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FINAL ENVIRONMENTAL ASSESSMENT

ELK RIVER RESORT
PROPOSED RECREATION EASEMENT AND MARINA FACILITIES
Wheeler Reservoir
Lauderdale County, Alabama

Prepared by

TENNESSEE VALLEY AUTHORITY

Cooperating Agency

U.S. ARMY CORPS OF ENGINEERS

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CHAPTER 1 PURPOSE OF AND NEED FOR ACTION

The 1995 Wheeler Reservoir Land Management Plan (Plan) noted that the future commercial recreation needs were being met locally for the middle and upper reaches of the reservoir; however, lower reaches were underserved. Therefore, the reservoir planning team focused on the lower regions of the reservoir to identify potential recreation sites. Four tracts (21, 67, 88, and 91) were designated for recreation to meet plan objectives. In the years since the plan was completed, existing marina facilities have developed waiting lists, indicating that there is a continuing demand for a marina facility. Recreational development of the reservoir system is consistent with TVA's broad responsibilities under the TVA Act to foster the economic development and social well being of the Tennessee Valley region. Congress also has given TVA the authority to buy and sell land in support of its programs and responsibilities.

Because of this prior reservoir planning, when TVA received a proposal from Gilbert "Bubba" Doss consistent with its land management plan, TVA chose to evaluate this proposal in light of the recreational land allocation and TVA's broad responsibilities. The request before TVA is for campground and marina development of a 91-acre tract of property on Wheeler Reservoir, designated Tract 21 in the Wheeler Plan. TVA's purpose and need is to respond to the Doss proposal for recreational development of a TVA tract and to respond to a request for water use facilities under Section 26a of the TVA Act. TVA's evaluation focuses on whether this designation will meet the objectives of its Wheeler Plan and whether modifications are needed to further these objectives or to reduce environmental impacts. The US Army Corps of Engineers (USACE) also needs to respond to permit applications for water use facilities and dredge and fill applications within areas of its responsibilities.

1.1 The Decision

Tennessee Valley Authority (TVA) is considering a request for a 30-year easement for the development of a commercial recreational resort on approximately 91 acres of TVA property on Elk River in Lauderdale County, Alabama (see Figure 1-1). The TVA property is identified as Tract XWR-21PT in the Wheeler Reservoir Land Management Plan (Plan) and was allocated for Commercial Recreation and Visual Management in the Plan (TVA, 1995). This proposal is consistent with the above allocation. The applicant proposes to create a recreation and resort area under a term-easement agreement. The proposed resort would include a recreational vehicle (RV) park, camping areas, wet slips, fishing piers, dry storage, a ship's store, nature trails, cabins, and a restaurant. TVA has prepared this Environmental Assessment (EA) to help it decide whether to grant the recreational easement and approve the proposed facilities under Section 26a of the TVA Act.

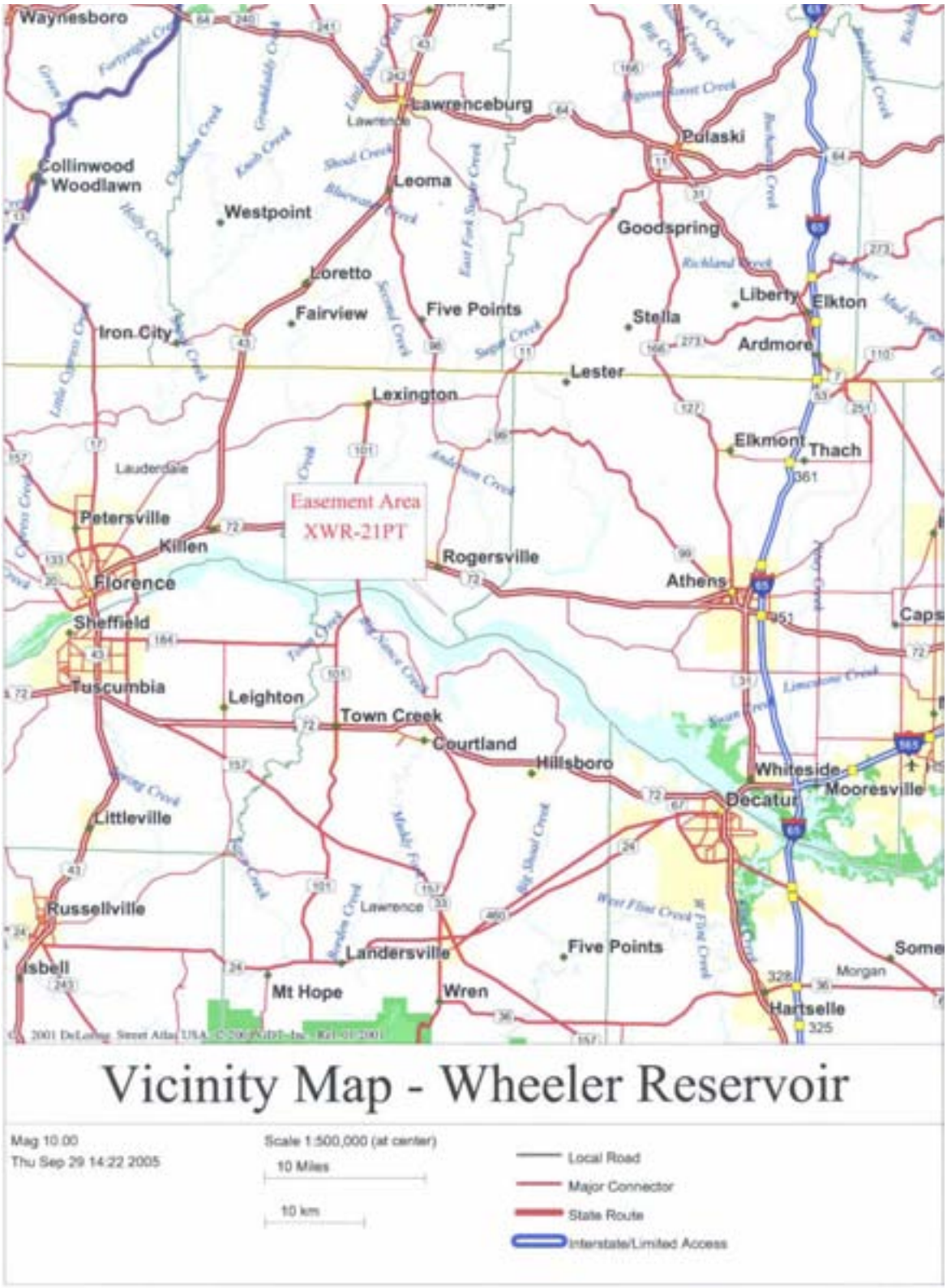

Figure 1-1 Project Vicinity Map

Section 10 of the Rivers and Harbors Act (RHA) of 1899 prohibits the alteration or obstruction of any navigable waters of the United States unless authorized by the Secretary of the Army acting through the Chief of Engineers. Elk River is navigable waters of the United States as defined by 33 Code of Federal Regulations (CFR) Part 329. Section 301 of the Clean Water Act (CWA) prohibits the discharge of dredged or fill material into waters of the United States unless authorized by the Department of the Army (DA), pursuant to Section 404 of the same act. Elk River at Elk River Mile (ERM) 1.5 and its unnamed tributaries are waters of the United States as defined by 33 CFR Part 328. Therefore, since the proposal involves structures and fill within a navigable waterway, a Section 10 and 404 permit would be required. Since a DA permit would be required, USACE must decide whether to (1) issue a permit as proposed, (2) issue a permit with modifications and/or conditions, or (3) deny the permit. Because of the land use action, TVA is the lead federal agency and USACE is a cooperating agency.

1.2 Other Pertinent Environmental Reviews or Documentation

Wheeler Reservoir Land Management Plan. In 1995, TVA completed the Plan, which allocated 11,284 acres of public land around Wheeler Reservoir. It designates desired uses for 203 tracts of TVA public land, providing sites for recreation, industry, navigation, wildlife, forest management, cultural and environmental preservation, and agriculture. The land at the proposed resort development was allocated for Commercial Recreation and Visual Management. In this plan, tracts allocated for Commercial Recreation were reserved for developments requiring water frontage. Facilities that may be considered under this allocation are marinas, docks, launching ramps, rental cabins, trails, lodges, pools, campgrounds, restaurants, and other tourism-related outdoor recreation facilities.

Under the 1995 Plan, for tracts available for new commercial recreation development, TVA would seek private investors with the financial and managerial capability to develop large-scale facilities that can become destination points for tourists and local reservoir uses. To encourage high-quality private development, TVA may provide such incentives as assisting with conceptual site planning or conducting market assessments. TVA may also provide technical assistance to existing commercial operators who are interested in upgrading their facilities.

1.3 Public Involvement

1.3.1 The Scoping Process

Public notice of TVA's proposed land action appeared in the *Florence Times Daily* on Sunday, June 26, 2005. It also ran the following Wednesday. Another local paper, *East Lauderdale News,* also ran the notice on Thursday, June 30, 2005. TVA also placed approximately 35 flyers for the initial public notice on mailboxes along the Hidden Valley Shores road and County Road 70. The comment period for scoping comments ran through July 29, 2005. Because of the interest in the proposal, TVA accepted comments through August 19, 2005. TVA received comments from 93 individuals who were opposed, 19 who were in favor of the proposal, and a petition in opposition to the proposal with 259 signatures. Issues to be addressed were identified relating to the following resource areas: recreation, navigation and boating safety/congestion, water quality, roads/traffic, terrestrial ecology/natural resources, threatened and endangered species, cultural resources, solid waste disposal, visual resources, noise, security concerns, property access/property values, and land use. Prior to proceeding with further review, TVA requested the applicant submit his application for the proposed

facilities which would require TVA approval under Section 26a of the TVA Act and USACE approval under the RHA and CWA. USACE issued a joint public notice on August 26, 2005, announcing a public comment period through September 26, 2005. These comments together with earlier comments received by TVA, were grouped into issue categories and included in Appendix B in summarized form.

During the public scoping period for this proposal, individuals expressed issues related to the cantilevered structure located at the former Wheeler Grain Company site. The proposal is not related to this structure or site. In 1983, the Wheeler Grain Company obtained an easement from TVA for the right to load and off-load products across TVA property. The company constructed a steel-cantilevered structure on the easement area. The company is no longer in business, and the structure is no longer being used. The back-lying property has since been sold and is being developed as a subdivision. TVA is currently exploring options to remove this structure.

1.3.2 Public Review of the Draft Environmental Assessment

TVA released the EA for public review on October 5, 2005. TVA issued a public notice announcing the availability of the draft for review and the scheduled public meeting to receive comments to be held on October 18, 2005. The notice appeared in the *Florence Times Daily* on October 5, 2005; in the *East Lauderdale County News* on October 6, 2005; and in the *Athens News Courier* on October 5, 2005. Postcards were mailed or emailed to 358 individuals to notify them of the open house, 20 of which were returned due to incorrect address. On October 18, 2005, TVA held a public meeting with an open house format at the Lauderdale County High School in Rogersville, Alabama. Sixty-three people registered in attendance at the public meeting. The comment period closed on November 7, 2005, but several comments were received during the following two weeks, which TVA took into consideration in preparing comment responses. The Draft Environmental Assessment was also available for review on the TVA website at: http://www.tva.gov/environment/reports/elkriver. People could request written copies as needed.

TVA received in total 94 comments on the proposal representing 104 individuals (14 of which were unknown or unidentified individuals from the public meeting). Of these, 75 percent (78 individuals, 13 of which were unidentified individuals) made comments in opposition to the marina, while 14 percent (15 individuals) made comments supporting the marina. Four of the commenters had general comments or questions that indicated neither opposition or support for the proposal.

The EA was also mailed to state and local resource agencies for comment. The U.S. Fish and Wildlife Service (FWS) concurred with the finding that the project would have no adverse effect on threatened and endangered species. However, FWS did not unequivocally support the applicant's proposal because of its potential to negatively affect natural resources on the TVA tract, its riparian and wetland areas, and the shoreline. FWS recommended strict adherence to best management practices (BMPs) during and following the construction activities if TVA decided to approve the applicant's request. The applicant's proposal will be subject to BMPs specified in the EA's commitment list, the Section 404 permit, the Section 26a permit, and the Section 401 Certification. The Alabama State Historic Preservation Officer (SHPO) concurred with TVA's finding that no historic properties would be affected. These letters are included in Appendix D.

TVA also notified Public Officials about the availability of the draft and the scheduled public meeting. Between publication of the notice of the proposal requesting scoping comments and public release of the draft, revisions were made to the proposal reducing the size of the harbor limits, the amount of dredging, and the extent of wave and trash breaks of the marina facility. Because of the large local interest in the proposal and the confusion regarding the scope of the proposal, TVA felt another meeting would be helpful. On January 31, 2006, TVA issued a public notice announcing plans to hold another open house style public meeting on February 9, 2006 at the Lauderdale County High School in Rogersville, Alabama. Sixty individuals attended the meeting. The public had until February 16, 2006 to provide any additional comments on the Draft EA. TVA received in total 66 additional comments on the proposal.

1.4 Necessary Federal Permits or Licenses

TVA and USACE have before them actions related to this project. TVA will decide whether to grant the recreational easement and approve the proposed water use facilities and culverts for the access road under Section 26a of the TVA Act. A Department of the Army (DA) permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA) is needed for dredging and the construction of commercial water use facilities including a 100 boat slip marina, a concrete trash break with fuel dock, three fishing-mooring piers, a retaining wall to accommodate a fork boat lift launching area, a launching ramp, and riprap. An Alabama Department of Environment and Conservation water quality certification pursuant to Section 401 of the CWA must be obtained before any federal permit can be issued for an activity that may result in a discharge into navigable waters. The state must certify that applicable water quality standards will not be violated by the proposed work. The Section 401 Certification for project activities that may result in a discharge into navigable water was issued by Alabama Department of Environmental Management (ADEM) on March 17, 2006.

CHAPTER 2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

The applicant considered various alternative sites for the proposed resort components prior to submitting his request for TVA Tract XWR-21PT. The first site considered for this project was in Courtland, Alabama, located on Spring Creek. The land is adequate in size and secluded, making it ideal for campgrounds. The creek forms a protected slough with good shelter for a marina location. However, the site was eliminated from further consideration because a low clearance bridge crosses the slough and limits access for boats. TVA's Cow Ford Campground in Limestone County was also considered but then eliminated because winter pool elevations make much of the embayment too shallow for a marina without a major dredge. A privately-owned site in Lawrence County, on Town Creek, close to Doublehead Lodge was adequate in size for the proposed action and secluded with good shelter. However, this site is located further up Town Creek where floodwaters tend to get out of the streambanks very quickly, which would subject the RV park portion to quick floodwaters. Also, this site is too shallow for large boats. For these reasons, the applicant eliminated these sites from further consideration and identified the Elk River site as the preferred location. Members of the public identified other alternative locations for the proposed development. The Point on Town Creek, which is located on Wilson Reservoir is owned by another developer, who is considering a proposal for development. The state park land on Elk River was transferred to the State for public recreational use. The state park land on the Lauderdale County side of the Highway 72 Bridge was a non-fee "rest area" and is not large enough to accommodate the proposed resort. A major component of the application is camping and cabins in addition to a marina, and Florence Harbor only offers marina and related facilities. TVA believes these alternative sites do not meet the purpose and need of the proposed scope of the development.

2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA Tract XWR-21PT would remain allocated for Commercial Recreation and Visual Management in the Wheeler Reservoir Management Land Plan (Plan). As stated in the Plan, forest and wildlife management will continue as an interim use. The area would remain available for moderate levels of informal recreational use, i.e., primitive camping, bank fishing, and some hunting. TVA would also continue to consider applications compatible for recreational development.

2.2 Alternative B – Applicant's Proposal

The applicant proposes to create a recreation and resort area under a term-easement agreement (see Appendix A). The resort would include an RV park, camping areas, nature trails, wet slips, fishing piers, a wave break, dry storage, a ship's store, cabins, and a restaurant. To provide road access to the resort, the applicant has obtained a 60-foot-wide private road that branches off County Road (CR) 77 and follows the boundary of TVA Tracts XWR-21PT and -22PT. Construction of this road access will involve crossing five streams by installing culverts. Vehicle parking lots will be built to accommodate campers and patrons as well as day-use anglers. The applicant proposes to a dredge to accommodate the dry storage forklift launch area. Some spoil will be

removed by barge and transported to a loading dock, then hauled to area landfills. Some spoil closer to the shoreline will be removed from dry land with an excavator. This dredge spoil could be utilized throughout construction as backfill above the 560-foot contour in some inland areas needing fill, most likely in areas along the road construction.

The applicant proposes to develop the Elk River Resort in five phases. Phase 1 will include construction of the road access, infrastructure, and RV park/campground. Facilities to be constructed include 100 campsites along with bathhouses, fishing piers, launching ramp, playgrounds, hiking trails, and a ship's store. The store will be multifunctional including an office, retail sales, public relations, restrooms, and storage of maintenance equipment. Phase 2 will include the construction of the marina to include 50 wet slips, a safe mooring area, and amenities such as water, electricity, and sewage disposal. Items such as fuel, food, ice, and fishing tackle would be sold. As demand increases, Phase 3 will include 100 additional campsites and 50 more wet slips. Phase 4 would include construction of a dry storage building. Phase 5 may include a specialty restaurant open to the public and cabins.

The RV park will be built on a portion of the property providing both "in transit" and "destination" parking for at least 100 vehicles. The sites will have level slabs for parking, individual electrical connections, water and sanitary connections and other amenities normally associated with modern first class RV parks. A nature/hiking trail and camping area will be built on a portion of the property with the possibility of cabins and a chalet/restaurant in coming years. A boat launching ramp and parking lot will be located adjacent to the marina.

To recover timber revenues if the proposal is approved, TVA would work closely with the applicant in determining which trees can be removed. In conjunction with TVA staff, the applicant estimated that land clearing and excavation for Phases 1 through 4 including the access road right-of-way, location of maintenance building, campsites, and marina parking areas would directly affect approximately 60 acres on Tract XWR-21PT, resulting in approximately 30 of the 60 acres being cleared. Phase 5 would affect 20 acres, resulting in approximately 10 of the 20 acres being cleared. In total, it is estimated that a clearing of 40 acres would be dispersed through the 80-acre footprint on the 91-acre tract. Five streams will be crossed for the access road; two culverts will be 72 inches in diameter and three culverts will be 48 inches in diameter.

Since the public notice to solicit scoping comments, several revisions to the proposal and drawings presented in Appendix A were made as a result of internal and external TVA review of the public notice and the DEA. A site layout superimposed on an aerial photograph is shown in Figure 2-1 and revised drawings are included in Appendix F. Additionally, just prior to release of the DEA, the harbor limits were reduced from 1,000 feet to 550 feet from the shoreline. This resulted in having to change the trash and wave breaks. These features were incorporated in the DEA in the Navigation section after the public notice. The trash break was initially proposed to be 800 feet long but was then reduced to 550 feet. The number of multiple slip marina structures would be four. The dredge will be located around the launching ramp near the dry storage building. The area to be dredged has been reduced to an area of 40 feet wide by 60 feet out from shore.

