close enough to the cobble and boulders that fish can use them for concealment.

3. Segment 3 is an area greater than 500 feet of cobble with more than three heavy branched trees.

<u>Cheoah/Snowbird</u>

Two segments meet one of the criteria for essential fish habitat.

1. Segment 1 is at least 500 feet long with more than three heavy branched trees covering cobble.

2. Segment 2 is also at least 500 feet long and has a mixture of gravel, cobble, and boulder with more than four medium branched trees. Although no trees overlay the cobble or gravel areas, there are over three heavy branched trees in between the gravel and cobble beds making an almost continuous cover of fish habitat.

Snowbird

The stream confluence and four segments meet the fish habitat criteria.

1. Segment 1 is a gravel bed larger than 100 feet with cobble on both sides and two trees overlaying it.

2. Segment 2 is a cobble bed larger than 500 feet with more than three heavy branched trees for cover.

3. Segment 3 is another gravel bed with one heavy branched tree and a boulder field.

4. Segment 4 is an area greater than 500 feet of cobble and boulders with more than three heavy branched trees overlaying the cobble.

East Buffalo

Only one segment meets the fish habitat criteria. This segment is an area larger than 500 feet with more than three heavy branched trees overlaying the cobble and gravel.

Ground Squirrel

Both Segments 1 and 2 are greater than 500 feet with more than three heavy branched trees covering cobble.

West Buffalo

All four segments have an area greater than 500 feet with more than three heavy branched trees overlaying cobble. The stream confluence is also important fish habitat.

Santeetlah

In this arm of the reservoir, four segments besides the stream confluence meet the fish habitat criteria.

1 Segment 1 is greater than 500 feet with more than three heavy branched trees overlaying cobble.

2 Segment 2 has some gravel and cobble with heavy branched trees adjacent to these areas providing a continuous habitat for fish.

3 Segments 3 and 4 are gravel beds greater than 100 feet.

Main Reservoir

Most of the areas chosen for fish habitat in the main part of the reservoir are gravel beds.

1. Segments 1 and 8 are cobble beds greater than 500 feet with more than 3 heavy branched trees covering the gravel.

2. Segments 2-7 are substantial gravel beds.

7.4.1.2 Sensitive and Natural Terrestrial Habitat Criteria for Santeetlah Reservoir Shoreline Classifications

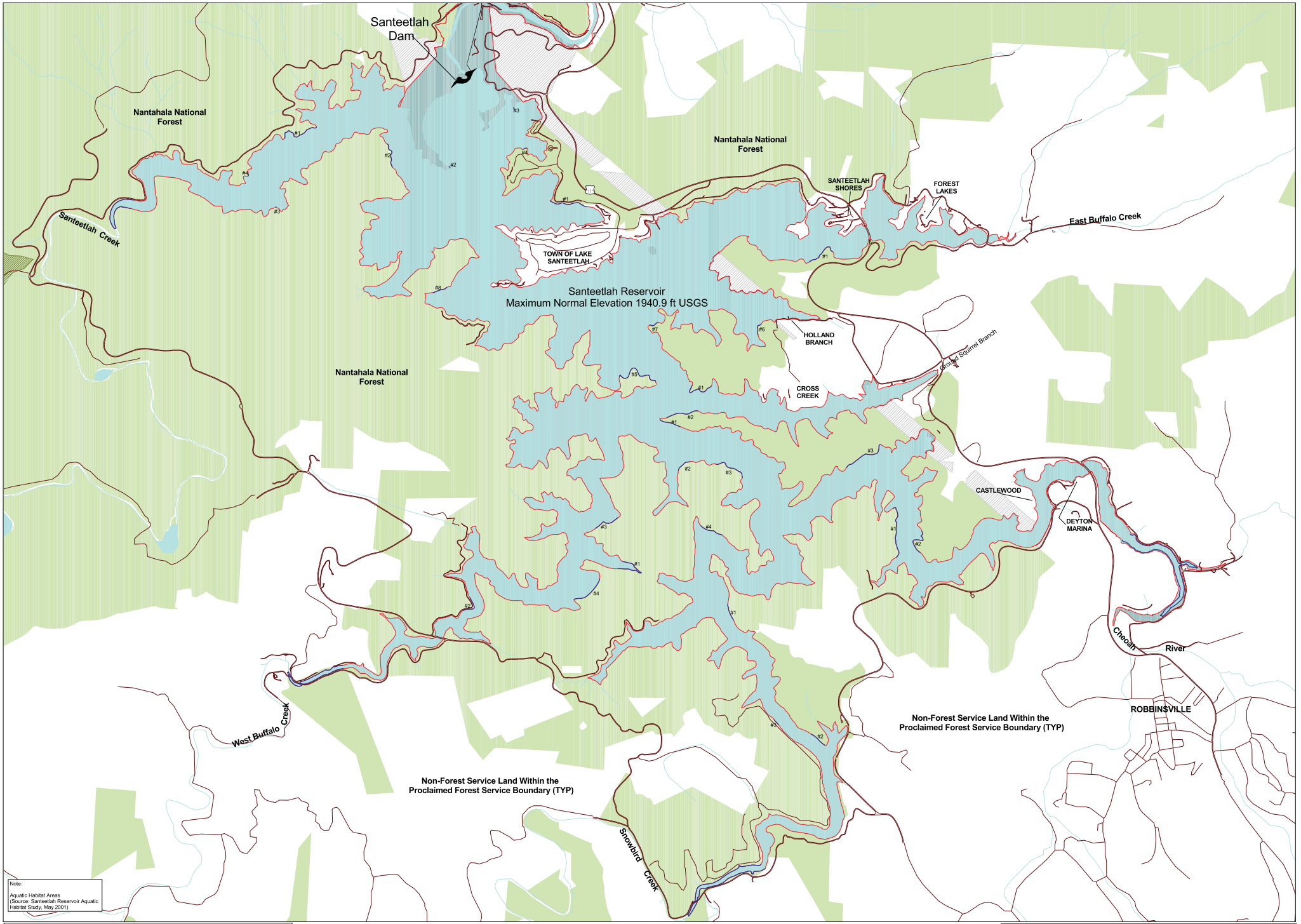
Important sensitive and natural terrestrial areas were identified by Normandeau based on their Riparian Habitat Assessment (Normandeau Associates, 2001), conducted as part of the Project relicensing (see Figure 7-2). In general, the criteria used by Normandeau for identifying areas of sensitive and natural terrestrial habitat were:

- Priority habitat locations and areas immediately adjacent[5]
- Representative priority habitat locations and areas immediately adjacent
- Wetland vegetation cover types including shrub-scrub, forested, and emergent wetlands

In addition to the priority wetland habitats, Normandeau determined that the shrub-scrub wetland on the Cheoah River is also an important sensitive and natural terrestrial area.

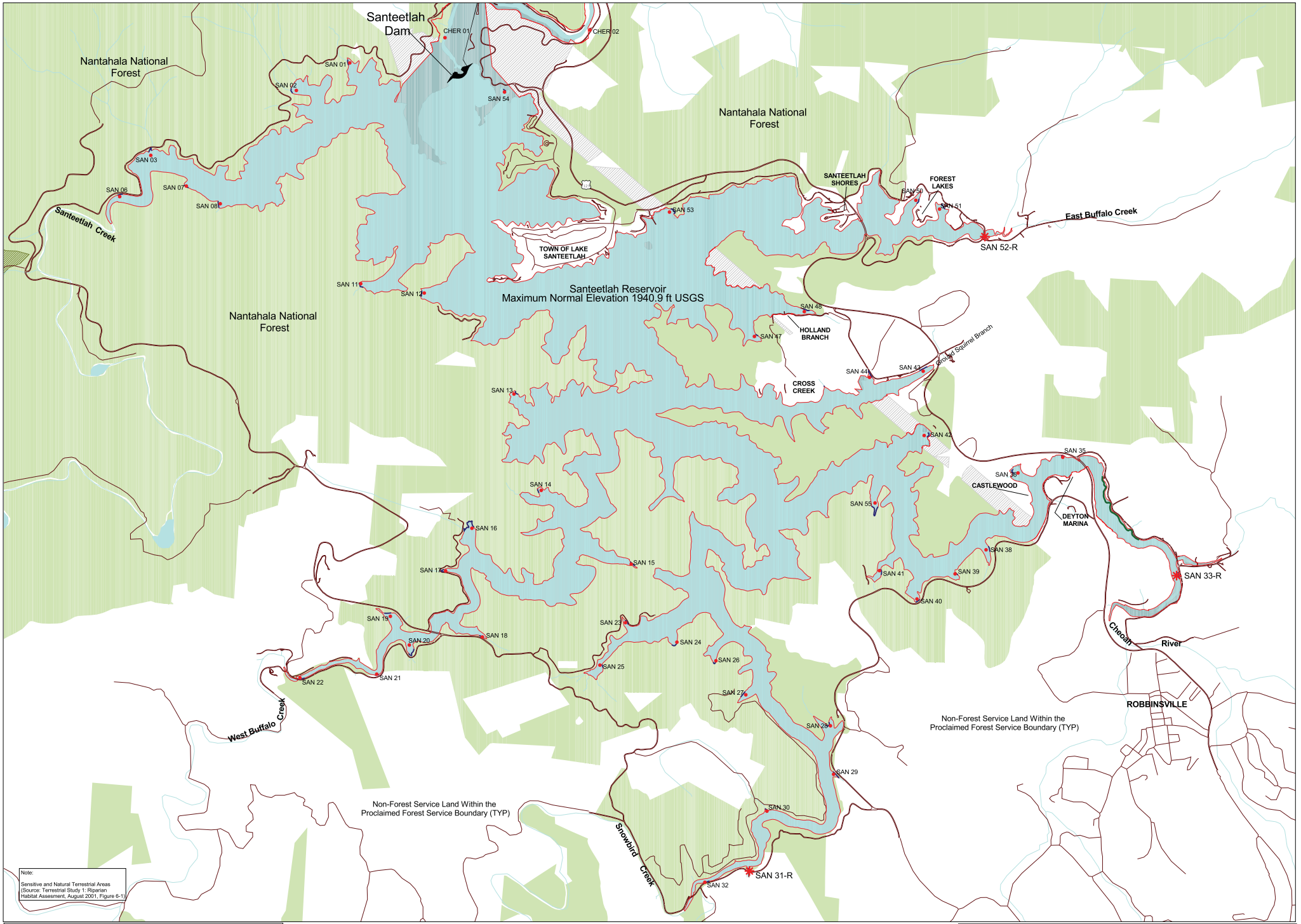
In cases where there are sensitive and natural terrestrial areas as identified in Figure 7-2 proximate to a proposed shoreline use and/or activity, Tapoco may consult with the North Carolina Wildlife Resources Commission (NCWRC), North Carolina Department of Environment and Natural Resources (NCDENR), U.S. Fish and Wildlife Service (USFWS), and USFS to determine if measures should be taken to protect the area.

[5] Since the priority habitat data was collected as point data, an additional 100 feet of shoreline was added to each side of the point in an attempt to establish the extent of the habitat area. Therefore, "areas immediately adjacent" are defined as 100 feet on either side of the central point of the habitat location.



Important Aquatic Habitat Areas on Santeetlah Reservoir

Figure 7-1



Important Sensitive and Natural Areas on Santeetlah Reservoir

Figure 7-2

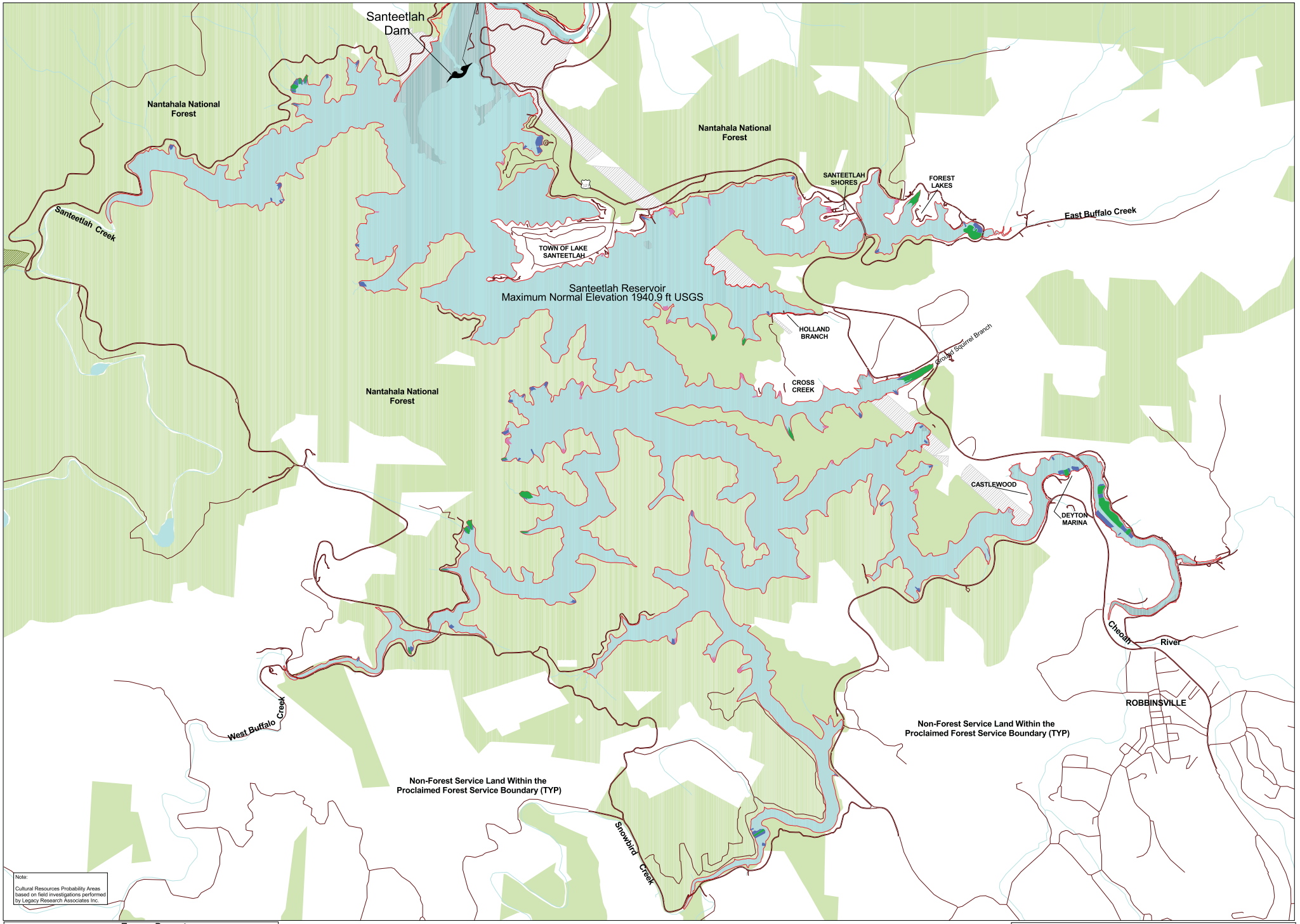
7.4.2 Cultural Resource Probability Areas

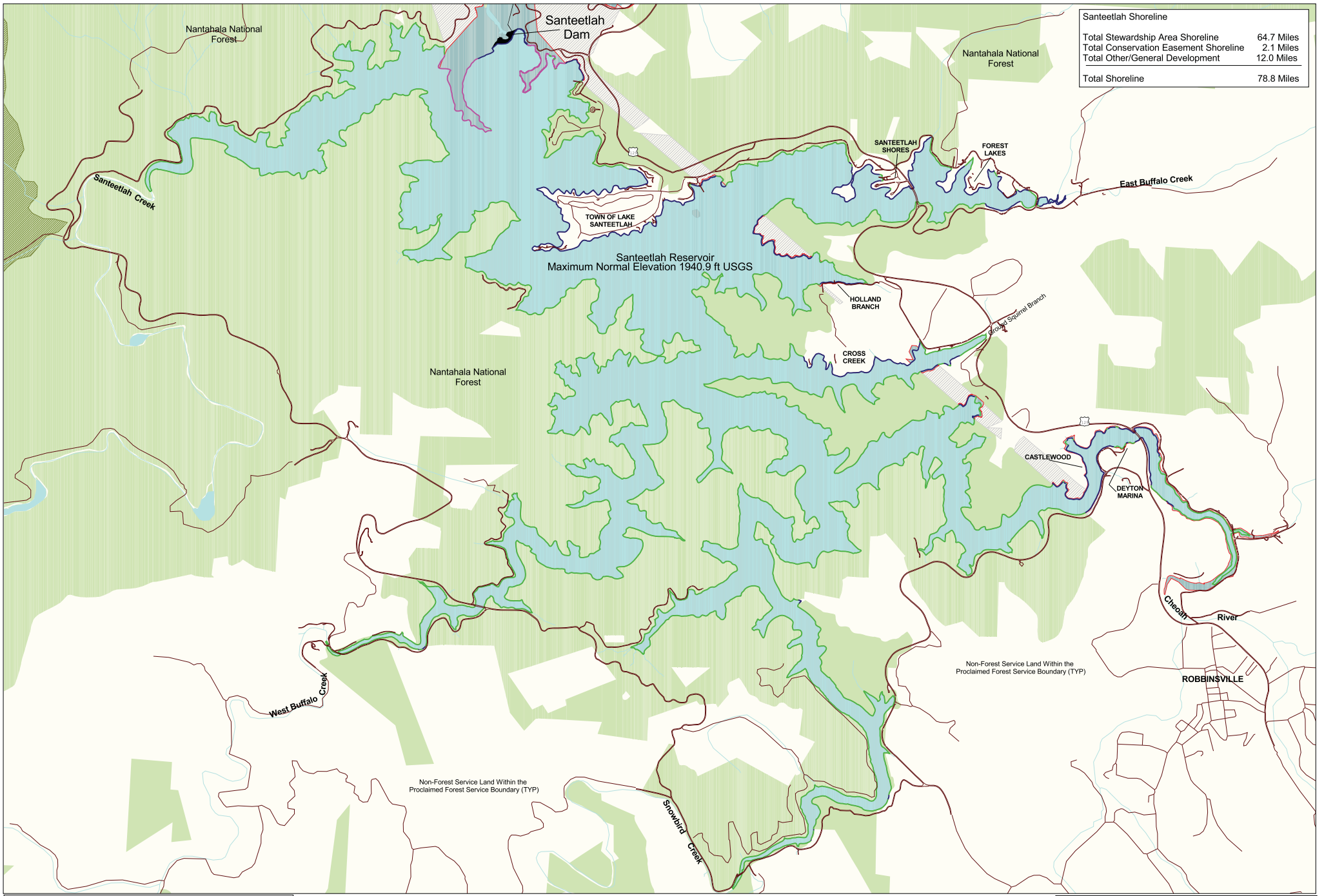
As discussed in Section 6.2, Tapoco in consultation with the North Carolina State Historic Preservation Office (NCSHPO), USFS, EBCI THPO, and other interested parties developed and tested a cultural resources predictive model. The model identifies those areas on Santeetlah where there is a high, moderate, or low probability for the presence of previously unrecorded archaeological sites. Criteria such as landforms, distance from water, distance from stream confluence, slope, and the location of previously identified eligible or potentially eligible sites were used to delineate areas of high and moderate probability.

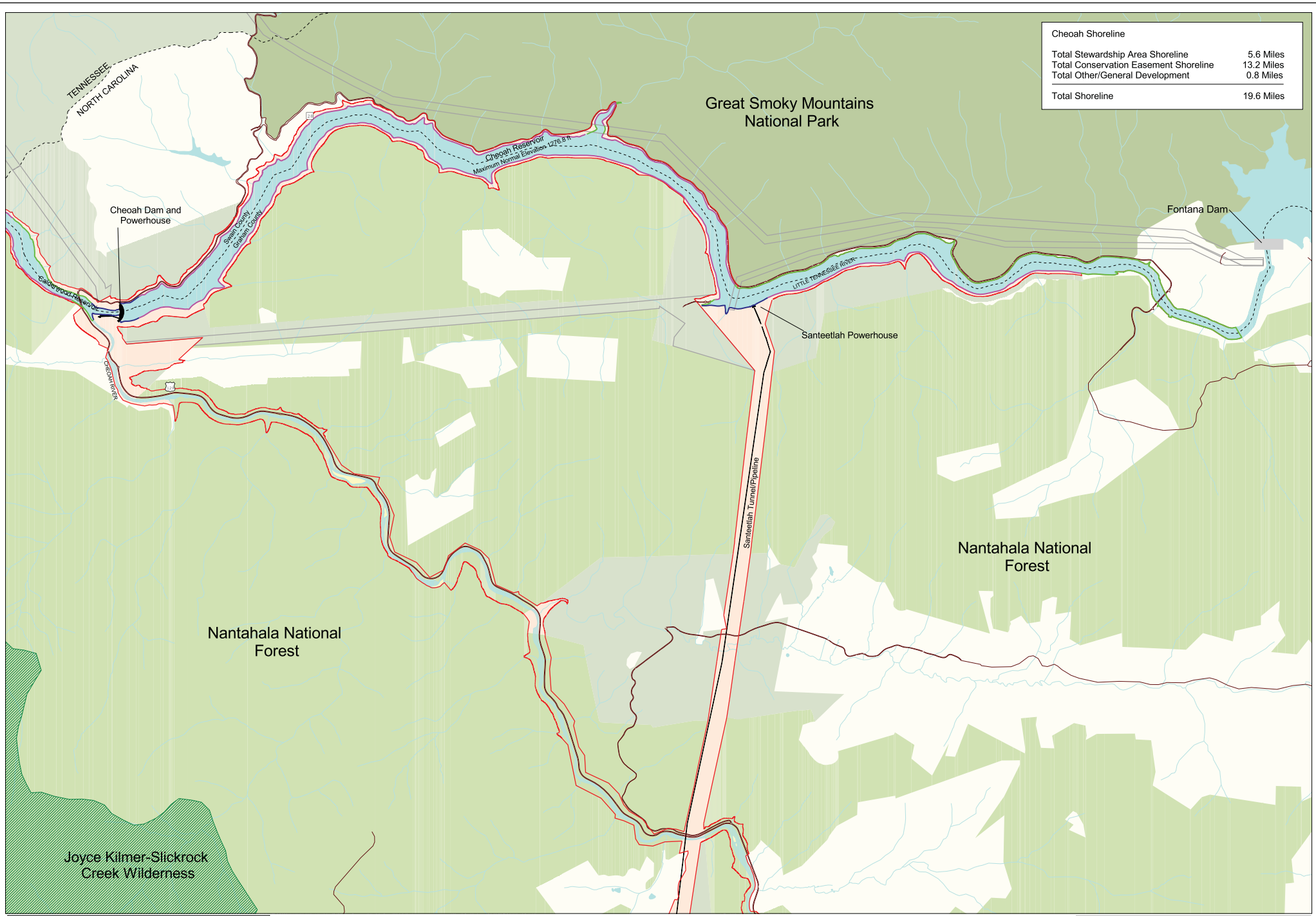
There are several areas around Santeetlah Reservoir that are considered as moderate to high probability areas (see Figure 7-3). The largest of these areas are the Cheoah River, Ground Squirrel, and East Buffalo Creek. Areas of moderate to high probability are classified as a Stewardship Area and any proposed subdivision access or multi-use facility development will require an Environmental Assessment. Additionally, if a private recreational facility (i.e. a pier) is proposed in close proximity to a known archaeological site, Tapoco will consult with the North Carolina Department of Cultural Resources (NCDCR) and the EBCI THPO to determine what, if any, measures should be taken to protect the site.

