

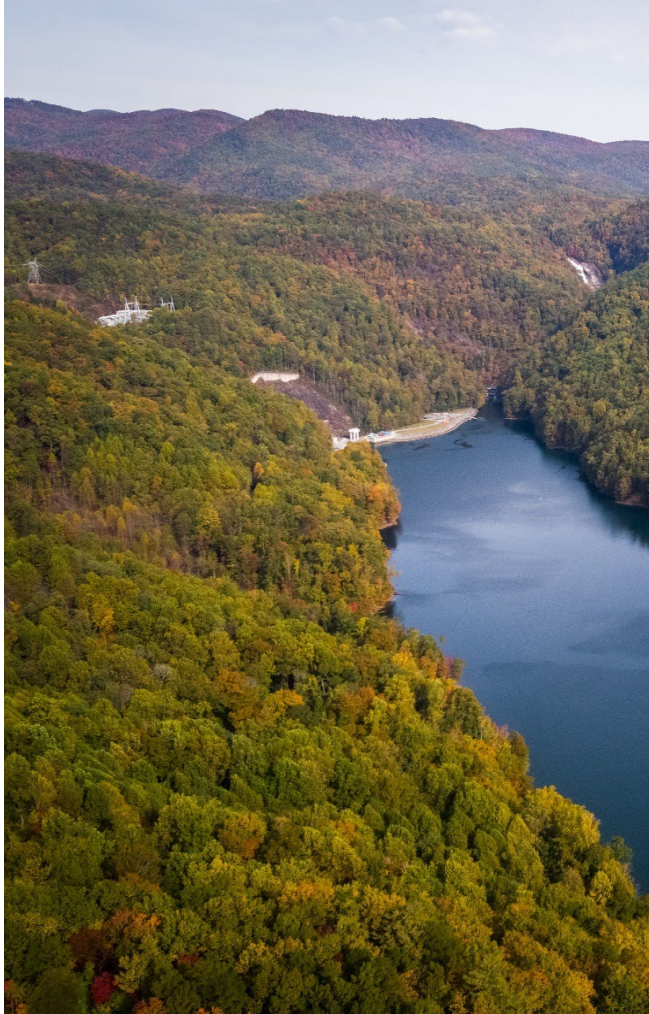


Appendix E

Draft Management Plans

- *Visual Resources Management Plan*
- *Integrated Vegetation Management Plan*
- *Recreation Management Plan*

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DRAFT VISUAL RESOURCES MANAGEMENT PLAN

Bad Creek Pumped Storage Project
(FERC No. 2740)

Oconee County, South Carolina

February 2025

Prepared by:



Prepared for:



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Appendix A – Consultation Documentation

Acronyms and Abbreviations

Bad Creek or Project	Bad Creek Pumped Storage Project
Bad Creek II	Bad Creek II Power Complex
BLM	Bureau of Land Management
BMP	best management practice
Duke Energy or Licensee	Duke Energy Carolinas, LLC
ft	feet/foot
ft msl	feet above mean sea level
FERC or Commission	Federal Energy Regulatory Commission
kv	kilovolt
Plan	Visual Resources Management Plan



1.0 Introduction

Duke Energy Carolinas, LLC (Duke Energy or Licensee) is the owner and operator of the 1,400-megawatt Bad Creek Pumped Storage Project (Project) (FERC Project No. 2740) located in Oconee County, South Carolina, approximately eight miles north of Salem. The Project utilizes the Bad Creek Reservoir as the upper reservoir and Lake Jocassee, which is licensed as part of the Keowee-Toxaway Hydroelectric Project (FERC Project No. 2503), as the lower reservoir.

The existing (original) license for the Project was issued by the Federal Energy Regulatory Commission (FERC or Commission) for a 50-year term, with an effective date of August 1, 1977, and expiration date of July 31, 2027. Duke Energy is pursuing a new license for the Project pursuant to the Commission's Integrated Licensing Process, as described at 18 Code of Federal Regulations (CFR) Part 5.

Given the need for additional significant energy storage and renewable energy generation across Duke Energy's service territories over the Project's new 40 to 50-year license term, Duke Energy is proposing to add pumping and generating capacity at the Project by constructing a new power complex (Bad Creek II Power Complex [Bad Creek II]) adjacent to the existing Bad Creek Powerhouse.

In accordance with 18 CFR §5.11 of the Commission's regulations, Duke Energy conducted studies with the intent of providing information to evaluate the effects of continued Project operation as well as construction, operation, and maintenance of Bad Creek II on the Project and non-Project resources (i.e., environmental, recreational, cultural, aesthetic, and socioeconomic). The Visual Resources Study (Duke Energy 2024) evaluated existing visual conditions and the potential effects of Bad Creek II on existing visual conditions.

1.1 Purpose and Intent

The purpose of this Visual Resources Management Plan (Plan) is to effectively guide the implementation of measures to reduce the visual effects of the existing Project as well as proposed effects associated with the construction, operation, and maintenance of Bad Creek II on the visual resources of the area. This Plan establishes goals for enhancing existing Project-related visual resources and minimizing adverse visual resources effects associated with the construction, operation, and maintenance of Bad Creek II.

2.0 Project Description

2.1 Facilities

Visible existing Project facilities include Bad Creek Reservoir, Lake Jocassee, the powerhouse access, the lower inlet/outlet structure, the Project switchyard, the primary transmission line, and ancillary structures¹ (Figure 2-1). These facilities are further described below. Features which are not visible to the public include the underground powerhouse, upper inlet/outlet intake structure and canal, water conveyance system, and submerged weir in Lake Jocassee; these features are not discussed in this Plan.

¹ For purposes of this Plan, the "main site" includes the area within the FERC Project boundary excepting the primary transmission line.

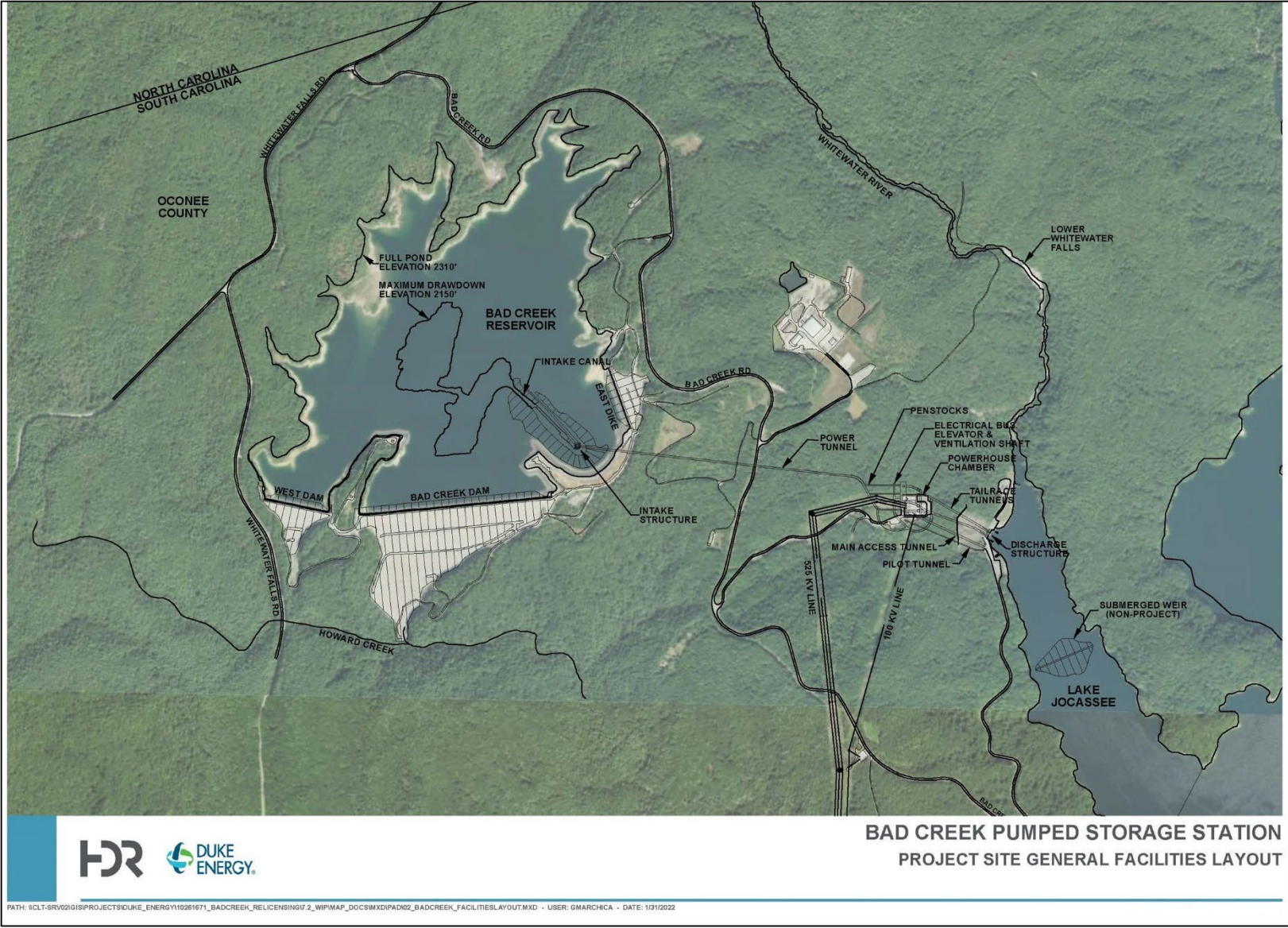


Figure 2-1. Bad Creek Existing Facilities Layout

2.1.1 Existing Facilities

2.1.1.1 *Bad Creek Reservoir and Dams*

Bad Creek Reservoir (Figure 2-2) is impounded by two large dams (main dam and west dam) and a saddle dike (east dike). The reservoir has a surface area of approximately 363 acres with a 160 ft operating range. Due to the potential for frequent large water level fluctuations, no public access, including fishing, to the upper reservoir is permitted. Due to site topography and the heavily vegetated surrounding landscape, views of Bad Creek Reservoir are generally limited to Duke Energy's property.



Figure 2-2. Aerial View of Bad Creek Reservoir

2.1.1.2 *Lake Jocassee*

Lake Jocassee, licensed as part of the Keowee-Toxaway Project (FERC Project No. 2503), serves as the lower reservoir. At full pond (1,110 ft msl), Lake Jocassee has a water surface area of approximately 7,980 acres with 92.4 miles of shoreline. At full pond, the Lake Jocassee water surface is approximately 40 ft above the top of the Bad Creek discharge structure openings. At the maximum drawdown elevation of 1,080 ft msl, the Lake Jocassee water surface is approximately 10 ft above the top of the Bad Creek lower inlet/outlet structure openings.

2.1.1.3 *Powerhouse Portal and Lower Inlet/Outlet Structure*

The lower reservoir inlet/outlet structure is located on the west shore of the Whitewater River cove of Lake Jocassee (Figure 2-3). The structure, which is primarily made of reinforced concrete, measures 118 ft long, 15 ft wide, and 95 ft tall. The tailrace tunnels penetrate the structure near the invert (1,050 ft msl), which is below the Lake Jocassee maximum drawdown elevation (1,080 ft msl). The inlet/outlet structure is equipped with four steel lift gates and is equipped with structural steel trashracks. A gantry crane is provided to lift the gates. The powerhouse portal, which provides

access to the underground powerhouse, is also located in this area along with lighting fixtures to support personnel safety and access and security fencing (Figure 2-4).



Figure 2-3. Aerial View of the Whitewater River Cove of Lake Jocassee



Figure 2-4. Lower Inlet/Outlet Structure and Powerhouse Portal in Whitewater River Cove (As Viewed from Boat Within the Whitewater River Cove of Lake Jocassee)

2.1.1.4 Access Roads

Access to the Project is provided by a 4.8-mile-long paved road leading from the Project entrance at SC Highway 130 to the powerhouse portal area at Lake Jocassee. The road alignment is based on a maximum 10 percent grade and a minimum 100-ft radius of curvature.

2.1.1.5 Equipment Building

A 43.5-ft-high, steel construction, above-ground equipment building is located approximately 469.2 ft above the underground powerhouse and contains the original control complex² and diesel generators as well as other major electrical and heating, ventilation, and air conditioning equipment (Figure 2-5). A small parking area with security lighting adjoins the building. Due to site topography, limited public access, and the heavily vegetated surrounding landscape, views of the equipment building and parking area are generally limited to Duke Energy's property.

² The control room has been relocated to the underground powerhouse.



Figure 2-5. Aerial View of the Equipment Building, Transformer Yard, and Switchyard

2.1.1.6 Transformer Yard and Switchyard

The transformer yard and switchyard (Figure 2-5) are located adjacent to the equipment building and contain the equipment (step-up transformers, relays, protection) necessary to transmit electric power from the Bad Creek generators to the electrical grid as well as security lighting and security fencing. Due to site topography, limited public access, and the heavily vegetated surrounding landscape, views of the transformer yard and switchyard are generally limited to Duke Energy's property.

2.1.1.7 Transmission Facilities

Project transmission facilities consist of the following:

- Generator leads and the electrical bus housed in a vertical shaft about 528-ft-high and 29.5 ft in diameter leading from the underground powerhouse to four above-ground 19/525-kilovolt (kV) step-up transformers.
- A 100-kV transmission line extending about 9.3 miles from the Bad Creek switchyard to the Jocassee switchyard. The 100-kV line is supported by standard steel lattice towers along the common right-of-way it shares with the 525-kV line and by wooden H-frame structures from Jocassee to the common right-of-way.
- A 525-kV transmission line (Figure 2-6) extending about 9.3 miles from the Bad Creek switchyard to a grid intertie at the Jocassee switchyard. The 525-kV line is supported by standard single circuit steel lattice structures spaced between 1,000 ft and 1,500 ft apart.

The transmission towers are sited on the peaks and the conductors (i.e., electrical lines) are suspended in some areas more than 100 ft above valleys and ravines as shown in Figure 2-6. This protects sensitive aquatic and terrestrial habitats within the valleys and ravines and limits the amount of required vegetation management. Duke Energy uses Integrated Vegetation Management³ to maintain the transmission corridor as early successional habitat (Figure 2-10).



Figure 2-6. Aerial View of Bad Creek Primary Transmission Line and Corridor Spanning a Ravine

³ Integrated Vegetation Management of transmission rights-of-way involves the selective use of herbicides or hand cutting of woody vegetation that would potentially grow tall enough, typically 15 ft or taller, to interfere with conductor clearance requirements. Low-growing plant communities are allowed to remain.



Figure 2-7. Project Primary Transmission Line Corridor Maintained Using Integrated Vegetation Management (As Viewed from the Transmission Line Corridor)

2.1.1.8 Ancillary Facilities

Ancillary buildings at the Project include an operations area with a garage, warehouse, administration building, and storage buildings; a microwave tower; a wastewater treatment system; a covered boat dock; a parking lot for the Bad Creek Foothills Trail trailhead; and a visitor overlook. Refer to the Visual Resources Study Final Report (Duke Energy 2024) for views from the overlook and key views from other areas where Project features are visible.

2.1.2 Proposed Bad Creek II Facilities

Bad Creek II (Figure 2-8) would require the construction of an upper inlet/outlet structure in Bad Creek Reservoir, a new underground powerhouse and water conveyance tunnels, a switchyard, a transformer yard, a lower inlet/outlet structure, a powerhouse access tunnel, and an additional primary transmission line. Since the Bad Creek II powerhouse, access tunnel, and water conveyance tunnels would be underground and would not permanently affect visual resources, they are not discussed in this Plan.

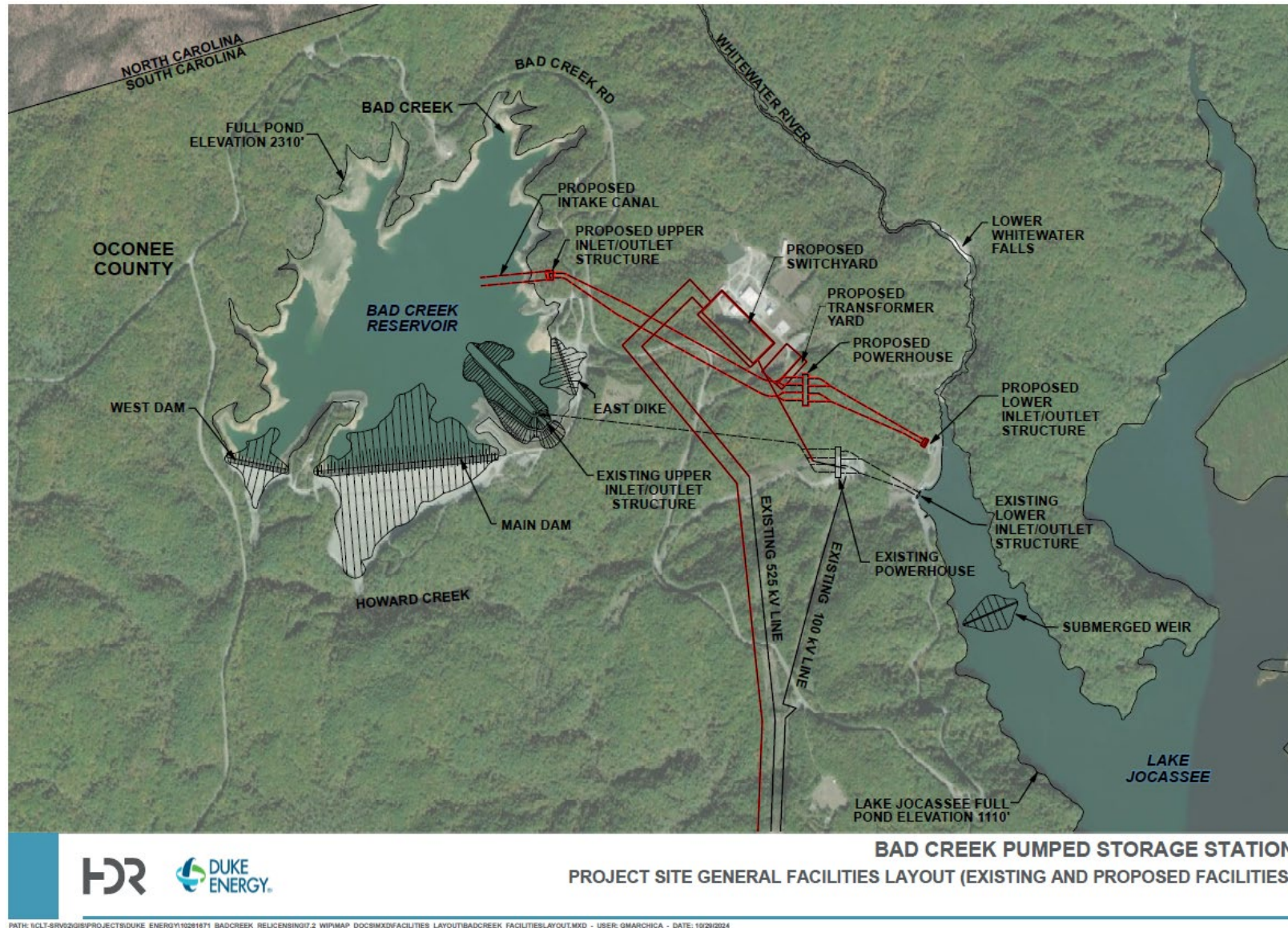


Figure 2-8. General Layout for Bad Creek II and Existing Facilities

2.1.2.1 Upper Inlet/Outlet Structure

A new concrete upper inlet/outlet structure would be constructed in Bad Creek Reservoir to serve the Bad Creek II powerhouse.