The applicant's proposed action included the following features for reducing environmental impacts:

- Excavated areas would be sowed with seed prior to completion of construction in order to stabilize banks and prevent erosion into Elk River. During construction activities, every effort will be made to minimize the impact of construction upon the flora and fauna of the site. A best management practices plan will be developed upon grant of the easement and before construction begins for TVA review and approval. Additionally, all required permits and approvals from federal, state, county and local jurisdictions will be obtained prior to construction.

- Recycling and disposal of petroleum and other solid waste would be available at this facility. A natural theme for this proposed resort would involve maintenance of the infrastructure including keeping the shoreline clean and preventing litter and debris to accumulate.

- The proposed marina will actively partner with TVA as a leader in the Clean Marina Program. Sewage pump out service will be available for customers and required of tenants. The marina store will offer and promote environmentally friendly nontoxic products for cleaning and maintenance. The marina staff will participate in the education of boaters on sewage, fuel and bilge management.

- No future development will occur in the wetlands present on the site.

- To prevent and suppress forest, grass and other fires, the applicant will require campfires to be restricted to designated areas within fire rings.

2.3 Alternative C – Applicant's Proposal with Mitigation

All features of Alternative B are incorporated under Alternative C. Additionally, under Alternative C, TVA has identified the following features for reducing environmental impacts. These measures were formulated as a result of TVA's technical review and in response to comments received from the public on the DEA.

- Wetlands will be further protected by maintaining an upland buffer. The buffer will be 125-feet wide at a minimum, and extending to 200 feet in other areas (see Figure 3-1). During construction, the wetlands and the buffers will be temporarily marked with standard orange vinyl construction type fencing and silt fencing so that the wetlands are not inadvertently impacted by heavy equipment, etc.

- A 50-foot managed buffer will be maintained along drainages located within the parcel to reduce the potential for loss of streambank vegetation which could result in erosion. TVA's general and standard conditions will apply to culverts for stream crossings.

- Shoreline buffer zones (50 feet as measured landward from the normal summer pool elevation) will be maintained along the reservoir shoreline and development and/or structures will be limited in these areas.

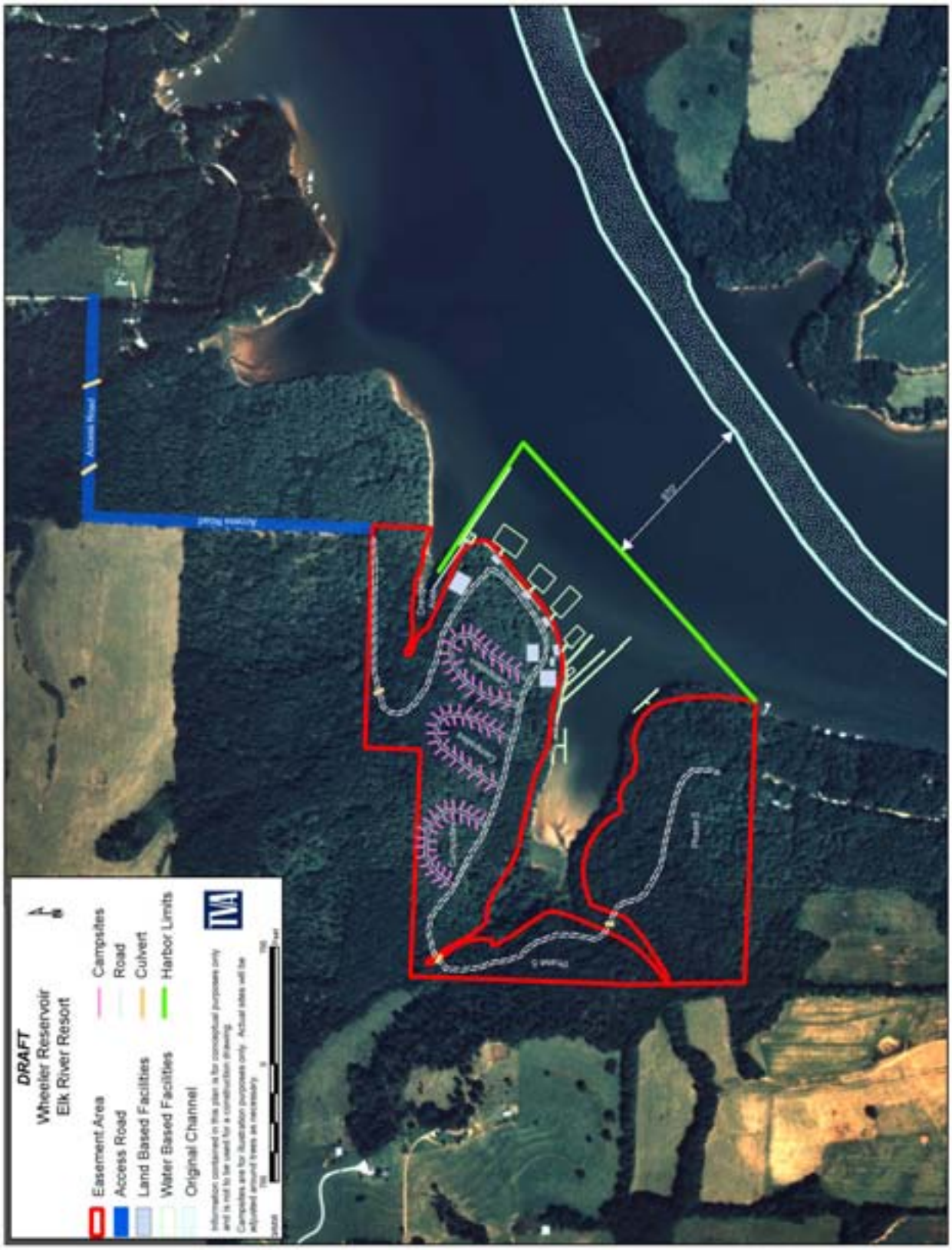

Figure 2-1 Proposed Facilities Superimposed on Site Aerial Photograph

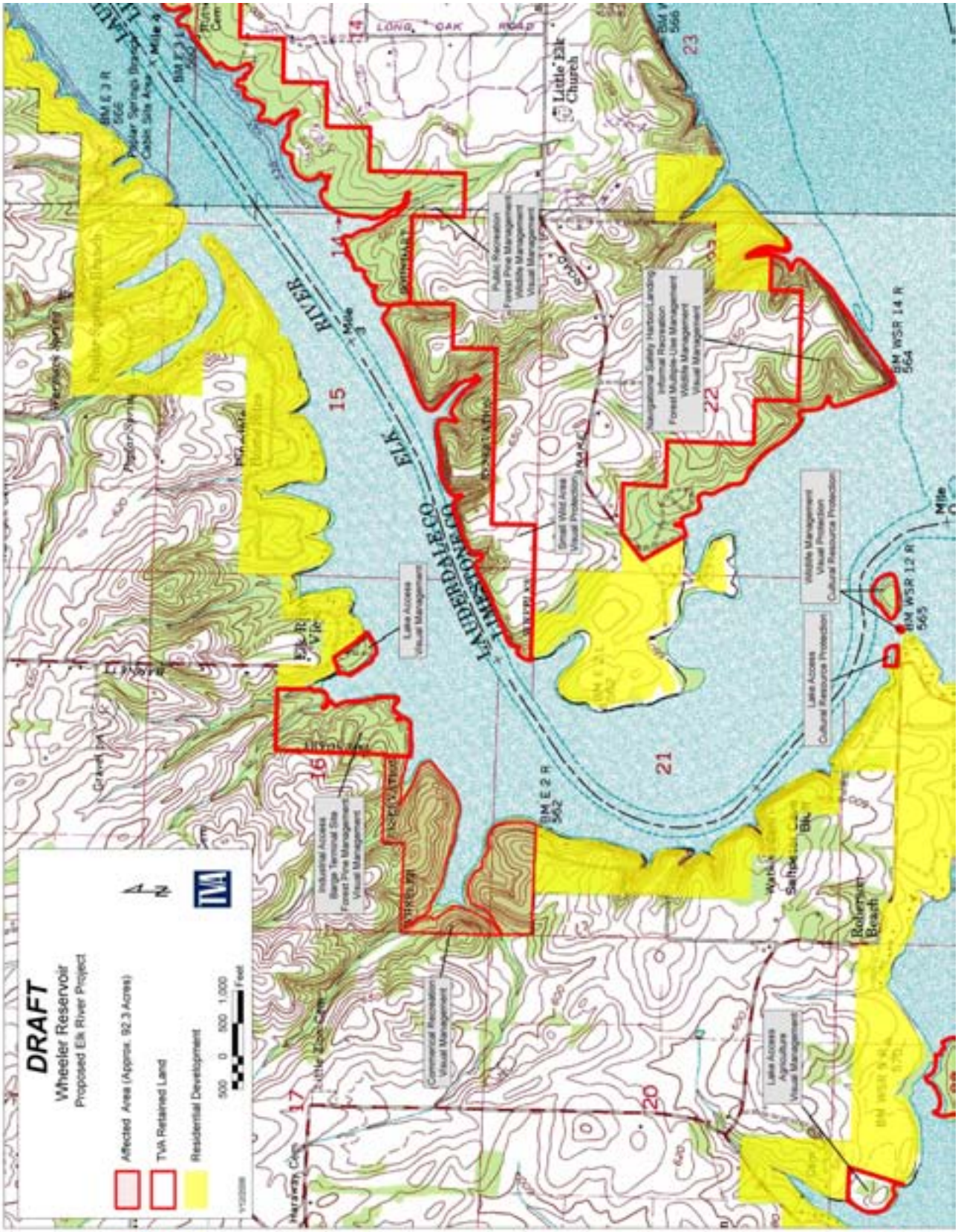

Figure 2-2 Topographic Map of Project Site and Land-Use Features

- Prior to construction, the applicant will develop and submit for TVA's approval, a vegetation management plan for the maintenance of required buffers along wetlands, stream drainage areas, and the shoreline to prevent erosion of soils on the site. Activities allowed in the buffer areas would be limited to stream crossings (culverts), management of exotic and nuisance vegetation, and siting of a portion of the dry storage building and marina facilities. These activities will be specifically identified in the vegetation management plan submitted for TVA's approval.

- Context sensitive design practices for visual management provided by TVA to the applicant will be incorporated in the final design, which will be subject to TVA approval. Commitments include minimizing the height of structures (no more than 40 feet) to prevent protrusion above the tree line, requiring land-based structures or facilities constructed within 250 feet of the shoreline and all water-use facilities to be analogous in color to the surrounding environment, and requiring lighting styles with full cut-off optics in order to minimize light trespass and glare.

- Suitable roost trees (live trees and snags with greater than 10 percent exfoliating bark and hollow trees) may only be harvested between October 15 through March 15 provided a survey of the site by a bat biologist shows no Indiana bats to be located on the property.

- To widen the culvert crossing on CR 77 (Barnett Lane), the applicant will pave the two grassed shoulders (3.5 and 2.5 feet) to widen the road to 20 feet (2-10 foot lanes).

- The requirements of the Clean Marina guidelines as well as the requirements of the American with Disabilities Act guidelines will be followed for all facilities in the project area.

2.4 Comparison of Alternatives

Under all alternatives, there are no uncommon terrestrial plant communities, Wild and Scenic Rivers or their tributaries, any stream on the Nationwide Rivers Inventory, or any managed areas and/or ecologically significant sites within the project area. Wildlife observed in the project area is considered common both locally and regionally. There are no known threatened and endangered plant species occurring within five miles of the project area. Habitat for Tennessee cave salamanders, cave invertebrates, green salamanders, and Bewick's wrens do not occur within the property boundaries. Habitat for eastern hellbenders no longer exists in the lower portions of the Elk River or main stem portions of the Tennessee River due to flooding of these waterways by Wheeler Reservoir. The pine woodlands within the parcel do not meet the specific requirements needed to serve as habitat for red-cockaded woodpeckers. Because no protected aquatic animals are present in the vicinity of this proposed development, there would be no impacts. The No Action Alternative, as well as Alternatives B and C, would have no effect on historic properties.

Under the No Action Alternative, the development would not take place. Terrestrial plant communities would not be affected, and the property would continue to function as a forest. The No Action Alternative is not expected to result in adverse impacts to threatened and endangered terrestrial animals. Currently, the project site has potential

habitat for bald eagle and osprey. Under the No Action Alternative, this potential habitat would likely continue to exist. There would be no wetland impacts. No additional solid waste would be generated. There would be no impact to existing navigation conditions, floodplains, or recreation resources.

Under the Action Alternatives, the loss of riparian vegetation would reduce habitat for herons, turtles, snakes, and other animals, though the loss is considered minimal since similar habitat is found in Joe Wheeler State Park and other nearby properties. Five heron colonies exist in the vicinity of the project area though none of these colonies are within a mile of the project site. No adverse impacts are anticipated to heron colonies, state-listed and federally-listed as threatened or endangered bats, their roosting sites or habitat, or to foraging gray bats. The project is not likely to adversely impact the alligator snapping turtle. Bald eagles and ospreys are observed in the general area, which was confirmed by the public comments. However, neither species nests on the project site. Potential nesting trees do exist within the project site; however, given the abundant habitat in the vicinity and in northwest Alabama, the proposed project would not result in adverse impacts to these species or their nesting habitats.

The proposed action does not include any development in the 5.2 acres of wetlands present on the site. BMPs and proper management of storm water runoff from construction activities and subsequent operation of the proposed facilities are expected to result in insignificant impacts to reservoir water quality. Shoreline stabilization would protect the immediate harbor area from excessive erosion. The higher concentration of watercraft around the proposed marina would likely contribute to a slight acceleration of erosion of surrounding areas of unprotected shoreline; however, any potential for erosion would rapidly diminish with increasing distance from the marina. By following the Clean Marina guideline, the applicant's proposal for the construction and operation of the proposed marina development is not expected to result in significant increases in pollutant, nutrient, or fecal coliform bacteria levels in the reservoir.

The recreating public would have more convenient services and facilities on Elk River and this section of the Tennessee River. The increase in recreational vessels as a result of the additional wet and dry slips will not significantly impact boater congestion. The impacts to visual resources associated with the proposed action would be insignificant. There would be no impacts to the 100-year floodplain. Construction noise would be noticeable for a short time, and there would be increases in noise from land-based and water-based sources over the long term. Because of the current background noise and the existence of similar activities and noise sources in the neighborhood, the modest increases in project noise would not amount to a significant impact. The proposed Elk River Marina development would generate and distribute additional traffic to the existing transportation network, but would not create any significant changes or overload the network. The current traffic volumes in the area are at levels well below the capacity of the facilities. As a result of its reliance on available collection and disposal services, the impact of solid waste generation would be insignificant. Since no significant impacts are expected and the population in the area is generally sparse, no disproportionate impacts to disadvantaged populations would be likely to occur under either alternative.

2.5 The Preferred Alternative

TVA's preferred alternative is the modified proposed action, Alternative C. The Wheeler Reservoir Land Management Plan (Plan) was completed in 1995 to provide TVA

guidance toward achieving a balance between development and protection of our natural resources. The proposed action is consistent with the allocated use in the Plan.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Wheeler Dam is located at Tennessee River Mile (TRM) 274.9; the Wheeler Reservoir extends 74 miles upstream to Guntersville Dam located at TRM 349.0. The Elk River joins the Tennessee River at TRM 284.3. Wheeler Reservoir drains an area of about 29,590 square miles with the Elk River watershed making up 2,249 square miles of the total drainage area. At full pool, Wheeler Reservoir has a surface area of 67,070 acres and 1,063 miles of shoreline. The average annual discharge through Wheeler Dam is approximately 50,000 cubic feet per second, providing an average hydraulic retention time of about nine days.

For the purposes of cumulative effects analysis, the project area is the Elk River embayment and lower Wheeler Reservoir. This area falls within the ecoregion designated by the Environmental Protection Agency (EPA) as the Eastern Highland Rim. Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregions are relevant to integrated ecosystem management, an ultimate goal of many federal and state resource management agencies.

Currently, there are no other major development projects being proposed for the lower Wheeler Reservoir area. However, TVA is re-starting one nuclear unit at the Browns Ferry Nuclear Plant upstream of the Elk River, and is re-licensing and uprating to 120 percent of the originally licensed power the three nuclear units at the site. Past shoreline development has resulted from creation of the Joe Wheeler State Park downstream of the project site and Lucy's Branch Resort/Bay Hill Marina development upstream of the project site. Also, several other shoreline subdivisions have been developed both northeast and south of the project site along the shoreline of Wheeler Reservoir. In the future, several other projects are proposed which will affect the eastern highland rim area of Alabama, including the Memphis to Atlanta Superhighway on the south side of the Tennessee River from the project area, and Shoals Landing Marina, on Wilson Reservoir on the south side of the Tennessee River below Wheeler Dam. There are also scattered development projects for subdivision development in Madison County portions of the Eastern Highland Rim and commercial development projects in the Moulton and Decatur areas south of the Tennessee River. Most of the suburban subdivision development in the Eastern Highland Rim is occurring more than 20 miles east of the project area, in western Madison County, or southeast, near Decatur. Across from the proposed Elk River Resort, the Point Subdivision is being built along the shoreline in Limestone County. These subdivisions are buffered by TVA conservation properties which are also scattered along the shoreline of the Elk and Tennessee Rivers.

Tract XWR-21PT is located upstream from the main channel of Wheeler Reservoir between Elk River Miles (ERM) 1.7 and 2.1 on the right descending bank in Lauderdale County, Alabama. The riverbank forms a protected slough running generally east to west with an estimate 5,500 feet of shoreline. The 1995 Wheeler Reservoir Land Management Plan (Plan) described Tract XWR-21PT as:

> "Approximately one-half of this tract is made up of planted loblolly pine, with upland hardwood dominating the remainder. Soil interpretation indicates that the site has highly erodible soils and moderate ranking for soil-related forest productivity. The tract rates high in suitability because of previous forestry investment, good access, and available markets. The tract also has excellent capability and good suitability for commercial recreation. Its topography is suitable for development and offers a large land base on both sides of a wind-protected cove. Water depth is adequate for marina development. The area now receives moderate levels of informal recreational use, i.e., primitive camping, bank fishing, and some hunting. Removal of understory vegetation or tree canopy could have an impact on the erodible soils. Approved methods for checking soil erosion must be implemented if major development is considered on this tract. Because the site has potential value for commercial recreational development, forest and wildlife management will continue as an interim use, and prescriptions should carefully consider the impacts made on the visual qualities associated with standard management implementation procedures. Floating debris, carried by the Elk River, has been deposited at the back of the embayment. Because of the cover provided by sporadic colonization of submersed aquatic plants and debris, the cove offers good sport fishery habitat for crappie and largemouth bass."