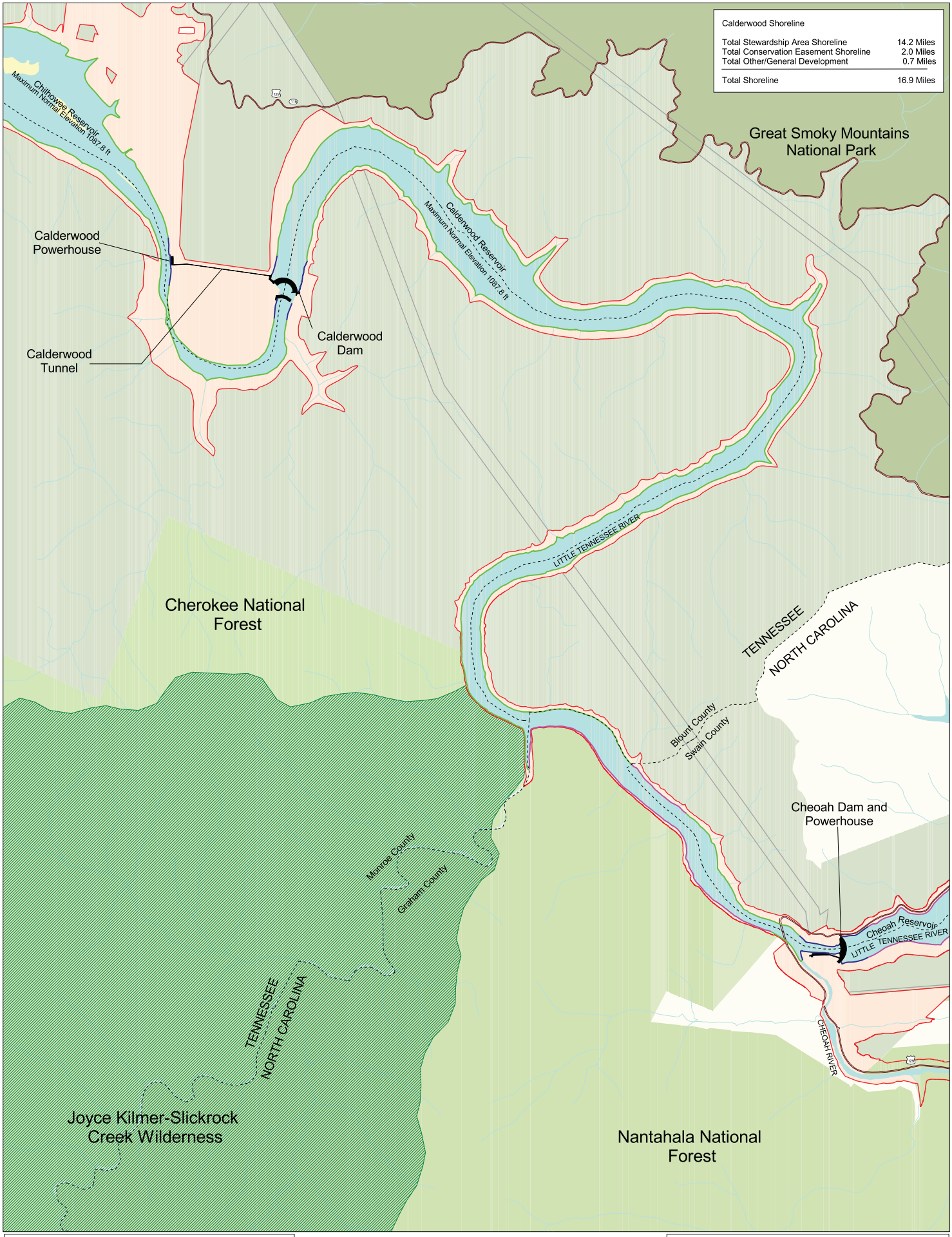
7.4.3 Shoreline Classification at the Mainstem Reservoirs

The shoreline at the three mainstem reservoirs, Cheoah, Calderwood, and Chilhowee, is classified as either 1) Other/General Development, 2) Stewardship Area, or 3) Conservation Easement (see Table 7-1). Most areas on Cheoah, Calderwood and Chilhowee reservoirs are classified as Stewardship Area (see Figures 7-5 through 7-7). A total of approximately 15 miles of shoreline along the normal full-pool elevation of the mainstem reservoirs are immediately adjacent to either the North Carolina or Tennessee Riparian Lands Conservation Easement. Uses and activities within these areas must be in accordance with the North Carolina or Tennessee Riparian Lands Conservation Easements (copies of all Conservation Easements when executed will be available at the county real estate records office or from Tapoco by calling either Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063). The remainder of the shoreline is classified as Stewardship Area, with the exception of approximately two miles of shoreline immediately adjacent to the Project dams and powerhouses, which have been classified as Other/General Development to allow for the periodic and ongoing operations and maintenance associated with the hydroelectric facilities.


Santeetlah Dam
Nantahala National Forest
Nantahala National Forest
Nantahala National Forest
Nantahala National Forest
SANTEETLAH SHORES
FOREST LAKES
East Buffalo Creek
Santeetlah Creek
TOWN OF LAKE SANTEETLAH
Santeetlah Reservoir
Maximum Normal Elevation 1940.9 ft USGS
HOLLAND BRANCH
Ground Squirrel Branch
CROSS CREEK
CASTLEWOOD
DEYTON MARINA
Cheoah River
ROBBINSVILLE
West Buffalo Creek
Non-Forest Service Land Within the Proclaimed Forest Service Boundary (TYP)
Non-Forest Service Land Within the Proclaimed Forest Service Boundary (TYP)
Snowbird Creek
Note:
Cultural Resources Probability Areas based on field investigations performed by Legacy Research Associates Inc.
FERC Project Boundary
Roads
Streams
Wilderness Areas
Forest Service Land
National Park Land
Project Structures
Maximum Normal Elevation
Tapoco Property
Inside FERC Boundary
Outside FERC Boundary
Probability Areas
High Probability
High / Moderate Probability
Moderate Probability
0 2000 4000 6000 8000 Feet
Moderate and High Probability Areas for Cultural Resources on Santeetlah Reservoir
Figure 7-3

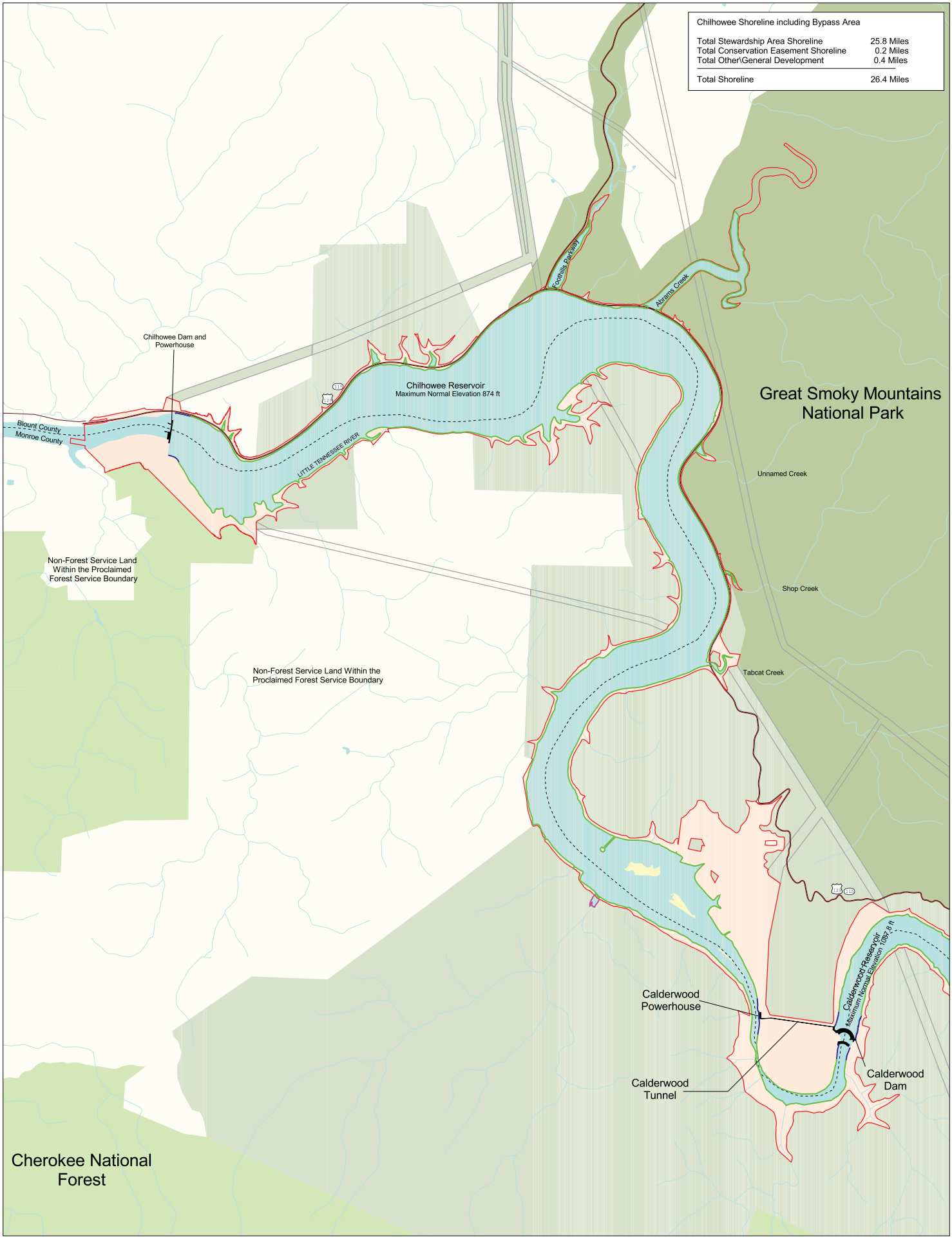

Santeetlah Shoreline
Total Stewardship Area Shoreline 64.7 Miles
Total Conservation Easement Shoreline 2.1 Miles
Total Other/General Development 12.0 Miles
Total Shoreline 78.8 Miles
Nantahala National Forest
Santeetlah Dam
Santeetlah Creek
SANTEETLAH SHORES
FOREST LAKES
East Buffalo Creek
TOWN OF LAKE SANTEETLAH
Santeetlah Reservoir
Maximum Normal Elevation 1940.9 ft USGS
HOLLAND BRANCH
Ground Squirrel Branch
CROSS CREEK
CASTLEWOOD
DEYTON MARINA
Cheoah River
ROBBINSVILLE
West Buffalo Creek
Non-Forest Service Land Within the Proclaimed Forest Service Boundary (TYP)
Snowbird Creek
FERC Project Boundary
Roads
Streams
Wilderness Areas
Forest Service Land
National Park Land
Project Structures
Maximum Normal Elevation
Tapoco Property
Stewardship Area
Conservation Easement
Other/General Development
Tapoco Property
Inside FERC Boundary
Outside FERC Boundary
0 2000 4000 6000 8000 Feet
Santeetlah Reservoir
Shoreline Classifications
Figure 7-4


Cheoah Shoreline
Total Stewardship Area Shoreline 5.6 Miles
Total Conservation Easement Shoreline 13.2 Miles
Total Other/General Development 0.8 Miles
Total Shoreline 19.6 Miles
TENNESSEE
NORTH CAROLINA
Great Smoky Mountains National Park
Cheoah Reservoir
Maximum Normal Elevation 1276.8 ft
Cheoah Dam and Powerhouse
Swain County
Graham County
Calderwood Reservoir
CHEOAH RIVER
LITTLE TENNESSEE RIVER
Fontana Dam
Santeetlah Powerhouse
Santeetlah Tunnel/Pipeline
Nantahala National Forest
Nantahala National Forest
Joyce Kilmer-Slickrock Creek Wilderness
State and County Lines
Roads
FERC Project Boundary
Project Structures
Great Smoky Mountains National Park
Nantahala National Forest
Wilderness Area
Transmission Line Corridors
Stewardship Area
Conservation Easement
Other/General Development
Tapoco Property Parcels
Tapoco Property Inside of FERC Project Boundary
Tapoco Property Outside of FERC Project Boundary
0 0.25 0.5 0.75 1 1.25 Miles
Cheoah Reservoir
Shoreline Classification
Figure 7-5



Calderwood Reservoir
Shoreline Classification

Figure 7-6



Chilhowee Reservoir
Shoreline Classification

Figure 7-7

7.5 Shoreline Development Permitting Process

Consistent with its FERC license, Tapoco has established procedures for permitting private recreation and multi-use facilities within the FERC-licensed Project Boundary or on APGI-owned lands. Tapoco also has established procedures for approving subdivision access and industrial uses and/or facilities. These shoreline management documents, combined with the classification of shoreline as 1) Other/General Development, 2) Stewardship Area, or 3) Conservation Easement, are the means by which all decisions on shoreline development for private recreation and multi-use facilities and other non-Project uses of Project lands and waters will be made. Tapoco has no management oversight over any lands owned and managed by the USFS, the National Park Service (NPS), or Tennessee Valley Authority (TVA).

Tapoco considers shoreline facilities for recreation access in two broad categories, private recreation facilities and multi-use recreation and access facilities. Private recreation facilities include all private recreation facilities owned by individual adjoining property owners (e.g. individual piers), as well as piers shared by two adjoining property owners (shared piers). The term "pier" is used to refer to (i) a stationary pier, ramp, and floating dock combination, (ii) a ramp and floating dock combination or (iii) a floating dock. All other recreation and access facilities are considered multi-use facilities, a category that includes all facilities, private and public, designed for group or community use. Uses or facilities other than private or multi-use are generally considered industrial uses and/or facilities.

7.5.1 Private Recreation Facilities

Historically, Tapoco has used informal guidelines to manage the development of private recreation facilities (i.e. individual piers) on Santeetlah Reservoir and has maintained a policy of not allowing private recreation facilities on the mainstem reservoirs (Cheoah, Calderwood and Chilhowee). Tapoco's requirements for private recreation facilities are now described in the Specifications for Private Recreation Use Facilities – Tapoco Project Reservoirs (Specifications), Appendix B. Tapoco permits private recreation facilities on Santeetlah Reservoir by permit only. In general, Tapoco's private recreation facility permitting program requires that adjoining property owners submit an application and obtain a construction permit from Tapoco to install the facilities and a permit for the continued use of these facilities (see the Specifications, Appendix B).

Tapoco is not required by FERC to allow private recreation facilities on Project reservoirs. In exchange for private access to and use of the Project lands and waters, Tapoco requires that private recreation facility permit holders abide by its Shoreline Stewardship Policy (Appendix A) and all other applicable Tapoco procedures and requirements. Failure of any private recreation facility permit holder to abide by all applicable Tapoco procedures and requirements may result in loss of the private recreation facility permit, as set forth in the Specifications (Appendix B).

Modification (reconstruction, additions, and expansion) of existing private recreation facilities also requires a written construction permit from Tapoco (see the Specifications). Repairs[6] to piers do not generally require prior written authorization from Tapoco provided the repair results in no change in the footprint or operation of the facility.

During the on-site visit for a new pier, Tapoco will make a general survey to determine the presence of important environmental resources. In cases where there are unique or important environmental features proximate to the site, Tapoco may consult with the NCWRC, NCDENR, USFWS, and USFS to determine if measures should be taken to protect the feature.

Additionally, before issuing a construction permit, Tapoco will check the proposed private facility site location with respect to known archaeological sites. If a known archaeological site is located in the vicinity of the proposed facility, Tapoco will consult with the NCDCR and the EBCI THPO to determine what, if any, measures should be taken to protect the site.

Once constructed, piers require a private recreation facility permit from Tapoco. These permits are issued for five year periods and must be renewed prior to expiration.

7.5.2 Subdivision Access

Tapoco has a subdivision access approval process as discussed in detail in Tapoco's Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures, Appendix C (Procedures) and permits private recreation facilities on Santeetlah Reservoir only. In general, the process requires that new subdivisions with lots adjoining Santeetlah Reservoir that anticipate requesting permits for reservoir access, be reviewed for potential impacts of that reservoir access and approved by Tapoco before any lots within the new subdivision will be eligible for a private recreation facility. In cases where a subdivision developer is planning one or more multi-use facilities (as described in Section 7.5.3) as part of the subdivision, prior FERC notice and/or approval may also be required.

The subdivision access approval process is a procedure whereby Tapoco, or in certain cases FERC, determines whether the requirements of Tapoco's FERC license are met as they relate to the effect of the reservoir access anticipated for the subdivision on the reservoir and adjoining shoreline. Included in this determination is a final decision, with respect to lot width and cove width, as to whether certain lots adjacent to the reservoir shoreline are eligible for a private pier. For lots that are deemed eligible for a private pier as part of this subdivision access approval process, other requirements as set forth in Tapoco's Shoreline Stewardship Policy and Specifications must also be satisfied before Tapoco will issue a construction permit to any lot owner. The subdivision access approval process is outlined in detail in Tapoco's Procedures (Appendix C).

[6] "Repair" is defined as an action that requires no county building permit and results in no change in the footprint or operation of the facility.

The subdivision access approval process requires that the subdivision developer prepare an application including an Environmental Assessment (EA) for the following types of proposed subdivisions:

1. Any subdivision where the applicant is seeking eligibility for private recreation and/or multi-use facilities located along shoreline classified as Stewardship Area.

2. Any subdivision with more than five lots if the applicant is seeking eligibility for private recreation and/or multi-use facilities.

Developers of all other types of subdivisions are not required to prepare a full EA, but must prepare an Agency Consultation Process Information Package (Information Package) for Tapoco to consult with local, state, and federal agencies. Tapoco requires the preparation of an EA or an Information Package (Information Package) for new subdivisions in order to evaluate the overall potential for impacts to shoreline and reservoir resources that may result from the associated increase in recreation facilities, including private piers. Tapoco's review of an application will include consideration of all comments and recommendations received as well as the consistency of the proposed subdivision with the shoreline management priorities set forth in this SMP. If Tapoco approves the subdivision access, Tapoco will issue the applicant a written approval.

The EA must examine resources and potential impacts to Project lands and waters, along the shoreline within 100-ft of the normal full-pool elevation of the reservoir. Generally, the EA must include a map, a discussion of purpose, a description of the existing environment, an evaluation of shoreline impacts, a list of required permits, and a description of any applicable restrictions.

Generally, the Information Package must include a brief description of the anticipated impact on the reservoir and the shoreline within 100-ft of the normal full-pool elevation of the reservoir, a discussion of the proposed facilities, an evaluation of shoreline impacts, a list of required permits, and a description of any applicable restrictions.

7.5.3 Multi-Use Facilities

Tapoco has also established a process for reviewing and permitting multi-use recreation facilities as detailed in Tapoco's Procedures (Appendix C). Multi-use facilities are any public or private facilities, other than private individual or shared piers (two adjoining lot owners), used for recreation or for accessing Project lands or waters. Tapoco does not permit private, multi-use recreation facilities (e.g. marinas, community boat docks) on the three mainstem reservoirs; but will permit multi-use facilities that are non-private and provide public access on these reservoirs. For entities other than federal, state or local governments, multi-use facilities generally include community boat docks serving more than two lot owners and marinas. In general, anyone proposing to construct and operate a new multi-use facility or to modify an existing multi-use facility must prepare a multi-use facility construction permit application and receive a construction permit from Tapoco prior to beginning construction. Repairs to a multi-use facility that require a building permit from the county also require a construction permit from Tapoco.

The multi-use facility permitting process is a procedure whereby Tapoco, or in some cases FERC, determines whether the requirements of Tapoco's license are met as they relate to the effect of the construction and operation of proposed multi-use facilities on the reservoir and adjoining shoreline. Under its FERC license, Tapoco may authorize certain types of multi-use facilities on Project lands or waters without prior FERC notice and/or approval. Other facilities require prior FERC notice and/or approval. Table 7-2 summarizes the types of multi-use facilities that Tapoco may approve without prior FERC notice and/or approval and those that require a 60-day prior notice to FERC. When prior notice is required by FERC, FERC has 45 days from the filing date of that notice to require an application for prior FERC approval. If FERC does not require an application for prior approval, Tapoco may approve the multi-use facility for which prior notice was given. Table 7-2 also indicates EA and Agency Consultation Process requirements for various types of multi-use facilities.

