

FINAL ENVIRONMENTAL ASSESSMENT

File No. 200702061
Applicant: RPT Partnership LLC
(The Bluffs Subdivision)

PROPOSED FLOATING COMMUNITY BOAT DOCKS
WATAUGA RIVER MILE 7.2 RIGHT BANK, BOONE RESERVOIR
SULLIVAN COUNTY, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS
Nashville District, Regulatory Branch

TENNESSEE VALLEY AUTHORITY

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1.0 Proposed Activity

1.1 Description/Project Purpose. On October 5, 2007, RPT Partnership LLC submitted a complete application for a Department of the Army (DA) permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 and approval from the Tennessee Valley Authority (TVA) pursuant to Section 26a of the TVA Act of 1933. The proposed work is located on Boone Reservoir, at Watauga River Mile 7.2R (right bank). The application is for water use facilities associated with The Bluffs subdivision, a residential development on an upland area adjacent to Boone Reservoir. The applicant owns approximately 1,200 feet of shoreline and has proposed to place three separate sets of covered floating community boat slips fronting his property. Boat slips would be used by homeowners within The Bluffs subdivision. The docks would be accessible via a common area lot within the subdivision that would also serve as a parking area and entrance to a golf cart path down the bluff to the docks. The docks would all be constructed and lie parallel to the shoreline. The first dock (Dock A) would be situated fronting and in the vicinity of Lots 22, 23, 24, and 25. The second dock (Dock B) would be situated fronting and in the vicinity of Lots 19, 20, and 21. The third dock (Dock C) would be situated fronting and in the vicinity of Lots 15, 16, 17, and 18 (Figure 1).

The proposed work consists of three floating community dock facilities that would house 20 boats each, providing mooring for a total of 60 boats. The three docks would contain 10 double, covered slips each measuring 30 feet long (24-foot docking space) by 20 feet wide with 4-foot-wide walkways. Each individual dock facility would measure 244 feet by 30 feet. Dock B and Dock C are designed so that a 20-foot by 4-foot hinged walkway would attach to the dock and tie into the shoreline at a 4-foot by 4-foot landing. Dock A would be attached to the shoreline with a 24-foot by 4-foot hinged walkway. The docks would be constructed with aluminum framing, decking, and roofing along with encapsulated foam flotation.

The reservoir is approximately 639 feet wide at normal summer pool elevation 1,382.5 mean sea level (msl) at the corner of Lots 22 and 23, which is near the center of proposed Dock A. The reservoir is approximately 606 feet wide at normal summer pool elevation in the boundary of the common area lot with Lot 20 at the upstream end of Dock B. The reservoir is approximately 633 feet wide at the proposed location of the upstream end of Dock C. All of the proposed docks would have a maximum proposed extension of 50 feet from the shoreline at normal summer pool. During winter time operations, the width of the reservoir in the vicinity of these docks would range from 400 to 500 feet.

An approximate 1,100-foot-long by 8-foot-wide paved golf cart path would be constructed from the road at a common area in the subdivision along the east side of the property and down the bluff to an old railroad bed. For the designed cart path route along the crest of the bluff, much of the trail is at less than 20 percent grade. Here, an area about 130 feet long, 125 feet wide and 66 feet deep on the uphill side would be cut to reduce the cart path to an acceptable grade. The cut slopes (1-foot vertical to 0.5-foot horizontal) would include 10-foot-wide bench areas needed for slope stability and would be excavated between elevations 1,512 msl and elevation 1,446 msl on the uphill side and elevations



Figure 1. For Use by Residents of the Bluffs Subdivision; the Proposed Water Use Facilities Would be Located on Boone Reservoir at Watauga River Mile 7.2R (right-descending bank)

1,486 msl and 1,446 msl on the downhill side. The cut would affect about 0.37 acre on the bluff crest, which rises to about elevation 1,542 msl or approximately 160 feet above the reservoir at normal summer pool elevation (see Appendix B). Any excess soil material from cart path construction would be used to achieve final grades in low-lying areas within the proposed subdivision above the bluff face. The path would extend along the shoreline along most of the base of the bluff. Along this length of shoreline, the path would be 14 to 16 feet wide to allow some parallel parking of carts in the vicinity of the community boat slips.

The applicant also proposes to install riprap shoreline stabilization at two locations that presently show signs of erosion along the 1,200-foot length of its shore. The riprap would be located from station 0+00 to station 2+00 and from 10+00 to 12+00. An estimated 500 tons of clean shot rock would be used to stabilize each area along portions of the proposed cart path that have eroded to a depth of about 6 feet. The riprap would not be placed at a slope steeper than 1.5:1 (1.5-foot horizontal to 1-foot vertical), which is less steep than its typical angle of repose (38 degrees). The intent is to reconstruct the railroad bed back to its original elevation of 1,392 msl for access along 1,200 feet of the applicant's property and to prevent further erosion along the bank. Because most of the shore is natural limestone rock, in total, it is estimated that no more than about 400 feet of stabilization would be needed. This proposed work has been previously authorized under Nationwide Permit (NWP) #13 (33 CFR 330, Appendix A), which became effective March 19, 2007.

See Appendix A for Public Notice (PN) 07-88A containing the location map and detailed plans of the proposal and Appendix B for detailed plans of the cart path and shoreline stabilization locations.

1.2 Decision Required. Section 10 of the Rivers and Harbors Act of 1899 (Section 10) prohibits the alteration or obstruction of any navigable water of the United States (U.S.) unless authorized by the Secretary of the Army acting through the Chief of Engineers. The Watauga River (Boone Reservoir) at this location is a navigable water of the U.S. as defined by 33 CFR Part 329. Therefore, a Section 10 permit would be required for the proposed work. The Corps of Engineers must decide on one of the following:

- issuance of a permit for the proposal
- issuance of a permit with modifications or conditions
- denial of the permit

1.3 Other Approvals Required. Other federal, state, and local approvals required for the proposed work are as follows:

TVA approval under Section 26a of the TVA Act, as amended, is needed for this proposal. In addition to other provisions of its approval, TVA would require the applicant to employ best management practices to control erosion and sedimentation, as necessary, to prevent adverse aquatic impacts. TVA is currently reviewing an application for a Section

26a permit. TVA is a cooperating agency in the preparation of this environmental assessment (EA).

