

## **Brookfield Smoky Mountain Hydropower LLC – FERC NO. 2169**

### **1 GENERAL SHORELINE STEWARDSHIP POLICY – Brookfield Smoky Mountain Hydropower Project Reservoirs**

As a Federal Energy Regulatory Commission (FERC) licensee, Brookfield Smoky Mountain Hydropower LLC (BSMH or Brookfield) 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. BSMH 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 BSMH-owned lands.

Generally, the Project Boundary at Santeetlah Reservoir follows the normal full-pool elevation of the reservoir. Brookfield manages BSMH-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 BSMH-owned lands. Also, as described in the BSMH 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) was placed on certain BSMH-owned lands along Santeetlah Reservoir and the Cheoah River, Yellow Creek, and Cheoah and Calderwood reservoirs. The BSMH 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, BSMH-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 BSMH-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, BSMH-owned lands, and private lands and on the southwest side by BSMH-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 was placed on certain BSMH-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.

BSMH 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, BSMH will not grant any activity permits pursuant to this Shoreline Stewardship Policy (Policy) for lands managed by others than BSMH. Property owners desiring to use USFS, NPS, or TVA lands to access the Project reservoirs, shoreline or BSMH-owned lands must consult with and obtain any necessary permits from the USFS, NPS, or TVA before BSMH will consider issuing an activity permit.

All uses and facilities on BSMH-owned lands including the construction of piers (individual and shared)<sup>1</sup>, multi-use recreation facilities (marinas, boat docks, fishing piers, boat launch ramps,

<sup>1</sup> For the purposes of this Policy, BSMH 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 BSMH's prior written permission. This Policy identifies the procedures that must be followed by anyone seeking BSMH's permission to use or occupy the Project reservoirs, reservoir shoreline, or BSMH-owned lands.

BSMH's highest priority under this Policy is to preserve the natural character of the shoreline. Even where permitted by BSMH, BSMH expects alterations to the shoreline and BSMH-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. BSMH 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 BSMH (see Specifications for Private Recreation Use Facilities and Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures).

BSMH 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.

BSMH considers installation of any permitted facilities or structures in the Project reservoirs, along the shoreline, or on BSMH-owned lands to be temporary. Accordingly, BSMH 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 BSMH 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.

BSMH will review and update this Policy in conjunction with the SMP as necessary every ten years in consultation with the North Carolina Department of Environment and Natural Resources, North Carolina Wildlife Resources Commission, North Carolina State Historic Preservation Office, USFS, U.S. Fish and Wildlife Service, Bureau of Indian Affairs, GSMNP, Eastern Band of Cherokee Indians, Cross Creek Property Owners Associations, Friends of Lake Santeetlah, Town of Lake Santeetlah, Town of Robbinsville, Graham County, Sierra Club, American Rivers, Tennessee Clean Water Network, The Nature Conservancy, Tennessee Department of Environment and Conservation, Tennessee Wildlife Resources Agency, Tennessee Historical Commission, and the Tennessee State Historic Preservation Office. SMP updates will be filed with FERC for approval.

## 2 ACTIVITY PERMITS

- 2.1 Any non-Project use or activity within the Project reservoirs, along the shoreline, or on BSMH-owned lands requires a written permit from BSMH, and may not commence until the permit is issued. BSMH 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 BSMH 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 BSMH 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 BSMH in accordance with their terms. Changing conditions or other factors may lead BSMH 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 BSMH-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 BSMH, 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 BSMH's Specifications For Private Recreation Use Facilities)
- Multi-use and industrial use facilities (See BSMH'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, BSMH may permit the following erosion control measures at Santeetlah Reservoir (listed in order of preference): native vegetative plantings, natural rock riprap (however BSMH prohibits the removal of rocks and boulders from the reservoir, along the shoreline, or BSMH-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 BSMH, after it has conducted an on-site evaluation of the erosion. BSMH 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, BSMH will recommend a shoreline

stabilization plan. Should the applicant disagree with BSMH'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. BSMH will consider the Professional Engineer's assessment, but BSMH 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 (NCDRCR) 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. BSMH 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 BSMH 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 NCDRCR and EBCI THPO. BSMH 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 BSMH-owned lands and must be placed at a distance and in a manner that it does not allow materials to wash back onto BSMH-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 BSMH-owned lands is prohibited without written permission from BSMH.
- 5.2 Dead trees, stumps, or other woody or natural debris that exist in the Project reservoirs, along the shoreline, and/or on BSMH-owned lands provide cover for fish, and their presence greatly enhances fish habitat. BSMH 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 BSMH 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 BSMH's prior written approval. BSMH, 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 BSMH-owned lands. BSMH 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, BSMH 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. BSMH may grant, on a case-by-case basis, permission for steps and walkways across BSMH-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 BSMH'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 NCDCCR and EBCI THPO if the location of the proposed activity is in close proximity to a known archaeological site. BSMH will provide the applicant guidance on whether there is a known archaeological site proximate to the proposed steps or walkway.

## **8 ENFORCEMENT**

- 8.1 BSMH 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, BSMH 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 BSMH procedures or requirements; and (ii) failure to obtain or to comply with written permission from BSMH, where required, before undertaking construction or other activities.
- 8.2 BSMH 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 BSMH-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 BSMH-owned lands. BSMH 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 BSMH determines that reinstatement of eligibility is otherwise consistent with the underlying objectives reflected in this Policy and BSMH's Shoreline Management Plan. BSMH, 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, BSMH, 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 BSMH-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 BSMH-owned lands and (b) restoration and/or mitigation, up to and including the reservoir, the shoreline, and/or BSMH-owned lands to their original condition. In addition, if the adjoining property owner fails to take the required action after notice from BSMH, BSMH will consider any facilities or structures remaining in the reservoir, along the shoreline, and/or on BSMH-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. BSMH 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 BSMH Project

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

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

<b>Common Name</b>	<b>Scientific Name</b>
Virginia Willow	<i>Itea virginica</i>
Mountain Laurel	<i>Kalmia latifolia</i>
Ninebark	<i>Physocarpus opulifolius</i>
Flame Azalea	<i>Rhododendron calendulaceum</i>
Rosebay, Great Rhododendron	<i>Rhododendron maximum</i>
Winged Sumac	<i>Rhus copallina</i>
Mapleleaf Viburnum	<i>Viburnum acerifolium</i>
<b>Vines</b>	
Dutchman's Pipe	<i>Aristolochia macrophylla</i>
Crossvine	<i>Bignonia capreolata</i>
Trumpet Vine	<i>Campsis radicans</i>
Climbing Hydrangea	<i>Decumaria barbara</i>
Bush Honeysuckle	<i>Diervilla sessilifolia</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>