Anyone seeking a construction permit for a new multi-use facility must prepare and submit a multi-use facility construction permit application for the proposed facility to Tapoco. In the case of new subdivisions and commercial enterprises, Tapoco will aggregate all proposed multi-use facilities, except for planned individual and shared piers, to determine the total number of watercraft that the proposed facilities can accommodate. As part of the application process, the developer may need to prepare and submit an EA for the proposed facility. As described in more detail in Tapoco's Procedures (Appendix C), an EA must be prepared and filed with Tapoco for the following types of new multi-use facilities:

1. Any multi-use facility that is located wholly or partly within a shoreline Stewardship Area.

2. Any multi-use facility(ies) where FERC prior notice and/or approval is required.

Developers of multi-use facilities not requiring prior FERC notice and/or approval are required to prepare an Agency Consultation Process Information Package (Information Package) for Tapoco to consult with local, state, and federal agencies (Appendix C).

If Tapoco approves the multi-use facility, the applicant will be issued a construction permit. Following construction and a final inspection of the facility, Tapoco will issue a multi-use facility operating permit that must be renewed every five years.

7.5.4 Industrial Uses/Facilities

Uses or facilities other than those related to recreation and adjoining property owner access are generally considered industrial uses. All industrial uses or facilities of, or on, the Project reservoirs, along the shoreline, or APGI-owned lands require Tapoco's written permission as described in Tapoco's Procedures (Appendix C). Tapoco permits industrial uses and/or facilities on all four Project reservoirs. Depending upon the proposed use or facility, Tapoco may be required to provide FERC with prior notice and/or receive FERC approval (see Table 7-2). Tapoco requires applicants for all proposed industrial uses or facilities that require prior FERC notice and/or approval to prepare and submit an EA as discussed in Appendix C.

Industrial uses and/or facilities not requiring prior FERC notice and/or approval are required to prepare an Agency Consultation Process Information Package (Information Package) for Tapoco to consult with local, state, and federal agencies (Appendix C).

Table 7-2 Summary of Required Prior FERC Notice and/or Approval for Multi-use Facilities and Industrial Uses/Facilities

Facility Description	Tapoco Written Permission or Permit Required	Tapoco File Annual Report w/FERC by January 31	FERC 60-Day Prior Notice Required[1]	Prior FERC Approval Required[2]	EA[3] or Agency Consultation (AC) Required
Multi-use Facilities					
Facility(ies) accommodates 1–10 watercraft[4], is not operated as part of a commercial enterprise, and is not a private (individual or shared) pier.	Yes	No	No	No	AC
Facility(ies) accommodates 1–10 watercraft and is operated as part of a commercial enterprise.	Yes	No	Yes[5]	FERC decision	EA
Private or public marinas that can accommodate no more than 10 watercraft[4] at a time, and are located at least ½ mile (measured over Project waters) from any other private or public marina.	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) accommodates watercraft, is operated as part of a commercial enterprise, and is located within ½ mile of an existing marina	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) accommodates more than 10 watercraft and is operated as part of a commercial enterprise.[4]	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) accommodates more than 10 watercraft and is not operated as part of a commercial enterprise. [4]	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) is a boat launch ramp operated as part of a commercial enterprise or provides other services.	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) is a boat launch ramp not operated as part of a commercial enterprise and provides no other services.	Yes	No	No	No	AC

Facility Description	Tapoco Written Permission or Permit Required	Tapoco File Annual Report w/FERC by January 31	FERC 60-Day Prior Notice Required[1]	Prior FERC Approval Required[2]	EA[3] or Agency Consultation (AC) Required
Facility(ies) is a pier with no accommodation for watercraft and is operated as part of a commercial enterprise (examples include commercial fishing piers).	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) is a pier with no accommodation for watercraft, but which is available for use by more than two adjoining lot owners (Examples include fishing piers, homeowner association piers, private club piers, etc.).	Yes	No	No	No	AC
Industrial Uses/Facilities					
Replacement, maintenance, or expansion of existing bridges or roads with all state and federal approvals	Yes	Yes[5]	No	No	AC
New bridges or roads with all state and federal approvals	Yes	No	Yes[5]	FERC decision	EA
Minor access roads	Yes	Yes[5]	No	No	AC
Storm drains and water mains	Yes	Yes[5]	No	No	AC
Sewers that do NOT discharge into Project waters	Yes	Yes[5]	No	No	AC
Sewer or effluent lines that discharge directly into Project waters with all state and federal permits	Yes	No	Yes[5]	FERC decision	EA
Other pipelines that cross project lands or waters but do NOT discharge into Project waters	Yes	No	Yes[5]	FERC decision	EA
Non-project transmission lines/cables with NO support structure in Project Boundary	Yes	Yes[5]	No	No	AC
Non-project overhead transmission lines/cables with support structure in Project Boundary	Yes	No	Yes[5]	FERC decision	EA
Major telephone, gas or electric distribution lines/cables (submarine, underground or overhead)	Yes	Yes[5]	No	No	AC
Water intake or pumping facilities $\leq$ 1 mgd	Yes	Yes[5]	No	No	AC

Facility Description	Tapoco Written Permission or Permit Required	Tapoco File Annual Report w/FERC by January 31	FERC 60-Day Prior Notice Required[1]	Prior FERC Approval Required[2]	EA[3] or Agency Consultation (AC) Required
Water intake >1 mgd (including irrigation systems)	Yes	No	Yes[5]	FERC decision	EA

[1]Unless the Director of the Office of Energy Projects, within 45 days from filing date of the prior notice, requires an application for prior approval, the licensee may convey the intended interest at the end of that period.

[2] The Director of the Office of Energy Projects has 45 days from filing date of the prior notice to require an application for prior approval.

[3] An EA is required for all proposed multi-use facilities or industrial uses/facilities, regardless of category, that are located wholly or partly within a Shoreline Stewardship Area.

[4]For subdivisions and commercial enterprises, Tapoco will aggregate all proposed multi-use facilities, except for planned individual and shared piers, to determine the total number of watercraft that the facilities can accommodate.

[5]Before conveying lands, the licensee shall determine that the proposed use is not inconsistent with any approved R or approved report on recreational resources of an Exhibit E; or if there is not an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

7.6 Other Permitted Uses of Project Reservoirs and Reservoir Shorelines

To encourage stewardship of the Project reservoirs, Tapoco has developed a Shoreline Stewardship Policy (Appendix A). In brief, the Shoreline Stewardship Policy details Tapoco's policies, procedures, and requirements on use of the reservoirs, the shorelines, and APGI-owned lands. Much of the Shoreline Stewardship Policy reflects long-standing Tapoco policies and requirements. It also includes Tapoco's goals for protecting and enhancing the shoreline.

7.6.1 Shoreline Stabilization

Erosion of the reservoir shoreline is a naturally occurring phenomenon resulting from wave action, which can be exacerbated further by shoreline development. Owners of property adjoining the reservoirs should expect some amount of shoreline erosion over time. Prevention of severe erosion is the responsibility of the adjoining property owner. As discussed in more detail in Tapoco's Shoreline Stewardship Policy (Appendix A), if particular circumstances demonstrate the need for shoreline stabilization, Tapoco may permit the following erosion control measures at Santeetlah Reservoir only (listed in order of preference): native vegetative plantings, natural rock riprap, and in extreme circumstances, situations where a Professional Engineer indicates that site conditions prohibit the prior two options, retaining walls. Shoreline stabilization may also require prior written approval from the U.S. Army Corps of Engineers (USACE) and North Carolina Division of Water Quality (NCDWQ). Issuance of a permit for the installation of any erosion control measure does not give the permittee the right to add or remove shoreline material or change the existing reservoir contour except as specifically stated in the permit. Additionally, shoreline stabilization in close proximity to a known archaeological site may require consultation with the NCDCR and EBCI THPO.

7.6.2 Excavation

To preserve the natural riparian habitats found along the reservoir shoreline, maintenance or creation of recreational boat access on Santeetlah Reservoir must be accomplished using the excavation (i.e. in the dry) method. Tapoco does not permit excavation on the mainstem reservoirs or the Cheoah River and Calderwood Bypass. As described in Tapoco's Shoreline Stewardship Policy (Appendix A), excavation is not allowed in areas of wetland vegetation or known priority habitats. Excavation must also have prior written approval from the USACE and NCDWQ and must not alter the reservoir shoreline at normal full-pool elevation. Additionally, excavation of the reservoir in close proximity to a known archaeological site requires prior written approval from the NCDCR and the EBCI THPO. Dredging (in the wet) is not permitted on any of the Project reservoirs.

7.6.3 Vegetation Removal and Shoreline Cleanup

Dead trees, stumps, or other woody debris provide cover for fish and enhance fish habitat in the Project reservoirs. The removal of trees, stumps, brush, or any other form of vegetation (living or dead) in the Project reservoirs, along the shoreline, or on APGI-owned lands is prohibited without written permission from Tapoco. As described in Tapoco's Shoreline Stewardship Policy (Appendix A), Tapoco may grant a permit for woody debris removal or removal of lap trees on a case-by-case basis for purposes of safety or recreational access to the Project reservoirs. Floating debris, litter, and trash (cans, bottles, tires, plastic containers, styrofoam, logs) can be removed from the Project reservoirs or shoreline without prior written approval from Tapoco. Tapoco encourages adjoining property owners at Santeetlah Reservoir to anchor any floating logs to the shoreline to enhance aquatic habitat.

7.6.4 Vegetative Plantings

Generally, planting of any vegetation is prohibited in the Project reservoirs, along the shoreline, and on APGI-owned lands. Tapoco may grant permission for the planting of vegetation in limited instances, such as for its use as a shoreline stabilization measure or as a habitat enhancement (see Appendix A). Prior to granting permission, Tapoco may require consultation with the NCDENR, NCWRC, NCDWQ, USFS, and USFWS.

7.6.5 Walkways and Steps

Many of the lots on Santeetlah Reservoir are steep with difficult access to the reservoir without steps or walkways. Tapoco may grant, on a case-by-case basis, permission for steps and walkways across APGI-owned lands and into Santeetlah Reservoir in order to allow safe access to a pier (see Appendix A). Steps and walkways must meet all local zoning requirements and not interfere with navigation, ingress or egress to adjoining properties, or in any manner present a safety hazard or nuisance. The number of trees and amount of vegetation to be removed must also be minimized.

7.7 Non-Permitted Uses of Project Reservoirs and Reservoir Shorelines

Any non-Project use or activity within the Project reservoirs, along the shoreline or on APGI-owned lands requires a written permit from Tapoco and may not commence until the permit is issued. Examples of prohibited uses and activities include, but are not limited to the following: private boat launching facilities (private boat ramps); dredging (in the wet); operation of any equipment (except in connection with activities permitted by Tapoco); construction of roads and sidewalks; removal of rocks; installation of pipes and/or pumps; discharges and dumping (e.g. wastewater, chemicals, industrial and household waste, paints, petroleum products, household products, leaves, and grass clippings); application of pesticides or herbicides; and overnight camping in unapproved areas. Additional restrictions may apply to shoreline areas classified as Conservation Easement.

7.8 Voluntary Shoreline Stewardship Practices

As partners in the stewardship of the Project reservoirs, adjoining property owners can voluntarily do many things to help prevent degradation of reservoir water quality. In general, the less the shoreline is changed or substances are introduced around the shoreline that could wash into the water, the better. By designing and planning natural shoreline landscapes, as well as strategies to manage them, everyone can help protect the reservoirs.

For many adjoining property owners, lawn maintenance can be labor intensive and costly. Property owners can reduce this burden and improve water quality by reconsidering the landscaping of their property. Unused lawn areas can be converted to equally attractive shrubs, gardens, trees, or meadows, which require far less maintenance. Careful use of fertilizers and pesticides minimizes the potential for contamination of the reservoirs.

Using water wisely on the lawn and along the reservoir shoreline is also important. Watering lawns improperly can lead to wasted water and can result in pollutant runoff into the reservoirs. Watering during the coolest part of the day will avoid evaporation losses. Using organic mulches, including shredded bark, leaves, and wood chips, will retain moisture and reduce runoff. Runoff from lawns, roofs, and parking lots can be caught and absorbed by rain gardens, which are attractive landscaping features planted with perennial native plants. These bowl-shaped gardens can be anything from small, formal, homeowner style gardens to large complex bioretention gardens.

Adjoining property owners can also help provide and improve wildlife habitats for birds, small mammals, reptiles, amphibians, butterflies, and other animals. By providing wildlife with its most basic needs, property owners can convert their backyards into small nature preserves. Creating wildlife habitat means providing food, water, shelter, and nesting sites. Many plants produce fruits, nuts, or berries that wildlife need for food. Deciduous and evergreen shrubs provide excellent cover and nesting sites. Bird boxes can also be used to create nesting sites for birds. Shrubs and small trees create a transition zone between lawns and trees, while flowering native perennials provide color and attract butterflies and hummingbirds.

A summary of voluntary measures that adjoining property owners can undertake to help protect the quality of the Project reservoirs is provided in Table 7-3.

Table 7-3 Voluntary Actions Adjoining Property Owners Can Take to Help Preserve Reservoir Water Quality

Activity	Action
Property Development	Plan your building site to minimize the opportunity of drainage of water directly into the reservoir.
	Establish a building setback and establish or maintain a natural forested buffer between your lawn and the reservoir shoreline, even where not required for eligibility for a private pier or reservoir access.
	Keep clearing of vegetation and creation of lawns to a minimum.
	Install, or be sure that your builder installs, silt fences and other appropriate forms of erosion and sedimentation control on your property to prevent runoff of sediment into the reservoirs.
	Minimize the size of paved driveways and parking areas on your property.
Yard Care	Minimize use of fertilizers, herbicides, and pesticides.
	Convert unused portions of lawn into gardens, shrubs, trees, or meadows.
	Plant native species and hardy grasses, which require little or no specialized care.
	Use water wisely to prevent runoff and consider installing a rain garden.
	Create wildlife habitat by providing food, water, shelter, and nesting sites for wildlife.
Boating	Use petroleum products with caution and take steps to prevent them from getting into the water.
	Wash boats away from the water and use biodegradable, non-phosphate detergents.
Household Maintenance	Keep septic systems and drainfields well maintained. Have septic tanks pumped and inspected routinely. Have drainfields inspected, particularly if any odor is observed.
	Wash cars and other vehicles away from the water.

7.9 Permitting Fees

FERC regulations allow licensees to charge reasonable fees for private and commercial recreation facilities to help defray the cost of administering its programs. Tapoco has established a fee schedule to help offset the cost of administering and enforcing the provisions of this SMP. Fee schedules are attached to Tapoco's Specifications (Appendix B) and Procedures (Appendix C) as appropriate.

7.10 Enforcement and Mitigation Measures

One of the underlying goals of this SMP and its shoreline management documents, the Shoreline Stewardship Policy, Specifications for Private Recreation Use Facilities, and Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures (Appendices A-C), is to protect and enhance the environmental, cultural, and aesthetic resources within the Project Boundary and on the adjoining lands. Tapoco's highest priority is to preserve the natural

character of the shoreline as it exists today, and this is reflected in the procedures and requirements of the SMP and its shoreline management documents. Tapoco believes that adjoining property owners appreciate the beauty and importance of a natural shoreline and will comply with the SMP and its shoreline management documents. In those instances where violations occur, however, Tapoco will consider those violations as serious matters. Such violations include: (i) any failure to comply with the provisions of the SMP and its shoreline management documents or other applicable Tapoco procedures or requirements; and (ii) failure to obtain or to comply with written permission from Tapoco, where required, before undertaking construction or other activities.

The primary sanctions for violations are loss of eligibility for: (i) a private (individual or shared) recreation facility permit or multi-use facility permit within the Project Boundary (i.e. on a reservoir); and (ii) where applicable, use of, or private access to the reservoir and/or APGI-owned lands. Tapoco will also require corrective action including but not limited to restoration and/or mitigation. Eligibility may be reinstated only where adequate restoration and/or mitigation is undertaken and Tapoco determines that reinstatement of eligibility is otherwise consistent with the underlying goals reflected in the SMP and its shoreline management documents. Tapoco, as it deems appropriate, will consult with federal and state regulatory agencies in determining adequate restoration and/or mitigation measures. Tapoco may also take other actions, as described in Appendices A-C, such as terminating any existing licenses or permits or erecting a barrier to restrict access to the reservoir or APGI-owned lands.

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APPENDIX A – SHORELINE STEWARDSHIP POLICY - TAPOCO PROJECT RESERVOIRS

ALCOA POWER GENERATING INC.
TAPOCO DIVISION – FERC NO. 2169

SHORELINE STEWARDSHIP POLICY - TAPOCO PROJECT RESERVOIRS

1 GENERAL

As a Federal Energy Regulatory Commission (FERC) licensee, Alcoa Power Generating Inc. (APGI), through its Tapoco Division (Tapoco) manages Santeetlah, Cheoah, Calderwood, and Chilhowee reservoirs in accordance with the terms of its license and applicable rules and regulations of FERC. This responsibility includes providing adequate public access and public recreation facilities, and protecting important environmental, cultural, and aesthetic resources at the Project. Tapoco takes its responsibility very seriously and is committed to the protection and enhancement of these resources within the FERC-licensed Project Boundary (Project Boundary) and on APGI-owned lands.

Generally, the Project Boundary at Santeetlah Reservoir follows the normal full-pool elevation of the reservoir. Tapoco manages APGI-owned lands in and outside of the Project Boundary. The Santeetlah Reservoir shoreline spans a total of 78.8 miles. Of the 78.8 miles of shoreline, approximately 60.7 miles is undeveloped forest (Nantahala National Forest). The remaining 18.1 miles of shoreline is privately owned, including APGI-owned lands. Also, as described in the Tapoco Project Relicensing Settlement Agreement (RSA), within six months after FERC's final approval of the RSA, a North Carolina Riparian Lands Conservation Easement (NC Riparian Easement) will be placed on certain APGI-owned lands along Santeetlah Reservoir and the Cheoah River, Yellow Creek, and Cheoah and Calderwood reservoirs. The Tapoco Project Shoreline Management Plan (SMP), effective upon filing with FERC in October 2004, classifies the shoreline along Santeetlah Reservoir as: 1) Other/General Development, 2) Stewardship Area, or 3) Conservation Easement.

Generally, the Project Boundary along Cheoah Reservoir follows contour elevation 1,362.5-ft or the normal full-pool elevation along both the north and south shorelines of the reservoir. The Cheoah Reservoir has 19.6 miles of shoreline and is bounded on the north side by U.S. Highway 129, APGI-owned lands, the Great Smoky Mountains National Park (GSMNP), the Tennessee Valley Authority (TVA), and NC Highway 28.

To accommodate plant operations and maintenance activities, the Project Boundary at Calderwood Development includes the entire horseshoe shaped area known as the Calderwood Bypass. The Project Boundary along the right side (facing downstream) of the reservoir follows metes and bounds for about a mile with the balance of the boundary at the 1,180-ft contour. The Project Boundary on the left side of the reservoir follows the 1,107.5-ft contour from the Cheoah River to just downstream of the Tennessee and North Carolina border and the 1,180-ft contour to

just upstream of the dam. Calderwood Reservoir has 16.9 miles of shoreline. Most of the land bordering the Project Boundary around Calderwood Reservoir is APGI-owned lands. The Nantahala and Cherokee National Forests and the Joyce Kilmer-Slickrock Creek Wilderness Area also border the Project Boundary at Calderwood Reservoir.

The Project Boundary at Chilhowee Reservoir includes an area around Chilhowee Dam and extends downstream into the tailrace about 3,000 feet. The Project Boundary on the northeast side of the reservoir generally follows either the 925-ft or the 887.5-ft contours. Approximately 75 percent of the Project Boundary on the southwest side of the reservoir is the 925-ft contour with intermittent areas defined by metes and bounds. Chilhowee Reservoir has 26.4 miles of shoreline and is bordered on the northeast by U.S. Highway 129, the Great Smoky Mountains National Park, APGI-owned lands, and private lands and on the southwest side by APGI-owned lands, private lands, and the Cherokee National Forest.

Generally, a majority of the shoreline around Cheoah, Calderwood, and Chilhowee reservoirs and the Calderwood Bypass is classified as Stewardship Area. Also, as described in the Relicensing Settlement Agreement, a permanent or term conservation easement will be placed on certain APGI-owned lands along the shoreline of the mainstem reservoirs and the Calderwood Bypass (the "Conservation Easements").

Generally, the purposes of the aforementioned Conservation Easements are to ensure that the property included in the easement is preserved in its predominantly undeveloped, natural, scenic, open space and/or forested condition, and to prevent any use of the property that will significantly impair or interfere with the identified Conservation Values (natural, aesthetic, open space, forest, wildlife habitat, watershed protection, historical, cultural, educational, and/or recreational values) of the property. The shoreline property included in the Conservation Easements may be used by the general public for ingress and egress to and from adjoining properties for recreational purposes (e.g. lawful hunting, fishing, hiking) so long as that right existed prior to FERC's issuance of a new license. However, the Conservation Easements generally restrict the following activities and uses on property included in the Conservation Easements: construction; excavation; cutting or removal; dumping; pollution; vehicles, bikes, horses; and exploration.

Tapoco has no management oversight over any lands owned and managed by the U.S. Forest Service (USFS), the National Park Service (NPS), or TVA. Accordingly, Tapoco will not grant any activity permits pursuant to this Shoreline Stewardship Policy (Policy) for lands managed by others than Tapoco. Property owners desiring to use USFS, NPS, or TVA lands to access the Project reservoirs, shoreline or APGI-owned lands must consult with and obtain any necessary permits from the USFS, NPS, or TVA before Tapoco will consider issuing an activity permit.

All uses and facilities on APGI-owned lands including the construction of piers (individual and shared)[1], multi-use recreation facilities (marinas, boat docks, fishing piers, boat launch ramps,

[1] For the purposes of this Policy, Tapoco defines "pier" as: (i) a stationary pier, ramp and floating dock combination, (ii) a ramp and floating dock combination, or (iii) a floating dock.

etc.) and industrial uses/facilities, require Tapoco's prior written permission. This Policy identifies the procedures that must be followed by anyone seeking Tapoco's permission to use or occupy the Project reservoirs, reservoir shoreline, or APGI-owned lands.