TVA owns approximately 1,760 acres of property along the Elk River on Wheeler Reservoir. The Elk River Resort proposal "footprint" and anticipated clearing for recreational purposes are approximately 80 and 40 acres, respectively. This proposal occupies approximately five percent of all TVA-owned property along the Elk River. The proposal occupies less than one percent of the TVA-owned property along Wheeler Reservoir. Based upon land use/land cover estimates derived from aerial photography obtained in 2005, approximately 121,300 acres of forested habitat exists within the Elk River Watershed within north Alabama. Since the estimated 40 acres of openings within the forested tract that would be modified by the proposed project is less than 0.1 percent of the total amount of forested habitat within the watershed and is common to the area.

3.1 Terrestrial Ecology

In preparing a National Environmental Policy Act (NEPA) document for a project, each project is reviewed by technical specialists in the TVA Regional Natural Heritage Project to identify natural resource issues that may occur in the vicinity of the proposed project site. Intensity of field investigations varies based upon the absence or presence of protected species or their habitat and habitat quality.

To begin a review, TVA biologists review TVA's Regional Natural Heritage Program databases to identify state and federal listed animals or natural areas known to occur within the counties of the proposed project site and surrounding areas. These databases are part of the Natureserve Network (www.Natureserve.org), comprised of state natural heritage programs throughout North America. The TVA Natural Heritage Program is one of three regional natural heritage programs in this network. The TVA database contains over 35,000 records (as of November 2005) for protected plants, animals, caves, heronries, eagle nests, and natural areas known from within the 201 county TVA Power Service Area.

The TVA Heritage database is dynamic, with updates and additions taking place throughout the year. Only credible records are included in the database, and sources

include results of field surveys by TVA biologists, research publications, museum and herbarium specimens, unpublished reports from biologists outside TVA, data exchanges with the seven state heritage programs overlapped by TVA's coverage area (Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia), and data exchanges with five offices of FWS (Cookeville, Tennessee, Asheville, North Carolina, Athens, Georgia, Daphne, Alabama, and Jackson, Mississippi). These databases are invaluable tools used at all levels of TVA's environmental reviews.

Once the database is reviewed and a potential species list is developed, Land Use/Land Cover products and/or aerial photographs are examined to identify suitable habitat for listed species on the project site. Examining these products may also assist TVA biologists in identifying additional species and habitat that may exist on site but may not have been identified by the database review. Field investigations are initiated after these preliminary reviews are completed.

Multiple TVA biologists (botanists, terrestrial and aquatic ecologists, wetland scientists) or contractors visit the proposed project site to characterize habitat conditions and wildlife communities within the project area. Specific habitat features such as caves, bluffs, glades and wetlands as well as overall habitat composition are noted. If rare species or their habitats are identified, further field investigations would be performed and mitigation to protect local populations of rare species would be proposed.

3.1.1 Plants

Affected Environment

The proposed project is located along the edge of the Eastern Broadleaf Forest (Continental) Province (Bailey, 1995). The province consists of rolling hills to nearly flat basins. The northern portion of the province has been glaciated but not in the southern region of Kentucky, Tennessee, and northern Alabama. Elevation ranges from 80 to 1,650 feet (24-500 meters). The project area is 100 percent forested. The Eastern Broadleaf forest is dominated by broadleaf deciduous trees, and the smaller amounts of rainfall present in the region favor the drought-resistant oak-hickory forest association.

On August 3, 2005, TVA conducted a field survey on the proposed affected area, and three plant community types were observed within the forested area. These communities were (1) upland mixed hardwood forest, (2) eastern broadleaf deciduous forest, and (3) palustrine forest along the creek beds.

The upland mixed forest occupies approximately 50 percent of the total project area, with loblolly and Virginia pine present in the overstory. Other dominate vegetation consisted of oak species (black, chestnut, northern red, and white), white ash, mockernut hickory, and shagbark hickory. In the subcanopy layer, species occurring are American beautyberry, persimmon, flowering dogwood, redbud, Chinese privet, and deciduous holly. Several woody vines were commonly found; rattan vine, wild yam, muscadine grape, summer grape, Virginia creeper, and roundleaf greenbrier. The herb layer contained mayapple, crane fly orchid, hairy bedstraw, and hound's tongue as well as several native and nonnative invasive species, such as poison ivy, Japanese stilt grass, and Japanese honeysuckle. (See Appendix Table C-1 for a complete list of species observed on the parcel.)

Forty-five percent of the property is considered to be eastern broadleaf deciduous forest with black gum, cherry-bark oak, southern red oak, tulip poplar, American beech, and sweetgum as the dominate species. Pawpaw, flowering dogwood, red maple, strawberry bush, sassafras, and wild black cherry were commonly found in the subcanopy layer with American lopseed, spotted wintergreen, naked tick trefoil, ebony spleenwort, broad beech fern, and Christmas fern in the herbaceous layer. There have been past forest management activities on the tract which have altered the age structure of the forest; therefore, it would not be considered old growth.

A population of American ginseng (*Panax quiquifolius*) that is located within this forest community was identified in public comments received on the proposal. Even though American ginseng is not federally listed or state-listed as threatened or endangered, it is an important find due to its commercial exploitation by local collectors and buyers of the species for its medicinal purposes. Ginseng is actually more common than indicated in the public comments. The concern over the species is because of commercial exploitation. FWS does not regulate the harvest of ginseng. The rules and regulations of the Convention on International Trade in Endangered Species of Wild Fauna and Flora address the harvesting activities. Each state has its own monitoring program of ginseng, to ensure that these rules for the harvesting, sale, and purchase of these plants are followed. In the state of Alabama, ginseng is given an S4 classification. This system is based on rarity within the state, with S5 being very common and S1 being the most rare.

The remaining 5 percent of the parcel was palustrine forest dominated by black willow and silver maple, with silky dogwood and wild hydrangea in the shrub layer along with Chinese privet. The herbaceous layer contained jewel weed, smart weed, bog hemp, lizard's tail, southern lady fern, and self-heal.

Environmental Consequences

Under the No Action Alternative, the development would not take place and the communities would not be affected. Under Alternatives B and C, there should be no significant impacts to terrestrial plant communities since there are no uncommon terrestrial plant communities associated with the development and a large amount of similar habitat is found in the vicinity. The overall reduction in forested habitat on this parcel is not expected to result in adverse impacts to terrestrial plant communities in the region. Based upon land use/land cover estimates derived from aerial photography obtained in 2005, approximately 121,300 acres of forested habitat exists within the Elk River Watershed within north Alabama. The estimated 40 acres of openings within the forested tract that would be modified by the proposed project is less than 0.1 percent of the total amount of forested habitat within the watershed. As a result, there is little potential for this project to contribute cumulatively to the overall conditions for plant communities in the region. The amount of disturbance is minimal, and the communities being disturbed are common in the region, therefore TVA believes that these impacts are insignificant in both context and intensity.

This project is proposed as an environmentally sensitive development that would retain many natural features that are important to campers. Since campsites would be limited to approximately 10 per acre much of the natural vegetation would be left in place. While site development may create "edge effects," the vegetation between the campsites will be managed. Both of these actions will help to preserve a natural setting.

It would be the responsibility of the developer to insure that Chinese Privet and other invasive species currently present on the project site are kept from spreading. TVA does have management practices to control Chinese privet that the applicant could choose to use in vegetation management between the campsites. Management of invasive plants on TVA Managed Lands is conducted utilizing the expertise of the TVA Natural Areas Coordinator, TVA Regional Biologists and Foresters, and TVA Natural Heritage staff along with volunteer labor from local stakeholders. Volunteer labor activities focus on manual removal of invasive plants while work conducted by TVA staff may involve the application of appropriate herbicides. Much of this work is labor intensive resulting in the concentration of removal efforts on a specific portion of a site. Because the developer will manage the proliferation of invasive and exotic species consistent with the natural theme of the resort, the potential for the spread of exotic or invasive terrestrial plant species would be minimized.

3.1.2 Animals

Affected Environment

The project site is approximately 91 acres of timber woodlands. Three intermittent streams traverse the property and empty into two coves that exist in the project area. These areas are periodically flooded and consequently contain a bottomland forest community. During dry periods, low-lying areas form vernal pool habitat. These pools are important breeding areas for amphibians. American toads, and southern leopard frogs were seen on the property. Other species such as marbled, spotted, small-mouthed, and tiger salamanders breed in vernal pools in bottomland forests and may be present on the project site.

Slopes and ridge tops are dominated primarily by oak/hickory forested habitat. This community includes white, southern red and black oak; mockernut and pignut hickory; black cherry; tulip poplar; and other species. These forests are important habitat for wild turkey, red-bellied woodpeckers, pileated woodpeckers, blue jays, American crows, white-breasted nuthatches, Carolina chickadees, tufted titmice, and other birds. The thick understory provides additional habitat for Carolina wrens and northern cardinals. White-tailed deer, raccoon, eastern chipmunk, and gray squirrel are also found within this forest community. Eastern box turtles also nest on the site.

A small area in the northeast corner of the property contains saw-timber-sized loblolly pine. The loss of some trees to the southern pine bark beetle has allowed the encroachment of hardwoods to create a mixed pine/hardwood community. This community provides habitat for pine and yellow-throated warblers and brown-headed nuthatches in addition to the species listed above.

Environmental Consequences

Under the No Action Alternative, the resort would not be built and, therefore, the property would continue to function as a forest. Forest succession would continue to mature. Wildlife would respond in part to this change.

Under Alternatives B and C, the construction of the resort would create approximately 40 acres of openings dispersed throughout this 91-acre forested parcel. These openings would be converted to parking lots, RV sites, roads, and other man-made structures. These areas have limited wildlife value, though the margins of openings if planted with

native vegetation can serve as foraging sites for some wildlife. However, this benefit would be offset by the increased human activity in the area. Species of wildlife more tolerant to human disturbance would continue to exist in the project area. Species of songbirds that migrate through the region and other species of wildlife would continue to use remaining forested portions of the project site. The loss of riparian vegetation due to the addition of a boat ramp, boat slips, buildings, and a parking lot would reduce habitat for herons, turtles, snakes, and other animals; however, this loss is considered minimal since similar habitat is found in the vicinity.

Wildlife observed in the project area is considered locally and regionally common. The overall reduction in forested habitat on this parcel is not expected to result in adverse impacts to wildlife in the region. Based upon land use/land cover estimates derived from aerial photography obtained in 2005, approximately 121,300 acres of forested habitat exists within the Elk River Watershed within north Alabama. Since the estimated 40 acres of openings within the forested tract that would be modified by the proposed project is less than 0.1 percent of the total amount of forested habitat within the watershed and is common to the area, impacts to wildlife would be negligible. As a result, there is little potential for this project to contribute cumulatively to the overall conditions for animal communities in the area.

There are 178 caves known from the three surrounding counties. Only one of these caves is within a mile of the project site. This cave was flooded when Wheeler Reservoir was constructed. The proposed project would not result in adverse impacts to existing cave environments. Five heron colonies exist in the vicinity of the project area. None of these colonies are within a mile of the project site. No impacts are anticipated to these resources.

3.2 Threatened and Endangered Species

3.2.1 Plants

Affected Environment

A review of the TVA Natural Heritage database indicated that no federally listed or state-listed plant species are known from within 5 miles of the project site in Lauderdale County, Alabama. On August 3, 2005, field inspections conducted on the project area revealed that there are no rare plants on the tract.

Environmental Consequences

Under the No Action Alternative, the development would not take place, and the sensitive species would not be affected. Under Alternatives B and C, there should be no impacts to threatened and endangered plant species, since there are no known sensitive species occurring within 5 miles of the project area. The USFWS has concurred with these findings.

3.2.2 Terrestrial Animals

Affected Environment

Reviews of the TVA Natural Heritage database indicated that four federal and 14 state-listed animals are reported from a general area (see Table 3-1), covering Lauderdale, Lawrence, and Limestone Counties, Alabama.

Eastern hellbenders are found in large and mid-size, fast-flowing, rocky rivers at elevations below 762 meters (Petranka, 1998). Numerous historical records are known from the general area. **Green salamanders** inhabit moist crevices found in cliffs and rockface habitats, but have also been observed under loose bark of fallen trees (Petranka, 1998). The closest known green salamander populations are known from sandstone outcrops on TVA Natural Areas on Upper Bear Creek Reservoir and at Bankhead National Forest. This species is also known from extensive sandstone outcrops along Guntersville Reservoir. Many of these sites are also protected as TVA Natural Areas. **Tennessee cave salamanders** occur in wet caves including those formed in sinkholes. Numerous wet caves occur within the three counties covered by this EA, but none are known from the immediate project site. **Alligator snapping turtles** are typically found in large rivers and their major tributaries, but also can be found in lakes, ponds, and swamps (Ernst, Lovich, and Barbour, 1994). Within the Tennessee River System, Alligator snapping turtles have only been recently reported from Kentucky Reservoir.

Table 3-1 Federally and State-Listed Terrestrial Animal Species Reported From Lauderdale, Lawrence, and Limestone Counties, Alabama

Common Name	Scientific Name	Federal Status	State Status
Amphibian			
Eastern Hellbender	*Cryptobranchus alleghaniensis alleghaniensis*	__	Protected
Green Salamander	*Aneides aeneus*	__	Protected
Tennessee Cave Salamander	*Gyrinophilus palleucus*	__	Protected
Reptiles			
Alligator Snapping Turtle	*Macrochelys temminckii*	__	Protected
Bird			
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	Protected
Bewick's Wren	*Thryomanes bewickii altus*	__	Protected
Bewick's Wren	*Thryomanes bewickii bewickii*	__	Protected
Osprey	*Pandion haliaetus*	__	Protected
Red-Cockaded Woodpecker	*Picoides borealis*	Endangered	Protected
Mammals			
Eastern Big-Eared Bat	*Corynorhinus rafinesquii*	__	Protected
Gray Bat	*Myotis grisescens*	Endangered	Protected
Indiana Bat	*Myotis sodalis*	Endangered	Protected
Long-Tailed Weasel	*Mustela frenata*	__	Protected
Southeastern Bat	*Myotis austroriparius*	__	Protected
Invertebrates			
Beetle	*Batrisodes jonesi*	__	Tracked
Ground Beetle	*Rhadine caudata*	__	Tracked

Bald eagles typically nest near large bodies of waters including lakes, rivers, and riparian wetlands. Bald eagle numbers were greatly reduced in the Valley in the mid-1900s due to the use of ***d****ichloro-****d****iphenyl-****t****richloroethane* (DDT) and direct persecution. In recent years, bald eagle numbers have greatly increased throughout the Valley. Nesting and post-breeding bald eagles are regularly observed throughout the reservoir system. Results of annual surveys performed by TVA and the Alabama Department of Conservation and Natural Resources (ADCNR) biologists indicate that eagle populations in northwestern Alabama have been slower to recover compared to other populations throughout the Valley. However recent discoveries of nesting birds on Pickwick and Wilson Reservoirs are encouraging. The closest active nests are approximately 4 and 5 miles from the project site. **Bewick's wrens** occur in brushy areas, thickets, and scrub in open areas. Both listed races are known from the general area. This species has experienced significant population and range reductions in the Southeast and may be extirpated from the general area. **Ospreys** nest on both human-made and natural structures in or near large bodies of water. They are known to nest on nearby Wilson Reservoir. The species and bald eagles had experienced dramatic reductions in numbers during the mid-1900's. Osprey populations have greatly increased throughout the Valley. However populations in northwest Alabama have been the slowest to recover. **Red-cockaded woodpeckers** nest in pines infected with the fungus *Phellinus pini* in old-growth pine forests with an open, parklike understory. The loss of old growth pine forests in the general area has caused significant reductions in population and range. No red-cockaded woodpecker habitat is known from the project site. **Eastern big-eared bats** inhabit the forested regions of the South (Linzey, 1998). They roost in buildings, attics, hollow trees, mines, and caves (Linzey, 1998). One historical record exists for the general area. Extensive cave surveys throughout the Valley performed by TVA, Alabama Department of Conservation and Natural Resources, and Auburn University biologists have not found this species in north Alabama in recent years. **Gray bats** roost in caves during all seasons and typically forage over open-water habitats. The distribution of this species has been studied extensively within the Tennessee River Valley by TVA, Alabama Department of Conservation and Natural Resources, and Auburn University biologists. TVA annually monitors populations of gray bats in caves throughout north Alabama. Results of these and other surveys indicate that gray bat populations are thriving throughout the Valley. Gray bats occur in the Elk River Watershed. Biologists have tracked this species foraging throughout the watershed. Gray bats are known from seven caves in the vicinity of the project area. The closest cave is approximately 0.6 mile from the project site. This cave is no longer used by gray bats since it was flooded by the reservoir. The closest known active gray bat cave is 6.7 miles from the project site. **Indiana bats** roost in caves during the winter and form summer roosts under the bark of dead and occasionally living and dead trees. Their summer roosts are found in forests with an open understory, usually near water. Indiana bats forage primarily in forested areas along streams or other corridors. They are known from only one cave within the general area. This cave is no longer used by bats since it was flooded by the reservoir. Indiana bat records in the region are largely restricted to the Bankhead National Forest and Sauta Cave near Scottsboro, Alabama. **Long-tailed weasels** inhabit farmland as well as woodlands and swamps (Linzey, 1998). Habitat exists for this species within the project site. **Southeastern bats** normally use caves as summer roosts but will use hollow trees, buildings, caves, mines, and other cavities for winter roosts. Roosts are always near rivers or other permanent bodies of water (Linzey, 1998). This species has been reported from Lawrence County. However, the

species was not found in caves in north Alabama or Mississippi during surveys performed by Auburn University during the early 1990s. **Cave-dwelling invertebrates** are known from specific caves in the region. These species are not protected by state or federal law, but many are considered rare by biologists in the region. Caves do not exist on the project site.

Environmental Consequences

The No Action Alternative is not expected to result in adverse impacts to threatened and endangered terrestrial animals. Currently, the project site has potential habitat for bald eagle and osprey. Under the No Action Alternative, this potential habitat would likely continue to exist.

A local TVA biologist and regional biological contractor were used to characterize habitats on the site. A regional botanist also visited the site. Habitats for most species listed in Table 3-1 do not exist in the project site for Alternatives B or C. Although the habitat for long tailed weasels is present in the project area, such habitat is abundant in the general area, and the proposed project would not result in significant impacts to this species. Because no cave, bluff communities, or other uncommon habitat types were observed, it was determined that no further surveys were needed to assess impacts to protected species that use these habitats. Since no caves exist on the property, Tennessee cave salamanders and cave invertebrates listed in Table 3-1 do not occur within the project boundaries or their vicinity. Habitat for eastern hellbenders no longer exists in the lower portions of the Elk River or main stem portions of the Tennessee River due to flooding of these waterways by Wheeler Reservoir. The pine woodlands within the parcel do not meet the specific requirements to serve as habitat for red-cockaded woodpeckers. Habitat for green salamanders and Bewick's wrens is nonexistent in the project area.

