



**US Army Corps  
Of Engineers**  
Wilmington District

# PUBLIC NOTICE

Issue Date: August 12, 2016  
Comment Deadline: September 12, 2016  
Corps Action ID Number: SAW-2015-02543

The Wilmington District, Corps of Engineers (Corps or USACE) received an application from Mr. Jonathan Ray of Duke Energy Carolinas, LLC (Duke Energy) seeking Department of the Army authorization for 110 linear feet (lf) of temporary stream impacts (stream crossing), 51.3 acres of temporary open water impacts (barge loading/staging area and impoundment dewatering), and 9.61 acres of permanent open water impacts (submerged weir and rock spoil disposal), associated with the Cedar Cliff Development Auxiliary Spillway Upgrade Project in Tuckasegee, Jackson County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx>

**Applicant:** Mr. Jonathan Ray  
Duke Energy Carolinas, LLC  
400 S. Church Street  
Charlotte, North Carolina 28202

**AGENT (if applicable):** Mr. Eric Mularski  
HDR Engineering, Inc.  
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Charlotte, North Carolina 28202

## Authority

The Corps evaluates this application and decides whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of the following Statutory Authorities:

- ☒ Section 404 of the Clean Water Act (33 U.S.C. 1344)
- ☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- ☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

## **Location**

Directions to Site: From NC Highway 107 in Tuckasegee, turn east onto NC Highway 281 (Canada Road). Travel approximately 1.5 miles and turn right onto the Duke Energy Cedar Cliff Facility access road and follow this road to the Cedar Cliff Lake dam and spillway.

Project Area (acres):	121
Nearest Town:	Tuckasegee
Nearest Waterway:	East Fork Tuckasegee River
River Basin:	Tuckasegee (06010203)
Latitude and Longitude:	35.25363 N, 83.09925 W

## **Existing Site Conditions**

The East Fork Hydroelectric Project (East Fork Project) began commercial operation in 1952 and is currently owned and operated by Duke Energy. The East Fork Project consists of three developments, which are (from upstream to downstream) the Tennessee Creek Development, Bear Creek Development, and Cedar Cliff Development. The Federal Energy Regulatory Commission (FERC) issued a new license for the East Fork Project on May 4, 2011. The Project is currently classified by FERC as having “High” hazard potential based on the probable loss of human life and potential for economic losses, environmental damage, and/or disruption to lifelines caused by failure or mis-operation of a dam or appurtenances.

The Cedar Cliff Development is located on the East Fork of the Tuckasegee River (East Fork) in Jackson County, North Carolina, approximately 6 miles southeast of the town of Cullowhee (Figure 1). Constructed between 1950 and 1952, the development consists of a 590-foot-long, 173-foot-high, earthen impervious core and rock fill embankment with nominal upstream and downstream slopes of 1.3 Horizontal (H):1 Vertical (V), and a crest elevation of 2,343.5 feet above mean sea level (ft msl). The dam impounds Cedar Cliff Lake, which has a surface area of 121 acres and total reservoir volume of 6,200 acre-feet at a normal maximum pool at full pond elevation of 2,330 ft msl. The dam crest is 25 feet (ft) wide and includes a concrete parapet wall along its entire length that varies in height from 1.5 ft to 3.7 ft. A principal spillway is located at the right abutment and includes a float-controlled 25 ft by 25 ft Tainter gate with a sill elevation of 2,305 ft msl.

An auxiliary spillway is located at the left abutment, which contains two erodible fuse plugs separated by a concrete splitter wall with a total fuse plug length of 200 ft. The fuse plugs are constructed of crushed stone and sand with a sloping core of compacted impervious fill. The auxiliary spillway’s crest elevation ranges from 2,331 to 2,334 ft msl.

Water is conveyed to the Cedar Cliff powerhouse via a tunnel intake opening near the right upstream toe of the dam. The water conveyance tunnel intake is protected by a 10.2 ft wide by 16.4 ft high steel slide gate that is normally in the open position to facilitate hydroelectric generation. Water is conveyed down a 1,138 ft long tunnel with a 12 ft diameter concrete-lined

section, a 13 ft by 15 ft unlined section, and a 10 ft diameter steel-lined section. The tunnel adjoins an 8 ft diameter steel penstock at the powerhouse, which contains one vertical Francis-type generating unit with a nameplate-rated capacity of 9,400 horsepower at best gate efficiency gate position under 170 ft net head and discharge capacity of 555 cubic feet per second (cfs).

Construction of a new minimum flow powerhouse adjacent to the existing powerhouse was completed in January 2013. The new powerhouse contains a generating unit consisting of a turbine, generator, governor and associated high-pressure hydraulic system, control panel boards, generator protection relays, and metal-clad switchgear. The continuous minimum flow turbine generator unit produces approximately 400 kilowatts (kW) based on 35 cfs and 157 ft net head. Water inflow to the continuous minimum flow unit is conveyed from the 8 ft penstock serving the main powerhouse generating unit.

The Cedar Cliff Development includes a bypass reach that extends approximately 0.5 mile from the base of the dam to the powerhouse, where it becomes the East Fork.

The project area is situated in the Blue Ridge physiographic province, a mountainous zone that extends northeast-southwest from southern Pennsylvania to central Alabama. The physiography of the Jackson County consists of high, intermediate, and low mountains; floodplains; and low stream terraces (Figure 2). The East Fork is located in the Tuckasegee River watershed, which typically drains to the north. The project area is surrounded by open water, rural residential, pastureland, and forested undeveloped lands (Figure 3).

The Cedar Cliff Development is part of the Tennessee River system and lies within the Tuckasegee River watershed (HUC 06010203), which is a sub-basin of the Little Tennessee River. The total drainage area of the Tennessee River is 42,000 square miles, of which the Little Tennessee River contributes 2,627 square miles, including more than 655 square miles from the Tuckasegee River. This sub-basin contains some of the most pristine, high-quality waters in the state and supports numerous trout streams. The East Fork (including Cedar Cliff Lake) from Tennessee Creek to the West Fork Tuckasegee River is classified as a Water Supply III (WS-III), Primary Recreation Class B; Trout Waters (Tr) surface water, as designated by the North Carolina Department of Environmental Quality – Division of Water Resources (NCDWR).

Habitat for aquatic species within the East Fork varies along its length due to impoundments, diversions, and other anthropogenic influences. Shoreline habitats along Cedar Cliff Lake include clay/weathered bedrock, sand/cobble, vegetated/stream confluence, and woody debris. These habitats provide food and cover for aquatic fauna and critical nursery areas for juvenile fish.

Riverine habitat along the East Fork bypass reach includes riffle/run complexes and pools with a variety of coarse substrate such as sands, cobbles, boulders, and bedrock. Organic aquatic habitats include leaf packs, woody debris, root masses, and submerged/emergent vegetation. The riparian corridor is intact and includes large trees and shrubs that provide shade and cover for aquatic organisms.

Cedar Cliff Lake and the East Fork bypass reach exhibit a wide variety of warm water and cool water fish species. Fish survey data for Cedar Cliff Lake collected in the 1960s and 1996 by the North Carolina Wildlife Resources Commission (NCWRC) identified 18 species, many of which are game species such as smallmouth and largemouth bass (most common), and rainbow, brown, and brook trout.

In 2015, a botanical survey was conducted by HDR biologists within the project area. Based on Classification of the Natural Communities of North Carolina – Fourth Approximation (Schafale 2012), several natural communities were identified including Montane Acid Cliff, Acidic Cove Forest, and Rich Cove Forest.

The project area is dominated by hard and mixed hardwood pine forest types. The forested areas are comprised of mature woody, herbaceous, and vine species including black oak (*Quercus velutina*), northern red oak (*Quercus rubra*), white oak (*Quercus alba*), American sycamore (*Platanus occidentalis*), American beech (*Fagus grandifolia*), black walnut, black locust (*Robinia pseudoacacia*), cucumber tree (*Magnolia acuminata*), green ash (*Fraxinus pennsylvanica*), mockernut hickory (*Carya tomentosa*), persimmon (*Diospyros* sp.), tulip poplar (*Liriodendron tulipifera*), hemlock (*Tsuga canadensis*), red maple (*Acer rubra*), striped maple (*Acer pensylvanicum*), white pine (*Pinus strobus*), yellow birch (*Betula alleghaniensis*), black cherry (*Prunus serotina*), chokecherry (*Prunus virginiana*), ironwood (*Carpinus caroliniana*), mountain doghobble (*Leucothoe fontanesiana*), mountain laurel (*Kalmia latifolia*), spicebush (*Lindera benzoin*), witchhazel (*Hamamelis virginiana*), yellowroot (*Xanthorhiza simplicissima*), bee balm (*Monarda* sp.), cardinal flower (*Lobelia cardinalis*), horsetail (*Equisetum* sp.), goldenrods, jack-in-pulpit (*Arisaema triphyllum*), Nepalese browntop (*Microstegium vimineum*), wingstem (*Verbesina alternifolia*), ebony spleenwort (*Asplenium platyneuron*), southern lady fern (*Athyrium filix-femina*), sensitive fern (*Onoclea sensibilis*), catbrier (*Smilax* sp.), Japanese honeysuckle (*Lonicera japonica*), muscadine (*Vitis rotundifolia*), poison ivy (*Toxicodendron radicans*), trumpet creeper (*Campsis radicans*), and Virginia creeper (*Parthenocissus quinquefolia*).

Terrestrial communities are comprised of forested lands with a few open habitats that may support a diverse number of wildlife species. Representative mammal, bird, reptile, and amphibian species commonly occurring in these habitats are listed below. Note individual species and/or evidence of species observed during HDR's field survey are indicated with an asterisk (\*). Information on species that typically use these habitats in the Appalachian Oak Forest Region was obtained from relevant literature, mainly the Biodiversity of the Southeastern United States, Upland Terrestrial Communities (Martin et al. 1993).

Mammal species that commonly occur in these habitats include eastern cottontail (*Sylvilagus floridanus*)\*; gray squirrel (*Sciurus carolinensis*)\*; eastern chipmunk (*Tamias striatus*), southern flying squirrel (*Glaucomys volans*), various vole, rat, and mice species; raccoon (*Procyon lotor*)\*; Virginia opossum (*Didelphis virginiana*)\*; white-tailed deer (*Odocoileus virginiana*)\*, and black bear (*Ursus americanus*). Bird species that commonly use these habitats include indigo bunting (*Passerina cyanea*), prairie warbler (*Dendroica discolor*), northern cardinal (*Cardinalis cardinalis*), field sparrow (*Spizella pusilla*), rufous-sided towhee (*Pipilo erythrophthalmus*), red-eyed vireo (*Vireo olivaceus*), scarlet tanager (*Piranga olivacea*), blue jay (*Cyanocitta cristata*),



and Carolina chickadee (*Poecile carolinensis*). Predatory birds may include several hawk\* and owl species and turkey vulture (*Cathartes aura*)\*. Reptile and amphibian species that may use this terrestrial community include copperhead (*Agkistrodon contortrix*), eastern corn snake (*Pantherophis guttatus*), eastern box turtle (*Terrapene carolina carolina*), eastern fence lizard (*Sceloporus undulatus*), five-lined skink (*Plestiodon fasciatus*)\*, spring peeper (*Pseudacris crucifer*)\*, timber rattlesnake (*Crotalus horridus*), and American bull frog (*Rana catesbeiana*). The dominant species of salamander in these habitats are dusky salamanders (*Desmognathus* spp.).

HDR obtained and reviewed a list of federally protected species for Jackson County, North Carolina from the U.S. Fish and Wildlife Service (USFWS) website, which was last updated on July 24, 2015. The following table provides a summary of these species.