1.4 Scope of Analysis. The Corps must determine the proper scope of analysis for National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Endangered Species Act, and any other laws related to its permit actions. Once the scope of analysis is established, the Corps can address impacts of the specific activity requiring a DA permit and those portions of the entire project over which it has sufficient control and responsibility to warrant federal review. This is generally coincidental with the definition for "Permit Area." NEPA Implementation Procedures for the Corps Regulatory Program (33 CFR 325, Appendix B, Paragraph 7b) list the typical factors to be considered in determining whether sufficient control and responsibility exists to warrant federal review. Four factors are presented: (a) whether the regulated activity comprises merely a link in a corridor-type project, (b) whether there are aspects of the upland facility in the immediate vicinity of the regulated activity that affect the location and configuration of the regulated activity, (c) the extent to which the entire project will be within the Corps' jurisdiction, and (d) the extent of cumulative federal control and responsibility. In determining whether sufficient cumulative federal involvement exists to expand the scope of federal action outside the "Permit Area," we should consider whether other federal agencies are required to take federal action under other environmental review laws and/or executive orders.

Once the scope of analysis is determined, alternatives to the proposed action (see Section 4) and primary, secondary, and cumulative impacts (see Section 3.5) must be considered in the appropriate NEPA analysis. However, when analyzing secondary impacts, the strength of the relationship between those impacts and the regulated portion of the activity should be considered, i.e., whether or not the impacts are likely to occur even if the permit is not issued, in deciding the level of analysis and what weight to give these impacts in the decision. This attenuation should consider whether another project not requiring a permit could likely occur at the site or in the vicinity and whether its impacts would be similar to impacts of the project requiring a permit.

The proposed action consists of construction of three sets of community docks with covered slips designed to accommodate 60 boats. In light of the above discussion, we have determined that the scope of analysis for this DA permit application should be limited to the "Permit Area," which includes the water area, shoreline, near-shoreline, and immediate upland areas directly impacted by construction for the facility and the golf cart path area needed to provide access for the residents to the community boat docks.

1.5 Site Inspection. Corps personnel performed a site inspection on 26 October 2007. The site visit memorandum and photographs are included in Appendix C. A joint TVA/Corps site inspection was conducted on 10 April 2008.

2.0 Public Involvement Process

2.1 General. On 12 October 2007, the Corps and TVA issued joint PN 07-88A to advertise the proposed work. The PN was distributed to a wide list of interested parties, which included federal, state, and local agencies, elected officials, private/public organizations, news agencies, commercial navigation interests, adjacent property owners, and individuals. Comments were received from the U.S. Fish and Wildlife Service (USFWS), the Tennessee Department of Environment and Conservation (TDEC), several private citizens, and the Tennessee Historical Commission (THC). Their comments have been summarized below, and copies of comments are included in Appendix D.

2.2 Public Notice Comments.

2.2.1 By letter dated 2 November 2007, USFWS stated that records do not indicate federally listed or proposed endangered or threatened species occurring within the impact area of the project. Therefore, requirements of Section 7 of the Endangered Species Act have been fulfilled. Furthermore, USFWS does not anticipate significant adverse impacts to fish and wildlife or their habitats as a result of this project and has no objection to issuance of a permit for the work.

2.2.2 In a letter dated 16 October 2007, THC concurred there are no National Register of Historic Places (NRHP) listed or eligible properties affected with this undertaking. Therefore, Section 106 of the NHPA coordination has been fulfilled, and THC has no objections to the project.

Following site reconnaissance and because of the potential for cultural resources to occur at the site, TVA further consulted with the THC and the Tennessee State Historic Preservation Officer (TNSHPO). The process and result of that consultation are described in Section 3.4, historic properties and cultural values.

2.2.3 In a letter dated 19 October 2007, TDEC stated that records do not indicate registered dams, wellhead protection areas, private water supplies, or registered underground injection control sites within the proposed project area.

2.2.4 In a letter dated 25 October 2007, Mr. and Mrs. Glenn and Beverly Davis expressed concerns for potential safety issues and property damage. The Davises feel that the community slips would significantly narrow the navigation channel and that increased boat traffic would produce greater water turbulence, thereby causing damage to moored boats in the area.

2.2.5 In letters dated 6 and 28 November 2007, Mr. and Mrs. James and Marcella Payne stated that the construction of the docks at the proposed location is not justified or reasonable. They believe that the river is not wide enough at this location to accommodate

the docks and that the increased boat traffic would promote dangerous conditions. The Paynes believe the high stone bluff and abundant vegetation provide considerable aesthetic and ecologic value. Furthermore, they contend the undeveloped project site adds significant intrinsic property value to existing homeowners in the immediate area as is. They contend that the construction of the community docks would destroy this intrinsic property value due to increased noise levels, increased river traffic, decreased safety, and replacement of native vegetation with ramps, walkways, and steps.

2.2.6 In a letter received by the Corps on 7 November 2007, Mr. William Pollock expressed concerns with navigation, unsafe boating conditions, and the destruction of aesthetic beauty.

2.2.7 In a letter dated 8 November 2007, Dr. James Godfrey expressed concerns with the proposed project relating to navigation and heavy boating activity. Dr. Godfrey would like to see docks limited to those living on property adjacent to the reservoir with no docks available to accommodate property owners farther inland. Dr. Godfrey requested a public hearing be held.

2.2.8 In a letter dated 31 October 2007, Mr. Mark deFluiter expressed concerns relating to navigation and boating safety issues. Mr. deFluiter also expressed his desire to attend a public hearing.

2.2.9 In a letter dated 30 October 2007, Mr. and Mrs. Bob and Terri Knapp expressed concerns relating to boating safety due to increased boat traffic, noise and aesthetics issues, potential erosion concerns, and an excessive number of docks in relation to reservoir frontage owned by the applicant. The Knapps also requested a public hearing.

2.2.10 In a letter dated 6 November 2007, Mr. Josh Guinn, president of the Lake Meadows Homeowners' Association, expressed concerns related to boating safety, visual and audible impacts, increased boat traffic causing erosion across the river from the project site, and an excessive number of docks in relation to the minimal amount of reservoir frontage owned by the applicant. Mr. Guinn requested a public hearing be held.