2.1.2.2 Lower Inlet/Outlet Structure

The Bad Creek II lower inlet/outlet structure would be constructed northeast of the existing inlet/outlet structure on the western shore of Whitewater River cove. It would be comparable in size and appearance to the existing inlet/outlet structure. A portion of Lake Jocassee would be excavated to allow water to flow between the lower inlet/outlet structure and Lake Jocassee.

2.1.2.3 Spoil areas

A total of 12 upland spoil areas may be used during Bad Creek II construction.⁴ These areas would be used to spoil excavated rock and soil. Side slopes would be engineered such that potential spoil areas would be stable following spoil operations. At the conclusion of spoil placement, the spoil areas will be covered with soil and revegetated consistent with the Project Integrated Vegetation Management Plan.

2.1.2.4 Transformer Yard and Switchyard

A new transformer yard and switchyard would be constructed in the operations area adjacent to the current office building and the Bad Creek Foothills Trail parking area. It would displace existing buildings, necessitate the relocation of the Bad Creek Foothills Trail Access parking lot, and require re-routing of portions of the Bad Creek Foothills Trail Spur Trail, Foothills Trailhead Road, Operations Road, and Musterground Road (Figure 2-9). The new transformer yard and switchyard would have security fencing and lighting.

⁴ Duke Energy continues to evaluate the identified potential spoil areas and may propose, in application materials to be filed in 2025, to utilize a subset of these areas. This section would be updated in the final Plan to describe what areas have been preliminarily selected for permitting and licensing purposes.

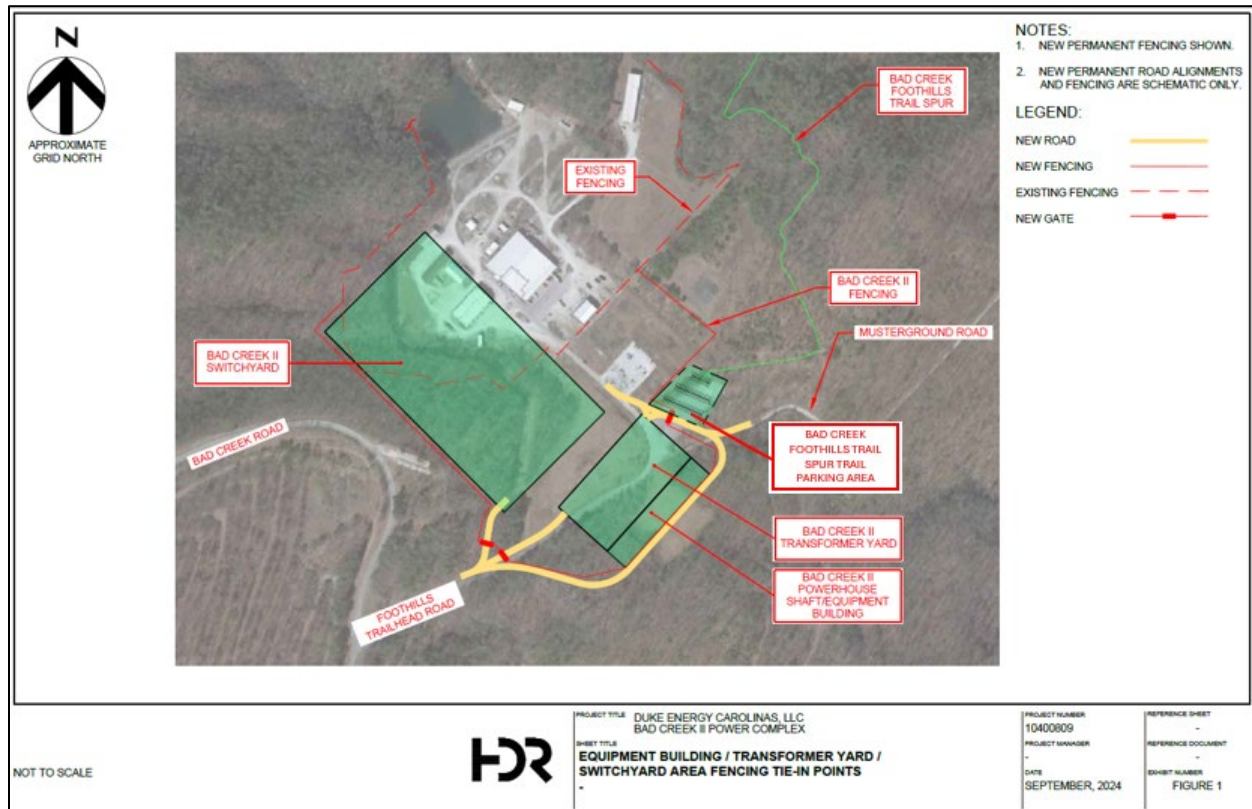


Figure 2-9. Operations Area Modifications

2.1.2.5 Primary Transmission Line

The proposed Bad Creek II 525-kV primary transmission line would be constructed adjacent to the existing Project primary transmission line and most transmission towers would be constructed adjacent to the existing towers. Construction activities would require the clearing of an additional 145 ft or 180 ft of transmission corridor, depending on the number and size of lines present (Figure 2-10). Following construction, it would be maintained consistent with management of the existing Project primary transmission line.

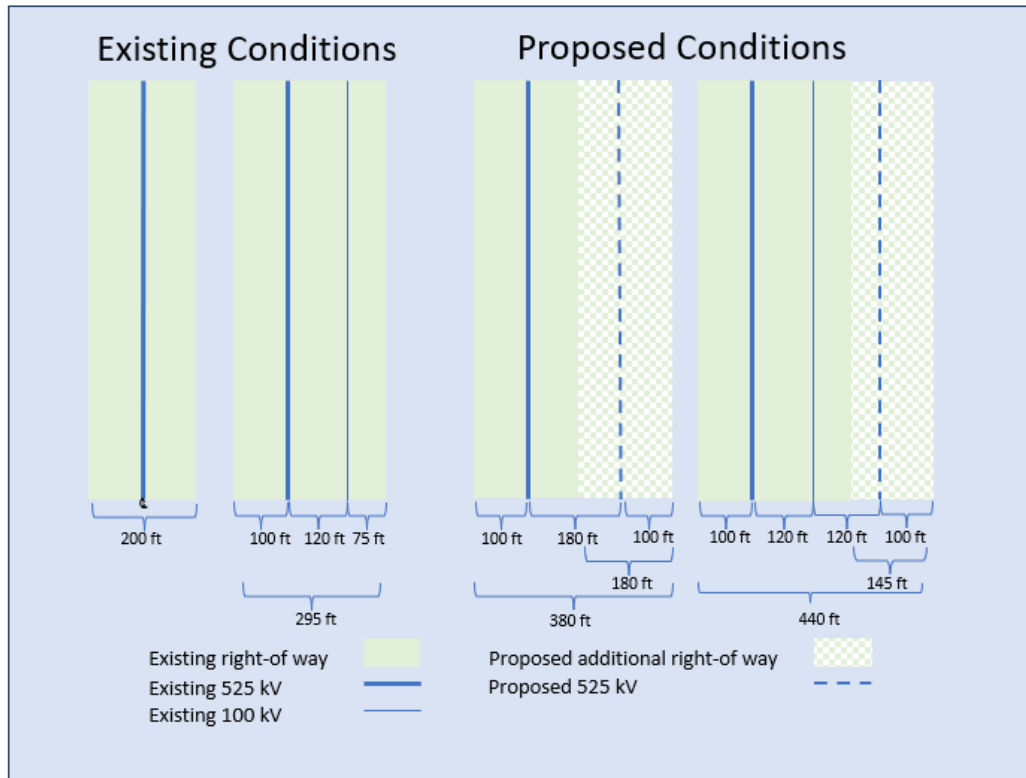


Figure 2-10. Proposed Additional Right-of-Way Widths Associated with the Bad Creek II Transmission Line

2.2 Visual Effects

Existing and potential visual effects were evaluated in the Visual Resources Study (Duke Energy 2024) and are summarized below.

2.2.1 Existing Visual Effects

The Project is in an area of high scenic attractiveness due to the sparsely populated and rural nature of the area, surrounding mountainous terrain, the forested landscape, and the proximity of Lake Jocassee and the Foothills Trail. Views of the Project are largely limited by the steep topography of the area and the heavily vegetated landscape surrounding the site. However, the lower inlet/outlet structure area, the operations area, and the primary transmission line are visible from publicly accessible areas. The existing transformer yard, switchyard, and equipment building are not visible from publicly accessible areas excepting the nighttime security lighting.

Existing visual effects include:

- **Project structures:** The colors of buildings, fencing, and retaining walls at the lower inlet/outlet structure area and administration area contrast with the surrounding landscape. The straight lines associated with these structures as well as the primary transmission line generally contrast with the organic forms and colors of the surrounding mountainous landscape.
- **Transmission Line Corridor:** The primary transmission line corridor is maintained as early successional habitat which contrasts with surrounding forested areas.

- **Lighting Effects:** External lighting at the lower inlet/outlet structure and transformer yard is readily visible from residential homes located at Fisher Knob and boaters on Lake Jocassee at night but is not visible from other public locations (i.e., Devils Fork State Park). External lighting at the operations area is also visible from the Bad Creek Foothills Trail Spur Trail parking area, which is also lighted.

2.2.2 Bad Creek II Visual Effects

2.2.2.1 *Visual Effects during Construction*

Access to the Project site will be limited during construction which will reduce the visual effects of construction at the main site. However, there could be visual effects associated with dust, construction lighting, and construction of the Bad Creek II primary transmission line.

- **Dust:** Construction dust and/or mud from vehicles tracked out of the site (i.e., track-out) at the intersection of Bad Creek Road and Highway 130 would be visible to the public.
- **Vegetation Clearing:** Vegetation clearing will occur in conjunction with construction activities at spoil disposal areas, the Bad Creek II transformer yard and switchyard, the Bad Creek II Powerhouse access portal, the upper and lower inlet/outlet structures, and in association with the construction of the new primary transmission line. Combined, the total amount of area subject to clearing would be less than 200 acres. However, because public access to the Project site will be restricted during construction, public views of vegetation clearing would primarily be limited to the clearing associated with the construction of the primary transmission line.
- **Construction Equipment Transport and Staging:** During construction mobilization, construction equipment will be transported to the site via regional roadways. However, construction equipment associated with work unrelated to the Project is also transported on these roadways, so little additional visual effects are anticipated. Any such effects would occur primarily during mobilization and demobilization. As such, the Licensee expects the visual effects of construction equipment transport to be temporary and transitory. Likewise, construction equipment would be staged at the site. There would be limited views of the equipment from off-site due to site topography and the heavily forested nature of the undisturbed portions of the site and the surrounding area. Therefore, the Licensee expects minimal visual effects associated with equipment staging.
- **Lighting Effects:** Construction activities are likely to occur around the clock including nighttime. Nighttime construction would require lighting to ensure personnel safety. Such lighting may be more intense than current lighting levels and may be visible from Fisher Knob residences. Due to the topography surrounding the site, lighting effects are not likely to extend beyond Fisher Knob.
- **Bad Creek II Primary Transmission Line:** Because of the length of the primary transmission line, approximately 9.3 miles, there are multiple locations from which views of transmission line construction activities (i.e., vegetation clearing and tower construction) would be visible.

2.2.2.2 *Post-Construction Visual Effects*

The scenery will be permanently altered through the addition of Bad Creek II structures although these features will be similar in appearance and adjacent to existing Project structures. Site

topography, constraints on public access to the Bad Creek Reservoir, and the heavily vegetated surrounding landscape will affect the visibility of Project features as described below:

- Upper inlet/outlet structure: Due to site topography, limited public access to the Bad Creek Reservoir, and the heavily vegetated surrounding landscape, views of the upper inlet/outlet portal would generally be limited to Duke Energy's property.
- Lower inlet/outlet structure area: The lower inlet/outlet area would be visible primarily from the Bad Creek Visitor Overlook, from some residences within the Fisher Knob community, and boaters in the Whitewater River cove of Lake Jocassee.
- Bad Creek II transformer yard, switchyard, and operations area: The Bad Creek II transformer yard, switchyard, and operations area would be visible to the public as they access the Bad Creek Foothills Trail Spur Trail parking area and Musterground Road.
- Spoil areas: Some spoil areas would be visible to the public from Bad Creek Road.
- Primary transmission line, towers, and corridor: The primary transmission line, towers, and corridor would be visible throughout its approximately 9.3-mile-long route.

3.0 Visual Resources Management Activities

3.1 Existing Facilities

3.1.1 Color Selections

To reduce the visual effects of existing Project components on the surrounding landscape, the Licensee will modify the exterior colors to more closely match background colors and finishes as Project facilities are repainted in the normal course of facility maintenance. This includes maintenance activities at the operations area and the lower inlet/outlet and powerhouse portal area but excludes other Project features at the main site like the equipment building, transformer yard, and switchyard since they are not publicly accessible or visible to the public, as well as the primary transmission line. Project "structures" include exterior fencing; exterior piping, platforms, and equipment; buildings (including roofs); and handrails. Except for structures that are specifically designed to be visually intrusive like hazard warnings and safety-related equipment, structures will be painted using a non-reflective finish in dark brown, tan, green, or grey similar to those provided in the Bureau of Land Management (BLM) Standard Environmental Color Tool (BLM 2021). Where feasible, selected paint colors will be darker than the background exposed rock or forested surroundings.

3.1.2 Lighting

The Licensee will work towards reducing the amount of external lighting at the site. Consistent with this goal, as external lights require maintenance or replacement, the Licensee will evaluate each light consistent with the "Five Principles of Outdoor Lighting" (DarkSky 2024). The evaluation process will consist of the following 5-step evaluation:

- **Step 1:** Evaluate if external lighting is needed for purposes of creating a safe environment for site personnel and visitors.
 - If lighting is not necessary, permanently remove the light and the lighting evaluation process is complete.
 - If lighting is necessary, proceed to Step 2.

- **Step 2:** Evaluate if the light is needed constantly or intermittently.
 - If constant illumination is needed, proceed to Step 3.
 - If intermittent light is needed, modify the light as needed. Options include switch-controlled lights, motion-activated lights, and use of timers. Proceed to Step 3.
- **Step 3:** Identify the lowest level of light needed. This may require replacement of the light fitting to accommodate lower lumen luminaires. Proceed to Step 4.
- **Step 4:** Ensure the light fitting is shielded; replace the light fitting with a shielded fitting that is DarkSky certified or comparable if it is not shielded. This will direct light downwards and prevent lighting from spilling beyond where it is needed. Proceed to Step 5
- **Step 5:** Select luminaires with warmer colored light instead of shorter wavelength (i.e., blue-violet) light.

Upon conclusion of Step 5, the Licensee will proceed with installation of the selected equipment and the process is complete.

As existing light poles and light fixtures are replaced, the Licensee will paint them a dark non-reflective color in dark brown, tan, green, or grey similar to those provided in the BLM Standard Environmental Color Tool (BLM 2021) or select weathering steel (i.e., corten steel) finishes. Selected paint colors will be darker than the background exposed rock or forested surroundings.

3.1.3 Vegetation Management

Vegetation management of Project facilities includes maintaining vegetation on water-retaining structures consistent with FERC requirements, controlling vegetation along Project buildings and roads to facilitate safe personnel access and use, and management of the primary transmission line corridor.

- **Dams, dikes, and other water-retaining structures:** FERC requires vegetation management practices that limit vegetative growth that would endanger structural integrity. The Licensee will continue these practices.
- **Groundskeeping:** The Licensee limits mowing and groundskeeping to only those areas necessary for safe operation, maintenance, and access to Project facilities. This includes mowing along Bad Creek Road and other main site roads to enhance visibility and limit potential tree fall across travel routes.
- **Transmission corridor:** The Licensee is required to maintain the vegetation on transmission rights-of-way in a manner that limits the potential for vegetation to interfere with the safe and reliable transmission of electricity. The Licensee's operating plan for the Bad Creek primary transmission line specifies the use of Integrated Vegetation Management which includes both mechanical and chemical control methods. Maintenance is performed on a regular cycle and conducted throughout the year. When herbicides are used, applicators may use small amounts of products approved by the Environmental Protection Agency and appropriate state agencies. Different methods are used to apply herbicides including foliar application from May through October, dormant stem application from October through April, and cut-stump/vine application throughout the year.

3.2 Bad Creek II Facilities

3.2.1 Visual Resources Measures Related to Facility Design and Facility Operations

3.2.1.1 *Color Selections*

Bad Creek II exterior “structures” including exterior fencing; exterior piping, platforms, and equipment; buildings including roofs; and handrails will have a non-reflective finish in dark brown, tan, green, or grey similar to those provided in the BLM Standard Environmental Color Tool (BLM 2021). Selected exterior colors will be darker than the background conditions. Depending on the location of the structure, background conditions may consist of exposed rock or forested areas; colors will be selected based on the specific location.

This measure does not apply to structures that are specifically designed to be visually intrusive like hazard warnings and safety-related equipment.

3.2.1.2 *Lighting*

The Licensee will evaluate new external lighting associated with Bad Creek II facilities using the same 5-step evaluation process described in Section 3.1.2 with the overall goal of limiting the addition of new permanent external light sources at the Project. New external lighting poles and components will be made of dark non-reflective surfaces. Corten steel or similar low maintenance products will be selected as practicable.

