

Document Type: EA-Administrative Record
Index Field: Draft Environmental
Assessment
Project Name: Harbor Lights Marina 26a
Approval
Project Number: 2018-01

HARBOR LIGHTS MARINA EXPANSION ON CHICKAMAUGA RESERVOIR - SECTION 26A APPROVAL

FINAL ENVIRONMENTAL ASSESSMENT Hamilton County, Tennessee

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December 2017

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CHAPTER 1 – PURPOSE AND NEED FOR ACTION

Purpose and Need

Harbor Lights Marina is requesting a Section 26(a) permit to expand the marina along the shoreline fronting the main channel on Chickamauga Reservoir (Tract – XCR-67) and Tennessee River mile 482 right bank in Hamilton County, Tennessee. The proposed expansion includes additional dock facilities and expanded harbor limits established for the marina. The additional wet slips will meet the applicant's needs of additional boating capacity at the marina. Additionally, the expansion is consistent with TVA's mission of service and meets TVA's goal of providing recreational opportunities in the Tennessee Valley region.

The applicant is requesting the expanded marina facilities with associated harbor limits in response to its assessment of demand for increased recreational facilities in the area. The current facilities are close to capacity and the applicant has over 20 interested parties on a waiting list for the proposed new marina boat slips. The new slips, if approved, represent about a 25% increase in the marina's total capacity. The applicant also has boat rental services that are anticipated to grow in demand; these too would need additional slips. The expanded facilities will include transient slips for the on-site restaurant as well.

Background

Harbor Lights Marina is developed on Tract XCR-67. This tract was originally sold under Section 4(k)(a) of the TVA Act in 1951. Parcel 1 (23.1 acres) of the tract was restricted to be used solely for commercial recreation purposes and not to be sold except as a whole. The existing marina has approximately 200 each of wet and dry boat storage, a marine repairs/service bay, a launching ramp, a bathroom facility, a dock store, a sanitation pump-out station and a fuel dispensing dock. Currently, the area of the proposed expansion is permitted for two covered floating docks (165'x108' and 165'x128') and a perimeter breakwater within a harbor limit of 500 feet parallel to the shoreline by 200 feet perpendicular to the shoreline. However, these were never constructed.

Proposed Action

The proposed work consists of the removal of an existing floating dock to facilitate the installation of 95 covered boat slips. Spud poles will be driven and cabled cross-bracing will be installed to secure floating sections of the new facility. A metal frame and roof structures will also be constructed on the facility. A proposed 10-ft wide walkway along the north and east (facing channel) perimeter will also serve as a breakwater structure.

Additionally, the applicant proposes to expand the existing harbor limits along the main channel of the Tennessee River. The existing harbor limit of 500 feet parallel to the shore by 200 feet perpendicular to the shore is to be expanded to 600 feet parallel to the shore by 400 feet perpendicular to the shore. The current and proposed harbor limits and proposed dock layout are shown in Figure 2.

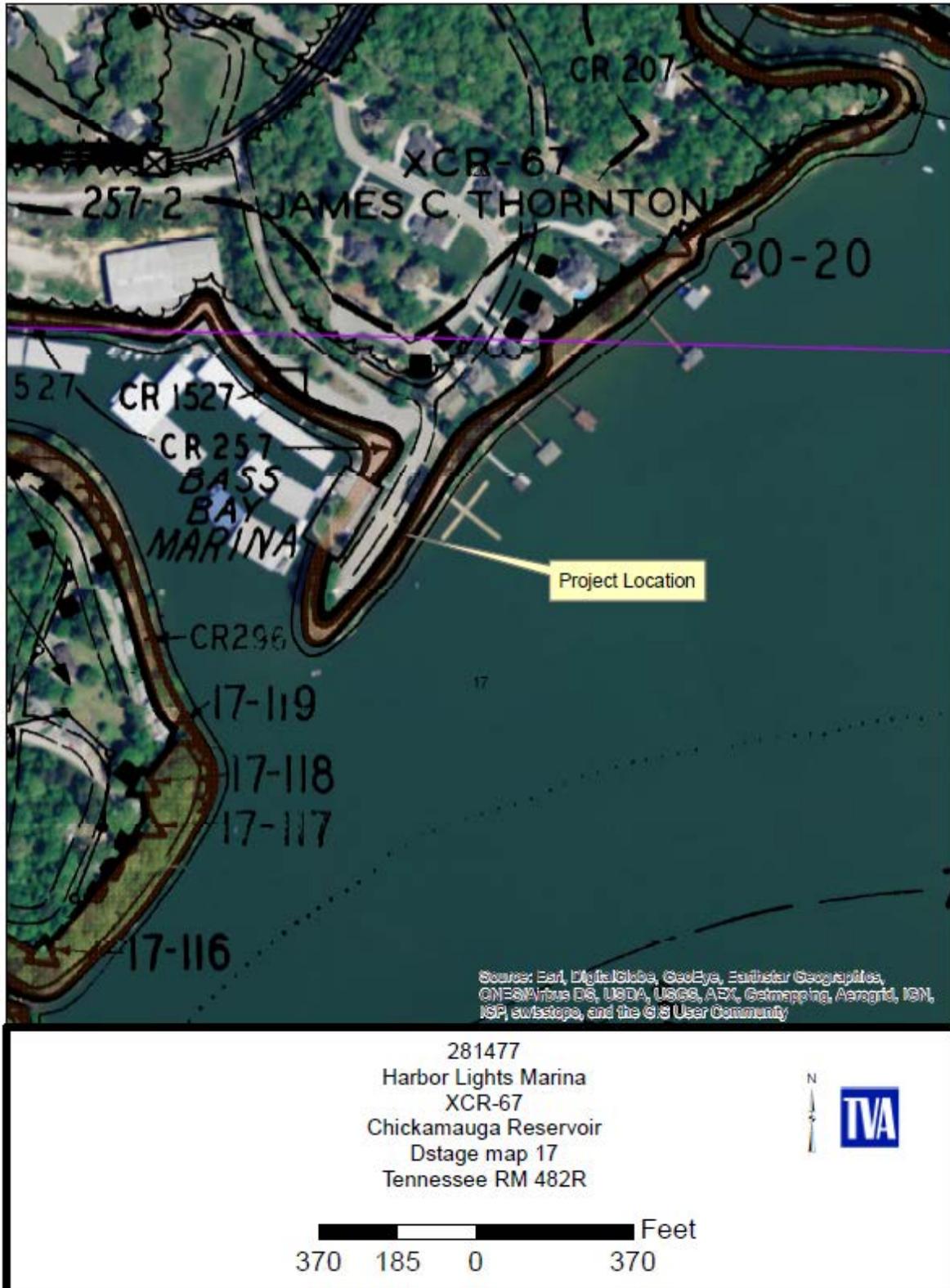


Figure 1. Harbor Light Marina Vicinity Map

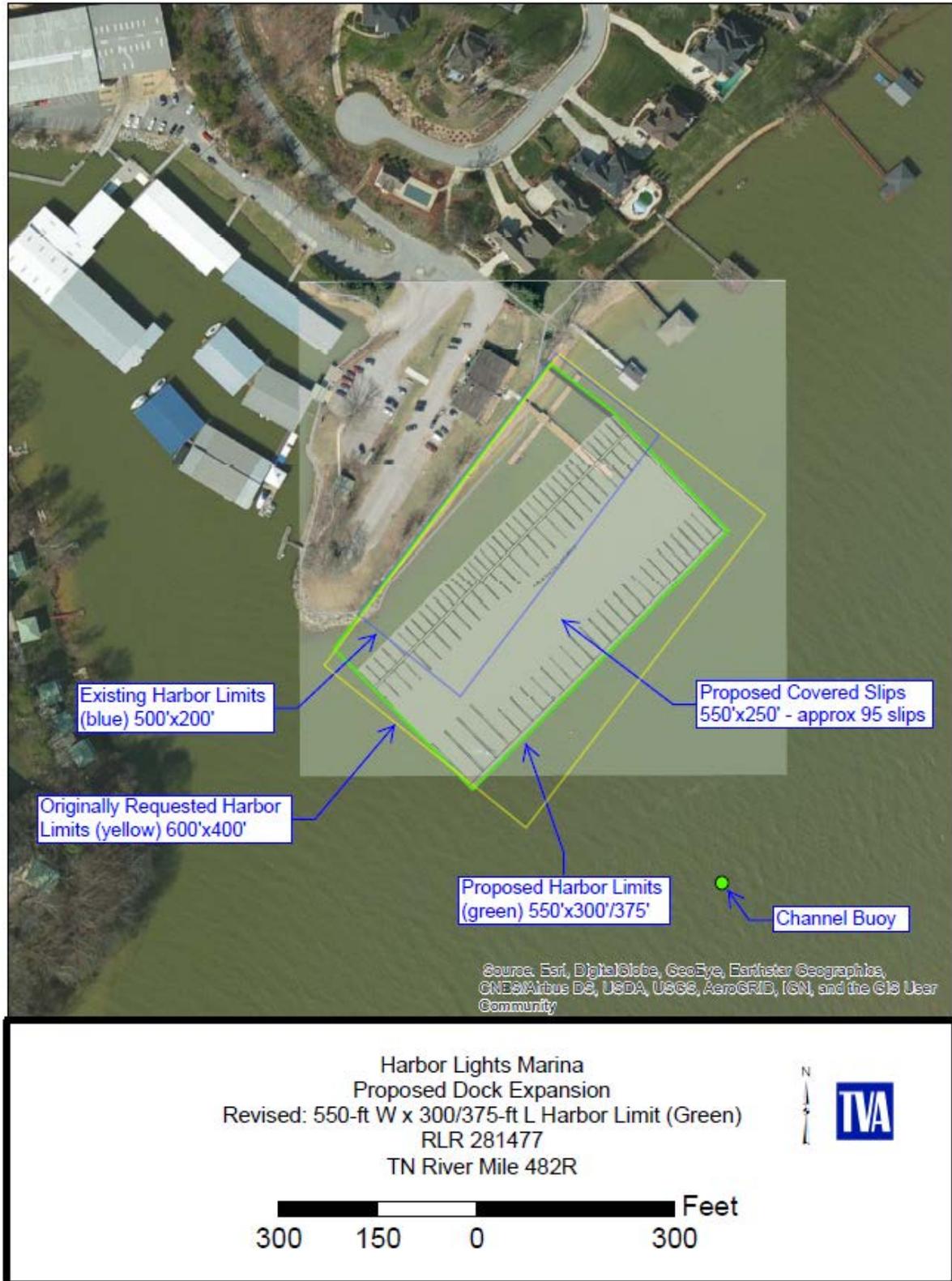


Figure 2. Proposed Dock Expansion and Harbor Limits Map (overlay on aerial photo)

Public Involvement

In accordance with TVA policy on Section 26(a) permit requests for expanding commercial recreation harbor limits, the applicant issued a public notice on December 19, 2016 in the Chattanooga Times Free Press. The notice stated that TVA is requesting public comments on a requested Section 26(a) permit to expand harbor limits and install additional slips that would increase capacity at Harbor Lights Marina by about 30 percent. TVA also published the public notice on its website. The notice initiated a 30-day public comment period ending on January 18, 2017. TVA received no comments during the stated period. However, TVA received two written comments after the period had closed. One commenter noted that he was president of the homeowner's association for the adjacent neighborhood and that his comments represented the residents of the subdivision. TVA determined that these out-of-time comments and requests would be accepted and addressed in the same manner as if they were received during the published 30-day request for comments.