Tapoco's highest priority under this Policy is to preserve the natural character of the shoreline. Even where permitted by Tapoco, Tapoco expects alterations to the shoreline and APGI-owned lands to be minimized, and if such alteration will result in adverse impacts to the reservoir, shoreline resources or Project operations, these impacts must be adequately mitigated. Tapoco encourages property owners to prepare plans for proposed development of houses, piers, yards, steps, and other facilities that utilize natural materials and preserve the natural shoreline setting.

Private recreation facilities, multi-use facilities, industrial facilities and other non-Project uses or activities on Santeetlah Reservoir must be authorized in writing by Tapoco (see Specifications for Private Recreation Use Facilities and Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures).

Tapoco may permit multi-use facilities that are non-private and provide public access and industrial uses/facilities on the three mainstem reservoirs: Cheoah, Calderwood, and Chilhowee. Vegetation removal and shoreline clean-up may be permitted in the mainstem reservoirs or the Cheoah River and Calderwood Bypass.

Tapoco considers installation of any permitted facilities or structures in the Project reservoirs, along the shoreline, or on APGI-owned lands to be temporary. Accordingly, Tapoco requires that all facilities, including steps, walkways and shoreline stabilization measures, be constructed of such materials and in such a manner that allow easy removal and restoration of the natural shoreline. Generally, wood, plastic lumber, and uncemented rock, stone, mulch and paving block, or other pervious materials are the preferred materials. Concrete, masonry, creosote material, utility poles or railroad ties are not allowed.

Some activities permitted by Tapoco may require the applicant to obtain approvals of local, state and/or federal authorities. The applicant is responsible for obtaining, at its sole cost, all such approvals.

Tapoco will review and may revise this Policy as necessary. The revisions will be effective when reissued.

2 ACTIVITY PERMITS

2.1 Any non-Project use or activity within the Project reservoirs, along the shoreline, or on APGI-owned lands requires a written permit from Tapoco, and may not commence until the permit is issued. Tapoco reserves the right to refuse to grant an activity permit in the event that the adjoining property owner has not complied with this Policy and other applicable Tapoco policies, procedures and requirements.

2.2 If a construction permit or activity permit is issued, all work must be done in compliance with the terms of the permit, this Policy, and other applicable Tapoco policies, procedures, and requirements. The applicant is responsible for correcting or removing any unauthorized use or activity. Permits are of limited duration and are terminable by Tapoco in accordance with their terms. Changing conditions or other factors may lead Tapoco to refuse to renew a permit or to terminate a permit.

2.3 Except as authorized under this Policy, non-Project uses or activities within the Project reservoirs, along the shoreline, or on APGI-owned lands are prohibited. Examples of prohibited uses and activities include, but are not limited to the following:

- Construction, installation, or placement of structures, including retaining walls (except in extreme circumstances, situations where a Professional Engineer indicates that site conditions prohibit native vegetative plantings or natural rock riprap), private boat launching facilities (private boat ramps), fences, etc.
- Dredging
- Operation of any equipment (vehicles, backhoes, bulldozers, skidders, tractors, all terrain vehicles, etc.) except in limited circumstances and only in connection with activities permitted herein
- Construction of roads and sidewalks
- Removal of rocks and boulders
- Installation of pipes and/or pumps
- Discharges and dumping (e.g. wastewater from sanitary or storm sewer systems, industrial waste, chemicals, paints, petroleum products, household products, leaves, grass clippings, and household waste)
- Application of pesticides or herbicides (except in limited circumstances and only in connection with activities permitted herein)
- Overnight camping (except where specifically allowed)

2.4 If authorized in writing by Tapoco, permitted uses and activities at Santeetlah Reservoir only generally may include the following:

- Shoreline stabilization
- Excavation
- Vegetation removal
- Shoreline clean-up
- Vegetative plantings (limited instances)

- Walkways and steps
- Private piers (See Tapoco's Specifications For Private Recreation Use Facilities)
- Multi-use and industrial use facilities (See Tapoco's Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures)

2.5 Permitted uses and activities at the mainstem reservoirs and the Cheoah River and Calderwood Bypass generally may include the following:

- Vegetation removal
- Shoreline clean-up
- Multi-use facilities that provide public access
- Industrial uses and activities on the mainstem reservoirs

2.6 As discussed in Section 1, special restrictions may apply to those areas of the shoreline classified as Conservation Easement including, but not limited to the following:

- No construction
- No excavation
- No cutting or removal
- No dumping
- No pollution
- No vehicles, bikes, horses
- No exploration

3 SHORELINE STABILIZATION MEASURES

3.1 Erosion of the reservoir shoreline is a naturally occurring phenomenon resulting from wave action upon the land, which can be exacerbated further by shoreline development. Owners of property adjoining the reservoirs should expect some amount of shoreline erosion over time. Prevention of severe erosion is the responsibility of the adjoining property owner.

3.2 To the extent that particular circumstances demonstrate the need for shoreline stabilization, Tapoco may permit the following erosion control measures at Santeetlah Reservoir (listed in order of preference): native vegetative plantings, natural rock riprap (however Tapoco prohibits the removal of rocks and boulders from the reservoir, along the shoreline, or APGI-owned lands) and in extreme circumstances, situations where a Professional Engineer indicates that site conditions prohibit the prior two options, retaining walls. A list of native tree and plant species is attached to this Policy.

3.3 The determination with regard to the need for shoreline stabilization and appropriate erosion control measures will be made by Tapoco, after it has conducted an on-site evaluation of the erosion. Tapoco will consider such things as the vertical height of the eroded area, the reservoir exposure of the eroded area, fetch distance, any overland erosion, the proximity of structures to the eroded area, and the condition of vegetation

adjacent to the eroded area. Based on this evaluation, Tapoco will recommend a shoreline stabilization plan. Should the applicant disagree with Tapoco's recommendation, the applicant may obtain, at the applicant's sole cost, a registered Professional Engineer's assessment of the need for erosion control and appropriate measures. Tapoco will consider the Professional Engineer's assessment, but Tapoco reserves the right to make the final decision as to the need and type of shoreline stabilization to be installed.

3.4 All requests to implement erosion control must meet all applicable zoning and other government regulations and may require prior written approval from the U.S. Army Corps of Engineers (USACE) and North Carolina Division of Water Quality (NCDWQ).

3.5 Requests to implement erosion control require consultation with the North Carolina Department of Cultural Resources (NCDCR) and the Eastern Band of Cherokee Indians (EBCI) Tribal Historic Preservation Office (THPO) if the location of the proposed erosion control is in close proximity to a known archaeological site. Tapoco will provide guidance to the applicant as to whether there are known archaeological sites proximate to the proposed erosion control measures.

3.6 Issuance of a permit for the installation of any erosion control measures does not give the applicant the right to add or remove shoreline material or change the existing reservoir contour except as specifically stated in the permit. All erosion control structures of any type must follow and may not alter the basic contour of the shoreline.

4 EXCAVATION

4.1 Only excavation (in the dry) is permitted and must be performed when Santeetlah Reservoir is drawn down sufficiently to access the excavation site. No dredging (in the wet) is permitted. No excavation or dredging will be permitted on the mainstem reservoirs or the Cheoah River and Calderwood Bypass.

4.2 Tapoco may permit excavation of Santeetlah Reservoir sediments to maintain or create recreational boat access.

4.3 All excavations must have prior written approval from the USACE and NCDWQ.

4.4 Excavation of the reservoir in close proximity to a known archaeological site requires prior written approval from the NCDCR and EBCI THPO. Tapoco will provide the applicant guidance on whether there is a known archaeological site proximate to the proposed excavation.

4.5 The excavation must not alter the reservoir shoreline at normal full-pool elevation.

4.6 No excavation is allowed in areas of wetland vegetation or known priority habitats.

4.7 Excavation may not occur during the months of March-June because of potential impacts to fish spawning.

4.8 The shape and depth of the excavation must be such that water will drain freely from the excavation when the reservoir level drops below the level of the excavation.

4.9 All excavated material must be placed landward of the normal full-pool elevation and off of APGI-owned lands and must be placed at a distance and in a manner that it does not allow materials to wash back onto APGI-owned lands and/or into the reservoir.

4.10 Individuals conducting the excavation are responsible for disposing excavated material in compliance with North Carolina Department of Environment and Natural Resources' (NCDENR) regulations and requirements.

4.11 Any direct or indirect impacts of conducting the excavation (such as damage to roads from heavy equipment) are the sole responsibility of the applicant.

5 VEGETATION REMOVAL/SHORELINE CLEAN-UP

5.1 The removal of trees, stumps, brush, or any other form of vegetation, living or dead, in the Project reservoirs, along the shoreline, or on APGI-owned lands is prohibited without written permission from Tapoco.

5.2 Dead trees, stumps, or other woody or natural debris that exist in the Project reservoirs, along the shoreline, and/or on APGI-owned lands provide cover for fish, and their presence greatly enhances fish habitat. Tapoco may grant a permit for woody debris removal or removal of lap trees on a case-by-case basis for purposes of safety or recreational access.

5.3 Tapoco may, from time-to-time, grant a permit for the removal of certain forms of non-native vegetation or nuisance plants. The permission will only be made with the concurrence of North Carolina Wildlife Resources Commission (NCWRC) and NCDWQ, if applicable.

5.4 Floating debris, litter, and trash (bottles, cans, tires, plastic containers, styrofoam, logs, etc.) can be removed from the Project reservoirs and shoreline at any time, and does not require Tapoco's prior written approval. Tapoco, however, encourages adjoining property owners at Santeetlah Reservoir to anchor any floating logs to the shoreline to enhance aquatic habitat.

6 VEGETATIVE PLANTINGS

6.1 Planting of any vegetation – including but not limited to shrubs, hedges, flowering plants, and native vegetation – is prohibited in the Project reservoirs, along the shoreline, and on

APGI-owned lands. Tapoco may grant permission for the planting of vegetation in limited instances, such as for its use as a shoreline stabilization measure or as a habitat enhancement. Prior to the granting of permission, Tapoco may require consultation with the NCDENR, NCWRC, NCDWQ, USFS, and U.S. Fish and Wildlife Service (USFWS).

7 STEPS AND WALKWAYS

7.1 On Santeetlah Reservoir, many of the lots are steep and access to the reservoir is difficult without steps or walkways. Tapoco may grant, on a case-by-case basis, permission for steps and walkways across APGI-owned lands and into the reservoir in order to allow safe access to a pier.

7.2 Steps and walkways shall not interfere with navigation, ingress or egress to adjoining properties, or in any manner present a safety hazard or nuisance.

7.3 Steps and walkways must meet all local zoning requirements.

7.4 Steps and walkways must be no wider than 6 feet.

7.5 Steps and walkways must be constructed of treated wood, grade marked by the American Wood Preservers' Bureau or plastic lumber, suitable for direct contact with water, gravel or uncemented brick, rock, stone, paving blocks, or other pervious materials with Tapoco's written approval.

7.6 Steps and walkways must minimize the number of trees and amount of vegetation to be removed.

7.7 Requests for steps and walkways require consultation with NCDCR and EBCI THPO if the location of the proposed activity is in close proximity to a known archaeological site. Tapoco will provide the applicant guidance on whether there is a known archaeological site proximate to the proposed steps or walkway.

8 ENFORCEMENT

8.1 Tapoco believes that property owners appreciate the beauty and importance of a natural shoreline and will comply with this Policy. In those instances where violations of this Policy occur, however, Tapoco will consider those violations as serious matters. Violations of this Policy include: (i) any failure to comply with the provisions of this Policy or other applicable Tapoco procedures or requirements; and (ii) failure to obtain or to comply with written permission from Tapoco, where required, before undertaking construction or other activities.

8.2 Tapoco will notify the USFS of any enforcement actions on a facility which abuts USFS lands and will encourage the USFS to notify it of any enforcement action that the USFS takes with regard to an activity on lands that abut the reservoir or APGI-owned lands.

8.3 The primary sanctions for violations of this Policy are loss of eligibility for: (i) a private (individual or shared) recreation facility permit or multi-use facility permit within the Project Boundary (i.e. on a reservoir); and (ii) use of, or private access to the reservoir and/or APGI-owned lands. Tapoco will also require corrective action including but not limited to restoration and/or mitigation. Eligibility may be reinstated only where adequate restoration and/or mitigation is undertaken and Tapoco determines that reinstatement of eligibility is otherwise consistent with the underlying objectives reflected in this Policy and Tapoco's Shoreline Management Plan. Tapoco, as it deems appropriate, will consult with federal and state regulatory agencies in determining adequate restoration and/or mitigation measures.

8.4 In addition, in the event of a violation of this Policy, Tapoco, at its sole option, has the right to: (i) terminate any existing licenses and permits, (ii) erect a barrier to restrict access to the reservoir or APGI-owned lands, and (iii) require, at the adjoining property owner's sole expense, (a) removal of any piers, steps, walkways or other facilities and structures located in the reservoir, along the shoreline, or on APGI-owned lands and (b) restoration and/or mitigation, up to and including the reservoir, the shoreline, and/or APGI-owned lands to their original condition. In addition, if the adjoining property owner fails to take the required action after notice from Tapoco, Tapoco will consider any facilities or structures remaining in the reservoir, along the shoreline, and/or on APGI-owned lands as a trespass upon its property, and reserves the right to, at the adjoining property owner's sole expense, remove the facilities or structures, treat them as its own property without any liability to the adjoining property owner for payment, and perform the required restoration and/or mitigation. Tapoco also may pursue any other rights or remedies, including damages, it may have in any permit, or at law or in equity.

Native Tree and Plant Species in Vicinity of Tapoco Project

The list below is a list of some of the native trees and plants in the Mountain Region in the vicinity of the Tapoco Project.

Common Name	Scientific Name
Trees	
Red Maple	*Acer rubrum*
Yellow Buckeye	*Aesculus flava*
Devil's Walking Stick, Hercules Club	*Aralia spinosa*
Ironwood	*Carpinus caroliniana*
Mockernut Hickory	*Carya alba*
Pignut Hickory	*Carya glabra*
Fringetree	*Chionanthus virginicus*
Dogwood	*Cornus florida*
Hawthorn	*Crataegus spp*
Persimmon	*Diospyros virginiana*
Beech	*Fagus grandifolia*
Witch-hazel	*Hamamelis virginiana*
American Holly	*Ilex opaca*
Sweetgum	*Liquidambar styraciflua*
Tulip Poplar	*Liriodendron tulipifera*
Cucumber Magnolia	*Magnolia acuminata*
Red Mulberry	*Morus rubra*
Black Gum	*Nyssa sylvatica*
Sourwood	*Oxydendrum arboreum*
Shortleaf Pine	*Pinus echinata*
Eastern White Pine	*Pinus strobus*
Wild Plum	*Prunus americana*
Black Cherry	*Prunus serotina*
White Oak	*Quercus alba*
Post Oak	*Quercus stellata*
Scarlet Oak	*Quercus coccinea*
Southern Red Oak	*Quercus falcata*
Northern Red Oak	*Quercus rubra*
Black Oak	*Quercus velutina*
Sassafras	*Sassafras albidum*
Basswood	*Tilia americana*
Shrubs	
Alder	*Alnus serrulata*
Serviceberry	*Amelanchier arborea*
Allegheny Serviceberry	*Amelanchier laevis*
Sweetshrub	*Calycanthus floridus*
New Jersey Tea	*Ceanothus americanus*
Wild Hydrangea	*Hydrangea arborescens*
Shrubby St. John's Wort	*Hypericum prolificum*
Winterberry	*Ilex verticillata*
Virginia Willow	*Itea virginica*
Mountain Laurel	*Kalmia latifolia*

Common Name	Scientific Name
Ninebark	*Physocarpus opulifolius*
Flame Azalea	*Rhododendron calendulaceum*
Rosebay, Great Rhododendron	*Rhododendron maximum*
Winged Sumac	*Rhus copallina*
Mapleleaf Viburnum	*Viburnum acerifolium*
Vines	
Dutchman's Pipe	*Aristolochia macrophylla*
Crossvine	*Bignonia capreolata*
Trumpet Vine	*Campsis radicans*
Climbing Hydrangea	*Decumaria barbara*
Bush Honeysuckle	*Diervilla sessilifolia*
Virginia Creeper	*Parthenocissus quinquefolia*

APPENDIX B – SPECIFICATIONS FOR PRIVATE RECREATION USE FACILITIES TAPOCO PROJECT RESERVOIRS

ALCOA POWER GENERATING INC.
TAPOCO DIVISION – FERC NO. 2169

SPECIFICATIONS FOR PRIVATE RECREATION USE FACILITIES – TAPOCO PROJECT RESERVOIRS

1 GENERAL

As a Federal Energy Regulatory Commission (FERC) licensee, Alcoa Power Generating Inc. (APGI), through its Tapoco Division (Tapoco) manages Santeetlah, Cheoah, Calderwood, and Chilhowee reservoirs in accordance with the terms of its license and applicable rules and regulations of FERC. This responsibility includes providing adequate public access and public recreation facilities, and protecting important environmental, cultural, and aesthetic resources at the Project. Tapoco takes its responsibility very seriously and is committed to the protection and enhancement of these resources within the FERC-licensed Project Boundary (Project Boundary) and on APGI-owned lands.

Generally, the Project Boundary at Santeetlah Reservoir follows the normal full-pool elevation of the reservoir. Tapoco manages APGI-owned lands in and outside of the Project Boundary. The Santeetlah Reservoir shoreline spans a total of 78.8 miles. Of the 78.8 miles of shoreline, approximately 60.7 miles is undeveloped forest (Nantahala National Forest). The remaining 18.1 miles of shoreline is privately owned, including APGI-owned lands. Also, as described in the Tapoco Project Relicensing Settlement Agreement (RSA), within six months after FERC's final approval of the RSA, a North Carolina Riparian Lands Conservation Easement (NC Riparian Easement) will be placed on certain APGI-owned lands along Santeetlah Reservoir and the Cheoah River, Yellow Creek, and Cheoah and Calderwood reservoirs. The Tapoco Project Shoreline Management Plan (SMP), effective upon filing with FERC in October 2004, classifies the shoreline along Santeetlah Reservoir as: 1) Other/General Development, 2) Stewardship Area, or 3) Conservation Easement.

Generally, the Project Boundary along Cheoah Reservoir follows contour elevation 1,362.5-ft or the normal full-pool elevation along both the north and south shorelines of the reservoir. The Cheoah Reservoir has 19.6 miles of shoreline and is bounded on the north side by U.S. Highway 129, APGI-owned lands, the Great Smoky Mountains National Park (GSMNP), the Tennessee Valley Authority (TVA), and NC Highway 28.

To accommodate plant operations and maintenance activities, the Project Boundary at Calderwood Development includes the entire horseshoe shaped area known as the Calderwood Bypass. The Project Boundary along the right side (facing downstream) of the reservoir follows metes and bounds for about a mile with the balance of the boundary at the 1,180-ft contour. The Project Boundary on the left side of the reservoir follows the 1,107.5-ft contour from the Cheoah

River to just downstream of the Tennessee and North Carolina border and the 1,180-ft contour to just upstream of the dam. Calderwood Reservoir has 16.9 miles of shoreline. Most of the land bordering the Project Boundary around Calderwood Reservoir is APGI-owned lands. The Nantahala and Cherokee National Forests and the Joyce Kilmer-Slickrock Creek Wilderness Area also border the Project Boundary at Calderwood Reservoir.

The Project Boundary at Chilhowee Reservoir includes an area around Chilhowee Dam and extends downstream into the tailrace about 3,000 feet. The Project Boundary on the northeast side of the reservoir generally follows either the 925-ft or the 887.5-ft contours. Approximately 75 percent of the Project Boundary on the southwest side of the reservoir is the 925-ft contour with intermittent areas defined by metes and bounds. Chilhowee Reservoir has 26.4 miles of shoreline and is bordered on the northeast side by U.S. Highway 129, the Great Smoky Mountains National Park, APGI-owned lands, and private lands and on the southwest side by APGI-owned lands, private lands, and the Cherokee National Forest.

Generally, the majority of the shoreline around Calderwood and Chilhowee reservoirs and the Calderwood Bypass is classified as Stewardship Area. Also, as described in the Relicensing Settlement Agreement, a permanent or term conservation easement will be placed on certain APGI-owned lands including lands along the shoreline of the mainstem reservoirs and the Calderwood Bypass (the "Conservation Easements").

Generally, the purposes of the aforementioned Conservation Easements are to ensure that the property included in the easement is preserved in its predominantly undeveloped, natural, scenic, open space and/or forested condition, and to prevent any use of the property that will significantly impair or interfere with the identified Conservation Values (natural, scenic, open space, forest, wildlife habitat, watershed protection, historical, cultural, educational, and/or recreational values) of the property. The shoreline property included in the Conservation Easements may be used by the general public for ingress and egress to and from adjoining properties for recreational purposes (e.g. lawful hunting, fishing, hiking) so long as that right existed prior to FERC's issuance of a new license. However, the Conservation Easements generally restrict the following activities and uses on property included in the Conservation Easements: construction; excavation; cutting or removal; dumping; pollution; vehicles, bikes, horses; and exploration.

Tapoco has no management oversight over any lands owned and managed by the U.S. Forest Service (USFS), the National Park Service (NPS), or TVA. Accordingly, Tapoco will not grant any permits pursuant to these Specifications for Private Recreation Use Facilities (Specifications) for lands managed by others than Tapoco. Property owners desiring to use USFS, NPS, or TVA lands to access the Project reservoirs, shoreline, or APGI-owned lands must obtain any necessary permits from the USFS, NPS or TVA before Tapoco will consider issuing a permit.

Tapoco will permit private recreation facilities on Santeetlah Reservoir only. No private recreation facilities are permitted on the three mainstem reservoirs: Cheoah, Calderwood, and Chilhowee or the Cheoah River and Calderwood Bypass.