2.2.11 In a letter dated 5 November 2007, Mr. Walter Seaman requested a public hearing to address several concerns, namely, channel width reduction, the number of proposed boat slips, and dock encroachment into the channel.

2.2.12 In letters received by the Corps on 9 November 2007, and 30 January 2008, Mr. and Mrs. Randy and Janine Wykoff expressed concerns relating to navigation, safety, increased pollution, economic impacts to existing homeowners, the historic rail bed, erosion, aesthetics and feasibility of the subdivision size, and housing prices. The Wykoffs

requested a public hearing and information concerning the Freedom of Information Act process.

2.2.13. In a letter received by TVA dated 4 December 2007 and forwarded to the Corps on 6 December 2007, Mr. and Mrs. Jerry and Donna Coffey requested a public hearing and expressed concerns relating to safety issues, a perceived excessive number of boat slips, increased noise levels, and detrimental aesthetics associated with the proposed project.

2.3 Applicant's Rebuttal. Mr. Gerald D. Thomas, on behalf of the applicant, RPT Partnership LLC, responded to the objections by letter received by the Corps 30 January 2008 (Appendix E). The PN contained an error in stating that the docks would extend 70 feet from the shoreline. In fact, the docks would extend a maximum length of 50 feet from the shoreline. The channel measures approximately 600 feet wide (see Section 1.1 Description/Project Purpose), with a 50-foot intrusion, which would only be 8.34 percent of the channel and well within TVA and Corps limits. The applicant states that 60 slips would not adversely affect navigation of this channel any more than one slip would, since in both scenarios, the extension lakeward would remain at 50 feet. The applicant owns approximately 1,200 linear feet of shoreline. According to TVA guidelines, 60 slips are well within allowable limits. The applicant does not believe boating traffic would increase in any significant amount due to the fact that many boaters on the reservoir presently do not live on the reservoir. Many of the potential homeowners already use the reservoir during the summer season. The applicant states that the objectors' environmental concerns are also his concerns. It is the applicant's intention to follow all requirements and conditions of any and all permits issued. The applicant does not intend to denude the bluff or obstruct the current view. Unless they pose a safety hazard, there are no plans to remove trees from the bluff with the exception of a paved golf cart path along one side of the hill. The remainder of the path would run along the abandoned railroad bed. Restrictions would be made on potential lot owners from constructing stairways down the face of the bluff as well. The proposed docks would also not obstruct the view of the bluff to any great extent. The applicant contends that noise, pollution, boating safety, and shoreline erosion are out of its control as individual boat operators are responsible for their actions in operating the boat with consideration for others at safe speeds and away from shorelines. Economic impacts would be significant for the state, county, and City of Johnson City. According to the applicant, property taxes generated from the proposed subdivision should amount to \$500,000 annually for Sullivan County and \$400,000 in one-time water and sewer tap fees for Johnson City. An additional \$200,000 annually would be generated through monthly water and sewer fees for Johnson City. The purchase of construction materials locally would generate another \$5,000,000 in sales tax revenues for the state and county.

2.4 Comments on the Draft Environmental Assessment

On 15 July 2008, TVA sent the draft environmental assessment (DEA) to 26 individuals representing various federal, state, and local agencies. The applicant and interested citizens who had previously commented on the public notice were also sent copies of the DEA. In addition, the DEA was posted on the TVA external Web site and, thus, made available to the public. TVA requested that comments be submitted on the contents of the DEA by 15 August 2008. The DEA contained information, plans, and an evaluation of effects of the applicant's proposal for construction of the community docks and shoreline stabilization.

Comments on the DEA were received from the applicant, a private citizen, TDEC (Divisions of Recreation Education Services, Remediation, and Water Supply), Tennessee Wildlife Resources Agency (TWRA), USFWS, First Tennessee Development District, Tennessee Department of Transportation, and THC (Appendix G). By letter dated 14 August 2008, USFWS indicated that requirements under Section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. TWRA and USFWS support selection of the Applicant's Proposed Action With Special Added Conditions Alternative and concur that the project would have no significant adverse impacts on fish and wildlife. One private individual expressed concerns about safety, aesthetics, historic relevance, feasibility, and community standards. All relevant issues raised in these comments have been addressed, as appropriate, in this final EA (see additional correspondence, including THC/TNSHPO consultation, which has been included in Appendixes D and F).

3.0 Environmental and Public Interest Factors Considered

3.1 Introduction. 33 CFR 320.4(a) states that the decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. All factors that may be relevant to the proposal must be considered (for full list see the attached PN, Appendix A). The following sections describe the relevant factors identified and provide a concise description of the probable impacts of the proposed action. The baseline data discussed in this section have been obtained from information provided by the applicant, field investigations, input to the PN, and other sources.

3.2 Physical/Chemical Characteristics and Anticipated Changes. The relevant blocks are checked with a description of the impacts.

(X) substrate – Disturbance to substrate (exposed lake bed) would be minimal. Construction of the individual dock structures would probably result from placing together pre-fabricated pieces, or dock construction would occur on land and then would be placed into the reservoir. Due to the deep water at the location of the floating covered dock structures, these structures are not expected to rest on the lake bed during any portion of the year.

(X) currents, circulation, or drainage patterns – The proposed community docks are floating structures, and, therefore, they would not interfere with currents, circulation, or drainage patterns. The structures would extend substantially less than one-third of the width of the reservoir at this location.

(X) suspended particulates, turbidity – Minor disturbance to the substrate during construction could cause turbidity; however, effects would be localized and temporary. While the slips are in use, turbidity could occur due to prop wash from boats. Potential effects would be localized, of short duration, and only anticipated in shallow water.

(X) water quality (temperature, color, odor, nutrients, etc.) – Turbidity as mentioned above could result in changes to water quality, primarily color with suspended particulates. Effects would be localized and of short duration, thereby causing negligible concerns for water quality. Anticipated runoff from the associated golf cart path and parking area would be minimal. Impacts would be localized, and water quality concerns would be minimal. Information published by TVA on its reservoir ecological health rating Web page (www.tva.gov/environment/ecohealth/boone.htm) indicates that the ecological condition of Boone Reservoir in 2005 was rated poor. Ecological conditions in Boone Reservoir have rated poor since TVA began monitoring it in 1991. Throughout the years, all indicators have shown some stress at all sample locations—high levels of chlorophyll, low dissolved oxygen levels, fair fish assemblage, poor bottom life, and the presence of metals and organic contaminants in the sediments. TDEC has not issued any advisories against swimming in Boone Reservoir; however, it has issued a precautionary fish consumption advisory for catfish and carp from Boone Reservoir because of PCB (polychlorinated biphenyl) and chlordane contamination.

