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DRAFT ENVIRONMENTAL ASSESSMENT

ERWIN MARINE
PROPOSED COMMERCIAL RECREATION EASEMENT AND WATER USE FACILITIES

Guntersville Reservoir
Marshall County, Alabama

PREPARED BY:
TENNESSEE VALLEY AUTHORITY

COOPERATING AGENCY:
U.S. ARMY CORPS OF ENGINEERS

APRIL 2008

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ACRONYMS, ABBREVIATIONS, AND SYMBOLS

ADCNR	Alabama Department of Conservation and Natural Resources
ADEM	Alabama Department of Environmental Management
APE	Area of Potential Effect
BMPs	Best Management Practices
CFR	Code of Federal Regulations
CWA	Clean Water Act
Erwin Marine	Erwin Marine Sales Inc.
HCM(s)	Honeycomb Creek Mile(s)
HTHHA	Harbor Town Homes Homeowners' Association
kV	Kilovolt (1 kV equals 1,000 volts)
msl	Mean Sea Level
NEPA	National Environmental Policy Act
PCB	Polychlorinated biphenyl
Plan	*Guntersville Reservoir Land Management Plan*
RCRA	Resource Conservation and Recovery Act
RFAI	Reservoir Fish Assemblage Index
SFI	Sport Fishing Index
SIR	Statistical Inventory Reconciliation
TRM	Tennessee River Mile
TVA	Tennessee Valley Authority
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UST	Underground Storage Tank
VMP	Vegetation Management Plan

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CHAPTER 1

1.0 PURPOSE OF AND NEED FOR ACTION

Erwin Marine Sales Inc. (Erwin Marine) proposes to further develop approximately 7.5 acres of Tennessee Valley Authority (TVA) property and an adjoining 4 acres of private property on Guntersville Reservoir in Marshall County, Alabama, for commercial recreation purposes. The property lies along the right-descending bank of Honeycomb Creek Mile (HCM) 2.3, a tributary to Tennessee River Mile (TRM) 352. In March 2007, Erwin Marine requested that TVA and the U.S. Army Corps of Engineers (USACE) approve a marina and extension of existing harbor limits. In June 2007, Erwin Marine requested that TVA grant a 30-year commercial recreation easement on a 7.5-acre portion of TVA property to allow the further development of the marina, including roads and parking associated with the proposal, a pedestrian use plan, and extensive landscaping with native plants (Appendix A). A joint public notice, PN07-87, was published on October 9, 2007.

1.1. The Decision

TVA is considering a request for a 30-year commercial recreation easement on a 7.5-acre portion of TVA property on Honeycomb Creek in Marshall County, Alabama (Figures 1-1 and 1-2). Roads and parking associated with the proposal, extensive landscaping with native plants, and a pedestrian use plan would be implemented within the easement area. In addition, TVA is considering a request by Erwin Marine for approval under Section 26a of the TVA Act consisting of a marina accommodating 169 vessels, extension of existing harbor limits, one private launching ramp, two transient piers, one courtesy pier, and one pedestrian bridge. The marina would also include a ship store and fueling facility. In January 2008, Erwin Marine amended the request to include excavation of approximately 15,000 cubic yards of substrate from below elevation 595-foot mean sea level (msl). Normal summer pool on Guntersville Reservoir is elevation 595-foot msl. The development would include amenities on the private property such as a boat sales showroom, office space, and a remodeled and expanded dry boat storage building.

Section 10 of the Rivers and Harbors Act 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. Honeycomb Creek is navigable waters of the United States as defined by 33 Code of Federal Regulations (CFR) Part 329. Section 404 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. Honeycomb Creek is waters of the United States as defined by 33 CFR Part 328. Therefore, since the proposal involves structures and excavation within a navigable waterway, Section 10 and Section 404 permits would be required. Since Department of the Army permits would be required, USACE must decide whether to (1) issue the permits as proposed, (2) issue the permits with modifications and/or conditions, or (3) deny the permits. USACE is a cooperating agency in the preparation of this environmental assessment (EA).

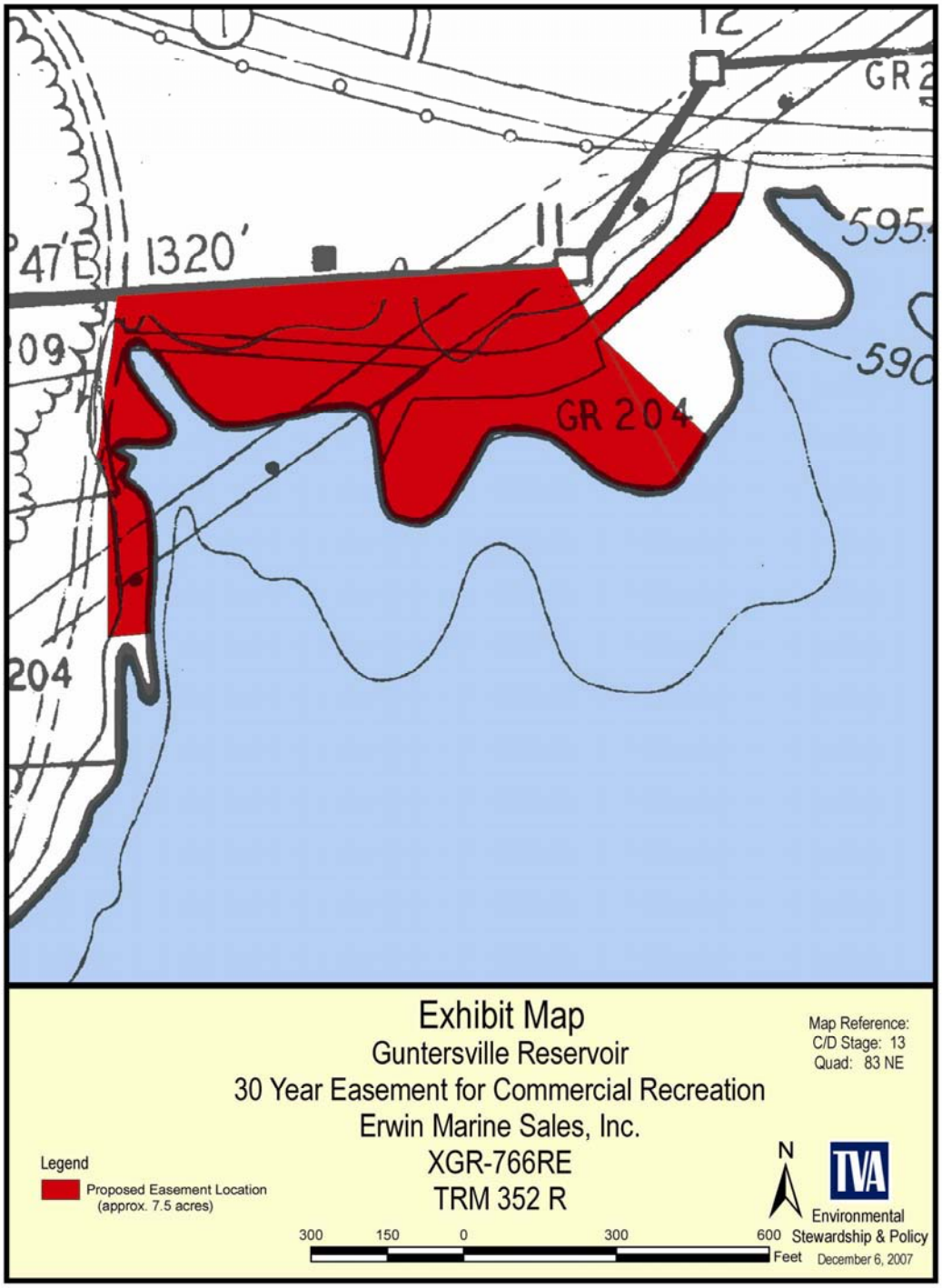

Figure 1-1. Proposed Easement Exhibit Map

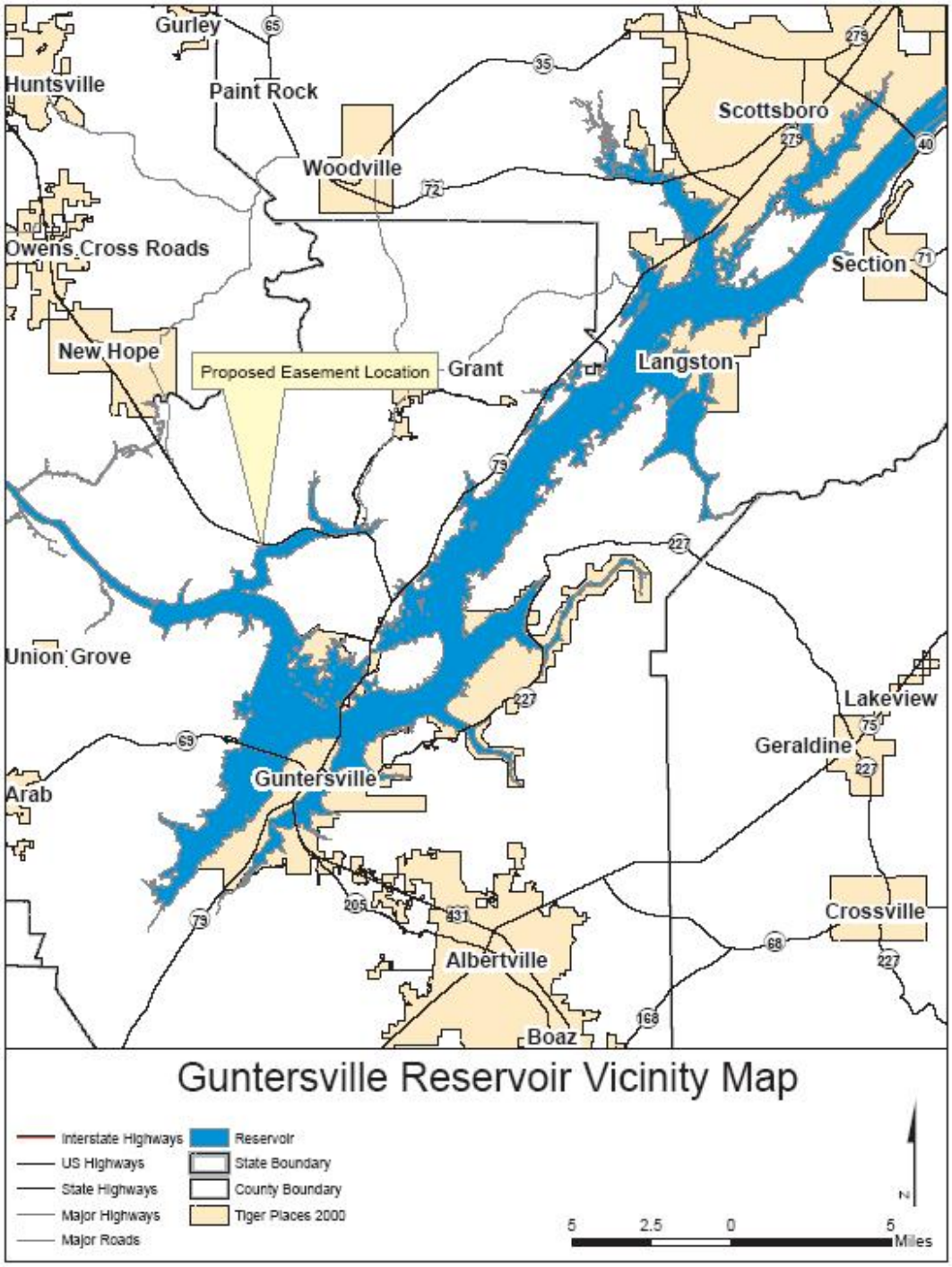

Figure 1-2. Project Vicinity Map

1.2. Other Pertinent Environmental Reviews or Documentation

TVA's 2001 *Guntersville Reservoir Land Management Plan* (Plan) designated a 47-acre tract of land (TVA Tract XGR-6PT2) for developed recreation purposes (Figure 1-3). The Plan noted the current uses within this tract as a TVA public boat ramp, Sunrise Marina, and Honeycomb Campground. TVA previously granted a 19-year lease over 7.5 acres of TVA Tract XGR-6PT2 to Sunrise Marina for commercial recreation purposes. In December 2006, Erwin Marine purchased the lease from Sunrise Marina, along with the adjoining private property, and requested a land use license from TVA. In July 2007, TVA granted a two-year term license agreement to Erwin Marine for the continued operation of a commercial marina. Erwin Marine now requests that TVA grant a 30-year term easement for commercial recreation purposes.