TVA hosted an informal meeting with the residents of the subdivision on March 7, 2017 at the Sequoyah Nuclear Plant (SQN) Training Center to address the questions and concerns from the residents of the neighboring subdivision. Eight residents from the subdivision attended the meeting and no additional written comments were received.

The U.S. Army Corps of Engineers (USACE) issued a 30-day public notice on April 20, 2017. This was not a Joint Public Notice with TVA, but the notice did indicate that the action required a 26(a) permit from TVA and designated TVA as the lead federal agency. In response to the notice, both USACE and TVA received comments via phone, email and traditional mail. Several comments were received that requested a meeting with both the USACE and TVA. TVA participated in an informal meeting held by the Corps on June 1, 2017 at the SQN Training Center. Twenty two members of the public attended the meeting and 11 individuals provided written comments to the USACE. Several of the individuals provided multiple comments and two separate attorneys representing one or more individuals from the neighboring subdivision provided multiple comments as well. The USACE will document these comments in their decision document issued in accordance with 33 CFR 325.

The comment submissions were carefully reviewed and subdivided into 21 distinct comment statements. All letters and emails received during the comment period and TVA's responses are included in Appendix B.

Other Environmental Reviews

Multiple environmental reviews have been conducted for Section 26(a) approvals at the marina. Among other facilities within the marina, these docks and the harbor limits for this area were approved under a Section 26(a) permit issued in April 2006 (RLR169920), which was reviewed under a TVA Categorical Exclusion Checklist (CEC) 11608. The docks and harbor limits were subsequently reviewed and carried forward in a permit issued in March 2016 (RLR 274185) reviewed under CEC 33874.

Permits, Licenses, and Approvals

In addition to the necessary approvals from TVA, the following permits would be required for implementation of the proposed action:

- Department of the Army Permit pursuant to Section 10 of the Rivers and Harbors Act of 1899, issued by the U.S. Army Corps of Engineers.

CHAPTER 2 – DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Description of Alternatives

This EA evaluates two alternatives: Alternative A – the No Action Alternative, and Alternative B – Proposed Action Alternative. These alternatives are described in more detail below.

Alternative A - The No Action Alternative

Implementation of the No Action Alternative would result in the denial or withdrawal of the applicant's request for Section 26a approval for the marina expansion and associated increase in harbor limits. This alternative would restrict the use of the property deeded specifically for commercial recreation use and not meet the needs of the applicant or expand recreational opportunities on Chickamauga Reservoir.

Alternative B - Proposed Action Alternative

Under the Proposed Action Alternative, TVA would issue 26a approval for the marina expansion to facilitate the installation of 97 covered boat slips and increase the harbor limits to 600 feet parallel to the shore by 400 feet perpendicular to the shore.

Identification of Mitigation Measures

TVA would implement the routine environmental protection measures listed in this EA. In addition to those routine measures, the following non-routine measures would be implemented to reduce the potential for adverse environmental effects.

- The following mitigation measures were developed to reduce navigation safety concerns.
 - The applicant's originally requested harbor limit expansion of 600 feet by 400 feet, depicted by the yellow outline in Figure 2, shall be limited to 550 feet parallel to the shore by 375 feet perpendicular to the shore at the upstream extent and tapering to 300 feet perpendicular to the shore at the downstream extent, depicted by the green outline in Figure 2.
- The following mitigation measures were developed to reduce and minimize impacts to visual resources and scenic values.
 - All color schemes for roofs and boat slip exteriors will be visually compatible with natural background colors such as dark brown, gray, or green.
 - All permanent and associated temporary construction lights will be fully shielded or have internal low-glare optics, such that no light is emitted from the fixture at angles above the horizontal (Nelson, 2006).
- The following mitigation measures were developed to reduce and minimize construction related noise impacts.

- All construction work will be restricted to day light hours, Monday through Friday.

Preferred Alternative

TVA's preferred alternative is Alternative B, the Proposed Action Alternative. Under this alternative, TVA would issue 26a approval for the expansion of the marina and associated harbor limits. Alternative A, the No Action Alternative is discussed and analyzed as an alternative to this preferred alternative in order to provide a baseline for comparison with respect to the potential effects of implementing the proposed action. Environmental impacts associated with Alternative B would be minor and slightly greater than impacts associated with Alternative A. However, Alternative B is the preferred alternative because it best suits the applicant's purpose and need and TVA's goal of providing recreational opportunities in the Tennessee Valley region.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Affected Environment and Anticipated Impacts

This chapter describes the affected environment (existing conditions of environmental resources in the project area) and the anticipated environmental consequences that would occur from the adoption of each of the alternatives described in Chapter 2.

TVA has reviewed the proposed project and documented potential environmental impacts related to the project in the attached Checklist (Attachment A). The Checklist identifies the resources present in the project area and documents TVA's determination that certain resources would not be impacted by the proposal or that impacts would be negligible or temporary. These resources are terrestrial ecology (wildlife and plant), aquatic ecology, floodplains, wetlands, air quality, water quality, socioeconomic resources and environmental justice, prime farmland, solid and hazardous wastes, and natural areas. TVA has determined that detailed analysis was unnecessary for these resources and they are not discussed further.

Navigation

Affected Environment - The applicant submitted an application to modify previously approved harbor limits for the Harbor Lights Marina. The applicant is requesting to replace existing slips on the Main River side of the property with new, larger slips (approximately 95 new slips) requiring an expansion of the harbor limits to 600 feet parallel to the shore by 400 feet perpendicular to the shore.

TVA Natural Resources, TVA Navigation, USACE Regulatory Office, and USACE Navigation have reviewed the proposed harbor limits. This location on the Tennessee River is in a bend of the river where the width of the river is approximately 2,000 feet. The marked navigation channel is over 1,000 feet wide, occupying over half of the river. As tows travel through this area, typically they transit the middle of the channel. However, certain conditions, such as weather, multiple barges, or recreation vessels transiting at the same time, would cause commercial traffic to favor the right descending side of the navigation channel, causing safety concerns to facilities adjacent to the channel. Private docks are constructed immediately upstream of the proposed harbor limits.

Environmental Consequences - Under Alternative A, TVA would not issue the 26a approval for the expanded marina and harbor limits, and the existing harbor limits would remain unchanged. Therefore, there would be no impacts to navigation from the existing permitted facilities.

Under Alternative B, TVA would issue the Section 26a permit. TVA Navigation, in conjunction with the USACE, determined that the originally proposed 400 feet lake ward extension was too close to the navigation channel and would present a safety hazard to both commercial and recreational vessels.

In addition, the marina is adjacent to private docks. TVA determined the 600 foot width of the originally proposed marina harbor limits would present a safety hazard in relation to those docks.

A modified harbor limit was developed which reduced the proposed harbor limits to approximately 300 feet lakeward extension on the most southern side and angled out to extend approximately 375 feet lakeward extension on the most northern side. The dock would be angled to contour the channel for better water depth accessibility without further extending into the channel. Additionally, the length of the harbor limits parallel to the shore was also reduced to approximately 550 feet. TVA Navigation determined this modified harbor limit would not have significant impacts to navigation on this portion of the Tennessee River.

Archaeological and Historical Resources

Affected Environment - Historic and cultural resources, including archaeological resources, are protected under various federal laws, including the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires federal agencies to consult with the respective State Historic Preservation Officer (SHPO) when proposed federal actions could affect these resources.

TVA defined the “area of potential effect” (APE) for this undertaking as the extent of the proposed harbor limits. TVA previously consulted with the Tennessee SHPO office in a letter dated December 2, 2015 regarding another proposed expansion to the Harbor Lights Yacht Club facilities on the right descending bank of Jones Bay. During the consultation process, it was determined that the Harbor Lights Yacht Club property was previously surveyed by Garrow and Associates (A Survey Report of Archaeological Resources In Portions of the Chickamauga Reservoir, Tennessee, 1987, 1988 and 1989 Field Seasons) and no archaeological sites were identified at this location. TVA Cultural Compliance staff also identified no standing structures greater than 50 years within the viewshed of the proposed project area.

Environmental Consequences - Under Alternative A, TVA will not issue a Section 26a permit for the expanded harbor limits and additional boat slips. The proposed actions would not be implemented and would not involve any expansion beyond what has previously been reviewed. Therefore, there would be no direct, indirect or cumulative impacts to historic properties under this alternative.

Under Alternative B, TVA would issue a Section 26a permit for the expanded harbor limits and additional boat slips. In a letter dated January 31, 2017 the TN SHPO concurred that there are no National Register of Historic Places listed or eligible properties affected by this undertaking.

Recreation

Affected Environment – Chickamauga Reservoir is 59 miles long at Normal Summer Pool (NSP) and stretches from the Chickamauga Dam upstream to the Watts Bar Dam and along the Hiwassee River to Charleston, Tennessee. The reservoir has a total volume of 737,700 acre-feet and a flood-storage capacity of 345,300 acre-feet. To maintain adequate water depth required for navigation, the minimum winter elevation for the reservoir is 675-foot mean sea level (msl), and the typical summer operating range is between 681.5 and 682.5 feet msl.

The study area considered in the water-related recreation analysis extends from roughly upstream of the Chickamauga Dam at TN River mile 470.9 to approximately 21.1 miles up the main arm of Chickamauga Reservoir in Hamilton County, Tennessee. This stretch encompasses approximately 10.5 miles upstream and downstream from the proposed expansion at Harbor Lights Mariana. For purposes of this boating density assessment, 15,317 surface acres is considered the total surface acres at summer pool. There are several existing public, private and commercial recreation facilities that provide recreational boating access to Chickamauga Reservoir in the study area, including ten commercial marinas and yacht clubs, seventeen public recreation areas, 1980 private community docks, piers and boathouses, 240 private ramps and 400 community slips. These facilities and study area are considered as the “base case” for this recreation analysis. Commercial and public boating-related facilities available include forty-one boat-launching ramps with a combined parking capacity of 398 trailers and wet and dry slip accommodations for 2,911 vessels (see attached worksheet).

Property to support the Harbor Lights Marina expansion is privately owned by the applicant requesting approval under TVA’s 26a permitting process. The applicant has requested approval to expand an existing commercial marina with 95 wet slips at TRM 482R. The applicant plans to provide thirty-nine parking spaces to support access for marina clients.

Boating Density

Development of the proposed marina expansion would provide additional boating services in this area of Chickamauga Reservoir. To gauge the impact this proposed expansion would potentially have on recreational boating traffic and boating safety, the boating activity patterns in the vicinity of the proposed marina have been assessed in the context of general boating activity patterns on TVA reservoirs.

In order to determine boating usage on TVA reservoirs, TVA completed a study in 2009 of Boating Density Analysis (TVA 2009b, Appendix I) to estimate recreational boating densities based on observations of boating use patterns across the Tennessee River reservoir system. The Boating Density Analysis (TVA 2009b, Appendix I) included a review of boating density standards and guidelines used by other federal agencies. The capacity thresholds used by TVA were derived from a compilation of these assessments and guidelines. In the 2009 study, TVA estimates the percentage of vessels that are likely in use that are stored at commercial marinas and permitted private access facilities (such as permitted private docks, community docks, and private marinas) across the Tennessee River reservoir system. Similarly, public boat-launching ramps are in use on any given day but generally are not used at full vehicle/trailer parking capacity.