3.2.1.3 *Spoil Areas*

Spoil areas will be designed to have stable side slopes that will not require on-going maintenance following closure. Spoil area design will require the use of native seed mixes for revegetation following spoil area closure. Over time, the revegetation effort will limit the visual effects of spoil areas on the surrounding landscape.

3.2.1.4 *Primary Transmission Line*

The Bad Creek II primary transmission line will adjoin the existing Project primary transmission line. It will be designed to be consistent with the appearance of the existing line and towers.

3.2.1.5 *Bad Creek Foothills Trail Parking Area*

The Bad Creek Foothills Trail Spur Trail trailhead and parking area will afford the public a direct view of existing and proposed structures. It is adjacent to the Bad Creek II transformer yard and within view of the operations area. To limit visual effects of the operations area, Duke Energy will ensure a vegetated buffer of trees and shrubs is maintained between the operations area and the parking lot.

3.2.2 Visual Resources Measures during Construction

3.2.2.1 *Dust Control During Construction*

Dust control measures during construction will include:

- Measures to limit track-out of mud at the intersection of Bad Creek Road and Highway 130. These could include the use of track-out or gravel pads where dirt/gravel roads intersect Bad Creek Road, watering of dirt/graveled roads, wheel washing systems, use of street sweepers on Bad Creek Road, or similar practices
- Minimization of exposed earth surfaces to only areas that need to be disturbed.
- Limiting the amount of time disturbed areas remain unstabilized through use of temporary and permanent seeding and mulching.
- Watering work and haul areas during dry periods.
- Covering, shielding, or stabilizing material stockpiles.
- Using covered haul trucks if material is transported off-site.

3.2.2.2 *Lighting During Construction*

As discussed in Section 3.2.2.2, it will be necessary to use construction lighting during nighttime construction activities to ensure personnel and equipment safety and security. However, the Licensee will limit use of construction lighting to only those areas with active construction and the presence of personnel.

3.2.2.3 *Boating Barrier During Construction*

The Licensee will install a boating barrier at the mouth of the Whitewater River cove of Lake Jocassee during construction to eliminate public boating activity upstream of the boating barrier. This will limit the visual effects of construction of the lower inlet/outlet portal and other construction activities and structures adjoining Lake Jocassee. The boating barrier will be removed after construction.

3.2.2.4 *Primary Transmission Line Construction*

The Licensee will use standard best management practices (BMPs) during construction of the primary transmission line to limit visual effects. BMPs include:

- Trees and brush will be properly disposed in accordance with local, state, and federal ordinances or by cutting and leaving stumps a maximum of two inches tall and chipping and spreading chips evenly on the right-of-way.
- Seeding will be completed immediately following completion of land disturbance and prior to project completion.
- Seeding will progress closely with construction and be completed immediately following project completion.
- Stream and lake buffers will be maintained between soil disturbing activities and waters.

3.2.2.5 *Revegetation During and Following Construction*

Consistent with the provisions of the BCRA, the Licensee will develop a Revegetation Plan in consultation with the South Carolina Department of Natural Resources and the U.S. Fish and Wildlife Service. The Revegetation Plan will include measures to minimize, to the extent feasible, disturbance to vegetation during construction, including confining construction activities and personnel to existing roads and disturbed areas; minimize disturbance to wetlands and water features during construction; and techniques and best management practices to be used to promote revegetation following construction, including returning disturbed areas to original contours where practicable. These measures will reduce the visual effects of Bad Creek II construction activities as well as the long-term visual effects of Bad Creek II following construction completion.

4.0 Revisions and Updates

The Licensee may make minor alterations to the Plan without public notice, resource agency, or FERC review to ensure flexibility in its implementation.

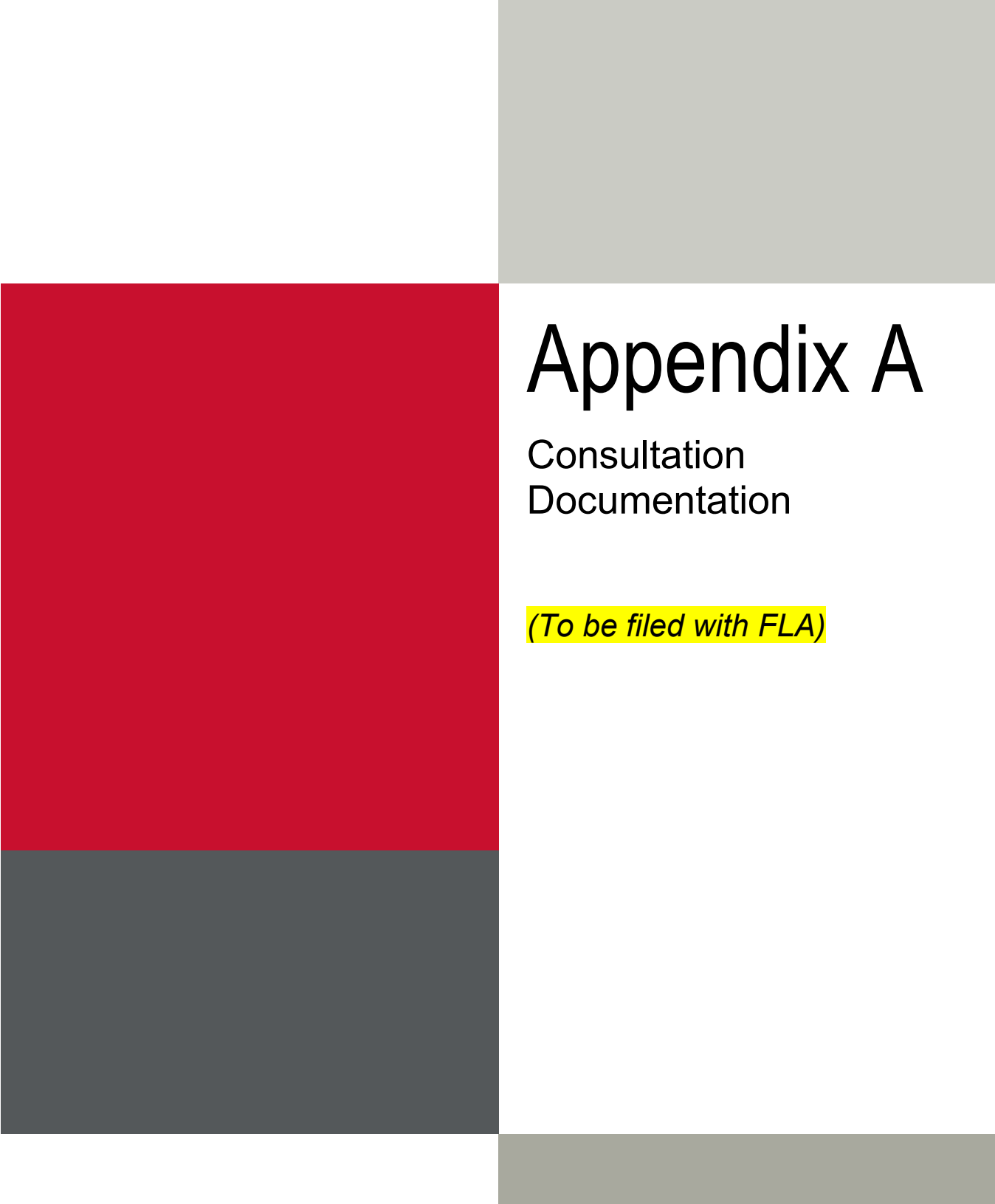
The Licensee will review the Plan every 10 years following the most recent FERC approval to determine if modifications are needed. If the Licensee determines an update is needed, it will consult with resource agencies, local governmental officials, non-governmental organizations, and other interested stakeholders regarding the needed modifications. The Licensee will then submit the modified plan to FERC for approval and include the results of stakeholder consultation. Consultation documentation will be provided in Appendix A with the Final License Application.

5.0 References

Bureau of Land Management (BLM). 2021. Standard Environmental Colors. June 30, 2021. URL: <https://www.blm.gov/policy/ib-2008-116>. Accessed on August 30, 2024.

DarkSky International (DarkSky). 2024. Five Principles for Responsible Outdoor Lighting. URL: <https://darksky.org/resources/guides-and-how-tos/lighting-principles/>. Accessed on March 25, 2024.

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Appendix A

Consultation
Documentation

(To be filed with FLA)

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DRAFT INTEGRATED VEGETATION MANAGEMENT PLAN

Bad Creek Pumped Storage Project
(FERC No. 2740)

Oconee County, South Carolina

February 2025

Prepared by:



Prepared for:



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Appendices

Appendix A – Consultation Documentation



Acronyms and Abbreviations

Bad Creek or Project	Bad Creek Pumped Storage Project
Bad Creek II	Bad Creek II Power Complex
BCRA	Bad Creek Relicensing Agreement
Duke Energy	Duke Energy Carolinas, LLC
ft	feet/foot
FERC or Commission	Federal Energy Regulatory Commission
IVM	Integrated Vegetation Management
kv	kilovolt
NRA	Natural Resources Assessment
Plan	Integrated Vegetation Management Plan
ROW	right-of-way
SCDNR	South Carolina Department of Natural Resources

1.0 Introduction

Duke Energy Carolinas, LLC (Duke Energy) is the owner and operator of the 1,400-megawatt Bad Creek Pumped Storage Project (Project) (FERC Project No. 2740) located in Oconee County, South Carolina, approximately eight miles north of Salem. The Project utilizes the Bad Creek Reservoir as the upper reservoir and Lake Jocassee, which is licensed as part of the Keowee-Toxaway Hydroelectric Project (FERC Project No. 2503), as the lower reservoir.

The existing (original) license for the Project was issued by the Federal Energy Regulatory Commission (FERC or Commission) for a 50-year term, with an effective date of August 1, 1977, and expiration date of July 31, 2027. Duke Energy is pursuing a new license for the Project pursuant to the Commission's Integrated Licensing Process, as described at 18 Code of Federal Regulations Part 5.

Given the need for additional significant energy storage and renewable energy generation across Duke Energy's service territories over the Project's new 40 to 50-year license term, Duke Energy is proposing to add pumping and generating capacity at the Project by constructing a new power complex (Bad Creek II Power Complex [Bad Creek II]) adjacent to the existing Bad Creek Powerhouse. Bad Creek II would require a new 9.25 mile 525-kilovolt (kV) primary transmission line, which would be constructed adjacent to the existing Project 525-kV transmission line.

Duke Energy has conducted several vegetation studies in support of the FERC relicensing and proposed Bad Creek II construction, including Natural Resource Assessments (NRA) and a Small Whorled Pogonia survey.

1.1 Purpose and Intent of Management Plan

The purpose of this Integrated Vegetated Management Plan (Plan) is to effectively guide the implementation of measures for vegetation management at the Project including the transmission line right-of-way (ROW) to protect sensitive native plant and wildlife species and their habitat. The Plan does not address revegetation of Bad Creek II construction areas¹.

1.2 Effective Period

This Plan will become effective with the issuance of the new license and will be implemented over the new license term.

1.3 Plan Development

Duke Energy implemented an extensive stakeholder consultation process during the relicensing of the Project. Relicensing stakeholders entered into the Bad Creek Relicensing Agreement (BCRA) to resolve resource issues associated with continued operation of the Project as well as construction and operation of Bad Creek II. The following BCRA provision is relevant to the Plan:

¹ Revegetation of Bad Creek II construction areas is addressed in the Revegetation Plan as described in the Bad Creek Relicensing Agreement. The Revegetation Plan will include a description of measures to be used to minimize disturbance to vegetation, techniques and best management practices to be used to promote revegetation, a description of seed mixes/plant species, monitoring methods, and protocols for managing noxious weeds.

The Licensee will implement an Integrative Vegetation Management Plan at the Project to include: (1) proposed detailed methods for vegetation management around Project facilities and rights-of-ways that includes protection of sensitive native plant and wildlife species and habitats, including riparian habitats; and (2) a schedule for implementing vegetation management at the Project. The Licensee will develop the Vegetation Management Plan in consultation with the Terrestrial and Wildlife Resource Committee and submit the plan with the Application for New License.

This draft Plan is being developed in consultation with the following stakeholders.

- U.S. Fish and Wildlife Service
- South Carolina Department of Natural Resources (SCDNR)
- South Carolina Wildlife Federation
- Advocates for Quality Development
- Friends of Lake Keowee Society
- Foothills Trail Conservancy
- Upstate Forever
- Naturaland Trust
- South Carolina Department of Environmental Services

Stakeholder comments and Duke Energy responses are included in Appendix A *[will be included in the Plan filed with the Final License Application]*.

2.0 Project Description

The Plan applies to the management of vegetation within the FERC Project boundary (Figure 1).

2.1 Existing Project Description

The Project is an existing, licensed, major hydroelectric project and is situated directly adjacent to Lake Jocassee. Lake Jocassee, which is part of the Keowee-Toxaway Hydroelectric Project (KT Project; FERC No. 2503), serves as the lower reservoir for pumped-storage operations and Bad Creek Reservoir serves as the upper reservoir. The existing Project consists of two earthen dams and a dike, an upper reservoir, inlet/outlet structures in the upper and lower reservoirs, a water conveyance system, an underground powerhouse, transmission facilities, an equipment building and switch yard, and an approximately 9.25-mile-long transmission line corridor extending from the Project to the KT Project's Jocassee switchyard.

2.2 Bad Creek II Description

Bad Creek II will require the construction of an upper inlet/outlet structure in Bad Creek Reservoir, a new underground powerhouse and water conveyance tunnels, a switchyard, a transformer yard, a lower inlet/outlet structure, a powerhouse access tunnel, and an additional primary 525-kV transmission line (Figure 2). The areas within the proposed Project boundary are shown on Figure 3.

2.3 Transmission Lines

The existing Project transmission ROW includes both a 525-kV and 100-kV line. The proposed Bad Creek II 525-kV primary transmission line would be constructed adjacent to the existing corridor; most of the new transmission towers would be constructed adjacent to the existing towers. Construction activities would require widening the existing corridor ROW by approximately 145 ft or 180 ft depending on existing line configurations (see Figure 4), resulting in up to approximately 224 acres of tree clearing. The areas proposed to be expanded along the transmission corridor are shown on Figure 3.

Following construction of Bad Creek II and appropriate revegetation, the ROW would be maintained consistent with management of the existing Project primary transmission line corridor as discussed further in Section 5.1.

Duke Energy owns or controls the property within the existing and proposed transmission ROW.