It is not anticipated that the placement of the community docks would cause substantial further degradation of water quality in the area. Temperature of the water located under the docks would be expected to drop slightly due to shading by the structures. This would slightly improve water quality in the immediate area. As boats are permanently moored within the slips during the recreation season, small amounts of oil and gas residue commonly associated with recreational boats would be expected. However, amounts anticipated are minimal, and overall effects to water quality would be insignificant.

According to the applicant, a construction storm water permit would be obtained from TDEC to address spills and other nonstorm water-related contingencies to ensure that discharges from the construction operations are minimized or eliminated. Moreover, the Bluffs subdivision is the only residential development proposed to date on the north side of the reservoir that would provide sanitary sewer facilities. Johnson City would inspect these facilities during construction and own and maintain the system when completed. Furthermore, the pumping station facilities would be sized to handle the entire north side of the lake for future use. The developers are paying for these facilities, but Johnson City would bear the costs of constructing the force main pump line to the site from

its transfer station. This development should make it possible to eliminate the use of septic tank systems on the north side of Boone Reservoir in the future. This would help reduce potential impacts from this and other developments on water quality in the area.

(X) flood control functions – Installation and use of the proposed community docks and shoreline stabilization would not affect flood control functions of Boone Reservoir. The proposed project involves the construction of floating boat slips and riprap within the 100-year floodplain. Consistent with Executive Order (EO) 11988, TVA considers these repetitive actions in the floodplain that would result in minor impacts.

(X) storm, wave, and erosion buffers – Once in place, the community docks could provide a buffer for the near shoreline by dissipating wave action within the embayment.

(X) shore erosion and accretion patterns – Currently, there is no substantial shoreline erosion occurring, and there is no abrupt change in bank slope at the location of the proposed docks. The entire bank above the normal summer pool is lined with a variety of tree species, including eastern red cedar, sycamore, and scarlet oak, that serve to prevent erosion of the bank above normal summer pool. Except along the two approximate 200-foot-long sections proposed for stabilization, the shoreline along the proposed site is lined rock and has little loose soil that would be subject to shoreline erosion.

Additionally, the design of the community docks would have very minimal effects on the existing trees that line the shoreline above normal summer pool. As mentioned above, the docks could dissipate waves due to wind or boating traffic. With the proposed residential development and docks to accommodate 60 boats, boat traffic on Boone Reservoir could increase slightly. With increased boat traffic, wave action and wash would be expected to also increase slightly, especially in the vicinity of the docks and near shoreline where the docks would not serve as a wave break. However, due to the rocky composition of the shoreline, existing and proposed shoreline stabilization, and the absence of exposed soil, impacts anticipated would be minor. Much of the shoreline along the opposite bank has already been riprapped and shows little signs of erosion. Any increase in boating usage could theoretically cause an increase in erosion throughout the reservoir and in the vicinity of these structures. However, due to the size of the reservoir and the composition of the shorelines, any increase would likely be negligible. In addition, subdivision residents and users of the new community docks may currently already be recreating on Boone Reservoir.

() baseflow

3.3 Biological Characteristics and Anticipated Changes. The relevant blocks are checked with a description of the impacts.

() special aquatic sites (wetlands, mudflats, pool and riffle areas, vegetated shallows, sanctuaries, and refuges, as defined in 40 CFR 230.40-45) – No special aquatic sites exist in the project area.

(X) habitat for fish and other aquatic organisms – The proposed structures could provide artificial habitat where there is currently limited aquatic habitat. These structures would also provide some shade, hiding places for small fish, and attachment sites for some aquatic macroinvertebrates that provide sources of food for fish and other aquatic life. Permanent boat mooring and additional boat traffic in this location could temporarily displace some aquatic fauna. Fauna may move offshore or upstream/downstream through the embayment. Anticipated impacts would be minimal.

(X) wildlife habitat – There would be little or no disturbance to vegetation for construction of the proposed docks except to accommodate the cart path. A small amount of brushy vegetation and a few mature trees within the path to the docks would be removed, and compacted gravel and pavement would be installed. Cart path construction to attain the needed grade over the bluff crest would disturb an area approximately 0.37 acre in size (see Appendix B). This area would be revegetated in accordance with the applicant's mitigation discussed in Section 3.4 aesthetics and commitment No. 14 in Section 4.3.3. Conversion of the agricultural pastureland would occur for the subdivision development regardless of the common lot for access to the floating community dock. Therefore, direct impacts to wildlife habitat from the proposed activity would be negligible. By letter dated 1 July 2008, TWRA concurs that the project would have no significant adverse impacts on fish and wildlife resources (see Appendix G).

Less use of the area by terrestrial wildlife is likely to occur due to the increase in human presence. However, this could result with development of the subdivision and not solely from construction and use of the community docks. Wildlife would likely displace to other areas where development has not yet occurred. Depending on the available habitats and displaced species, a few individuals may be lost from the population until it reaches a new equilibrium.

Turkey vultures are common in the area, and rock habitat along the bluff provides suitable nesting habitat for this species. However, because the cart path would result in only a small amount of disturbance, the proposed project would not result in impacts to local populations of this or other species that may nest in bluffs.

Invasive exotic plant species encountered in the project area of Boone Reservoir include Chinese privet, English ivy, garlic mustard, Japanese honeysuckle, mimosa, multiflora rose, princess tree, tree of heaven, and sericea lespedeza. All invasive or exotic plant species have the potential to adversely impact the native plant communities because of their tendency to spread rapidly and displace native vegetation. Because the applicant has indicated that vegetation on the cliff face would remain largely intact (Appendix E), it is anticipated that the effects of the spread of invasive exotic plant species would be negligible.