These Specifications apply to private recreation facilities for either a single lot or two adjoining lots on Santeetlah Reservoir. All other facilities are governed by Tapoco's Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures.

Tapoco permits private recreation facilities on Santeetlah Reservoir by permit only. The only new facilities permitted are (i) a stationary pier, ramp and floating dock combination, (ii) a ramp and floating dock combination or (iii) a floating dock (hereinafter all three will be referred to as a "pier"). Several examples of pier design are attached hereto. No other facilities, structures or uses are permitted, unless authorized under Tapoco's Shoreline Stewardship Policy. Based on the requirements set forth in these Specifications, not all lots adjacent to Santeetlah Reservoir may be eligible for a pier.

A property owner may be eligible (eligible property owner) for a private recreation facility permit from Tapoco because of being an adjoining property owner. An adjoining property owner is defined as: (i) having land immediately adjacent to the Santeetlah Reservoir shoreline, defined as the normal full-pool elevation of the reservoir, (ii) having land immediately adjacent to APGI-owned lands and Tapoco has granted permission to access the reservoir across APGI-owned lands, or (iii) having land that abuts USFS land, the USFS property to be crossed is less than or equal to 150-ft in width, and a Special Use Permit from the USFS entitling the property owner to cross USFS lands to access the reservoir.

These Specifications should be read in conjunction with Tapoco's Shoreline Stewardship Policy, which outlines the rights and responsibilities of Tapoco and other property owners along the Tapoco Project reservoirs.

Tapoco will review and may revise these Specifications as necessary. The revisions will be effective when reissued.

2 PERMITS

2.1 Before starting to construct a pier, eligible property owners must submit a written application to Tapoco. The written request must include a copy of the eligible property owner's deed, a plat showing the location of the dwelling and the location and dimensions of the proposed pier (i.e. a plan view), and, if applicable, a copy of the USFS Special Use Permit. Receipt of a complete application is necessary before Tapoco will consider issuing a construction permit to the eligible property owner. As part of the application process, the eligible property owner must also arrange an on-site visit with a Tapoco representative by writing Tapoco Division, Alcoa Power Generating Inc., P.O. Box 576, Highway 740, Badin, NC 28009 or calling Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063 and submitting the following: Name, Address, Telephone, Development, Section, Lot Number, Tax Map, Parcel Number and survey or dimensions of lot. Additional information regarding application procedures is available on Tapoco's website at www.alcoa.com/tapoco.

2.2 Before starting to modify (reconstruct, add onto, expand, etc.) a pier, the eligible property owner must submit a written application to Tapoco. The written request must include a copy of the eligible property owner's deed, a plat showing the location of the dwelling and the location and dimensions of the proposed modifications (i.e. a plan view), and if applicable, an application fee and a copy of the USFS Special Use Permit. Receipt of a complete application is necessary before Tapoco will consider issuing a construction permit to the eligible property owner. Additional information regarding application procedures is available on Tapoco's website at www.alcoa.com/tapoco.

2.3 Repairs[1] to piers do not generally require prior written authorization from Tapoco. Additional guidance regarding whether a permit is necessary may be obtained from Tapoco by calling either Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063.

2.4 Once constructed, a pier requires a private recreation facility permit from Tapoco. Private recreation facility permits extend for a five-year period from January 1 through December 31 and must be renewed prior to expiration.

2.5 Piers permitted by Tapoco are not to be used for docking or mooring seaplanes (or other aircraft) or houseboats. For purposes of these Specifications, a houseboat is defined as any vessel (enclosed or otherwise) that has a galley, head, or pump-out facility. Additionally, Tapoco does not permit floating trampolines on the Project reservoirs.[2]

2.6 The construction, placement and use of piers shall not interfere with navigation, ingress, or egress to adjoining properties, or in any manner present a safety hazard or nuisance and must be consistent with the Shoreline Stewardship Policy and other environmental values of the reservoir. Tapoco strongly encourages property owners to consider the interests of adjoining property owners and the public in locating, constructing, and using their piers and watercraft.

2.7 All other activities undertaken in the Project reservoirs, along the shoreline, or on APGI-owned lands including installation or maintenance of shoreline erosion control measures, steps, vegetation removal and excavation require a written activity permit from Tapoco before work begins. The Shoreline Stewardship Policy identifies permitted activities in the Project reservoirs, along the shoreline, and on APGI-owned lands and the procedures and requirements related to the activity permit. In some cases, the permission for these activities may be included in a construction permit or private recreation facility permit.

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[1] "Repair" is defined as an action that requires no county building permit and results in no change in the footprint or operation of the facility.

[2] Floating trampolines existing on the date of the filing of this Tapoco Project SMP with FERC will be "grandfathered".

2.8 Private recreation facility permits, construction permits, and activity permits are of limited duration and are terminable by Tapoco according to their terms and as provided in Section 8. To help defray the cost of administration, Tapoco may charge a separate fee for each type of permit. A list of current fees is attached hereto.

2.9 All new construction, modifications, repairs, or other activities undertaken must be done in compliance with these Specifications, the Shoreline Stewardship Policy, and the terms of the construction permit or activity permit.[3] The eligible property owner is responsible for correcting or removing any structures, facilities, or activities that were not explicitly authorized in the written permit from Tapoco.

3 CONSTRUCTION STANDARDS

3.1 During the on-site visit for a new pier, Tapoco will make a general inspection of the planned pier site. Tapoco will check the location of the planned pier with respect to known archaeological sites to determine if any known sites are located in close proximity to the proposed pier location. If there is a known archaeological site proximate to the location of the planned pier site, Tapoco will consult with the North Carolina Department of Cultural Resources (NCDCR) and the Eastern Band of Cherokee Indians (EBCI) Tribal Historic Preservation Office (THPO) to determine what, if any, measures should be taken.

3.2 Tapoco will also make a general survey of the site to determine the presence of important environmental resources. In cases where there are unique or important environmental features proximate to the site, Tapoco may choose to consult with the North Carolina Wildlife Resources Commission (NCWRC), the North Carolina Department of Environment and Natural Resources (NCDENR), the U.S. Fish and Wildlife Service (USFWS), and the USFS to determine if measures should be taken to protect the feature(s).

3.3 All permitted piers must display the permit number near the right corner of the pier facing the reservoir. Numbers will be furnished by Tapoco.

3.4 Two-inch (2") minimum diameter blue-colored reflectors must be placed at eight-foot intervals along the water ends of the pier and at the corners.

3.5 Piers must be constructed of treated lumber and pilings, grade marked by the American Wood Preservers' Bureau or plastic lumber, suitable for direct contact with water. Other materials made specifically for piers may be used with the prior written approval of Tapoco. Manufactured plastic-encased flotation devices will be permitted as flotation. Tapoco will not permit unprotected styrofoam, metal barrels or similar metal flotation devices, creosote material either pressure or dipped treated, utility poles or railroad ties.

[3] Tapoco regularly monitors activities and structures on the reservoir, along the shoreline, and on APGI-owned lands and will require corrective action in accordance with these Specifications if it observes non-compliant activities or structures.

3.6 If cables are used to anchor a pier, the following shall apply:

1. Cables shall not be anchored to any trees nor anchored in such a manner that would damage any trees.

2. If anchored to USFS property the adjoining property owner shall conform to USFS regulations and have written approval from the USFS for such installation before Tapoco will consider issuing the construction permit.

3. Cables anchored in the water shall be so located that outboard boats can pass over them without damage.

4 EXISTING RECREATION FACILITIES

4.1 Existing, licensed private recreation facilities and/or floating trampolines that pose no environmental or public safety hazards are "grandfathered" and are allowed to remain in place, as the facilities existed on the date of the filing of this Tapoco Project SMP with FERC together with any subsequent modifications approved by Tapoco pursuant to a written construction permit, so long as (i) the owners comply with their current license, the Shoreline Stewardship Policy, and all other applicable Tapoco procedures and requirements, and (ii) the facilities are maintained in good repair and comply with all applicable state and local health and safety requirements. A written construction permit from Tapoco is required for modifications to existing "grandfathered" facilities. Additional guidance may be obtained from Tapoco by calling either Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063.

4.2 Eligible property owners with an existing licensed pier that does not meet the standards outlined in Section 4.1 above must correct the condition or remove the structure. Any replacement structure must conform to these Specifications.

4.3 An eligible property owner either seeking to replace or rebuild an existing licensed structure must conform to these Specifications.

5 LICENSE AND PERMIT TRANSFER

5.1 Generally, licenses and permits are transferable, so long as (i) the facilities have been maintained in good repair and comply with all applicable state and local health and safety standards, (ii) the current property owner (seller) has complied with the current license or permit, the Shoreline Stewardship Policy, and all other applicable Tapoco procedures and requirements, and (iii) the new property owner (purchaser) has signed a new permit.

5.2 Prior to the sale or transfer of adjoining property, the seller or the seller's agent must contact Tapoco to request a license or permit transfer (this may done by calling either Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063). Upon request, Tapoco will arrange a site visit. If (i) the facilities are

determined to be in good repair and in compliance with all applicable state and local health and safety requirements, (ii) the seller has complied with the current license or permit and all applicable Tapoco procedures and requirements, and (iii) all fee payments are up to date, Tapoco will provide the seller or seller's agent with a form to request transfer of the license or permit. In order for the transfer to be effective, a new permit must be completed and signed by the purchaser at the time of closing. If the facilities are deemed not transferable, Tapoco will provide the seller or the seller's agent with a written description of repairs (up to and including replacement of the existing structure with a compliant structure) or other actions that must be undertaken before the facilities will be transferable.

6 CRITERIA FOR NEW INDIVIDUAL AND SHARED PIERS

In order to qualify for a permit for a new pier, the pier must meet the following criteria. Boat houses, sun-decks, lighting, or "on-pier" structures (except for seating and boat lifts that are in conformance with the Specifications) are not permitted.

Tapoco reserves the right to make the final determination regarding the size of a pier based on the particular conditions of the lot. The narrowness of certain coves and/or lay of some lots may cause Tapoco to either deny a permit or issue a permit for a pier that is smaller than the maximum dimensions stated herein.

6.1 Piers

6.1.1 All adjoining lots used for a single residence or under single ownership are considered to be one lot.

6.1.2 A dwelling must exist on the lot or be under roof before Tapoco will consider issuing a permit.[4]

6.1.3 No more than one pier shall be located at each single-family residence. Multi-occupancy piers intended for subdivisions or dwellings such as townhouses or condominiums are addressed in Tapoco's Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures. Criteria for shared piers are addressed in Section 6.2 of these Specifications.

6.1.4 The eligible property owner's lot must have a minimum lot width along the reservoir of 50-ft as measured along the contour of the land of the eligible property owner's lot. For eligible property owners whose access to the reservoir is across APGI-owned land or USFS land, the minimum lot width of 50-ft will be determined by extending the eligible

[4] Tapoco will rely on Graham County's definition of dwelling unit when it considers whether a dwelling exists on the lot or is under roof. Currently, Graham County defines "dwelling unit" as a single unit providing complete independent living facilities for one or more persons, including permanent provision for living, sleeping, eating, cooking, and sanitation. A dwelling shall not mean any recreational vehicle or bus.

property owner's lot lines across APGI-owned land or USFS land to the reservoir and then measuring the width along the contour of the APGI-owned land or USFS land.

6.1.5 The pier must end in a floating section, which is able to move with the rise and fall of the reservoir's water level.

6.1.6 The pier must meet applicable county and state building codes.

6.1.7 The pier must be located as near as possible to the middle of the eligible property owner's lot(s) and may not encroach across the projected side property lines of the owner's property.

6.1.8 Maximum length. The total maximum length of the pier shall not exceed 50-ft as measured from the normal full-pool (1940.9-ft contour).

6.1.9 Cove width. Piers will not be permitted in coves less than 100-ft in width. If located in a cove, the pier must not extend more than 50-ft from the normal full-pool elevation or extend more than 25% across the width of the cove at its narrowest location from the normal full-pool elevation, excluding the length of any moored boats, whichever is less. Tapoco retains the right to limit a pier length based on this requirement.

6.1.10 Minimum width of stationary section and ramp. The stationary section and ramp of a pier must have a minimum width of 3-ft.

6.1.11 Minimum width of floating section. No portion of the floating section shall be less than 4-ft in width.

6.1.12 Maximum Total Area. The maximum total area of a pier (stationary, ramp, floating dock combination or ramp and floating dock combination) must not exceed 500 square feet, excluding boat slips[5], boat lifts and personal watercraft (PWC) accommodations. The maximum total area of just a floating dock must not exceed 160 square feet (10-ft x 16-ft) for lots 50-ft in width or 288 square feet (12-ft x 24-ft) for lots 100-ft in width. Boat slips are not allowed if the pier is just a floating dock.

6.1.13 The design and construction of the pier must not accommodate more than two boats and two PWCs. Additional non-motorized watercraft, such as a canoe or kayak, may be stored on the pier.

6.1.14 The design and construction of the pier must incorporate fish friendly measures. Some general information on fish friendly piers is included as an attachment to these Specifications.

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[5] A "boat slip" is defined as an unroofed structure confined by three sides used for temporary or permanent storage and/or mooring of a watercraft.

6.1.15 If the pier is designed with boat lifts or accommodations for PWCs, they must be mounted and operate on the floating portion of the pier and cannot have supports resting on the reservoir bottom.

6.2 Shared Piers

6.2.1 Two adjoining lots of 25-ft minimum shoreline width each, as measured along the contour of the land of the eligible property owner's lot, may share a pier. For eligible property owners whose access to the reservoir is across APGI-owned land or USFS land, the minimum lot width of 25-ft will be determined by extending each eligible property owner's lot lines across APGI-owned land or USFS land to the reservoir and then measuring the width along the contour of the APGI-owned land or USFS land. Shared piers must be located on or close to the adjoining property line.

6.2.2 Criteria for shared piers are the same as for individual piers, except for criteria regarding lot width.

6.2.3 Shared pier applicants are individually and jointly responsible for compliance with these Specifications, the Shoreline Stewardship Policy, and all other applicable Tapoco policies, procedures, and requirements. Failure of one applicant to comply therewith may render both applicants ineligible for a pier and subject to other enforcement, as provided below.

7 ELECTRICAL INSTALLATIONS

7.1 All electrical installations on piers must meet the current version of all applicable county and state codes governing electrical installations and be in accordance with the current version of the National Electrical Code Standards for Wet Location, Marinas and Boatyards, and the National Electrical Safety Code. It is exclusively and specifically the responsibility of the eligible property owner to ensure that electrical installations comply with all applicable codes.

7.2 All electrical installations shall be installed by a state-licensed electrician.

7.3 All electrical installations shall be inspected and certified by the county and a copy of the county's inspection certificate must be provided to Tapoco.

7.4 Lighting on piers is prohibited.

8 ENFORCEMENT

8.1 Tapoco believes that property owners appreciate the beauty and importance of the Tapoco Project reservoirs and shorelines and will comply with these Specifications. In those instances where violations of these Specifications occur, however, Tapoco will consider those violations as serious matters. Violations of these Specifications include:

(i) any failure to comply with the provisions of these Specifications, the Shoreline Stewardship Policy or other applicable Tapoco procedures or requirements; and (ii) failure to obtain or to comply with written permission from Tapoco, where required, before undertaking construction or other activities.

8.2 Tapoco will notify the USFS of any enforcement actions on a facility which abuts USFS lands and will encourage the USFS to notify it of any enforcement action that the USFS takes with regard to an activity on lands that abut the reservoir or APGI-owned lands.

8.3 The primary sanctions for violations of these Specifications are loss of eligibility for: (i) a private (individual or shared) recreation facility permit within the Project Boundary (i.e. on the reservoir); and (ii) where applicable, use of, or private access to the reservoir and/or APGI-owned lands. Tapoco will also require corrective action including but not limited to restoration and/or mitigation. Eligibility may be reinstated only where adequate restoration and/or mitigation is undertaken and Tapoco determines that reinstatement of eligibility is otherwise consistent with the underlying goals reflected in these Specifications, the Shoreline Stewardship Policy, and Tapoco's Shoreline Management Plan. Tapoco, as it deems appropriate, will consult with federal and state regulatory agencies in determining adequate restoration and/or mitigation measures.

8.4 In addition, in the event of a violation of these Specifications, Tapoco, at its sole option, has the right to: (i) terminate any existing licenses or permits, (ii) erect a barrier to restrict access to the reservoir or APGI-owned lands, and (iii) require, at the eligible property owner's sole expense, (a) removal of any piers, steps, walkways, or other facilities and structures located in the reservoir, along the shoreline, or on APGI-owned lands and (b) restoration and/or mitigation, up to and including the reservoir, the shoreline, and/or APGI-owned lands to their original condition. In addition, if the adjoining property owner fails to take the required action after notice from Tapoco, Tapoco will consider any facilities and structures remaining in the reservoir, along the shoreline, and/or on APGI-owned lands as a trespass upon its property, and reserves the right to, at the eligible property owner's sole expense, remove the facilities and structures, treat them as its own property without any liability to the adjoining property owner for payment, and perform the required restoration and/or mitigation. Tapoco also may pursue any other rights or remedies, including damages, it may have in any permit, or at law or in equity.

9 ACTIVITY PERMITS

Eligible property owners seeking permission to undertake any activity in the Project reservoirs, along the shoreline, or on APGI-owned lands must obtain a written activity permit from Tapoco. The Shoreline Stewardship Policy sets forth the uses and activities that may be permitted by Tapoco in the Project reservoirs, along the shoreline, and on APGI-owned lands and the requirements for these uses and activities.

DIAGRAM A: Private Pier Design with Ramp and Floating Section

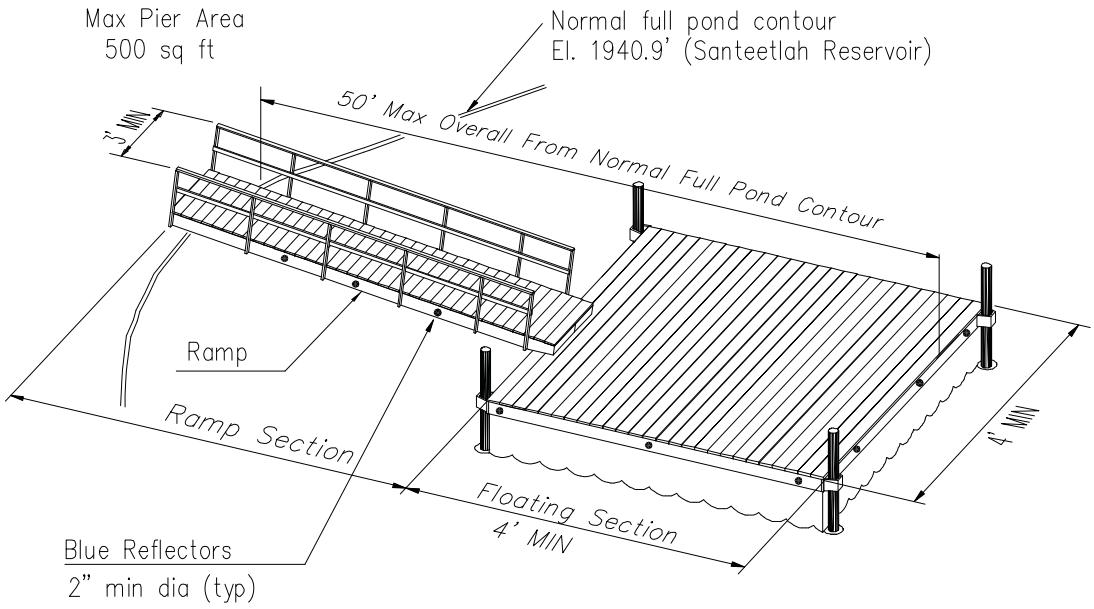
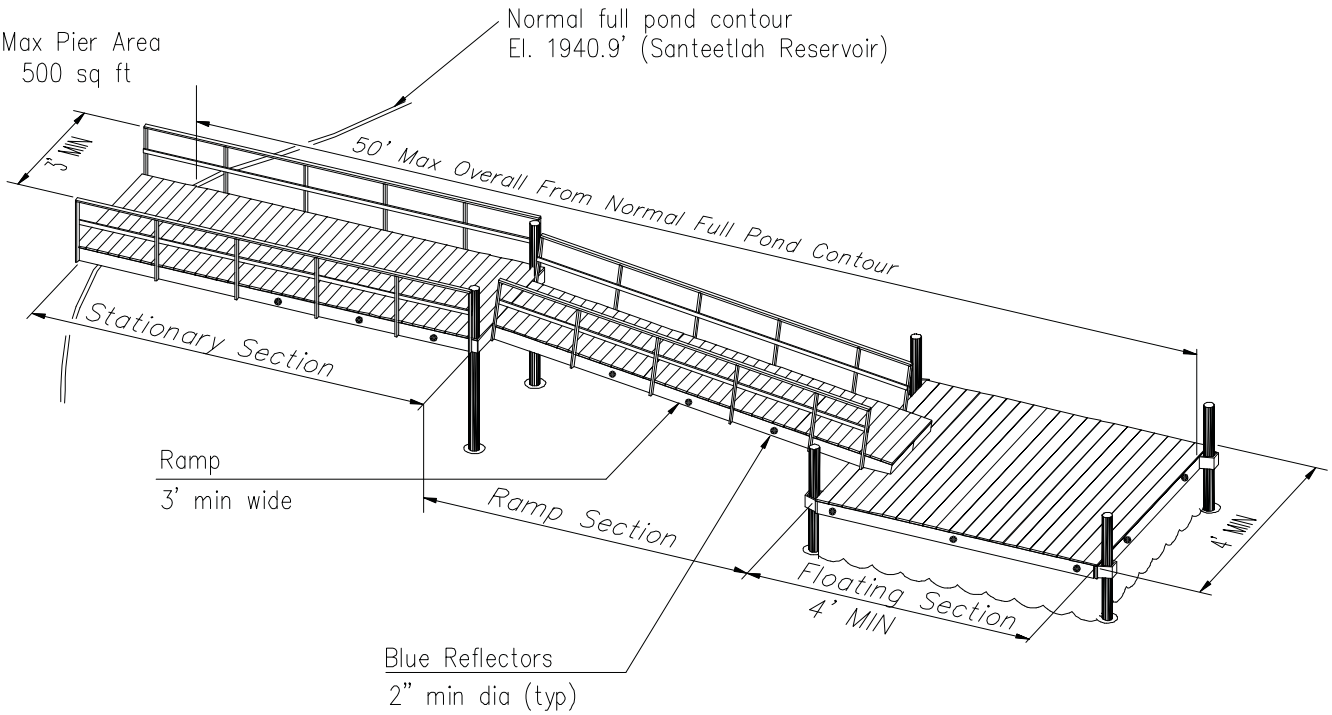