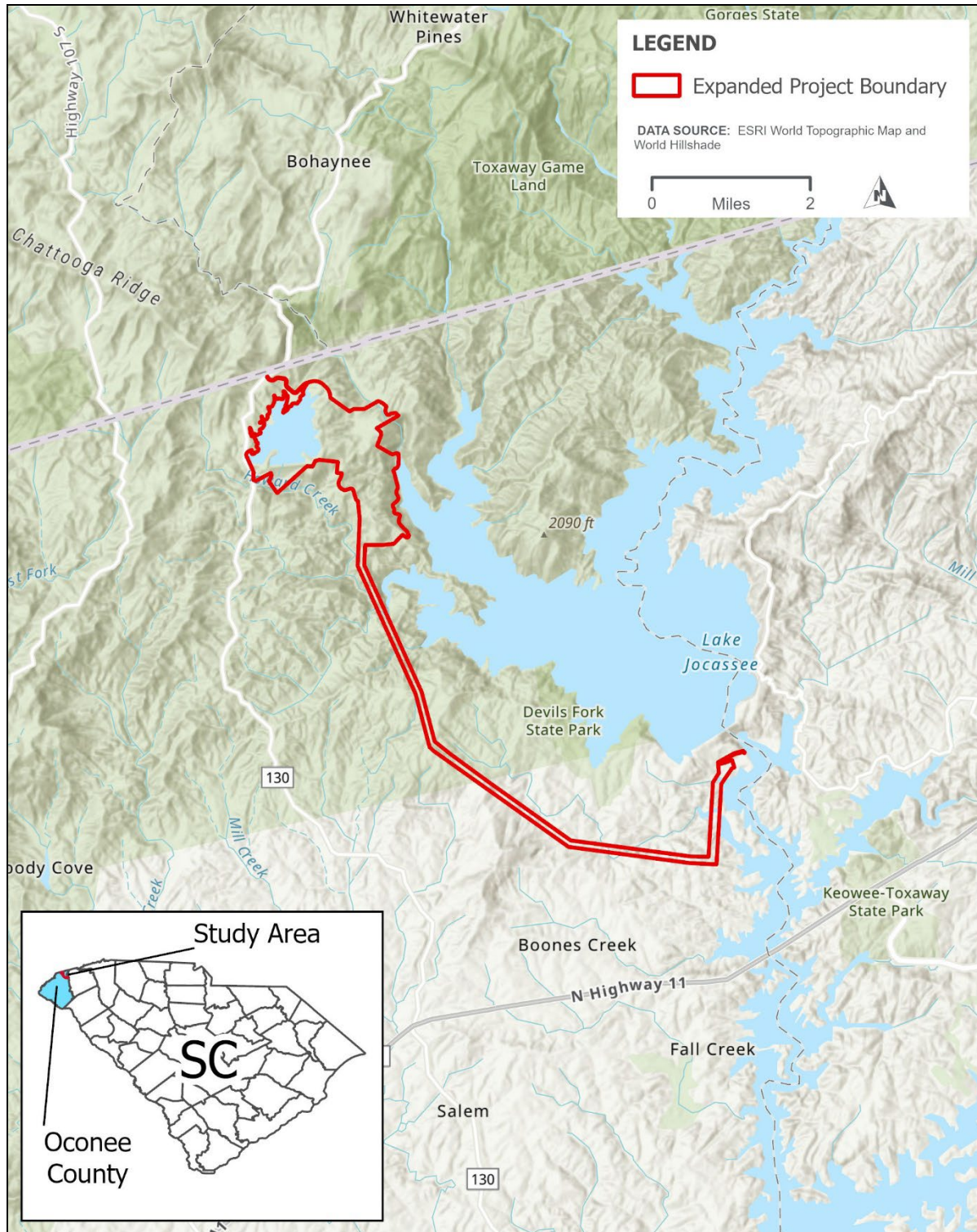


Figure 1. Bad Creek Proposed Project Boundary

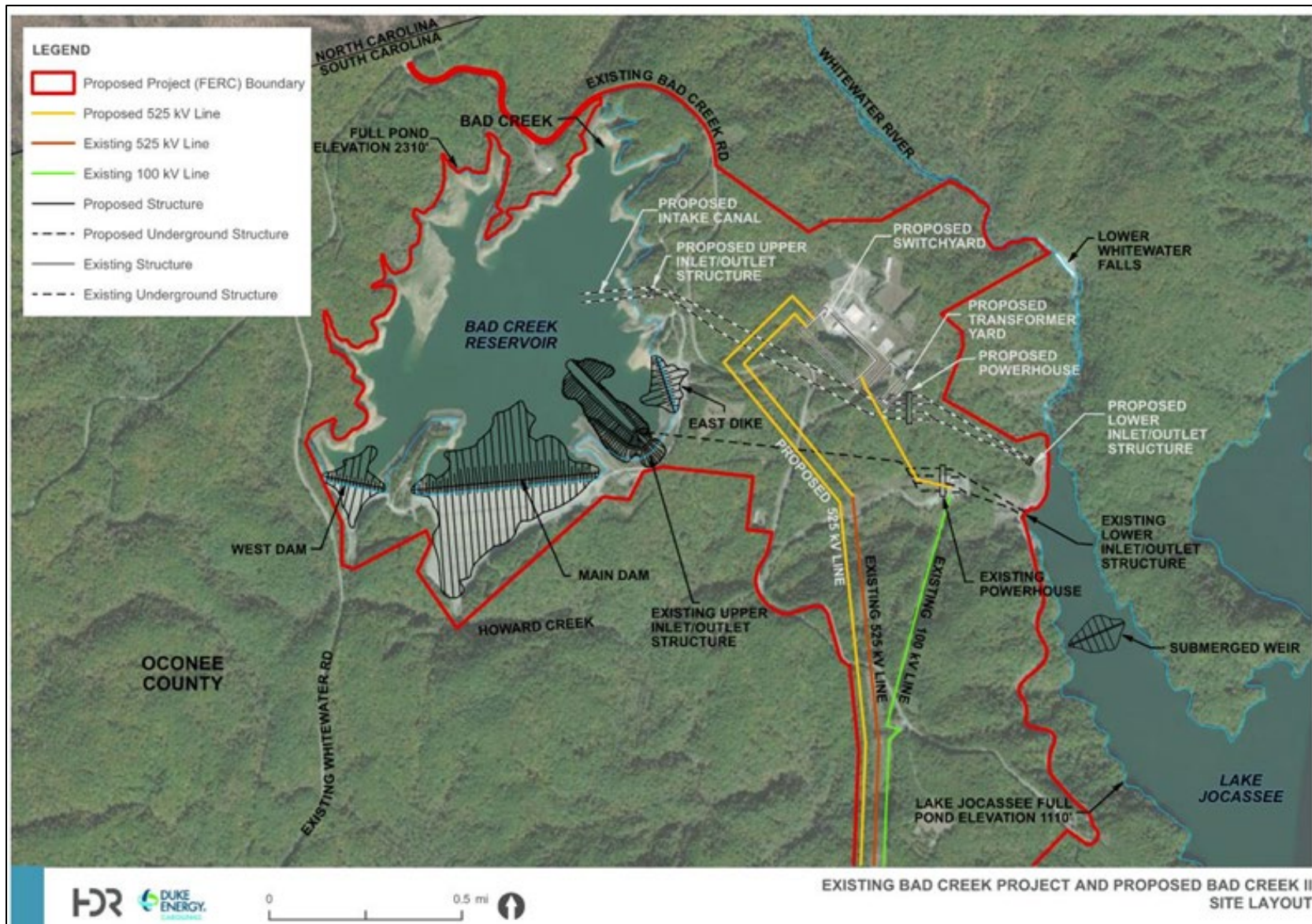


Figure 2. Proposed Facility Site Layout

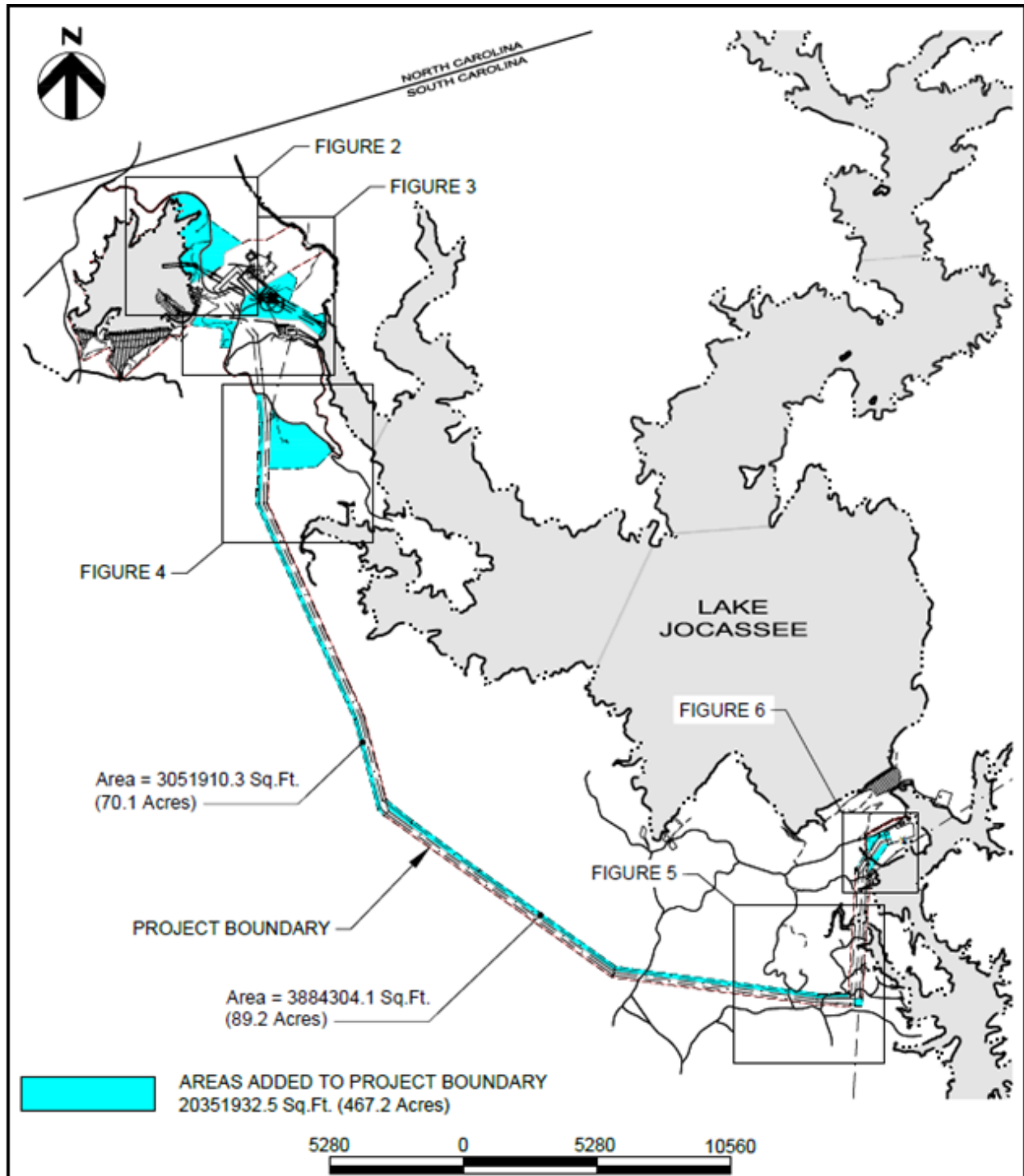


Figure 3. Proposed Facility Site Layout and Transmission Line Corridor Expansion

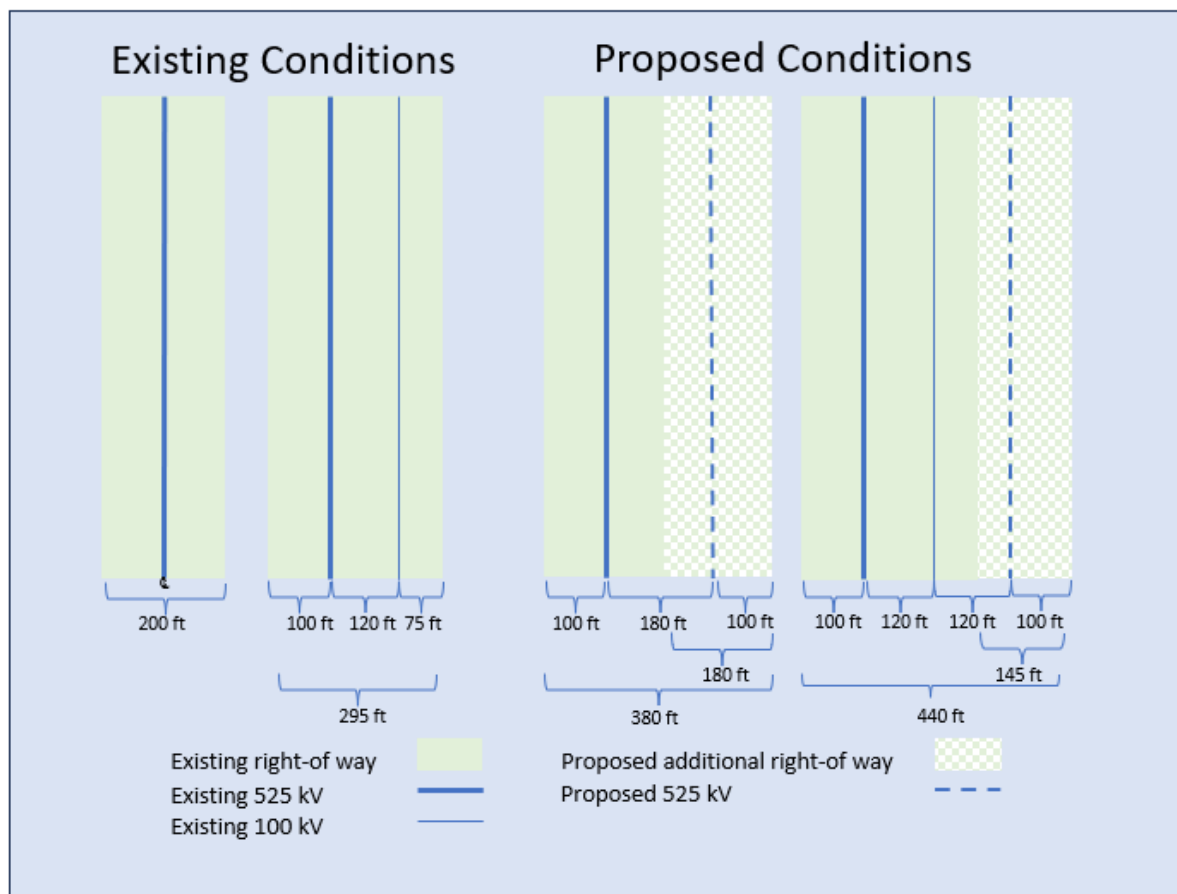


Figure 4. Additional Right-of-Way Widths Associated with the Bad Creek II Transmission Line

3.0 Previous Botanical Surveys Summary

In September 2021, HDR prepared a Natural Resources Assessment (NRA) for Duke Energy to evaluate the transmission corridor, which included surveys for wetlands and jurisdictional waters of the U.S., federally protected species habitat, and classification of natural/vegetation communities. The study area included an area of approximately 436 acres along the 9.25-mile-long transmission line corridor as well as a 50-ft buffer of forested land on each side (400 ft total width). Land use in the study area, which includes two Level IV Ecoregions (Southern Inner Piedmont and Southern Crystalline Ridges and Mountains) is predominantly undeveloped forested land. The majority of the study area included maintained ROW areas and fields comprising early successional woody, herbaceous, and vine species

A second NRA was carried out in 2021 to evaluate 1,314 acres of the main Project facilities area including the structures and features of the existing Bad Creek Project and undisturbed forested areas. The assessment involved an on-site investigation that included surveys for wetlands and jurisdictional waters of the U.S., federally protected species habitat, and classification of natural/vegetation communities. Results from the survey indicated disturbed areas within the study area, especially adjacent to existing structures, have been encroached on by invasive species including princess tree (*Catalpa bignonioides*), Japanese stiltgrass, mimosa tree (*Albizia julibrissin*),

Japanese honeysuckle, and sawtooth oak. In addition, sounds and visual signs of invasive feral hogs (*Sus scrofa*) such as unrooted plants and hoof prints were identified.

In November 2023, HDR prepared an NRA for the proposed Duke Energy Administrative Building near the entrance to the Project as well as the then-proposed Fisher Knob Access Road². The surveys for the Fisher Knob Access Road included 93-acres consisting of ATV trails and a 100-foot unmaintained forested buffer. Surveys for the Administrative Building included a 6-acre Study Area consisting of unmaintained forested area with a utility powerline easement and associated out buildings and parking areas. Land use in the areas surveyed included predominantly forested (Fisher Knob) with a small portion developed area (medium intensity) near Highway 130.

During relicensing consultation with the SCDNR and to support Clean Water Act Section 404 U.S. Army Corps of Engineers permitting, Duke Energy surveyed the areas of the Project facilities (included potential spoil pile areas), Fisher Knob Access Road, and transmission line access roads for the federally threatened small whorled pogonia (*Isotria medeoloides*) during the appropriate survey window (mid-May through early July). While potential habitat was observed during the survey, no small whorled pogonia were identified. Similarly, during the 2021 surveys, habitat for federally endangered persistent trillium (*Trillium persistens*) and smooth coneflower (*Echinacea laevigata*) was noted, but no species were identified. Additional small whorled pogonia surveys are proposed to determine the presence or absence of this protected species prior to land disturbance activities associated with Bad Creek II construction and all three species will be addressed in the Species Protection Plan filed with the license application (see Section 5.3).

4.0 Integrated Vegetation Management

Vegetation management is the practice of removing or modifying live and dead vegetation. Objectives for maintaining vegetation at a hydropower project include, generally: to remove stands of invasive weeds or overly dense vegetation, to improve ecological health and reduce competition with native plants, to reduce potential spread of wildfires, to reduce ecological resource impacts, to maintain personnel and emergency access.

At the Project, maintained vegetative areas occur near existing Project facilities and along the transmission ROW. Operation of the Project requires the control of vegetation near Project facilities and along access routes to facilitate safe personnel access and use and management of vegetation within the transmission line corridor.

Representative photographs of maintained vegetation within the ROW are shown on Figure 5 and Figure 6 and representative photographs of maintained vegetation near the Project facilities are shown on Figure 7 and Figure 8 below.

² Fisher Knob Access Road was included in preliminary proposals and relicensing studies, however, is no longer being pursued as part of Bad Creek II.



Figure 5. Early Successional Vegetation within ROW

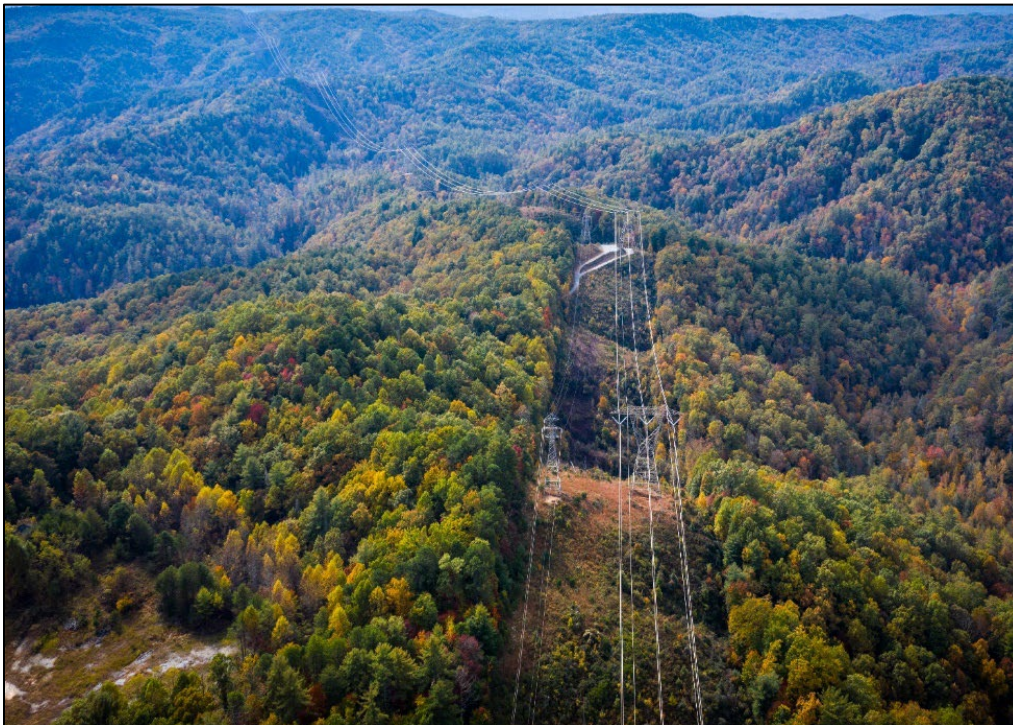


Figure 6. Maintained Vegetation within ROW



Figure 7. Field with Native Wildflowers and Grasses near Project Facilities within Project Boundary



Figure 8. Maintained Vegetation near Project Facilities within Project Boundary

4.1 Transmission Line Right-Of-Way

Duke Energy uses an Integrated Vegetation Management (IVM) process to maintain the vegetation in the transmission ROW in a manner that limits the potential for vegetation to interfere with the safe and reliable transmission of electricity³. The objective of Duke Energy's IVM process is to maintain the transmission corridor, so trees and other vegetation do not fall into or across lines or towers and cause outages. Duke Energy's team of qualified personnel are trained to use IVM to inspect and clear vegetation that poses a threat to the transmission line, which includes careful pruning, selective herbicidal application, and tree felling, consistent with good arboricultural practices.

Maintenance is performed on a regular cycle and conducted throughout the year. When herbicides are used, small amounts of products approved by the Environmental Protection Agency and appropriate state agencies are applied. Proper herbicide application reduces the need for mowing over time, which allows room for native grasses, wildflowers and various shrubs to grow and thrive in the ROW, which are important areas of habitat for pollinators (e.g., monarch butterfly) and other wildlife.