(X) endangered or threatened species – No federally listed or proposed or state-listed endangered or threatened animal species are known to occur in the project impact area. By letter dated 2 November 2007, USFWS concurred that there are no anticipated adverse impacts to fish, wildlife, or their habitats. A colony of about 10,000 gray bats (*Myotis grisescens*), relatively large for northeast Tennessee, exists on the South Holston River arm of Boone Reservoir. Undoubtedly, the species forages throughout the reservoir system including the Watauga River arm of the reservoir. The proposed project would not result in impacts to this species. Based on all factors reviewed, the Corps and TVA have reached a no effect determination. By letter dated 14 August 2008, USFWS indicated that requirements under Section 7 of the Endangered Species Act of 1973, as amended, are fulfilled (see Appendix G).

State-listed plants known from Boone Reservoir are included in Table 1. Even though state-listed plant species are known to occur within 5 miles of the Bluff property, neither these plants nor their habitats were observed during a field review in April 2008. Because no populations of federally or state-listed plant species are known to occur at the site of the proposed shoreline improvements or cart path, no impacts are anticipated to rare plant populations from the proposed development.

Table 1: Plant Species of Conservation Concern Known to Occur Around Boone Reservoir

Common Name	Scientific Name	Federal Status	State Rank/Status
American Barberry	<i>Berberis canadensis</i>	--	S2/SPCO
Sapsuck	<i>Buckleya distichophylla</i>	--	S2/THR
Branching Whitlow-wort	<i>Draba ramosissima</i>	--	S2/SPCO
Goldenseal	<i>Hydrastis canadensis</i>	--	S3/S-CE
Butternut	<i>Juglans cinerea</i>	--	S3/THR
American Fly-honeysuckle	<i>Lonicera canadensis</i>	--	S1/THR
Mountain Honeysuckle	<i>Lonicera dioica</i>	--	S2/SPCO
Meehania Mint (Heart-leaf Meehania)	<i>Meehania cordata</i>	--	S2/THR
Wild Pink	<i>Silene caroliniana ssp. pennsylvanica</i>	--	S1S2/THR
Starflower Solomons-seal	<i>Smilacina stellata</i>	--	S1/END
Northern White Cedar	<i>Thuja occidentalis</i>	--	S3/SPCO
Northern Starflower	<i>Trientalis borealis</i>	--	S1/THR

-- = Not applicable

State Rank abbreviations: S1 = Critically imperiled with less than five occurrences; S2 = Imperiled with six to 20 occurrences; S3 = Rare or uncommon with 21 to 100 occurrences; S4 = Apparently secure; S#S# = Occurrence numbers are uncertain

State Status abbreviations: END = Endangered; S-CE = Special concern-commercially exploited; SPCO = Special concern; THR = Threatened

() biological availability of possible contaminants in dredged or fill material

3.4 Human Use Characteristics and Anticipated Impacts. The relevant blocks are checked with a description of the impacts.

() existing and potential water supplies; water conservation

(X) water-related recreation – Permanent moorage for 60 boats would provide immediate access to water-related recreation for prospective homeowners. However, it is not expected that all of these boats would be on the reservoir at the same time. During the recreation season, a slight increase in boating activity and usage would occur. Based on observations in the vicinity of the proposed community slips and on other TVA reservoirs, recreational boaters maintain similar patterns. As a result, TVA assumes that only about 25 percent of boats stored at community facilities are likely to be in use during a typical summer weekend day and 35 percent on a peak-use holiday weekend. Therefore, the proposed community facility would result in up to 15 additional boats on the reservoir on a typical weekend day during the boating season and up to 21 additional boats during a holiday weekend. In addition to boating-related recreation, land-based recreation, such as bank fishing, could also increase as the project provides direct access. Impacts from recreation would not significantly affect overall reservoir recreation, and increased use within this area would not jeopardize carrying capacity of Boone Reservoir. Taking into account the length the docks extend onto the reservoir, the width of the channel would still provide ample room for boats in slips to maneuver in and out of the channel without interfering with other boat traffic. The contribution of boats from these slips is not expected to significantly reduce safety of the boating public on this reach of Watauga River (Boone Reservoir).

(X) aesthetics – Construction of the floating community docks would somewhat negatively affect the visual characteristics at the project location. This change would be visually similar to other shoreline alterations and water-access facilities on the opposite bank and elsewhere in the area. Therefore, impacts of dock construction and use would not result in significant changes to the prevailing use. As designed, the community dock structures would include roofs (covered slips). However, the 10-foot-high side view profile (Appendix H) would affect views only minimally provided the permittee adheres to the special conditions below (see Section 4.3.3, item No. 13). This is a very rocky shoreline, and any tree plantings would be extremely difficult. Because the cart path would be at grade along the base of the bluff, it would not be visually intrusive; therefore, Corps and TVA determined that vegetative plantings to mitigate visual effects were unnecessary.

Depending on the viewer's viewing position, excavation and grading for the proposed cart path, particularly over and down the bluff face, would initially cause a substantial adverse visual impact along this portion of the bluff. Visual unity and wholeness would be affected by the removal of mature vegetation and change of the existing topography. Because of the anticipated rocky soil substrate, planted trees designed to buffer the view may be difficult to plant, may grow slowly, and may have less than optimal survival rates. All planted trees would be native to the area and would be species that occur on or near the proposed development site. Along with natural vegetation regeneration, the required tree plantings would, over time, mitigate the visual impact from the golf cart path construction. The tree plantings would soften the cut through the bluff and would reduce the initial visual impacts. Depending on the success and maturation of the plantings, the visual

impact of the cut would gradually be reduced to moderate (see Tree Planting below). In the long-term, particularly for area residents on the opposite shore of the reservoir and for recreational boaters, visual impacts from the cart construction would negatively impact the scenic beauty of the existing natural bluff condition. Consideration was given to relocating the cart path to another location that did not involve such a substantial cut to get from the residential area at the top of the bluff to the cart path along the shoreline, which provides access to the docks. However, there were no practicable alternative locations that were superior to the applicant's current proposal. Construction of a path at an alternate location would result in similar aesthetic impacts. Overall, the work would result in moderate aesthetic impacts. The severity of these impacts will be mitigated through the vegetative buffering plans discussed below. The magnitude of the impacts would likely decrease over time as the vegetative buffer matures. The applicant has also indicated that it has no intention of denuding the remainder of the rock bluff (see Section 2.3 and Appendix E).