Historical records of Indiana bats exist for Lauderdale County. Because the project site is forested, there is suitable habitat on the proposed project site for Indiana bats and bald eagles. To measure the suitability of Indiana bat habitat, a modified version of the Habitat Suitability Index Model (Romme et al. 1995) was used. Sub-canopy density was categorized as open (<5 percent), moderately dense (5 to 20 percent), dense (20 to 60 percent), and very dense (>60 percent). Potential roost trees included hollow trees or trees with large cavities, and trees or snags with exfoliating bark. Percent exfoliating bark was used to categorize quality of potential roost trees. High quality trees exhibited > 25 percent exfoliating bark remaining on a snag, moderate trees at 11 to 25 percent and low < 10 percent. High quality habitat is identified as having relatively mature forest where overstory canopy cover is between 60 and 80 percent, subcanopy is relatively open, and high quality roost trees are present.

Overall, habitat ranked poor for Indiana bats largely due to an inadequate mid-story composition. However results of this model indicated that some potential roost trees of moderate quality exist on the site. Although a few suitable trees were observed on the site, the overall ranking of the habitat was poor. Therefore the likelihood of Indiana bats being present on the site was determined to be low. Had the model ranked the habitat at mid or high, surveys using computerized bat detectors (ANABAT) and mist nets would have been performed. Considering that an estimated 40 acres of the 91-acre tract with forested habitat would be disturbed by the proposed project and the abundance of forested habitat throughout the Elk River Watershed, the project is not expected to result

in adverse impacts to Indiana bats. As a precaution, TVA would require that the applicant only harvest suitable roost trees (live trees and snags with > 10 percent exfoliating bark and hollow trees) between October 15 - March 15. To recover timber revenues if the proposal is approved, TVA will work closely with the applicant in determining which trees can be removed. At that time, any suitable roost trees would be marked. Further, the applicant could remove suitable roost trees within this period of time if the site is surveyed by a bat biologist and no Indiana bats are located on the property. This commitment would be required for both action alternatives.

Due to the lack of caves, gray bats do not roost on the project site. However, they do roost in caves along the Elk River and forage over the Tennessee and Elk Rivers. Considering the range of these bats (up to 32 kilometers), the construction of the proposed marina is not expected to result in adverse impacts to foraging gray bats. Alligator snapping turtle habitat have been known to occur in the Elk and Tennessee Rivers. However recent records of this species from the Tennessee River are only known from Kentucky Reservoir. The proposed project is not likely to result in adverse impacts to this species.

Members of the public expressed concern regarding the potential impacts to bald eagles. This species (and osprey) is occasionally observed in the area as confirmed by the public comments received. Bald eagles nest in northwest Alabama and have been observed foraging and roosting along the Elk River. Neither species is known to nest on the project site. Bald eagle nests are very large and are easily observed from some distance. TVA biologists examined the project site and saw no evidence of this species nesting on the project site. Potential nesting trees do exist within the project site. Some of these trees may have to be cut during the construction of the marina and associated facilities, though many suitable nesting trees would remain on the project site. Given the abundance of potential habitat in the vicinity and in northwest Alabama, the proposed project would not result in adverse impacts to these species or their nesting habitats. Therefore based upon these findings, TVA determined that either of the action alternatives is not likely to result in adverse impacts to Indiana bats or bald eagles. Under either action alternative, there would be no adverse affect to terrestrial threatened and endangered species. The USFWS has concurred with these findings.

3.2.3 Aquatic Ecology and Aquatic Threatened and Endangered Species

Affected Environment

The embayment in which the proposed project is located, contains shallow to medium depth waters with mud/gravel bottom and numerous areas of wood debris. This habitat type is common throughout the Elk River embayment and the lower portion of Wheeler Reservoir. Lacustrine species such as gar (*Lepisosteus sp*.), common carp (*Cyprinus carpio*)-introduced, buffalo (*Ictiobus sp.*), catfish (*Ictaluridae*) and sunfish (*Centrarchidae*) are common in such habitats. These species are very adaptable to habitat changes, and are regularly found around such man-made structures as docks, piers and constructed fish attractors. Loss of this habitat type due to the proposed action would be minimal. Spawning habitat would only be impacted in the immediate vicinity of the dredge.

Public comments raised concern about the loss of spawning habitat for several native fish species. The waters adjacent to the proposed site provide spawning habitat for several species of cyprinids (minnows) and centrarchids (sunfish and bass). Although some habitat would be lost in the immediate vicinity of the marina, most of the cove would remain adequate for continued spawning. The structures at the marina would provide cover for young fish, and larger fish would be attracted to these structures as well. The lower portion of the Elk River provides many areas of gravel bottom coves and submerged islands capable of providing spawning habitat for these fishes. Historic development for private water-use structures throughout the Elk River embayment has not inhibited spawning and survival of these species. Anglers and commercial fishermen continue to use the waters in the lower Elk River with success.

Data from the TVA Natural Heritage database indicated that several state- or federally listed aquatic animal species potentially occur in the riverine portions of the Elk River upstream of the project area (Table 3-2). On-site examination of the area by TVA aquatic biologists has revealed that no suitable habitat for any of these speices is present in the area potentially affected by development of the recreation and resort areas. This portion of the Elk River is affected by the impoundment of Wheeler Reservoir, the embayment is heavily impacted by silt, and the overbank area flooded by Wheeler Reservoir does not contain habitat suitable for any of the species listed in Table 3-2.

Table 3-2 Sensitive Aquatic Animal Species Known to Occur in the lower Elk River Drainage (Limestone County, AL and Giles County, TN).

Common Name	Scientific Name	Status[1]	
		Federal	State
Fish			
Tuscumbia Darter	*Etheostoma tuscumbia*	-	Protected
Boulder Darter	*Etheostoma wapiti*	Endangered	Endangered
Snail Darter	*Percina tanasi*	Threatened	Threatened
Southern Cavefish	*Typhlichthys subterraneus*	-	Protected
Mussels			
Tennessee Pigtoe	*Fusconaia barnesiana*	-	NOST
Cracking Pearlymussel	*Hemistena lata*	Endangered	Endangered
Pink Mucket	*Lampsilis abrupta*	Endangered	Protected
Purple Lilliput	*Toxolasma lividus*	-	NOST
Snail			
Rugged Hornsnail	*Pleurocera alveare*	-	Protected

NOST = Considered sensitive, no legal status; Protected = protected by the State of Alabama

Public comments also raised concerns that the lower Elk River is habitat for the federally protected snail darter (*Percina tanasi*) and boulder darter (*Etheostoma wapiti*). These species occur in large, free-flowing rivers and have been recorded in the Elk River. A number of snail darters were released into the lower Elk River in 1980 as part of this species' recovery plan. No evidence for a surviving population has been found in this system since the transplant. The boulder darter has been recorded in large rivers and

streams from the Elk River to Shoal Creek in northwest Alabama and southern middle Tennessee. Since these species require free-flowing waters, they do not occur in the impounded waters of the lowest portions of the Elk River, including the portion in the vicinity of proposed marina.

Environmental Consequences

Because no sensitive aquatic animals are present in the vicinity of this proposed development, there would be no impacts from development on Parcel 21 or from development of the proposed resort. This area of the Elk River has been impacted by the impoundment of Wheeler Reservoir, and no areas of aquatic habitat suitable for any of these species are present. All work would be conducted using BMPs to ensure that impacts to aquatic resources in the Elk River (Wheeler Reservoir) are minimal. The project would also be subject to BMPs included in the Section 26a approval, Section 404 permit, and Section 401 certification. To reduce the potential for loss of streambank vegetation which could result in erosion, a 50-foot managed buffer will be maintained along drainages located within the parcel and along the shoreline. The applicant will provide a vegetation management plan to TVA for approval prior to construction. No effects to state-listed or federally listed aquatic animals would result from this proposed development. The USFWS has concurred with this determination.

3.3 Wetlands

Affected Environment

Wetlands are areas inundated by surface water or groundwater often enough to support vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, mud flats, and natural ponds.

TVA performed on-site wetland determinations according to USACE standards (Environmental Laboratory, 1987) for Federal Jurisdictional Wetlands, which are regulated under the CWA. The USACE wetland standards require documentation of hydrophytic vegetation (USFWS, 1996), hydric soil, and wetland hydrology. Broader definitions of wetlands, such as the wetland definition used by the USFWS (Cowardin et al., 1979), and the TVA Environmental Review Procedures definition (TVA, 1983), were also considered in this review. Wetlands were classified according to the Cowardin system (Cowardin et al. 1979). The wetland boundaries were identified and flagged using pink wetland delineation flagging. Each flag was identified with the wetland ID and consecutively numbered. Routine wetland determination data forms are presented in Appendix C.

Wetlands were categorized by their functions, sensitivity to disturbance, rarity, and irreplaceability using a TVA-developed modification of the *Ohio Rapid Assessment Method* (ORAM) (Mack, 2001). TVA has developed a version (TVARAM) of the ORAM specific to the TVA region for use in guiding wetland mitigation decisions consistent with TVA's independent responsibilities under the National Environmental Policy Act (NEPA) and the Wetlands Executive Order (EO) 11990. The categorization was used to compare impacts between individual wetlands and to determine the appropriate levels of mitigation for wetland impacts. A copy of the TVARAM data form completed for each identified wetland is presented in Appendix C. The ORAM is designed to distinguish between three categories of wetlands. Category 1 wetlands are described as "limited

quality waters." They are considered to be a resource that has been degraded, has limited potential for restoration, or is of such low functionality that lower standards for avoidance, minimization, and mitigation can be applied. Category 2 includes wetlands of moderate quality and also wetlands that are degraded but could be restored. Avoidance and minimization are the first lines of mitigation. Category 3 generally includes wetlands of very high quality and wetlands of concern regionally and/or statewide, such as wetlands that provide habitat for threatened or endangered species. All practicable attempts would be made to avoid any disturbance of Category 3 wetlands and their buffer zones.

The proposed recreation easement is located on the west bank of the Elk River approximately 2 miles upstream of its confluence with Wheeler Reservoir. The site is dominated by topographic uplands, which support mature, second-growth stands of pine and mixed hardwoods. The site also contains two prominent inlets that receive flow from a number of drainage ways that enter from west and northwest. Despite being shown as perennial blue-line streams, observations made in the field instead suggest that they are intermittent in nature and do not possess deep groundwater connections. Periodic overbanking of these drainages, coupled with hydrologic input from the impounded sections of the Elk River has given rise to two wetland areas (see Figure 3-1). The southernmost, labeled Wetland "A," is centered at N34.78300, W87.28490, while the northernmost, labeled Wetland "B" is centered at N 34.78500, W87.27880 as determined by global positioning system coordinates. Each is summarized in Table 3-3 and briefly characterized below.

Table 3-3 Wetlands Identified in the Proposed Elk River Resort Project Area

Wetland ID	Wetland Type [a]	Acreage	TVA RAM Score/Category	GPS Location
A	PEM1Ch/PFO1Ch/PSS1Ch	4 acres	60/Category 2	N34.78300, W87.28490
B	PEM1Ch/PFO1Ch/PSS1Ch	1.2 acres	61/Category 2	N 34.78500, W87.27880

[a] Based on Cowardin et al. (1979)

Wetland Area A encompasses a total of 4 acres. An estimated 70 percent of the area (2.8 acres) meets USACE wetland standards and contains positive signs of wetland hydrology, a dominance of vegetation adapted to growing in saturated conditions, and hydric soils. Nearly all of the property meeting USACE standards comes under the hydrologic influence of the Elk River during summer pool. About 1.5 acres occur on seasonally inundated flats that are dominated by emergent annual or short-lived perennial vegetation. Common species here include river seedbox (*Ludwigia leptocarpa*), Walter's marsh St.-John's-wort (*Triadenum walteri*), and small-spike false-nettle (*Boehmeria cylindrica*). A number of aggressive introduced species are also present and include alligator weed (*Alternanthera philoxeroides*), Uraguay seedbox (*Ludwigia uruguayensis*), and marsh dewflower (*Murdannia keisak*). Such areas were characterized as palustrine emergent wetlands (PEM1Ch). The remaining 1.3 acres support a mixture of good quality palustrine forested and palustrine scrub/shrub habitat and were characterized as PFO1Ch and PSS1Ch. Vegetation includes black willow (*Salix nigra*), red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), buttonbush (*Cephalanthus occidentalis*) and silky dogwood (*Cornus amomum*). The remaining portion of Wetland A lies farther inland and away from the strong hydrologic influence of

the river. Such areas lack hydric soil indicators, and, as such, only meet the criteria set forth by the USFWS and EO 11990 (see wetland map in Appendix C). The absence of hydric soils may be because they are relatively porous, and because the primary sources of hydrology come only from periodic overbanking of intermittent streams and precipitation input. All of these streams, too, have been impacted to some degree by all-terrain vehicle (ATV) traffic. Wetlands on the site that are not regulated by the USACE contain relatively mature second-growth stands of "facultative" and "facultative wetland" trees. Typical canopy species include yellow poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), and loblolly pine (*Pinus taeda*). The herb layer contains three principal species: spotted touch-me-not (*Impatiens capensis*), Nepal microstegium (*Microstegium vimineum*), and cespitose knotweed (*Polygonum cespitosum*). The latter two are introductions that are known to colonize mesic woodlands aggressively. Neither is tolerant of long-term inundation. Wetland A was assessed using TVARAM protocols and assigned an overall score of 60, which places it in Category 2.

Wetland B is centered approximately 0.36 mile northeast of Wetland A. Like Wetland A, it falls at the head of a pronounced inlet that receives hydrology from both the Elk River and intermittent drainage from the northwest. Although this wetland encompasses only about 1.2 acres, it is structurally and functionally very similar to Wetland A. About 80 percent (1 acre) of the site meets USACE wetland standards. Such areas lie within the zone of hydrologic influence of the Elk River. Wettest areas classified as palustrine emergent wetlands (PEM1Ch) are very strongly dominated by river seedbox. Other seasonally flooded areas contain narrow bands of scrub/shrub and forested habitat (PSS1Ch and PFO1Ch). Scrub areas are dominated by buttonbush and silky dogwood, while forested lands contain relatively mature stands of sweetgum. Minor occurrences of open water also occur in this locale. Wetlands associated with intermittent drainage lack hydric soils and, consequently, do not contain all of the requisite parameters to meet the USACE wetland definition. Such areas encompass only about 0.25 acres. They are largely delimited by "facultative" species such as yellow poplar and sweetgum in the overstory and Chinese privet (*Ligustrum sinense*) in the understory. Dominant herbs are the same as non-USACE wetlands in Wetland A. Because they lie above the average high water level of the river, soils rarely become inundated or saturated for extended periods of time. This may be the reason that a dirt access road and several recent ATV trails have become established. Wetland B was assessed using TVARAM protocols and assigned an overall score of 61, which places it in Category 2.

Environmental Consequences

Under the No Action Alternative, Tract XWR-21PT would remain undeveloped until other development proposals are received. There would be no wetland impacts associated with the No Action Alternative.

Under Alternatives B and C, a total of 5.2 acres of wetlands is present on the proposed project site; of this total, approximately 3.8 acres is classified as jurisdictional wetland, regulated by the USACE. The remaining 1.4 acres are nonjurisidictional wetlands. All wetlands are subject to analysis under EO 11990. Direct impacts to Wetlands A and B would be avoided because there is no proposed development in these areas.

Under Alternative B, development of the surrounding upland buffers may result in the complete or partial loss of the resource and its functions due to direct and/or indirect impacts. Indirect impacts may include sedimentation from highly erodible uplands and

possible contaminant input from adjoining infrastructure. Examples include sewage leaks, fuel leaks, and runoff from impermeable surfaces. Impacts to forested wetlands are of special concern because of the historic high rate of loss, and continuing losses, of this type of wetland and the long time period necessary to replace forested wetlands and their functions (Dahl, 2000).

Under Alternative C, the wetland areas would not be developed and a buffer would be provided, thereby avoiding both direct and indirect impacts. In compliance with EO 11990, both jurisdictional and nonjurisdictional wetlands would be avoided by the applicant. Further, to protect the wetland areas during construction, orange mesh fencing will be installed around the wetland boundaries prior to any construction so that they are not inadvertently impacted by heavy equipment, etc. Additionally, to better protect these areas from indirect impacts, an upland buffer around these areas will be established, and as part of the project commitments the applicant will be required to maintain the buffer areas and avoid the wetland areas. The buffer will be 125-feet wide at a minimum, and will in some areas extend 200 feet (see Figure 3-1). Activities allowed in the wetland buffer areas would be limited to management of exotic and nuisance vegetation and siting of a portion of the dry storage building. These activities will be specifically identified in the vegetation management plan submitted for TVA's approval. There are no wetlands located at any of the proposed stream crossings. Because the wetlands would not be directly affected, and would be protected from indirect effects by appropriate buffers and other measures in this EA, this project would not contribute cumulatively to any losses of wetland function and value in the region.

3.4 Cultural Resources

Affected Environment

Human occupation of northern Alabama has occurred from the Paleo-Indian to the Historic Periods. In northern Alabama, prehistoric archaeological chronology is generally broken into five broad time periods: Paleo-Indian, Archaic, Gulf Formational, Woodland, and Mississippian. Prehistoric land use and settlement patterns vary during each period, but short- and long-term habitation sites are generally located on floodplains and alluvial terraces along rivers and tributaries. Specialized campsites tend to be located on older alluvial terraces and in the uplands. European interactions with Native Americans associated with the fur trading industry in this area began in the 17th and 18th centuries. The first permanent occupation of northern Alabama by Europeans, Euro-Americans, and African Americans occurred in the late 18th century. Various excursions and temporary settlements by the British, French, and Spanish occurred prior to this period. From the 1840s to the mid-20th century, northern Alabama was a major cotton-growing area. Settlement and land use of the area remained primarily rural until the mid-20th century, at which time industry and urbanization increased. Numerous archaeological sites associated with these occupations have been identified within the Wheeler watershed.

Section 106 of the National Historic Preservation Act requires federal agencies, including TVA, to (1) consider the effect of its actions on historic properties and (2) allow the Advisory Council on Historic Preservation an opportunity to comment on the action. Section 106 involves four steps: (1) initiate the process, (2) identify historic properties, (3) assess adverse effects, and (4) resolve adverse effects. This process is carried out

in consultation with the State Historic Preservation Officer (SHPO) of the state in which the undertaking takes place and with any other interested consulting parties, including federally recognized Indian tribes.

Archaeological sites, historic sites, and historic structures are evaluated in terms of their ability to meet the criteria for eligibility for the National Register of Historic Places (NRHP). Sites can be considered eligible for the NRHP if they meet at least one of the following criteria:

- They are associated with events that have made a significant contribution to the broad patterns of history.
- They are associated with the lives of persons significant in the past.