### Federally Protected Species for Jackson County, North Carolina

Common Name	Scientific Name	Federal Designation <sup>1</sup>	Record Status <sup>2</sup>
<b>Vertebrates</b>			
Bog turtle	<i>Clemmys muhlenbergii</i>	T(S/A)	Probable/ Potential
Carolina northern flying squirrel	<i>Glaucomys sabrinus coloratus</i>	E	Current
Indiana bat	<i>Myotis sodalis</i>	E	Current
Northern long-eared bat	<i>Myotis septentrionalis</i>	T	Current
<b>Invertebrates</b>			
Appalachian elktoe	<i>Alasmidonta raveneliana</i>	E	Current
Spruce-fir moss spider	<i>Microhexura montivaga</i>	E	Current
<b>Vascular Plants</b>			
Small whorled pogonia	<i>Isotria medeoloides</i>	T	Current
Swamp pink	<i>Helonias bullata</i>	T	Current
<b>Lichen</b>			
Rock gnome lichen	<i>Gymnoderma lineare</i>	E	Current

<sup>1</sup> E = Endangered. A taxon "in danger of extinction throughout all or a significant portion of its range."

T = Threatened. A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

T(S/A) = Threatened due to similarity of appearance. A taxon that is threatened due to similarity of appearance with another listed species and is listed for protection. Taxa listed as T(S/A) are not biologically endangered or threatened and are not subject to Section 7 consultation.

<sup>2</sup> Current = The species has been observed in the county within the last 50 years.

Probable/Potential = The species is considered likely to occur in the county based on the proximity of known records (adjacent counties), the presence of potentially suitable habitat, or both.

HDR also conducted an on-site survey to identify potential habitat and possible individuals of federally protected species listed in the above table. HDR consulted the North Carolina Natural Heritage Program (NCNHP) Element Occurrence database for protected species distribution and proximity to the project. The NCNHP database revealed no known occurrences of federally

protected species within the Study Area. The following is a summary of biological conclusions for species that are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973.

The site visit revealed no suitable habitat for the bog turtle (*Clemmys muhlenbergii*), Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*), Appalachian elktoe (*Alasmidonta raveneliana*), spruce-fir moss spider (*Microhexura montivaga*), small-whorled pogonia (*Isotria medeoloides*), swamp pink (*Helonias bullata*), or rock gnome lichen (*Gymnoderma lineare*) within the project area. Potential roosting habitat for the Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) was identified along the rock face of the auxiliary spillway and trees along the top of the ridge.

A database search conducted by the USFWS indicated no known northern long-eared bat occupied hibernacula and maternity roost trees are located within close proximity of the Project area. During a site visit conducted by USFWS, Duke Energy, and HDR representatives on March 23, 2016, the USFWS determined that there is suitable habitat for federally protected bat species along the bluff of the existing auxiliary spillway. USFWS recommended a summer acoustic survey to be conducted to determine the presence and/or absence of Indiana bat and northern long-eared bat within an approximate 3-acre proposed blasting and clearing area required for the auxiliary spillway modifications.

A Study Plan following the 2016 Rangewide Indiana Bat Summer Survey Guidelines was developed and submitted to USFWS for approval on April 25, 2016. A bat acoustic survey was conducted during the summer survey window (May 16 to May 18) at two locations for two nights each to determine the presence and/or probable absence of Indiana bats and northern long-eared bats within the proposed blasting and clearing area. Bat calls were analyzed using two software programs approved by the USFWS: BCID and EchoClass. Ten bat species were initially identified by the acoustic analysis programs. A total of five Indiana bat and eight northern long-eared bat call files were identified. No consensus identification was reached by the two programs for either species. A report detailing the findings of the bat acoustic survey was submitted electronically to the USFWS on June 13, 2016. After reviewing the report, USFWS issued a response stating they assume federally protected bat species are present in the Project area.

Duke Energy proposes to cut trees within the 3-acre blasting and clearing area during the winter (October 15 – April 15) to minimize impacts to federally protected bat species. The USFWS will be notified if random trees need to be removed during the summer maternity roost season. An experienced biologist will conduct an onsite habitat assessment to determine if species to be cleared contain potential roosts (i.e. live trees and/or snags that have exfoliating bark, cracks, or crevices). If potential roosts are identified, emergence surveys will be conducted at nighttime, before trees/snags are to be removed.

The project will not affect the remaining protected species listed for Jackson County. HDR has submitted correspondence to the USFWS and NCWRC regarding potential issues with respect to endangered species, migratory birds, or other resources from the proposed construction activities.

As of the date of this application submittal, no response has been received. Once received, the response will be promptly forwarded to the USACE.

HDR reviewed the National Park Service National Register of Historic Places (NRHP) GIS Public Dataset and the North Carolina Historic Preservation Office (NCHPO) HPOWEB GIS Web Service. The East Fork Hydroelectric Plant (Cedar Cliff Development) was identified in the HPOWEB GIS database. Notes indicated that previous cultural resources surveys (ER 02-8205; Multi Co Rpt #475; ER 06-3132) have been conducted, but no historical or archaeological features were identified.

In association with the 2004 East Fork Project FERC license application, Duke Energy commissioned an archeological survey and National Register evaluation of East Fork Project facilities. An archaeological survey was conducted in portions of the East Fork Project identified by the NCHPO, Forest Service, and Eastern Band of Cherokee Indians (EBCI) as having potential to contain historic properties. Phase I archaeological surveys were completed along the shorelines of Bear Creek Lake, Wolf Creek Lake, and the Tanasee Creek Lake during a 10 ft vertical drawdown. A survey of Cedar Cliff Lake was not performed as part of the evaluation.

The Phase I surveys in consultation with the NCHPO concluded that project facilities at the Cedar Cliff Development are eligible for the National Register since the development is an element of the larger Nantahala area hydropower system. In addition, the project is eligible under the categories of Industry and Military. In the 1950s, electricity generated by the project was used by Alcoa to meet the growing need of aluminum during the Korean Conflict and the Cold War's operations in eastern Tennessee.

Duke Energy has developed a Historical Properties Management Plan (HPMP) in consultation with the NCHPO, EBCI, and the Forest Service to ensure that any adverse effects on historic properties from the project construction will be avoided, minimized, and mitigated. The project will not affect the original Cedar Cliff powerhouse structure. Cedar Cliff Lake may have submerged archaeological sites. Procedures detailed in the HPMP will be implemented since the reservoir will be drawn down more than 5 vertical feet.

HDR in collaboration with Duke Energy's Cultural/Historic Resources Coordinator will submit correspondence to the NCHPO and EBCI Tribal Preservation Officer regarding the need to conduct archaeological surveys of the exposed areas during the reservoir drawdown. As of the date of this application submittal, no response has been received. Once a response is received, it will be promptly forwarded to the USACE.

In September 2015, HDR biologists surveyed the project area and adjacent lands for wetlands and jurisdictional waters of the U.S. (WoUS) under Section 404 of the Clean Water Act (CWA). The areas were examined according to the methodology described in the USACE 1987 Wetland Delineation Manual, USACE Post-Rapanos guidance, USACE Eastern Mountains and Piedmont Regional Supplement, and NCDWR Methodology for Identification of Intermittent and Perennial Streams and Their Origins (Version 4.11). On-site reconnaissance activities identified

the East Fork bypass reach and Cedar Cliff Lake as the only jurisdictional waters located within the project area. The following table provides a summary of jurisdictional WoUS within the project area.

### Summary of Jurisdictional Waters

Name	Latitude/ Longitude	Cowardin Class	Estimated Amount of Aquatic Resource in Review Area
East Fork Bypass Reach	35.251261 -83.100550	R3RSA/ R3UBH	~2,000 linear feet
Cedar Cliff Lake	35.255780 -83.096929	L1UBHh	~121 acres

### Applicant's Stated Purpose

The basic project purpose of the proposed project is to construct a system to safely pass the Probable Maximum Flood (PMF), which is defined as the Inflow Design Flood (IDF), without overtopping the Cedar Cliff dam. FERC requested Duke Energy to develop and implement a system that addresses the ability of the dam to safely pass all flows up to and including the IDF.

### Project Description

The proposed project is to modify the existing Cedar Cliff Dam auxiliary spillway and main dam toe berm to safely pass the IDF. The Cedar Cliff Development has an existing discharge capacity of approximately 80,000 cfs at reservoir Elevation 2,043.5 ft msl. This discharge capacity represents combined discharge from the main generating unit, principal spillway (Tainter gate), and auxiliary spillway (fuse plugs). The PMF peak inflow is approximately 192,000 cfs, which was approved by FERC on June 22, 1994. Based on engineering evaluations, the spillway discharge capacity would need to be increased by at least 112,000 cfs to prevent overtopping of Cedar Cliff Dam, which has a crest elevation of 2,343.5 ft msl. The FERC identified the IDF as the PMF in correspondence to Duke Energy dated April 24, 2014, and requested a plan and schedule that addresses the ability of Cedar Cliff Dam to safely pass all flows up to and including the IDF. Due to the existing Cedar Cliff site terrain, limited viable options are available to increase spillway discharge capacity of this magnitude.

The project will install a Fusegate control section which will involve complete demolition of the two existing fuse plug chambers and single concrete splitter wall within the existing auxiliary spillway. The existing auxiliary spillway channel width at the Fusegate control section would be widened. Six cast-in-place Hydroplus Fusegates would replace the existing fuse plugs and serve as a passive semi-labyrinth spillway for inflow greater than 55,000 cfs. The Fusegates would be placed on a reinforced concrete foundation pad that is approximately 57 ft wide including both left and right reinforced concrete abutment walls. The crest of the Fusegates would be at normal pool elevation 2,330 ft msl. The existing PMF wall would be demolished and replaced with a new PMF wall constructed across the length of the main dam with crest elevation 2,351 ft msl. The individual Fusegates would be engineered to tip over at various water surface elevations in excess of 2,346 ft msl (+16 feet above full pond elevation 2,330 ft msl) to safely pass the IDF.

The auxiliary spillway channel width and depth would be expanded to provide sufficient hydraulic capacity in conjunction with the principal spillway to safely pass the PMF, which is the defined IDF for Cedar Cliff. Modifications to the existing auxiliary spillway would include removal of a portion of the existing right fuse plug rock abutment (30 ft), rock cut along the inner wall (adjacent to the main dam embankment) of the auxiliary spillway, and significant rock cut depth along the outer wall of the auxiliary spillway. The auxiliary spillway channel control section would be widened from 200 ft to 250 ft at elevation 2,305 ft msl. Rock cuts along the left auxiliary spillway channel would vary in depth from 55 ft to 165 ft. The left auxiliary channel wall would be benched to enhance safety of the work site during construction while preserving the design base hydraulic capacity. The rock cut excavation for the auxiliary spillway is approximately 316,600 cubic yards (cyd).

An 11 ft high concrete parapet wall would be constructed along the crest of the dam. The elevation at the top of the wall would be 2,351 ft msl. Six Fusegates, provided by Hydroplus, would be placed in the control section of the auxiliary spillway along the axis of the existing fuse plugs. An approximate 5 ft thick reinforced concrete sill with 4 ft thick reinforced concrete abutment walls on either side of the spillway would be constructed. The concrete Fusegates would be cast in place and measure approximately 41.67 ft wide by 25 ft high. The toe blocks for each gate would be constructed of reinforced concrete. The top of each Fusegate crest would be at normal pool Elevation 2,330 ft msl.

Toe berm modifications to the main dam would consist of adding up to approximately 25,000 cyd of rock spoil from the auxiliary spillway modification to the downstream face of the rock fill dam. The proposed toe berm has a crest elevation of 2,215 ft msl (Cedar Cliff Dam crest elevation at 2,343.5 ft msl) with a slope of 1.3H:1V. Design modifications include developing a filter system through the toe berm, limiting the angle of repose of the toe berm slope to match the main dam angle of repose, limiting the downstream toe extension to the natural alignment of the principal spillway outflow discharge channel, and relocating the existing Tailwater Alarm System.

The NWI classifies Cedar Cliff Lake as lacustrine, limnetic, consolidated bottom, permanently flooded, diked/impounded (L1UBHh). Cedar Cliff Lake is a 121-acre reservoir with a usable storage capacity of 465 acre-feet. The reservoir has a maximum depth of 150 ft and mean depth of 55 ft.