Private docks are commonplace on Boone Reservoir. The approved residential plat along the 1,200 feet of privately owned shoreline shows 14 lots fronting the reservoir above the bluff face. The applicant's community docks and cart path proposal would affect a smaller area of the bluff face and, therefore, would have less impacts on the bluff compared to the potential effects of development at each individual residential access lot. By contrast, if individual lot development requests were entertained, views from the reservoir and opposite shore would likely include some number of manipulated access pathways (paths, stairways, marine railways, etc.) in steep places along the bluff face for access to the shore. Construction of these facilities, as proposed, reduces the extent to which several potentially varied dock requests from future subdivision landowners could affect the shoreline and bluff face. Therefore, these proposed structures concentrate the change in aesthetics to a single, smaller stretch of shoreline and bluff face, thus minimizing overall visual impacts. The size of the facilities has been planned to be in compliance with TVA guidelines (TVA 1998) for community structures. They would also be constructed in accordance with the conditions below:

- **Lighting** – All exterior lighting would be accomplished by utilizing shielded “dark sky” fixtures in order to eliminate upward light transmission that adds night sky brightness and to reduce the amount of light seen across the night landscape. Fixtures would be fully shielded or would have internal low-glare optics such that no light is emitted from the fixture at angles above the horizontal plane. Shielded lighting would reduce the effective number of total lumens by 35 percent. Area lighting poles would be less than 40 feet in height. Any nighttime construction activity would require temporarily retrofitting floodlights and other fixtures with external visors and side shields.

- **Roofs** – All color schemes for roofs on community dock facilities would be visually compatible with natural background colors and are in a dark green, black, or brown range.
- **Tree Planting** – Along the area associated with excavation and grading of the golf cart path over and down the bluff face, four rows of trees to provide a vegetative buffer paralleling the path would be planted. The applicant would plant one row of trees approximately in the center of each of the four 10-foot-wide benches; two on each side of the cart path (see cross section of path in Appendix B). A mixture of native hardwood (red and white oak) and evergreen (eastern white pine, shortleaf pine, and eastern red cedar) tree species would be planted. No one species may comprise more than 40 percent of the total trees planted. These trees would be balled and burlapped, a minimum of 10 feet to 12 feet high when planted, reach a mature height of a minimum of 25 feet, and would be spaced at a maximum of 8 feet apart. Stockpiled topsoil from the site (i.e., from cart path or road construction), would be used to backfill all tree pits. Work on the cart path cut at the bluff crest would be timed for completion in the early fall. All trees would be planted in the fall immediately following the completion of all ground-disturbing activities. Of the original tree plantings, a survival rate of at least 60 percent five years after planting would be required (see Section 4.3.3, item No. 14).

(X) traffic/transportation patterns – Road traffic within the area would be limited primarily to residential lot owners as the subdivision is developed. Use of the proposed facilities would be limited to residential lot owners. Therefore, changes to traffic patterns would result from development of the subdivision but would not be directly affected by the proposed community docks.

() energy consumption or generation

(X) navigation – There is no commercial navigation on Boone Reservoir. Recreational boat traffic would increase marginally within the immediate area as there would be provision for 60 moored boats. Location of the proposed community docks would not affect recreational navigation because the structures only extend 50 feet from the shoreline. This projection is much less than one-third of the reservoir width and does not present an unreasonable interference with recreational navigation. A slight amount of additional boating traffic is anticipated in the project area and reservoir vicinity of the subdivision. However, after leaving the dock, boating traffic is expected to disperse, and timing of recreational use would be staggered. All the boats from these docks would not likely be on the reservoir at the same time. Therefore, effects to navigation on Boone Reservoir would be negligible.

(X) safety – Boating traffic congestion could be a concern; however, boat traffic is expected to be staggered both in time and location of reservoir use (see currents, circulation, or drainage patterns in Section 3.3 and water-related recreation and navigation in Section 3.4). As a navigable water of the U.S., the public has a right to free navigation

on this waterway; however, the public must obey all State of Tennessee boating laws and regulations. The 50-foot lakeward extent of the community slips, even during wintertime drawdown, represents less than 13 percent of channel width at this location. In accordance with TVA Section 26a regulations, this is well within the one-third of the reservoir width restriction (see Navigation section above). Therefore, congestion of boat traffic in the vicinity of the project area would not result in a significant safety reduction.

() air quality

(X) noise – Additional noise could occur during construction of the dock facility and golf cart path; however, this would be temporary. Additional noise with boating and associated use of the community docks would be localized and primarily would affect only adjacent or nearby lot owners along the waterway. Use of the docks would occur primarily during daylight hours during the recreational season. Overall, impacts due to noise would be minimal.

(X) historic properties and cultural values – In response to the 12 October 2007 PN, TNSHPO concurred by letter of 16 October 2007 that no listed or eligible properties would be affected by the proposed project (see Appendix D).

However, following a 16 November 2007 site reconnaissance and in order to provide a better understanding of potential cultural resources that could occur at the site, TVA initiated consultation with the TNSHPO and requested concurrence on the project area of potential effect (APE) on 3 January 2008. Consistent with the Corps, TVA identified the APE to be the “Permit Area,” including the floating community docks, the cart path located along the bluff face, and the access road along the base of the bluff face. By letter dated 9 January 2008, the TNSHPO concurred with TVA’s APE determination (Appendix F). One archaeological site, 40SL392, was discovered during an archaeological survey of the APE conducted in December 2007 (Franklin 2008). It was recommended ineligible for the NRHP based on its lack of ability to address significant research questions about prehistory.

In addition, a historic railroad right-of-way was identified during the survey. TVA contacted a railroad historian, Mr. John Graybeal, to gather further information about the railroad. Mr. Graybeal indicated that the railroad is a remnant of the Charleston, Cincinnati and Chicago (Three C’s) Railroad, which was in operation for approximately two years (Circa 1890-1891). Because of the Three C’s significance in local and regional history and for its role in railroad history, it was TVA’s opinion that the original intact right-of-way and retaining wall located in the APE were eligible for listing in the NRHP under Criterion A. Because of the workmanship of the retaining wall, TVA also believed it would be eligible under Criterion C. TVA recommended the right-of-way and retaining wall as eligible for the NRHP by letter to

the TNSHPO dated 31 March 2008. However, by letter dated 16 April 2008, the TNSHPO disagreed with TVA's recommendation (Appendix F). During a follow-up discussion, a representative of the TNSHPO indicated that it disagreed with TVA's finding because of the limited amount of time the railroad operated and because this section represents a small portion of a larger rail system (Dr Joseph Y. Garrison, Tennessee Historic Commission [review and compliance coordinator], personal communication, April 18, 2008).