In order to determine the boating density for Chickamauga Reservoir, water-related recreation facilities and existing private boat docks, piers and boathouses in the study area

have been considered at 100 percent occupancy. TVA estimated the private access boating units for Chickamauga Reservoir using the 26a permit data base. The estimated private access boating units included in TVA's total permits from 26a records reflect 1,980 permits for private docks, piers and boathouses; TVA estimates 1.78 recreational boats per permit for an estimate of around 3,524 stored recreational boats and 400 community slips. These estimates for boats stored totals approximately 3,924 and is used as the "base" throughout the remaining calculations in the boating density worksheet.

For purposes of this evaluation, current boating use on TVA reservoirs was estimated for three different points in the peak summer boating season (May through September): (a) non-holiday week days, (b) non-holiday weekend days, and (c) peak use holiday weekend days (Memorial Day, July 4th, and Labor Day).

- a) Non-holiday weekdays. This case estimates 15 percent of vessels stored at commercial marinas and private access facilities are likely to be in use, and 20 percent of estimated parking spaces for boat-launching ramps are likely in use each non-holiday weekday (Monday through Thursday) from May to September.
- b) Non-holiday weekend days. This case estimates 25 percent of vessels stored at commercial marinas and private access facilities are likely to be in use, and 60 percent of estimated parking spaces for boat-launching ramps are likely in use during non-holiday weekend days (Friday, Saturday, and Sunday) from May to September.
- c) Peak use holiday weekend days. This case estimates 35 percent of vessels stored at commercial marinas and private access facilities are likely to be in use, and 75 percent of estimated parking spaces for boat-launching ramps are likely in use during holiday weekend days (Friday, Saturday, Sunday, and Monday) from May to September.

The estimate of watercraft currently using the study area of Chickamauga Reservoir on an average daily basis on a weekday is 1,264 boating units with 12.12 surface acres per boating unit. Non-holiday weekend days are currently estimated to have 2,405 boating units with 6.37 surface acres per boating unit. Peak use holiday weekend days are estimated to currently have 3,266 boating units with 4.69 surface acres per boating unit. These estimates are based on the 15,317 surface acres. Optimum recreational boating density thresholds should allow at least 6.0 surface acres per boating unit. The current boating density thresholds are within or above optimum recreational boating density thresholds for the weekday and weekend periods estimated for the peak summer boating season and are estimated to exceed the 6.0 surface acres for the two holiday weekends of Memorial Day and Fourth of July. However, peak holiday weekends usually exceed recreation capacities for recreation opportunities.

As watercraft use increases, the number of visitors, both on and off the reservoir, experiencing a feeling of overcrowding may increase, especially among historic users of Chickamauga Reservoir. Visitors seeking an experience of solitude and quiet out on a water body would be adversely impacted as visitation increases over time. These users may eventually seek other areas of the reservoir that offer a more rural undeveloped or semi-primitive experience. It is anticipated that the experience on Chickamauga Reservoir would be less crowded during the shoulder season for weekends in the months just before and after the peak boating season (May through September).

Boating Safety

TWRA is responsible for preparing Tennessee's annual boating safety reports. The data in these boating safety reports are derived from efforts that document "reportable boating accident" incidents completed by TWRA officers investigating boating accidents. To be considered a reportable boating accident, an accident involves death, a missing person, an injury requiring medical treatment beyond first aid, or property damage of \$2,000 or more. The annual boating safety reports are analyzed in an effort to create proactive plans to reduce the number of boating accidents and their related fatalities, injuries, and property damage.

The 2015 Tennessee Boating Accident Statistical Report (TWRA 2015) has been published. In 2015, the number of boating fatalities among Tennessee's waterways decreased to 13 fatalities from the 17 fatalities reported in 2014 (TWRA 2014). There was a decrease in personal watercraft (PWC) fatalities from four in 2014 to three in 2015. With the exception of commercial whitewater accidents, the leading type of boating accident was collision with vessel (five fatalities), most often occurring while cruising, and most often because of no proper lookout. The top primary cause for fatal accidents was alcohol use and improper lookout, with 5 fatalities each (TWRA 2015).

On Chickamauga Reservoir, there was one boating fatality and five accidents reported in 2015; one injury accident and three property damage accidents. When compared to other reservoirs in Tennessee, Chickamauga had a relatively low occurrence of boating and PWC accidents (TWRA 2015). In 2015, (with the exception of commercial whitewater accidents on the Ocoee River), Center Hill Lake had the highest occurrence of boating incidents, with 12 reported. The most PWC accidents in 2015 occurred on Fort Loudon reservoir with two. For complete boating safety reports by date, see <http://www.tn.gov/twra/article/boating-publications>.

Boating accident reports were reviewed for the immediate area of Chickamauga Reservoir between TRM 481 to 483 for 2014 and 2015. A total of two incidents occurred in each year with only one a moving boat collision resulting from a wind storm. The other three involved bilge pump failures and a swimming ladder accident. For this area of the reservoir and review period, no watercraft accidents were reported as a result of boat operations involving a collision while under power.

Environmental Consequences - Under Alternative A, a Section 26a permit would not be issued and the proposed actions would not be implemented. There would not be any expansion beyond what has previously been reviewed. Therefore, there would be no direct, indirect or cumulative impacts to recreation under this alternative.

Under Alternative B, TVA would issue a Section 26a permit to authorize the expanded harbor limits and marina expansion. The proposed marina expansion would result in a 1% increase in boating traffic within the project area.

The estimate of recreational boating density factoring in the proposed 95-slip marina expansion calculated to be 1278 boating units with 11.98 surface acres per boating unit for weekday boating. Non-holiday weekend days are currently estimated to have 2428 boating units with 6.31 surface acres per boating unit. Peak use on holiday weekend days with the proposed marina expansion is estimated to involve 3,299 boating units with 4.64 surface acres per boating unit. The boating density thresholds are within or above optimum

recreational boating density thresholds for the weekday and weekend time frames and is estimated to exceed the 6.0 surface acres per boat for the two holiday weekends in the peak summer boating season. The threshold may be exceeded during peak use holiday weekends.

With the addition of the proposed 95-slip marina expansion based on projections of the resulting recreation development and boating use estimates, it appears Chickamauga Reservoir could accommodate non-holiday weekday, non-holiday weekend and holiday boating activity without going below generally accepted recreational boat thresholds of 6.0 to 7.6 surface acres per boat (TVA 2009b).

Under the proposed action, the total anticipated increase in watercraft on Chickamauga Reservoir would be 14, 23 and 33 boating units during non-holiday weekday, non-holiday weekend, and peak use holiday weekends, respectively. This is based upon the assumption of 100 percent occupancy for all slips, dry storage, ramp parking, and private docks, piers and boathouses on Chickamauga Reservoir. A total increase of about 1.0 percent in watercraft over the current weekday, non-holiday weekend and current peak use holiday weekend daily watercraft estimate could result from this alternative.

Furthermore, the analysis reveals the addition of the 95 slips as proposed would not significantly impact water-related recreation as the weekday non-holiday weekends are not anticipated to exceed the optimal 6.0 surface acres per boat threshold. The proposed expansion is not anticipated to cause the reservoir to exceed its optimal recreational user capacity and the reduction in reservoir surface area per boat would not significantly affect the boater recreation experience.

Threatened and Endangered Species

Affected Environment - The Endangered Species Act (ESA) provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the United States or elsewhere. ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize federally listed species or their designated critical habitat. The policy of Congress is that federal agencies must seek to conserve endangered and threatened species and use their authorities in furtherance of ESA's purposes. The State of Tennessee provides protection for species considered endangered or of special concern within the state other than those federally listed under the ESA. The listing is handled by TDEC; however, the TDEC National Heritage Inventory Program and TVA Regional Natural Heritage Program both maintain databases of aquatic animal species that are considered endangered or of special concern in Tennessee.

Review of TVA natural heritage data for special status aquatic species within 10 miles of the project showed historical 1 state and federal endangered and 1 state "in need of management" species, Pink Mucket (*Lampsilis abrupta*). Suitable habitat for this species does not occur at or near the project site. Review for plant species on the same date showed 1 state and federal threatened species, Large-flowered Skullcap (*Scutellaria montana*), and 1 state special concern species, Gibbous Panic-grass (*Sacciolepis striata*) within 5 miles of the project site. Suitable habitat for these species does not occur at or near the project site and the project has a minimal connection to terrestrial habitat. No records for special status terrestrial animal species were found within 3 miles of the project site. Review of TVA heritage data shows records for 1 state "in need of management" avian species within 3 miles of the project site.

Additionally, Indiana bat (*Myotis sodalis*) is a federally endangered species and Northern long-eared bat (*Myotis septentrionalis*) is a federally threatened species with the potential to occur within the project area. Both species hibernate in caves; summer roost sites generally are behind loose bark of dead or dying trees or in tree cavities. No trees would be removed as a result of the proposed project and suitable habitat does not exist within the project area.

Environmental Consequences - Under Alternative A, the proposed actions would not be implemented and would not involve any expansion beyond what has previously been reviewed. Therefore, there would be no impacts to threatened or endangered species.

Under Alternative B, a Section 26a permit would be issued for the expanded harbor limits and dock construction. No known occurrences of federally or state-listed species or critical habitats to support these species are known at or immediately adjacent to the proposed project area. Therefore, no impacts to federal or state-listed endangered or threatened aquatic species or critical habitats are expected to occur with this alternative.

Noise

Affected Environment - The marina is currently allocated for commercial recreation in the draft Chickamauga Reservoir Lands Plan (December 2016). The primary source of noise from this allocation is from commercial operation of the marina and from motorized watercraft. Noise emission levels for land uses allocated to this zone can range from 40 dBA (very quiet) to 90 dBA (jet ski). Noise levels for motor boats and jet skis may also exhibit short elevated bursts of noise as a result of speed of the watercraft and other operation factors.

Environmental Consequences – Under Alternative A, TVA will not issue a Section 26a permit for the expanded harbor limits and additional boat slips. The proposed actions would not be implemented and would not involve any expansion beyond what has previously been reviewed. Therefore, there would be no additional noise impacts over the existing conditions.

Under Alternative B, TVA would issue a Section 26a permit for the expanded harbor limits and dock construction. Noise impacts can be expected during the construction of facility. Construction noise impacts are anticipated to be temporary. Piles will need to be driven to stabilize the facility, and this activity is estimated to take 1 week. All construction work would be restricted to weekday daylight hours.

Based on the recreation study, the proposed facility (at 100% capacity) would create a 1% increase of the number of boats within a 5 mile radius of TRM 482. This increase in boats would cause a minor increase in overall noise from powered boats with the completion of the expanded facility. The 1% increase is deemed to be insignificant and within the expected limits of this section of Chickamauga Reservoir.

Visual Resources

Affected Environment - TVA has adapted criteria for classifying the quality and value of scenery from a management system developed by the U.S. Forest Service. The classification process is also based on fundamental methodology and descriptions adapted from a Forest Service publication, Landscape Aesthetics, A Handbook for Scenery Management. The process and criteria are used to compare the value of scenery to other

resource values during inventory and land planning tasks. These are also used to evaluate the extent and magnitude of visual changes that could result from proposed projects. In addition, they can be useful to help establish management objectives for improving or maintaining the scenic quality of managed lands.