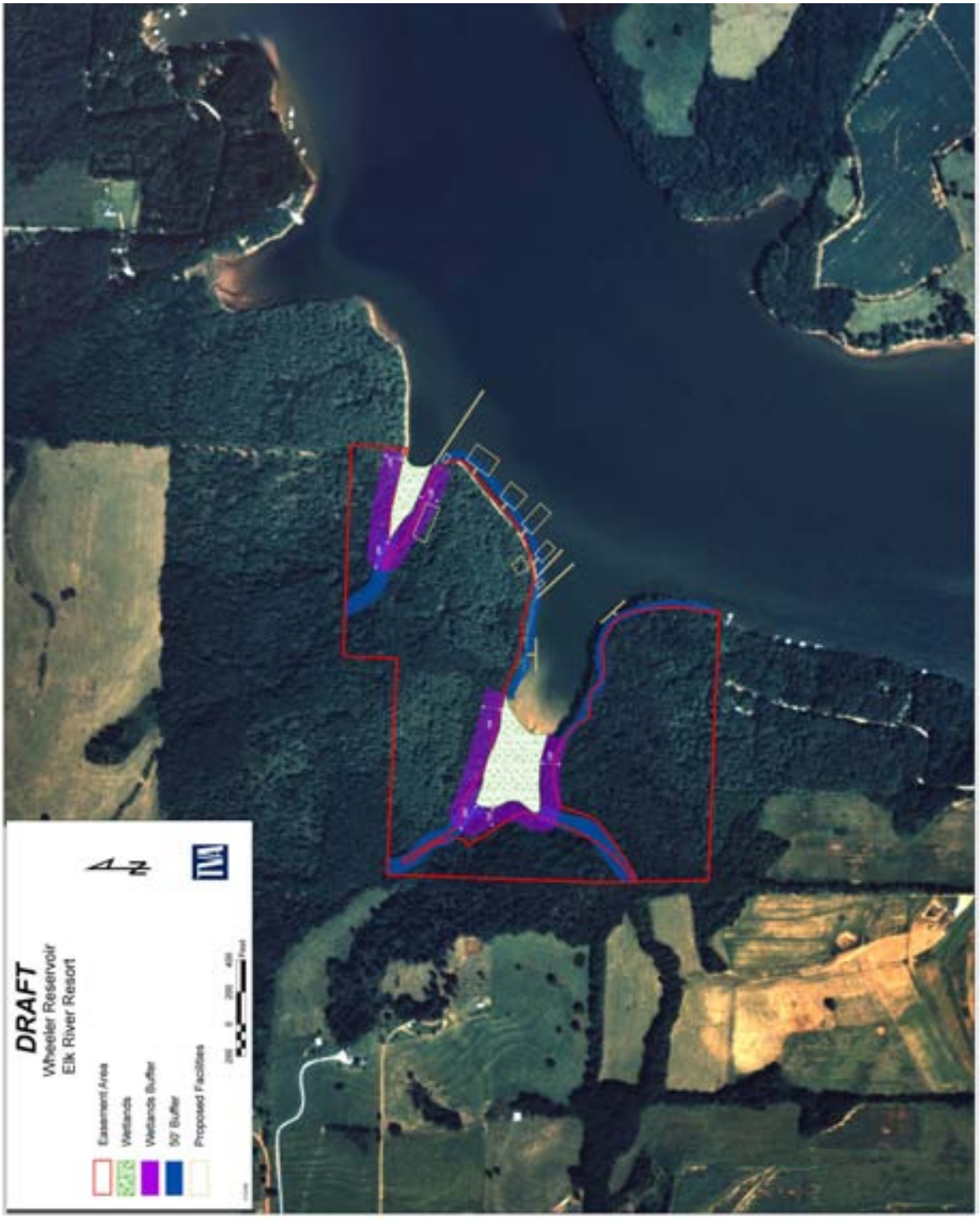

Figure 3-1 Site Wetlands and Buffers

- They embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or represent a significant and distinguishable entity whose components may lack individual distinction.
- They have yielded, or may be likely to yield, information important in prehistory or history.

In addition to these criteria, the property must possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Environmental Consequences

TVA defined the area of potential effects (APE) of this project to be the entire 91 acres of land planned for proposed commercial recreation easement development. In response to public comments on the draft EA, the APE was expanded to include the 60-foot by 40-foot dredge area. A Phase I archaeological survey of the 91-acre tract was conducted by TRC Solutions (Wild, 2005) to determine if any historic properties were present within the APE. Two archaeological resources (1LU681 and 1LU682) were identified as a result of this survey. These sites were both identified as late nineteenth century to early 20th century historic homesteads dating to the period of occupation prior to TVA acquisition (1933). The age determination of the historic homesteads was based on the types of artifacts present at the site. Archaeological material associated with these sites included porcelain and ironstone ceramic fragments, colorless, aqua, and amethyst bottle glass, and miscellaneous metal fragments that all indicate the sites were predominantly occupied during the late 19th and early 20th centuries. These types of homesteads are common in the area and do not contain sufficient data to provide information on the occupation of this region. Therefore, these sites fail to meet the criteria for eligibility for listing on the NRHP. No evidence of Native American occupation was found during the survey.

Some commenters were concerned that the applicant had broken laws regarding archeological resources when he conducted preliminary soils testing on the requested land for septic system suitability. The Archaeological Resources Protection Act (ARPA) prohibits the excavation, removal, damage or other alteration or defacement of any archaeological located on public lands, including TVA-managed lands, without a research permit. Archaeological resources are defined as any material remains of human life or activities that are at least 100 years of age and are of archaeological interest. TVA provided the applicant permission to access TVA property. Excavation related to the applicant's perk tests were considered minimal and would not have adversely affected archaeological resources. Therefore, an ARPA permit was not required. The minor soil disturbance resulting from applicant's performing a perk test did not damage archaeological resources.

Commenters expressed concern over the presence of two field roads located on the property. It was suggested that these roads may be trails related to the prehistoric and historic occupation of Native Americans in the region. Additional research was conducted to determine the historical significance of these roads by reviewing maps and conducting site surveys. TVA reviewed maps in *Alabama: The History of a Deep South State*, an authoritative treatise written by four eminent scholars of Alabama history, Leah Rawls Atkins, Wayne Flynt, William Warren Rogers, and Robert David Ward. These maps revealed no historically significant Indian trails or early roads in the vicinity of the

Elk River. These roads are not depicted on the maps presented in Walker and Marshall 2005. Even if trade routes, trails, and roads existed in the area, there is no evidence in the literature to suggest that overland routes in the vicinity of the Elk River were historically significant (Abernathy 1922; Lineback and Traylor 1973; Moore 1927).

Based on the location of the roadbeds on the TVA Land Acquisition map, it is likely the purpose of the eastern-most road was for driveway access to one of the old homesteads that was recorded during the archaeological survey. This homestead lines up with the structures also present on the acquisition map. Field inspection of the road confirmed this assumption. As such, it is unlikely that this road precedes the construction of the homestead.

The road identified on the west end of the tract may have been historic in origin; however, there is no evidence or documentation to indicate that this road was in use prior to TVA ownership. During the 1980s, a portion of Tract 21 was used as a timber harvest. The forestry prescription documentation indicates that TVA needed to build a road from an adjoining subdivision to the pine stands in order to thin and burn the trees. The western-most road ends at the subdivision. Based on field investigation, this road was likely constructed by TVA to access the pine stands.

TVA had conducted an archaeological survey along the shoreline in this area when a survey of the Wheeler Reservoir was undertaken in 1990-1991 (Shaw 2000). This earlier survey did not identify any archaeological resources along the exposed shoreline (survey was conducted during low winter pool elevation). Due to public concern, TVA confirmed that no archaeological resources are present in this zone by revisiting the site during the winter drawdown. A shoreline inspection was conducted on December 21, 2005. No evidence of archaeological deposits were identified as a result of this survey. Based on the findings of the shoreline investigations, the distance of the dredge location to the nearest original water source (original Elk River channel), the topography of the dredge location, and the shoreline erosion that has occurred in the dredge location, TVA made the determination that the proposed dredge would have no effect on historic properties. TVA has also reviewed the photograph presented by a member of the public at the February 9, 2006 public meeting of materials along the shoreline. Visual inspection of the photographs of this debris indicated that this material is largely natural in origin. However, a couple of pieces of the chert debris in the photograph appeared to have characteristics of lithic flaking debris, prompting TVA to further investigate the matter. A TVA archaeologist conducted an additional review of the shoreline on March 14, 2006 to verify TVA's earlier findings. During this review, the TVA archaeologist sampled material from the inundated ground surface to further verify for the presence of archaeological resources. Results of this investigation confirmed that the dredge location (an area extending approximately 40 feet by 60 feet) has extremely low potential for archaeological resources.

The No Action Alternative or the proposed action alternatives would have no effect on historic properties. TVA submitted these findings to the Alabama SHPO by letter dated September 19, 2005 (see Appendix C). The SHPO, in a letter dated November 23, 2005, concurred with TVA's "no effect" findings. A letter report of the shoreline survey was also provided to the SHPO.

3.5 Visual Resources

Affected Environment

TVA assessed the scenic value of each parcel adjoining Wheeler Reservoir in 1995. Approximately 152 parcels (75 percent of all parcels evaluated) were allocated either to visual resource management (127 parcels or 63 percent) or visual resource protection (25 parcels or 12 percent). The nearest parcels allocated for visual resource management /visual resource protection lie immediately upstream at parcel 22, and across the reservoir to the east approximately one half mile at parcel 24. These data suggest that a large percentage of the lands surrounding Wheeler Reservoir exhibit an inherent scenic value which TVA has committed to manage and protect based on the Scenic Value Criteria (see Appendix C). It further suggests that fragmentation of the lands which exhibit a high scenic value is not occurring and would not likely occur within the life cycle of Wheeler Reservoir Land Management Plan while existing allocations and current management objectives remain in place. Cumulatively, given the high percentage and the total number of parcels allocated for visual resource management or protection and their proximity to each other suggest that lands with high scenic value (scenic beauty) are not limited nor fragmented across the reservoir.

Environmental Consequences

The visual resource impact analysis evaluated the extent and magnitude of potential changes in the visual environment that could result from the proposed actions. The objectives of this analysis were to identify:

- The scenic and aesthetic character of the existing landscape
- The degree of discernible contrast between the proposed action and the existing landscape
- The location and sensitivity levels of viewpoints available to the public
- The visibility of the proposed action from the public viewpoints
- Any potential cumulative changes to the visual landscape

This impact analysis was conducted using a methodology adapted from the U.S. Forest Service's Scenery Management System (U.S. Forest Service 1995). A copy of TVA's Scenic Value Criteria is included in (Appendix C). The proposed project area comprises 91 acres. Information provided by the applicant indicates that approximately 30 acres of forestland would be cleared through development of phase one through four and approximately 10 acres of forestland would be cleared through development of phase five. Approximately 51 acres, or 56 percent of the forestland would remain and approximately 40 acres or 45 percent of the forestland would be cleared for development.

If approved, TVA would grant an easement to the applicant. Subsequently, the applicant would construct water-use facilities (including fueling, service, dry docking, and other ancillary facilities), primitive and developed camping areas, rental cabins, restroom facilities, and a restaurant. Construction activity of the development would be visible to recreational lake users and shoreline residents from within the foreground (within 0.5 mile from the observer) viewing distance as the proposed roadway, fishing pier, launching ramp, and restroom facilities are constructed. Views of proposed structures and water-use facilities, such as the incremental additions to the marina would increase

to the middleground (0.5 mile to 4 miles from the observer) viewing distance. Recreational lake users, as well as shoreline and near-shore residents would have views of the proposed facility along the shoreline and in context with surrounding shoreline development. Shoreline residents and recreational lake users would have foreground and middleground views of increases in boat and light vehicle traffic in the near vicinity due to the addition of an improved lake access point, marine fueling station, and long-term docking facilities. The increase in the number of vehicles and water vessels, although discernible would remain in context with the surrounding landscape character. The additional traffic associated with the typical lake-use season from Memorial Day to Labor Day would result in temporary visual discord. The construction of resort amenities has the potential to have an adverse impact on the existing visual resources. However, given the current land allocation, the concept of a "natural" theme or "park like setting" for this proposed development, and incorporation of context sensitive design practices to meet visual management objectives, the impacts to visual resources associated with the proposed action would be insignificant.

The Plan allocated Parcel 21 not only to Commercial Recreation, but also Visual Management. The Plan envisioned that management or development proposals for tracts allocated for visual management would include provisions for maintaining or enhancing the quality of the visual resources. The goal of such allocation is to ensure that the development is compatible with the natural landscape through context sensitive design. Such provisions would include minimizing the height of structures to prevent protrusion above the tree line, requiring land-based structures or facilities constructed within 250 feet of the shoreline and requiring all water-use facilities to be analogous in color to the surrounding environment so as not to directly contrast with the surrounding landscape character. Dark-sky issues are increasing throughout the country and are routinely being addressed by using lighting styles with full cut-off optics in order to minimize light trespass and glare. Therefore, given the dual allocation for commercial recreation and visual management, TVA would provide the applicant with visual management practices to incorporate in the final design, subject to TVA approval, to make the proposed development visually compatible with the remaining natural landscape. Design guidelines relative to the placement and height of structures, color of structures, and lighting styles have been provided to the applicant.

3.6 Water Quality

Affected Environment

The portion of Wheeler Reservoir in the project vicinity is classified by the Alabama Department of Environmental Management for public water supply, swimming and other whole body water-contact sports, and fish and wildlife uses. The Elk River embayment downstream of Anderson Creek is listed on the State of Alabama's Section 303 (d) list as partially impaired (i.e., not fully supporting its designated uses) due to pH and organic enrichment/dissolved oxygen from pasture grazing and nonirrigated crop production. As noted in the Wheeler Land Plan, soil interpretation indicates that the site has highly erodible soils. Therefore, sedimentation is a concern for potential impacts on water quality.

TVA initiated a Vital Signs Monitoring Program in 1990 to monitor the ecological conditions of TVA reservoirs using indicator parameters as a measure of overall ecological "health." Wheeler Reservoir was monitored annually from 1991 through 1995

to establish a baseline and is now monitored every other year. Samples are taken from the forebay at TRM 277.0, from the transition zone at TRM 295.9, and from the Elk River embayment at ERM 6.0. Parameters used as indicators are dissolved oxygen, chlorophyll, sediment quality (sediment toxicity tests and/or sediment chemical analyses including heavy metals, pesticides, and polychlorinated biphenyls [PCBs]), benthic macroinvertebrate and fish communities. Wheeler Reservoir had an overall "fair" rating in 1999, 2001, and 2003 (TVA, 2005). In 2003, dissolved oxygen levels rated good at the mid-reservoir and Elk River embayment locations. Dissolved oxygen rated fair near Wheeler Dam due to a small area of low dissolved oxygen (less than 2 milligrams per liter) in the lower water column in August. At the forebay and Elk River sampling locations, chlorophyll concentrations were high during most sampling periods in 2003 and rated poor. Chlorophyll rated good at the mid-reservoir location. The fish community rated good at the forebay site and fair at the other sites in 2003. The bottom life rated poor at the forebay and Elk River embayment and fair at the mid-reservoir site. Sediment quality rated good at the forebay and Elk River embayment. No pesticides or PCBs were detected, and the concentrations of metals were within background levels. The mid-reservoir site rated fair due to the presence of low levels of chlordane. There are no state advisories against swimming in Wheeler Reservoir. Fecal coliform bacteria levels in 2003 were within Alabama's guidelines for water contact.

Environmental Consequences

Since no actions would be taken under the No Action Alternative, surface water quality would not be impacted. Under the Action Alternatives, eroded soil or sediment is the most prevalent pollutant associated with construction activities. The erosion process begins with the dislodgment of soil particles. These particles are then transported as sediment to areas of deposition. Free-falling raindrops impact the soil with much greater energy than does an equal amount of flowing water. If land surfaces have no vegetative cover or other protective debris to cushion the impact, the total energy of falling rain is expended on dislodging soil particles. Loose particles are easily moved and, under certain conditions, carried away by overland water flow. The volume of overland flow that develops from a given rainstorm is related to a soil's physical factors that influence the infiltration and movement of water through the soil.

In reservoir shoreline settings, this process is accelerated. As the energy in the water (waves, generated by wind, personal and commercial watercraft, etc.) comes in contact with the shoreline, the erosion process begins. In shoreline erosion and associated bank failure, however, the sediment is immediately deposited in the reservoir, where it can adversely impact water quality, aquatic organisms, and detract from the natural appearance and value of shoreline properties.

As noted in the Wheeler Land Plan, soil interpretation indicates that the site has highly erodible soils. Because removal of understory vegetation or tree canopy could have an impact on the erodible soils, approved methods for checking soil erosion must be implemented if development is considered on this tract.

Many factors influence the rate and amount of soil loss. In general terms, areas with highly erodible soils, sparse vegetation, steep topography, and occasional intense storms would exhibit the highest erosion levels. Human activity can frequently intensify or accelerate erosion rates, particularly if they entail vegetation removal, grading, concentrating runoff, or soil disturbance. In reservoir areas available to recreational

boating, the shoreline is also vulnerable to higher wave energy levels associated with propeller wash. The proposed level of land construction is similar to several other existing and proposed developmental projects throughout the Tennessee River system. The state-of-the-art approaches for minimizing soil erosion and subsequent sedimentation from such sites are adequate preconstruction planning and properly selecting, installing, and maintaining specific BMPs.

ADEM is responsible for enforcement of state standards for construction sites through the National Pollutant Discharge Elimination System (NPDES) program for regulating stormwater associated with construction activities. The general stormwater construction permit requires a construction BMP plan which must be certified by a qualified credentialed professional. The permit also requires inspection and maintenance of the BMPs. The BMPs required under this permit would reduce impacts to water quality under Alternatives B and C. Additionally, under Alternatives B and C, the applicant's proposal will be subject to BMPs specified in this EA's commitment list, the Section 404 permit, the Section 26a permit, and the Section 401 Certification. Thus, adverse water quality impacts from soil erosion and sedimentation would be controlled through selection, installation, and maintenance of the BMPs required under these permits.

Alternative C would have the added benefit of a vegetation management plan and additional buffers. Prior to construction, the applicant will develop and submit for TVA's approval, a vegetation management plan for the maintenance of required buffers along wetlands, stream drainage areas, and the shoreline to prevent erosion of soils on the site. Activities allowed in the buffer areas would be limited to stream crossings (culverts), management of exotic and nuisance vegetation, and siting of a portion of the dry storage building and for marina facilities. These activities will be specifically identified in the vegetation management plan submitted for TVA's approval.

The proposed development would require construction activity to take place along the shoreline. During this construction phase, turbidity levels could be elevated locally. Following construction activities, turbidity levels and sedimentation into the reservoir originating from the marina site should return to preconstruction levels or below due to the stabilization of the currently unprotected shoreline. BMPs and proper management of storm water runoff from roads, parking areas, the fuel storage area, and roofs are expected to result in insignificant impacts to reservoir water quality.

Construction of the proposed action marina would concentrate boat traffic, which could increase local wave energy levels. Shoreline stabilization would protect the immediate harbor area from erosion. The higher concentration of watercraft around the proposed marina would likely contribute to an insignificant acceleration of erosion of surrounding areas of unprotected shoreline. Any such potential for erosion, would rapidly diminish with increasing distance from the marina.