Rock spoil from the auxiliary spillway excavation will be loaded onto a barge and deposited in Cedar Cliff Lake to eliminate potential impacts to identified jurisdictional waters and intact terrestrial habitats at alternate rock spoil locations. This activity will result in approximately 316,600 cyd of permanent fill within an approximate 9.6-acre footprint of the reservoir.

The maximum spoil fill depth is estimated to be 40 ft within the 9.6-acre surface area footprint. The nominal crest elevation of the rock spoil within the reservoir is 2,230 ft msl and the rock spoil volume is equivalent to 3.2 percent of the reservoir volume. The NCWRC will be consulted to determine placement locations that would serve as fish attractors to benefit fishing in the reservoir.

Cedar Cliff Lake will be drawn down approximately 30 feet (El 2,330 ft msl) for a duration of 14 to 16 months to facilitate construction of the spillway modifications. As a result, the reservoir at the Bear Creek Powerhouse, located upstream from the Cedar Cliff Development, will be de-watered. An approximate 30 ft long by 12 ft wide by 2 ft high submerged weir will be installed in the natural bed of the reservoir to capture and pool water at the immediate Bear Creek powerhouse to sustain generation during the reservoir drawdown. Approximately 15.3 cyd of rock (or other type of fill) will be used to install this permanent submerged weir structure.

Also, an approximate 0.5-acre laydown area for the rock spoil barge loading zone will be placed at the upstream approach of the auxiliary spillway below the normal pool elevation during the drawdown period.

According to the USFWS National Wetlands Inventory (NWI), reaches of the East Fork are identified as riverine, upper perennial, rocky shore, temporary flooded (R3RSA) and riverine upper perennial, unconsolidated bottom, permanently flooded (R3UBH). The East Fork reach located within the project area is generally 20 to 40 ft wide with stream banks heights ranging from 4 to 10 ft. The riparian buffer is mostly intact with localized areas of scour and stream bank erosion.

Temporary fill impacts will be associated with placement of a culvert crossing in the East Fork bypass reach immediately below Cedar Cliff Dam to accommodate equipment during construction of the toe berm and auxiliary spillway modifications. Three 110 ft long by 12 ft diameter corrugated metal pipes (CMP) will be placed in the East Fork bypass reach for this crossing. The culverts will be removed when construction is completed.

The following table provides a summary of impacts to jurisdictional waters. Refer to the Site Impact Drawings for additional details.

### Impacts to Jurisdictional Waters Summary

Impact ID	Sheet Number	Name of Water Body	Type of Impact	Impact Area
<b>Stream Impacts</b>				
S1	Sheet 4	East Fork Bypass Reach	Temporary Fill (Culvert)	110 linear feet
<b>TOTAL</b>				110 linear feet
<b>Open Water Impacts</b>				
OW1	Sheet 2	Cedar Cliff Lake	Temporary Fill (Barge Loading Staging Area)	0.5 acres
OW2	Sheet 3	Cedar Cliff Lake	Permanent Fill (Rock Spoil)	9.6 acres
OW3	Sheet 3	Cedar Cliff Lake	Temporary (Dewatering)	50.8 acres
OW4	Sheet 6	Cedar Cliff Lake	Permanent Fill (Submerged Weir)	0.01 acres
<b>TOTAL</b>				60.91 acres

### Avoidance and Minimization

The applicant provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment.

Pre-project site planning was conducted to delineate and field-verify jurisdictional WoUS within the proposed project area. These features were used to select a viable alternative to avoid and minimize impacts to aquatic resources. The alternative of utilizing the reservoir as a spoil repository will eliminate potential impacts to identified jurisdictional waters and intact terrestrial habitats at possible alternate rock spoil locations. The NCWRC and USFWS will be consulted to determine placement locations that would serve as fish attractors to benefit fishing in the reservoir.

Project construction will affect water quality and water quantity in Cedar Cliff Lake and the East Fork. Sediment release to the East Fork bypass reach and Cedar Cliff Lake can adversely affect aquatic habitats by filling in pools and coarse substrate (i.e., gravel and cobble) habitats. Duke Energy has developed and will implement an Erosion and Sediment Control Plan. This plan will be submitted for review and approval by the North Carolina Department of Environmental Quality's Land Quality Section to prevent sedimentation impacts to water resources. Best Management Practices (BMP) will include, but not be limited to, installing protective silt fence, restricting the use of wet concrete within surface waters, and implementing and maintaining a spill prevention plan for heavy equipment. The work area will be inspected daily for signs of

erosion or degradation and device failure. Following construction, all disturbed areas will be restored and re-graded to preconstruction grades and re-vegetated with native trees, shrubs, and herbs.

As described in the previous section, the project will require a 30-foot drawdown of the reservoir for a duration of 14 to 16 months. Aquatic habitats within the drawdown zone will be affected during this period. Wind and wave action against the reservoir shoreline may result in sloughing of banks and trees becoming unstable during the drawdown. Duke Energy has established shoreline management guidelines to address shoreline management issues including actions to repair or prevent damage to the shoreline as a result of erosion.

The reservoir drawdown will also affect recreational access. To the extent practicable, Duke Energy will schedule the drawdown to minimize effects to the recreation season.

According to the non-capacity license amendment for the East Fork Project (issued February 21, 2012), Duke Energy shall release minimum flows from Cedar Cliff Lake as required by Condition 6 of the NCDWR's water quality certification. Minimum flow requirements include a flow of 10 cfs during non-generating hours from December 1 through June 30 and 35 cfs from July 1 through November 30, each year, from the Cedar Cliff Minimum Flow Powerhouse to the East Fork (FERC Project No. 2698-033). The reservoir drawdown is not anticipated to affect minimum flows during project construction activities.

The temporary culverts on the East Fork bypass reach were sized to accommodate the hydraulic capacity of the channel and promote passage of fish and other aquatic organisms. Historic operations indicate flow passage is required through the principal spillway during any given 12-month time period. During construction, seepage or leakage from the closed spillway gate will be the primary source of the base flow in the East Fork bypass reach. This will result in minimal continuous base flow and periods of intermittent flow within the bypass reach. The three 12 ft diameter culverts were hydraulically designed to pass approximately 5,000 cfs if principal spillway operation is required during construction which is equivalent to a flood return period of approximately 50 years. The primary center culvert will be installed in the existing bedrock stream bed at an elevation to allow localized water flow and movement of aquatic life. The culverts will be removed when the project is complete and streams banks will be re-graded to their pre-construction dimensions.

### **Compensatory Mitigation**

The proposed project does involve temporary and permanent impacts to jurisdictional WoUS. These impacts will not result in a permanent loss of jurisdictional WoUS which would require compensatory mitigation. The applicant does not offer a compensatory mitigation plan because there will be no unavoidable functional loss to the aquatic environment within jurisdictional WoUS. Duke Energy will provide payment to the NCWRC for installation of fish attractors to promote habitat and enhance sport fishing which will improve the aquatic environment within jurisdictional WoUS at the project.



## Essential Fish Habitat

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, this Public Notice initiates the Essential Fish Habitat (EFH) consultation requirements. The Corps' initial determination is that the proposed project would not affect EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service.

## Cultural Resources

Pursuant to Section 106 of the National Historic Preservation Act of 1966, Appendix C of 33 CFR Part 325, and the 2005 Revised Interim Guidance for Implementing Appendix C, the District Engineer consulted district files and records and the latest published version of the National Register of Historic Places and initially determines that:

- ☐ Should historic properties, or properties eligible for inclusion in the National Register, be present within the Corps' permit area; the proposed activity requiring the DA permit (the undertaking) is a type of activity that will have no potential to cause an effect to an historic properties.
- ☐ No historic properties, nor properties eligible for inclusion in the National Register, are present within the Corps' permit area; therefore, there will be no historic properties affected. The Corps subsequently requests concurrence from the SHPO (or THPO).
- ☐ Properties ineligible for inclusion in the National Register are present within the Corps' permit area; there will be no historic properties affected by the proposed work. The Corps subsequently requests concurrence from the SHPO (or THPO).
- ☒ Historic properties, or properties eligible for inclusion in the National Register, are present within the Corps' permit area; however, the undertaking will have no adverse effect on these historic properties. The Corps subsequently requests concurrence from the SHPO (or THPO).
- ☐ Historic properties, or properties eligible for inclusion in the National Register, are present within the Corps' permit area; moreover, the undertaking may have an adverse effect on these historic properties. The Corps subsequently initiates consultation with the SHPO (or THPO).
- ☐ The proposed work takes place in an area known to have the potential for the presence of prehistoric and historic cultural resources; however, the area has not been formally surveyed for the presence of cultural resources. No sites eligible for inclusion in the National Register of Historic Places are known to be present in the vicinity of the proposed work. Additional work may be necessary to identify and assess any historic or prehistoric resources that may be present.

Phase I archaeological surveys in consultation with the NCHPO concluded that project facilities at the Cedar Cliff Development are eligible for the National Register since the development is an element of the larger Nantahala area hydropower system. In addition, the project is eligible under the categories of Industry and Military. In the 1950s, electricity generated by the project was used by Alcoa to meet the growing need of aluminum during the Korean Conflict and the Cold War's operations in eastern Tennessee.

Duke Energy has developed a HPMP in consultation with the NCHPO, EBCI, and the Forest Service to ensure that any adverse effects on historic properties from the project construction will be avoided, minimized, and mitigated. The project will not affect the original Cedar Cliff powerhouse structure. Cedar Cliff Lake may have submerged archaeological sites. Procedures detailed in the HPMP will be implemented since the reservoir will be drawn down more than 5 vertical feet.

HDR in collaboration with Duke Energy's Cultural/Historic Resources Coordinator will submit correspondence to the NCHPO and EBCI Tribal Preservation Officer regarding the need to conduct archaeological surveys of the exposed areas during the reservoir drawdown. As of the date of this application submittal, no response has been received. Once a response is received, it will be promptly forwarded to the USACE.

The District Engineer's final eligibility and effect determination will be based upon coordination with the SHPO and/or THPO, as appropriate and required, and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the Corps-identified permit area.

### **Endangered Species**

Pursuant to the Endangered Species Act of 1973, the Corps reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information:

- ☐ The Corps determines that the proposed project would not affect federally listed endangered or threatened species or their formally designated critical habitat.
- ☒ The Corps determines that the proposed project may affect, but not likely to adversely affect, federally listed endangered or threatened species or their formally designated critical habitat. The Corps initiates consultation under Section 7 of the ESA and will not make a permit decision until the consultation process is complete.
- ☐ The Corps is not aware of the presence of species listed as threatened or endangered or their critical habitat formally designated pursuant to the Endangered Species Act of 1973 (ESA) within the project area. The Corps will make a final determination on the effects of the proposed project upon additional review of the project and completion of any necessary biological assessment and/or consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service.

The following federally listed threatened species may occur at the project site.

Common Name	Scientific Name	Federal Designation <sup>1</sup>	Record Status <sup>2</sup>
Indiana bat	<i>Myotis sodalis</i>	E	Current
Northern long-eared bat	<i>Myotis septentrionalis</i>	T	Current

E = Endangered. A taxon "in danger of extinction throughout all or a significant portion of its range."

T = Threatened. A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

A database search conducted by the USFWS indicated no known northern long-eared bat occupied hibernacula and maternity roost trees are located within close proximity of the Project area. During a site visit conducted by USFWS, Duke Energy, and HDR representatives on March 23, 2016, the USFWS determined that there is suitable habitat for federally protected bat species along the bluff of the existing auxiliary spillway. USFWS recommended a summer acoustic survey to be conducted to determine the presence and/or absence of Indiana bat and northern long-eared bat within an approximate 3-acre proposed blasting and clearing area required for the auxiliary spillway modifications.