TVA previously leased approximately 32 acres of TVA Tract XGR-6PT2 to Honeycomb Campground for commercial recreation purposes. The remaining 7.5 acres of this tract remain under the management of TVA for public recreation purposes. Currently, an existing public launching ramp is located within the proposed easement area. A new public launching ramp design and location were approved when TVA granted the lease agreement to Sunrise Marina. The new launching ramp would have been located within the 7.5 acres under the ownership and management of TVA. However, Sunrise Marina allowed the general public continued use of the existing launching ramp, and the new launching ramp was never constructed. In February 2007, the USACE issued a regional permit for the new public launching ramp because the previous approval had expired (Appendix B).

1.3. Public Involvement

The October 9, 2007, joint public notice (PN07-87) issued by TVA and USACE announced a public comment period through November 9, 2007. During the public comment period, Alabama Department of Conservation and Natural Resources (ADCNR) submitted comments stating the Marine Police Division should be contacted concerning navigational safety aspects associated with the proposal. ADCNR also commented that the Natural Heritage Section of the State Lands Division and U.S. Fish and Wildlife Service should be contacted concerning state- and federally listed species near the proposal. A copy of the Draft EA document will be sent to the agencies specifically identified during the public scoping comment period along with other agencies listed in Chapter 5. In addition, a copy of the draft EA will be made available on TVA's website, http://www.tva.gov/environment/reports/index.htm, for public review and comment.

The Harbor Town Homes are located north of TVA Tract XGR-6PT2 and east of the Erwin Marine private property. The Harbor Town Homes Homeowners' Association (HTHHA) by letter dated October 14, 2007, requested a public hearing be held to discuss the potential environmental and aesthetic impacts of the proposal. On November 7, 2007, HTHHA submitted a list of questions concerning the proposal. Erwin Marine met with HTHHA and submitted a response to their questions on November 14, 2007. All public scoping comments are located in Appendix C.

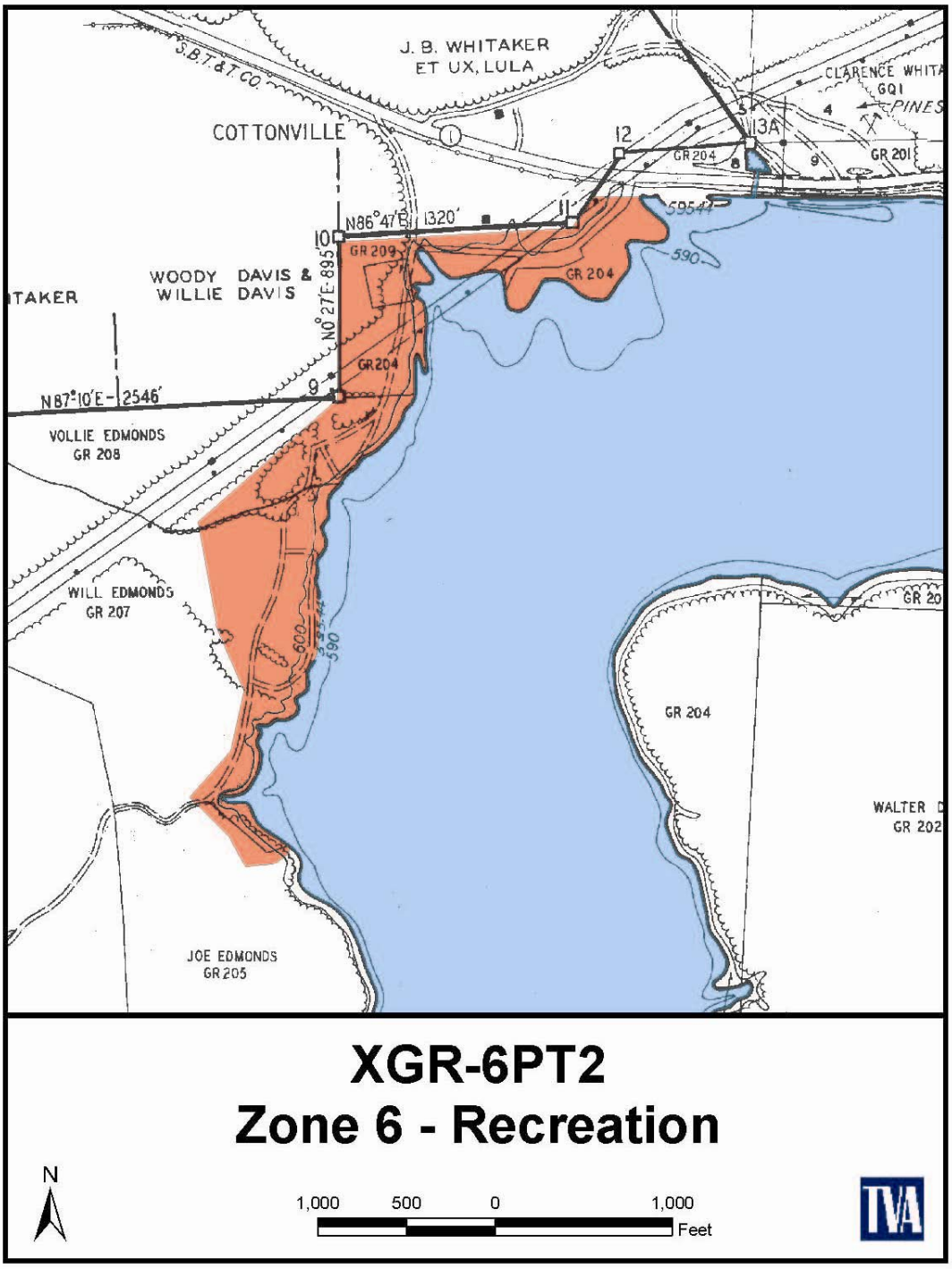

Figure 1-3. Map of TVA Tract XGR-6PT2

1.4. Necessary Federal Permits or Licenses

Approval under Section 26a of the TVA Act of 1933, as amended, is required for the construction of any obstructions in and along the Tennessee River or its tributaries. Erwin Marine has submitted a Section 26a application (Appendix A) for the proposed development. Erwin Marine has also requested from TVA the necessary land use authorization in the form of a 30-year term commercial recreation easement for approximately 7.5 acres of TVA property. Erwin Marine proposes to construct roads and parking, extensively landscape with native plants, and incorporate a pedestrian use plan within the easement area.

As indicated in Section 1.3 above, construction and operation of the marina and excavation below elevation 595-foot msl require approval by USACE under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the CWA. The evaluation of the impact of the activity on the public interest will include application of guidelines promulgated by the U.S. Environmental Protection Agency (USEPA) under Section 404(b)(1) of the CWA. Before a Section 404 permit can be issued, certification must be provided by the Alabama Department of Environmental Management (ADEM), pursuant to Section 401(a)(1) of the CWA, that applicable water quality standards will not be violated. Storm water, potable water system, and sewer system development authorizations from ADEM may be required for some development activities.

CHAPTER 2

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

TVA and USACE have considered the direct, indirect, and cumulative effects that would be caused by the federal actions related to the Erwin Marine application. Construction of the boat sales showroom, office space, and expanded dry storage building are dependent upon the easement and marina approvals. Therefore, the area assessed in this EA includes the proposed marina, commercial recreation easement area, and associated developments located on private property. Other than assessing the indirect effects on resources caused by their approvals, the federal permitting agencies have neither control nor responsibility for actions taken by Erwin Marine on its private land. In the applications to TVA and USACE, Erwin Marine has indicated that no federal financial assistance would be used in this project. Erwin Marine proposes to fund the total project costs, estimated to be about $4 million.

2.1. Alternatives

2.1.1. No Action Alternative

Under the No Action Alternative, TVA would not grant the term commercial recreation easement, and TVA and USACE would not issue the requested Section 26a, Section 10, and Section 404 permits. TVA Tract XGR-6PT2 would remain allocated for developed recreation purposes. The two-year term license agreement with Erwin Marine for the continued operation of the commercial marina would expire in July 2009, and management of the property would revert to TVA. TVA would continue to consider other applications for compatible recreational development on the property.

2.1.2. Action Alternative - Applicant's Proposal

Under the Action Alternative, TVA and USACE would grant Erwin Marine the necessary easement and permits to construct the proposed marina and associated facilities. The proposed marina, described in detail in Appendix A, would contain seven sets of boat slips accommodating 169 vessels. Dock 1 would be 58 feet wide and extend 497 feet from the shoreline. It would accommodate 19 vessels, a ship store, and fuel facility. Dock 2 would be 88 feet wide, would extend 344 feet from the shoreline, and would accommodate 32 vessels. Dock 3 would be 108 feet wide, would extend 385 feet from the shoreline, and would accommodate 34 vessels. Dock 4 would be 128 feet wide, would extend 373 feet from the shoreline, and would accommodate 30 vessels. Dock 5 would be 148 feet wide, would extend 473 feet from the shoreline, and would accommodate 34 vessels. Dock 6 would be 68 feet wide, would extend 128 feet from the shoreline, and would accommodate 10 vessels. Dock 7 would be 68 feet wide, would extend 128 feet from the shoreline, and would accommodate 10 vessels. Docks 6 and 7 would be dedicated for transient use only. Excavation below normal summer pool would occur in three places, and 15,000 cubic yards of material would be removed. The spoil material would be placed on Erwin Marine's adjacent private property. The existing harbor limits would be expanded to encompass the marina. The proposed harbor limits would be 1,275 feet wide and no greater than 500 feet from the shoreline (Figure 2-1).