Duke Energy uses directional or targeted pruning methods for trees, which are methods endorsed by the tree care industry as the best for tree health. Small limbs and brush in maintained areas such as lawns, landscaped sites and agricultural areas are normally disposed of. Larger pieces of wood or wood that cannot be chipped will typically be cut into 18- to 24-inch lengths, consolidated and left on-site. In unmaintained areas (wood lots, natural areas, etc.), pruned vegetation and wood debris are left in place to naturally decompose. Most of the Project ROW is classified as unmaintained.

Duke Energy will continue its use of IVM for maintenance of the transmission ROW during the term of the new license, consistent with its ROW maintenance schedule.

4.2 Project Facilities, Roads, and Operations Areas

Vegetation management of Project facilities includes maintaining vegetation on water-retaining structures consistent with FERC requirements, controlling vegetation along Project buildings and roads to facilitate safe personnel access and use, and management of storage areas, parking areas and similar areas used in Project operations.

Duke Energy will continue to implement these practices with the new license:

- **Dams, dikes, and other water-retaining structures:** FERC requires vegetation management practices that limit vegetative growth that would endanger the structural integrity of water-retaining structures. Duke Energy will continue these practices during the new license term.
- **Groundskeeping:** Duke Energy limits mowing and groundskeeping to only those areas necessary for safe operation, maintenance, and access to Project facilities. This includes mowing along Bad Creek Road and other main site roads to enhance visibility and limit potential tree fall across travel routes. Duke Energy will continue these practices during the new license term.

³ Additional information about Duke Energy's IVM for transmission lines is available online at: <https://www.duke-energy.com/community/vegetation-management>.

4.3 Pollinator Enhancement Program

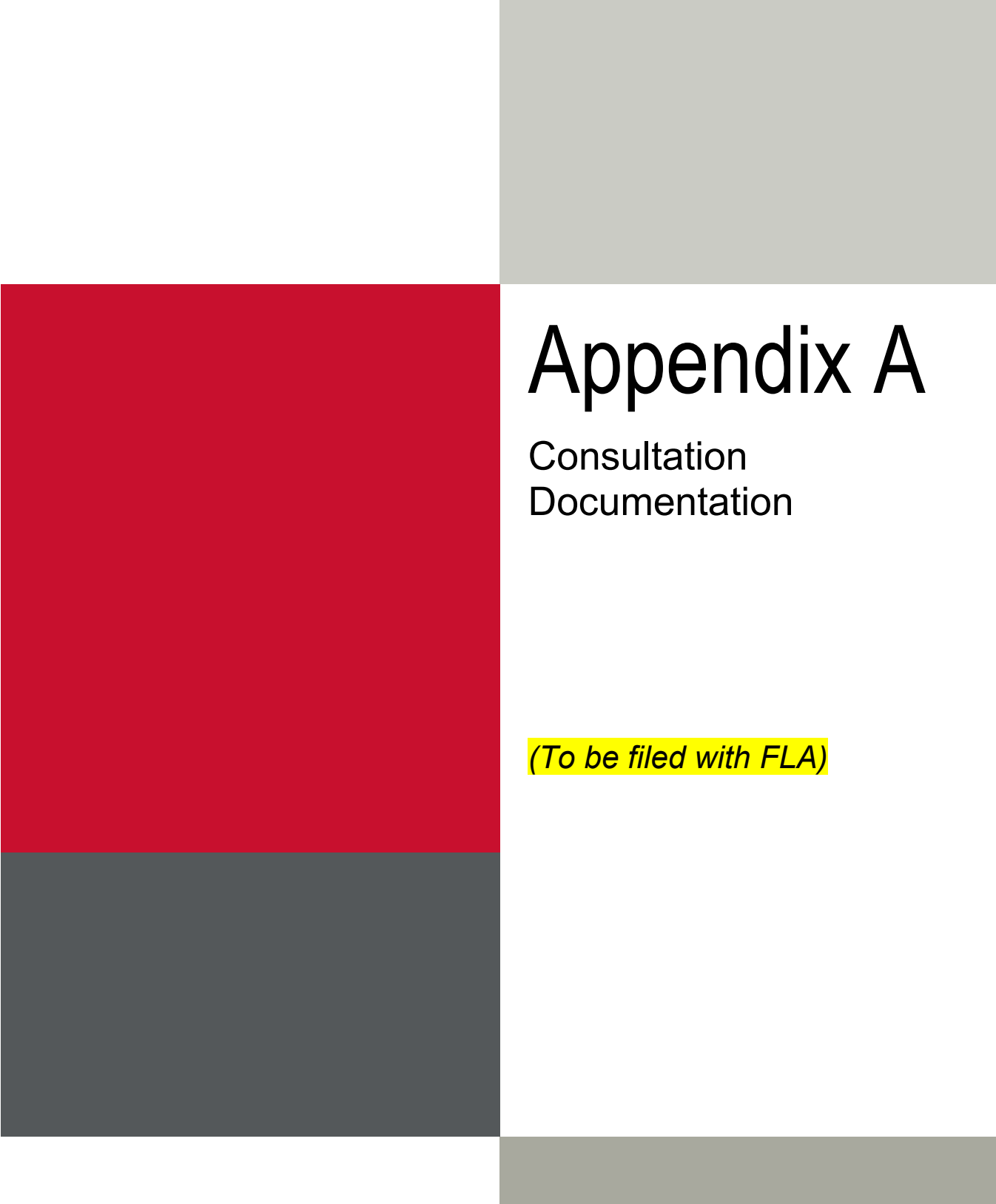
Consistent with the BCRA, Duke Energy will implement a Pollinator Enhancement Program at the Project to benefit Monarch butterflies and other similar insect species (e.g., bumble bees). Within five years following construction of Bad Creek II, Duke Energy will plant milkweed species (seeds and plugs) at the Project. The specific areas will be identified in consultation with SCDNR; Duke Energy anticipates establishing Pollinator Enhancement Program plots in conjunction with revegetation of spoil areas, near the Bad Creek Visitor Overlook, near the Bad Creek Spur Trail parking lot, and on Duke Energy-owned lands within the transmission ROW.

In addition to the planting of milkweed species, Duke Energy will use pollinator and wildlife-friendly native plant seed mixes in open areas, as applicable. After establishing native vegetation, Duke Energy will allow continued revegetation to occur consistent with natural plant succession.

5.0 Plan Revisions and Updates

Duke Energy may make minor alterations to the Plan without public notice, resource agency, or FERC review to ensure flexibility in its implementation.

Duke Energy will review the Plan every 10 years following FERC license issuance to determine if modifications are needed. If Duke Energy determines an update is needed, it will consult with resource agencies, local governmental officials, non-governmental organizations, and other interested stakeholders regarding the needed modifications. Duke Energy will then submit the modified plan to FERC for approval and include the results of stakeholder consultation.



Appendix A

Consultation
Documentation

(To be filed with FLA)

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DRAFT RECREATION MANAGEMENT PLAN

BAD CREEK PUMPED STORAGE PROJECT

FERC No. 2740

Prepared for:

Duke Energy Carolinas, LLC

Prepared by:

Kleinschmidt Associates

February 2025

Kleinschmidt

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ACRONYMS

A

ADA Americans with Disabilities Act

B

Bad Creek (or Project) Bad Creek Pumped Storage Project
Bad Creek II Bad Creek II Power Complex

C

CFD Computational Fluid Dynamics
CFR Code of Federal Regulations
Conditions Assessment Foothills Trail Corridor Conditions

D

Duke Energy Duke Energy Carolinas LLC

F

FERC Federal Energy Regulatory Commission
FTC Foothills Trail Conservancy

H

HPMP Historic Properties Management Plan

P

PAD Pre-Application Document

R

RMP Recreation Management Plan
RUN Recreation Use and Needs Study

S

SCDNR South Carolina Department of Natural Resources
SCPRT South Carolina Department of Parks, Recreation, and
Tourism

T

Trail Foothills Trail

Table of Contents (Cont'd)

U

Upper Reservoir Bad Creek Reservoir

W

WMA Wildlife Management Area

1.0 INTRODUCTION

Duke Energy Carolinas, LLC (Duke Energy) proposes to implement this Recreation Management Plan (RMP) for the Bad Creek Pumped Storage Project (Bad Creek Project or Project; FERC No. 2740) under the new license issued by the Federal Energy Regulatory Commission (FERC). The 1,400-megawatt Bad Creek Project is located in Oconee County, South Carolina, approximately eight miles north of Salem. The Project utilizes the Bad Creek Reservoir as the upper reservoir and Lake Jocassee, which is licensed as part of the Keowee-Toxaway Hydroelectric Project (KT Project; FERC Project No. 2503), as the lower reservoir. Duke Energy will implement this RMP as approved by FERC for the term of the new license.

This RMP documents existing recreation facilities associated with the Bad Creek Project, guides implementation of recreation enhancement and maintenance measures required by the new license and provides for recreation use monitoring during the new license term.

1.1 Bad Creek Project Description

The Bad Creek Project structures and features include the Bad Creek Reservoir (upper reservoir) and associated dams, inlet/outlet structures in the upper and lower reservoirs, a water conveyance system, an underground powerhouse, tailrace tunnels, transmission facilities, and an approximately 9.25-mile-long transmission line corridor extending from the Bad Creek Project to the KT Project's Jocassee Hydro switchyard. Duke Energy is proposing to expand the energy storage and generation capacity of the Bad Creek Project by constructing a new 1,400-megawatt power complex (Bad Creek II Complex) near the existing Bad Creek powerhouse. Duke Energy anticipates the construction of the Bad Creek II Complex to take approximately 7 years. During the construction period, Bad Creek Hydro trail access area would be closed to public access.

2.0 EXISTING RECREATION FACILITIES

2.1 Overview

Due to daily fluctuations of the Bad Creek Reservoir associated with the Project's pumped storage operations, public access to the Bad Creek Reservoir is prohibited. Public access to Lake Jocassee, the Project's lower reservoir, is allowed but is managed through the Keowee-Toxaway RMP. Lake Jocassee, located in Oconee and Pickens counties, South Carolina and Transylvania County, North Carolina, is largely undeveloped. The only public boating access to the lake is provided at Devils Fork State Park, which is managed by the South Carolina Department of Parks, Recreation, and Tourism (SCPRT).

During the original licensing of the Bad Creek Project, Duke Energy agreed to build and maintain a new segment of the Foothills Trail, an existing trail that was constructed during the 1970s, as mitigation for the loss of recreation opportunities associated with Project construction. The section of trail that Duke Energy agreed to construct would connect the two existing Foothills Trail sections, including a western segment in the Sumter National Forest and an eastern segment connecting Pinnacle Mountain with Table Rock State Park. Duke Energy's original plan for constructing the central segment of the Foothills Trail is described in Exhibit R of the existing Project license.

Today, the Foothills Trail is 77 miles long and spans multiple counties in North and South Carolina, with the trail's western terminus at Oconee State Park and the eastern terminus at Table Rock State Park. Duke Energy owns in fee or holds easements for the 43-mile-long central section of the Foothills Trail and is responsible for the maintenance of this section of trail. The eastern and western sections of the trail are managed by the Foothills Trail Conservancy (FTC). Additional information on Duke Energy's Foothills Trail segment is included below.

2.2 Duke Energy's Foothills Trail Segment

Duke Energy maintains the segment of the Foothills Trail from the North Carolina/South Carolina border at the Whitewater River near the Bad Creek Project to the Table Rock State Park property line approximately 1,000 feet southwest of the top of Pinnacle Mountain (Figure 2-1). Duke Energy also maintains five spur trails and eight trail access areas within this segment (Figure 2-2). Spur trails include the Bad Creek Spur, the Coon Branch Spur, the Lower Whitewater Falls Overlook, the Hilliard Falls Spur, and the Laurel

Fork Falls Spur. Trail access areas providing vehicular access include Bad Creek Hydro, Laurel Valley, Chimneytop Gap, and Sassafras Mountain; and trail access areas providing boat-in or hike-in access only include Laurel Fork Falls, Toxaway River, Canebrake, and Horsepasture River.

This portion of the trail, primarily located on non-Project lands, is maintained by Duke Energy and private contractors with coordination and assistance from the FTC. Duke Energy maintains the trail in accordance with the 1996 Foothills Trail Maintenance Program (Appendix A).

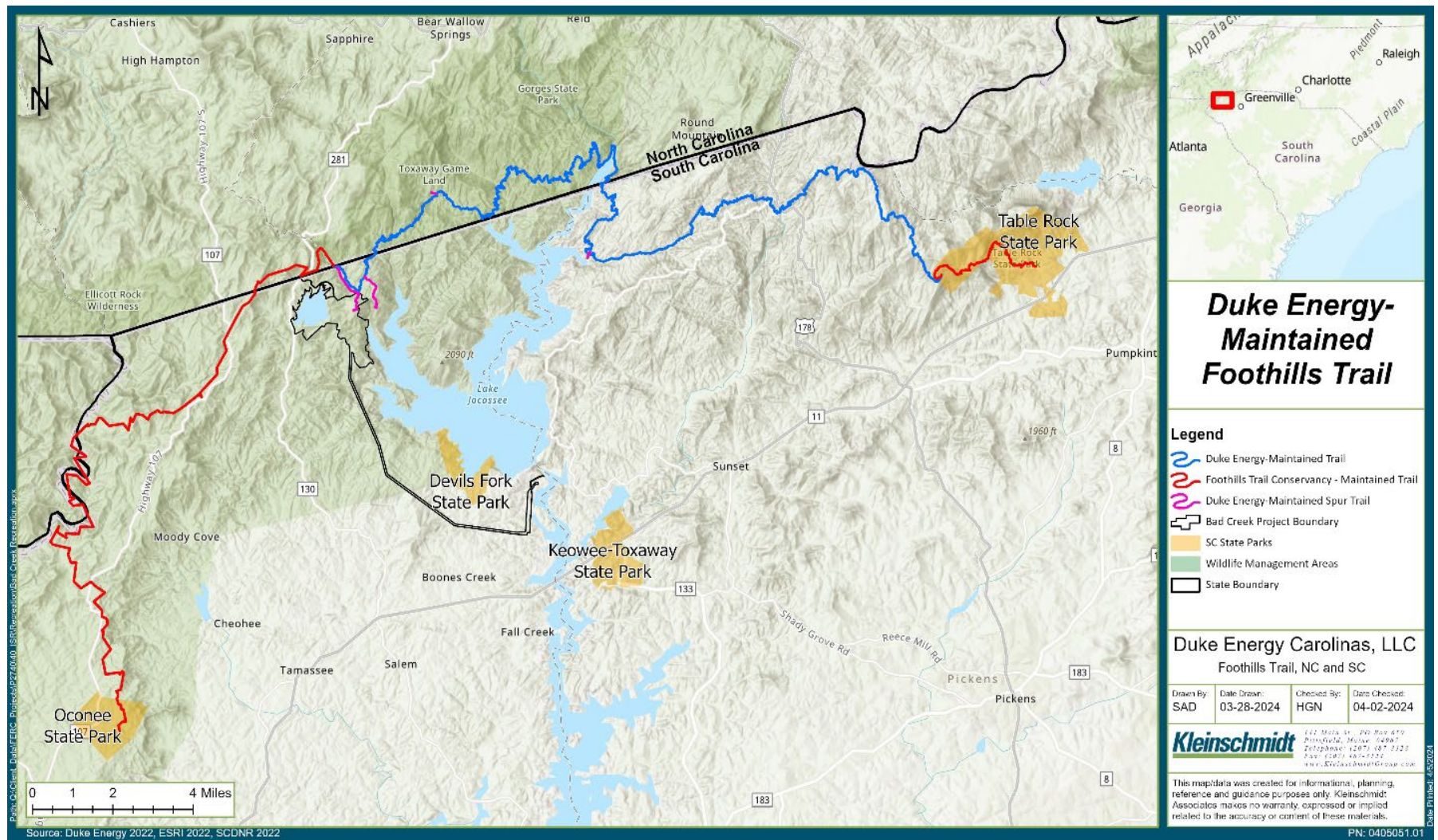


Figure 2-1 The Foothills Trail

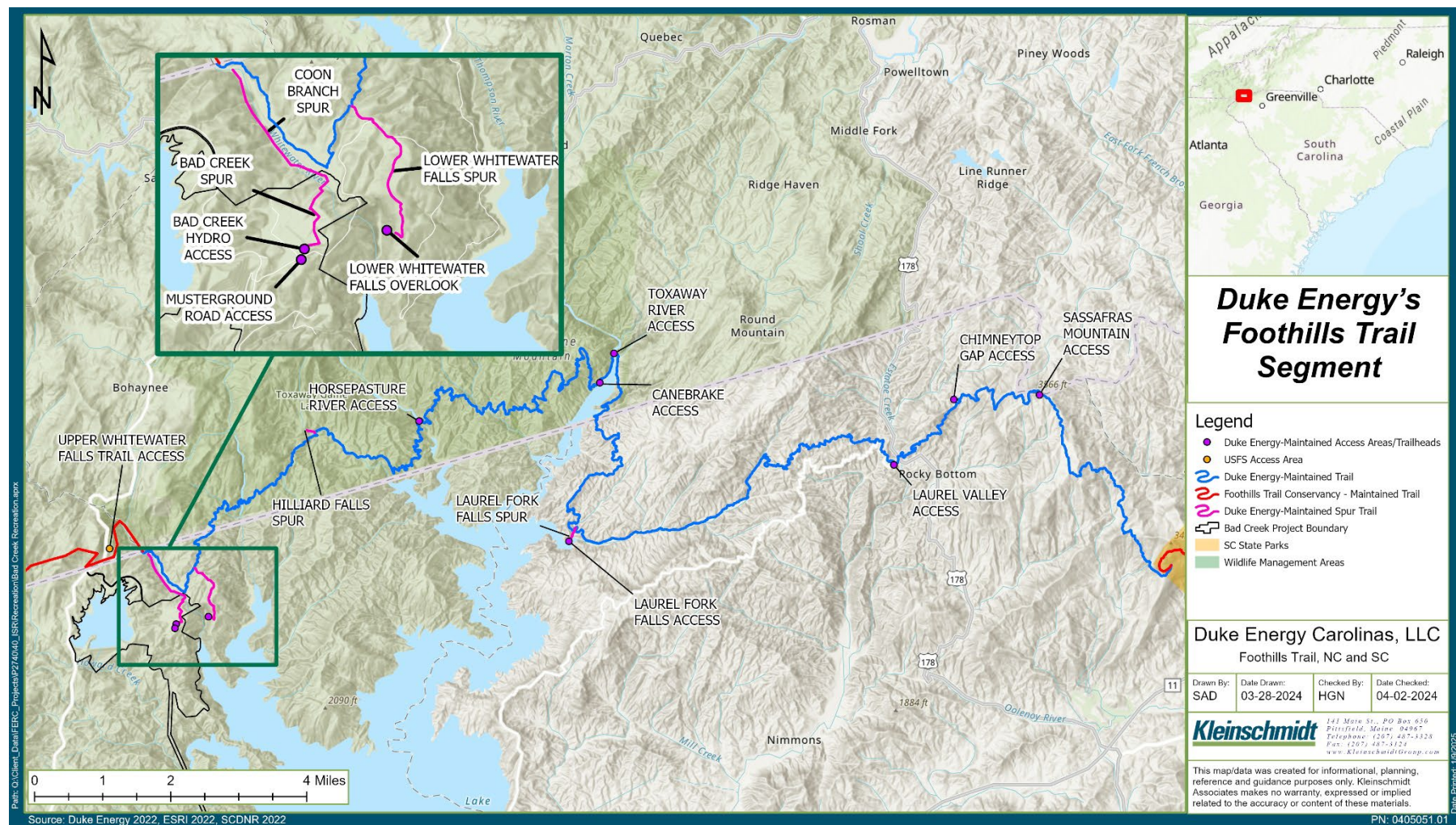


Figure 2-2 Duke Energy's Foothills Trail Segment

2.2.1 Bad Creek Hydro Access

The Bad Creek Hydro Access is located at the Bad Creek Project facility, approximately 45.5 miles west of Table Rock State Park. The trailhead includes a hardened parking area with space for approximately 90 vehicles including 2 Americans with Disabilities Act (ADA) spaces, 2 unisex portable toilets including one barrier-free toilet, and two kiosks. The area connects to the main trail through the Bad Creek Spur trail and provides access to the Coon Branch Spur trail and the Lower Whitewater Falls Overlook. This access area is located within the Bad Creek Project boundary.