A Study Plan following the 2016 Rangewide Indiana Bat Summer Survey Guidelines was developed and submitted to USFWS for approval on April 25, 2016. A bat acoustic survey was conducted during the summer survey window (May 16 to May 18) at two locations for two nights each to determine the presence and/or probable absence of Indiana bats and northern long-eared bats within the proposed blasting and clearing area (Figure 4 and attached photographs). Bat calls were analyzed using two software programs approved by the USFWS: BCID and EchoClass. Ten bat species were initially identified by the acoustic analysis programs. A total of five Indiana bat and eight northern long-eared bat call files were identified. No consensus identification was reached by the two programs for either species. A report detailing the findings of the bat acoustic survey was submitted electronically to the USFWS on June 13, 2016. After reviewing the report, USFWS issued a response stating they assume federally protected bat species are present in the Project area.

Duke Energy proposes to cut trees within the 3-acre blasting and clearing area during the winter (October 15 – April 15) to minimize impacts to federally protected bat species. The USFWS will be notified if random trees need to be removed during the summer maternity roost season. An experienced biologist will conduct an onsite habitat assessment to determine if species to be cleared contain potential roosts (i.e. live trees and/or snags that have exfoliating bark, cracks, or crevices). If potential roosts are identified, emergence surveys will be conducted at nighttime, before trees/snags are to be removed.

HDR has submitted correspondence to the USFWS and NCWRC regarding potential issues with respect to endangered species, migratory birds, or other resources from the proposed construction activities. As of the date of this application submittal, no response has been received. Once received, the response will be promptly forwarded to the USACE.

The Corps initiates informal consultation with FWS under Section 7 of the ESA and will not make a permit decision until the consultation process is complete.

### **Other Required Authorizations**

The Corps forwards this notice and all applicable application materials to the appropriate State agencies for review.

**North Carolina Division of Water Resources (NCDWR):** The Corps will generally not make a final permit decision until the NCDWR issues, denies, or waives the state Certification as required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice, combined with the appropriate application fee, at the NCDWR Central Office in Raleigh constitutes initial receipt of an application for a 401 Certification. A waiver will be deemed to occur if the NCDWR fails to act on this request for certification within sixty days of receipt of a complete application. Additional information regarding the 401 Certification may be reviewed at the NCDWR Central Office, 401 and Buffer Permitting Unit, 512 North Salisbury Street, Raleigh, North Carolina 27604-2260. All persons desiring to make comments regarding the application for a 401 Certification should do so, in writing, by September 12, 2016 to:

NCDWR Central Office  
Attention: Ms. Karen Higgins, 401 and Buffer Permitting Unit  
(USPS mailing address): 1617 Mail Service Center, Raleigh, NC 27699-1617

Or,

(physical address): 512 North Salisbury Street, Raleigh, North Carolina 27604

### **North Carolina Division of Coastal Management (NCD CM):**

- ☐ The application did not include a certification that the proposed work complies with and would be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2(b)(2) the Corps cannot issue a Department of Army (DA) permit for the proposed work until the applicant submits such a certification to the Corps and the NCD CM, and the NCD CM notifies the Corps that it concurs with the applicant's consistency certification. As the application did not include the consistency certification, the Corps will request, upon receipt,, concurrence or objection from the NCD CM.
- ☒ Based upon all available information, the Corps determines that this application for a Department of Army (DA) permit does not involve an activity which would affect the coastal zone, which is defined by the Coastal Zone Management (CZM) Act (16 U.S.C. § 1453).

## **Evaluation**

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

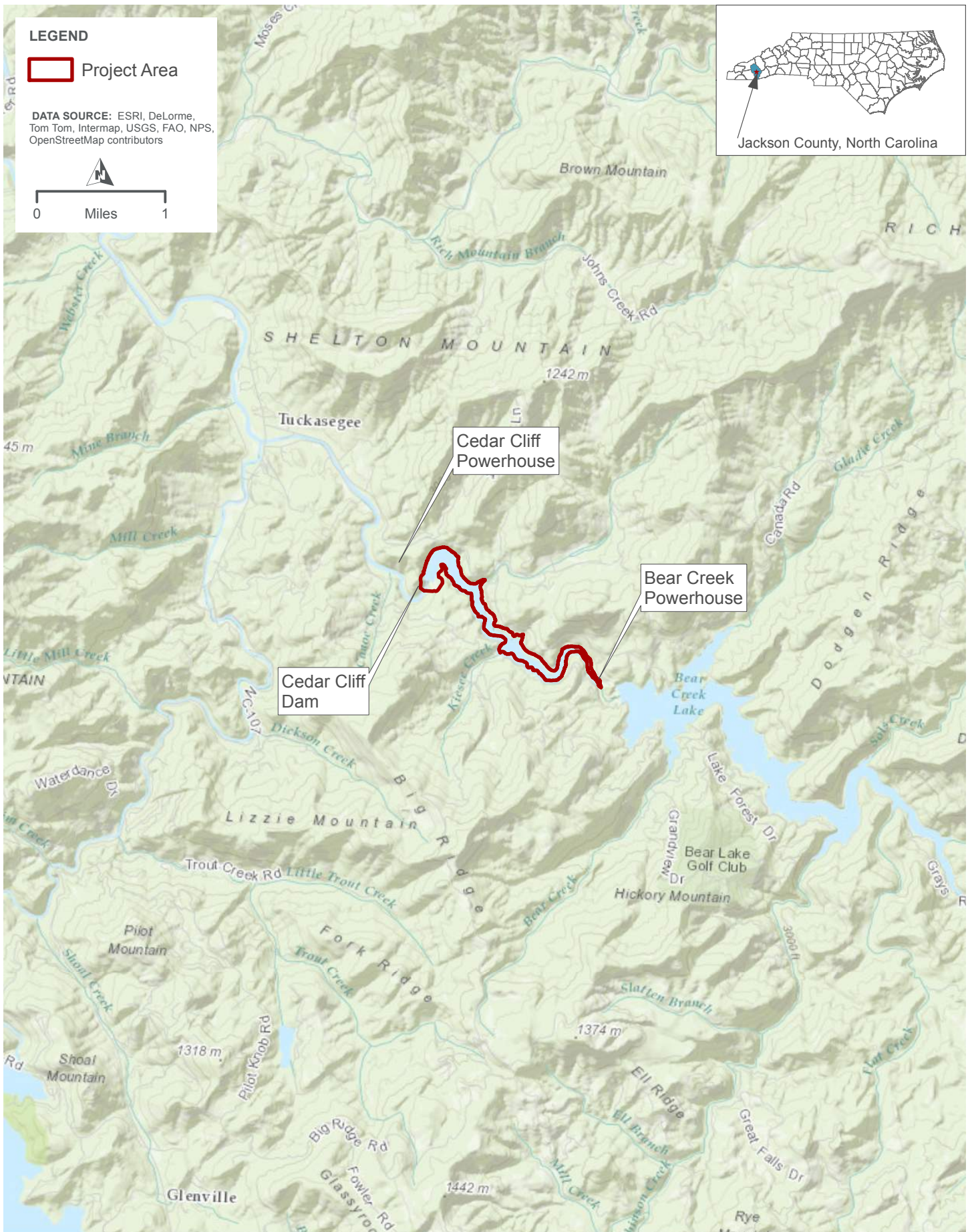
## **Commenting Information**

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidated State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

The Corps of Engineers, Wilmington District will receive written comments pertinent to the proposed work, as outlined above, until 5pm, September 12, 2016. Comments should be submitted to Mr. David Brown, Asheville Regulatory Field Office, 151 Patton Avenue, Room 208, Asheville, North Carolina 28801 at (828) 271-7980 extension 232.