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

Roads and parking associated with the proposal, extensive landscaping with native plants, and a pedestrian use plan would occur on the proposed easement area. An existing road from U.S. Highway 431 would be used to access the development. Existing parking areas would be expanded to accommodate vehicles accessing the marina. The pedestrian use plan would include walking trails and a picnic area available to the general public. A pedestrian bridge would facilitate access from the marina to the neighboring Honeycomb Creek Campground. The remaining open areas would be landscaped using native plants. Erwin Marine would describe the landscaping in a Vegetation Management Plan (VMP) and submit the VMP to TVA for approval prior to beginning construction.

A boat sales showroom, office space, and a remodeled and expanded dry storage building for vessels would be located on the adjacent private property. The boat sales showroom and office space would be combined into one 14,000-square-foot building. Additional parking for employees and customers would be located adjacent to the building. Currently, the existing dry storage building can hold 200 vessels. After renovation and expansion, the dry storage building would hold 300 vessels.

Existing launching ramps are located within the proposed easement area and are currently being utilized by the general public. However, Erwin Marine proposes to remodel one the existing launching ramp to service vessels located in the dry storage building. The remaining launching ramp would be used by the marina patrons. A new launching ramp, courtesy pier, and associated parking would be constructed to benefit the general public. The public launching ramp design and location were previously approved when TVA granted a lease agreement to Sunrise Marina (Appendix B). Sunrise Marina continued to allow the general public use of the existing launching ramp, and the new ramp was never constructed. The public launching ramp would be relocated adjacent to the proposed easement area on property owned and managed TVA. The public launching ramp would be 36 feet wide and allow two boats to be launched at one time. A courtesy pier would separate the two launching lanes. In addition, a parking area containing 40 spaces would be constructed.

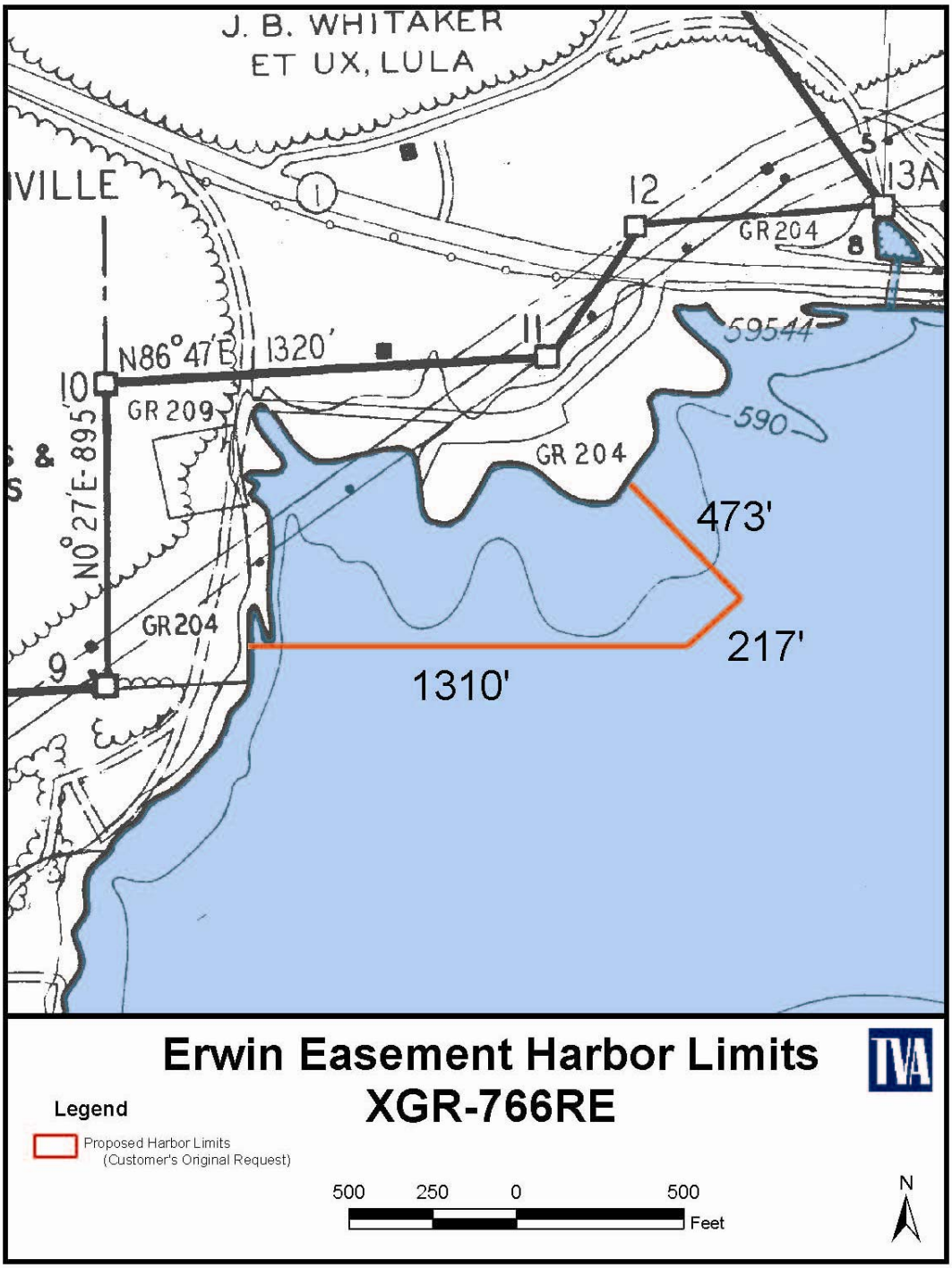

Figure 2-1. Proposed Harbor Limits Map

2.2. Comparison of Alternatives

Under the No Action Alternative, TVA and USACE would not grant the necessary easement and permits for the proposed marina and associated facilities. The two-year term license agreement with Erwin Marine for the continued operation of the commercial marina would expire in July 2009, and management of the property would then revert to TVA. TVA would consider other applications compatible with recreational development on this portion of TVA Tract XGR-6PT2.

Under the Action Alternative, TVA and USACE would grant the easement and permits for the proposed marina to Erwin Marine. Both alternatives are consistent with the Plan allocation of developed recreation for this portion of TVA Tract XGR-6PT2.

Under either alternative, there would be no impacts to uncommon terrestrial plant communities, wetlands, land use, or prime farmland. There are no known populations or habitats to support populations of federally or state-listed as endangered or threatened plant or animal species within the project area. Under the Action Alternative, direct, indirect, and cumulative impacts to terrestrial animals, terrestrial ecology of the region, aquatic ecology, water quality, navigation, recreation, floodplains, visual, and cultural resources would be insignificant with the inclusion of the mitigation measures and conditions outlined in Section 3.13.

2.3. The Preferred Alternative

TVA's preferred alternative is the applicant's proposal with the mitigation measures outlined in Section 3.12. USACE has no preferred alternative as regulations prevent them from being for or against an applicant's proposal during permit or approval evaluations.

CHAPTER 3

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Guntersville Dam is located at TRM 349.0; the Guntersville Reservoir extends 76 miles upstream to Nickajack Dam, located at TRM 424.7. Honeycomb Creek joins the Tennessee River at TRM 352. Guntersville Reservoir drains an area of about 24,450 square miles, with the Honeycomb Creek watershed making up 45.9 square miles of the total drainage area. At full pool, Guntersville Reservoir has a surface area of 67,900 acres and approximately 890 miles of shoreline.

TVA owns approximately 40,236 acres of property along Guntersville Reservoir and 1,233 acres along Honeycomb Creek. The Erwin Marine proposal would affect less than 1 percent of all TVA-owned property along Guntersville Reservoir and Honeycomb Creek. The Erwin Marine proposal is located on a portion of TVA Tract XGR-6PT2. This tract is located upstream from the main channel of Guntersville Reservoir between HCMs 1 and 2 on the right-descending bank in Marshall County, Alabama (Figure 1-2). TVA's 2001 *Guntersville Reservoir Land Management Plan* (Plan) described Tract XGR-6PT2 as "developed recreation – used for a TVA public boat ramp, Sunrise Marine Marina and Honeycomb Campground." The Erwin Marine proposal encompasses approximately 2,200 feet of previously stabilized shoreline.

For the purposes of cumulative effects analysis, the proposal area is between HCMs 0 and 3.0 (U.S. Highway 431 causeway). Currently, there are no other major development projects being proposed within the proposal area. However, TVA has reviewed preliminary plans from Snug Harbor Marina, located at HCM 3.1 along the left-descending bank. A formal request from Snug Harbor Marina is not anticipated at this time. TVA is reviewing a request for a community water use facility located at Jagger Branch mile, a tributary to Honeycomb Creek. The community water use facility located in Jagger Branch was not included within the proposal area because of the distance between the proposal and the height of the U.S. Highway 431 causeway. Some vessels that would visit Erwin Marine would be too large to navigate under the U.S. Highway 431 causeway.

3.1. Terrestrial Ecology

3.1.1. Vegetation

Affected Environment

Erwin Marine is located in the Plateau Escarpment, a subdivision of the Southwestern Appalachian ecoregion, which occurs between the Ridge and Valley to the east and the Interior's Eastern Highland Rim to the west (Griffith et al. 2001). The Plateau Escarpment is characterized by steep, forested slopes and high-velocity, high-gradient streams that have cut down into limestone. The upper slopes are composed of mixed hardwood forest dominated by oak species. More mesic forest containing American beech, basswood, sugar maple, and tulip poplar can be found on the middle and lower slopes with river birch occurring along floodplain terraces (Griffith et al. 2001).

The area within and around the proposal area (7.5 acres of TVA land and 4 acres of adjoining private property) has been highly managed, and little to no natural vegetation remains. The area is almost 100 percent herbaceous vegetation with a few scattered loblolly pines and deciduous trees. The grass/forbs habitat is primarily as mowed lawn. Common weedy species present are Bermuda grass, foxtail grass, Johnson grass, tall fescue, and various other grasses and weedy broadleaved species. Loblolly pine appears to have been planted along with bald cypress, flowering dogwood, and eastern redbud. There are no uncommon terrestrial plant communities, designated critical plant habitat, or otherwise noteworthy botanical areas occurring on or adjacent to the Erwin Marine development.

Common invasive plant species occurring in the project area area include Chinese privet, Japanese honeysuckle, Japanese stilt grass, mimosa, multiflora rose, and sericea lespedeza. All of these species have the potential to adversely impact the native plant communities because of their potential to spread rapidly and displace native vegetation. Essentially the entire proposal is on land in which the native vegetation has been extensively altered as a result of previous land use history. All of these invasive species are Rank 1 (severe threat) and are of high priority to TVA (James 2002).

Environmental Consequences
Under the No Action Alternative, there would be no impacts to the terrestrial ecology of the region. The herbaceous and sparse woody vegetation growing within the TVA easement adjacent to Guntersville Reservoir would continue to grow and occasionally be affected by stream bank erosion and mowing.

Under the Action Alternative, a term recreation easement and Section 26a approvals would be granted. The spoil material from the excavation below normal summer pool would be located on the applicant's adjacent private property. Since there are no rare terrestrial plant communities present on or adjacent to the project area, and the communities present are common and representative of the region, the proposed Action Alternative would not adversely impact the terrestrial ecology of the region; therefore, the action is expected to be insignificant.