Located near the Bad Creek Hydro access area is the entrance to Musterground Road which provides public access to 2,620 acres of South Carolina Department of Natural Resources (SCDNR)-owned Wildlife Management Area (WMA) and 4,118 acres of Duke Energy-owned property, leased by SCDNR and managed as a WMA. Public access to the WMA lands is available seasonally between September 15-January 15 and between March 20-May 10. SCDNR coordinates with Duke Energy to open and close the entrance gate to Musterground Road during these times.

2.2.2 Horsepasture River Access

Located northeast of Bad Creek Hydro Access and approximately 36.3 miles from Table Rock State Park is the Horsepasture River Access. The trailhead provides hike-in or boat-in access only. Boaters on Lake Jocassee can travel north to Horsepasture River near the trailhead, park their boat along the shoreline when lake levels are sufficient and fish or swim in the river. When lake levels are low, this area can be very difficult to access by boat. A timber truss bridge crosses Horsepasture River at the trailhead and allows hikers uninterrupted passage along the trail.

Other than the bridge, no other developed facilities are located at Horsepasture River Access. However, this area is a popular destination among visitors, including large tour groups on Lake Jocassee.

2.2.3 Canebrake Access

Moving east from Horsepasture River Access along the Foothills Trail is the Canebrake Access, located approximately 28.6 miles from Table Rock State Park. Canebrake Access has hike-in or boat-in accessibility only. The access area provides informal boat parking

along the Lake Jocassee rock and clay shoreline so boaters can hike the trail, fish along the shoreline, or camp in the area.

2.2.4 Toxaway River Access

Just northwest of Canebrake Access, approximately 28 miles from Table Rock State Park is the Toxaway River Access. The trailhead provides hike-in or boat-in access only. Boaters on Lake Jocassee can travel north to Toxaway River near the trailhead, park their boat along the shoreline when lake levels are sufficient and fish or swim in the river. When lake levels are low, this area is very difficult to access by boat. Located at the Toxaway River Access is a campground with 9 campsites, 9 fire rings, one active recreation area, 11 lantern hooks, 7 picnic tables, and 1 kiosk and other trail signage. Camping, fishing, and swimming are popular activities at the access area. A suspension bridge is located at the Toxaway River Access, providing hikers uninterrupted passage along the Foothills Trail.

2.2.5 Laurel Fork Falls Access

South of the Toxaway River Access on the Foothills Trail is the Laurel Fork Falls Access, located approximately 22.4 miles from Table Rock State Park. The area provides boat-in or hike-in access and connects to the Foothills Trail via the 0.2-mile-long Laurel Fork Falls Spur. Boaters can park their boats on the shoreline at Laurel Fork Falls Access, hike the spur trail to join the main trail and view the Laurel Fork Falls waterfall. Visitors also camp at the primitive campsite located a few hundred feet from the falls.

2.2.6 Laurel Valley Access

From Laurel Fork Falls Access continuing west along the trail is the Laurel Valley Access, located approximately 14.3 miles from Table Rock State Park. Laurel Valley Access provides vehicular access to the Foothills Trail via Horsepasture Road and includes a gravel parking lot with space for approximately 20 vehicles. This access point is often used by visitors utilizing the parking area for loading and unloading ATVs. Laurel Valley also provides access to the Eastatoe Gorge Spur Trail. Interpretive signage is located at the area with information related to the Jim Timmerman Natural Resources Area at Jocassee Gorges.

2.2.7 Chimneytop Gap Access

Northwest of Laurel Valley Access and approximately 12.2 miles from Table Rock State Park is the Chimneytop Gap Access. North of the trailhead on the eastern side of the F

Van Clayton Memorial Highway is a gravel parking area with space for approximately 10 vehicles. Recreators can park and hike SCDNR's Beech Bottom Falls Trail or walk down the road to join the Foothills Trail. At the trailhead is one kiosk.

2.2.8 Sassafras Mountain Access

Continuing east on the Foothills Trail from Chimneytop Gap Access is the Sassafras Mountain Access, located approximately 9.5 miles from Table Rock State Park at the North Carolina/South Carolina border. At the trailhead is a gravel parking area with space for approximately 30 vehicles and 1 ADA-designated space. There is also an overflow parking area approximately one-tenth of a mile south of the main parking area with space for approximately 7 vehicles. The trailhead also has two barrier free unisex vault toilets. Besides serving as a trailhead for the Foothills Trail, hikers can access the Palmetto Trail and the Caesar Head State Park Spur trail.

Just before reaching the trailhead, hikers traveling east on the Foothills Trail will encounter the Sassafras Mountain Overlook. The Sassafras Mountain Overlook is owned and managed by SCDNR and provides mountainous views of South Carolina, North Carolina, and Georgia. The overlook is accessible by stairs or the ADA-compliant ramp and shares parking and restroom facilities with the trailhead. Some visitors to the overlook walk the loop that surrounds it, while others may travel further, utilizing one of the connecting trails.

2.2.9 Spur Trails

Duke Energy maintains five spur trails that branch from the 43-mile-long segment of the Foothills Trail. These include Bad Creek Spur, Coon Branch Spur, Lower Whitewater Falls Overlook, Hilliard Falls Spur, and Laurel Fork Falls Spur.

The Bad Creek Spur is approximately 0.7 miles long and connects the Bad Creek Hydro Access trailhead to the main Foothills Trail. Two steel truss bridges are located approximately 0.5 miles from the Bad Creek Hydro parking area, providing access over the Whitewater River.

The Coon Branch Spur is approximately 1.0 mile long and originates from the Bad Creek Spur just before the two bridges at the Whitewater River. The Coon Branch Spur trail follows the southwestern side of the Whitewater River through the Coon Branch Natural

Area, which is owned by Duke Energy and protected under a conservation easement as part of the Jocassee Gorges.

The Lower Whitewater Falls Overlook is approximately 1.0 mile long and connects the observation platform to the main Foothills Trail. The wooden observation platform provides views of the Lower Whitewater Falls.

The Hilliard Falls Spur is approximately 0.1 mile long and branches from the main Foothills Trail near Bearcamp Creek, between Horsepasture River and Thompson River. The spur trail leads to the Hilliard Falls waterfall.

Laurel Fork Falls Spur is approximately 0.2 miles long and connects the main Foothills Trail to the Laurel Fork Falls Access on Lake Jocassee.

3.0 MANAGEMENT POLICIES

Duke Energy manages the 43-mile Foothills Trail segment according to the following policies.

3.1 Hours of Operations

Duke Energy's Foothills Trail segment and associated trailheads and spur trails are open to the public 24-hours a day year-round without discrimination. Trail segments and trailheads may be closed on occasion due to maintenance or construction activities, emergency situations, or for other public safety reasons.

Sassafras Mountain Overlook, which is owned and managed by SCDNR, is closed from one hour after sunset until one hour before sunrise.

3.1.1 Project Recreation Site Closings

In the case of temporary closures on any portion of the Duke Energy Foothills Trail segment, including trailheads, parking areas, or spur trails are necessary, Duke Energy will implement notification procedures to the public, including the installation of appropriate signage and/or physical barriers when necessary. Duke Energy will also directly contact appropriate federal, state, and local agencies and implement Duke Energy corporate communications resources to prepare news releases to appropriate outlets.

3.2 User Fees

Duke Energy provides free public access to the Foothills Trail and associated parking areas and campsites located on the Duke Energy Foothills Trail segment. When accessing the Foothills Trail from areas not managed by Duke Energy, including, but not limited to Devils Fork State Park, Table Rock State Park, and Oconee State Park, parking and user fees may apply.

3.3 Signage

Signage is posted throughout the Duke Energy Foothills Trail segment, including trail markers, directional signage, interpretive signage and informational kiosks. Duke Energy maintains signage along the Foothills Trail segment according to the 1996 Foothills Trail Maintenance Program (Appendix A) and is proposing to maintain signage during a new license term as described in Section 4.1.

3.4 Barrier Free

FERC's regulations at 18 Code of Federal Regulations (CFR) § 2.7(b) require the Licensee "develop suitable public recreational facilities upon project lands and waters ... and to include therein consideration of the needs of persons with disabilities in the design and construction of such project facilities and access."

The Bad Creek Hydro Access parking area includes 2 ADA-compliant parking spaces and one barrier free toilet. Additional ADA-compliant and barrier free facilities are available at the SCDNR-managed Sassafras Mountain Overlook. However, since the trail is maintained to provide low-use backcountry trail experiences and conditions, most of the Duke Energy Foothills Trail segment does not include barrier free or ADA-compliant facilities.

3.5 Prohibited Uses and Activities

The Foothills Trail and associated facilities must not be used to intentionally endanger public health or safety, create a public nuisance, or otherwise be incompatible with the overall public recreation use of the trail. Prohibited uses and activities are listed below. Duke Energy will consult with local enforcement agencies if the following uses or activities are identified as occurring on the trail.

- Motorized vehicles are prohibited on the trail outside of designated parking spaces and roads.
- Horses are prohibited on the trail.
- Campfires outside of designated camping areas are prohibited.
- Littering is prohibited.
- Destroying or defacing property or harassing wildlife is prohibited.

3.6 Compliance with State, Federal, and Local Laws and Regulations

Use of Duke Energy's Foothills Trail segment must be consistent with all FERC orders and regulations regarding recreation opportunities and development at licensed projects and all applicable regulations or directives issued by FERC or its predecessor, the Federal Power Commission. Use of the Foothills Trail segment must also comply with applicable state, federal, and local laws as well as all ordinances, rules, regulations, and sanctions of any regulatory body or governmental agency (state, federal, or local) having jurisdiction on the trail.

3.7 Protection of the Environment

Construction, operation, and maintenance activities on the Duke Energy Foothills Trail segment will include precautions to protect the scenic, environmental, recreational, and cultural quality of lands and waters of and around the Foothills Trail. Construction activities shall be conducted using Low Impact Development practices for storm water management, when possible, and soil and erosion control measures will be implemented and maintained. When practicable, trail facilities will be designed and constructed to retain vegetation, maintain natural habitat, and provide natural views.

3.7.1 Historic Properties

Duke Energy will comply with all aspects of the Bad Creek Project's Historic Properties Management Plan (HPMP) on portions of the trail that intersect the Bad Creek Project boundary. If any archaeological resources are discovered within the project boundary during construction or maintenance activities, the HPMP will be followed to determine what measures, if any, are needed to protect or salvage the resources.

If any archaeological resources are discovered on the Duke Energy Foothills Trail segment that occurs outside of the Bad Creek Project boundary, during construction or maintenance activities, Duke Energy will cease activities immediately and follow protocols laid out in the HPMP.

3.8 Project Recreation Site Planning

Continued public recreation planning and consultation with appropriate federal, state, and local resource agencies, parks and recreation agencies, tribes, local governments, and resource or recreation-based non-governmental organizations is important to Duke Energy. Over the term of the new license, unanticipated recreation needs on Duke Energy's Foothills Trail segment may be identified, and/or it may be determined that existing or planned recreation facilities are no longer needed or useful. To aid in planning for future recreation needs on Duke Energy's Foothills Trail segment, Duke Energy will conduct monitoring activities and stakeholder consultation throughout the new license term, as described in Section 6.2.

Consultation documentation will be filed with the Final License Application.

4.0 PROPOSED FOOTHILLS TRAIL MAINTENANCE

Duke Energy currently maintains the Foothills Trail segment according to the 1996 Foothills Trail Maintenance Program (Appendix A). Duke Energy is proposing to conduct routine trail maintenance according to Section 4.1 of this RMP throughout the new license term. In addition, further maintenance needs were identified during the Recreation Resources Study conducted in support of the Bad Creek Project relicensing. Duke Energy proposes to complete all maintenance needs identified during relicensing.

4.1 Routine Maintenance

Duke Energy proposes to conduct periodic inspections of the trail corridor on a year-round basis. Duke Energy also proposes to conduct trail maintenance and inspections annually, with most maintenance activities occurring between the months of April and October. Routine maintenance activities include:

- Clearing ground cover to maintain a footpath at least 2-feet-wide¹.
- Trimming side and overhead growth to maintain a cleared passageway at least 4-feet-wide and 8-feet-high.
- Removal of downed trees, unless easily passed by hikers. Downed trees that block the trail should be removed within one week of initial identification.
- Conducting trash pickup when the trail is inspected by maintenance personnel.
- Maintenance and implementation of retaining walls and erosion control measures as needed.
- Inspection of major bridges annually by maintenance personnel and once every 10 years by a licensed engineer; repair of major bridges as needed. Major bridges on the Duke Energy Foothills Trail segment are listed in Table 4-1.
- Inspection of steps and handrails annually by maintenance personnel; repairs to steps and handrails within one week of first identification.
- Inspection of signs annually; repairs, repainting, and/or replacement of signs to occur as needed.
- Repaint existing blazes every 3-5 years with white paint for main trail blazes and blue paint for Duke Energy spur trail blazes.
- Refill comment card and map holders as needed.

¹ Federally listed or other protected plants, including the Oconee Bells, would not be disturbed if identified.

- Maintain vehicle access points by:
 - Mowing grass every 4-6 weeks during growing season, at a minimum
 - Refreshing mulched areas with new mulch every spring; weed mulched areas twice each summer
 - Conducting litter pickup and disposal every 2-3 weeks year-round
 - Scraping gravel areas twice per year; add new gravel as needed
 - Removal of fire rings and burnt wood as needed
 - Ensuring metal gates visible from the trail are painted white as needed

Table 4-1 Major Bridges on the Duke Energy Foothills Trail Segment

Bridge Name	Latitude	Longitude	State	Bridge Type
Laurel Fork Creek - Bridge A	35.04745	-82.84950	SC	Pole
Laurel Fork Creek - Bridge B	35.04597	-82.85079	SC	Pole
Laurel Fork Creek - Bridge C	35.04525	-82.85199	SC	Pole
Laurel Fork Creek - Bridge D	35.04495	-82.85203	SC	Pole
Laurel Fork Creek - Bridge E	35.04435	-82.85145	SC	Pole
Laurel Fork Creek - Bridge F	35.04176	-82.85160	SC	Pole
Laurel Fork Creek - Bridge G	35.04140	-82.85166	SC	Pole
Laurel Fork Creek - Bridge RB2	35.03668	-82.86224	SC	Pole-2
Laurel Fork Creek - Bridge 2	35.03587	-82.86521	SC	Pole
Laurel Fork Creek - Bridge RB1	35.03492	-82.86758	SC	Logging Road
Laurel Fork Creek - Bridge RB3	35.03446	-82.87386	SC	Pole-2
Laurel Fork Creek - Bridge 3	35.03392	-82.87625	SC	Suspension
Laurel Fork Creek - Bridge 3A	35.03262	-82.88249	SC	Suspension
Laurel Fork Creek - Bridge 4	35.03222	-82.89396	SC	Suspension
Rock Creek - Bridge 5	35.05970	-82.88843	NC	Pole
Toxaway Creek - Bridge 6	35.07173	-82.88578	NC	Suspension
Toxaway River - Bridge 7	35.07169	-82.88686	NC	Suspension
Bear Creek - Bridge 8	35.05935	-82.92010	NC	Pole
Bridge 8A	35.06317	-82.93229	NC	Suspension
Horsepasture River - Bridge 9	35.05644	-82.93711	NC	Timber Truss
Bear Camp Creek - Bridge 9C	35.06514	-82.95245	NC	Pole
Bear Camp Creek - Bridge 9B	35.05455	-82.96160	NC	Pole

Bridge Name	Latitude	Longitude	State	Bridge Type
Bear Camp Creek - Bridge 9A	35.05337	-82.96395	NC	Pole
Thompson River - Bridge 12	35.03821	-82.98267	NC	Laminated Timber
Whitewater River - Bridge 15	35.01876	-82.99720	SC	Steel Truss
Whitewater River - Bridge 16	35.01894	-82.99707	SC	Steel Truss

4.2 Maintenance Needs Identified During Relicensing

The Recreation Resources Study conducted during the Bad Creek Project relicensing included a Foothills Trail Corridor Conditions Assessment which evaluated the current condition of trail surface and corridor in Duke Energy's Foothills Trail segment and identified areas needing maintenance or improvements. Duke Energy agreed to address all maintenance needs identified during the assessment, including those identified by the FTC during consultation, as part of the Bad Creek Relicensing Agreement and this RMP. Foothills Trail maintenance needs identified during relicensing are listed in Appendix B. Duke Energy will conduct maintenance and repairs to the Foothills Trail segment by July 31, 2027.