The proposed marina expansion is located on a parcel of the Tennessee River (Chickamauga Reservoir) near TRM 482 in Hamilton County, Tennessee. The site is developed and currently consists of several habitable structures, existing parking, boat ramps, and covered boat slips along the existing slough.

The visual character of this stretch of the Tennessee River is a wide expanse of waterway, steep topography, and heavily vegetated slopes mainly unaltered by human development, with the exception of a few private docks, and has the ability to absorb additional minor human alterations. To the northeast, there are several residences with foreground views of the proposed marina expansion. The parabolic cooling towers and associated 500kV transmission lines of Sequoyah Nuclear Plant can be seen above the ridgelines to the northeast by these residents and recreation users along the river and contribute to minor visual obstructions in the landscape. The shoreline southwest of the parcel is mainly undeveloped and is characterized by woodlands and moderately steep, heavily vegetated shoreline.

The physical, biological, and cultural features of an area combine to make the visual landscape character both identifiable and unique. Scenic integrity indicates the degree of unity or wholeness of the visual character. Scenic attractiveness is the evaluation of outstanding or unique natural features, scenic variety, seasonal change, and strategic location. Where and how the landscape is viewed would affect the more subjective perceptions of its aesthetic quality and sense of place. Views of a landscape are described in terms of what is seen in foreground, middleground, and background distances. In the foreground, an area within one half mile of the observer, details of objects are easily distinguished in the landscape. In the middleground, normally between a mile and four miles from the observer, objects may be distinguishable but their details are weak and they tend to merge into larger patterns. Details and colors of objects in the background, the distant part of the landscape, are not normally discernible unless they are especially large and standing alone. The impressions of an area's visual character can have a significant influence on how it is appreciated, protected, and used. The scenic attractiveness of the project area was defined as "common"; meaning the area is one where the land forms, rock, vegetation patterns, water, and other features have ordinary or common visual quality. These areas have generally positive but typical attributes, with a basic variety of forms, colors, and textures that are normally seen throughout the characteristic landscape.

Visual consequences are examined in terms of visual changes between the existing landscape and proposed actions, sensitivity of viewing points available to the general public, their viewing distances, and visibility of proposed changes. Scenic integrity indicates the degree of intactness or wholeness of the landscape character. These measures help identify changes in visual character based on commonly held perceptions of landscape beauty, and the aesthetic sense of place. The scenic integrity of the project area was defined as "moderate", meaning areas where the valued landscape character appeared to be slightly altered. Noticeable deviations must be visually subordinate to the landscape being viewed, and borrow much of the natural form, line, color, texture, and pattern.

The value class of a landscape is determined by combining the levels of scenic attractiveness, scenic integrity and visibility. The scenic value class for the project site would be defined as “good”; indicating areas with attractive but common scenic quality and no distinctive natural features. Minor human alteration may be seen in the fore ground, but is barely noticeable in the middle ground. These areas have relatively high visibility from both land and water.

Environmental Consequences – Under Alternative A, TVA will not issue a Section 26a permit for the expanded harbor limits and additional boat slips. The proposed actions would not be implemented and would not involve any expansion beyond what has previously been reviewed. There would be no visual resource impacts over the existing conditions.

Under Alternative B, TVA would issue a Section 26a permit for the expanded harbor limits and dock construction. The marina expansion would be seen in the foreground by area residents and up to middleground distances by recreation users along the river. For residents, these views would be at angles to the main channel and would be influenced by elevation differences between the proposed marina and the much higher existing residential development. These elevation changes influence the natural landscape and greatly decreases negative impacts on scenic character when viewed in context of the overall viewshed. Most views by area residents would be of boat slip roofs of the proposed facility, as well as the existing private water use facilities in the area during daylight hours. These views would be reduced during night operations as a factor of landscape visibility and the use of ‘dark-sky’ lighting techniques. Recreation users would likely see a minor disruption in shoreline integrity; however, these disruptions would likely be brief and visually similar to other developments within ten miles of this stretch of the Tennessee River.

Additional vehicular traffic as a result of this project would have minor visual impact to residents and motorists along local roadways. This increase in traffic would be visually insignificant to area residents within the viewshed of the proposed marina due to existing vegetative screening and elevation changes.

Potential negative visual impacts of new structures would be minimized if the colors used are compatible with natural background colors and dark roofs are provided on proposed boat slips. Colors within this range merge into broader patterns within the middleground and background distances and details would not be as discernible.

The marina expansion would add to the number of discordantly contrasting elements that would be seen along this section of the Tennessee River. Additional watercraft on the lake and increased traffic on local roads would contribute to an increase in visual congestion. New structures and additional watercraft would combine to reduce the existing scenic value class. However, the development would likely not reduce scenic class by two levels or more from “good” to “poor”, the threshold of significance.

During the construction period there may be noticeable visual impacts due to an increase in personnel, equipment, and materials on-site. This will be temporary until all activities are complete. Therefore, providing mitigation as shown in the mitigation portion of this document would result in minor and insignificant visual impacts for the construction, operation, and maintenance of this facility.

Cumulative Impacts

Cumulative impacts are defined in the Council on Environmental Quality's regulations at 40 C.F.R. § 1508.7 as follow:

Cumulative impact is the impact on the environment which results from the incremental impact on the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Past actions that have already occurred and present actions are integrated into the existing baseline conditions discussed above. The parcel on which Harbor Lights Marina is developed was restricted to be used solely for commercial recreation purposes and future commercial recreation facilities requiring 26a approval at the property could be requested. Additionally, the parcel is zoned for commercial recreation in the Chickamauga Reservoir Land Management Plan (2017). Due to the deed restrictions in place which ensure the property will be managed within the constraints of commercial recreation and the TVA zoning allocation, the cumulative effects of the approval of the 26a permit should be insignificant.

CHAPTER 4 – SUPPORTING INFORMATION

TVA Preparers

Nicole Berger, River Management, Navigation Program Supervisor, M.S. Civil and Environmental Engineering, 18 years in River Management.

Brett Hartis, Natural Resources Management, Aquatic Vegetation Program Manager, Ph.D. in Fisheries, Wildlife, and Conservation Biology, 13 years in fisheries and aquatic plant sciences.

Michaelyn Harle, Cultural Compliance, Archaeologist, Ph.D. in Anthropology, 13 years in Archaeology and Cultural Resources Management.

Jerry Fouse, Natural Resources – Recreation and Shoreline Management, Recreation Specialist B.S. Forestry and Wildlife, MBA, 43 years in outdoor recreation management.

Jimmy Lemmond, Recreation and Shoreline Management, Recreation Engineering Specialist, PE, B.S. Civil Engineering, 21 years practicing project management and civil engineering.

Chet Peebles, Contract Landscape Architect, B.S. Landscape Architecture, 29 years in Site Planning, Design, and Scenic Resource Management, 5 years in History and Historic Preservation.

Mark Odom, Aquatic Resources and Threatened and Endangered Species, Watershed Representative, Natural Resources, MS in Biology, 19 years in Aquatic and Terrestrial Biology and Conservation

Bryan Wells, Recreation Agreement Specialist, B.S. Civil Engineering, 8 years in Natural Resources and 18 years in other environmental support roles.

Chevales Williams, Surface Water, B.S. in Environmental Engineering, 12 years in water quality monitoring and compliance, 11 years in NEPA planning and environmental services.

W. Doug White, NEPA Compliance, Document Development, B.S. in Forestry, 14 years in water resources management and NEPA compliance.

Literature Cited

Tennessee Wildlife Resource Agency (TWRA). 2015 Boating Incident Statistical Report. Boating & Law Enforcement Division. Available online at <http://www.tn.gov/twra/article/boating-publications>.

Tennessee Valley Authority (TVA). 2005. TVA Visual Resources, Scenic Value Criteria for Scenery Inventory and Management.

U.S. Forest Service, U.S.D.A., 1995. Landscape Aesthetics, A Handbook for Scenery Management. Agriculture Handbook Number 701.

Appendix A:

Environmental Review Checklist

Categorical Exclusion Checklist for Proposed TVA Actions

Categorical Exclusion Number Claimed	Organization ID Number RLR281477	Tracking Number <i>(NEPA Administration Use Only)</i> 35861
Form Preparer William B Wells III	Project Initiator/Manager William B Wells III	Business Unit P&NR - Commercial & Public Recreation
Project Title 26a Category 3 RLR 281477 Darrell Jones Harbor Lights Marina Chickamauga Reservoir		Hydrologic Unit Code
Description of Proposed Action <i>(Include Anticipated Dates of Implementation)</i> For Proposed Action See Attachments and References		<input type="checkbox"/> Continued on Page 3 <i>(if more than one line)</i>
Initiating TVA Facility or Office Central/Western Region		TVA Business Units Involved in Project P&NR - Commercial & Public Recreation
Location <i>(City, County, State)</i> HAMILTON, TN, County, State: HAMILTON, TN Map Sheet(s): 20 C/D Stage Stream(s): Tennessee R 482 R		

Parts 1 through 4 verify that there are no extraordinary circumstances associated with this action:

Part 1. Project Characteristics

Is there evidence that the proposed action...	No	Yes	Commitment	Information Source for Insignificance
1. Is major in scope?	X			Wells III, William B. 11/17/2016
2. Is part of a larger project proposal involving other TVA actions or other federal agencies?	X			Wells III, William B. 11/17/2016
* 3. Involves non-routine mitigation to avoid adverse impacts ?	X		No	Wells III, William B. 11/17/2016
4. Is opposed by another federal, state, or local government agency?	X			Wells III, William B. 11/17/2016
* 5. Has environmental effects which are controversial?		X		For comments see attachments
* 6. Is one of many actions that will affect the same resources?	X			Wells III, William B. 11/17/2016
7. Involves more than minor amount of land?	X			Wells III, William B. 11/17/2016

*If "yes" is marked for any of the above boxes, consult with NEPA Administration on the suitability of this project for a categorical exclusion.