3.1.2. Wildlife

Affected Environment
Habitats within the proposal area have been greatly modified. Much of the site is comprised of buildings, a large parking lot, and a boat dock and ramp. The proposal area is adjacent to a large campground with numerous campsites and docks. The proposal site is also crossed by a TVA transmission line corridor, and several associated structures exist on the property. Much of the remaining habitat consists of loblolly pines, eastern red cedar, various hardwoods, and open grassy areas. The property provides habitat of minimal value to wildlife.

Wildlife observed at the property includes those species typically found along riparian corridors. Belted kingfisher, great blue heron, green heron, and red-winged blackbirds are observed along the shoreline. Numerous rafts of American coot, gadwall, and mallard can be found in the vicinity during winter months. Common loon, ring-necked duck, and ring-billed gulls are also observed in the mouth of Honeycomb Creek. Osprey and bald eagles are also observed in the vicinity.

The marginal strip of trees along portions of the shoreline is used by a variety of birds including eastern kingbird, yellow-rumped warbler, tufted titmouse, and Carolina chickadee. American robin, killdeer, and various species of sparrows are often observed in grassy areas on the proposal site. Common mammals within the proposal site include muskrat, eastern cottontail rabbit, red bat, and gray squirrel. Common reptiles and amphibians include false map turtle, mud turtle, common snapping turtle, and bullfrog.

Environmental Consequences
Under the No Action Alternative, the proposal area would remain in its current condition, dominated by the existing boat ramp and nearby commercial and residential activities. Since the proposal site currently does not provide quality habitat for wildlife, the No Action Alternative would not result in impacts to terrestrial animal resources.

Under the Action Alternative, adverse impacts to terrestrial animal resources are not expected. Much of the site has been impacted by the operation of the existing boat ramp and nearby commercial marina, and little quality wildlife habitat exists on the site. Species observed on the property are those typically found in commercially modified habitats.

The proposal would result in increased boat traffic in Honeycomb Creek embayment. Wildlife typically found in this area are somewhat acclimated to boating traffic, which can be heavy in summer months. Sections of this embayment are used by waterfowl and other species of wildlife, especially in winter months when boating traffic is greatly reduced. The use of this embayment by wildlife in winter months is not expected to change. The proposal is not expected to result in adverse direct, indirect, or cumulative impacts to terrestrial animal resources.

3.2. Wetlands

Affected Environment
Emergent and scrub-shrub wetlands are common habitats on Guntersville Reservoir. There are no wetlands present within the project area.

Environmental Consequences
There would be no impacts to wetlands under the No Action or Action Alternative. No wetlands are present on the TVA property affected by the proposal.

3.3. Aquatic Ecology

Affected Environment
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.” Reservoir and stream monitoring programs were combined with TVA’s fish tissue and bacteriological studies to form an integrated Vital Signs Monitoring Program. Vital signs monitoring activities focus on benthic macroinvertebrate community sampling, fish assemblage sampling, and physical and chemical characteristics of waters and sediments (which are discussed in Section 3.4, Water Quality).

Benthic macroinvertebrates are included in aquatic monitoring programs because of their importance to the aquatic food chain. Benthic macroinvertebrates have limited capability of

movement, thereby preventing them from avoiding undesirable conditions. Sampling and data analysis are based on parameters that indicate species diversity; abundance of selected species that are indicative of water quality; total abundance of all species except those indicative of poor water quality; and proportion of samples with no organisms present. Areas sampled on Guntersville Reservoir have included the forebay at TRM 350 and a midreservoir station in the vicinity of TRM 375.2. The conditions present at the forebay would be similar to the conditions present within Honeycomb Creek Embayment. The benthic community scores at the forebay stations rated "excellent" for three of the five years shown in Table 3-1 and "good" to "fair" for the remaining two years. All the scores for the midreservoir station rated "good" to "excellent" during the same five years.

Table 3-1. Recent (1996-2004) Benthic Community Scores Collected as Part of the Guntersville Reservoir Vital Signs Monitoring Program Near the Proposal Area

Station	Tennessee River Mile	1996	1998	2000	2002	2004
		Score*				
Forebay	350	35	35	23	25	35
Midreservoir	375.2	33	33	31	33	29

*Benthic Community Score/Community Condition: 7-12/Very Poor, 13-18/Poor, 19-23/Fair, 24-29/Good, 30-35/Excellent

The Vital Signs Monitoring Program has included annual fish sampling on Guntersville Reservoir from 2000 until 2006. Fish are included in aquatic monitoring programs because of their importance to the aquatic food chain and to the public for aesthetic, recreational, and commercial reasons. In addition, fish have a long life cycle, which allows them to reflect water quality conditions over an extended period of time. Fish ratings are based primarily on the community structure and function using the Reservoir Fish Assemblage Index (RFAI). However, RFAI also considers the overall number of fish collected, the percentage of the sample represented by omnivore and insectivores, and presence of diseases, lesions, parasites, deformities, etc. (TVA 1999). The fish community in Guntersville Reservoir has consistently rated from "fair" to "good" at the forebay and midreservoir areas since 2000 (Table 3-2).

Table 3-2. Recent (2000-2006) Reservoir Fish Assemblage Index Scores Collected as Part of the Guntersville Reservoir Vital Signs Monitoring Program Near the Proposal Area

Station	Tennessee River Mile	2000	2002	2004	2006
		Score*			
Forebay	350	42	36	41	44
Midreservoir	375.2	41	34	33	36

* RFAI Score/Community Condition: 12-21/Very Poor, 22-31/Poor, 32-40/Fair, 41-50/Good, 51-60/Excellent

A Sport Fishing Index (SFI) has been developed to measure sport fishing quality for various species in Tennessee and Cumberland Valley reservoirs. The SFI is based on the results of fish population sampling by TVA and state resource agencies and, when available, results of angler success as measured by state resource agencies (i.e., bass tournament

results and creel surveys). Based on SFI data, Guntersville Reservoir has rated above average for all categories (Table 3-3).

Table 3-3. Sport Fishing Index Scores for Selected Fish Species in Guntersville Reservoir, 2006

Fish Species	Guntersville 2006 Score	Valleywide 2006 Average
Black bass	37	36
Largemouth bass	52	33
Spotted bass	32	31

Environmental Consequences
Under the No Action Alternative, there would be no impacts to the aquatic ecology near the proposal area. The existing aquatic ecology conditions and trends in Guntersville Reservoir are expected to continue.

Under the Action Alternative, short-term turbidity associated with the proposed marina construction and the excavation below normal summer pool would occur and quickly dissipate. Aquatic fish or benthic organisms would not be noticeably affected by this short-term turbidity. Excavation below normal summer pool would remove shallow water habitat for fish and benthic organisms in the proposal area. However, the three areas of shallow water habitat lost to the excavation is insignificant when compared to surrounding shallow water habitats in Guntersville Reservoir. To further reduce the potential impacts to aquatic life, TVA would require the applicant to follow construction-related best management practices (BMPs) and TVA Section 26a General and Standard Conditions. The proposed project is not expected to result in adverse direct, indirect, or cumulative impacts to aquatic animals or resources.

3.4. Threatened and Endangered Species

3.4.1. Plants

Affected Environment
Two Alabama state-listed plants are known to occur within 5 miles of the project area (Table 3-4). The Pink turtlehead has fewer than five populations within the state and is found in the Honeycomb Creek TVA Small Wild Area, which is located within a mile of the proposal area. Habitat for the Pink turtlehead is not present within the project area. Limestone adder's tongue has an uncertain number of populations within the state and is found in the Thompson Hollow TVA Habitat Protection Area, which is located approximately 2 miles from the proposal area. Limestone adder's tongue habitat is not present within the project area.

Two federally listed plant species are known to occur within Marshall County, Alabama (Table 3-4). Green pitcher plant is an endangered carnivorous species with three known populations near the city of Boaz, Alabama, which is approximately 19 miles away from the proposal area. Habitat for green pitcher plant is not present within the project area. Price's potato bean is a threatened species that favors open, rocky, wooded slopes and floodplain edges. There is one known population of this species in Marshall County, Alabama,

approximately 6 miles from the project area. Habitat for Price's potato bean is not present within the proposal area.

Table 3-4. Federally Listed Plant Species Located Within Marshall County, Alabama, and State-Listed Plant Species Located Within 5 Miles of the Proposal Area

Common Name	Scientific Name	Federal Status	State Rank
Green pitcher plant	*Sarracenia oreophila*	END	S2
Limestone adder's tongue	*Ophioglossum englemannii*	-	S2S3
Pink turtlehead	*Chelone lyonii*	-	S1
Price's potato bean	*Apios priceana*	THR	S2

- = Not applicable
Abbreviations: END = Endangered; THR = Threatened
Ranks: S1 = Critically imperiled with less than 5 occurrences; S2 = Imperiled with 6 to 20 occurrences; S3 = Rare or uncommon with 21 to 100 occurrences; S#S# = Occurrence numbers are uncertain

Environmental Consequences
Since no known populations or habitats to support populations of federally or state-listed as endangered or threatened plant species occur within the proposed action area, no project-related impacts to listed plants would result from adoption of either alternative.

3.4.2. Terrestrial Animals

Affected Environment
Three federally listed endangered terrestrial animals are reported from Marshall County, Alabama (see Table 3-5). Only the gray bat is known to occur within 3 miles of the project area. In addition, three state-listed terrestrial animal species have been reported from within 3 miles of the proposal site. Bald eagles, protected by the Bald and Golden Eagle Protection Act, are also known from a site within 3 miles of the project area.

Bald eagles are common on Guntersville Reservoir. Numerous active bald eagle nests occur on the southern half of the reservoir. A nest is located approximately 2.3 miles from the proposal site, across the river from the Honeycomb Creek embayment. The species is regularly observed in the embayment. Nesting habitat is abundant in the vicinity, but no nesting sites have been identified in the Honeycomb Creek embayment. No suitable nesting habitat occurs on the proposal site.

A historical record of **red-cockaded woodpeckers** was reported from Marshall County approximately 8.3 miles from the proposal site. This colony is no longer active, and the species is thought to be extirpated from much of north Alabama. There is no suitable habitat for this species on the proposal site.

Table 3-5. Federally Listed Terrestrial Animal Species Reported From Marshall County, Alabama, and State Protected Terrestrial Animal Species Reported From Within 3 Miles of the Proposal Site

Common Name	Scientific Name	Federal Status	State Status (Rank)
Birds			
Bald eagle	*Haliaeetus leucocephalus*	BGEPA	PROT (S3)
Peregrine falcon	*Falco peregrinus*	-	PROT (SH)
Red-cockaded woodpecker	*Picoides borealis*	END	PROT (S2)
Mammals			
Gray bat	*Myotis grisescens*	END	PROT (S2)
Indiana bat	*Myotis sodalis*	END	PROT (S2)
Amphibians			
Green salamander	*Aneides aeneus*	-	PROT (S3)
Tennessee cave salamander	*Gyrinophilus palleucus*	-	PROT (S2)

- = Not applicable
Abbreviations: BGEPA = Protected by the Bald and Golden Eagle Protection Act; END = Endangered; PROT = Protected
Ranks: S2 = Imperiled; S3 = Rare or uncommon; SH = Historic records only

Gray bats roost in caves year-round and typically forage over streams, rivers, and reservoirs. They are reported from four localities within a 3-mile radius of the proposal site. The closest location is from Quarry Cave located 0.2 mile north of the proposal. This colony has been examined annually for several years by TVA and ADCNR biologists. TVA has recently closed this cave to protect gray bat populations at this site and to try to encourage the species to establish a colony at this site. So far, the cave is only used on a transitional basis or by small numbers of bats during summer months. Gray bats from a large colony near Guntersville Dam regularly forage throughout the Honeycomb Creek embayment. The species has been observed foraging over shallow water areas along the docks at Honeycomb Campground and project area.