Inadequate facilities for the collection, treatment, and disposal of domestic wastewater can result in adverse impacts to water quality and aquatic life. Septic systems that are not properly designed for the local soil conditions can result in surface breakout, runoff of sewage, or seepage through the soil into the reservoir. Treatment and disposal of wastewaters in compliance with TVA, state, and local requirements would minimize potential impacts from sewage and other liquid wastes. Preliminary testing of the site soils by the applicant indicates that the soils are adequate for appropriately-sized septic systems. Domestic wastewater from the proposed facilities must be collected, treated,

and disposed in accordance with ADEM requirements. The regulations and required permits are designed to prevent adverse impact to reservoir and groundwater water quality, including any water supply wells in the vicinity. Proper design, construction, and operation of the proposed marina development in compliance with state and federal regulations and permits is expected to result in insignificant increases in reservoir and groundwater pollutant, nutrient, or fecal coliform bacteria levels. These measures would ensure that the campground and marina would not cumulatively contribute to the impairment of the Elk River embayment.

Participation of the planned marina in TVA's Clean Marina Initiative is part of the applicant's proposal and would require proper BMP's to address potential impacts from shoreline erosion, fuel spills, on-site septic systems and marina sewage disposal. Fuel management regulations require additional protection measures for the prevention, containment, and cleanup of accidental fuel spills and leaks (e.g., nozzle pad use, low-flow pumps and/or staff-only fuel pumping, on-site oil-absorption equipment and adequate system maintenance to avoid leakages). Sewage wastes are controlled by properly maintained waste water treatment facilities (septic system or sewage treatment facilities) and sewage pump-out facilities for boat operators. Requirements also include restrictions on dumping of treated wastes in local waters and prohibitions for dumping untreated wastes. TVA's Clean Marina Initiative also requires certified marinas to maintain a stable shoreline, either through riprap revetment or native shoreline vegetation protection (see Appendix H). Site design and landscaping aspects also require control of on-site erosion by use of proper construction BMP's, post-construction grounds maintenance and native vegetation protection and enhancement. These requirements would be incorporated in the final design and the vegetation management plan to be submitted to TVA for approval. The Clean Marina Guidebook can be found on TVA's website for more detailed information:
http://www.tva.com/environment/pdf/cleanmarina.pdf.

3.7 Recreation and Recreational Boating Safety/Congestion

Affected Environment

The proposed development site is approximately 91 acres on the western bank of Elk River, approximately 1.7 miles above the confluence of the Elk River with the Tennessee River on Wheeler Reservoir. The Wheeler Reservoir Land Management Plan allocated this parcel for Commercial Recreation and Visual Management. There are no developed land or water facilities on the parcel, and there is no public road access. The applicant has purchased private landrights from CR 77 to the northern edge of the parcel for purposes of future access.

The parcel currently receives sporadic informal recreation use such as off-road vehicles and occasional bank fishing. The parcel is heavily wooded with a dense understory. It is approximately three miles downstream from the U.S. Highway 72 (US 72) bridge over Elk River. The land between the bridge and the parcel on the west bank is developed private residential, and the majority of the houses have private water-use facilities along the shoreline. The same is true of the area downstream from the parcel up to the Tennessee River. There is no development on the eastern bank between the bridge and the parcel and no water-use facilities on the shoreline. The land along the eastern shoreline from the bridge consists of three parcels of TVA-retained land and is allocated for Visual Management, Visual Protection, Small Wild Area, Forest Management, Wildlife Management, Minor Commercial Landing (near the bridge) and Public

Recreation. Downstream of the retained parcels is a private community-slip facility associated with a residential development. Between that development and the mouth of the Elk River is a TVA retained parcel allocated for Navigation Safety Landing, Informal Recreation, Forest Management, Wildlife and Visual Management.

The Elk River at this location is over 2,100 feet wide and broadens to approximately 1-mile wide at the mouth of Elk River. Elk River embayment of Wheeler Reservoir extends up river for approximately 25 miles. Upstream from that point, the river is navigable by smaller fishing vessels and nonmotorized vessels. The Tennessee River is over a mile wide at the mouth of the Elk River. The Tennessee River offers a navigable channel for over 650 miles from Paducah, Kentucky, to Knoxville, Tennessee, in addition to offering a navigable connection to the Gulf of Mexico via the Tennessee-Tombigbee Waterway at TRM 215. Recreational vessel use of this section of the Elk River is relatively sporadic. Summer holiday and weekend traffic are the busiest periods. A powered watercraft count was conducted September 3, 2005, the Saturday of the Labor Day weekend (see Section 3.10). The proposed marina would add a total of 100 boat slips and dry storage. A survey of six marina owners/managers was conducted in 1999 as part of another marina Environmental Assessment on the Tennessee River. This survey estimated that 25 to 50 percent (33 percent average) of boats in wet slips are used on the busiest weekend days, such as the fourth of July. Other estimates were 10 to 40 percent usage (20 percent average) for a typical weekend day and 5 to 10 percent use (7 percent average) for a weekday. Applying these average usage rates to the proposed 100 slips at the marina gives an additional 34 watercraft on the busiest weekend days, 20 more on typical weekend days, and 8 per day during the week. This assumes the worst case scenario in which all slips are leased and have powered watercraft. These additional watercraft would be dispersed throughout the day and when compared to the watercraft count, these are minor increases. Due to the relative width of the water bodies and the lack of development on the eastern shore, conflicts between boaters are sporadic and short term. The private, community dock facility associated with The Pointe residential development is located within a small embayment opposite the proposed marina and is a facility permitted for a maximum capacity of 89 slips. To date, only one dock structure has been built. Slips are restricted to property owners in the Pointe development. Generally, no more than one-fourth to one-third of the boats in community slips are outside of the facility on the busiest holiday weekends. There are no fuel or associated marina facilities included in the permit so there would be minimum associated transient traffic. Boats entering and leaving the proposed marina would be on the opposite side of the river some 1,500’ away and would not interfere with boat traffic at The Pointe community facility.

Recreation demand is primarily influenced by population growth and demographics. Therefore, analysis of the demand for recreation services that this proposal would provide focused on population growth in the market area. Since the primary market for the proposed development would be approximately a 50-mile radius around the site, the following counties were included in this analysis: Colbert, Cullman, Franklin, Lauderdale, Lawrence, Limestone, Madison, and Morgan in Alabama, and Giles, Lawrence, Lincoln, and Wayne in Tennessee. The population of this area is projected to be 902,118 in 2005. By 2015, the population is expected to be 983,751, for an increase of 81,633 or 9 percent. Western portions of Limestone County and eastern portions of Lauderdale County have been experiencing growth in recent years, and the trend is expected to continue. The trend data from the National Survey on Recreation and the Environment (1982-2001), places developed camping and motorboating in the second

fastest-growing group of sports with growth rates for the period of 86.4 percent and 62.3 percent, respectively. Developed camping in Alabama has a participation rate of 20.8 percent, while motorboating has a participation rate of 25.4 percent. These participation rates when applied to the population growth would reflect a 10-year increase in demand for developed camping of approximately 16,980 individuals participating in camping and 20,735 individuals participating in motorboating. Only a portion of these individuals would own their own campers or motorboats, as many of these participants would camp and/or boat with family or friends.

Table 3-4 below indicates facilities within 10 river miles of the mouth of the Elk River that offer camping and/or marina services. There is no public marina or fuel facility on the Elk River embayment of Wheeler Reservoir. Within ten river miles of the proposed project, there are only two recreational developments marinas facilities, Bay Hill and Joe Wheeler State Park. Bay Hill Marina is in a closed harbor with fixed harbor limits and is not likely to add additional slips in the future. Joe Wheeler is a State of Alabama resort park featuring cabins, golf, camping, marina, lodge, and related facilities. It is regionally significant and attracts users from within and outside the Tennessee Valley. Joe Wheeler State Park is planning to add 26 additional large marina slips during 2006 and has plans to build additional upscale rental cabins in the future. Since Bay Hill Marina is not likely to expand, and Joe Wheeler is only currently planning to add 26 large slips, the increase in demand would require additional facilities such as those proposed for Elk River Resort.

Table 3-4 Facilities Within 10 River Miles With Camping and/or Marina Services

Inventory of Marina and Camping Facilities									
Area Name	**River Mile**	**Campsites Water/ Electric**	**Campsites Without Water/ Electric**	**Marina Parking Spaces**	**Wet Slips**	**Dry Storage**	**Fuel**	**Boat Repair**	**Number of Cabins**
Bay Hill Marina	287.0 R	0	0	150	150	209	1	1	5
Elk River Group Lodge	284.5 R	0	0	0	16	0	0	0	0
Joe Wheeler State Park	277.0 R	116	50	110	158	20	1	0	26
Lucy's Branch Resort	287.0 R	168	0	0	0	0	0	0	0
Mallard Creek Recreation Area	294.8 L	56	0	0	0	0	0	0	0
Wheeler Northside Campground	275.0 R	33	0	0	0	0	0	0	0
Total		**373**	**50**	**260**	**324**	**229**	**2**	**1**	**31**

L = Left R = Right

Table 3-5 Lake Access Areas Within the Vicinity

Lake Access Facilities		
Area Name	**Tennessee River Mile**	**Elk River Mile**
Joe Wheeler Cabin Sites Ramp	275.6L	
Joe Wheeler SP First Creek Ramp	277.0R	
Spring Creek Ramp	283.5L	
Mouth of Elk River Ramp	284.5R	0.2R
Barnett Landing Ramp	284.5R	2.2R
US 72 Ramp	284.5R	4.9R
Elk River Lodge Ramp	284.5R	5.0L
Anderson Creek Ramp	284.5R	5.8R
Goldfield Branch Ramp	285.1L	
Lucy Branch Ramp	287.0R	

L = Left R = Right

From the public comments, it was noted that the proposed site contains equestrian trails used by the public and that there are no other equestrian trails in the general area that offer comparable equestrian aesthetics. This type of activity being an informal use, such as occasional informal camping, would be displaced by the development unless the applicant voluntarily accommodates equestrian use. Informal equestrian use happens in many places on TVA property. The Zone 3 and 4 properties directly across Elk River are also available for hiking, biking, equestrian use, etc.

Environmental Consequences

Under the No Action Alternative, the proposal would not be implemented. Under the action alternatives, the new camping and marina facility would be developed as previously described. Based upon market growth, additional facilities such as rental cabins and restaurant would be provided. The recreating public would have more convenient services and facilities on Elk River and this section of the Tennessee River. Since the wet and dry slips added by this proposal would not significantly increase the number of recreational vessels, the cumulative impact of the project on boating traffic would also not be significant. TVA would require that Clean Marina guidelines as well as American with Disabilities Act guidelines be followed for all appropriate facilities.

3.8 Navigation

Affected Environment

The proposed development site is located on TVA Wheeler Reservoir Tract 21 near the mouth of the Elk River in Lauderdale County, Alabama. This tract is located between ERMs 1.7 and 2.1 on the right descending bank and includes two small embayments.

The Elk River is a navigable tributary of the Tennessee River, which is itself a part of the 10,000-mile integrated, commercial Inland Waterway System. The U.S. Coast Guard (USCG) maintains buoys and daybeacons in aid of commercial navigation on the Elk

River from the mouth to the US 72 bridge at ERM 4.9. Beyond that, TVA maintains navigation aids for recreational boating to the Elk River Mills Bridge at ERM 14.5. There is no regular commercial navigation activity on the Elk River at this time with the exception of marine construction companies building private dock facilities and periodic bridge inspection and maintenance for the Alabama Department of Transportation. There is an inactive grain terminal just above the US 72 bridge at ERM 5.3L, but the facility is in a state of considerable disrepair. As noted in Section 3.11, the property has been sold and is being developed into a subdivision. There is a condominium development adjacent to the terminal site, and it seems unlikely that this facility would ever reopen for commercial activity. The tract adjacent to Tract 21 on the upstream side, Wheeler Reservoir Tract 22, is zoned for industrial/commercial, but does not currently have direct road access. Tract 22 has not been given a potential barge terminal site, but dredging could make this a potential industrial/terminal location for the City of Rogersville.

In the lower Elk River where the proposed development would take place, the river is approximately 2,000 feet across. Depths here are sufficient to support commercial navigation and, in fact, are in excess of 18 feet at normal summer pool elevations of 556 feet above mean sea level. While these depths are available for much of the width of the river here, the navigation channel itself is the standard commercial width for tributaries of 300 feet and is delineated for commercial and recreational vessels alike by the U.S. Coast Guard (USCG) buoys. At the mouth of the Elk River, the navigation channel hugs the right descending bank but then crosses the river between ERM 1.4 and ERM 2.0 to hug the left descending bank. At the lower (southern) property line of the tract on which the proposed development is to take place, the navigation channel is in the middle of the river. At the upper (northern) end of the tract, the channel is adjacent to the opposite (left) bank. No navigation aids are present on the Tract 21 shoreline or immediately offshore. A green (can) buoy marking the port side (left side as looking upstream) of the navigation channel is stationed at ERM 2. At the same river mile, a red daybeacon marking the starboard side of the channel (right side as facing upstream) is fixed in the water near the shoreline just outside and upstream of the cove in which the private-use community dock facility for the residential development called The Pointe is located.

Environmental Consequences

Under the No Action Alternative, there would be no impact to existing navigation conditions. If either of the Action Alternative was selected, two components of this proposed development have the potential to impact navigation in the area–the lakeward extent of the marina structures and the requested harbor limits.

With regard to marina structures, under Alternative B, the applicant included a trash break structure to be constructed perpendicular to the Tract 21 shoreline on the upstream side of the tract at river ERM 2.0. The trash break as originally proposed would have been 800 feet long. The lakeward extent of this structure would have been some distance greater than 800 feet, perhaps as much as 900 feet or more. This would have been the longest structure in the marina complex. (The longest dock structure would be 283 feet, plus an unspecified walkway length from the shore, with the potential for expansion at a later date.) Similarly, on the downstream side of the marina, the applicant had planned a wave break structure with a length of 400 feet, to be placed diagonal to the marina complex. In addition, the applicant indicated a preference for

harbor limits to extend to 1,000 feet from the shoreline, presumably to create a no-wake zone for the marina area.

The total width of the Elk River at this location is slightly less than 2,000 feet. If the trash break structure was built as originally proposed, it would have created a lakeward extent of nearly half the distance across the river. As a general rule, TVA has maintained a commitment to restricting marina development to one-third or less of the distance across a river span or embayment so as not to impede the safe flow of vessels traveling up- and downstream. TVA also typically sets harbor limits that are defined by the configuration of structures for a commercial facility and not to extend beyond those structures.

Under these circumstances, then, TVA would not have approved the proposal as originally proposed because of the proximity of the marina complex to the navigation channel. The can (green) buoy marking the port side of the navigation channel is 1,000 feet from the shoreline of Tract 21 and lies on the same perpendicular plane as the originally proposed trash break. A trash break with an overall lakeward extent of 800 plus feet and harbor limits of 1,000 feet would have been in excess of one-third of the width of the river and would create unsafe navigation conditions on the waterway.

Accordingly, under alternatives B and C, the applicant agreed to reduce the harbor limits to 550 feet, which is less than one-third the width of the river. The harbor limits would be to the limits of the structures, which is where the no-wake zone would start. This would still allow some expansion if necessary. The trash break has been reduced from 800 feet to 550 feet (see Figure 2-1 for approximate location). These changes would ensure that navigation is not cumulatively impacted.

3.9 Floodplains

The proposed project involves floating boat slips, fishing piers, and fuel dock; boat-launching ramp; riprap and retaining wall; dredging; dry boat storage building; ship's store/office; cabins; restaurant; bathhouse; fuel storage tanks; RV park and camping areas; parking lot; and access road. The floating boat slips, fishing piers, and fuel dock; boat-launching ramp; retaining wall; riprap; dredging; and access road would involve construction within the 100-year floodplain. For compliance with EO 11988, these are considered to be repetitive actions in the floodplain that should result in minor individual and cumulative impacts provided the excavated material is spoiled outside of the floodplain. All excavated material would be spoiled above the TVA Flood Risk Profile elevation. The dry boat storage building, ship's store/office, cabins, restaurant, bathhouse, fuel storage tanks, RV park, camping areas, and parking lot would be located on existing ground outside of the 100-year floodplain and above the TVA Flood Risk Profile elevation. The project would comply with the TVA Flood Control Storage Loss Guideline, because there would be less than 1 acre-foot of displaced flood control storage. The Section 26a approval would require the applicant to:

- Agree to securely anchor all floating facilities to prevent them from floating free during major floods.
- Construct or place all portions, on average, no more than 2 feet from the existing shoreline at normal summer pool elevation, for the purposes of shoreline bank stabilization.
- Agree that spoil material would be disposed of and contained on land lying and being above the 557.3-foot contour and use every precaution to prevent the reentry of the spoil material into the reservoir.

- Contact local government official(s) to ensure that this facility complies with all applicable local floodplain regulations (specifically for the access road).

3.10 Noise

Environmental noise is the total noise present and projected from all sources including current background noise from human and natural sources and potential intruding noise from projected human activity. The significance of the potential intruding noise comes from the incremental increase it adds to the present environmental noise level. Whether incremental noise increase is significant is very subjective and based on the backgrounds and attitudes of the receptor population at the site. This is especially true for episodic noise, such as an airplane taking off over a residential area. People who work at the airport might not mind the intruding noise, but people who have no financial connection might strongly object to it. Additionally, the mere presence of an intruding noise from a new source might make some people complain regardless of its level because the intruding noise is an indicator of an unwanted development.

There are no standards or laws regulating noise in Lauderdale County at the proposed facility site. Neither is noise directly regulated under the state or federal law. EPA issued a guidance document in 1974 that is still used, but it is directed toward industrial and not recreational application.

The proposed facility would not be located in pristine wilderness and since the area is moderately used for informal, multipurpose recreation. There is abundant evidence of four-wheel ATV use with at least two “hill climb” areas. Observations of tracks also show horse riding and off-road motorcycle use, and there is a deer-hunting stand near the western fence line. There is a walk-in entrance to the area from the south at the end of Hidden Valley Road and another multiuse entrance through TVA Tract 22 to the north. It appears that the southern entrance was recently chained closed to prevent vehicle entry.

The north fence line borders farmland and scrub forest with the nearest residence about 1,200 feet to the north-northeast along Barnett Road. To the west is forested for about 300 feet and then another 300 feet of field to the nearest residence. The southern border is moderate-density lakefront and sparsely populated forest area. The nearest southern residences are about 30 feet from the property line on the lakefront and 50 feet away in the forest area. This is the end of the Hidden Valley Road area. Most of the east boundary is Elk River waterfront with about 300 feet bordering TVA Tract 22. The nearest eastern residence is about 1,600 feet to the east, northeast along Barnett Road. Across the river is the new The Pointe waterfront, residential community.

Current noise sources include:

- Community noise from the Hidden Valley Road area, such as vehicles, residential air conditioners, and outside maintenance/landscaping such as lawn mowers.
- Occasional ATV use.
- Distant traffic noise, probably from US 72.
- Distant industrial noise coming from the south-southwest, probably from the International Paper Mill.
- Powered watercraft, especially from the Barnett Road boat landing and transit watercraft from the two highly used boat landings near the US 72 bridge and from the residences in the Hidden Valley Road area.