5.0 PROPOSED RECREATION ENHANCEMENT MEASURES

Duke Energy is proposing to improve recreational resources associated with the Duke Energy Foothills Trail segment by implementing the following specific measures on Project and non-Project lands. Duke Energy consulted with stakeholders in developing the enhancement measures as part of Exhibit E of the Bad Creek license application and the Bad Creek Relicensing Agreement. Proposed measures include both improvements to existing facilities and the addition of new facilities.

5.1 Foothills Trail Corridor Enhancements

In addition to the maintenance items discussed in Section 4.2, Duke Energy proposes to enhance and/or improve the Foothills Trail segment according to recommendations made during the Foothills Trail Corridor Conditions Assessment and associated consultation. Trail enhancements include widening existing bridges and adding handrails for safety reasons, installation of new or improved stairs, installation of new bog bridges and other bridges, and the addition of standard signage at access points. Most repairs to wooden infrastructure will use pressure treated wood to increase longevity of the structure and reduce maintenance needs in the future. Proposed enhancement measures will be implemented during the new license term.

A complete list of proposed enhancements is included in Appendix C.

5.2 Pit Privies

Duke Energy is proposing to install ten primitive privies/outhouses at the campgrounds located along the Duke Energy Foothills Trail segment. Duke Energy will conduct a two-year pilot study that includes installing and monitoring two privies in two locations to be determined in consultation with the FTC. Following the conclusion of the of the pilot study and resulting feasibility assessment, Duke Energy and FTC will determine the locations of the remaining privies in consultation with the applicable landowners and regulatory/resource agencies. If vandalism occurs, Duke Energy will replace the affected privy once; any following vandalism will result in moving the privy to an alternate location to be determined in consultation with FTC, applicable landowners, and regulatory/resource agencies. Installation of the ten privies will be contingent upon approval by applicable landowners and regulatory/resource agencies in South Carolina and North Carolina. If continual vandalism of the privies occurs at any of the ten locations,

Duke Energy reserves the right to abandon the privies that have been repeatedly damaged and to not install additional privies.

Duke Energy proposes to install the two pilot study privies within one year following FERC approval of the RMP and the remainder of the privies, if needed, within five years following FERC approval of the RMP.

5.3 Relocation of Bad Creek Hydro Trail Access Area

Duke Energy is proposing to expand the Bad Creek Project by constructing the Bad Creek II Complex, which would be located adjacent to the existing Bad Creek powerhouse. To accommodate Project modifications associated with the Bad Creek II Complex, Duke Energy would need to construct additional infrastructure, including a new transformer yard. The proposed location of the new transformer yard coincides with the existing Bad Creek Hydro Access parking area and the entrance to Musterground Road. Duke Energy anticipates construction of the Bad Creek II Complex to take approximately 7 years. During this time, the Bad Creek Hydro Access would be closed to the public.

To accommodate the new Bad Creek II Complex facilities, Duke Energy is proposing to permanently relocate the existing Bad Creek Hydro trail access and parking area and re-route a portion of Musterground Road (Figure 5-1). The trail access and parking area would be moved approximately 300 feet east of its current location. Musterground Road would be routed around the proposed transformer yard and powerhouse shaft/equipment building, approximately 300 feet east of its current location. Bad Creek Hydro Access relocation and Musterground Road rerouting would occur during the Bad Creek II Complex construction period.

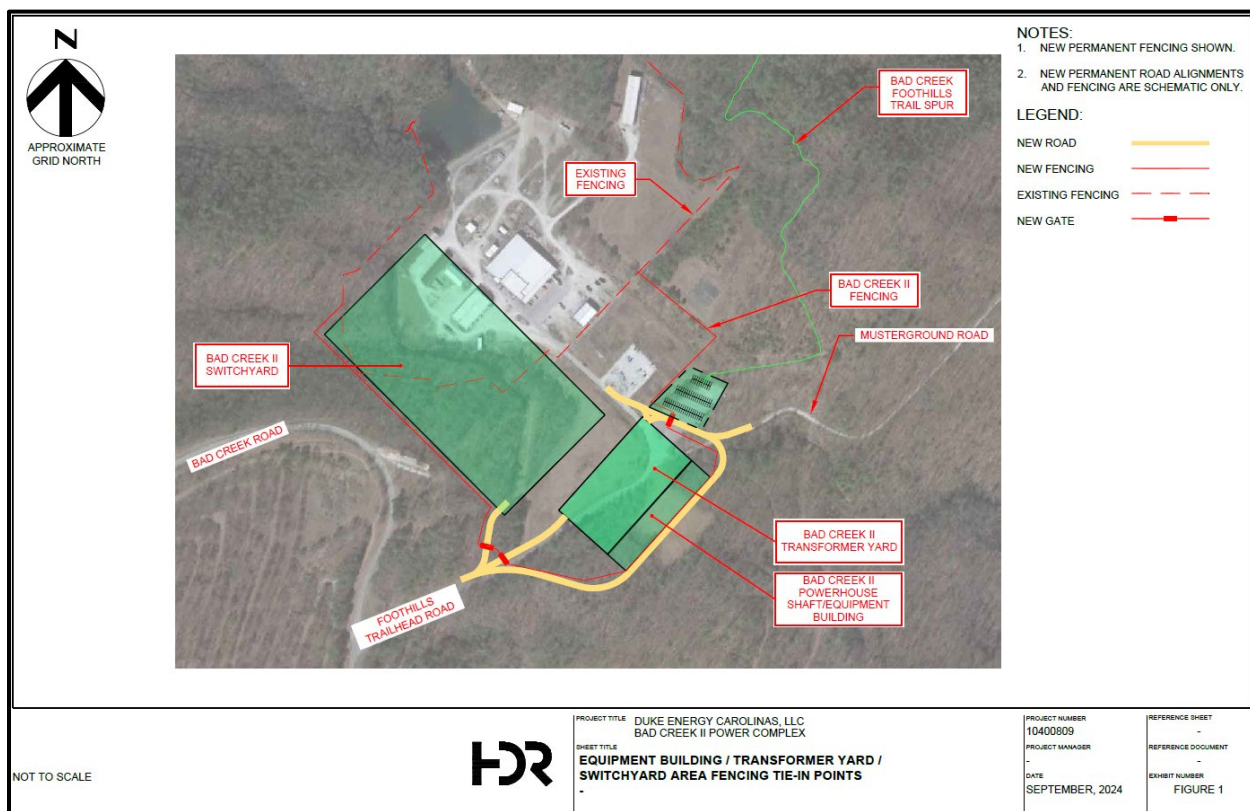


Figure 5-1 Proposed Relocation of Bad Creek Hydro Access Area and Musterground Road Entrance

5.4 Proposed Implementation Schedule for Recreation Enhancement Measures

Duke Energy is proposing to implement recreation enhancement measures described in Section 5.1 following issuance of the new license. Specific timing for each enhancement measure will be determined in consultation with recreation stakeholders.

Duke Energy is proposing to install the two pilot study privies, described in Section 5.2, within one year following FERC approval of the RMP and the remainder of the privies, if needed, within five years following FERC approval of the RMP.

Bad Creek Hydro Access relocation and Musterground Road rerouting described in Section 5.3 would occur within the approximately 7-year Bad Creek II Complex construction period.

6.0 FUTURE RECREATION MONITORING AND CONSULTATION

6.1 Future Recreation Monitoring

During relicensing, Duke Energy conducted a Recreational Resources Study that consisted of four main study tasks: (1) a Recreation Use and Needs (RUN) Study for the 43-mile-long portion of the Foothills Trail managed by Duke Energy; (2) a Foothills Trail Corridor Conditions Assessment of the 43-mile-long portion of the Foothills Trail managed by Duke Energy; (3) an Existing Recreational Use Characterization of Whitewater River cove; and (4) a Recreational Public Safety Evaluation of Whitewater River cove.

Continuation of recreation monitoring throughout a license term is essential to understanding future recreation needs at a project. Duke Energy proposes to conduct a combined RUN Study and a Trail Corridor Conditions Assessment for the Duke Energy Foothills Trail segment every 10 years following Bad Creek Project license issuance (i.e., 3 studies over a 40-year license or 4 studies over a 50-year license). If study results indicate that an update to the RMP is needed, Duke Energy will submit the study report to FERC and include a plan and schedule for updating the RMP.

6.2 Consultation

In addition to recreation monitoring consultation, Duke Energy will also continue to coordinate and consult with recreation stakeholders during the new license term as needed. Duke Energy will also coordinate with the FTC on certain non-routine maintenance activities on the Foothills Trail. Examples of non-routine maintenance may include, but are not limited to, suspension and large bridge repairs, trail realignments and expansions, primitive privy installations, and campsite improvements.

7.0 REFERENCES

Applied Trails Research, LLC (ATR). 2024. Carrying Capacity Assessment of Duke Energy's Foothills Trail. Prepared for Duke Energy Carolinas, LLC. May 2024.

APPENDIX A

FOOTHILLS TRAIL MAINTENANCE PROGRAM

DUKE POWER COMPANY

LAKE MANAGEMENT

FOOTHILLS TRAIL MAINTENANCE PROGRAM

POLICY AND PROCEDURES

FERC LICENSE #2740-SC

<u>ITEM NO.</u>	<u>DESCRIPTION</u>
I.	Duke Power Section of the Foothills Hiking Trail
II.	Safety Requirements
III.	Unauthorized Activities
IV.	Access Points
V.	Spur Trails
VI.	Maintenance Guidelines
VII..	Maintenance Schedules and Inspections
Attachment A	Bad Creek Development Exhibit R Sheets 1, 2, 3
Attachment B	Lake Jocassee and Foothills Trail Map

I. Duke Power Section of the Foothills Hiking Trail

Duke Power Company provides for maintenance of the main trail and four spurs that were constructed on Duke Power and Crescent Resources, Inc. properties to satisfy public recreational requirements of the Bad Creek Hydro Project license (FERC No. 2740). The trail extends from the current Duke/SCPRT property line on Pinnacle Mountain to the Duke/USFS property line on the Whitewater River (see Attachment A). The total distance including spur trails is approximately 46 miles and is protected by a 200 foot minimum width corridor.

II. Safety Requirements

Duke Power Company is committed to occupational health and safety as reflected in the company's Safe Work Practices (SWP) manual. This manual describes the work practices employees and suppliers are expected to use when engaged in on-the-job activities. The company also expects supervisors to ensure that employees and suppliers understand and use these safe work practices. The safe work practices are grouped into categories based on the type of work performed or the hazard. The following SWP manual categories most apply to trail maintenance work:

1. Heavy/Light Equipment
2. Personal Protective Equipment
3. Tools
4. Water Safety

*Note: Other categories may be applicable, depending on the task.

III. Unauthorized Activities

Vehicle and horse travel are not authorized on the trail.

*NOTE: Vehicle access for maintenance support is allowed along the maintenance roads shown on Attachment B.

Maintenance personnel should inform Duke Power of any unauthorized activities.

IV. Access Points

Two types of access points are provided for trail users: Access from vehicles, and boat access from Lake Jocassee (see Attachment A).

A. Vehicle Accesses

1. Sassafras Mountain
2. Chimneytop Gap
3. Laurel Valley
4. Bad Creek Hydro Project

B. Boat Access from Lake Jocassee

1. Laurel Fork Falls

2. Rock Creek
3. Toxaway River
4. Horsepasture River

*Note: Maintenance of Access Points is detailed under Item VI, Maintenance Guidelines.

V. Spur Trails

There are six spur trails that connect with the Duke section of the main trail. The following four spur trails are to be maintained under the same guidelines as the main trail:

- A. Laurel Fork Falls (Lake Jocassee - 0.2 miles)
- B. Hilliard Falls (Bearcamp Creek - 0.2 miles)
- C. Lower Whitewater Falls Overlook (Whitewater River - 1.7 miles)
- D. Coon Branch (Whitewater River - 1.0 miles)

Maintenance of the Caesar's Head Spur (Sassafras Mountain - 10.9 miles - marked with blue blazes) and the Eastatoe Gorge Spur (Laurel Valley - 2.6 miles - marked with yellow blazes) is not Duke Power's responsibility and is therefore not covered by these guidelines.

VI. Maintenance Guidelines

A. Trimming/Clearing/Trash Pickup

1. Ground cover should generally be removed to maintain a clear footpath not less than two (2) feet in width.
 - a. This is easiest obtained by using string heads on power trimmers.
 - b. Rare or desirable plants should not be trimmed unless totally obstructing the view of the footpath. Examples of such plants are Oconee Bells, all ferns, trilliums, and partridge pea.
2. Side and overhead growth must be trimmed to maintain a cleared passageway along the footpath at least four (4) feet wide and eight (8) feet overhead. Desirable and slow growing trees and bushes such as Hemlocks and Rhododendrons should be left whenever possible.
3. When trimming old roadbeds, leave as much shade as possible to reduce growth of grasses and weeds.
4. All trees blown across the footpath must be removed unless they can be easily walked under by a backpacker in an upright position.
 - a. Trees that require climbing over or leaving the trail to walk around are considered high priority and should be removed within one (1) week of first identification.
 - b. Trees that can be easily stepped over are considered lower priority and can be removed at a later date.
5. Trash should be picked up whenever a section of the trail is walked by maintenance personnel, and properly disposed of in a landfill.

B. Digging and Erosion Control

1. Any dug sections of the trail may have a maximum of ten degrees of side slope across the footpath.
 - a. Retaining walls should be placed along dug sections of the trail.
 - b. When re-digging a trail section, always inspect any existing retaining walls for decay and replace as necessary.
 - c. Only Black Locust logs, rock or rot resistant timbers are to be used for retaining walls.
 - d. The footpath must have a clear width of two (2) feet.
2. Water bars
All existing water bars must be cleaned of leaves and silt as needed, especially in the fall and winter. Additional water bars should be added as needed to control erosion, mainly on old road beds. Only Black Locust or rot resistant timbers secured with rebar are acceptable materials for construction of water bars.

C. Bridge Inspection and Repair

All bridges should be thoroughly inspected at least once a year by maintenance personnel and once every five (5) years by a licensed Engineer.

1. Repair broken boards within one (1) week of first identification.
2. Inspect all cables for rust and wear.
3. Remove any bee nests.
4. Replace missing hardware within one (1) week of first identification.
5. Remove debris around bridge support structures.
6. Inspect all bridge foundations and anchors.

D. Step Maintenance

Steps and handrails (both on-grade and above grade) are installed at a number of locations where the footpath is very steep. Steps and handrails should be inspected annually and necessary repairs made within one (1) week of first identification. Only Black Locust or rot resistant timbers secured with rebar or rock should be used to construct steps on-grade.

E. Sign Maintenance

1. There are several types of signs located at access points along the trail.
 - a. Entrance Signs: Located at each point of access to the trail.
 - b. Information Boards: Located at each point of access to the trail. These include a map of the trail, data concerning the Bad Creek Hydro Project, pertinent regulations, and contacts for further information.
 - c. Directional Arrows: Assists hikers in identifying which direction the trail turns and the distances to points of interests.
2. All signs should be inspected annually.
 - a. Letters on entrance signs must be painted as needed.

- b. Regulatory maps on information boards must be kept legible and in good repair.
- c. Distance signs and arrows must be painted and the wood replaced as needed.

F. Blazing

Blazes are used to guide hikers along the trail. A single blaze consists of a painted mark approximately four (4) inches wide by six (6) inches long on the side of a tree facing the trail. Single blazes should be visible about every 100 yards to let the hiker know he/she is still on the trail. Note that placing blazes more than 100 yards apart is acceptable and even desirable along sections where the trail location is very obvious (e.g. frequent dug/stepped sections, old roadways, etc.). Double blazes (consisting of two single blazes on the same tree) are used to warn hikers of areas requiring caution, such as places where the trail location may be difficult to distinguish. Blazes should be maintained as follows:

- 1. Existing blazes should be repainted every two (2) to three (3) years (repaint existing blazes only). Do not add or delete blazes without consulting Duke Power.
- 2. Old loose paint must be scraped away before repainting blazes.
- 3. Use only white, boundary marker paint for blazes on the main trail and blue boundary marker paint for blazes on the Duke spur trails.
- 4. Refrain from painting light colored bark (e.g. Poplar and Maple) since blazes may be hard to see from a distance.

G. Maintaining Vehicle Access Points

Vehicle access points are the most visible part of the trail, therefore, they must be kept clean of trash as well as mowed and landscaped.

- 1. Grass should be mowed and trimmed every four (4) to six (6) weeks during the growing season or more frequently if necessary so that grass height does not exceed eight (8) inches.
- 2. Fresh mulch should be placed in mulched areas every spring.
- 3. Mulched areas should be weeded twice each summer.
- 4. Litter should be picked up every two (2) to three (3) weeks year-round and properly disposed of in a landfill.
- 5. Gravel areas should be scraped twice per year with new gravel added as needed.
- 6. All fire rings and burnt wood should be removed when found.
- 7. All metal gates that are visible from the trail should be painted white as needed.

H. Trail comment card and Map holders

- 1. Fill holders with comment cards and maps as needed.
- 2. Replace holders as needed.

VII. Maintenance Schedule and Inspections

All parts of Duke Power's section of the trail should be inspected and maintained annually and as described above. Maintenance personnel will keep a running logbook indicating completion of maintenance on a section-by-section basis. The majority of this work will be done from April - October. Duke Power and the FERC will make periodic inspections of the trail corridor on a year-round basis.