Indiana bats roost in caves during the winter and typically roost under the bark of dead or dying trees during the summer (Menzel et al. 2001). Optimal summer roosts occur in forests with an open understory and available roost trees, usually near water (Romme et al. 1995). The species has been reported from a small cave at Guntersville State Park. There are no records of the species from caves within 3 miles of the proposal site. The species was not encountered during mist-net surveys performed on TVA properties at Buck Island, near the U.S. Highway 431 bridge over the Tennessee River, or on nearby Bishop Mountain. There is no suitable habitat for this species on the proposal site.

The **peregrine falcon, green salamander, and Tennessee cave salamander** have been reported from sites within 3 miles of the proposal site. The falcon historically nested on bluffs along the river corridor in the early 1900s. The species is not known to nest in north Alabama. Green salamanders are known from forested bluff habitats along nearby mountains. Tennessee cave salamanders are known from cave habitats. No suitable habitat for these species occurs on the proposal site.

Environmental Consequences
Under the No Action Alternative, the proposed marina expansion and associated structures would not be built. The existing boat ramp and commercial marina would continue to operate at current levels. The current operations are not resulting in impacts to listed species.

Under the Action Alternative, a term recreation easement and Section 26a, Section 404, and Section 10 permits would be granted.

Bald eagles nest in several locations in forested habitats along the Tennessee River between the city of Guntersville and Guntersville Dam. The proposed development is not expected to result in impacts to this species, as no nesting sites occur in the vicinity. Increased boating activity is not expected to interfere with foraging activities of bald eagles because most eagles on Guntersville Reservoir feed in shallow water habitats along the Tennessee River. Most of these habitats are extremely shallow and are protected by extensive aquatic weed beds. Eagles observed along the Tennessee River corridor appear to be acclimated to boats.

Gray bats roost in a nearby cave, and individuals from a larger colony also forage throughout the embayment. The species has been observed foraging among the boat docks at nearby Honeycomb Campground. They forage upon insects that are attracted to lights on the docks. The adoption of the Action Alternative would not result in impacts to gray bats that forage in the vicinity. The species would continue to forage in the immediate vicinity. The increased boating activity would not result in impacts to their roosting habitat, and no suitable roosting habitat for this species occurs on the proposal site.

The adoption of the Action Alternative would result in modifying an existing boat launching facility located near other commercial operations. While some listed species occur in the vicinity and, in the case of the gray bat, forage adjacent to the proposal site, the proposed activities would not result in impacts to these species. No suitable habitat for listed terrestrial species would be affected by the proposal.

No suitable habitat for Tennessee cave and green salamander exists on the property. There is no suitable habitat for peregrine falcon, red-cockaded woodpecker, or Indiana bat. These species would not be impacted by the adoption of the Action Alternative.

Adoption of the Action Alternative would not result in direct, indirect, or cumulative impacts to listed terrestrial animal species or their habitats.

3.4.3. Aquatic Species

Affected Environment
Fifteen state-listed aquatic animal species have been reported to occur within a 10-mile radius of the proposal area and seven federally listed aquatic animal species have been reported to occur within Marshall County, Alabama (Table 3-6).

The troglobitic crayfish is the only listed aquatic species that has been reported to occur upstream of Guntersville Dam. The troglobitic crayfish habitat occurs only in cave environments. Therefore, there is no suitable habitat for this species in or near the proposal area.

Table 3-6. Federally and State-Listed Aquatic Animal Species Known to Occur Within Marshall County, Alabama, and Within a 10-Mile Radius of the Proposal Area

Common Name	Scientific Name	Federal Status	State Status (Rank)
Fish			
Snail darter	*Percina tanasi*	THR	PROT (S1)
Southern cavefish	*Typhlichthys subterraneus*	-	PROT (S3)
Mussels			
Black sandshell*	*Ligumia recta*	-	NOST (S2)
Deertoe	*Truncilla truncata*	-	NOST (S1)
Fanshell	*Cyprogenia stegaria*	END	PROT (S1)
Fine-rayed pigtoe	*Fusconaia cuneolus*	END	PROT (S1)
Kidneyshell	*Ptychobranchus fasciolaris*	-	NOST (S1)
Monkeyface	*Quadrula metanevra*	-	NOST (S3)
Ohio pigtoe	*Pleurobema cordatum*	-	NOST (S2)
Orange-foot pimpleback	*Plethobasus cooperianus*	END	PROT (S1)
Painted creekshell	*Villosa taeniata*	-	NOST (S3)
Pink mucket	*Lampsilis abrupta*	END	PROT (S1)
Purple lilliput	*Toxolasma lividus*	-	NOST (S2)
Rabbitsfoot	*Quadrula cylindrica cylindrica*	-	PROT (S1)
Rough pigtoe	*Pleurobema plenum*	END	PROT (S1)
Shiny pigtoe	*Fusconaia cor*	END	PROT (S1)
Slabside pearlymussel	*Lexingtonia dolabelloides*	CAN	PROT (S1)
Snuffbox	*Epioblasma triquetra*	-	NOST (S1)
Tennessee clubshell	*Pleurobema oviforme*	-	NOST (S1)
Tennessee pigtoe	*Fusconaia barnesiana*	-	NOST (S1)
Wartyback	*Quadrula nodulata*	-	NOST (S1S2)
Wavy-rayed lampmussel	*Lampsilis fasciola*	-	NOST (S1S2)
Crayfish			
Troglobitic Crayfish	*Cambarus hamulatus*	-	SPCO (S3)

- = Not applicable
* = Historic record known to occur within the potentially affected watershed
Abbreviations: CAN = Candidate; END = Endangered; NOST = No status but tracked by the Alabama Natural Heritage program. PROT = Protected; THR = Threatened
Ranks: S1 = Critically imperiled; S2 = Imperiled; S3 = Vulnerable; S#S# = Occurrence numbers are uncertain .

Environmental Consequences
Since no actions would be taken under the No Action Alternative, federally or state-listed endangered or threatened aquatic animal species would not be impacted. The species listed in Table 3-6, with the exception of the troglobitic crayfish, are present downstream of Guntersville Dam, but these species and are not present within the project area.

Under the Action Alternative, no impacts would occur to these listed aquatic animal species because potential impacts resulting from the proposal would be localized and temporary. As mentioned above, there are no known cave habitats suitable for the troglobitic crayfish in the vicinity of the proposal area. Therefore, no impacts to the troglobitic crayfish or any listed aquatic animal species would occur as a result of the proposal. However, proper BMPs, as outlined in the Section 26a General and Standard Conditions, would be

implemented to further ensure minimal impacts to any listed aquatic animal species that may enter the proposal area. The proposal would not result in any direct, indirect, or cumulative impacts to federally or state-listed as endangered or threatened aquatic animal species.

In conclusion, there are no known populations or habitats to support populations of federally or state-listed endangered or threatened species in the project area. There would be no impacts to listed species under the no action or action alternative.

3.5. Water Quality

Affected Environment
The portion of Guntersville Reservoir in the proposal vicinity is classified by ADEM for public water supply, swimming and other whole-body water-contact sports, and fish and wildlife uses.

As part of the Vital Signs Monitoring Program for its reservoirs, TVA monitored Guntersville Reservoir annually from 1991 through 1994 to establish baseline data on the reservoir's ecological health under a range of weather and flow conditions. Guntersville is now evaluated every other year. Samples are taken from the forebay at TRM 350, the transition zone at TRM 375.2, and the inflow at TRM 420. The conditions present at the forebay would be similar to the conditions present within Honeycomb Creek Embayment. 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]), and benthic macroinvertebrate and fish communities. Benthic macroinvertebrate and fish communities are discussed in Section 3.2, Aquatic Ecology.

The ecological health condition of Guntersville Reservoir including Honeycomb Creek Embayment has rated "good" consistently since TVA's monitoring program began. As in past years, the 2006 ecological health indicator scores for the reservoir were among the highest observed for all TVA reservoirs (TVA 2008). In 2006, dissolved oxygen levels rated "good" at the forebay and midreservoir sampling locations. At the forebay sampling location, chlorophyll concentrations were elevated during several sampling periods, resulting in the first "poor" rating for this location. Chlorophyll typically rates "fair" or "good" at the forebay. Chlorophyll levels at the midreservoir monitoring location have consistently rated "good." The fish community rated "fair" at all the sampling sites in 2006. The bottom life rated "fair" at the forebay and inflow sites and "good" at the midreservoir site. Sediment quality rated "good" at the forebay and midreservoir. No pesticides or PCBs were detected, and the concentrations of metals were within background levels. There are no state advisories against swimming in Guntersville Reservoir. Fecal coliform bacteria levels in 2007 were within Alabama's guidelines for water contact at the Honeycomb Campground Beach, which is located at HCM 1.6 along the right-descending bank.

Environmental Consequences
Since no actions would be taken under the No Action Alternative, surface water quality would not be impacted.

Under the Action Alternative, 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.

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 program for regulating storm water associated with construction activities. The General Storm Water Construction Permit requires a construction BMP plan that 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 the Action Alternative. Additionally, under this alternative, the applicant's proposal would be subject to BMPs specified in this EA's commitment list, the Section 26a approval, the Sections 10 and 404 permits, and the clean water certification from ADEM. Thus, adverse water quality impacts from soil erosion and sedimentation would be controlled through selection, installation, and maintenance of the BMPs required under these measures. The Action Alternative would have the added benefit of a VMP and additional buffers. Prior to construction, the applicant would develop and submit for TVA's approval a VMP for the proposed easement area and the shoreline to prevent erosion of soils on the site. Activities allowed by the VMP would be limited to management of exotic and nuisance vegetation, landscaping with native vegetation, siting of a portion of the parking area and dry storage building, and for marina facilities. These activities would be specifically identified in the VMP 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. BMPs and proper management of storm water runoff from roads, parking areas, 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. Existing shoreline stabilization would protect the immediate harbor area from erosion. The higher concentration of vessels 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.

Participation of the planned marina in the Tennessee Valley Clean Marina Initiative is part of the applicant's proposal and would require proper BMPs 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 wastewater treatment facilities (septic system or sewage treatment facilities) and sewage pump-out facilities for boat operators. Requirements also include restrictions on the dumping of treated wastes in local waters and prohibitions for dumping untreated wastes. The Tennessee Valley Clean Marina Initiative also requires certified marinas to maintain a stable shoreline, through either riprap revetment or native shoreline vegetation protection. Site design and landscaping aspects also require control of on-site erosion by use of proper construction BMPs, post-construction grounds maintenance, and native vegetation protection and enhancement. These requirements would be incorporated in the final design and the VMP to be submitted to TVA for approval. The *Tennessee Valley Clean Marina Guidebook* (TVA 2005) may be accessed at the following Web site: http://www.tva.com/environment/pdf/cleanmarina.pdf.