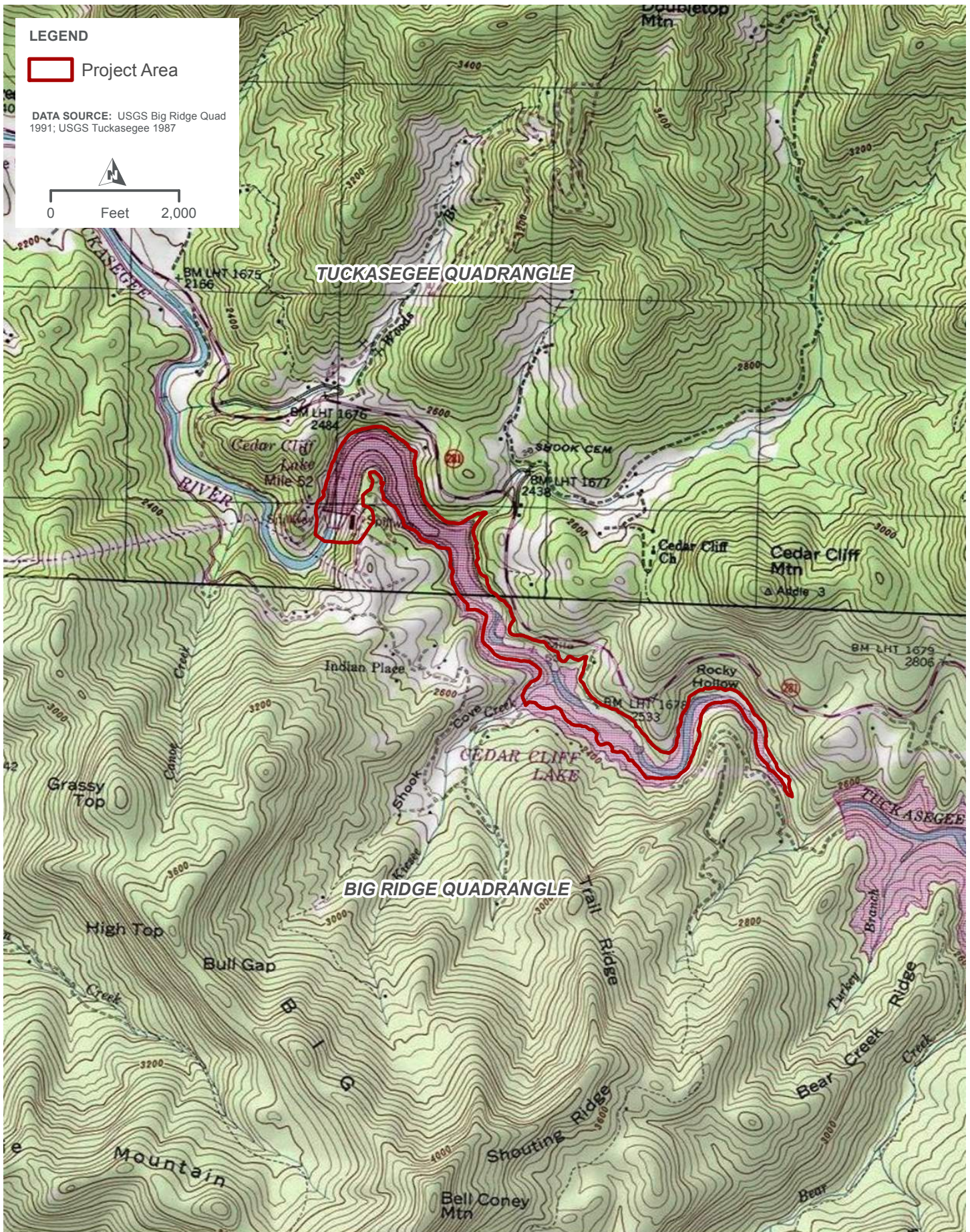


## CEDAR CLIFF AUXILIARY SPILLWAY UPGRADE PROJECT PROJECT LOCATION

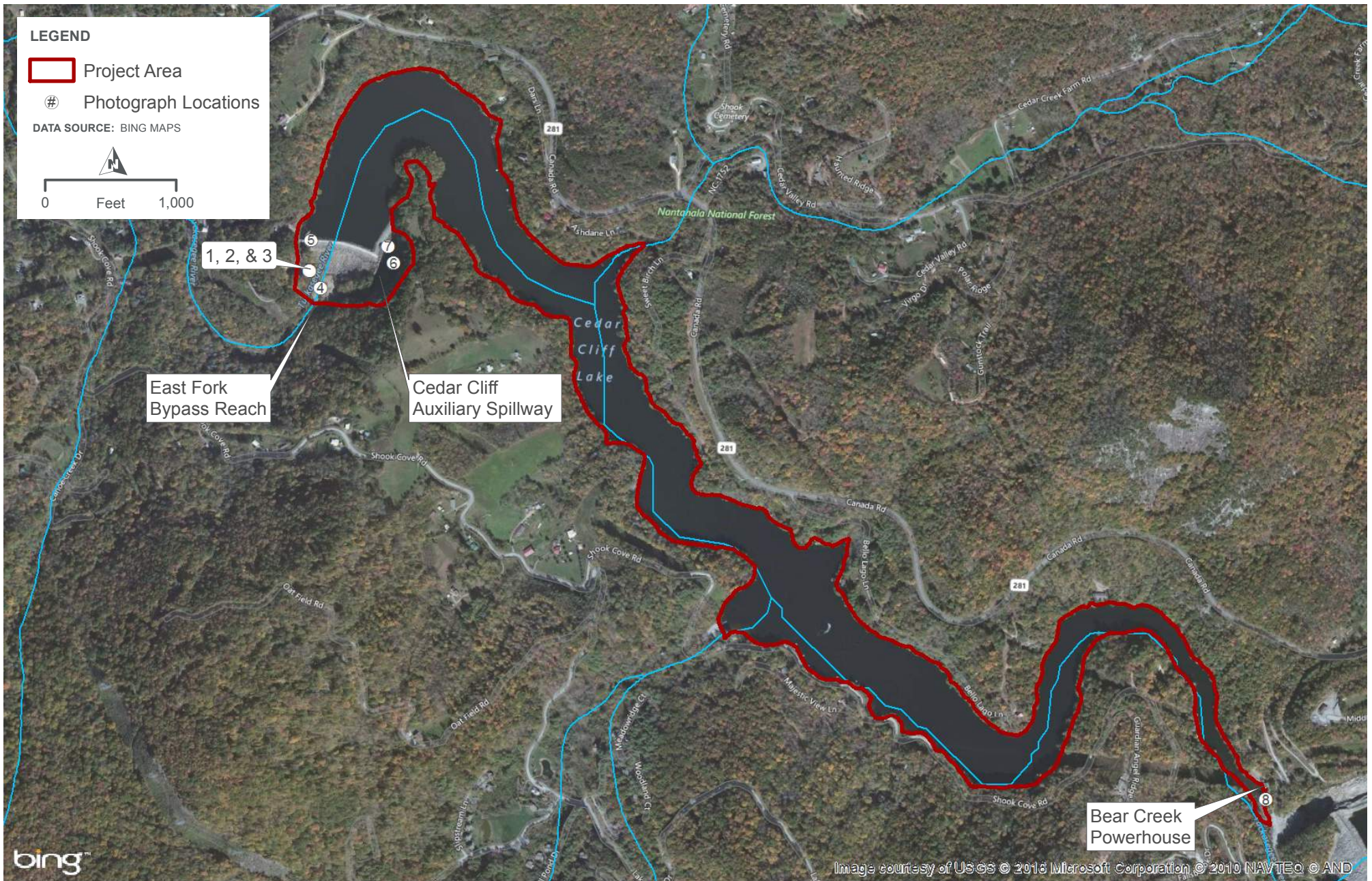
FIGURE 1









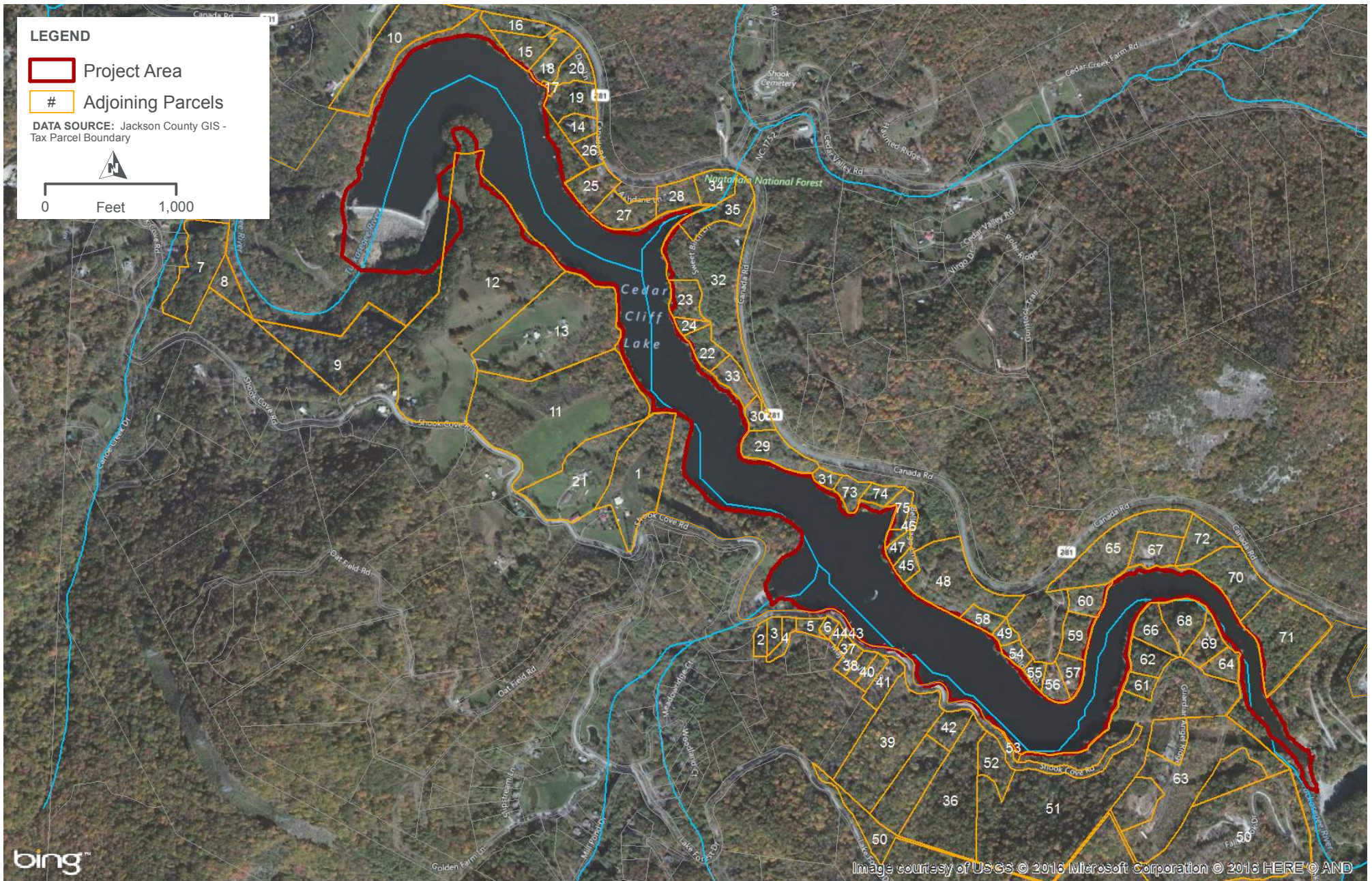


## CEDAR CLIFF AUXILIARY SPILLWAY UPGRADE PROJECT

### BING AERIALS

FIGURE 3



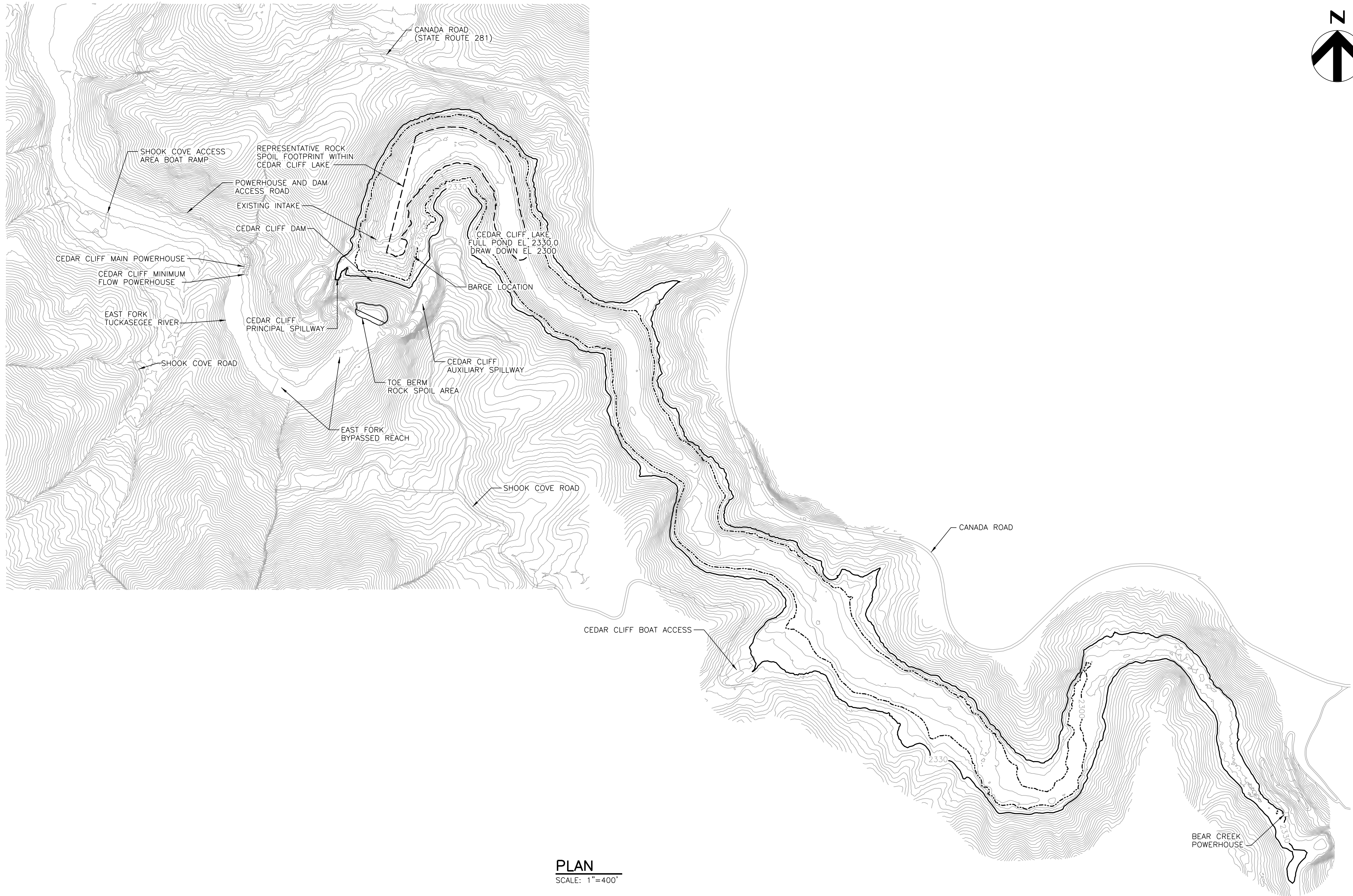
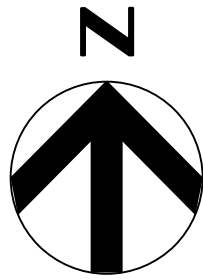


## CEDAR CLIFF AUXILIARY SPILLWAY UPGRADE PROJECT

### ADJOINING PARCELS

FIGURE 4





LEGEND:

— 2300 — EXISTING MAJOR CONTOUR

— FULL POND ELEVATION 2330

- - - - - DRAW DOWN ELEVATION 2300

- - - - - RESERVOIR ROCK SPOIL



CRITICAL ENERGY  
INFRASTRUCTURE INFORMATION  
(CEII) MATERIAL UNDER 18 CFR 388.113(c)