Part 2. Natural and Cultural Features Affected

Would the proposed action...	No	Yes	Permit	Commitment	Information Source for Insignificance
1.Potentially affect endangered, threatened, or special status species?	X		No	No	For comments see attachments
2.Potentially affect historic structures, historic sites, Native American religious or cultural properties, or archaeological sites?		X	No	No	For comments see attachments
3.Potentially take prime or unique farmland out of production?	X		No	No	Wells III, William B. 11/17/2016
4.Potentially affect Wild and Scenic Rivers or their tributaries?	X		No	No	Wells III, William B. 11/17/2016
5.Potentially affect a stream on the Nationwide Rivers Inventory?	X		No	No	Wells III, William B. 11/17/2016
6.Potentially affect wetlands?	X		No	No	For comments see attachments
7.Potentially affect water flow, stream banks or stream channels?		X	No	No	For comments see attachments
8.Potentially affect the 100-year floodplain?		X	No	No	For comments see attachments
9.Potentially affect ecologically critical areas, federal, state, or local park lands, national or state forests, wilderness areas, scenic areas, wildlife management areas, recreational areas, greenways, or trails?	X		No	No	For comments see attachments
10.Contribute to the spread of exotic or invasive species?	X		No	No	For comments see attachments
11.Potentially affect migratory bird populations?	X		No	No	For comments see attachments
12.Involve water withdrawal of a magnitude that may affect aquatic life or involve interbasin transfer of water?	X		No	No	Wells III, William B. 11/17/2016
13.Potentially affect surface water?		X	Yes	No	For comments see attachments
14.Potentially affect drinking water supply?	X		No	No	Wells III, William B. 11/17/2016
15.Potentially affect groundwater?	X		No	No	For comments see attachments
16.Potentially affect unique or important terrestrial habitat?	X		No	No	For comments see attachments
17.Potentially affect unique or important aquatic habitat?	X		No	No	For comments see attachments

Part 3. Potential Pollutant Generation

Would the proposed action potentially (including accidental or unplanned)...	No	Yes	Permit	Commitment	Information Source for Insignificance
1.Release air pollutants?	X		No	No	Wells III, William B. 11/17/2016
2.Generate water pollutants?		X	No	No	For comments see attachments
3.Generate wastewater streams?	X		No	No	Wells III, William B. 11/17/2016
4.Cause soil erosion?		X	No	No	For comments see attachments
5.Discharge dredged or fill materials?	X		No	No	Wells III, William B. 11/17/2016
6.Generate large amounts of solid waste or waste not ordinarily generated?	X		No	No	Wells III, William B. 11/17/2016
7.Generate or release hazardous waste (RCRA)?	X		No	No	Wells III, William B. 11/17/2016
8.Generate or release universal or special waste, or used oil?	X		No	No	Wells III, William B. 11/17/2016
9.Generate or release toxic substances (CERCLA, TSCA)?	X		No	No	Wells III, William B. 11/17/2016
10.Involve materials such as PCBs, solvents, asbestos, sandblasting material, mercury, lead, or paints?	X		No	No	Wells III, William B. 11/17/2016
11.Involve disturbance of pre-existing contamination?	X		No	No	Wells III, William B. 11/17/2016
12.Generate noise levels with off-site impacts?		X	No	No	For comments see attachments
13.Generate odor with off-site impacts?	X		No	No	Wells III, William B. 11/17/2016
14.Produce light which causes disturbance?	X		No	No	Wells III, William B. 11/17/2016
15.Release of radioactive materials?	X		No	No	Wells III, William B. 11/17/2016
16.Involve underground or above-ground storage tanks or bulk storage?	X		No	No	Wells III, William B. 11/17/2016
17.Involve materials that require special handling?	X		No	No	Wells III, William B. 11/17/2016

Signature

Signature

Other Review Signatures (as required by your organization)

Attachments/References

Description of Proposed Action Continued from Page 1

Applicant is requesting to replace existing slips on main river side of property with new, larger slips, requiring an expansion of the harbor limits to 300' long by 600' wide. There will be a floating snack-bar associated with the new slips. The proposed floating, covered slips would be the same dimensions as the proposed larger harbor limits. Applicant(s): Darrell Jones Harbor Lights Marina 9680 Hixson Pike Soddy Daisy TN 37379

CEC General Comment Listing

1. NO COMMENT TEXT
By: 26a Added Comment
2. NO COMMENT TEXT
By: 26a Added Comment
3. NO COMMENT TEXT
By: 26a Added Comment
4. NO COMMENT TEXT
By: 26a Added Comment
5. NO COMMENT TEXT
By: 26a Added Comment
6. NO COMMENT TEXT
By: 26a Added Comment
7. NO COMMENT TEXT
By: 26a Added Comment
8. NO COMMENT TEXT
By: 26a Added Comment
9. NO COMMENT TEXT
By: 26a Added Comment
10. NO COMMENT TEXT
By: 26a Added Comment
11. NO COMMENT TEXT
By: 26a Added Comment
12. NO COMMENT TEXT
By: 26a Added Comment
13. NO COMMENT TEXT
By: 26a Added Comment
14. NO COMMENT TEXT
By: 26a Added Comment
15. NO COMMENT TEXT
By: 26a Added Comment
16. NO COMMENT TEXT
By: 26a Added Comment
17. email chronology with applicant
By: 26a Added Comment
18. email chronology with applicant
By: 26a Added Comment
19. Revised to move north-east corner of harbor limits out from 300' to 375'.
By: 26a Added Comment
20. Final Draft of layout - including spud pole locations
By: 26a Added Comment
21. Summary of questions from public comments with SMEs identified to address the questions and applicant's responses

- By: 26a Added Comment
 22. Final plans as received on March 6, 2017
- By: 26a Added Comment
 23. Final layout as approved by TVA Navigation w site photos
- By: 26a Added Comment
 24. Write-up and tables for boating density and safety assessments within project area
- By: 26a Added Comment
 25. Issue Briefing - May 25, 2017
- By: 26a Added Comment

CEC Comment Listing

Part 1 Comments

5. The proposed action may require continual maintenance management of aquatic plants to achieve the purpose and goals of the action (boating, recreation). Aquatic plant management has created controversy particularly among angling and hunting communities. Aquatic plants provide habitat for fish and wildlife, and removal at large scale can impact those populations. However, invasive species like hydrilla and Eurasian watermilfoil have been known to reduce biodiversity and caused both economic and environmental damage in areas where they are allowed to grow. The proposed action would likely require management of the area that would mostly target those species. Should the proposed action decide to manage aquatic plants in this area, it should be done in accordance with TN state law including but not limited to 0080-09-04-.10: REQUIREMENTS FOR LICENSEES IN AQUATIC WEED CONTROL.

Any person applying herbicides in state waters for the control of aquatic weeds must be under the direct supervision of pest control operator licensed and certified in Aquatic Pest Control.

Authority: T.C.A. §§ 4-3-203 and 62-21-118. Administrative History: Original rule filed April 1, 2016; effective June 30, 2016.

By: Brett M Hartis 03/21/2017

5. For this particular project, there have been two public notices issued by TVA, with a total of 60 days available to the public to comment. TVA received a total of XX comments. The comments were reviewed and addressed in this review. Comments received and responses are attached to this record.
 By: W. D White 10/19/2017

Part 2 Comments

1. Review of TVA natural heritage data on 11/21/2016 for special status aquatic species within 10 miles of the project showed historical 1 state and federal endangered and 1 state "in need of management" species. Suitable habitat for these species does not occur at or near the project site- as a result the project will not affect these species. With implementation of general and standard best management practices to prevent sediment from entering aquatic habitats and for operation/maintenance of this facility effects to aquatic species in general will be avoided.

Review for plant species on the same date showed 1 state and federal threatened and 1 state special concern species within 5 miles of the project site. Suitable habitat for these species does not occur at or near the project site and the project has a minimal connection to terrestrial habitat. - as a result the project will not affect these species.

No records for special status terrestrial animal species were found within 3 miles of the project site. Effects to terrestrial species will be avoided with implementation of general and standard best management practices for this project.

Review of TVA heritage data shows records for 1 state "in need of management" avian species within 3 miles of the project site. The project will not affect nesting or feeding habitat for this species - as a result, the project will not affect this species.

By: Mark L Odom 03/15/2017

Files: 35861 Heritage_Species_List.pdf 11/22/2016 82.82 Bytes

1. Records for bald eagle and osprey were found within 3 miles of the project site. The project is sufficiently distant (>660 feet) to avoid disturbance of these resources.

Myotis sodalis (Indiana bat) is a listed as a federally endangered species for this area. Myotis septentrionalis (northern long-eared bat) also has the potential to occur in this area and has been listed as federally threatened). Both species hibernate in caves; summer roost sites generally are behind loose bark of dead or dying trees or in tree cavities.

No trees would be removed as a result of the proposed project. Therefore, TVA has determined that proposed actions would not affect Indiana bat or northern long-eared bat.

By: Mark L Odom 03/17/2017

2. TVA finds the undertaking will have no effect to historic properties (see attached) "CEC35861_RLR281477_67774_Section106.pdf" for supporting documentation.
By: Michaelyn S Harle 02/17/2017
Files: CEC35861_RLR281477_67774_Section106.pdf 02/17/2017 1,608.06 Bytes
2. Outgoing TVA consultation letter to Federally Recognized Tribes.
By: W. D White 11/09/2017
Files: TVA_HarborLightsExpansion_HamiltonCoTN_TRIBAL_CID 11/09/2017 2,582.46 Bytes
67774_18JAN2017.pdf
2. Cherokee Nation consultation concurrence letter
By: W. D White 11/09/2017
Files: TVA-Harbor Lights Yacht Club Docks Hamilton County TN 11/09/2017 91.66 Bytes
20151208 Tribal Response.pdf
2. Outgoing TVA consultation letter to TN SHPO
By: W. D White 11/09/2017
Files: TVA_HarborLightsExpansion_HamiltonCoTN_SHPO_CID67 11/09/2017 2,579.49 Bytes
774_19JAN2017.pdf
2. TN SHPO consultation concurrence letter
By: W. D White 11/09/2017
Files: TVA-Harbor Lights Yacht Club Harbor Limits 11/09/2017 286.03 Bytes
Expansion_Hamilton Co_response 06Feb2017.pdf
8. This action is included in TVA's class review of certain repetitive actions within the 100-yr floodplain (1981).
By: William B Wells III 11/17/2016
9. Review of TVA heritage data shows 7 managed areas, 5 natural areas, and 3 heritage sites within 5 miles of the project site. The project will not affect these resources due to its nature (modification of existing dock facilities and harbor limits) and its distance from these resources.
By: Mark L Odom 11/22/2016
10. Review of TVA heritage data, site information and photos, and project plans shows that the project will not contribute to the spread of exotic or invasive species with implementation of general and standard best management practices for this type of work.
By: Mark L Odom 11/22/2016
11. Review of TVA heritage data shows records for 1 state "in need of management" avian species within 3 miles of the project site. The project will not affect nesting or feeding habitat for this species - as a result, the project will not affect this species.

Additionally, review of TVA heritage data shows records for bald eagle, osprey and 3 colonial wading bird colonies within 3 miles of the project site. The project is sufficiently distant and small in scope to avoid effects on these resources. The project will not affect migratory bird populations.
By: Mark L Odom 11/22/2016
13. This project is located in Hamilton County, TN and the area drains within the potentially affected Tennessee River (06020001) 8-digit HUC watershed. The proposed project is located directly in the Chickamauga Reservoir/Tennessee River. This stream is not listed as impaired on the Tennessee 's 303(d) Draft 2016 list. Chickamauga Reservoir/Tennessee River at approximately TRM 482 is classified by TDEC Chapter 0400-40-04 for domestic water supply, industrial water supply, fish and aquatic life, recreation, livestock watering and wildlife, irrigation and navigation. Please see details in Part 2: Questions 1 and 7 for additional information on potential stream characterization or stream crossings.
A storm water construction permit would not be required unless the project disturbs more than one acre. Additionally all work in streams may require an ARAP/ 401 Water Quality Certification and a 404 USACE Nation Wide Permit.

No commitments beyond standard TVA requirements—i.e., compliance with all applicable federal, state and local environmental laws and regulations, proper implementation of BMPs and best engineering practices, and proper containment/treatment/disposal of wastewaters, stormwater runoff, wastes, and potential pollutants. It is recommended that the Tennessee Valley Clean Marina Guidebook for BMPs and site management be implemented and followed to ensure no adverse impacts to surface waters.