3.6. Navigation

Affected Environment
Guntersville Reservoir was opened to navigation in 1939, providing a limited-depth navigation channel from Paducah, Kentucky, to Chattanooga, Tennessee, a distance of 464 miles. Today, Guntersville Reservoir is an important link in the Tennessee River system, which provides 800 miles of slack-water navigation from Paducah, Kentucky, to Knoxville, Tennessee. The Tennessee River Waterway is linked to the 12,000-mile National Inland Waterway in several places and supports national and international commerce.

Commodities totaling over 50 million tons are transported on the Tennessee River System annually. In 2006, about 5.1 million tons of commercial cargo was transported by barge on Guntersville Reservoir. Those goods may be transported to one of the many commercial terminals located on Guntersville Reservoir or may pass through to other pools.

Honeycomb Creek is primarily a recreational navigation channel. While there are no aids to navigation marking Honeycomb Creek, there is a first-class safety harbor designated at the entrance to the creek for commercial vessels to use during emergency situations and inclement weather. The proposed marina would be located in a fairly wide section of Honeycomb Creek where the deeper water "navigation channel" favors the left-descending bank. The proposed facilities would be placed in an area of shallower water in a cove type setting. A TVA 161-kilovolt (kV) transmission line crosses a portion of the proposal area.

Environmental Consequences
Since no actions would be taken under the No Action Alternative, there would be no change in the existing navigation conditions.

Under the Action Alternative, the lake-ward extensions of the proposed marina are quite long, but the marina would not interfere with the recreational navigation channel. However, proper lighting would be installed on the marina facilities to warn boaters of its presence

during non-daylight hours. To avoid potential impacts to the TVA 161-kV transmission line, sailboat access would be restricted in that area of the marina. To avoid potential interference with a neighboring launching ramp, the proposed harbor limits would be modified slightly on the downstream end of the marina. The modified harbor limits are shown in Figure 3-1.

Boating congestion and associated boating safety concerns are an indirect impact of the proposal. If the proposed marina is constructed, additional boaters can be expected to use the Honeycomb Creek embayment and the passage to the Tennessee River. Boating safety should always be a concern of the public. The following law enforcement agencies are responsible for marine safety and rely heavily on public involvement: TVA Police, U.S. Coast Guard, and the ADCNR Marine Police. Unsafe or suspicious boating may be reported to the TVA Police at (256) 386-2444.

In conclusion, there would be no significant impacts to navigation under the Action Alterative if the following conditions are included in the Section 26a General and Standard Conditions:

General Conditions:

- You agree to securely anchor all floating facilities to prevent them from floating free during major floods.

Additional Conditions:

- The applicant is advised in writing that the facilities will be located on a recreational navigation channel and may be subject to wave wash and possible collision damage from passing vessels.

- Proper lighting would be installed on the marina facilities to warn boaters of its presence during non-daylight hours. For specific lighting requirements see Section 3.11.

- Access to the harbor area under the TVA 161-kV transmission line would be restricted for sailboats.

- The harbor limits would be modified slightly on the downstream end to follow closely the end of Dock 1 and then the outside edge of the transient slips as shown in Figure 3-1.

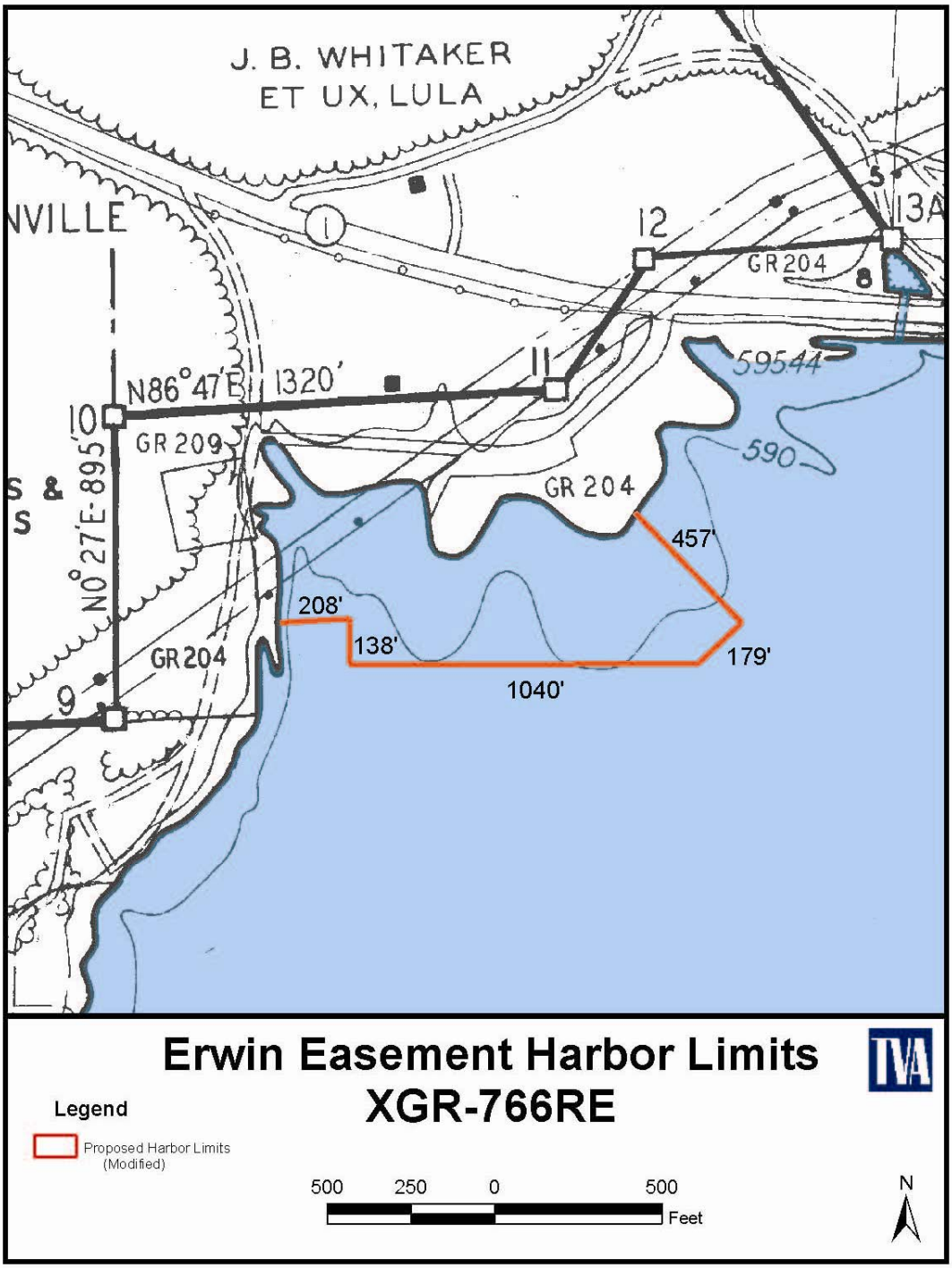

Figure 3-1. Revised Harbor Limits Map

3.7. Recreation

Affected Environment

Erwin Marine currently has a floating transit dock and dry storage of 200 units. A list of recreation areas and their marina-associated amenities within the vicinity of the proposed marina location are listed in Table 3-7. The list includes some recreation areas that are in close proximity but do not offer marina amenities. These recreation areas include Cave Mountain Small Wild Area, Guntersville Dam Reservation, Honeycomb Creek Small Wild Area, and Camp Cha-La-Kee. Honeycomb Campground has a boat ramp, 60 wet slips, and bait and tackle supplies. The Honeycomb Creek Ramp and TVA Honeycomb Ramp sites contain boat ramps.

Table 3-7. Existing Marina Facilities Near the Proposal Area

Area Name	Tennessee River Mile	Boat Ramp	Wet Slips	Dry Slips	Parking Spaces
Cave Mountain Small Wild Area	348.8	0	0	0	0
Guntersville Dam Reservation	349	0	0	0	0
Honeycomb Creek Small Wild Area	351.5 R	0	0	0	0
Honeycomb Campground	352.0 R	1	60	0	25
Honeycomb Creek Ramp	352.0 R	1	0	0	43
Sunrise Marina	352.0 R	0	0	200	0
TVA Honeycomb Ramp	352.0 R	1	0	0	60
Camp Cha-La-Kee	353 L	0	0	0	0

L = Left bank
R = Right bank

Informal recreation use occurring on the surrounding TVA land includes bank fishing, picnicking, camping, wildlife observation, primitive camping, hunting, hiking, and horseback riding. This land is likely to remain undeveloped and managed indefinitely for informal recreation.

Environmental Consequences

Urban Research and Development Corporation (1977) states the appropriate upper threshold limit for carrying capacity is 3 surface acres of water per boat. There are currently 60 wet slips and 128 boat ramp parking spaces in Honeycomb Creek (Table 3-7). Based on the standard 25 percent use rate of these slips and spaces during summer months (Urban Research and Development Corporation 1977), the approximate number of boats currently on the water during the summer months is 97. Honeycomb Creek is 1,461 surface acres of water. Therefore, that allows 15.06 surface acres of water per boat, well below the 3 surface acres per boat threshold. The proposed new marina would add 169 new boat slips to the area. There would also be an increase of 100 boats in the dry storage and 40 parking spaces at the new ramp. Based on the standard 25 percent use rate of these slips and spaces during summer months, the approximate number of boats currently on the water during the summer months is 77. There would be a total of 174 boats on the water in Honeycomb Creek that allows 8.38 surface acres per boat. This is also below the upper threshold for carrying capacity of 3 surface acres per boat.

The area within an approximately 0.5-mile radius from the proposed marina is sparsely traveled compared to the main Tennessee River channel. This area is able to

accommodate additional boating without significant cumulative impact. Honeycomb Creek and the main Tennessee River channel from the Guntersville Dam though TRM 355 are congested during peak periods of weekends and holidays. It is assumed that boaters using the proposed marina would merely transit this area en route to other parts of the reservoir where they would be more dispersed.

Construction of the marina would require the current public boat ramp at Sunrise Marina to be converted to private use. To mitigate this proposed action, Erwin Marine would construct a new launching ramp, courtesy pier, and associated parking to benefit the general public. This ramp must be constructed prior to the original ramp being closed to the general public. Under the Action Alternative, there would be no significant impacts to recreation.

3.8. Land Use and Prime Farmland

Affected Environment
The TVA Act authorizes TVA to acquire land and other property rights to carry out the purposes of the TVA Act. Property is sold or transferred if it is identified as no longer being needed or if it would support one of TVA's missions. TVA then may dispose of the land only in a manner authorized by the TVA Act or other federal laws.