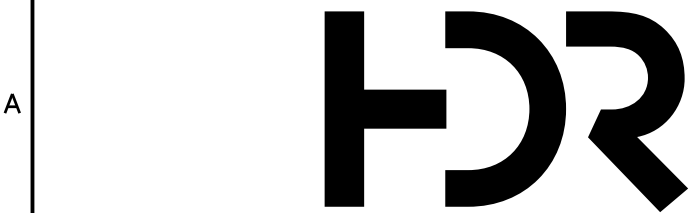
DUKE ENERGY CAROLINAS, LLC  
EAST FORK PROJECT  
CEDAR CLIFF DEVELOPMENT

AUXILIARY SPILLWAY UPGRADE PROJECT  
APPLICATION FOR SECTION 404/401  
INDIVIDUAL PERMIT  
OVERALL SITE PLAN

SCALE: AS NOTED

DRAWING/SHEET NO. SHEET 1

REV. -



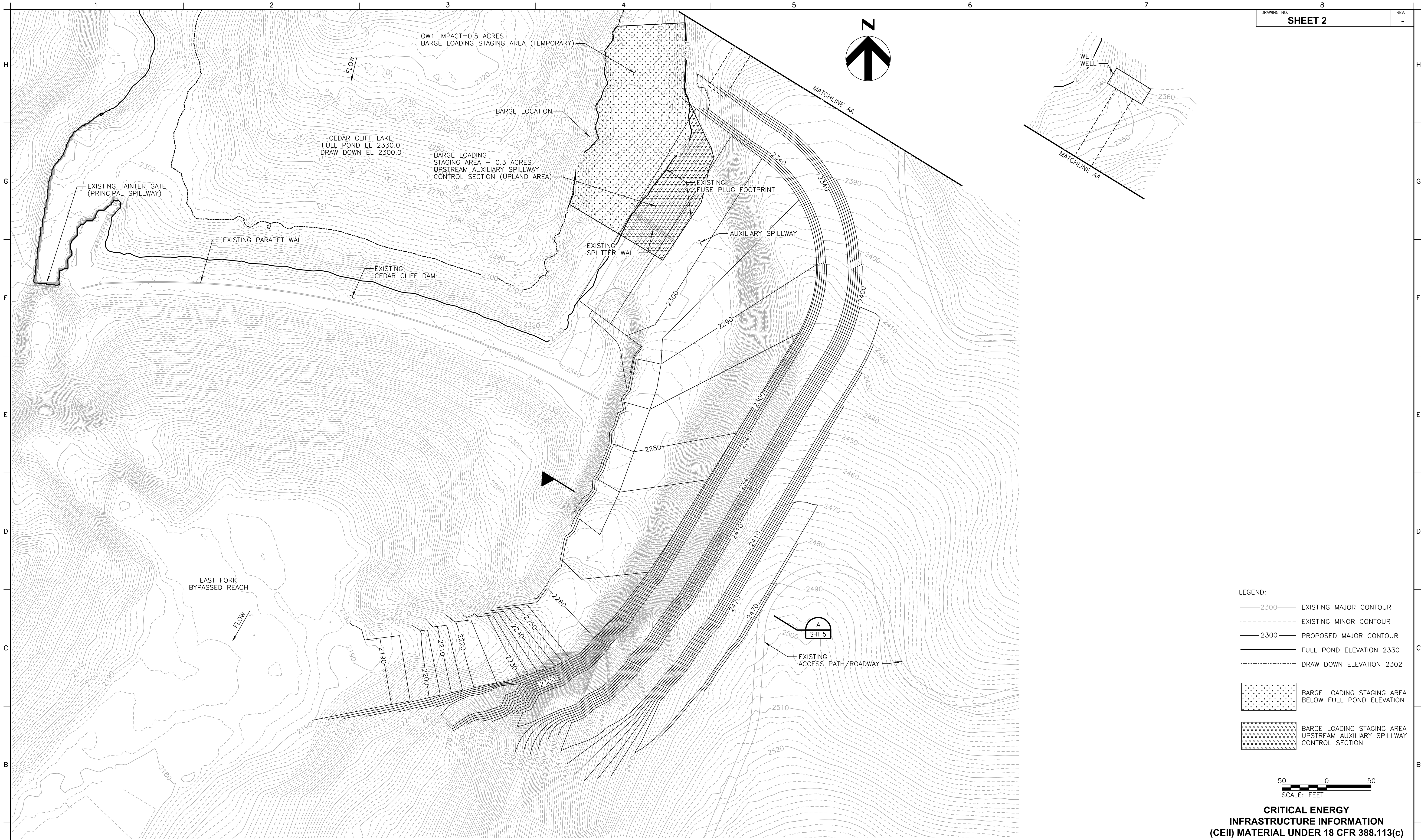
HDR Engineering, Inc. of the Carolinas License Number: F-0116  
440 S Church Street, Suite 1000 Charlotte, NC 28202-2075

PRELIMINARY  
NOT FOR  
CONSTRUCTION  
OR  
RECORDING

PE SEAL

NO.	DATE	REVISION	RMM	TCB	CHKD	APPR	CIVIL	ELEC	MECH	PROJECT NUMBER: 000000000228731
-	05-06-2016	ISSUED FOR APPLICATION FOR SECTION 404/401 INDIVIDUAL PERMIT.								

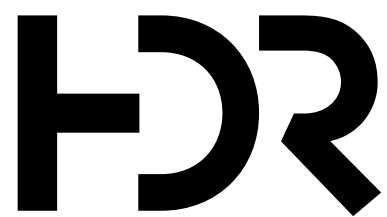




**CRITICAL ENERGY  
INFRASTRUCTURE INFORMATION  
(CEII) MATERIAL UNDER 18 CFR 388.113(c)**

DUKE ENERGY CAROLINAS, LLC EAST FORK PROJECT CEDAR CLIFF DEVELOPMENT	
AUXILIARY SPILLWAY UPGRADE PROJECT APPLICATION FOR SECTION 404/401 INDIVIDUAL PERMIT	
AUXILIARY SPILLWAY MODIFICATIONS AND BARGE LOADING AREA - PLAN	

SCALE: AS NOTED	DRAWING/SHEET NO. <b>SHEET 2</b>	REV. -
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**HDR Engineering, Inc. of the Carolinas      License Number: F-0116**  
**440 S Church Street, Suite 1000 Charlotte, NC 28202-2075**

**PRELIMINARY  
NOT FOR  
CONSTRUCTION  
OR  
RECORDING**

PE SEAL

-	05-06-2016	ISSUED FOR APPLICATION FOR SECTION 404/401 INDIVIDUAL PERMIT.
NO.	DATE	REVISION

RMM	TCB	—	—	—	—	—
DRN	DSGN	CHKD	APPR	CIVIL	ELEC	MEC

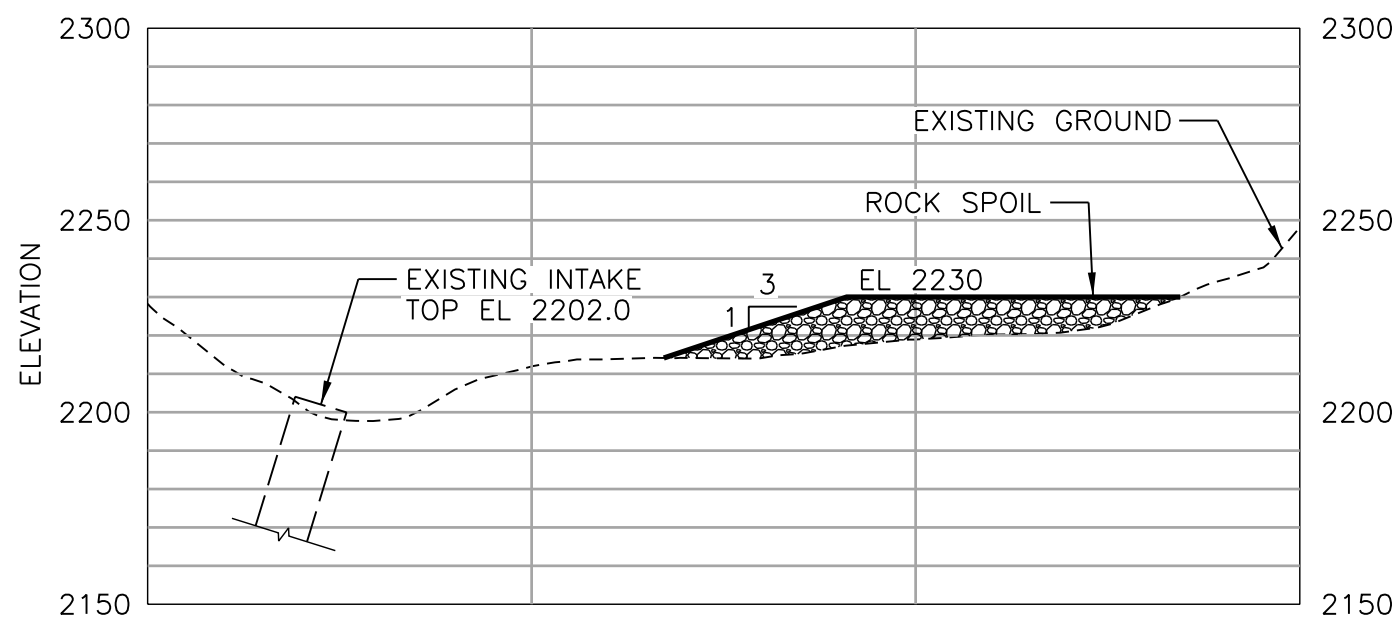
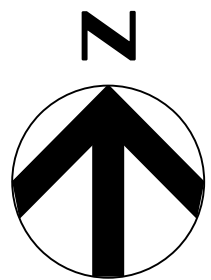
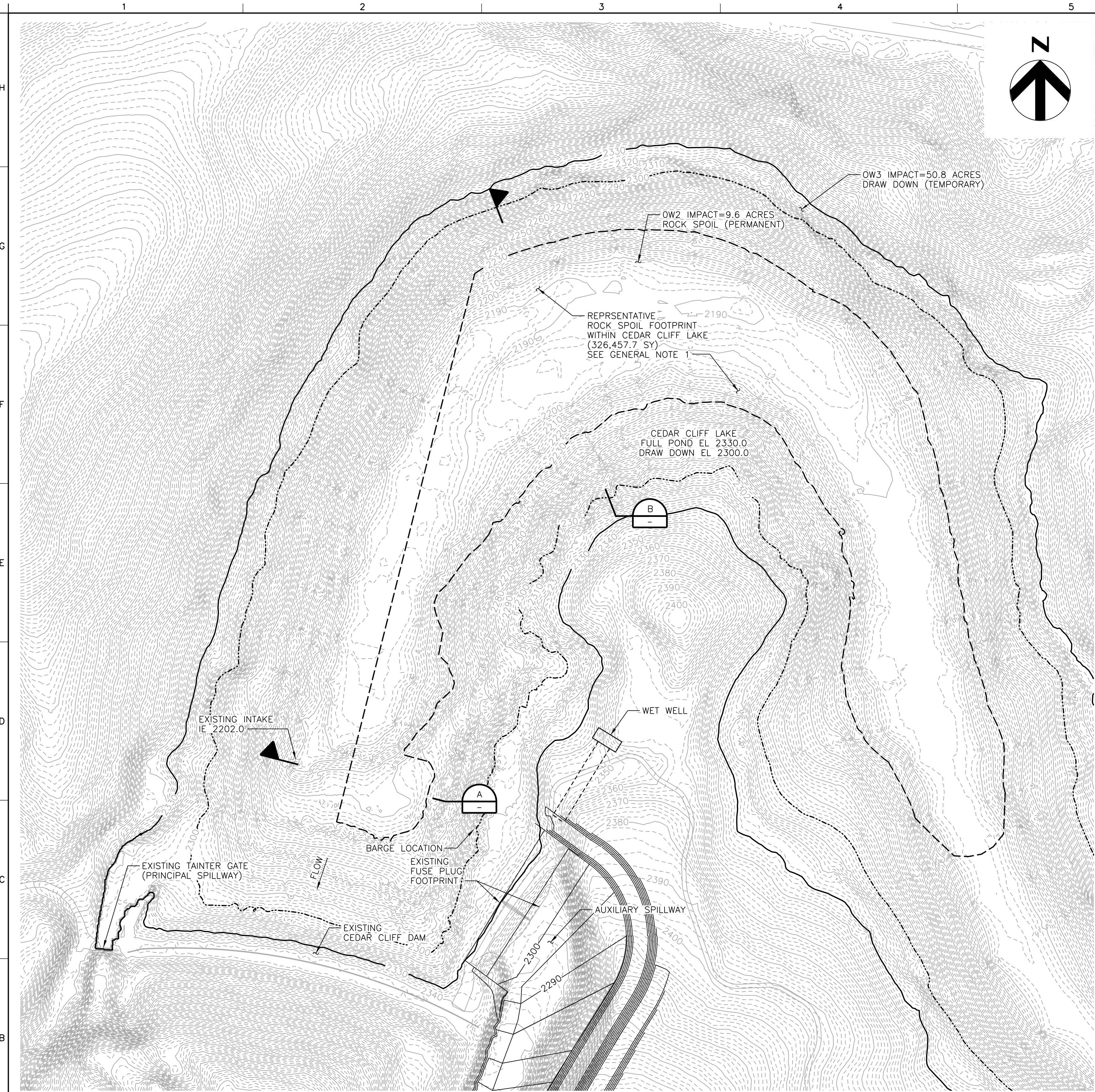
DRAWN BY:	CIVIL
RM MAKEE	
DESIGNED BY:	MECHANICAL
TC BANTA	_____
CHECKED BY:	ELECTRICAL
	_____
APPROVED BY:	DATE:
PROJECT NUMBER: 00000000228731	