By: A C Williams 03/30/2017
Files: TVA cleanmarina guidebook.pdf 03/30/2017 590.89 Bytes
15. There will be no direct impacts to groundwater from the construction and use of the docks.
By: W. D White 08/11/2017
16. Review of TVA heritage data, site information and photos, and project plans shows that the project will not affect unique or important terrestrial habitat. The project has limited, if any connection to terrestrial habitat and any effects will be addressed by implementation of general and standard best management practices for this type of work.
By: Mark L Odom 03/15/2017
17. Review of TVA heritage data, site information and photos, and project plans shows no designated critical habitat or other types of unique or important aquatic habitat. No effects to aquatic habitat in general are expected with implementation of general and standard best management practices for this project. The project will not affect unique or important aquatic habitat.
By: Mark L Odom 03/15/2017
6. Review of TVA heritage data indicates the potential for wetlands in the vicinity of the project. However, review of site information and photos shows no wetlands in the project vicinity. The project will not affect wetlands.

- By: Mark L Odom 11/22/2016
7. The project is modification of existing harbor limits and dock facilities on reservoir shoreline. With implementation of general and standard best management practices for this type of activity effects will be minimal to water flow, stream banks, and stream channels.
- By: Mark L Odom 11/22/2016

Part 3 Comments

2. Should the proposed action require management of aquatic plants through the use of herbicides, discharges of water pollutants may result. Any discharge of pollutants to waters of the state will fall under NPDES requirements, either through the general state permit or an individual state permit if discharges exceed state thresholds for general permit use. Any discharge of pollutants through the use of herbicides for aquatic weed control are regulated under state NPDES laws and procedures.
- By: Brett M Hartis 03/21/2017
2. No commitments beyond standard TVA requirements—i.e., compliance with all applicable federal, state and local environmental laws and regulations, proper implementation of BMPs and best engineering practices, and proper containment/treatment/disposal of wastewaters, storm water runoff, wastes, and potential pollutants. It is recommended that the Tennessee Valley Clean Marina Guidebook for BMPs and site management be implemented and followed to ensure no adverse impacts to surface waters.
- By: A C Williams 03/30/2017
4. Soil disturbances associated with construction activities can potentially result in adverse water quality impacts. Minimal impacts would be anticipated with application of standard BMPs. As mentioned in Part 2.12 a general construction storm water permit would be needed if more than 1 acre is disturbed. This permit also requires the development and implementation of a Storm Water Pollution Prevention Plan. Additionally, an ARAP, USACE NWP and State 401 Water Quality Certifications may be required for work activities in Water of the State/Waters of the US. It is recommended that the Tennessee Valley Clean Marina Guidebook for BMPs and site management be implemented and followed to ensure no adverse impacts to surface waters during operations of the facility.
- By: A C Williams 03/30/2017
12. The marina is currently allocated for commercial recreation in the draft Chickamauga Reservoir Lands Plan (December 2016). The primary source of noise from this allocation is from commercial operation of the marina and from motorized watercraft. Noise emission levels for land uses allocated to this zone can range from 40 dBA (very quiet) to 90 dBA (jet ski). Noise levels for motor boats and jet skis may also exhibit short elevated bursts of noise as a result of speed of the watercraft and other operation factors.

Noise impacts can be expected during the construction of facility. Construction noise impacts are anticipated to be temporary. Piles will need to be driven to stabilize the facility, and this activity is estimated to take 1 week. All construction work would be restricted to daylight hours, Monday through Friday.

Based on the recreation study, the proposed facility (at 100% capacity) would create a 1% increase of the number of boats within a 5 mile radius of TRM 482. This increase in boats would cause a minor increase in overall noise from powered boats with the completion of the expanded facility.

By: W. D White 04/06/2017

Part 4 Comments

1. Should the proposed action require management of aquatic plants in the vicinity, products must be used by licensed aquatic applicators in accordance with the label. Products designed for aquatic use that are used in accordance with the label pose no threat to public health.
- By: Brett M Hartis 03/21/2017
2. Should the proposed action require management of aquatic plants in the vicinity, herbicides will likely be needed. Accidental spills have the potential to cause impacts to human health, however safeguards are put into place to ensure adequate transport, application, and storage of such products.
- By: Brett M Hartis 03/21/2017
2. See Part 4 Question 8 for comments on boating capacity and safety assessment
- By: William B Wells III 04/25/2017
7. Coast-guard approved lighting will be used to illuminate the corners to provide navigation aids for low light conditions. Material finishes of the marina structure will be analogous in color to the environment and landscape. Also, all site lighting will be equipped with full cutoff features which limit the amount of waste light produced at a vertical angle of 80 degrees above the lowest light emitting portion of the luminaire (see attachment).
- By: William B Wells III 04/25/2017
- Files: full_cutoff_lighting.pdf 04/25/2017 43.11 Bytes
7. Support documentation referenced in the visual effects analysis.
- By: W. D White 10/19/2017
- Files: Scenic Value Criteria (TVA VRM) - r4.pdf 10/19/2017 33.78 Bytes
7. See attached visual resources impact evaluation prepared by Chett Peebles.
- By: W. D White 05/19/2017
- Files: HarborLightsVisual Assessment.doc 05/19/2017 36.50 Bytes
8. This provides additional commercial recreation facilities for the public access on Chickamauga Reservoir.
- By: William B Wells III 11/17/2016

8. Should the proposed action require management of aquatic plants in the vicinity, some impacts to recreational use may occur following applications of herbicides. Some herbicides used for aquatic plant management may cause short term recreation impacts, including swimming and/ or fishing restrictions, however these restrictions do not apply to all products AND are relatively short lived (hours to days). The positive impact of aquatic plant management to the area include opening areas previously clogged with vegetation for access.
By: Brett M Hartis 03/21/2017
8. The proposed marina expansion will result in a 1% increase in boating traffic within the project area. Jerry Fouse, Specialist, Recreation Strategy in the Recreation and Shoreline group provided the attached write-up and supporting tables that addresses boating density and safety issues within the project area.
By: William B Wells III 04/25/2017
Files: Chick_BoatingDensityHarborLightsMarinaReview.pdf 04/25/2017 66.65 Bytes
9. Please see attached navigation comments.
By: Nicole Berger 12/19/2016
Files: 281477ch - 26a - TRM 482R - Harbor Lights Marina.doc 12/19/2016 26.50 Bytes
9. It is the responsibility of the marina owner/applicant to securely anchor all floating facilities to prevent them from floating free during major floods. It is also the responsibility of the marina owner/applicant to adequately locate the facility per the issued 26a permit and construct and maintain the facility in good, safe, and substantial condition to keep it from being a navigable hazard.
By: James G Lemmond 03/21/2017
9. Please see attached REVISED navigation comments.
By: Nicole Berger 03/23/2017
Files: 281477ch - 26a - TRM 482R - Harbor Lights Marina.doc 03/23/2017 594.50 Bytes

CEC Permit Listing

Part 2 Permits

13. Aquatic Resource Alteration Permit
By: A C Williams 03/30/2017
13. Section 404 Permit (¿404 Clean Water Act)
By: A C Williams 03/30/2017