TVA owns approximately 40,236 acres of property along Guntersville Reservoir and 1,233 acres along Honeycomb Creek. TVA's 2001 *Guntersville Reservoir Land Management Plan* (Plan) allocated approximately 1,700 acres or 4 percent of TVA property for public and commercial recreation. The Plan states that 44 recreation agreements accounting for 1,109 acres existed prior to 2001. The requested term commercial recreation easement area is located on a portion of TVA Tract XGR-6PT2. The Plan describes this tract as "developed recreation – used for a TVA public boat ramp, Sunrise Marine Marina and Honeycomb Campground." However, TVA has constructed a 161-kV transmission line with a 150-foot-wide right-of-way across a portion of the proposal area. The Erwin Marine proposal encompasses approximately 2,200 feet of shoreline and occupies less than 1 percent of all TVA-owned property along Guntersville Reservoir and Honeycomb Creek.

The Plan identified 44 tracts of TVA property containing approximately 2,500 acres of prime farmland. The entire TVA Tract XGR-6PT2 is 47 acres of which 14.9 acres are considered prime farmland. Prime farmland is defined by the U.S. Department of Agriculture as land that has the best combination of chemical and physical characteristics for producing food, feed, forage, fiber, and oilseed crops. To be considered prime farmland, it cannot be urban, built up, or covered by water. Concern regarding the conversion of prime farmland to urban or industrial use prompted the creation of the 1981 Farmland Protection Policy Act. This act requires that all federal agencies evaluate impacts to farmland prior to permanently converting the land to nonagricultural use.

Environmental Consequences
Under the No Action Alternative, TVA would not grant the term commercial recreation easement. The two-year term license agreement with Erwin Marine for the continued operation of the commercial marina would expire in July 2009, and management of the property would revert to TVA. TVA would continue to consider applications compatible with recreational development.

Under the Action Alternative, TVA would grant the term commercial recreation easement and Section 26a approval for the proposed marina to Erwin Marine. Both alternatives are consistent with the Plan allocation of developed recreation for this portion of TVA Tract XGR-6PT2. However, the following Additional Conditions would be placed in the TVA Section 26a General and Standard Conditions in order to reduce potential impacts to the TVA 161kV transmission line:

- Prior to construction, the applicant would develop and submit for TVA's approval a vegetation management plan for the proposed easement area and the shoreline. Only the native plants listed in Appendix E would be approved within the right-of-way.

- No permanent structures would be located within the right-of-way that would be a potential fire hazard or would impede maintenance of the existing transmission line or construction of future transmission lines.

- The transient boat slips would not be covered with a roof.

The proposed easement area is approximately 7.5 acres. Most of the soils in this area are classified as prime farmland due to their characteristics for crop production. Allen-Waynesboro fine sand loam covers about 6 acres and Huntington loam covers about 1.5 acres. However, the property contains a large boat storage building and is bordered by condominiums. Portions of the prime farmland soils lie beneath existing parking areas and an access road. Land that is already in urban development and has not been used for agricultural production for several years has little relative value as farmland. The land's value for farming is also diminished because the area is small compared to the size of a typical farm in Marshall County. Therefore, the Action Alternative would have no impact on prime farmland.

3.9. Underground Storage Tank and Hazardous Waste

Affected Environment
As a part of its marina operations, Erwin Marine would provide refueling services for vessels at the proposal site on Honeycomb Creek. For these services, Erwin Marine would use an existing 6,000-gallon fiberglass underground storage tank (UST) located on Erwin Marine private property for storage of the gasoline. The fuel would be piped, using fiberglass piping, across TVA property and dispensed at the proposed marina on Honeycomb Creek.

The UST was installed by the previous property owner in 1988. The UST has been registered with ADEM and is subject to ADEM's annual leak testing. For the leak testing, ADEM requires that an annual statistical inventory reconciliation (SIR) report be submitted. The 2006 SIR for this UST was submitted to ADEM in January 2007. Erwin Marine recently reregistered the UST with ADEM on March 15, 2007. Documentation of the UST registration with ADEM and the SIR report has been provided to TVA.

Environmental Consequences
Under the No Action Alternative, the two-year term license agreement with Erwin Marine for the continued operation of the commercial marina would expire in July 2009, and management of the property would revert to TVA.

Under the Action Alternative, TVA would require Erwin Marine to comply with all applicable federal, state, and local regulations, as well as Section 26a General and Standard Conditions. To further reduce the potential impacts associated with the UST, the applicant has agreed to comply with the Tennessee Valley Clean Marina Initiative. Related BMPs are provided in the *Tennessee Valley Clean Marina Guidebook* (TVA 2005). In addition, the construction and operation of a marina should present a minimal risk for the generation of Resource Conservation and Recovery Act (RCRA) hazardous waste as regulated by ADEM and the USEPA.

With the following standard conditions included in the Section 26a General and Standard Conditions, the impacts from the UST associated with the Action Alternative would minimize the opportunity for contamination of the environment: You agree that all storage, piping, and dispensing of liquid fuel shall comply with applicable requirements of the "Flammable and Combustible Liquids" section of the *National Fire Codes* and any additional requirements of federal, state, and local laws and regulations.

3.10. Floodplains

The proposal involves floating boat slips, fishing piers, and fuel dock; boat launching ramp; riprap; dredging; dry boat storage building; office; parking lots; and an access road. The floating boat slips, fishing piers, and fuel dock; boat-launching ramp; riprap; and dredging would involve construction within the 100-year floodplain. Consistent with EO 11988, these are considered 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 on the applicant's property above the TVA Flood Risk Profile elevation. The dry boat storage building, office, access road, and parking lots would be located on private property outside of the 100-year floodplain and above the TVA Flood Risk Profile elevation. The proposal would comply with the TVA Flood Control Storage Loss Guideline, because there would be less than 1 acre-foot of displaced flood control storage.

To ensure that development of this tract would not adversely impact floodplains and flood control, TVA would include the following conditions in the Section 26a permit and/or easement instrument:

General Conditions:

- You agree to securely anchor all floating facilities to prevent them from floating free during major floods.

Standard Conditions:

- You agree that spoil material would be disposed of and contained on land lying and being above the 597-foot contour and that you will use every precaution to prevent the reentry of the spoil material into the reservoir.

- You should contact your local government official(s) to ensure that this facility complies with all applicable local floodplain regulations.

- For the purposes of shoreline bank stabilization, all portions would be constructed or placed, on average, no more than 2 feet from the existing shoreline at normal summer pool elevation.

3.11. Visual Resources

Affected Environment
Visual resources are evaluated based on existing landscape character, distances of available views, sensitivity of viewing points, human perceptions of landscape beauty/sense of place (scenic attractiveness), and the degree of visual unity and wholeness of the natural landscape through the course of human alteration (scenic integrity).

The proposal area lies within the Honeycomb Creek embayment on Guntersville Reservoir, less than 10 miles northwest of the city of Guntersville, Alabama. The site is bordered to the north by U.S. Highway 431, a primary highway connecting Guntersville and Huntsville, Alabama. The site is bordered to the south by Guntersville Reservoir. The site is bordered to the west by Campground Road and to the east by Guntersville Reservoir. The topography is flat and slopes away from the roadway, southward and eastward to the reservoir. There is little existing vegetation on the site. Several cedars and pines are scattered about the interior of the site.

The site has previously been used as a public launching ramp, and existing site features include a one-lane launching ramp, parking for approximately 50 vehicles/trailers, and a courtesy dock. North of the parking area, a two-story multifamily residential development is visible. To the west of the day use area, a large prefabricated metal building is visible, as well as a small floating dock. To the south and west, a developed campground is visible through moderate shoreline vegetation. Two large fixed, uncovered community water use facilities, which support the campground, are visible to the south along the shoreline. A 161-kV transmission line supported by single steel poles bisects the site from northeast to southwest.

The site is visible from the highway and the multifamily homes to the north and west in the foreground viewing distance (0 feet up to 300 feet from the observer) and from the reservoir to the south and east from distances into the middleground viewing distance (0.5 mile to 4 miles from the observer). Views available from the background viewing distance (4 miles to the horizon) are generally not available, due to topography and vegetation. The existing scenic attractiveness is common to minimal, and the existing scenic integrity is low.

Environmental Consequences
Under the No Action Alternative, TVA and USACE would not grant the easement and permits. The marina facilities would not be constructed, and there would be no net change in the existing scenic value.

Under the Action Alternative, TVA and USACEwould grant the easement and approve water use facilities and dredging as described in Section 2.1.2. Dredge spoil material would be placed upon private property to the north of the easement property. The applicant would construct one or more one-story structures on private property. Additionally, the applicant would construct seven covered water use facilities for 169 vessels as shown in Appendix A.

The marina development would be visible to recreational lake users and shoreline residents in context with the existing shoreline development in the area. Motorists traveling U.S. Highway 431 would have foreground views of the proposed facilities briefly, and in context with existing shoreline development in the area. Residents in the multifamily homes located along the TVA property line to the north would have views of the proposed water use

facilities from within the foreground viewing distance, in conjunction with existing open water use facilities at the campground to the south.

Motorists, shoreline, and near-shore residents would also 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. These discernable increases in the number of vehicles and vessels would remain in context with the surrounding landscape character.

With the following additional conditions included in the Section 26a General and Standard Conditions, the direct, indirect, and cumulative impacts to visual resources associated with the Action Alternative would be insignificant:

- All site lighting shall be fully shielded and equipped with full cutoff features that limit the amount of waste light produced at a vertical angle of 80 degrees above the lowest light-emitting portion of the luminaire.

- To the extent practicable, no site lighting shall be placed on poles or other structures more than 20 feet above the finish grade.

- Material finishes of all exposed roofing materials for water use facilities shall be nonreflective and analogous in color to the surrounding landscape.

3.12. 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, European 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 earlier occupations have been identified on and near Guntersville Reservoir lands.

TVA in consultation with the Alabama State Historic Preservation Officer, has determined the APE for this project to be the project area for archaeology and the viewshed for historic structures to be a 0.5-mile radius beyond this construction.

Background research identified one archaeological site recorded in the project area (1MS209) on the non-TVA land. This site was recorded as an old homestead by the University of Alabama in 1985. TVA staff conducted a field assessment for the project and

determined that the area has been heavily disturbed. Construction of a dry storage boat facility in this area has obliterated the remains of the site. Additional construction, erosion, and other disturbances leave very little potential for archaeological resources to be present.

The historic viewshed of the project area has already been compromised by the construction of condominiums on the adjacent private land. A field assessment identified one structure greater than 50 years old. This structure consists of a historic Tudor-style home that has been subject to many alterations and additions.

Environmental Consequences
The one archaeological site previously recorded in the project area (1MS209) was previously destroyed and the remainder of the site has been heavily disturbed. No archaeological sites would be affected by the proposed action.

One historic structure was identified within the APE. This Tudor-style home has been altered and is not considered eligible for listing in the National Register of Historic Places. In addition, the viewshed of this structure has already been affected by the construction of multiple condominiums on private land adjacent to the proposed marina facility.

TVA has determined that no historic properties would be affected by the proposed project. A letter detailing these findings was sent to the Alabama State Historic Preservation Officer on February 20, 2008. TVA received their letter of concurrence on March 18, 2008.