After considering the TNSHPO's reservations about listing the railroad right-of-way on the NRHP, TVA concurs with the TNSHPO's recommendation that the railroad is ineligible, and as a consequence, the project would have no effect on historic properties on or eligible for the NRHP. TVA also consulted with federally recognized Indian tribes that would have an interest in the project, and no concerns were expressed. TVA has determined that there would be no effects on historic properties from disposal of excess soil material from cart path construction to achieve final grades in low areas within the proposed subdivision. The NHPA Section 106 compliance review and consultation have been completed. Furthermore, by letter dated 22 July 2008 and in response to its review of the DEA, the TNSHPO reaffirmed its previous finding that the project area contains no historic properties listed or eligible for listing in the NRHP (see Appendixes F and G).

(X) land use classification – The Bluffs subdivision is proposed to be located on Boone Reservoir less than 3 miles from Johnson City, Tennessee. The property surrounding the proposed subdivision is presently zoned R-1, low-density residential district, and A-1, general agriculture – estate residential district. The new subdivision property is now zoned R-3B, residential district, for high-density but single-family homes (individual lots, townhouses, patio homes, or any other type of condominium is permissible, but no rental apartments will be permitted). On 31 August 2007, a plat map of 172 lots over 76.089 acres for The Bluffs (formerly The Cliffs) subdivision was approved by the Sullivan County Regional Planning Commission (SCRPC). The subdivision plat was found to comply with the subdivision regulations for Sullivan County, Tennessee, with the exception of variances, if any, as are noted in the minutes of the SCRPC, and was approved for recording in the office of the county register. It will be on the Johnson City public water and public sewer system. Based on the SCRPC approval, which included water and sewer systems, TVA and the Corps believe this development to be compatible with adjoining and nearby land uses. By letter dated 28 July 2008, the First Tennessee Development District determined that the proposed project is in accordance with regional and local plans, programs, and objectives as of this date (see Appendix G).

() conservation

(X) economics – The proposed community docks would provide additional amenities for the developers of The Bluffs subdivision and make home purchase in this development more attractive. This would result in additional profit with home/lot sales. With increased

property values, the county would receive additional tax revenues (also see Section 2.3 Applicant's Rebuttal).

() food and fiber production

(X) general environmental concerns – This is a broad factor almost synonymous with the area's quality of life. All relevant issues falling under this heading have been evaluated in this document. Special conditions have been added (see Section 4) to minimize unavoidable adverse environmental impacts that could occur with project implementation.

() mineral needs

(X) consideration of private property – Corps regulations at 33 CFR 320.4(g) state that authorization of work by the DA does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations. The same regulation also states that a riparian landowner has a general right of access to navigable waters of the U.S. However, this right of access is weighed through the DA public interest review process against the similar rights of access held by nearby riparian landowners and to the general public's right of navigation on the water surface. No issues are known to the Corps or were identified through our public interest review process that would violate our responsibilities concerning this factor.

(X) floodplain values – The proposed project would not affect potential floodplain use or value.

() other

3.5 Cumulative and Secondary Impacts. The Council on Environmental Quality regulations defines cumulative impact as "the environmental impact which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." The Corps considers every DA permit application on its own merits and assesses its environmental impacts within the proper scope of review for NEPA purposes.

As indicated in Section 1.4, the scope of analysis for this DA permit application is limited to the "Permit Area" (i.e., water area, shoreline, near-shoreline, and immediate upland area directly impacted by construction for the facility and the path area needed to provide access for the residents to the community boat docks). The "Permit Area" impacts described in this document would result in minimal adverse cumulative impacts on areas within our

NEPA scope of review. A discussion of these impacts has been presented in Section 3 above.

With increasing residential developments, such as The Bluffs subdivision, in areas surrounding Boone Reservoir, more people are brought closer to the reservoir and its amenities. This is the only residential development of this type to date proposed on the north side of the reservoir. Working with Johnson City, the planned septic system for this development should make it possible to eliminate the use of septic tanks on the north side of Boone Reservoir in the future, thus reducing the potential for water quality impacts (see water quality in Section 3.2). Recreational use is expected to continue and to increase. Winged Deer Park occurs 1.0 mile southeast of the proposed project community docks along Watauga River Mile 10.5. This park features unparalleled facilities for softball and soccer, playground equipment, picnic areas, plus 2 miles of paved and lighted walking trails. With continued development, potential for environmental impacts continues. Individual and community docks are common on Boone Reservoir. Use of community docks may allow nonlakefront property owners opportunities for boat moorage. Compared to the amount of anticipated disturbance potentially associated with approvals of individual docks and access corridor along the length of this shoreline, concentrated community docks are expected to have less impact. However, it also concentrates multiple docks into a single location and, thereby, concentrates potential impacts. This results in less land and water areas being disturbed.

TVA and the Corps maintain control of potential development through shoreline management programs and the permitting process. Appropriate mitigative conditions can be required to offset anticipated impacts from future developments. Additionally, TVA could choose to perform carrying-capacity studies if recreational boat usage and safety issues become more substantial in the future. When considering the impacts from past, present, and reasonably foreseeable future proposals, the cumulative and secondary impacts from this proposal are considered minor. If a decision is made to issue this or any future DA permit, special permit conditions will be incorporated to minimize on-site impacts to the extent practicable. Many of the potential cumulative impacts of this type of development were reviewed in TVA's environmental impact statement for its Shoreline Management Initiative (TVA 1998).

4.0 Alternatives

4.1 Introduction. This section discusses alternatives as required by 33 CFR 320.4(a)(2) and 40 CFR 230.10. The relevant environmental issues identified in Section 3.0 were used to formulate the alternatives. The alternatives considered in detail are described in Section 4.2 and their impacts and special permit conditions to avoid or minimize their effects are compared in Section 4.3.3.

4.2 Description of Alternatives.

4.2.1 No Action. This alternative would result in no community docks being constructed and no action requiring a DA or TVA permit. No Action could be brought by denial of the permit or withdrawal of the permit application.