Part 4 Permits

9. Section 10 Permit (¿10 Rivers and Harbor Act)
By: W. D White 10/19/2017

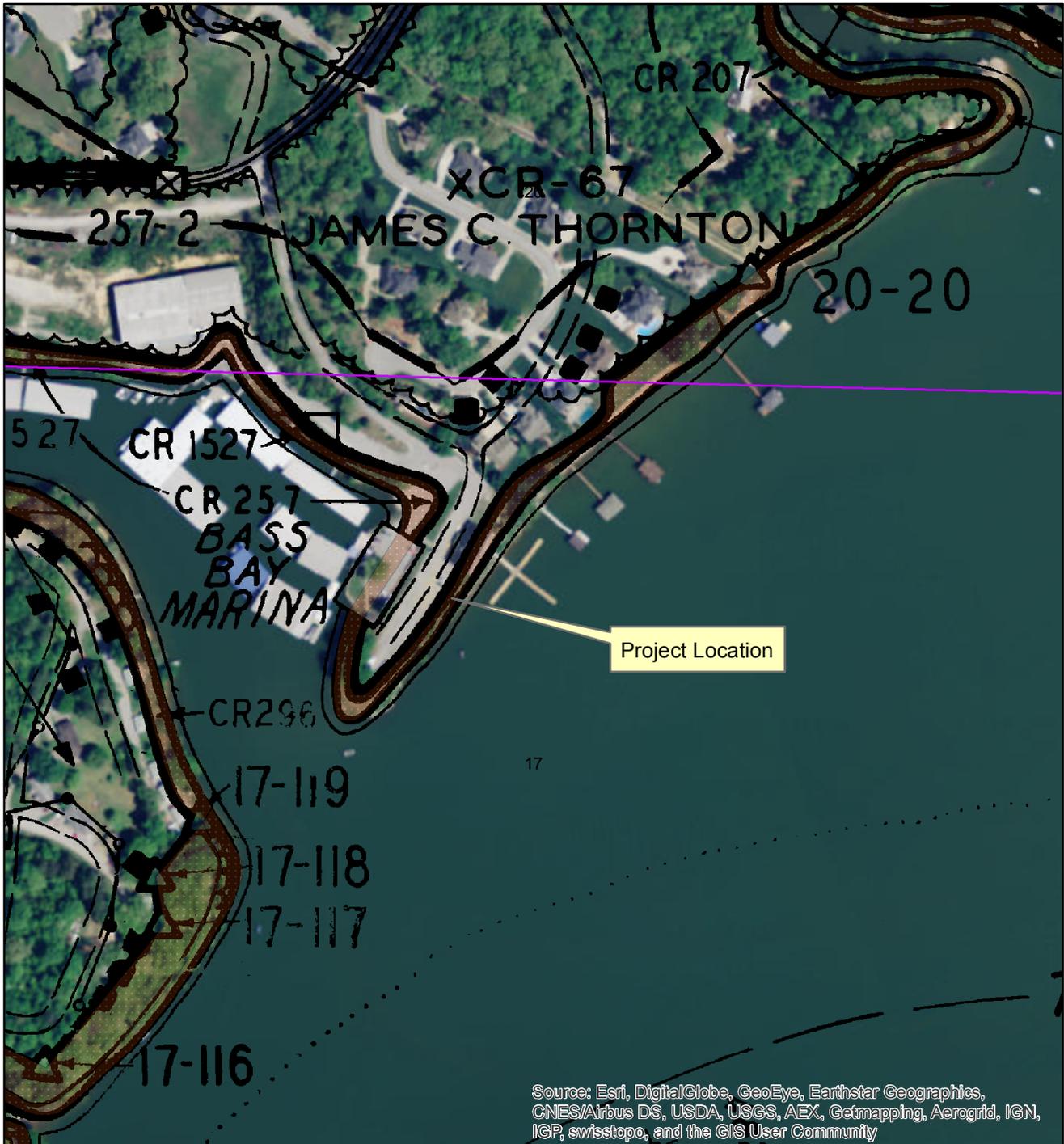
CEC Commitment Listing

Part 4 Commitments

7. User Defined: Per the Visual Assessment:

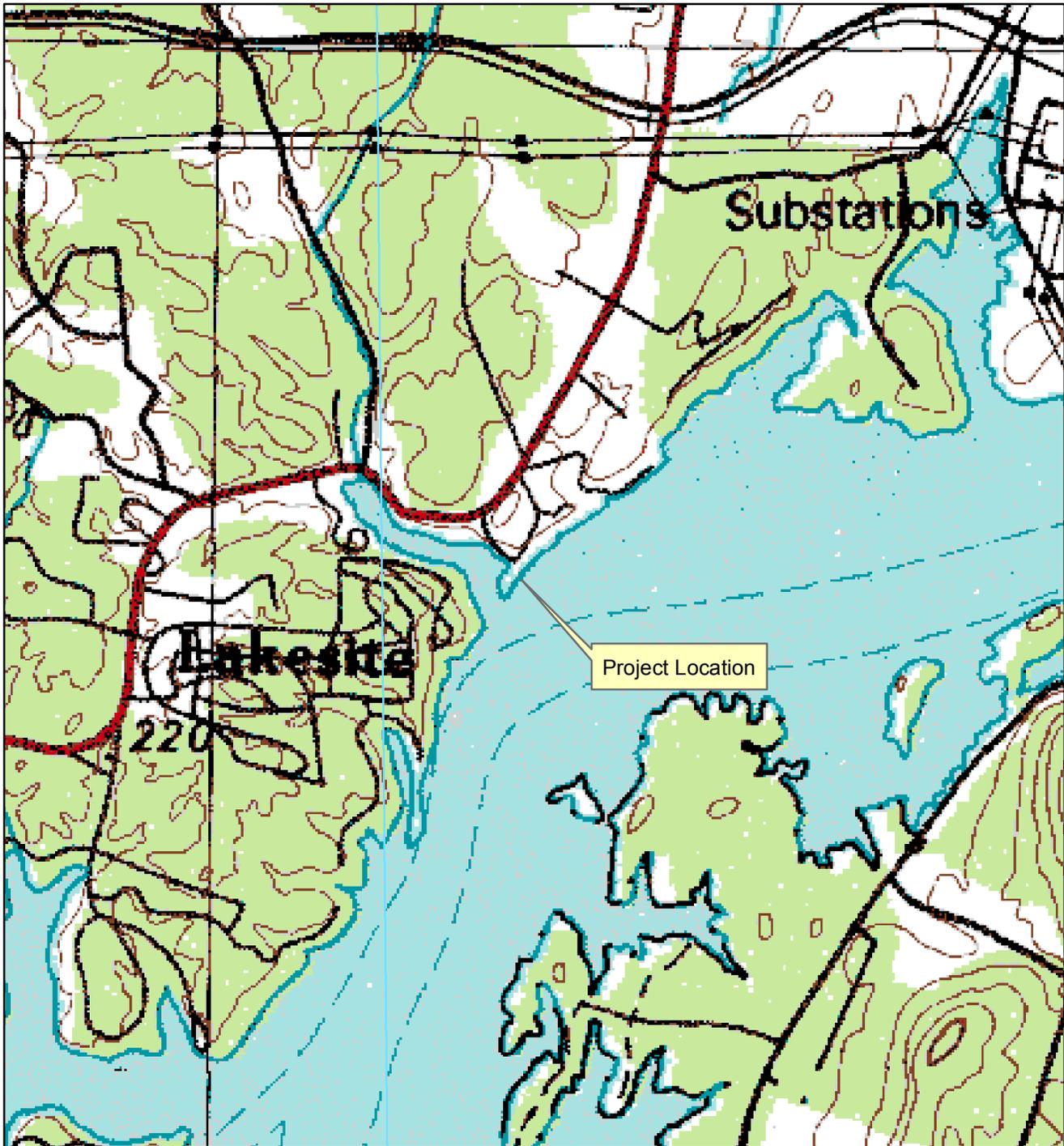
Structures: All color schemes for roofs and boat slip exteriors will be visually compatible with natural background colors such as dark brown, gray, or green.

Lighting: All permanent and associated temporary construction lights will be fully shielded or have internal low-glare optics, such that no light is emitted from the fixture at angles above the horizontal.
By: W. D White 05/19/2017