SCALE:  
AS NOTED

SHEET NO.  
**SHEET 2**

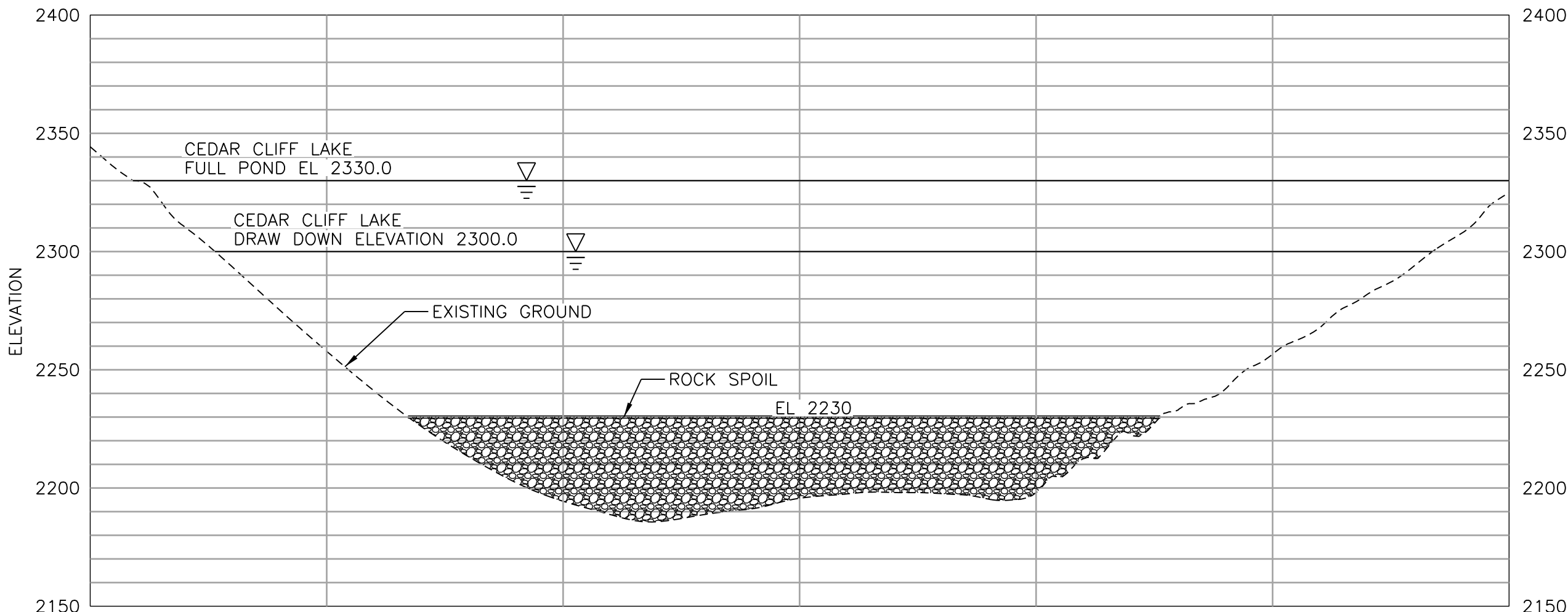
REV.	





SECTION A-A

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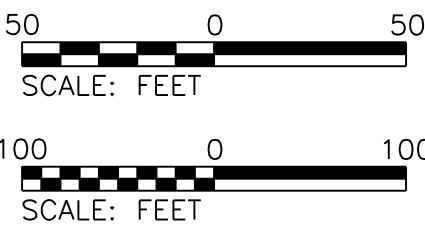


SECTION B-B

SCALE: 1"=50'

LEGEND:

- 2300 — EXISTING MAJOR CONTOUR
- - - - - EXISTING MINOR CONTOUR
- 2300 — PROPOSED MAJOR CONTOUR
- FULL POND ELEVATION 2330
- - - - - DRAW DOWN ELEVATION 2300
- - - - - ROCK SPOIL AREA

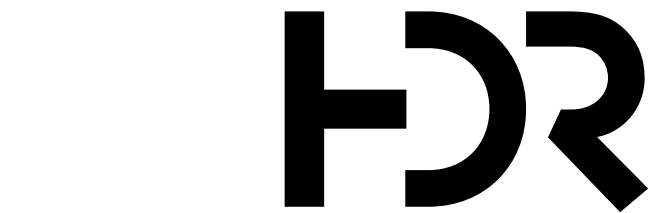


**CRITICAL ENERGY  
INFRASTRUCTURE INFORMATION  
(CEII) MATERIAL UNDER 18 CFR 388.113(c)**

DUKE ENERGY CAROLINAS, LLC  
EAST FORK PROJECT  
CEDAR CLIFF DEVELOPMENT

**AUXILIARY SPILLWAY UPGRADE PROJECT  
APPLICATION FOR SECTION 404/401  
INDIVIDUAL PERMIT  
RESERVOIR ROCK SPOIL  
PLAN AND SECTION**

SCALE: AS NOTED DRAWING/SHEET NO. **SHEET 3** REV. -



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440 S Church Street, Suite 1000 Charlotte, NC 28202-2075

**PRELIMINARY  
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CONSTRUCTION  
OR  
RECORDING**

PE SEAL

NO.	DATE	REVISION	DRN	DSGN	CHKD	APPR	CIVIL	ELEC	MECH	PROJECT NUMBER: 000000000228731
-	05-06-2016	ISSUED FOR APPLICATION FOR SECTION 404/401 INDIVIDUAL PERMIT.	RMM	TCB	-	-	-	-	-	

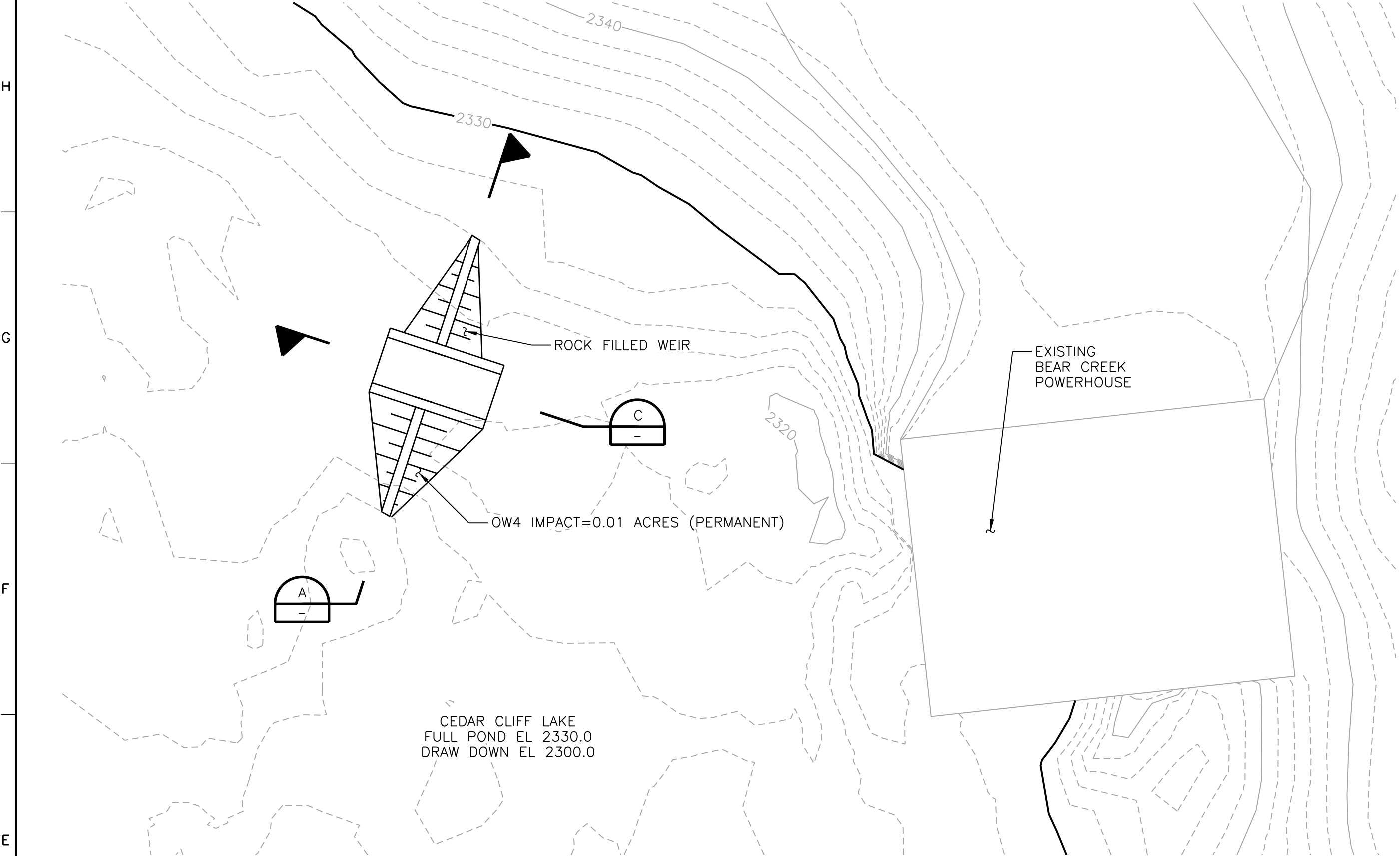
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RM MAKEE  
DESIGNED BY: MECHANICAL  
TC BANTA  
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APPROVED BY: DATE:



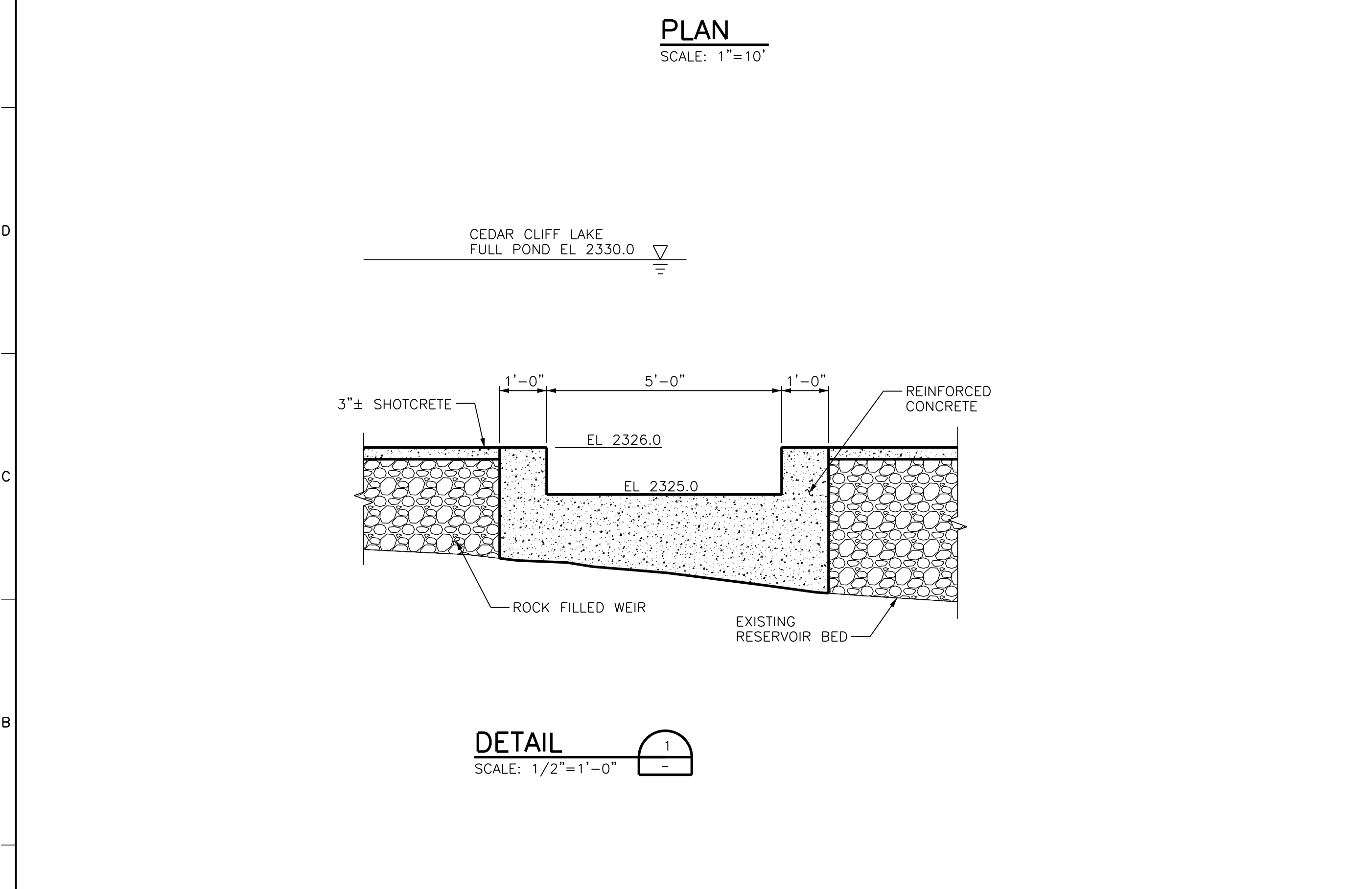




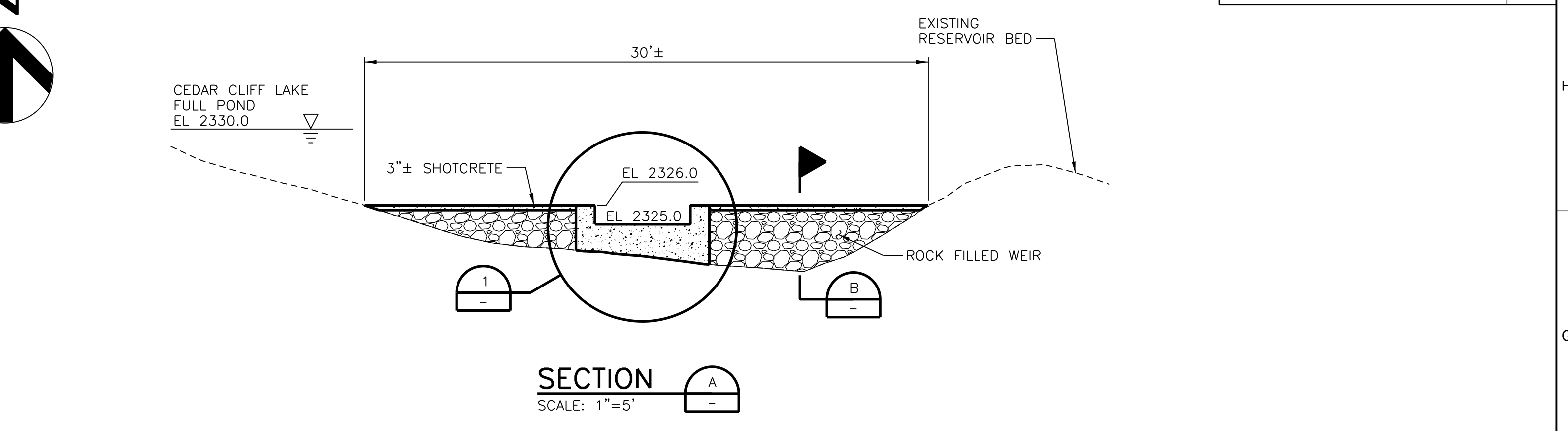




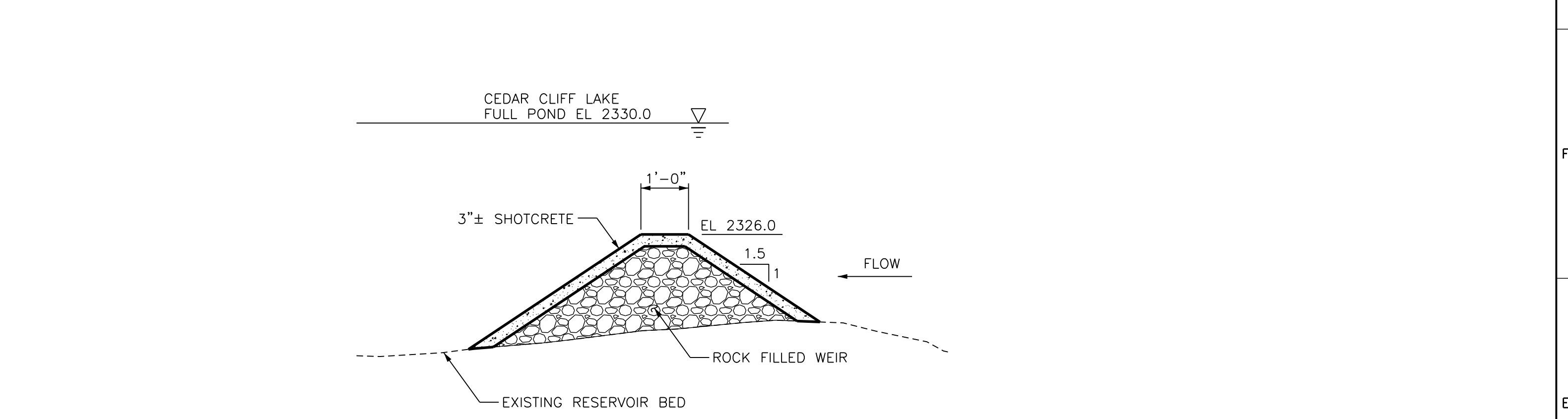
PLAN  
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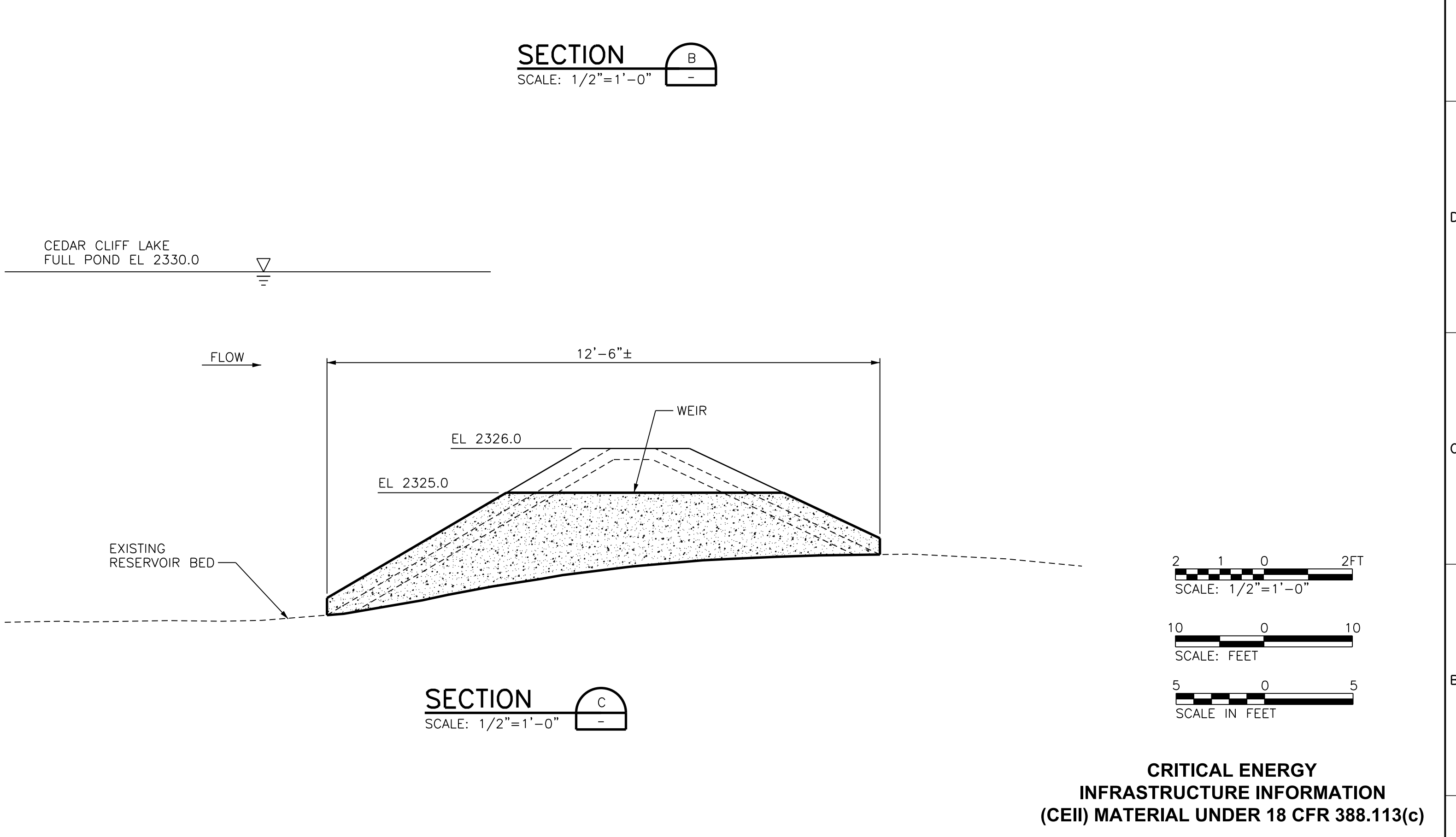
DETAIL  
SCALE: 1/2"=1'-0"



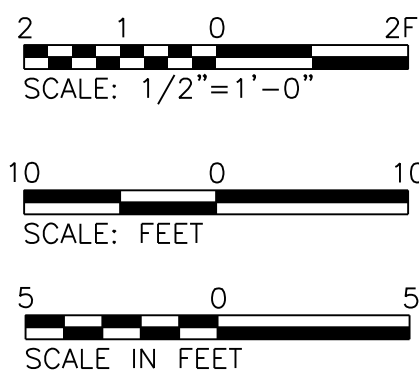
SECTION  
SCALE: 1"=5'



SECTION  
SCALE: 1/2"=1'-0"



SECTION  
SCALE: 1/2"=1'-0"



**CRITICAL ENERGY  
INFRASTRUCTURE INFORMATION  
(CEII) MATERIAL UNDER 18 CFR 388.113(c)**

<div><div><div>HDR</div><div>HDR Engineering, Inc. of the Carolinas    License Number: F-0116 440 S Church Street, Suite 1000 Charlotte, NC 28202-2075</div></div></div>	<div>PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING</div>										<div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div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