3.13. Summary of TVA Permit Conditions and Mitigation Measures

Under the Action Alternative, TVA would require Erwin Marine to comply with all applicable federal, state, and local regulations, as well as Section 26a General and Standard Conditions. In addition to adherence to routine permit conditions, including the use of construction-related BMPs, the following non-routine permit conditions and mitigation measures would be required. These measures and conditions would reduce the potential for adverse environmental effects.

The following measure would be included as General Conditions in the Section 26a approval:

- You agree to securely anchor all floating facilities to prevent them from floating free during major floods.

The following measures would be included as Standard Conditions in the Section 26a approval:

- You agree that all storage, piping, and dispensing of liquid fuel shall comply with applicable requirements of the “Flammable and Combustible Liquids” section of the *National Fire Codes* and any additional requirements of federal, state, and local laws and regulations.

- You agree that spoil material would be disposed of and contained on land lying and being above the 597-foot contour and that you will 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.

- For the purposes of shoreline bank stabilization, all portions would be constructed or placed, on average, no more than 2 feet from the existing shoreline at normal summer pool elevation.

The following measures and conditions would be included as Additional Conditions in the Section 26a approval:

- The applicant is advised in writing that the facilities will be located on a recreational navigation channel and may be subject to wave wash and possible collision damage from passing vessels.

- Construction of the new launching ramp, courtesy pier, and associated parking to benefit the general public would be complete prior to the original ramp being closed.

- Proper lighting would be installed on the marina facilities to warn boaters of its presence during non-daylight hours.

- Access to the harbor area under the TVA 161-kV transmission line would be restricted for sailboats.

- The harbor limits would be modified slightly on the downstream end to follow closely the end of Dock 1 and then the outside edge of the transient slips as shown in Figure 3-1.

- All site lighting shall be fully shielded and equipped with full cutoff features that limit the amount of waste light produced at a vertical angle of 80 degrees above the lowest light-emitting portion of the luminaire.

- To the extent practicable, no site lighting shall be placed on poles or other structures more than 20 feet above the finish grade.

- Material finishes of all exposed roofing materials for water use facilities shall be nonreflective and analogous in color to the surrounding landscape.

- Prior to construction, the applicant would develop and submit for TVA's approval, a vegetation management plan for the proposed easement area and the shoreline. Only the native plants listed in Appendix E would be approved within the right-of-way.

- No permanent structures would be located within the right-of-way that would be a potential fire hazard, impede maintenance of the existing transmission line, or construction of future transmission lines.

- The transient boat slips would not be covered with a roof.

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CHAPTER 4

4.0 LIST OF PREPARERS

4.1. NEPA Project Management

Heather L. McGee

Position:	NEPA Specialist, TVA Environmental Stewardship & Policy, Muscle Shoals, Alabama
Education:	B.S., Environmental Biology
Experience:	6 years in Planning and Managing Land and Environmental Impact Assessment
Involvement:	NEPA Compliance and Document Preparation

Charles P. Nicholson

Position:	NEPA Policy Program Manager, TVA Environmental Stewardship & Policy, Knoxville, Tennessee
Education:	Ph.D., Ecology and Evolutionary Biology; M.S., Wildlife Management; B.S., Wildlife and Fisheries Science
Experience:	28 years in Zoology, Endangered Species Studies, and NEPA Compliance
Involvement:	NEPA Compliance

4.2. Other Contributors

B. Paul Bernauer

Position:	Professional Engineer - Specialist, TVA Research & Technology Applications, Muscle Shoals, Alabama
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Experience:	21 years in Hazardous Waste Management
Involvement:	RCRA Hazardous Waste

David G. Brewster

Position:	Senior Water Resource Representative, TVA Environmental Stewardship & Policy, Guntersville, Alabama
Education:	B.S., Geology, Marine Science
Experience:	8 years in Planning and Managing Land and Heritage, Wetland Reviewer
Involvement:	Wetlands

Michael F. Broder

Position:	Engineer, TVA Research & Technology Applications, Muscle Shoals, Alabama
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Experience:	27 years in Agricultural and Environmental Engineering
Involvement:	Prime Farmland

Michael G. Browman

Position:	Environmental Engineer - Specialist, TVA Research & Technology Applications, Chattanooga, Tennessee
Education:	Ph.D., M.S., and B.S., Soil Science; M.S., Environmental Engineering; Registered Professional Engineer in Tennessee
Experience:	25 years in Environmental Control Technology Development and Environmental Impact Analysis
Involvement:	Groundwater and Surface Water Resources; Wastewater

Patricia B. Cox

Position:	Senior Botanist, TVA Environmental Stewardship & Policy, Knoxville, Tennessee
Education:	Ph.D., Botany (Plant Taxonomy and Anatomy); M.S. and B.S., Biology
Experience:	30 years in Plant Taxonomy at the Academic Level; 3 years with TVA Heritage Project
Involvement:	Terrestrial Ecology, Invasive Plant Species, and Threatened and Endangered Species

Ella Christina Guinn

Position:	Project Control Specialist, TVA Environmental Stewardship & Policy, Knoxville, Tennessee
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Experience:	12 years in Land Use Analysis; 7 years in Environmental Services
Involvement:	Technical Staff Coordinator

Kelie H. Hammond

Position:	Specialist, Navigation Operations, TVA River Operations, Navigation and Hydraulic Engineering, Knoxville, Tennessee
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Experience:	4 years Navigation; 3 years in Specialty Engineering positions at TVA
Involvement:	Navigation/Transportation

Travis Hill Henry

Position:	Terrestrial Zoologist Specialist, TVA Environmental Stewardship & Policy, Knoxville, Tennessee
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Involvement:	Terrestrial Ecology, and Threatened and Endangered Species

Clinton E. Jones

Position:	Aquatic Community Ecologist, TVA Environmental Stewardship & Policy, Knoxville, Tennessee
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Experience:	15 years in Environmental Consultation and Fisheries Management
Involvement:	Aquatic Ecology and Aquatic Threatened and Endangered Species

Sabrina L. Melton

Position:	Recreation Representative, TVA Environmental Stewardship & Policy, Chattanooga, Tennessee
Education:	M.S., Recreation Administration; M.S., Business Administration; B.S., Recreation and Tourism Management
Experience:	5 years Recreation Research and Administration
Involvement:	Recreation Resources

Roger A. Milstead

Position:	Manager, TVA Flood Risk and Data Management, Knoxville, Tennessee
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Experience:	30 years in Floodplain and Environmental Evaluations
Involvement:	Floodplains

Travis C. Perry

Position:	Watershed Representative, TVA Environmental Stewardship & Policy, Guntersville, Alabama
Education:	B.S. (Biology); Master of Business Administration
Experience:	2 years Watershed and TVA Land Management
Involvement:	Land Use and Project Management

Kim Pilarski-Brand

Position:	Senior Wetlands Biologist, TVA Environmental Stewardship & Policy, Knoxville, Tennessee
Education:	M.S., Geography, Minor Ecology
Experience:	12 years in Wetlands Assessment and Delineation
Involvement:	Wetlands

Erin E. Pritchard

Position:	Archaeologist, TVA Environmental Stewardship & Policy, Knoxville, Tennessee
Education:	M.A., Anthropology
Experience:	8 years in Archaeology and Cultural Resource Management
Involvement:	Cultural Resources

Jon C. Riley

Position:	Landscape Architect, TVA Environmental Stewardship & Policy, Muscle Shoals, Alabama
Education:	Bachelor of Landscape Architecture, Associate Member American Society of Landscape Architects
Experience:	8 years in Site Planning, Design, and Visual Resource Management
Involvement:	Visual Resources

CHAPTER 5

5.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES ARE SENT

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CHAPTER 6

6.0 LITERATURE CITED

Alabama Department of Environmental Management. 2007. "Technical Standards, Corrective Action Requirements and Financial Responsibility for Owners and Operators of Underground Storage Tanks." Chapter 335-6-15, Volume II, Division 335-6. Montgomery, Ala.: ADEM, Water Division, Water Quality Program.

E-Mail 2007. From: Bob McMahan To: Travis C. Perry, About: Sunrise Marina, On: Monday, September 17, 2007, 1:27PM.

Griffith, G. E., J. M. Omernik, J. A. Comstock, S. Lawrence, G. Martin, A. Goddard, V. J. Hulcher, and T. Foster. 2001. Ecoregions of Alabama and Georgia, (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,700,000).

Hickman, G. D. 1999. *Sport Fishing Index (SFI) - A Method to Quantify Sport Fishing Quality.* Norris, Tenn.: Tennessee Valley Authority, Resource Stewardship, unpublished report.

James, W. 2002. *Nonnative, Noninvasive Species Suitable for Public Use Areas, Erosion Control/Stabilization and Wildlife Habitat Plantings.* Compiled by Wes James as a result of the interdisciplinary team for the implementation of the Executive Order on Invasive Species (#13112). Lenoir City, Tenn.: TVA Watershed Team Office, unpublished report.

Menzel, M. A., J. M Menzel, T. C. Carter, W. M. Ford, and J. W. Edwards. 2001. *Review of the Forest Habitat Relationships of the Indiana bat (Myotis sodalis).* Gen. Tech. Rep. NE-284. Newton Square, Pa.: U.S. Department of Agriculture, Forest Service, Northeastern Research Station.

NatureServe. 2007. *Nature Serve Explorer: An Online Encyclopedia of Life,* Version 6.3. Arlington, Va.: NatureServe. Retrieved from <http://www.natureserve.org/explorer> (accessed February 7, 2008).

Romme, R. C., K. Tyrell, and V. Brack Jr. 1995. "Literature Summary and Habitat Suitability Index Model: Components of Summer Habitat for the Indiana Bat, *Myotis sodalis*." *3/D Environmental*. Federal Aid Project E-1-7, Study No. 8.

Tennessee Valley Authority. 1999. *Aquatic Ecological Health Determinations for TVA Reservoirs -1998: An Informal Summary of 1998 Vital Signs Monitoring Results and Ecological Health Determination Methods.* Primary Authors/Editors D. L. Dycus, D. L. Meinert, and T. F. Baker. Chattanooga, Tenn.: TVA Water Management.

———. 2001. *Guntersville Reservoir Final Environmental Impact Statement and Land Management Plan.* Guntersville, Ala.: TVA Guntersville Watershed Team.

———. 2005a. *General and Standard Conditions, Section 26a and Land Use.* Knoxville, Tenn.: TVA Form 17416.

———. 2005b. *Tennessee Valley Clean Marina Guidebook.* A Product of the Tennessee Valley Clean Marina Initiative. Chattanooga, Tenn: TVA Resource Stewardship. Retrieved from <http://www.tva.com/environment/pdf/cleanmarina.pdf> (February 22, 2008).

———. 2008. "Guntersville Reservoir." Retrieved from <www.tva.com/environment/ecohealth/guntersville.htm> (accessed February 8, 2008).

Urban Research and Development Corporation. 1977. *Guidelines for Understanding and Determining Optimum Recreation Carrying Capacity.* Washington, D.C.: U.S. Department of the Interior, Bureau of Outdoor Recreation, Contract BOR #5-14-07-5.