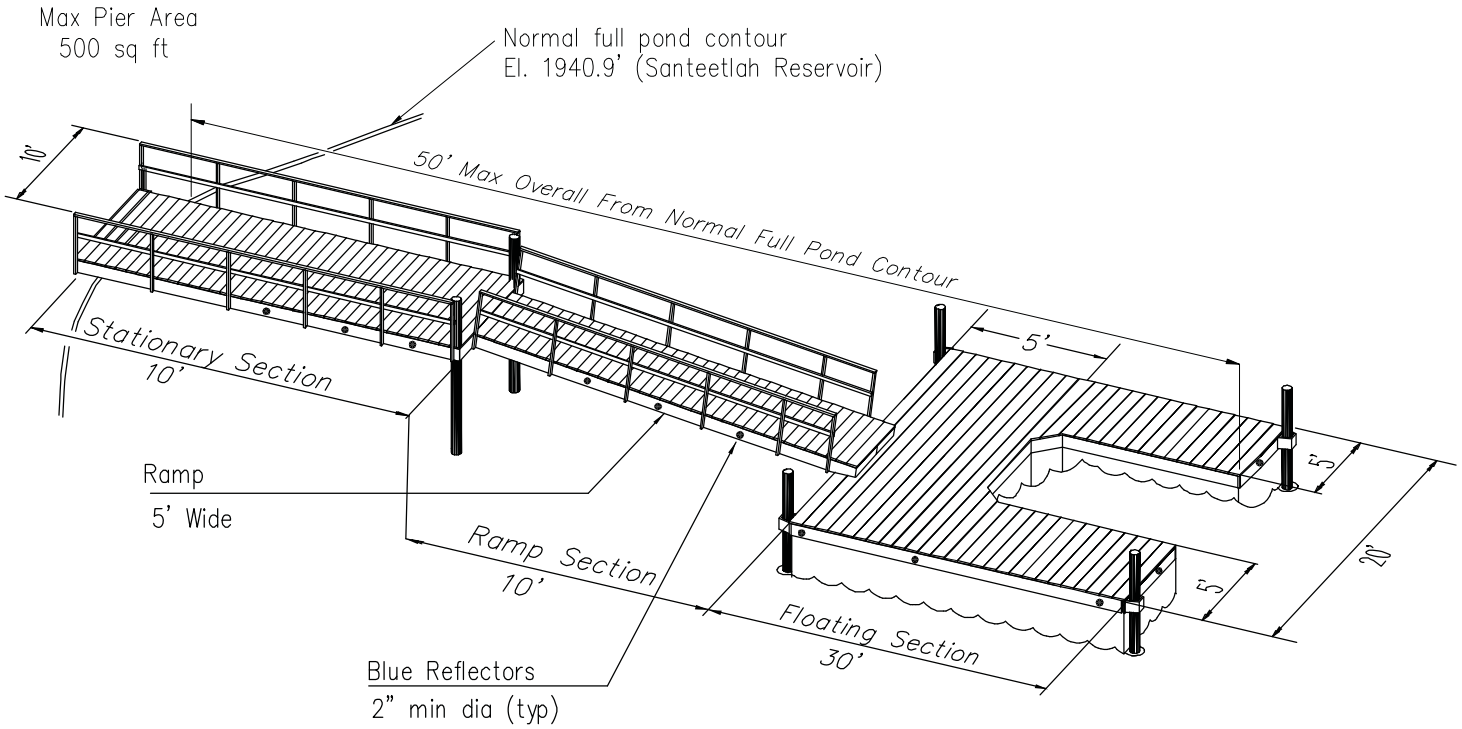
DIAGRAM B: Private Pier Design with Stationary Section, Ramp and Floating Section



Notes: 1. The design and construction of the pier must not accommodate more than two boats and two PWC.

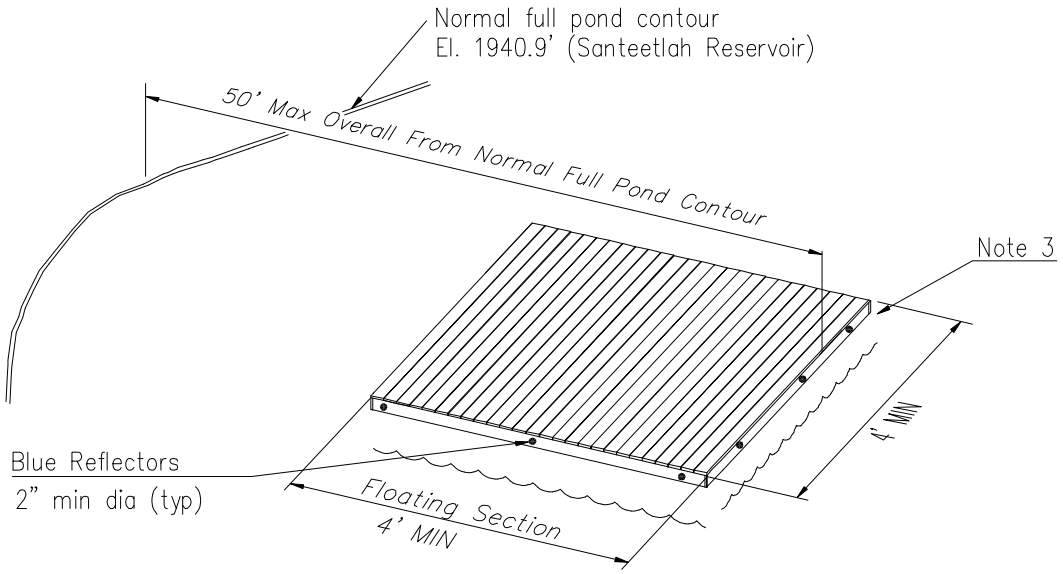
2. Maximum pier areas excludes boat slip, boat lifts, and PWC accommodations (not shown in figures).

DIAGRAM C: Sample Private Pier Design with Stationary Section, Ramp and Floating Section with Slip



Note: See Diagram B for additional requirements and notes

DIAGRAM D: Private Pier Design with Floating Section



Notes: 1. The design and construction of the pier must not accommodate more than two boats and two PWC.
2. Maximum pier area excludes boat slip, boat lifts, and PWC accommodations (not shown in figure).
3. Cables may be used to anchor pier per Appendix B guidelines.

Fish Friendly Piers

Shoreline development, such as the clearing of natural vegetation, pier construction, and shoreline stabilization, can alter the availability and diversity of fish habitat. The design and construction of private recreation facilities (i.e. piers) on Santeetlah Reservoir must incorporate fish friendly measures (see Section 6.1.14 of these Specifications). The addition of artificial fish habitat structures or brush piles under the stationary section of piers will provide habitat and cover for fish and enhance spawning areas, survival of juvenile fish, and fishing opportunities. Artificial structures can be constructed or purchased. Generally, brush piles are pruned tree branches (preferably hardwoods) that are bundled together and anchored beneath the pier to provide structurally complex habitat. Any fish friendly measures added to a pier on Santeetlah Reservoir must be well-secured and anchored and must not interfere with navigation.

Tapoco Division of Alcoa Power Generating Inc.
Permitting Fee Schedule for Private Recreation Facilities
Effective October 2004

Private Recreation Facility Fees	
Facility/Activity Description	**Fee**
Private Facility Permit Fee (every five years)	$50/five years

Note: These are Tapoco permitting fees only, and do not include any other fees charged by state or federal agencies that may have jurisdiction over these facilities. The applicant will be responsible for any fees associated with securing other necessary approvals.

APPENDIX C – SUBDIVISION ACCESS APPROVAL, MULTI-USE FACILITY PERMITTING, AND INDUSTRIAL APPROVAL PROCEDURES - TAPOCO PROJECT RESERVOIRS

ALCOA POWER GENERATING INC.
TAPOCO DIVISION – FERC NO. 2169

SUBDIVISION ACCESS APPROVAL, MULTI-USE FACILITY PERMITTING, AND INDUSTRIAL APPROVAL PROCEDURES – TAPOCO PROJECT RESERVOIRS

1 OVERVIEW

As a Federal Energy Regulatory Commission (FERC) licensee, Alcoa Power Generating Inc. (APGI), through its Tapoco Division (Tapoco) manages Santeetlah, Cheoah, Calderwood, and Chilhowee reservoirs in accordance with the terms of its license and applicable rules and regulations of FERC. This responsibility includes providing adequate public access and public recreation facilities, and protecting important environmental, cultural, and aesthetic resources at the Project. Tapoco takes its responsibility very seriously and is committed to the protection and enhancement of these resources within the FERC-licensed Project Boundary (Project Boundary) and on APGI-owned lands.

Generally, the Project Boundary at Santeetlah Reservoir follows the normal full-pool elevation of the reservoir. Tapoco manages APGI-owned lands in and outside of the Project Boundary. The Santeetlah Reservoir shoreline spans a total of 78.8 miles. Of the 78.8 miles of shoreline, approximately 60.7 miles is undeveloped forest (Nantahala National Forest). The remaining 18.1 miles of shoreline is privately owned, including APGI-owned lands. Also, as described in the Tapoco Project Relicensing Settlement Agreement (RSA), within six months after FERC's final approval of the RSA, a North Carolina Riparian Lands Conservation Easement (NC Riparian Easement) will be placed on certain APGI-owned lands along Santeetlah Reservoir and the Cheoah River, Yellow Creek, and Cheoah and Calderwood reservoirs. The Tapoco Project Shoreline Management Plan (SMP), effective upon filing with FERC in October 2004, classifies the shoreline along Santeetlah Reservoir as: 1) Other/General Development, 2) Stewardship Area, or 3) Conservation Easement.

Generally, the Project Boundary along Cheoah Reservoir follows contour elevation 1,362.5-ft or the normal full-pool elevation along both the north and south shorelines of the reservoir. The Cheoah Reservoir has 19.6 miles of shoreline and is bounded on the north side by U.S. Highway 129, APGI-owned lands, the Great Smoky Mountains National Park (GSMNP), the Tennessee Valley Authority (TVA), and NC Highway 28.

To accommodate plant operations and maintenance activities, the Project Boundary at Calderwood Development includes the entire horseshoe shaped area known as the Calderwood Bypass. The Project Boundary along the right side (facing downstream) of the reservoir follows

metes and bounds for about a mile with the balance of the boundary at the 1,180-ft contour. The Project Boundary on the left side of the reservoir follows the 1,107.5-ft contour from the Cheoah River to just downstream of the Tennessee and North Carolina border and the 1,180-ft contour to just upstream of the dam. Calderwood Reservoir has 16.9 miles of shoreline. Most of the land bordering the Project Boundary around Calderwood Reservoir is APGI-owned lands. The Nantahala and Cherokee National Forests and the Joyce Kilmer-Slickrock Creek Wilderness Area also border the Project Boundary at Calderwood Reservoir.

The Project Boundary at Chilhowee Reservoir includes an area around Chilhowee Dam and extends downstream into the tailrace about 3,000 feet. The Project Boundary on the northeast side of the reservoir generally follows either the 925-ft or the 887.5-ft contours. Approximately 75 percent of the Project Boundary on the southwest side of the reservoir is the 925-ft contour with intermittent areas defined by metes and bounds. Chilhowee Reservoir has 26.4 miles of shoreline and is bordered on the northeast side by U.S. Highway 129, the Great Smoky Mountains National Park, APGI-owned lands, and private lands and on the southwest side by APGI-owned lands, private lands, and the Cherokee National Forest.

Generally, the majority of the shoreline around Cheoah, Calderwood, and Chilhowee reservoirs and the Calderwood Bypass are classified as Stewardship Area. Also, as described in the Relicensing Settlement Agreement, a permanent or term conservation easement will be placed on certain APGI-owned lands including lands along the shoreline of the mainstem reservoirs and the Calderwood Bypass (the "Conservation Easements").

Generally, the purposes of the aforementioned Conservation Easements are to ensure that the property included in the easement is preserved in its predominantly undeveloped, natural, scenic, open space and/or forested condition, and to prevent any use of the property that will significantly impair or interfere with the identified Conservation Values (natural, scenic, open space, forest, wildlife habitat, watershed protection, historical, cultural, educational, and/or recreational values) of the property. The shoreline property included in the Conservation Easements may be used by the general public for ingress and egress to and from adjoining properties for recreational purposes (e.g. lawful hunting, fishing, hiking) so long as that right existed prior to FERC's issuance of a new license. However, the Conservation Easements generally restrict the following activities and uses on property included in the Conservation Easements: construction; excavation; cutting or removal; dumping; pollution; vehicles, bikes, horses; and exploration.

Tapoco has no management oversight over any lands owned or managed by the U.S. Forest Service (USFS), the National Park Service (NPS), or TVA. Accordingly, Tapoco will not grant any permits pursuant to these Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures (Procedures) for lands managed by others than Tapoco. Property owners desiring to use USFS, NPS, or TVA lands to access the Project reservoirs, shoreline, or APGI-owned lands must consult with and obtain any necessary permits from the USFS, NPS or TVA before Tapoco will consider issuing a permit.

Under its FERC license, APGI, through its Tapoco Division, has the authority to grant permission for certain types of use and occupancy of Project lands and waters and to convey certain interests in Project lands and waters. However, this can be done only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the recreational, environmental, aesthetic and cultural resource values of the Project. Therefore, Tapoco has the continuing responsibility to supervise and control the uses and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with, the covenants of the instrument of conveyance for any interests that it has conveyed under its FERC license. If a permitted use or occupancy violates any condition of Tapoco's FERC license or any other condition imposed by Tapoco for the protection and enhancement of the Project's recreational, environmental, aesthetic, and cultural resource values, or if a covenant of a conveyance made under the authority of its FERC license is violated, Tapoco may take any lawful action necessary to correct the violation, as described in Section 7.

These Procedures apply to subdivisions adjoining Santeetlah Reservoir, the shoreline, defined as the normal full-pool elevation of Santeetlah Reservoir, and/or APGI-owned lands and multi-use facilities and industrial uses/facilities within any of the Project reservoirs, along the reservoir shoreline, or APGI-owned lands.

Based on recent FERC guidance on critical energy infrastructure information (CEII guidance, 18 CFR Parts 375 and 388), Tapoco will maintain and operate the four Project developments (i.e. dams, powerhouses, and ancillary structures) to minimize the vulnerability of the Project to potential security threats. Tapoco will maintain security buffer areas around the Project developments by not allowing third party, non-Project development of lands included in the FERC Project Boundary and associated APGI-owned non-Project lands.

Tapoco also has a Shoreline Stewardship Policy, which summarizes Tapoco's policies, procedures, and requirements regarding use of the Project reservoirs, shoreline, and APGI-owned lands. Applicants are encouraged to familiarize themselves with the Shoreline Stewardship Policy and the procedures and requirements that eligible property owners[1] and others must comply with in order to maintain eligibility to construct, maintain, and/or operate facilities within the Project reservoirs, along the shoreline, or on APGI-owned lands.

Entities considering the development of subdivisions, the construction of new multi-use or industrial uses/facilities or the modification of existing facilities should contact Tapoco as early as possible in the planning process to discuss the specific permitting/approval requirements that apply to the proposed activity and to obtain copies of the appropriate application materials and instructions.

Tapoco will review and may revise these Procedures as necessary. The revisions will be effective when reissued.

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[1] An "eligible property owner" is a property owner who is eligible for a private recreation facility permit from Tapoco because of being an adjoining property owner.

2 SUBDIVISION ACCESS APPROVAL

No subdivision access will be permitted on Cheoah, Calderwood, and Chilhowee reservoirs, along the shoreline (defined as the normal full-pool elevations of the mainstem reservoirs), or on APGI-owned lands.

Reservoir access for lots in new subdivisions adjoining Santeetlah Reservoir, the shoreline defined as the normal full-pool elevation of Santeetlah Reservoir, or USFS lands will not be granted unless the proposed subdivision access is first reviewed and approved by Tapoco. If the proposed subdivision abuts USFS lands, the applicant must also obtain a Special Use Permit from the USFS that approves access across its lands to the reservoir. Only after Tapoco has approved the subdivision access will any lots be eligible to apply for either a construction permit or a private recreation facility (individual or shared pier) permit. In the case of subdivisions for which the applicant is proposing multi-use facilities (as defined below), prior notice to or prior approval by FERC may also be required.

2.1 Access Approval Process

The subdivision access approval process is a process under which Tapoco, or in certain cases, FERC, determines whether the requirements of Tapoco's FERC license are met as they relate to the effect of the reservoir access anticipated for the subdivision on the reservoir and adjoining shoreline. Included in this determination is a final decision, with respect to lot width and cove width only, as to whether certain lots adjacent to the reservoir shoreline are eligible for a private pier.

For lots that are deemed eligible for a private pier as part of this subdivision access approval process, the procedures and requirements set forth in the Shoreline Stewardship Policy and Specifications for Private Recreation Facilities (Specifications) must also be complied with before Tapoco will consider issuing a construction permit to any eligible property owner.

The subdivision access approval process requires that the applicant prepare an Environmental Assessment (EA) for some proposed subdivisions. A full EA, as described in Section 5, is required for the following types of subdivisions:

1. Any subdivision where the applicant is seeking eligibility for private recreation and/or multi-use facilities located along shoreline classified as Stewardship Area.

2. Any subdivision with more than five lots if the applicant is seeking eligibility for private recreation and/or multi-use facilities.

Applicants for all other types of subdivisions are not required to prepare a full EA, but must prepare an Agency Consultation Process Information Package (Information Package) as described in Section 6.

Subdivision developers seeking to include multi-use facilities (see Section 3) as part of the subdivision need only complete a single EA for the proposed subdivision. In these cases, the EA

must include information required for both the private access needs of the subdivision and multi-use facility aspects of the proposed subdivision, and will be used by Tapoco to review and evaluate any private access requested by the subdivision and any proposed multi-use facilities.

A three-part process is utilized for the review and approval of access for proposed subdivisions. The three parts are: 1) pre-application meeting; 2) application development; and 3) approval notification. Each is described below.

2.1.1 Pre-Application Meeting

2.1.1.1 A subdivision developer must meet with Tapoco prior to submitting an application for subdivision access approval. This initial meeting should be held as early as possible in the planning process to avoid confusion and delay in preparing information required for the application.

2.1.1.2 Prior to the meeting, the applicant must complete a Pre-Application Meeting Worksheet that identifies the information that the applicant is expected to bring to the meeting, including:

1. Maps or sketches showing the location of the proposed subdivision with respect to the reservoir, shoreline, APGI-owned lands, USFS, NPS, or TVA lands and existing property boundaries;

2. General information on the proposed subdivision, including:

- the number of subdivision lots and the number, size, and type of other facilities involved;
- the anticipated need for access to Project lands and waters;
- the anticipated need for use of or access across APGI-owned lands;
- the anticipated need for use of or access across USFS, NPS, or TVA lands.

3. A proposed schedule for submitting the application and constructing the proposed subdivision;

4. The name, address, and phone number of a Professional Engineer that the applicant proposes to certify any planned multi-use facilities;

5. The name, address, and phone number of the environmental professional(s) that the applicant proposes to conduct the required EA.

6. At the pre-application meeting, Tapoco will review the information on the proposed subdivision access for consistency with the Shoreline Stewardship Policy and other applicable requirements and review the requirements for completing the subdivision access approval process including the EA. At this time, Tapoco will inform the applicant of the local, state, and federal agencies that Tapoco must consult with including the following:

    1. Bureau of Indian Affairs
    2. Eastern Band of Cherokee Indians (EBCI) Tribal Historic Preservation Office (THPO)
    3. Graham County
    4. North Carolina Department of Cultural Resources (NCDCR)
    5. North Carolina Division of Water Quality (NCDWQ)
    6. North Carolina Division of Water Resources (NCDWR)
    7. North Carolina Wildlife Resources Commission (NCWRC)
    8. Town of Lake Santeetlah
    9. Town of Robbinsville
    10. U.S. Army Corps of Engineers (USACE)
    11. U.S. Fish and Wildlife Service (USFWS)
    12. U.S. Forest Service (USFS)

    Tapoco shall also notify any homeowners association that has requested that it be notified of requests for subdivision access.

2.1.2 Application Development

2.1.2.1 An applicant seeking subdivision access approval must file a complete application to include an EA or Agency Consultation Process Information Package for the proposed subdivision as required. Specifications for conducting an EA are detailed in Section 5 of these Procedures. Section 6 outlines the information that must be contained in the Information Package.

2.1.2.2 As described in Section 2.1, an EA is required for any of the following types of subdivisions:

1. Any subdivision where the applicant is seeking eligibility for private recreation and/or multi-use facilities located along shoreline classified as Stewardship Area.

2. Any subdivision with more than five lots if the applicant is seeking eligibility for private recreation and/or multi-use facilities.

2.1.2.3 EAs are not required for other types of subdivisions, but the applicant must prepare an Agency Consultation Process Information Package as part of the application as described in Section 6.

2.1.2.4 The EA must be prepared by a qualified environmental professional.

2.1.2.5 The applicant must submit the EA to Tapoco as part of the Subdivision Access Approval Application. A complete application must include:

1. An Application Checklist.

2. A complete EA or Agency Consultation Process Information Package.

3. Proof that the applicant has published notice, in at least two consecutive issues, of a local newspaper that it is applying to Tapoco for subdivision access approval, and any communications received in response to the newspaper notice.