A powered watercraft count was conducted September 3, 2005, the Saturday of the Labor Day weekend. The count area was defined by the approximate, hypothetical perpendicular lines from the north and south TVA Tract 21 shoreline boundaries on the west across the Elk River to the east shoreline. It was a 10-hour count beginning at 7:00 a.m. and ending at 5:00 p.m. Three categories of powered watercraft activity were used for the count: transit, crossing both count area boundaries; fishing, remaining in the count area while fishing; and sport, continuous powered activities such as jet-ski use or tubing within the count area. Results of the count are Transit – 144, Fishing – 13, and Sport – 27, for a total of 184.

Additional powered watercraft activities were noted before 7:00 a.m. After 5:00 p.m., the watercraft activity appeared at the same level as in the 4:00 p.m. to 5:00 p.m. time increment. Weather conditions during the watercraft count were sunny, calm to light winds, and temperature beginning at 74 degrees Fahrenheit (°F) and warming to 88°F.

Potential noise sources at the proposed Elk River Resort during Phase 1 would include construction, RV/campground (100 sites), boat launch, playground/recreation area, and the store. Potential noise sources during the second phase would include construction and wet boat slips. Potential noise sources during Phase 3, would also include construction and additional RV/campground sites, wet boat slips, and traffic on Barnett Road (if the demand increases). Potential noise sources during Phase 5 could include construction and operation of cabins and restaurant.

Construction noise impacts would generally be during daylight hours and the usual business weekdays. Heavy equipment used for road building, site clearing and preparation, and dredging would generate noise that would be clearly heard along Barnett Road and moderately heard across the river and in the Hidden Valley Road area. Most people understand that construction noise is short term, and because of the limited building construction after the site preparation, the construction period of the proposed resort would be very limited. This short construction period along with construction activities taking place during usual business hours reduces the noise consequences to an insignificant level over the life of the project.

The Phase 1 noise would include the noise from air conditioning from RVs and buildings, powered watercraft from the boat launch, and playground activities. Most resort usage would be in the summer when neighboring residents have their air conditioners operating and their windows closed. Typically, closed windows reduce intruding noise by about 24 decibels (dB) according to EPA. Noise from nearby air conditioners at the residences and their neighbors would be much louder than intruding noise from the resort, and the closed windows would reduce the intruding noise to an insignificant level. The for-fee boat launch at the resort would not increase day-use watercraft activity because of the three nearby free boat launches. Possible boat activity could increase from watercraft associated with the RV/campground. Although hard to estimate, the impact of this additional boating activity would not be significant since it would occur at the same time as the time of maximum boating use of the river system.

Phase 2 would add 50 boat slips with their associated powered watercraft operation noise. A survey of six marina owners/managers was conducted in 1999 as part of another marina Environmental Assessment on the Tennessee River. The survey estimated that 25 to 50 percent (33 percent average) of boats in wet slips are used on the busiest weekend days, such as the fourth of July. Other estimates were 10 to 40

percent usage (20 percent average) for a typical weekend day and 5 to 10 percent use (7 percent average) for a weekday. Applying these average usage rates to the proposed 50 slips at the marina gives an additional 17 watercraft on the busiest weekend days, 10 more on typical weekend days, and 4 per day during the week. This assumes the worst case scenario in which all slips are leased and have powered watercraft. When compared to the watercraft count, these are minor increases.

Phase 3 would increase the boat slips by 50 doubling these worst-case numbers to about 34 on the busiest days of the weekend and 20 and 8, respectively, on the other day categories. These increases are 18 percent, 11 percent, and 4 percent of the watercraft count and would not be significant to the local residents because they participate in similar activities and expect to hear powered watercraft noise in the summer. Phase 4 could add more watercraft from dry storage at a usage rate lower than the wet-slip rate.

The Phase 5 cabins would generate air conditioning noise that is similar to the residential air conditioning. Because of the distance from the property boundary and similar noise from adjacent residential areas, the noise would not be significant outside the resort area.

In summary, the proposed site is currently a multipurpose, moderately used, informal recreation location with considerable watercraft usage in front of the shoreline and ATV traffic inland. Intruding noise from vehicle traffic, watercraft, and industrial sources are heard at the site and in neighboring areas. If approved and built, construction noise for the proposed resort location would be noticeable for a short time, and there would be increases in noise from land-based and water-based sources over the long term. Because of current background noise, potential for only modest increases in similar noise, and similar activities undertaken by neighboring residents, the environmental noise consequences would be cumulatively insignificant.

3.11 Land Use (Including Security Concerns)

This site, containing approximately 91 acres, is located upstream from the main channel of Wheeler Reservoir between Elk River Miles (ERM) 1.7 and 2.1 on the right descending bank. Wheeler Reservoir produces a variety of benefits, including flood control, navigation, power generation, recreation, and resource protection/management. TVA seeks to balance these benefits as it considers requests such as the Elk River Resort. The Wheeler Reservoir Land Management Plan (Plan) was completed in 1995 to provide TVA guidance toward achieving a balance between development and protection of our natural resources. The Plan provides TVA resource management and property management decisions on 11,284 acres of land around Wheeler Reservoir that are under TVA stewardship and control. It identified uses for 203 tracts of TVA public land, providing sites for recreation, industry, navigation, wildlife and forest management, cultural and environmental preservation, and agriculture. Broad land management goals established in the Plan include: (1) improvement of public recreation opportunities, (2) protection of the natural and cultural environment, and (3) enhancement of economic development opportunities. One objective of the Plan was to help provide for a diversity of quality recreation opportunities on Wheeler Reservoir. The Plan identified four tracts (Tracts 21, 67, 88, and 91) for future quality commercial recreational development. Tracts allocated for Commercial Recreation may include marinas, docks, launching ramps, rental cabins, trails, lodges, pools, campgrounds, restaurants, and other tourism-

related outdoor recreation facilities. This proposal for Tract 21 includes an RV park with utilities and sanitary facilities, camping areas, nature trails, a marina including a ship's store and, ultimately, cabins, a restaurant and a dry storage for boats, which is consistent with the planned use in the Plan.

The applicant is requesting a 30-year easement with the option to renew at the end of the term. TVA would receive compensation from the applicant for the use of this property during the term of the agreement. This site would be monitored by TVA staff to make sure it complies with all guidelines and conditions set forth in the easement. If the easement is not renewed or is cancelled by either the applicant or TVA, the applicant would be required to remove the facilities and restore the land to its original condition. If this is not completed in an agreed amount of time, TVA would have the option of completing the removal at the applicant's expense or leaving the facilities in place and obtaining another individual to continue operation of the property.

The property does not currently have public access, except for those who own private property adjacent to this site or those having a boat to access the site by water. The proposal indicates access to the property would be across land the applicant has purchased off CR 77. Legal access is not available on the south side of this property due to a strip of private property that is owned at the end of Lakeview Drive. The proposed Elk River Resort would provide access to the public.

Comments received during the public scoping period expressed concerns about security. The property is secluded and accessible through one road. The proposal requests permission to place a heavy gate capable of being locked at the entrance. The hours of operation would be posted and the gate would be closed after hours. According to the Chief of Police for Rogersville, part of Parcel 21 is located in the Rogersville Police Department jurisdiction and the other portion is within the Lauderdale County Sheriff's Department jurisdiction. Both departments back each other on emergency calls. The Lauderdale County Sheriff, TVA Police, and the Rogersville Police Department would become familiar with the location and operation of the facility through site visits and mutual communications.

The proposal indicates that 75 percent of the campground sites would be available for long-term use and 25 percent would remain short-term use. All campground sites would be required to remain truly mobile. The marina property and water-use facilities cannot be used for full-time residential purposes.

Several responses compared this proposal with Lucy's Branch/Bay Hill. TVA sold this land in 1947, for public recreation purpose under Section 4(k)(a) of the TVA Act, as amended, which restricts the property be to used solely for the construction of cabins for public recreation. The deed language has been debated and generally regarded as unclear and problematic by TVA and the property owners ever since 1947. The deed did not contain the alienation clause; hence the tract could be subdivided. Cabins could be constructed on this private property and sold to individual owners, but these cabins must be used only for public recreational purposes. The TVA restrictions did not prevent the land from being divided into small parcels and densely developed. The previous restrictions requiring any construction be used for public recreation purposes were lifted in 2002, although TVA understands that parts of the development are still available for public recreation opportunities. A good portion of the development now in place was constructed before TVA removed the restrictions. Removal of the deed restriction

allowed Tract No. XWR-288 to be utilized for any purpose consistent with Section 4(k)(a), which includes residential purposes and eliminated future title concerns by residential owners. The Elk River Resort proposal, by contrast, is asking TVA to grant a 30-year term easement over a different tract of TVA property for commercial recreation purposes. The property is identified as Tract XWR-21PT in the Wheeler Reservoir Land Management Plan (Plan) and was allocated for Commercial Recreation and Visual Management in the Plan (TVA, 1995). Residential access was not requested nor is it consistent with the Plan allocation. The Elk River Resort proposal requests TVA to grant a 30-year easement for use of the property solely for commercial recreation purposes. The fee ownership of this tract of land would remain with TVA. TVA would require that all facilities and services must be made available to all members of the general public without discrimination or distinction because of race, color, national origin, age, or handicap.

The Wheeler Land Plan states that floating debris, carried by Elk River, gathers at the back of the embayment at this location. This tract has been restricted to public access for many years making it difficult to clean this debris. The proposal would allow easier access for shoreline cleanup of this debris. Further, the proposal includes a trash break that would facilitate collection of debris. The applicant is requesting to stabilize the shoreline by placement of riprap or retaining wall. This would provide protection of the shoreline and the TVA property by stopping further erosion that was previously identified in the Plan.

The proposal states that a caretaker/manager will be on site at all times during normal and seasonally extended business hours to supervise activities allowed at the site. The applicant would take all reasonable precautions to prevent and suppress forest, grass, and other fires by requiring campfires to be restricted to designated areas within fire rings. During the public comment period, several individuals expressed concern about inadequate police patrols and protection in the area. Upon investigation, TVA found that the Rogersville Police Department patrol these areas and the proposed development would be within their jurisdiction.

Residential property values can be affected by many diverse factors or conditions, such as supply and demand, view, water frontage, accessibility, availability of shopping and services, economic conditions, and a vast number of other factors. It is often difficult to isolate the effect of any single variable. In addition, the relative importance of each of these factors or conditions may be unique to each individual property and can reflect the personal values of the purchaser or seller. Representatives from area financial institutions believe that based on their experience with other marinas, property values could increase since some people like to locate near the convenience of a marina. However, whether actual development of the surrounding area takes place would depend on several independent actions taken by third parties that are well beyond TVA's control. Overall, TVA does not believe that property values would be adversely affected.

3.12 Designated Managed Areas

Affected Environment

The proposed action is not anticipated to impact Wild and Scenic Rivers or their tributaries, or any stream on the Nationwide Rivers Inventory because no such designated waters occur at or adjacent to the project site. A review of the TVA Natural Heritage database indicated that the proposed action would not be within or immediately

adjacent to any managed areas and/or ecologically significant sites. Four such features are within three miles of the proposed action: **Long Oak Forest TVA Small Wild Area** is approximately 0.5 mile east of the proposed action. This 102.8-acre linear parcel of TVA land is on the east bank of the Elk River directly across from the proposed site. The small wild area tract is composed of old upland hardwood forest with understory and a cove forest; spring wildflowers are abundant. It is managed by TVA for its exceptional natural quality and is suitable for low-impact public use. **Joe Wheeler State Park**, a resort park at Wheeler Dam, is approximately 2.0 miles west and northwest of the proposed action. This 2,550-acre state park offers numerous amenities, including a lodge, restaurant, marina, golf course, swimming pool, beach, picnic shelter, tennis courts, and hiking trails. It is managed by the Alabama Department of Conservation and Natural Resources for intense recreational use. **Elk River Lodge**, a part of Joe Wheeler State Park, is approximately 3.0 miles east of the proposed action. It offers a 30-person lodge and access to Wheeler Lake. **Limestone County Park**, managed by Limestone County for local recreation uses, is approximately 2.8 miles east of the proposed action on Wheeler Lake. No streams listed on the Nationwide Rivers Inventory or designated as Wild and Scenic are within three miles of the proposed site.

Environmental Consequences

Under the No Action Alternative, the proposed Elk River Resort would not be developed. No direct, indirect, or cumulative effects on natural areas are anticipated as a result of this alternative. Under the action alternatives, the proposed Elk River Resort would be developed in an area on TVA property at Wheeler Dam allocated for commercial recreation and visual management. This proposed action is not anticipated to result in direct, indirect, or cumulative effects on natural areas because of the distance of the project sire form the natural areas is sufficient (0.5–3.0 miles). The closest natural area (approximately one-half mile) is Long Oak Forest TVA Small Wild Area, which is across the river from the proposed action. The proposed action would not adversely impact the small wild area's natural quality, i.e., its forested area would not be disturbed. The three additional natural areas are county or state parks that have been developed for high-impact recreational uses of Elk River and Wheeler Lake and have complementary functions to the proposed action. The proposed action is not anticipated to impact Wild and Scenic Rivers or their tributaries, or any stream on the Nationwide Rivers Inventory because no such designated waters occur at or adjacent to the proposed action.

3.13 Roads/Traffic and Solid Waste Disposal

3.13.1 Roads and Traffic

The proposed marina development is located in Lauderdale County, southeast of Rogersville, Alabama, off CR 77 (Barnett Road), and right-of-way access has been purchased for access to the area from CR 77. CR 77 (Hooie Lane) connects with US 72 just east of Rogersville, Alabama. From US 72, the site can be accessed from a variety of other locations, but the most direct and most probable route is via CR 77 (Hooie Lane changes to Barnett Road at its intersection with CR 70). The area surrounding the routes leading to the proposed marina site is both residential and rural farmland, with the majority being farmland. The nearest interstate highway is Interstate 65, which runs between Nashville, Tennessee, and Birmingham, Alabama, and is approximately 20 miles to the east. Portions of the existing transportation network are shown in Figure 3-2.

Figure 3-2 Street Map

A site visit was made on September 9, 2005, to evaluate the transportation network near the proposed development. US 72 is a multilane highway, with some portions having a center turning lane while the remaining portions are divided with a median. US 72 has recently been resurfaced and is in very good condition with excellent lane and shoulder widths. CR 77 is a 100 percent no-passing, two-lane, rural road. CR 77 has no shoulder area, with 10- to 11-foot driving lane widths, and a low-posted speed limit. The section of CR 77 from US 72 to CR 70 (Hooie Lane) has level terrain while the remainder of CR 77 (Barnett Road) has rolling terrain. On this section of CR 77, there is a culvert crossing that is only 16.5-feet wide. This provides two 8-feet, 3-inch driving lanes. The design vehicles (motor home, car & camper trailer, car & boat trailer, or a motor home & boat trailer) that would most likely use this route for access to the proposed facility are 8-feet wide according to the AASHTO design guidelines (American Association of State Highway and Transportation Officials, *A policy on Geometric Design of Highways and Streets*, 5th ed.). This only provides for 6 inches of clearance between two vehicles if they attempt to cross the culvert simultaneously.

The average annual daily traffic (AADT) for US 72 is 12,010 vehicles per day, according to Alabama Department of Transportation 2004 traffic data. Traffic volumes for the local roads were not available. Peak-hour trip ends were estimated for CR 77 using the methods published by the Institute of Transportation Engineers (ITE) in *Trip Generation*, Sixth Edition. According to the ITE methods and conservative TVA assumptions, CR 77 currently has 65 vehicles per peak hour on weekdays, 61 vehicles per peak hour on Saturdays, and 57 vehicles per peak hour on Sundays.

The proposed resort development consists of five construction phases. Upon the completion of Phase 5, the development would include wet boat storage, dry boat storage, a ship's store, an RV park, camping areas, nature trails, cabins, and a restaurant. There would be a total of 200 campsites and 100 wet slips for boat storage. The trips generated by the proposed development were predicted using the same ITE methods that provide overly conservative estimates. The campground/marina development was estimated to generate 70 vehicles per peak hour on weekdays, 40 vehicles per peak hour on Saturdays, and 101 vehicles per peak hour on Sundays. These values reflect the assumption that there would be a 60 percent utilization rate of the development and the overly conservative assumption that 20 percent of daily trips take place during the peak hour period. The projected traffic levels on CR 77 if the development is constructed are much lower than the capacity that the *Highway Capacity Manual* (Transportation Research Board, 2000) recognizes as a maximum capacity for two-lane, rural highways (3,200 vehicles per hour). In fact, according to the traffic projections, the traffic levels would be anywhere from twenty to thirty times less than the maximum capacity (135 vehicles per *peak* hour on weekdays, 101 vehicles per *peak* hour on Saturdays, and 158 vehicles per *peak* hour on Sundays versus 3,200 vehicles per hour).

Table 3-6 Projected Traffic Levels on County Road 77

	Vehicles per Hr.	Vehicles per Sec.	Seconds per Vehicle*	Seconds per Vehicle*	Percent of HCM Accepted Capacity
HCM Accepted Capacity	32,00	0.89	1.13	2.25	100.0
Est. Existing Weekday Peak Hour	65	0.0181	55.38	110.77	2.0
Cumulative Est. Weekday Peak Hr.	135	0.0375	26.67	53.33	4.2
Est. Existing Saturday Peak Hr.	61	0.0169	59.02	118.03	1.9
Cumulative Est. Weekday Peak Hr.	101	0.0281	35.64	71.29	3.2
Est. Existing Sunday Peak Hr.	57	0.0158	63.16	126.32	1.8
Cumulative Est. Sunday Peak Hr.	158	0.0439	22.78	45.57	4.9

***(both directions)**

The proposed Elk River Marina development would generate and distribute additional traffic to the existing transportation network, but would not create any significant changes nor overload the network. The current traffic volumes in the area appear to be at levels well below what the facilities can manage. The only improvement that would be recommended is the widening of the culvert crossing on CR 77 (Barnett Lane) to a minimum of 20-feet wide. The applicant has agreed to have the two grassed shoulders (3.5 and 2.5 feet) paved that would widen the road to 20 feet (2-10 foot lanes). This would meet the AASHTO minimum requirements and provide two lanes of 10-feet each.

3.13.2 Access Road

Comments received from the public identified that in Exhibit D of the joint public notice, the applicant proposed a 48-inch diameter drainage culvert for the proposed access road. If this diagram is accurate and to scale, then it appeared that the hydraulic drainage cross-sectional area was being reduced from approximately 32 square feet to approximately 12.5 square feet.

The applicant clarified that Exhibit D showing a 48-inch culvert is for illustration only. To obtain preliminary road cost and construction types, the applicant requested an engineering firm in Florence, Alabama, to design the road. Since the adjoining parcel, Parcel 22, is allocated to industrial use, the design was specified to meet federal, industrial standards to ensure the quality of the road in the event the road would have to cross the industrial-allocated parcel. The calculations were made using only a topographic map. The design engineers specified a 72-inch culvert, which would be on privately owned access property; all other culverts would be 36-inch culverts throughout Parcel 21. Final designs for the road would include a more detailed assessment, which would be verified when better visual inspection is possible after initial clearing and grubbing.