APPENDIX B

MAINTENANCE NEEDS IDENTIFIED DURING FOOTHILLS TRAIL CORRIDOR CONDITIONS ASSESSMENT

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
LCT1	9/14/2023	Bad Creek Access Spur	0.1	35.01273631	-82.99787808	Culvert	Concrete culvert needs cleaning. Sediment has gathered and is sitting, not allowing water to run down the drain. Culvert is not damaged and should be cleaned on a regular interval.
LCT2	9/14/2023	Bad Creek Access Spur	0.1	35.01296829	-82.99759536	Wet Area / Standing Water	Gravel needs to be added to the section of the trail to raise it approximately 2 inches. This is a very low area with standing water most of the time. In fact, there is some drainage that seems to be serving a purpose in this area also.
LCT3	9/14/2023	Bad Creek Access Spur	0.2	35.01339791	-82.9977754	Wet Area / Standing Water	Low part of the trail, and gravel needs to be brought in. Easily accessible from the parking lot. This trail has had gravel on it in the past. It just needs a topping.
LCT4	9/14/2023	Bad Creek Access Spur	0.3	35.01449413	-82.99786919	Erosion Control Devices	Someone is putting barricades on the side of the trail, and these need to be removed. There are several in this section of the trail. These, in fact, hold water on the trail versus letting water off the trail. There should be a series of knicks or grade reversals in this section to divert water.
LCT5	9/14/2023	Bad Creek Access Spur	0.3	35.01413933	-82.99811383	Steps	The step is rotten and needs to be replaced.
LCT6	9/14/2023	Bad Creek Access Spur	0.6	35.01723673	-82.99744404	Signage	Approximately 100 feet of trail has been rerouted. The user can still see the old relays in the corner as well as the old trail. The new trail is working great! The old trail needs to be closed, and the new trail needs to be blazed in the corner, so users know this is the trail. In this particular area, you have not seen a blaze in a while. Blue color is needed to apply a new blaze
LCT7	9/14/2023	Bad Creek Access Spur	0.7	35.01869053	-82.99718057	Obstacle	A fallen tree across the trail needs to be removed.
LCT8	9/18/2023	Coon Branch	0.2	35.01956213	-82.99972003	Bridge	The upper railing needs to be replaced on both sides, and two decking boards need to be replaced.
LCT9	9/18/2023	Coon Branch	0.2	35.01966168	-82.9999907	Bridge	Two 2x4x12 railings need to be replaced.
LCT11	9/18/2023	Coon Branch	0.4	35.02160249	-83.00233517	Erosion Control	A major drain needs to be unclogged. It is overflowing and going down the trail. Installation of a 12-inch culvert to capture water before it reaches the trail, and installation of a grade dip below the culvert on the downhill side of the trail should subvert water that does get on the trail.

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
LCT12	9/14/2023	Lower Whitewater Falls Spur	0.4	35.02155442	-82.99014034	Washout	Trail needs water diversion in the form of grade dips or knicks.
LCT14	9/14/2023	Lower Whitewater Falls Spur	1	35.01476505	-82.98918722	Erosion	Trail is using an old roadbed that has a gully on each side and very few drains. all drains are clogged and need to be rerouted. New trail limit is very close to the old just elevated on the banks versus in the middle of the old roadbed.
FTC1		Foothills Trail	30.6	35.02712	-83.00535	Stairs	These stairs are pulling apart and are now at an unsafe angle.
FTC2		Foothills Trail	30.7	35.02612	-83.0041	Bridge	Rotten split log bridge with broken handrail. Needs replacing.
FTC3	11/22/2023	Foothills Trail	31.4	35.01909	-82.99697	Kiosk	Informational kiosk is water damaged and information is outdated and obsolete. Needs repair and updated information.
LCT15	9/14/2023	Foothills Trail	31.6	35.02092083	-82.99665677	Washout	The trail needs some grade reversals or knicks. Water has gotten on the trail and does not leave for some time, causing a gully if not fixed.
LCT16	9/30/2023	Foothills Trail	32.4	35.02958049	-82.99437631	Steps	Replace three steps
FTC4	11/22/2023	Foothills Trail	32.6	35.03095	-82.99234	Bridge	Rotten split log bridge with broken handrail. Needs replacing.
LCT17	9/30/2023	Foothills Trail	33.3	35.03730923	-82.98769713	Steps	Replace three steps
LCT18	9/30/2023	Foothills Trail	33.9	35.03812814	-82.98336354	Steps	One step needs to be replaced.
LCT19	9/30/2023	Foothills Trail	34.2	35.03822699	-82.98165951	Steps	Steps need to be replaced.
LCT20	9/30/2023	Foothills Trail	35.5	35.04768531	-82.96974848	Obstacle	Tree across trail and needs to be removed.
FTC6	11/22/2023	Foothills Trail	35.6	35.0486	-82.96974	Bridge	Rotten split log bridge with loose handrail. Needs replacing.
FTC7	11/22/2023	Foothills Trail	35.7	35.04925	-82.9694	Bridge	Rotten split log bridge with loose handrail. Needs replacing.
LCT21	9/18/2023	Foothills Trail	35.8	35.05077596	-82.96808629	Steps	Two steps need to be replaced.
FTC8	11/26/2023	Foothills Trail	36.4	35.05437	-82.96269	Bridge	Rotten split log bridge with loose handrail. Needs replacing.
FTC9	11/26/2023	Foothills Trail	36.6	35.05342	-82.96065	Bridge	Rotten split log bridge with missing handrail. Needs replacing.
LCT22	9/30/2023	Foothills Trail	37.2	35.04848663	-82.95255533	Steps	One step is rotten and needs to be replaced.
LCT23	9/30/2023	Foothills Trail	37.3	35.04886479	-82.95224431	Obstacle	From mile 36.2 at Hilliard Falls Trail to 37.3 at Bear camp campsite – heavy brush removal needed.
LCT24	9/30/2023	Foothills Trail	37.6	35.0484997	-82.94810344	Obstacle	Fallen tree across trail that needs to be cut out.

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
LCT25	9/30/2023	Foothills Trail	37.6	35.04848623	-82.94800267	Obstacle	Two trees have fallen and need to be cleared.
LCT26	9/30/2023	Foothills Trail	38.6	35.04622411	-82.93985485	Obstacle	Fallen tree.
LCT27	9/30/2023	Foothills Trail	38.7	35.04687284	-82.93946234	Obstacle	Brush from the top of a falling tree needs to be removed.
LCT28	9/30/2023	Foothills Trail	39.4	35.05225218	-82.93751518	Obstacle	Large tree across Trail needs to be removed.
LCT29	9/30/2023	Foothills Trail	39.5	35.05318844	-82.93657904	Obstacle	A top of a tree is crossing the trail and needs to be cut out.
LCT30	9/30/2023	Foothills Trail	39.8	35.05494625	-82.93714846	Erosion	At the foot of the bridge there is erosion. Rocks need to be added to armor the 2 x 2' area that is compromised.
LCT31	10/1/2023	Foothills Trail	39.9	35.05678279	-82.93638778	Steps	One step needs to be replaced
LCT32	10/1/2023	Foothills Trail	40.1	35.05636493	-82.93419022	Obstacle	Trail needs to be trimmed for 2/10 of a mile from Horse Pasture River Bridge to mile 40.3.
LCT33	10/1/2023	Foothills Trail	40.2	35.05690722	-82.93502841	Obstacle	Tree removal
LCT34	10/1/2023	Foothills Trail	40.4	35.05892556	-82.93459743	Obstacle	Tree removal
LCT35	10/1/2023	Foothills Trail	40.4	35.05894665	-82.93456431	Obstacle	Tree removal
LCT36	10/1/2023	Foothills Trail	40.5	35.05893904	-82.9342663	Bridge	Trees falling on bridge needs to be repaired.
LCT37	10/1/2023	Foothills Trail	40.5	35.05894956	-82.93423148	Obstacle	Tree removal
LCT38	10/1/2023	Foothills Trail	40.8	35.06270942	-82.93295438	Obstacle	Tree needs to be removed.
LCT39	10/1/2023	Foothills Trail	40.9	35.06302301	-82.93270134	Washout	15 feet of trail needs to be re-benched.
LCT40	10/1/2023	Foothills Trail	42.6	35.05953224	-82.92052046	Obstacle	Fallen tree needs to be removed.
LCT41	10/1/2023	Foothills Trail	42.6	35.05954586	-82.92038139	Obstacle	Tree removal
LCT42	10/1/2023	Foothills Trail	44.6	35.06174146	-82.90542222	Obstacle	Fallen tree needs to be cut out.
LCT43	10/1/2023	Foothills Trail	45.7	35.06475517	-82.90024767	Obstacle	Tree removal
LCT44	10/1/2023	Foothills Trail	47.9	35.06632757	-82.88963219	Bridge	Bog bridge needs to be installed.
LCT45	10/1/2023	Foothills Trail	48.3	35.07118731	-82.88726657	Obstacle	Tree needs to be removed from across trail.
LCT46	10/1/2023	Foothills Trail	48.8	35.06624918	-82.8858863	Steps	Step replacement
LCT47	10/1/2023	Foothills Trail	48.9	35.06471527	-82.88571508	Additional Comment	Bench needs to be replaced.
LCT49	10/1/2023	Foothills Trail	48.9	35.06423394	-82.8852986	Steps	Two steps need to be replaced. They are missing.

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
							One step needs to be repaired.
LCT50	10/1/2023	Foothills Trail	49.1	35.06204989	-82.88605607	Steps	One step needs to be replaced.
LCT51	10/1/2023	Foothills Trail	49.2	35.06188881	-82.88646935	Obstacle	Tree across trail needs to be cut.
LCT52	10/1/2023	Foothills Trail	49.2	35.06188238	-82.88636861	Steps	Two steps are missing and need to be replaced.
LCT53	10/1/2023	Foothills Trail	49.2	35.06188773	-82.88644732	Steps	One step needs to be replaced.
LCT54	10/1/2023	Foothills Trail	49.4	35.06033756	-82.88994145	Steps	One step needs to be replaced.
LCT55	10/1/2023	Foothills Trail	49.5	35.06031437	-82.88911736	Steps	One step needs to be replaced.
LCT56	10/1/2023	Foothills Trail	49.9	35.05836929	-82.89148322	Obstacle	Tree across trail needs to be cut.
FTC19	11/18/2023	Foothills Trail	49.9	35.0585	-82.89075	Bridge	Rotten split log bridge with missing handrail. Needs replacing.
FTC20	11/18/2023	Foothills Trail	53.7	35.03439	-82.89607	Kiosk	Informational kiosk is water damaged and information is outdated and obsolete. Needs repair and updated information.
LCT57	9/17/2023	Foothills Trail	53.9	35.03336423	-82.8943042	Obstacle	Tree has fallen across trail and holding back water, causing erosion before the tree fall.
LCT58	9/17/2023	Foothills Trail	54.2	35.03126431	-82.89076147	Culvert	12-inch culvert needs to be installed to focus water across the trail and prevent future erosion.
LCT59	9/17/2023	Foothills Trail	54.2	35.03152907	-82.89171696	Signage	Insufficient blazes at this junction of foothills trail and laurel fork campsite. More white blades need to be added.
LCT60	9/17/2023	Foothills Trail	54.6	35.03224254	-82.886101	Steps	One step needs to be replaced.
LCT61	9/17/2023	Foothills Trail	54.8	35.03243434	-82.88302672	Bridge	Needs to be raised and lengthen to 12 feet long.
LCT64	9/17/2023	Foothills Trail	57.1	35.04325018	-82.85098593	Steps	Two steps are rotten and need to be replaced.
LCT65	9/17/2023	Foothills Trail	57.3	35.04586891	-82.85120517	Steps	4 steps need to be replaced.
FTC22	11/18/2023	Foothills Trail	57.9	35.0496	-82.84608	Steps	Handrail is broken down in several places.
LCT66	9/17/2023	Foothills Trail	57.9	35.04966325	-82.84604181	Steps	One step needs to be replaced.
FTC23	11/18/2023	Foothills Trail	58.8	35.04992	-82.84119	Bridge	Handrail need to be replaced, very loose.
LCT67	9/17/2023	Foothills Trail	61.2	35.054138	-82.8166194	Steps	One step needs to be replaced.
LCT68	7/16/2023	Foothills Trail	62	35.05087322	-82.81288696	Bridge	One 2x6x12 bore needs to be replaced. It is rotten.
LCT69	7/16/2023	Foothills Trail	62	35.05092472	-82.81235406	Steps	Rotten. Needs to be replaced.
LCT70	7/16/2023	Foothills Trail	62.1	35.05166502	-82.81183115	Steps	Needs to be replaced. Rotten.

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
LCT71	7/16/2023	Foothills Trail	63.8	35.06192592	-82.79797438	Steps	Replace steps
LCT72	7/16/2023	Foothills Trail	63	35.05545323	-82.80436645	Obstacle	Tree across trail.
LCT73	7/16/2023	Foothills Trail	64.5	35.06428672	-82.79296011	Erosion	Needs water break.
LCT74	7/16/2023	Foothills Trail	64.5	35.06450762	-82.79284939	Erosion	Tread is gone. It needs reestablished.
LCT75	7/16/2023	Foothills Trail	64.9	35.06418329	-82.78862932	Erosion	Rail on side of trail needs to be removed. It is holding water on the trail. Grade dips need to be installed and steps need to be reinstalled.
LCT76	7/16/2023	Foothills Trail	66.2	35.06514616	-82.77881549	Erosion	
FTC25	12/3/2023	Foothills Trail	69.8	35.0386	-82.75329	Steps	Handrails are broken down
LCT77	10/2/2023	Foothills Trail	69.9	35.03597162	-82.75429371	Erosion	Tree has fallen on trail and uprooted 8 feet of trail. 8 feet needs to be re-benched.
LCT78	10/2/2023	Foothills Trail	70.1	35.03574288	-82.75253624	Obstacle	Tree across trail needs to be cut out.
LCT79	10/2/2023	Foothills Trail	70.2	35.03527295	-82.75187234	Obstacle	Tree needs to be cut out that is across trail.
LCT80	10/2/2023	Foothills Trail	70.2	35.03507738	-82.75184794	Steps	One step needs to be replaced.
LCT81	10/2/2023	Foothills Trail	70.3	35.03407215	-82.7509606	Obstacle	Tree across trail needs to be cut.
LCT82	10/2/2023	Foothills Trail	70.8	35.02819674	-82.74681091	Obstacle	Remove tree that's across trail.
LCT83	10/2/2023	Foothills Trail	70.8	35.02814792	-82.74679256	Obstacle	Trail is extremely overgrown and needs to be trimmed from mile 70.2 at Pigeon Gap to mile 70.9 at Lighthouse Campsite.
LCT84	10/2/2023	Foothills Trail	71.3	35.028678	-82.741463	Obstacle	Tree across trail in switchback. Fallen tree crosses trail twice.
LCT85	10/2/2023	Foothills Trail	71.6	35.02797993	-82.74450542	Obstacle	Three trees across trail need to be cut out.
LCT86	10/2/2023	Foothills Trail	71.7	35.02985095	-82.74414491	Obstacle	Tree across trail needs to be removed
LCT87	10/2/2023	Foothills Trail	71.9	35.03149829	-82.74218004	Obstacle	Tree across trail needs to be removed
LCT88	10/2/2023	Foothills Trail	71.9	35.03149667	-82.74159849	Obstacle	Tree across trail needs to be removed
LCT89	10/2/2023	Foothills Trail	71.9	35.0316208	-82.74135269	Obstacle	Corridor needs to be cleared and brushed removed from mile 70.9 at Lighthouse Campsite to 72.1 at Pinnacle Mountain Trail Junction.
FTC27	11/26/2023	Hilliard Falls Spur	0.1	35.05396	-82.96539	Bridge	Split log bridge is rotten and falling in, needs to be replaced

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
FTC28	11/26/2023	Hilliard Falls Spur	0.05	35.05389	-82.96468	Erosion	Trail needs to be re-benched and re-established
FTC29	11/23/2023	Laurel Fork Falls Access Spur	0.1	35.03349	-82.89647	Bridge	Bridge has broken stringer and missing handrail. Needs to be replaced.

*LCT indicates issue originally identified by Long Cane Trails, FTC indicates issue originally identified by Foothills Trail Conservancy

APPENDIX C

PROPOSED FOOTHILLS TRAIL CORRIDOR ENHANCEMENTS

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
LCT10	9/18/2023	Coon Branch	0.4	35.02183009	-83.00243764	Bridge	Bog Bridge, two feet wide by four feet long, needs to be installed
LCT13	9/14/2023	Lower Whitewater Falls Spur	0.9	35.01623192	-82.98947331	Washout	Trail needs some steps and grade dips or water diversion features added. Approximately 20 steps needed.
FTC5	11/22/2023	Foothills Trail	32.9	35.03364	-82.99093	Bridge	This bridge need to be widened and a more secure handrail.
FTC10	11/26/2023	Foothills Trail	36.9	35.05084	-82.95669	Bridge	Narrow 4x4 bridge with no handrail needs to be widened and improved for safety.
FTC11	11/26/2023	Foothills Trail	37	35.05032	-82.95643	Bridge	Plank bridge with no handrail needs to be improved for safety.
FTC12	11/26/2023	Foothills Trail	37.2	35.04914	-82.95372	Bridge	Narrow 4x4 bridge with no handrail needs to be widened and improved for safety.
FTC13	11/26/2023	Foothills Trail	39.8	35.05569	-82.93749	Bridge	Old lumber bridge with no handrail. Need to be improved for safety.
FTC14	11/26/2023	Foothills Trail	41	35.06268	-82.93308	Bridge	Old log and lumber bridge needs to be rebuilt for safety
FTC15	11/24/2023	Foothills Trail	44.6	35.06195	-82.90653	Bridge	Bridge needs to be widened for safety.
FTC16	11/18/2023	Foothills Trail	48.3	35.07061	-82.88732	Bridge	Bridge needs to be widened and improved for safety.
FTC17	11/18/2023	Foothills Trail	48.3	35.07144	-82.88723	Bridge	Bridge needs to be widened and improved for safety.
LCT48	10/1/2023	Foothills Trail	48.9	35.06448911	-82.88557639	Bridge	Bog bridge needs to be added.
FTC18	11/18/2023	Foothills Trail	49.1	35.06369	-82.88494	Steps	Stairs have sunk on one side and are very sloped. Needs to be rebuilt for safety.
LCT62	9/17/2023	Foothills Trail	55.5	35.03426627	-82.8715385	Bridge	3 feet wide by 20 feet long bog bridge needs to be installed.
LCT63	9/17/2023	Foothills Trail	55.5	35.03426745	-82.87159877	Bridge	Trail is starting to widen due to water flow on trail being blocked. 12-foot-long by 4-foot-wide bridge needs to be added.
FTC21	11/18/2023	Foothills Trail	56.3	35.03759	-82.85947	Bridge	12-foot boards need to be replaced with 14-foot boards to address undercutting that is occurring. Needs a handrail added for safety.
FTC24	11/18/2023	Foothills Trail	58.9	35.05112	-82.84013	Bridge	Bridge needs to be widened and handrail added for safety.
FTC26	12/3/2023	Foothills Trail	70.2	35.03601	-82.75209	Bridge	Needs handrail added for safety

Trail Issue #	Date Assessed	Trail Name	Mile Marker	Latitude	Longitude	Issue Type	Description/Details
FTC30	11/23/2023	Laurel Fork Falls Access Spur	0.2	35.03238	-82.89707	Signage	Temporary signage needs to be replaced with standard signage for access points.

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