4. Two copies of the subdivision plat map that will be recorded and approved by Graham County.

5. A non-refundable subdivision access approval application fee in accordance with Tapoco's current fee schedule (attached hereto) for subdivision applications.

2.1.2.6 Tapoco will review the application for completeness. If Tapoco finds the application to be incomplete, it may request additional information from the applicant.

2.1.2.7 Upon finding that an application is complete, Tapoco will submit the EA and/or Information Package to the local, state, and federal agencies listed in Section 2.1.1.2 for review and comment. Tapoco will determine the applicable FERC notice and/or approval requirements. For any aspect of the subdivision that requires prior FERC notice and/or approval, Tapoco will provide notice to or file a request with FERC for the proposed subdivision. The decision on whether any aspect of the proposed subdivision requires prior FERC notice and/or approval will be made solely by Tapoco on a case-by-case basis. FERC has 45 days from the filing date of prior notice to require an application for prior FERC approval. If FERC does not require an application for prior FERC approval, Tapoco may approve the subdivision access/facility for which prior notice was given. If prior FERC approval is required, the applicant should anticipate an additional review period by FERC.

2.1.3 Approval Notification

2.1.3.1 Tapoco will determine whether to issue approval or denial of the proposed subdivision access based on its review of the application, its consultation with local, state and federal agencies, and, where applicable, FERC's response. Tapoco's determination will be based, in part, on the following criteria:

1. The proposed subdivision access and the applicable subdivision covenants are consistent with Tapoco's Shoreline Stewardship Policy.

2. The proposed subdivision access will not adversely impact the reservoir and shoreline environment, or the applicant has proposed measures to adequately mitigate any adverse environmental impacts.
3. The proposed subdivision access will not adversely impact any significant cultural resources located in the reservoir or along its shoreline, or the applicant has proposed measures to adequately mitigate any adverse impacts to cultural resources.

4. The proposed subdivision adequately addresses safety impacts and will not unduly impede or restrict public use of, or access to, Santeetlah Reservoir.

5. Lots in the subdivision for which the applicant anticipates private or shared piers will meet Tapoco's minimum requirements for lot and cove widths.

6. Proposed facilities have been reviewed by EBCI THPO, local, state, and federal agencies and they have indicated that they have no concerns, or that their concerns have been adequately addressed.

7. In the case of proposed subdivisions with any aspect that requires prior FERC notice and/or approval, Tapoco may deny a permit if it finds any requirements or conditions imposed by FERC unacceptable.

2.1.3.2 Tapoco reserves the right to make case-by-case determinations in situations that are not explicitly covered by these Procedures.

2.1.3.3 As stated above, the subdivision access approval process is a process whereby Tapoco, or in certain cases, FERC, determines whether the requirements of Tapoco's FERC license are met as they relate to the effect of the reservoir access anticipated for the subdivision on the reservoir and adjoining shoreline. Included in this determination is a final decision, with respect to lot width and cove width only, as to whether certain lots adjacent to the reservoir shoreline are eligible for a private pier. Although the determination is subject to being revoked for failure to conform to the Shoreline Stewardship Policy or other permitting requirements existing at the time the private access approval is granted, or by supervening regulatory authorities that are not within Tapoco's control, it is unaffected by changes in ownership of the individual lots.

2.1.3.4 If Tapoco decides to approve the proposed subdivision access, Tapoco will issue the applicant a written approval. This approval will contain a list of lots within the subdivision that Tapoco has determined meet Tapoco's current requirements for minimum lot width and cove width. Tapoco can offer no assurances regarding future changes in requirements or the effect of such changes on private pier eligibility, including Tapoco's or FERC's discretion under the Federal Power Act to continue to permit such facilities.

2.1.3.5 After Tapoco has approved the proposed subdivision access, Tapoco will begin processing private pier applications in accordance with the requirements of its Specifications. Eligible property owners must apply for a construction permit and then a private recreation facility permit, and must comply with the Shoreline Stewardship Policy and the Specifications.

2.1.3.6 The primary sanctions for failure by the eligible property owner to comply with any of the Shoreline Stewardship Policy or Specification requirements include the loss of eligibility for a private recreation facility permit and use of, or private access across, APGI-owned lands. Tapoco will also require corrective action including but not limited to restoration and/or mitigation. For enforcement details, see Section 7.

2.1.3.7 If Tapoco denies the subdivision access application, a written statement will be mailed to the applicant stating the reasons for denial. An applicant may reapply for subdivision access approval at any time. An applicant can also request a meeting with Tapoco to discuss the reasons for application denial and steps, if any, that the applicant may take to improve the application.

3 MULTI-USE FACILITY PERMITTING

For entities other than federal, state or local governments, multi-use facilities permitted by Tapoco generally include community boat docks serving more than two lot owners and marinas. For entities other than federal, state or local governments, other types of multi-use facilities (such as, but not limited to boat launches, swimming areas, picnic areas, floating trampolines[2], and permanent water ski courses) are not permitted.

Private, multi-use recreation facilities (e.g. marinas, community boat docks) will be permitted on Santeetlah Reservoir only. No private, multi-use recreation facilities will be permitted on the three mainstem reservoirs: Cheoah, Calderwood, and Chilhowee or the Cheoah River and Calderwood Bypass.

[2] Floating trampolines existing on the date of the filing of this Tapoco Project SMP with FERC will be "grandfathered".

3.1 Multi-use Permitting Process

Tapoco must review and approve the construction, modification (reconstruction, additions, or expansion), and operation of any multi-use recreation or access facility on the Project reservoirs, along the shoreline defined as the normal full-pool elevation of the reservoir, or on APGI-owned lands. Repairs to an existing multi-use facility that require a building permit from the county also require a written construction permit from Tapoco. Additional guidance may be obtained from Tapoco by calling either Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063. Depending upon the type of facility being proposed, prior notice to or prior approval of FERC may also be required. Following construction, operation of these facilities requires a multi-use facility operating permit from Tapoco.

Consistent with its FERC license, Tapoco may authorize certain multi-use recreation and access facilities occupying Project lands and waters only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the aesthetic, recreational, environmental and cultural resource values of the Project. The multi-use facility permitting process is a process whereby Tapoco, or in some cases FERC, determines whether the requirements of Tapoco's license are met as they relate to the effect of the construction and operation of proposed multi-use facilities on the reservoir and adjoining shoreline.

To be eligible for a multi-use facility construction or operating permit, the applicant must be an adjoining property owner. If the applicant's property abuts USFS, NPS, or TVA lands, the applicant must also obtain any necessary permit(s) entitling the property owner to cross the USFS, NPS or TVA land to access the reservoir.

The multi-use facility permit process requires the applicant to prepare an Environmental Assessment (EA) for some types of proposed facilities. A full EA, as described in Section 5, is required for any proposed new construction or modification of the following types of multi-use facilities:

1. Any multi-use facility that is located wholly or partly within a shoreline Stewardship Area;

2. Any multi-use facility(ies) where FERC prior notice and/or approval is required.

Applicants for all other types of permitted multi-use facilities are not required to prepare a full EA, but must prepare an Agency Consultation Process Information Package (Information Package) as described in Section 6.

Upon satisfactory completion of the multi-use facility permitting process and any required prior FERC notice and/or approval, Tapoco will issue a construction permit for the proposed multi-use facility. Following construction and after a final inspection of the new facility, Tapoco will issue a multi-use facility operating permit. Multi-use facility operating permits must be renewed every five years, and may be terminated by Tapoco in accordance with the terms of the multi-use operating permit, or for failure to abide by the Shoreline Stewardship Policy and other applicable Tapoco procedures and requirements.

3.2 Multi-use Approval Process

Under its FERC license, Tapoco may authorize certain types of multi-use facilities without prior FERC notice and/or approval. Other facilities require prior FERC notice and/or approval. Table 1 summarizes the types of multi-use facilities (and industrial uses/facilities as described in Section 4) that Tapoco may approve without prior FERC notice, and those that require a 60-day prior notice to FERC. Table 1 also indicates EA and Agency Consultation requirements for various types of multi-use facilities. In the case of a new subdivision for which more than one multi-use facility is proposed, Tapoco will aggregate the proposed multi-use facilities and consider the combined number of watercraft that could be accommodated by the facilities.

A multi-use facility permittee planning any modification of an existing multi-use facility must first notify Tapoco, and Tapoco will determine prior FERC notice and/or approval requirements and EA or Agency Consultation requirements, and whether an amendment to the existing multi-use permit is required.

Table 1 Summary of Required Prior FERC Notice and/or Approval for Multi-use Facilities and Industrial Uses/Facilities

Facility Description	Tapoco Written Permission or Permit Required	Tapoco File Annual Report w/FERC by January 31	FERC 60-Day Prior Notice Required[1]	Prior FERC Approval Required[2]	EA[3] or Agency Consultation (AC) Required
Multi-use Facilities					
Facility(ies) accommodates 1–10 watercraft[4], is not operated as part of a commercial enterprise, and is not a private (individual or shared) pier.	Yes	No	No	No	AC
Facility(ies) accommodates 1–10 watercraft and is operated as part of a commercial enterprise.	Yes	No	Yes[5]	FERC decision	EA
Private or public marinas that can accommodate no more than 10 watercraft[4] at a time, and are located at least ½ mile (measured over Project waters) from any other private or public marina.	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) accommodates watercraft, is operated as part of a commercial enterprise, and is located within ½ mile of an existing marina	Yes	No	Yes[5]	FERC decision	EA

Facility Description	Tapoco Written Permission or Permit Required	Tapoco File Annual Report w/FERC by January 31	FERC 60-Day Prior Notice Required[1]	Prior FERC Approval Required[2]	EA[3] or Agency Consultation (AC) Required
Facility(ies) accommodates more than 10 watercraft and is operated as part of a commercial enterprise.[4]	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) accommodates more than 10 watercraft and is not operated as part of a commercial enterprise. [4]	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) is a boat launch ramp operated as part of a commercial enterprise or provides other services.	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) is a boat launch ramp not operated as part of a commercial enterprise and provides no other services.	Yes	No	No	No	AC
Facility(ies) is a pier with no accommodation for watercraft and is operated as part of a commercial enterprise (examples include commercial fishing piers).	Yes	No	Yes[5]	FERC decision	EA
Facility(ies) is a pier with no accommodation for watercraft, but which is available for use by more than two adjoining lot owners (Examples include fishing piers, homeowner association piers, private club piers, etc.).	Yes	No	No	No	AC
Industrial Uses/Facilities					
Replacement, maintenance, or expansion of existing bridges or roads with all state and federal approvals	Yes	Yes[5]	No	No	AC
New bridges or roads with all state and federal approvals	Yes	No	Yes[5]	FERC decision	EA
Minor access roads	Yes	Yes[5]	No	No	AC
Storm drains and water mains	Yes	Yes[5]	No	No	AC
Sewers that do NOT discharge into Project waters	Yes	Yes[5]	No	No	AC
Sewer or effluent lines that discharge directly into Project waters with all state and federal permits	Yes	No	Yes[5]	FERC decision	EA

Facility Description	Tapoco Written Permission or Permit Required	Tapoco File Annual Report w/FERC by January 31	FERC 60-Day Prior Notice Required[1]	Prior FERC Approval Required[2]	EA[3] or Agency Consultation (AC) Required
Other pipelines that cross project lands or waters but do NOT discharge into Project waters	Yes	No	Yes[5]	FERC decision	EA
Non-project transmission lines/cables with NO support structure in Project Boundary	Yes	Yes[5]	No	No	AC
Non-project overhead transmission lines/cables with support structure in Project Boundary	Yes	No	Yes[5]	FERC decision	EA
Major telephone, gas or electric distribution lines/cables (submarine, underground or overhead)	Yes	Yes[5]	No	No	AC
Water intake or pumping facilities ≤ 1 mgd	Yes	Yes[5]	No	No	AC
Water intake >1 mgd (including irrigation systems)	Yes	No	Yes[5]	FERC decision	EA

[1]Unless the Director of the Office of Energy Projects, within 45 days from filing date of the prior notice, requires an application for prior approval, the licensee may convey the intended interest at the end of that period.
[2] The Director of the Office of Energy Projects has 45 days from filing date of the prior notice to require an application for prior approval.
[3] An EA is required for all proposed multi-use facilities or industrial uses/facilities, regardless of category, that are located wholly or partly within a Shoreline Stewardship Area.
[4]For subdivisions and commercial enterprises, Tapoco will aggregate all proposed multi-use facilities, except for planned individual and shared piers, to determine the total number of watercraft that the facilities can accommodate.
[5]Before conveying lands, the licensee shall determine that the proposed use is not inconsistent with any approved R or approved report on recreational resources of an Exhibit E; or if there is not an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

Multi-use facility construction and operating permits will be issued only to the eligible property owner who will benefit from or be serviced by the proposed multi-use facilities. However, the eligible property owner may designate a "contact agent" who has authority to act on behalf of the owner in any discussions with Tapoco.

In any instance in which a governmental body operates a facility either solely or with any other entity (except Tapoco), a multi-use permit will be issued solely to the governmental body or jointly to the governmental body and all such entities acting in conjunction with the governmental body, respectively. With regard to joint operating permits, the governmental body and all such entities will be jointly and severally responsible for compliance with all terms and conditions of the permit.

The multi-use facility permittee(s) is solely responsible for operating and maintaining the permitted facilities in compliance with all terms and conditions of the permit, the Shoreline

Stewardship Policy, all applicable Tapoco procedures and requirements, and all applicable local, state, and federal laws. The permittee(s) will indemnify and hold harmless Alcoa Power Generating Inc. and Alcoa Inc., and their successors and assigns from any personal injury, property damage, losses of or damage to natural resources or the environment, or other liability resulting from the permittee's operation of the facilities or the permittee's failure to comply with any applicable local, state, or federal laws, as is set forth in more detail in the multi-use permit.

A four-part process is utilized for the issuance of a permit for new multi-use facility construction and the amendment of a multi-use permit. The four parts are: 1) pre-application meeting; 2) application development; 3) construction permit; and 4) multi-use facility operating permit. Each is described below.

3.2.1 Pre-Application Meeting

3.2.1.1 Anyone seeking a multi-use facility construction permit must meet with Tapoco prior to submitting an application for a multi-use facility permit. This initial meeting should be held as early as possible in the planning process to avoid confusion and delay in preparing information required for the application.

3.2.1.2 Prior to the meeting, the applicant must complete a Pre-Application Meeting Worksheet that identifies the information that the applicant is expected to bring to the meeting including:

1. Maps or sketches showing the location of the proposed facilities with respect to the reservoir, reservoir shoreline, APGI-owned lands, USFS, NPS, and TVA lands and existing property boundaries;

2. General information on the proposed facilities including:

   - the number, type and size of facilities involved, including an estimate of the number of watercraft the facilities can accommodate;
   - the anticipated need for access to lands and waters within the Project Boundary;
   - the anticipated need for use of or access across APGI-owned lands
   - the anticipated need for use of or access across USFS, NPS, or TVA lands;

3. A proposed schedule for submitting the application and constructing the proposed facilities upon issuance of the construction permit;

4. The name, address, and phone number of a Professional Engineer that the applicant proposes to certify the proposed multi-use facilities;

5. The name, address, and phone number of the environmental professional(s) that the applicant proposes to conduct the required EA;

6. At the pre-application meeting, Tapoco will review the information on the proposed multi-use facilities for consistency with the Shoreline Stewardship Policy and other applicable requirements, review the requirements for completing the multi-use facility permitting process including the EA. At this time Tapoco will also provide notice of its insurance requirements and inform the applicant of the local, state, and federal agencies that Tapoco must consult with including the following:

    1. Bureau of Indian Affairs
    2. Eastern Band of Cherokee Indians (EBCI) Tribal Historic Preservation Office (THPO)
    3. Graham County
    4. North Carolina Department of Cultural Resources (NCDCR)
    5. North Carolina Division of Water Quality (NCDWQ)
    6. North Carolina Division of Water Resources (NCDWR)
    7. North Carolina Wildlife Resources Commission (NCWRC)
    8. Town of Lake Santeetlah
    9. Town of Robbinsville
    10. U.S. Army Corps of Engineers (USACE)
    11. U.S. Fish and Wildlife Service (USFWS)
    12. U.S. Forest Service (USFS)

3.2.2 Application Development

3.2.2.1 An applicant seeking a multi-use facility construction permit must prepare a multi-use facility construction permit application, including an EA or Agency Consultation Process Information Package as required, and receive a signed construction permit from Tapoco prior to beginning construction of new facilities or modification of existing multi-use facilities.

3.2.2.2 A full EA, as described in Section 5, is required for any proposed new construction or modification of the of the following types of multi-use facilities:

1. Any multi-use facility that is located wholly or partly within a shoreline Stewardship Area;

2. Any multi-use facility where FERC prior notice and/or approval is required.

3.2.2.3 Applicants for all other types of multi-use facilities are required to prepare an Agency Consultation Process Information Package as part of the application as described in Section 6.

3.2.2.4 The EA must be prepared by a qualified environmental professional.

3.2.2.5 A complete application for a multi-use facility construction permit must include:

1. An Application Checklist;

2. A map of the proposed development site showing all existing and proposed facilities. The map must also clearly indicate the location of the reservoir, reservoir shoreline, APGI-owned lands, and USFS lands, if applicable. (Such a map should be included in the EA);

3. Legible construction plans or detailed drawings of the proposed facilities, at a scale of 1:2,400 (1 inch = 200 feet) or larger;

4. Certification by an approved registered Professional Engineer that the proposed facilities and any changes to existing facilities are safe and structurally sound;

5. A complete EA or Agency Consultation Process Information Package;

6. Proof that the applicant has published notice, in at least two consecutive issues of a local newspaper, that it is applying to Tapoco for multi-use facility approval, and any communications received in response to the newspaper notice;

7. A non-refundable construction permit application fee in accordance with Tapoco's current multi-use facility application fee schedule (attached hereto).

3.2.2.6 Tapoco will review the application for completeness. If Tapoco finds the application to be incomplete, it may request additional information from the applicant.

3.2.2.7 Upon finding that an application is complete, Tapoco will submit the EA and/or Information Package to the local, state, and federal agencies listed in Section 3.2.1.2 for review and comment. Tapoco will determine the applicable FERC notice and/or approval requirements. For all new multi-use facilities that require prior FERC notice and/or approval, Tapoco will provide notice to or file a request with FERC for the proposed facility. The decision on whether proposed new facilities or modification of existing permitted facilities require prior FERC notice and/or approval will be made solely by Tapoco on a case-by-case basis. FERC has 45 days from the filing date of prior notice to require an application for prior FERC approval. If FERC does not require an application for prior FERC approval, Tapoco may approve the multi-use facility for which prior notice was given. If prior FERC approval is required, the applicant should anticipate an additional review period by FERC.

3.2.3 Construction Permit Approval Criteria and Provisions

3.2.3.1 The applicant is expected to obtain all local, state, and federal permits required for the proposed facility. Copies of all required local, state, and federal permits must be submitted to Tapoco prior to issuance of a multi-use facility construction permit.

3.2.3.2 Tapoco will determine whether to issue or deny a multi-use facility construction permit based on its review of the application, its consultation with local, state and federal agencies, and, where applicable, FERC's response. Tapoco's determination will be based, in part, on the following criteria:

3.2.3.2.1 Proposed facilities shall meet the following specifications:

1. Proposed facilities will generally not encroach or extend into the Project reservoirs more than ¼ of the distance to the opposite shoreline or more than 120 feet into Santeetlah Reservoir, whichever is less; and in no case will the proposed facilities extend further into the water than is necessary to achieve the intended use;

2. Proposed facilities will meet a minimum water depth requirement of 8 feet at normal full-pool elevation such that a minimum water depth is available to all proposed slips or along all portions of the facilities intended for docking watercraft;

Tapoco reserves the right to make the final determination regarding the specifications of a multi-use facility based on the particular conditions of the lot. The narrowness of certain coves and/or lay of some lots may cause Tapoco to either deny a permit or issue a permit for a multi-use facility that is different than those proposed by the applicant.

3.2.3.2.2 Community boat docks and marinas will incorporate the use of floating sections such that the facilities will remain functional under normal fluctuations in reservoir water levels that occur during the recreation season;

3.2.3.2.3 The proposed multi-use facilities are otherwise consistent with Tapoco's policies for shoreline development, including Tapoco's Shoreline Stewardship Policy, and will adequately meet their intended purpose;

3.2.3.2.4 The proposed multi-use facilities will not adversely impact the reservoir and shoreline environment, or the applicant has proposed measures to adequately mitigate any adverse environmental impacts;

3.2.3.2.5 The proposed multi-use facilities will not adversely impact any significant cultural resources located in the reservoir or along its shoreline, or the applicant has proposed measures to adequately mitigate any adverse impacts to significant cultural resources;

3.2.3.2.6 The proposed multi-use facilities will take into account "dark sky" values in their choice and use of lighting (low-wattage or colored bulbs are required). The proposed facilities shall have fixtures and lights that are not mounted to extend beyond the outer perimeter of the pier and the lighting shall be aimed downward;

3.2.3.2.7 The proposed multi-use facilities will not unduly impede or restrict public use of, or access to, the reservoir and will not interfere with navigation, ingress, or egress to adjoining properties, or in any manner present a safety hazard or nuisance;

3.2.3.2.8 Proposed facilities have been reviewed by EBCI THPO, local, state, and federal agencies and they have indicated that they have no concerns, or that their concerns have been adequately addressed;

3.2.3.2.9 Proposed facilities providing for the sale of petroleum products will, at a minimum, comply with all applicable federal, state, and local regulations and will be installed to ensure that adverse environmental and safety impacts are avoided;

3.2.3.2.10 In the case of proposed facilities that require prior FERC notice and/or approval, Tapoco may deny an application if it finds any requirements or conditions imposed by FERC unacceptable; and

3.2.3.2.11 The applicant has provided Tapoco with a certificate of insurance evidencing that it carries insurance in the amount and form required by Tapoco.

3.2.3.3 Tapoco reserves the right to make case-by-case determinations in situations that are not explicitly covered by these Procedures.