3.13.3 Solid Waste

Lauderdale County provides countywide solid waste collection services to all businesses and residents located within the county. Collected waste is transferred within the county for hauling to Lawrence County, Alabama, for disposal in a permitted landfill. The life of the Lawrence County landfill is estimated to be roughly 20-30 years. Construction wastes generated within Lauderdale County can be disposed in a permitted construction and demolition landfill operated by and located within the county. In addition, several commercial waste hauling firms offer contractual services to clients within Lauderdale County for the collection and disposal of solid waste. In addition, two community-based recycling centers are located within approximately 20 miles of the proposed resort—one in Florence (in Lauderdale County) and one in Athens (in adjacent Limestone County). These centers provide an alternative to disposal and enable recyclable materials to be diverted away from the waste stream.

Under Alternative A, no additional solid waste would be generated. Under Alternative B or C, additional solid waste would be generated during construction and operation of the resort. Subsequently, waste would be generally during operation of the resort commensurate with the size of the facilities. The resort would have readily available and environmentally acceptable solid waste collection services and disposal options. Therefore, as a result of its reliance on available collection and disposal services, the impact of solid waste generation would be insignificant. In addition, presence of area recycling operations would provide the opportunity for the resort to participate in

recycling of some materials. Use of appropriate equipment to receive and collect recyclable waste would facilitate delivery of recyclable materials to an area recycling center for processing and thus further reduce the amounts and impacts of solid waste disposal.

3.14 Environmental Justice

Affected Environment

The proposed resort development is in Lauderdale County, Alabama, Census Tract 118, Block 5057. This block also includes Barnett Road (the portion of County Road 77 south of County Road 70). Hooie Lane (the portion of County Road 77 between Hwy 72 and County Road 70) is also in Census Tract 118. It borders Blocks 5016 and 5018 on the west and Blocks 5047 and 5040 on the east. Barnett Road/Hooie Lane is the most likely local access route to the proposed development, and therefore most likely to be impacted by traffic increases.

Tract 118, Block 5057, had a total population in 2000 of 251 persons, of which 53 (21 percent) are nonwhite and none are Hispanic or Latino. The four blocks along Hooie Lane had a total population of 72 persons in 2000, of which less than six percent were nonwhite and none were Hispanic or Latino. Poverty and income data are not available at the block level. However, Block Group 5, which includes Block 5057 and the blocks along both sides of Hooie Lane, as well as some areas north of Highway 72, had a poverty rate in 1999 of 19.6 percent. This rate is higher than both the county rate of 14.4 percent and the state rate of 16.1 percent.

Environmental Consequences

Potential impacts of the proposed project that might be of special concern from the Environmental Justice viewpoint would be noise, roads and traffic, and recreation. As discussed in this chapter, no significant negative impacts to these or other resource areas are expected if this proposal is approved. In addition, the disadvantaged populations in the area are relatively small and population is sparse in most of the area. Therefore, no significant disproportionate impacts to disadvantaged populations are expected.

3.15 Summary of TVA Commitments and Proposed Mitigation Measures

TVA proposes the following commitments to mitigate adverse effects of this proposal.

- Excavated areas would be sowed with seed prior to completion of construction in order to stabilize banks and prevent erosion into Elk River. During construction activities, every effort will be made to minimize the impact of construction upon the flora and fauna of the site. A best management practices plan will be developed upon grant of the easement and before construction begins for TVA review and approval. Additionally, all required permits and approvals from federal, state, county and local jurisdictions will be obtained prior to construction.

- Recycling and disposal of petroleum and other solid waste would be available at this facility. A natural theme for this proposed resort would involve maintenance of the

infrastructure including keeping the shoreline clean and preventing litter and debris to accumulate.

- The proposed marina will actively partner with TVA as a leader in the Clean Marina Program. Sewage pump out service will be available for customers and required of tenants. The marina store will offer and promote environmentally friendly nontoxic products for cleaning and maintenance. The marina staff will participate in the education of boaters on sewage, fuel and bilge management.

- No future development will occur in the wetlands present on the site.

- To prevent and suppress forest, grass and other fires, the applicant will require campfires to be restricted to designated areas within fire rings.

- Wetlands will be further protected by maintaining an upland buffer. The buffer will be 125-feet wide at a minimum, and extending to 200 feet in other areas (see Figure 3-1). During construction, the wetlands and the buffers will be temporarily marked with standard orange vinyl construction type fencing and silt fencing so that the wetlands are not inadvertently impacted by heavy equipment, etc.

- A 50-foot managed buffer will be maintained along drainages located within the parcel to reduce the potential for loss of streambank vegetation which could result in erosion. TVA's general and standard conditions will apply to culverts for stream crossings.

- Shoreline buffer zones (50 feet as measured landward from the normal summer pool elevation) will be maintained along the reservoir shoreline and development/structures will be limited in these areas.

- Prior to construction, the applicant will develop and submit for TVA's approval, a vegetation management plan for the maintenance of required buffers along wetlands, stream drainage areas, and the shoreline to prevent erosion of soils on the site. Activities allowed in the buffer areas would be limited to stream crossings (culverts), management of exotic and nuisance vegetation, and siting of a portion of the dry storage building and marina facilities. These activities will be specifically identified in the vegetation management plan submitted for TVA's approval.

- Context sensitive design practices for visual management provided by TVA to the applicant will be incorporated in the final design, which will be subject to TVA approval. Commitments include minimizing the height of structures (no more than 40 feet) to prevent protrusion above the tree line, requiring land-based structures or facilities constructed within 250 feet of the shoreline and all water-use facilities to be analogous in color to the surrounding environment, and requiring lighting styles with full cut-off optics in order to minimize light trespass and glare.

- Suitable roost trees (live trees and snags with greater than 10 percent exfoliating bark and hollow trees) may only be harvested between October 15 through March 15 provided a survey of the site by a bat biologist shows no Indiana bats to be located on the property.

- To widen the culvert crossing on CR 77 (Barnett Lane), the applicant will pave the two grassed shoulders (3.5 and 2.5 feet) to widen the road to 20 feet (2-10 foot lanes).

- The requirements of the Clean Marina guidelines as well as the requirements of the American with Disabilities Act guidelines will be followed for all facilities in the project area.

Chapter 4 LIST OF AGENCIES AND PERSONS CONSULTED

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Mr. Rob Hurt
U.S. Fish and Wildlife Service
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STATE AGENCIES

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ELECTED OFFICIALS

U.S. Congressman Bud Cramer, Huntsville, AL
U.S. Senator Jeff Sessions, Huntsville, AL
U.S. Senator Richard Shelby, Huntsville, AL

State of Alabama Senator Tom Butler, Madison, AL
State of Alabama Representative Tommy Carter, Elkmont, AL
State of Alabama Senator Bobby E. Denton, Montgomery, AL
State of Alabama Representative Lynn Greer, Rogersville, AL

Ronnie Brown, Lauderdale County Commissioner, Florence, AL
Mike Curtis, Lauderdale County Commissioner, Florence, AL
Larry Irons, Lauderdale County Commissioner, Florence, AL
D.C. Thornton, Lauderdale County Commissioner, Florence, AL

Dan Williams, Mayor, City of Athens, Athens, AL
Athens City Council, Athens, AL

Don Kyle, Mayor, City of Decatur, Decatur, AL
Decatur City Council, Decatur, AL

Bobby E. Irons, Mayor, City of Florence, Florence, AL
Florence City Council, Florence, AL

Harold D. Chandler, Mayor, City of Rogersville, Rogersville, AL
Rogersville Town Council, Rogersville, AL

FEDERALLY RECOGNIZED TRIBES.

Muscogee (Creek) Nation of Oklahoma
Chickasaw Nation
Cherokee Nation of Oklahoma
Choctaw Nation of Oklahoma
Seminole Nation of Oklahoma
Alabama-Quassarte Tribal Town
Eastern Band of Cherokee Indians
Jena Band of Choctaw Indians
United Keetoowah Band
Kialegee Tribal Town
Poarch Band of Creek Indians
Seminole Indian Tribe
Thlopthlocco Tribal Town

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Frank Armstrong, Florence, AL
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Larry Jones, Athens, AL
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Winston Legge, Athens, AL
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Katie McGee, Killen, AL
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Bruce Moon, Huntsville, AL
James Moon, Lewisburg, TN
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Greg Moore, Rogersville, AL
Billy and Theresa Moore, Rogersville, AL
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Nick Moore, St. Joseph, TN
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Steven G. & Susan T., Moore, Madison, AL
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Clayton Morgan, Huntsville, AL
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Walter Morris, Tanner, AL
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Ray Morrow, Florence, AL
Ray Murphy, Rogersville, AL
Susan L. Murphy, Rogersville, AL
William Murray, Pulaski, TN
Sara Murrey, Pulaski, TN
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E. Patterson, Huntsville, AL
Edgar Patterson, Rogersville, AL
Frank Patterson, Rogersville, AL
John Patterson, Gallatin, TN,
John Patterson, Rogersville, AL
Susan Patterson, Rogersville, AL
Eldridge Pearson, Florence, AL
Arthor John Peck, Florence, AL,
Krista Peden, Anderson, AL
Harry Pennington, Huntsville, AL
Stephen Pennington, Rogersville, AL
Thomas Perdue
Raymond Perry, Rogersville, AL
Mackie Pettus, Rogersville, AL
Susan Phelan, Huntsville, AL
Dean Phillips, Rogersville, AL
Kenny Phillips, Madison, AL
Ken Phillips, Pulaski, TN

Roger Phillips, Elkmont, AL
Vicky Phillips, Rogersville, AL
Charles Pierce, Florence, AL
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Vicki Pitts, Rogersville, AL,
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Jerry Putman, Rogersville, AL
Allan Qualls, Stevenson, AL
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Walter Ramey, Helena, AL
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David Russ, Tanner, AL
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Vernon Ruther, Rogersville, AL
William Rutherford, Pulaski, TN
Robert Sammons, Huntsville, AL
Helen Sanders, Smyrna, TN
Ed Sandlin, Fayetteville, TN
F. Sandrell, Lawrenceburg, TN
Fritz and Jayne Schmidt, Athens, AL
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Kurt C. Schumaker, Athens, AL
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John Scott, Rogersville, AL
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Cathryn C. Snoddy, Rogersville, AL
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Greg Stephens, Hollytree, AL
Jim Stiles, Huntsville, AL
Harold and Penny Stogsdill, Huntsville, AL
Charles Strickland, Athens, AL
R. Stutts, Louisville, KY
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Kenneth Taylor, Lawrenceburg, TN
Loren Tays, Killen, AL
Tamara and Larry Teeples, Athens, AL
Jeffery Thibodeaux, Athens, AL
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William F. Thomas, Athens, AL
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Judy Thompson, Rogersville, AL
Thomas W. Thompson, Rogersville, AL
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Ozell Thrasher, Rogersville, AL
Johnny Tidwell, Rogersville, AL
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Ariana Tipper, Austin, Tx
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Kathy Tucker, Killen, AL
W. Tucker, Rogersville, AL
James T. Turner, Athens, AL
Larry Tyler, Elkmont, AL
Frank Upchurch, Athens, AL
Arthur Urbanski, Huntsville, AL
Ralph Vanderpool
James Varnell, Rogersville, AL
Charles Vaughn, Huntsville, AL
Deborah Vaughn, Athens, AL
Frank Vaughn, Huntsville, AL
Culver Vessell, Florence, AL
Fred Vial, Rogersville, AL
Raymond Vinson, Huntsville, AL
Darrell Voss, Wheeler Dam Market
Donald Voss, Killen, AL
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Robert Butch Walker, Danville, AL
Mildred Wallace, Rogersville, AL
Stacy Wallace, Rogersville, AL
James Warren, Florence, AL
Joseph Warren, Rogersville, AL
Ronald Warren, Culleoka, TN
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Theresa Webb, Huntsville, AL
Chris Weigart, Anderson, AL
Ron Weesner, Huntsville, AL
Keith Welch, Rogersville, AL
John White, Madison, AL
Partick White, Rogersville, AL
Machelle White-Fink, Rogersville, AL
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Samuel Whitehead, Rogersville, AL
Gerald Whitley, Rogersville, AL
Thomas Wicks, Huntsville, AL
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James Wilcox, Huntsville, AL
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James Yates, Rogersville, AL
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CHAPTER 5 SUPPORTING INFORMATION

5.1 List of Preparers

John (Bo) T. Baxter

Position: Senior Aquatic Biologist, TVA Resource Stewardship, Knoxville, Tennessee
Education: M.S. and B.S., Zoology
Experience: 15 years in Protected Aquatic Species Monitoring, Habitat Assessment, and Recovery; 5 years in Environmental Review
Involvement: Aquatic Ecology/Threatened and Endangered Species

Stephanie A. Chance

Position: Biologist, Aquatic Endangered Species, TVA Resource Stewardship, Knoxville, Tennessee
Education: M.S., Environmental Biology; B.S., Fisheries Biology
Experience: 5 years in Aquatic Biology; 2 years in Environmental Reviews
Involvement: Protected Aquatic Animals

Edward E. Clebsch

Position: Contract Biologist, TVA Resource Stewardship, Knoxville, Tennessee
Education: Ph.D., Botany; M.S., Botany; A.B., Botany
Experience: 55 years in Field Botany and Plant Communities of Conservation Concern
Involvement: Endangered Species – Terrestrial Plants; Terrestrial Ecology

Patricia R. Cox

Position: Botanist, TVA Resource Stewardship, Knoxville, Tennessee
Education: B.S. and M.S., Biology; Ph.D. Botany (Plant Taxonomy and Anatomy)
Experience: 27 years in Plant Taxonomy at the Academic Level; 1 year with TVA Heritage Project
Involvement: Sensitive Plants

V. James Dotson

Position: Civil Engineer, TVA Fossil Power Group, Chattanooga, Tennessee
Education: M.S. and B.S., Civil Engineering
Experience: 1 year in Site Engineering with TVA; 1 year in Field Engineering/Inspection with TDOT
Involvement: Transportation

Harold M. Draper

Position: Senior NEPA Specialist/NEPA Team Leader, TVA Environmental Stewardship and Policy, Knoxville, Tennessee
Education: D.Sc., Engineering and Policy; M.S., Engineering and Policy; B.S., Botany; B.S., Conservation
Experience: 15 years in Environmental Impact Assessment; 7 years in Renewable Energy
Involvement: NEPA Compliance

James H. Eblen

Position:	Contract Economist, TVA Environmental Policy and Planning, Knoxville, Tennessee
Education:	Ph.D., Economics; B.S., Business Administration
Experience:	38 years in Economic Analysis and Research
Involvement:	Socioeconomics and Environmental Justice

Jerry Fouse

Position:	Recreation Manager, TVA Resource Stewardship, Knoxville, Tennessee
Education:	M.B.A.; B.S., Forestry and Wildlife
Experience:	30 years in Natural Resource - Recreation Planning and Economic Development
Involvement:	Recreation

Travis Hill Henry

Position:	Senior Terrestrial Zoologist, TVA Resource Stewardship, Knoxville, Tennessee
Education:	M.S., Zoology; B.S., Wildlife Biology
Experience:	16 years in Zoology, Endangered Species, and NEPA Compliance
Involvement:	Wildlife

John M. Higgins

Position:	Water Quality Specialist, TVA River Operations, Chattanooga, Tennessee
Education:	Ph.D., Environmental Engineering; B.S. and M.S., Civil Engineering; Registered Professional Engineer
Experience:	30 years in Environmental Engineering and Water Resources Management
Involvement:	Surface Water and Wastewater

M. Carolyn Koroa

Position:	Senior Geographic Analyst, TVA River Operations, Knoxville, Tennessee
Education:	M.S. and B.A., Geography
Experience:	15 years in Geographic Analysis; 7 years with TVA Navigation Program
Involvement:	Navigation Planning

Roger A. Milstead

Position:	Manager, TVA Flood Risk and Data Management, Knoxville, Tennessee
Education:	B.S., Civil Engineering; Registered Professional Engineer
Experience:	29 years in Floodplain and Environmental Evaluations
Involvement:	Floodplains

Jason M. Mitchell

Position:	Natural Areas Biologist, TVA Resource Stewardship, Knoxville, Tennessee

Education: M.P.A. (Environmental Policy); B.S., Wildlife and Fisheries Science
Experience: 11 years in Natural Resource Planning and Ecological Assessment with Emphasis on Sensitive Resources for Nongovernmental, State, and Federal Organizations
Involvement: Natural Areas

Philip J. Mummert
Position: Regional Planning Specialist, TVA Research & Technology Applications, Knoxville, Tennessee
Education: Ph.D. and M.S., Urban and Regional Planning
Experience: 35 years Environmental Planning and Economic Development
Involvement: Solid Waste

H. Lynn Petty
Position: Civil Engineer (Principal), TVA Fossil Power Group, Chattanooga, Tennessee
Education: M.S. and B.S., Civil Engineering; Professional Engineer
Experience: 27 years in Civil/Site, Highway, and Railroad Engineering
Involvement: Transportation

Richard L. Pflueger
Position: Recreation Specialist, TVA Resource Stewardship, Muscle Shoals, Alabama
Education: M.B.A.; B.S., Accounting
Experience: 28 years in Recreation Resources and Economic Development
Involvement: Recreation

Kim Pilarski
Position: Senior Wetlands Biologist, TVA Resource Stewardship, Knoxville, Tennessee
Education: M.S., Geography
Experience: 11 years in Watershed Assessment and Wetland Regulation and Assessment
Involvement: Wetlands

Erin E. Pritchard
Position: Archaeologist, TVA Resource Stewardship, Knoxville, Tennessee
Education: M.A. and B.A., Anthropology
Experience: 7 years in Archaeology and Cultural Resource Management
Involvement: Cultural Resources

Jon C. Riley
Position: Landscape Architect, TVA Resource Stewardship, Muscle Shoals, Alabama
Education: Bachelor of Landscape Architecture, Associate Member American Society of Landscape Architects
Experience: 7 years in Site Planning, Design, and Visual Resource Management
Involvement: Land Use and Visual Resources

Helen G. Rucker

Position:	Senior NEPA Specialist, TVA Environmental Stewardship and Policy, Knoxville, Tennessee
Education:	B.S., Earth Sciences
Experience:	6 years in Environmental Engineering Services and 8 years in Environmental Impact Assessment
Involvement:	NEPA Compliance and Document Preparation

Jan K. Thomas

Position:	Contract Natural Areas Specialist, TVA Resource Stewardship, Knoxville, Tennessee
Education:	M.S., Human Ecology
Experience:	10 years in Health and Safety Research, Environmental Restoration, Technical Writing; 2 years in Natural Area Reviews
Involvement:	Managed Areas and Sensitive Ecological Sites

Charles R. Tichy

Position:	Historic Architect, TVA Resource Stewardship, Knoxville, Tennessee
Education:	B.S., Architecture; M.A., Historic Preservation
Experience:	36 years in Historic Preservation; 25 years with TVA Cultural Resources
Involvement:	Historic Structures

Allan J. Trently

Position:	Contract Terrestrial Zoologist, TVA Resource Stewardship, Knoxville, Tennessee
Education:	M.S., Biology; B.S., Environmental Resource Management
Experience:	12 years in Field Biology
Involvement:	Threatened and Endangered Species; Wildlife

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