4.2.2 Applicant's Proposed Action. This alternative consists of the proposal described in Section 1.1.

4.2.3 Applicant's Proposed Action With Added Special Conditions. This alternative includes the Applicant's Proposed Action identified in Section 4.2.2 above with the addition of special conditions to further minimize/mitigate unavoidable environmental impacts to the maximum extent practicable.

4.3 Comparison of Alternatives.

4.3.1 No Action. This alternative would result in no work occurring within waters of the U.S. No Action could be brought about by a denial of the DA or TVA permit or withdrawal of the application. The potential impacts described in Section 3.0 would not occur. Selection of the No Action alternative would not satisfy the applicant's stated purpose and need and economic benefit of the project would be foregone.

4.3.2 Applicant's Proposed Action. The proposed action described in Section 1.1 would potentially have various minor adverse and beneficial environmental, social, and economic effects. These potential effects have been listed in Section 3.0 above.

4.3.3 Applicant's Proposed Action With Added Special Conditions. This alternative would result in similar impacts and benefits to the alternative described in Section 4.3.2 above. Special permit conditions have been developed and recommended (see below). The recommended conditions are reasonably enforceable and would afford appropriate and practicable environmental protection. Conditions have been specifically added to minimize adverse impacts.

The following recommended special permit conditions are necessary to satisfy legal and public interest requirements. Some of these conditions help clarify the permit application and afford appropriate and practicable environmental protection.

1. The work must be in accordance with the plans and information submitted in support of the proposed work, as attached. *Justification: Clarify the permit application.*

2. Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the U.S. *Recommended at 33 CFR 325, Appendix A.*
3. You must have a copy of this permit available on the site and ensure all contractors are aware of its conditions and abide by them. *Recommended at 33 CFR 325, Appendix A.*
4. While also avoiding upward light transmission as indicated in Condition No. 12 below and at your expense, you must install and maintain lighting and reflective tape on the floating dock structures in accordance with U.S. Coast Guard (USCG) guidelines, so that the facilities do not present a navigation hazard at night. You must not use red or green lights. The USCG may be reached at the following address and telephone number: Commander, Eighth Coast Guard District, Hale Boggs Federal Building, 501 Magazine Street, New Orleans, LA 70130-3396, Telephone (314) 539-3900. *Recommended at 33 CFR 325, Appendix A.*
5. You hereby recognize the possibility that the structures permitted herein may be subject to damage by wave wash from passing vessels. The issuance of this permit does not relieve you from taking all proper steps to ensure the integrity of the structures and the safety of boats moored thereto from damage by wave wash, and you shall not hold the U.S. liable for any such damage. *Public interest requirement (safety).*
6. You agree to securely anchor all floating facilities to prevent them from floating free during major floods. *Minimize impacts on navigation and flood control interests.*
7. To the extent practicable, any land-disturbing activities related to the approved facility shall be performed during the periods of winter drawdown of Boone Reservoir to minimize adverse effects on aquatic life and water quality. *Minimize adverse effects on aquatic life and water quality.*
8. Riprap material shall be clean stone appropriately sized for the fluctuating lake levels. It shall also be free of waste metal products, organic materials, unsightly debris, etc. *Justification: To maintain the chemical, physical, and biological integrity of waters of the U.S. through the control of discharges of dredged or fill material.*
9. The construction of these community docks provides moorage for The Bluffs subdivision residents. No individual docks will be permitted within this project area, The Bluffs subdivision. *Justification: Ensuring reduced cumulative impacts in the future.*

10. Disturbance to riparian vegetation shall be kept to a minimum during construction. *Minimize impacts on wildlife habitat, water quality, and the aquatic environment.*
11. You must institute and maintain a strict erosion and sediment control program for the life of the project and ensure that all disturbed areas are properly seeded, rip-rapped, or otherwise stabilized as soon as practicable to prevent erosion. *Minimize impacts on water quality and the aquatic environment.*
12. All exterior lighting will be accomplished by utilizing shielded “dark sky” fixtures in order to eliminate upward light transmission that adds night sky brightness and to reduce the amount of light seen across the night landscape. Fixtures will be fully shielded or will have internal low-glare optics such that no light is emitted from the fixture at angles above the horizontal plane. Shielded lighting will reduce the effective number of total lumens by 35 percent. Area lighting poles must be less than 40 feet in height. Any nighttime construction activity may require temporarily retrofitting floodlights and other fixtures with external visors and side shields. *Minimize impacts on visual resource interests.*
13. All color schemes for roofs on community dock facilities must be visually compatible with natural background colors and are in a dark green, black, or brown range. *Minimize impacts on visual resource interests.*
14. Along the area associated with excavation and grading of the golf cart path over and down the bluff face, four rows of trees to provide a vegetative buffer paralleling the path shall be planted. The applicant will plant one row of trees approximately in the center of each of the four 10-foot-wide benches; two on each side of the cart path (see cross section of path in Appendix B). A mixture of native hardwood (red and white oak) and evergreen (eastern white pine, shortleaf pine, and eastern red cedar) tree species must be planted. No one species may comprise more than 40 percent of the total trees planted. These trees will be balled and burlapped, a minimum of 10 feet to 12 feet high when planted, reach a mature height of a minimum of 25 feet, and shall be spaced at a maximum of 8 feet apart. Stockpiled topsoil from the site (i.e., from cart path or road construction) will be used to backfill all tree pits. Work on the cart path cut at the bluff crest must be timed for completion in the early fall. All trees will be planted in the fall immediately following the completion of all ground-disturbing activities. Of the original tree plantings, a survival rate of at least 60 percent five years after planting will be required. *Minimize impacts on visual resource interests.*

4.3.4 Alternatives Not Considered in Detail. Other practicable alternatives do exist that would involve different designs (size, shape), different materials (wood, metal, composites), or different sites. However, these proposals would result in a degree of impact commensurate with the impacts of the proposed action. All alternative designs would

require DA/TVA permits and would be subject to the agencies' review processes. In addition, these alternatives might not satisfy the applicant's purpose and need.

Literature Cited:

Franklin, J. D. 2008 *A Phase I Archaeological Reconnaissance Survey of the Proposed Cliffs Subdivision, Boone Reservoir, Sullivan County, Tennessee*. Report submitted to RPT Partnership, Johnson City, Tennessee

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