3.2.3.4 When issued, the multi-use facility construction permit will be mailed to the applicant. If the application is denied, a written statement will be mailed to the applicant stating the reasons for denial. An applicant may reapply for a multi-use facility construction permit at any time. An applicant can also request a meeting with Tapoco to discuss the reasons for application denial and steps, if any, that the applicant may take to improve the application.

3.2.3.5 Upon receipt of the construction permit, the applicant must secure a building permit from the locality. Construction may not begin until Tapoco has received from the applicant a copy of the approved building permit.

3.2.3.6 Approved new construction, or modification of existing multi-use facilities, must be completed within 18 months from the issuance of the construction permit or within such other time frame as may be stated in the construction permit.

3.2.3.7 An extension of time, not to exceed one year, may be granted at Tapoco's discretion in response to a written request from the permittee, including justification for the requested extension.

3.2.3.8 Tapoco reserves the right to modify a construction permit to include additional or modified standards and requirements at the time of the permit extension, if the

applicable standards and requirements have been modified since the issuance of the original construction permit.

3.2.3.9 The permittee must notify Tapoco when construction is completed and must provide Tapoco with a copy of a final county inspection certificate.

3.2.4 Multi-use Facility Operating Permit

3.2.4.1 Tapoco will issue a multi-use facility operating permit to the applicant for new or modified facilities when the following requirements have been met:

1. Final inspection — Upon completion of construction and receipt of the county final inspection certificate, Tapoco will schedule and conduct a final inspection to ensure that the facilities are constructed in conformance with the construction permit.

2. Permit fee — Payment of applicable operating permit fees, which vary based on the type and number of facilities, use of the facilities, and ownership (attached hereto).

3.2.4.2 All multi-use facilities must carry comprehensive general liability insurance for personal injury and property damage and other insurance required by Tapoco in an amount and with terms satisfactory to Tapoco. Such insurance must be primary and must name Alcoa Power Generating Inc. and Alcoa Inc. as additional insureds. A multi-use facility's owner or operator must provide to Tapoco, on an annual basis, a certificate evidencing the insurance required by Tapoco and proof that all premiums on the policy are paid and up to date.

3.2.4.3 Any governmental body desiring to construct, maintain, and otherwise operate a multi-use facility must obtain and maintain for the facility comprehensive general liability insurance for personal injury and property damage and other insurance required by Tapoco in an amount and with terms satisfactory to Tapoco. Such insurance must be primary and must name Alcoa Power Generating Inc. and Alcoa Inc. as additional insureds, and must insure Tapoco and Alcoa against any acts and omissions of any governmental employee, agent, or contract employee (collectively "employees"). The governmental multi-use facility must also provide, on an annual basis, a certificate evidencing the insurance required by Tapoco and proof that all premiums on the policy are paid and up to date. In instances in which a governmental body operates a multi-use facility in conjunction with another governmental body or any other entity as co-permittee(s) (except Tapoco), this insurance may be obtained by any of the co-permittees and must conform to the conditions described above.

3.2.4.4 All of the requirements for the issuance of a multi-use operating permit must be met within 90 days of completion of construction, and no operating permit will be issued absent written proof of meeting the requirements.

3.2.4.5 If a multi-use facility operating permit is not renewed, lapses, or is terminated, closure of the multi-use facility is required at the permittee's sole expense, and the permittee, at its sole expense, must remove any and all structures, equipment, appurtenances, and any other materials associated with the facilities, and restore the reservoir, reservoir shoreline, or APGI-owned lands to their original condition. Tapoco may also undertake other enforcement as detailed in Section 7.

3.3 Fees

Multi-use operating permit fees will be paid to Tapoco prior to issuance or renewal of the operating permit in accordance with Tapoco's current fee schedule (attached hereto).

3.4 Permit Renewal or Termination

3.4.1 A multi-use operating permit must be renewed every five years. Tapoco will notify the permittee of the upcoming permit expiration date.

3.4.2 In order to renew a multi-use facility operating permit, (i) the permittee must have complied with the permit at all times, (ii) the permittee must pay an operating permit fee, (iii) the permittee must provide a certificate of insurance evidencing that the permittee carries insurance in the amount and form required by Tapoco, (iv) if Tapoco determines that additional mitigation measures are necessary, the permittee must implement said measures and (v) the permittee must provide Tapoco with certification from a registered Professional Engineer that all permitted facilities are in good repair, structurally sound, and in compliance with all applicable local, state, and federal requirements.

3.4.3 A multi-use operating permit may be terminated by Tapoco in accordance with its terms and as provided in Section 7 below.

3.5 Multi-Use Permit Transfers

3.5.1 Multi-use facility operating permits are not automatically transferable.

3.5.2 Prior to the sale or transfer of multi-use facilities, the current property owner (seller) or seller's agent must contact Tapoco to request a permit transfer (this may be done by either Tapoco's Property Department at 865-977-2869 ext. 1025 or APGI's toll-free number at 888-886-1063). Upon request, Tapoco will arrange a site visit. If Tapoco finds (i) the seller has complied with the permit, the Shoreline Stewardship Policy, and all other applicable Tapoco procedures and requirements, (ii) all fee payments are up to date, (iii) that no additional mitigation measures are necessary, and (iv) a registered Professional Engineer has determined that all permitted facilities are in good repair, structurally sound, and in compliance with all applicable local, state, and federal

requirements, Tapoco will provide the seller or the seller's agent with a form to request transfer of the permit.

3.5.3 The buyer must provide Tapoco with proof of insurance for the multi-use facilities, at which time Tapoco will provide to the buyer a new multi-use facility permit that must be completed and signed by the buyer at the time of closing.

3.5.4 If facilities are deemed not transferable at the time of inspection, Tapoco will provide the seller or the seller's agent with a written description of repairs and required mitigation [up to and including replacement of the existing structure(s)], and other actions that must be undertaken before the facilities will be transferable. A written construction permit must be obtained from Tapoco prior to undertaking such repairs.

3.6 Existing Multi-Use Facilities

3.6.1 Tapoco may at times be aware of existing multi-use facilities that have not previously been issued a multi-use facility operating permit. Tapoco will provide written notice to the owner of the unpermitted facilities of the need to submit an application for a multi-use facility operating permit in accordance with these Procedures. Generally, an EA will not be required for facilities existing prior to the effective date of these Procedures. However, existing facilities will be reviewed by Tapoco to ensure their general compliance with the Shoreline Stewardship Policy, and consultation with EBCI THPO, local, state, and federal agencies may be required.

3.6.2 Tapoco will inspect the facilities, determine the adequacy of the information provided, and determine the applicability of any FERC notice and/or approval. Upon receipt of any required FERC approval, payment of an operating permitting fee, if applicable, and satisfaction of the insurance requirements, Tapoco will issue a multi-use facility operating permit for the facilities.

3.6.3 Modification of existing multi-use facilities must be approved pursuant to the standard four-part permitting process described above.

4 INDUSTRIAL APPROVAL PROCEDURES

Uses or facilities other than those related to recreation and adjoining property owner access to the Project are generally considered industrial uses. All industrial uses/facilities of, or on, the Project reservoirs, along the shoreline, or APGI-owned lands require Tapoco's written permission. If the applicant's lands abut USFS, NPS, or TVA lands, the applicant must obtain any necessary permit(s) entitling the property owner to cross the USFS, NPS or TVA land to access the reservoir.

Depending upon the proposed use/facility, under its FERC license Tapoco may be required to provide FERC with 60 days notice before considering approval of the proposed use/facility and seek prior approval from FERC. In some cases, Tapoco can authorize a proposed industrial use/facility without prior FERC notice and/or approval but must report such authorizations to FERC annually. Table 1 in Section 3 summarizes the types of industrial uses/facilities that Tapoco may approve without prior FERC notice and/or approval and those that require a 60-day prior notice to FERC.

Tapoco requires applicants for all proposed industrial uses/facilities that require prior FERC notice and/or approval to prepare and submit an Environmental Assessment (EA) as part of its request to Tapoco for permission to use/occupy the Project reservoirs, reservoir shorelines, or APGI-owned lands. In addition, an EA is required for all proposed industrial uses/facilities located wholly or partly within a shoreline Stewardship Area. Applicants for all other proposed industrial uses/facilities must prepare an Agency Consultation Process Information Package (Information Package) and submit it to Tapoco. Tapoco will then consult with local, state, and federal agencies as necessary as there may be other process and/or approval requirements. Information on the EA and the Agency Consultation Process Information Package is included in Sections 5 and 6 respectively. Table 1 also indicates EA and Agency Consultation requirements for various types of industrial uses/facilities.

5 ENVIRONMENTAL ASSESSMENT SPECIFICATIONS

The Environmental Assessment (EA) must examine resources and potential impacts to Project lands and waters, along the shoreline within 100 feet of the normal full-pool elevation of the reservoir(s).

Specific information requirements of the EA are outlined below. Most EA requirements apply to subdivision access, multi-use facilities, and industrial uses/facilities, although some EA requirements are specific to one type or another and are so identified. Developers of subdivisions that also include one or more proposed multi-use facilities must provide all information required for both proposed subdivision access and multi-use facilities. In the case of modification of existing facilities, the EA must address the impact of the proposed modification.

5.1 Proposal

5.1.1 General Description — a detailed description of the proposed subdivision, multi-use facilities, or industrial uses/facilities, including maps illustrating boundaries of the subdivision property or facilities, proposed lot lines, and the placement of structures in relation to existing property boundaries and the reservoir shoreline. Maps must clearly indicate the location of the reservoir, shoreline, APGI-owned lands, and USFS, NPS, or TVA lands adjoining the site of the proposed subdivision or facility. In the case of subdivisions, the EA must also contain the following specific information:

1. A map of the subdivision showing all proposed private lots, as well as any lots to be used as common areas. Each lot should be clearly identified with an individual lot number, and the map must clearly indicate the location of the reservoir, shoreline, APGI-owned lands, and USFS, NPS, or TVA lands.

2. A list or map showing lots that are proposed for private, shared (for two adjoining lots), or multi-use facilities, or other facilities that require a permit from Tapoco.

3. The shoreline width of each lot as measured along the Santeetlah shoreline at normal full-pool elevation of the reservoir (elevation 1940.9-ft). Lot width in areas where there are APGI-owned lands or in areas where access across USFS lands is required should be measured along the Santeetlah shoreline by extending the side lot lines to the normal full-pool elevation of the reservoir, as measured along the contour of the APGI-owned lands or USFS lands.

5.1.2 Purpose — a description of the purpose and need for the proposed subdivision or facilities or modification of existing facilities.

5.1.3 Shoreline Impact — a description of the amount and type of impact on the reservoir and the shoreline within 100 feet of the normal full-pool elevation of the reservoir.

5.1.4 Required Permits — a listing of all federal, state, and local permits/approvals that will be required.

5.1.5 Shoreline Development Restrictions — a description of any state or local development restrictions that apply to the proposed subdivision or facilities, including any county ordinances, watershed protection, buffer zone, or setback requirements.

5.2 Existing Environment

5.2.1 Existing Shoreline Characteristics — a description of the shoreline and adjoining land area within 100 feet of the normal full-pool reservoir elevation, including a general description of existing land use and condition, shoreline topography, shoreline vegetation, and other notable features.

5.2.2 Existing Reservoir Characteristics — a description of the reservoir area adjacent to the proposed subdivision or facilities, the slope of the reservoir bottom, a description of the reservoir substrate, and a description of any reservoir features including the presence of any aquatic vegetation and lap trees.

5.2.3 Existing Reservoir Access/Facilities — a description of any existing access to the reservoir such as pathways or piers on the property proposed for the subdivision or facilities.

5.2.4 Designation as Stewardship Area — an estimate of the portion of the proposed subdivision or facilities that would fall within a Stewardship Area and a description of those features that make the location a Stewardship Area.

5.3 Environmental Impacts and Proposed Mitigation

5.3.1 Environmental Impacts — a detailed assessment of the potential impact on the reservoir and the land area along the shoreline within 100 feet of the normal full-pool reservoir elevation. This section must at a minimum consider the following effects:

1. Change in shoreline land use.
2. Impact of completed subdivision or facilities on the reservoir shoreline.
3. Impact on shoreline vegetation and plant communities.
4. Impact on shoreline wildlife and wildlife habitat.
5. Impact on the reservoir as habitat for fish and other aquatic life.
6. Impact on wetlands and areas of aquatic vegetation.
7. Impact on reservoir water quality, including the potential for increased sedimentation and nonpoint source pollution from runoff.

5.3.2 Recreation Use Impacts — an assessment of the increase in recreation use of the reservoir and reservoir shoreline resulting from the proposed subdivision or facilities, or modification, and the effects of increased use on the reservoir and shoreline. This section must consider the following:

1. An estimate of resulting increased boating and/or other water-related recreation use.

2. An assessment of the effects that the increased recreation use will have on the reservoir and the reservoir shoreline.

5.3.3 Mitigation Proposals — a description of any measures proposed by the applicant to avoid, reduce, or mitigate impacts to the reservoir and reservoir shoreline that are expected to occur as a result of the proposed or modified/expanded subdivision or facilities. For a subdivision or facilities wholly or partly within a shoreline Stewardship Area, the EA should emphasize mitigation of adverse effects on the important natural resources found in the Stewardship Area.

5.4 Cultural Resource Evaluation

5.4.1 For proposed facilities or subdivisions located wholly or partly within High or Moderate cultural resource probability zones, a cultural resource evaluation will also be required as part of the EA.

5.4.2 The cultural resource evaluation requires an assessment of potential impacts to cultural resources located along the shoreline within 100 feet of the normal full-pool reservoir elevation.

5.4.3 In cases where a cultural resource survey must be conducted, applicants must include the following information in the EA:

1. The results of a survey conducted by a professional archaeologist indicating the location of any significant historic/prehistoric cultural sites in the area that are along the shoreline within 100 feet of the normal full-pool reservoir elevation.

2. A description of potential impacts to cultural resources resulting from the proposed subdivision or facilities.

3. The applicant's proposal for avoiding or mitigating anticipated impacts to cultural resources.

5.5 Applicant Information

5.5.1 Name, address, and phone number(s) of the applicant, along with a brief description of the background and qualifications of the applicant in terms of type of business experience, and where registered or licensed.

5.5.2 A brief description of the background and qualifications of any/all firms that assisted in the preparation of the EA.

6 AGENCY CONSULTATION PROCESS

Certain types of smaller subdivisions, multi-use facilities, and industrial uses/facilities that are not located within a shoreline Stewardship Area are not required to complete an Environmental Assessment (EA) but are required to prepare the Agency Consultation Process Information Package (Information Package) that Tapoco will submit to local, state, and federal agencies for review including the following:

1. Bureau of Indian Affairs
2. Eastern Band of Cherokee Indians (EBCI) Tribal Historic Preservation Office (THPO)
3. Graham County
4. North Carolina Department of Cultural Resources (NCDCR)
5. North Carolina Division of Water Quality (NCDWQ)
6. North Carolina Division of Water Resources (NCDWR)
7. North Carolina Wildlife Resources Commission (NCWRC)
8. Town of Lake Santeetlah
9. Town of Robbinsville
10. U.S. Army Corps of Engineers (USACE)
11. U.S. Fish and Wildlife Service (USFWS)
12. U.S. Forest Service (USFS)

Tapoco shall also notify those homeowners associations that have requested to be notified of requests for approval of subdivision access, multi-use facilities, and industrial facilities or uses.

The information package must include the following basic information. In the case of modification of existing facilities, the information package must focus on the proposed modification.

6.1 Information Package

6.1.2 Cover Letter — a cover letter providing the agency with basic information regarding the proposed subdivision access or facilities.

6.1.3 Description — a brief description of the proposed subdivision or facilities or modification, including maps illustrating boundaries of the subdivision property or facilities, proposed lot lines, and the placement of structures in relation to property boundaries and the reservoir shoreline. Maps should clearly indicate the location of the reservoir, shoreline, APGI-owned lands, and USFS, NPS, or TVA lands. In the case of subdivisions, the applicant should also include (i) a copy of the subdivision plat that will be filed with the county, (ii) a description of the anticipated desires of individual property owners for reservoir access and individual recreation access facilities (piers), and (iii) a description of provisions for joint or common access to the reservoir, including any multi-use facilities proposed.

6.1.4 Shoreline Impact — a brief description of the anticipated impact on the reservoir and the shoreline within 100 feet of the normal full-pool elevation of the reservoir.

6.1.5 Required Permits — a list of all federal, state, and local permits/approvals that will be required.

6.1.6 Shoreline Development Restrictions — a description of any state or local development restrictions that apply to the proposed subdivision or facilities, such as any watershed protection, buffer zone or setback requirements.

6.1.7 Applicant Information — Name, address, and phone number of the applicant, and a brief description of the background of the applicant.

6.2 Cultural Resource Evaluation

6.2.1 For proposed subdivisions or facilities located wholly or partly within High or Moderate cultural resource probability zones, a cultural resource evaluation will also be required as part of the Information Package submitted to Tapoco.

6.2.2 The cultural resource evaluation requires an assessment of potential impacts to cultural resources located along the shoreline within 100 feet of the normal full-pool reservoir elevation.

6.2.3 In cases where a cultural resource survey must be conducted, applicants must include the following information in the Information Package

1. The results of a survey conducted by a professional archaeologist indicating the location of any significant historic/prehistoric cultural sites in the proposed development area that are along the shoreline within 100 feet of the normal full-pool reservoir elevation.

2. A description of potential impacts to cultural resources resulting from the proposed subdivision or facilities.

3. The applicant's proposal for avoiding or mitigating anticipated impacts to cultural resources.

7 ENFORCEMENT

7.1 One of the underlying goals of these Procedures is to protect and enhance the environmental, cultural and aesthetic resources within the Project Boundary and on the adjoining lands. Tapoco's highest priority is to preserve the natural character of the shoreline as it exists today, and this is reflected in the procedures and requirements of these Procedures as well as the Shoreline Stewardship Policy. Tapoco believes that adjoining property owners and developers appreciate the beauty and importance of a natural shoreline and will comply with these Procedures. In those instances where violations of these Procedures occur, however, Tapoco will consider those violations as serious matters. Violations of these Procedures include: (i) any failure to comply with the provisions of these Procedures, the Shoreline Stewardship Policy, or other applicable Tapoco procedures or requirements; and (ii) failure to obtain or to comply with written permission from Tapoco, where required, before undertaking construction or other activities. Tapoco will notify the USFS of any enforcement actions on a facility which abuts USFS lands and will encourage the USFS to notify it of any enforcement action that the USFS takes with regard to an activity on lands that abut the reservoir, shoreline, or APGI-owned lands.

7.2 The primary sanctions for violations of these Procedures are loss of eligibility for: (i) a multi-use facility permit within the Project Boundary (i.e. on a reservoir) or subdivision reservoir access approval or industrial use/facility approval; and (ii) use of, or access to the Project lands and waters across APGI-owned lands. Tapoco will also require corrective action including but not limited to restoration and/or mitigation. Eligibility may be reinstated only where adequate restoration and/or mitigation is undertaken and Tapoco determines that reinstatement of eligibility is otherwise consistent with the underlying goals reflected in these Procedures, the Shoreline Stewardship Policy, and Tapoco's Shoreline Management Plan. Tapoco, as it deems appropriate, will consult with federal and state regulatory agencies in determining adequate restoration and/or mitigation measures.

7.3 In addition, in the event of a violation of these Procedures, Tapoco, at its sole option, has the right to: (i) terminate any existing multi-use facility, industrial, or other permits, requiring closure of the facility at the adjoining property owner's (or applicant's) sole expense, revoke any subdivision reservoir access approval previously given to the applicant if the applicant is responsible for the violation, and terminate any industrial approval or rights granted; and (ii) erect a barrier along the Project Boundary or across APGI-owned lands or the Conservation Easement to restrict access to the Project lands and waters; and (iii) require, at the adjoining property owner's (or the applicant's) sole expense, (a) removal of any multi-use facilities and any pathways or other facilities and structures located within the Project Boundary, APGI-owned lands, or the Conservation Easement and (b) restoration and/or mitigation, up to and including restoring Project lands and waters, APGI-owned lands, or the Conservation Easement to their original condition. In addition, if the adjoining property owner (or the applicant) fails to take the required action after notice from Tapoco, Tapoco will consider any facilities or structures remaining within the Project Boundary, APGI-owned lands, or the Conservation Easement as a trespass upon its property, and reserves the right to, at the adjoining property owner's or

the applicant's sole expense, remove the facilities or structures, treat them as its own property without any liability to the adjoining property owner or the applicant for payment, and perform the required restoration and/or mitigation. Tapoco also may pursue any other rights or remedies, including damages, it may have in any permit, or at law or in equity.

Tapoco Division of Alcoa Power Generating Inc.
Permitting Fee Schedule for Subdivision Access Approval and Multi-use Recreation and Access Facilities
Effective October 2004

Facility Type/Description	Application Fee	Construction Permit	Annual Fee
Subdivision Access			
Subdivision access for subdivisions with 5 or fewer lots	$1,000		
Subdivision access for subdivisions with more than 5 lots but no more than 10 lots	$3,500		
Subdivision access for subdivisions with more than 10 lots	$5,000		
Multi-use Recreation and Access Facilities			
Marina (commercial and non-commercial) – accommodates more than 10 watercraft		$2,500	$150
Marina (commercial) – accommodates 1-10 watercraft		$1,000	$150
Boat dock – non-commercial and accommodates 1-10 watercraft		$500	$150
Launch ramp (commercial and non-commercial)		$500	$150
Multi-use pier (commercial and non-commercial) – accommodates no watercraft		$100	$100

Notes:

1. These are Tapoco permitting fees only, and do not include any other fees charged by state or federal agencies that may have jurisdiction over these facilities. The applicant will be responsible for any fees associated with securing other necessary approvals.

2. Fees for multi-use recreation and access facilities will be waived for federal and state agencies who are constructing a facility proposed in the Tapoco Project Relicensing Settlement Agreement (Tapoco RSA, Table 2.4-1).