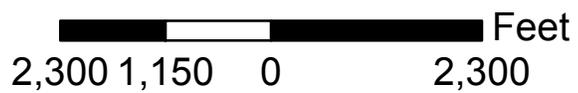


281477
 Harbor Lights Marina
 XCR-67
 Chickamauga Reservoir
 Dstage map 17
 Tennessee RM 482R

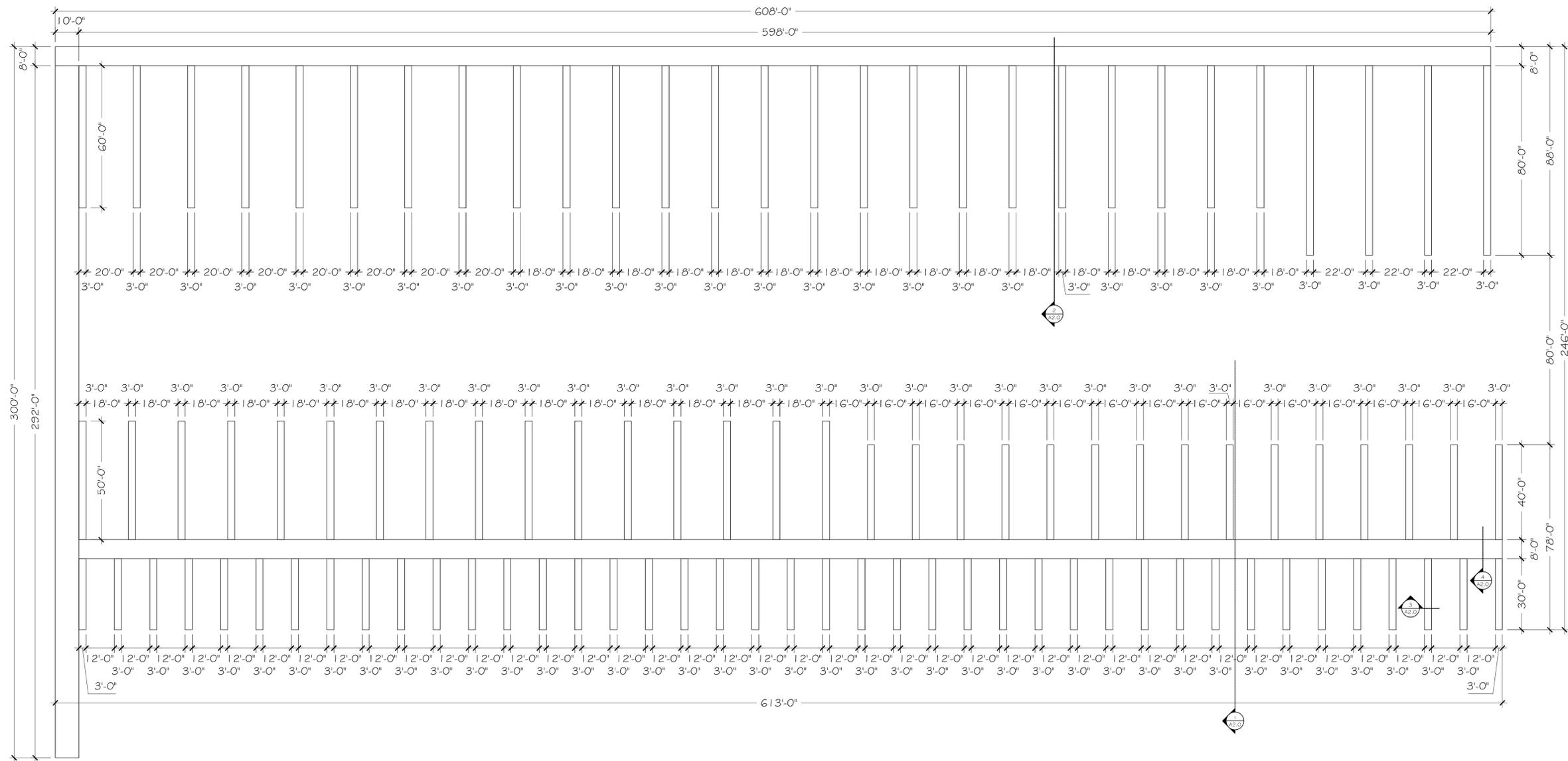




281477
Harbor Lights Marina
XCR-67
Chickamauga Reservoir
Dstage map 17
Tennessee RM 482R



FOR REVIEW ONLY



General Notes

No.	Revision/Issue	Date

USA DOCKS
ROBERT JUDD

PROJECT NAME AND ADDRESS

HARBOR LIGHTS
SODDY DAISY, TN

SHEET NAME

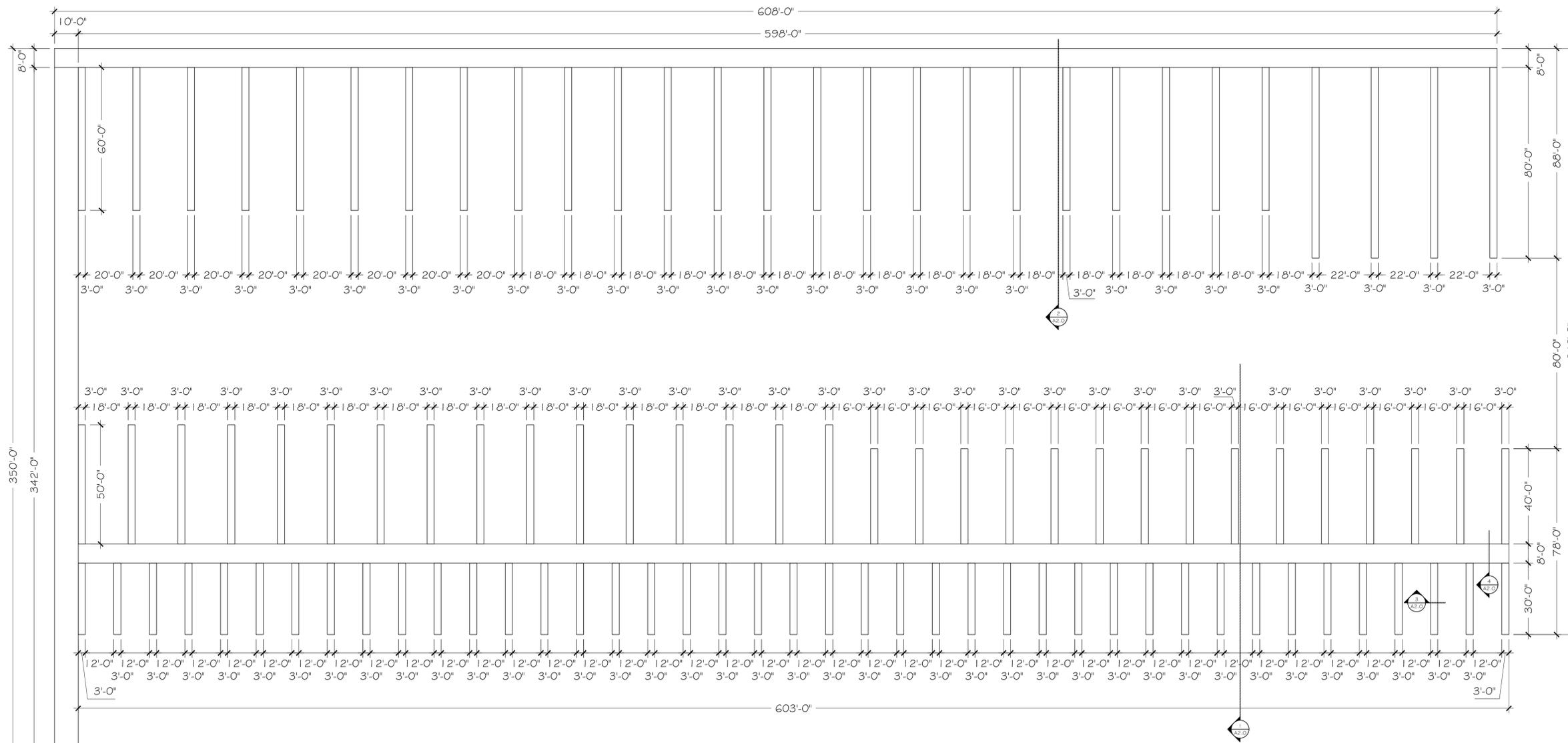
SCHEMATIC DIMENSION PLAN

PROJECT NUMBER SHEET

DATE:
2-24-17
SCALE:
AS NOTED

1.0

FOR REVIEW ONLY



General Notes

No.	Revision/Issue	Date

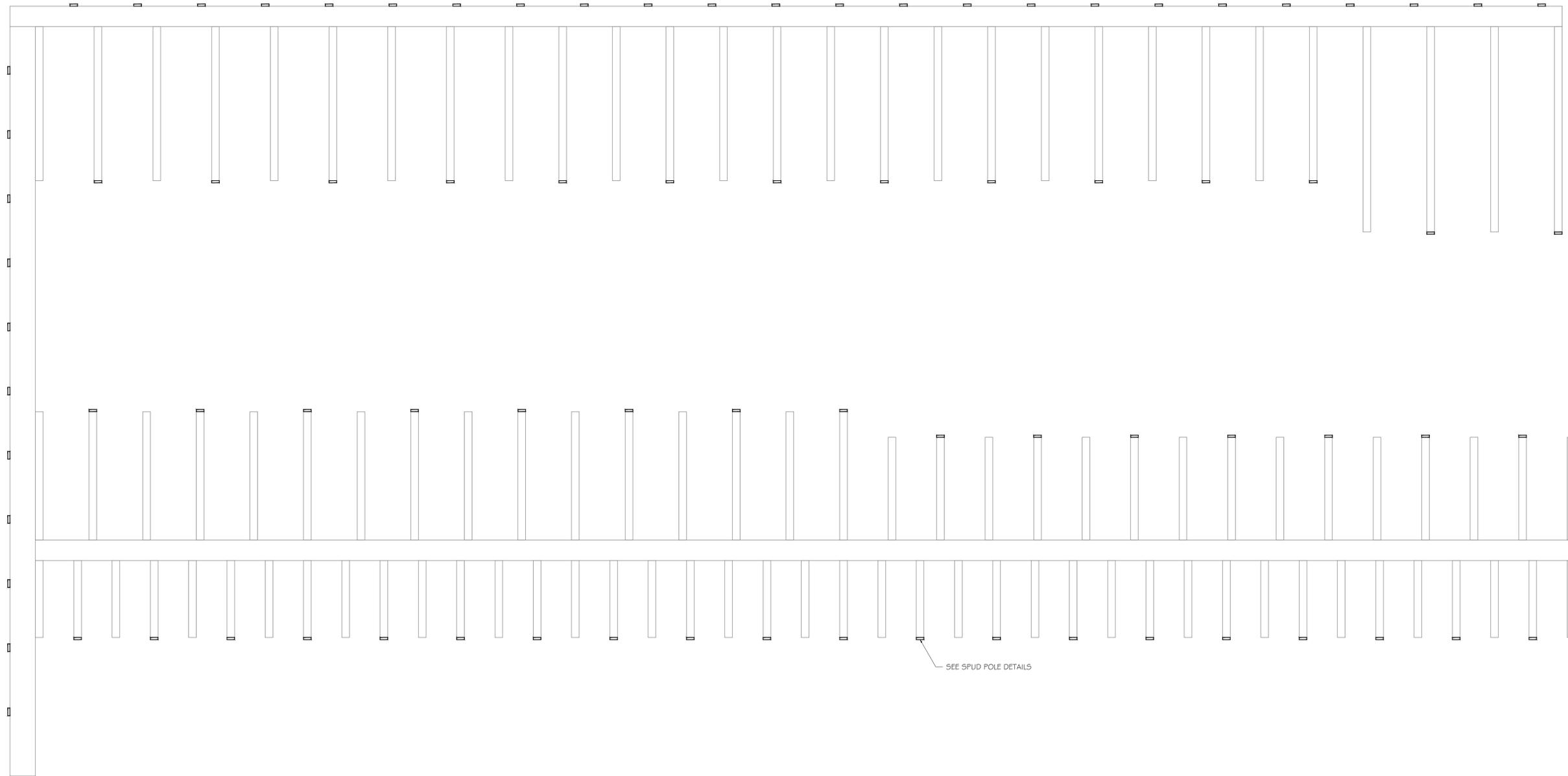
USA DOCKS
ROBERT JUDD

PROJECT NAME AND ADDRESS
HARBOR LIGHTS
SODDY DAISY, TN

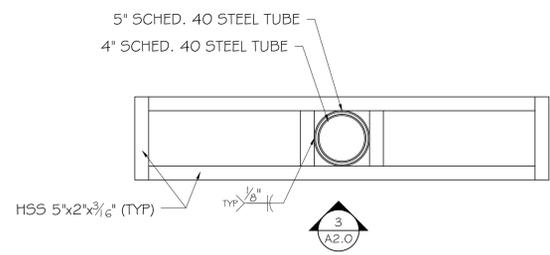
SHEET NAME
SCHEMATIC DIMENSION PLAN

PROJECT NUMBER	SHEET
DATE: 2-24-17	.
SCALE: AS NOTED	

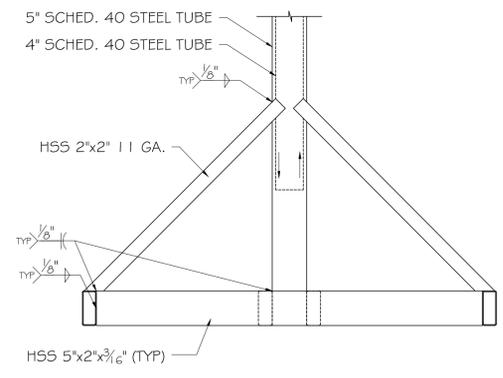
FOR REVIEW ONLY



SEE SPUD POLE DETAILS



SPUD POLE DETAIL



SPUD POLE DETAIL

General Notes

No.	Revision/Issue	Date

USA DOCKS
ROBERT JUDD

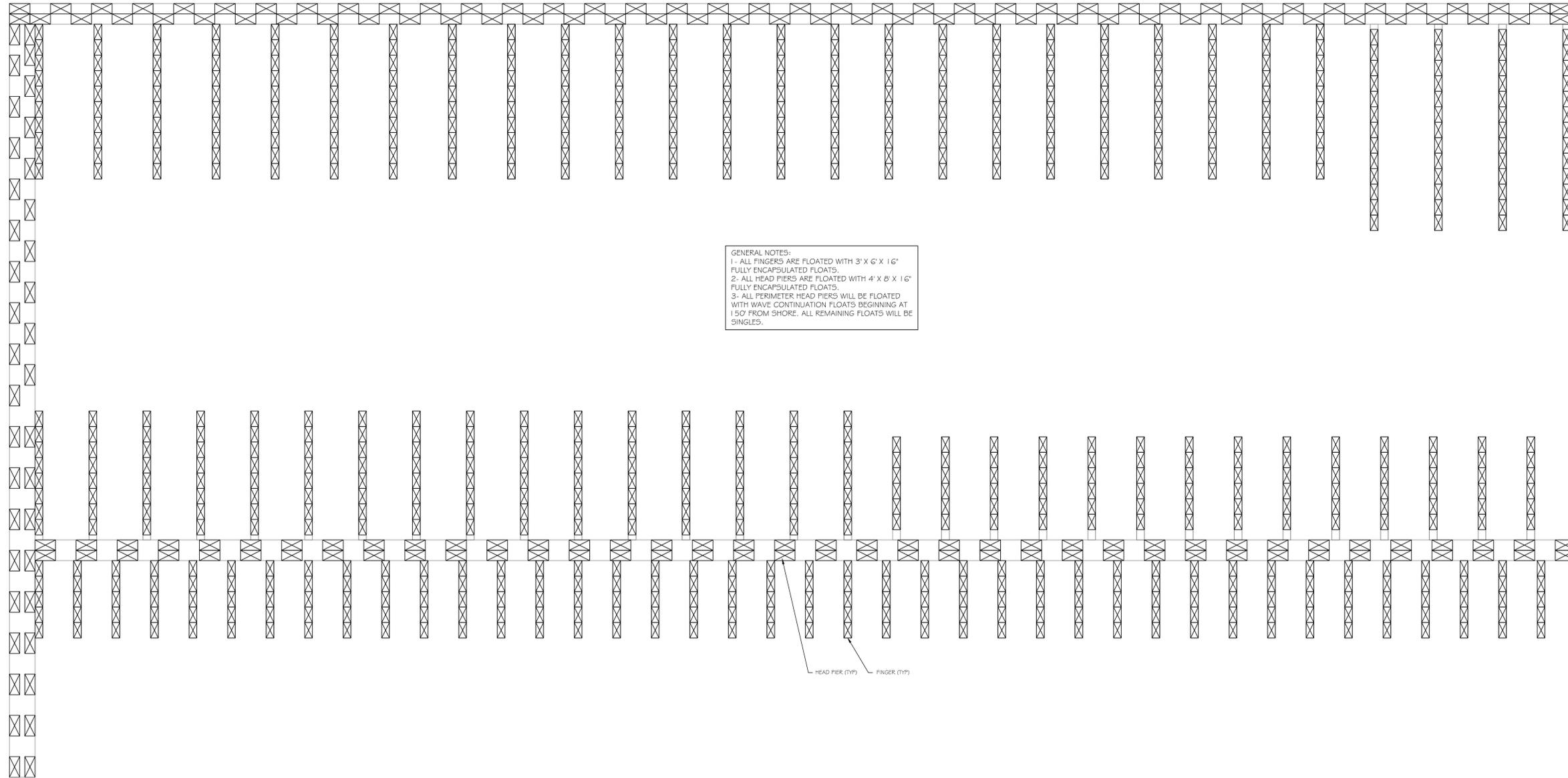
PROJECT NAME AND ADDRESS
HARBOR LIGHTS
SODDY DAISY, TN

SHEET NAME
SPUD POLE PLAN

PROJECT NUMBER	SHEET
-	1.2

DATE: 2-24-17
SCALE: AS NOTED

FOR REVIEW ONLY



GENERAL NOTES:
1- ALL FINGERS ARE FLOATED WITH 3' X 6' X 16" FULLY ENCAPSULATED FLOATS.
2- ALL HEAD PIERS ARE FLOATED WITH 4' X 8' X 16" FULLY ENCAPSULATED FLOATS.
3- ALL PERIMETER HEAD PIERS WILL BE FLOATED WITH WAVE CONTINUATION FLOATS BEGINNING AT 150' FROM SHORE. ALL REMAINING FLOATS WILL BE SINGLES.

HEAD PIER (17P) FINGER (17P)

General Notes

No.	Revision/Issue	Date

USA DOCKS
ROBERT JUDD

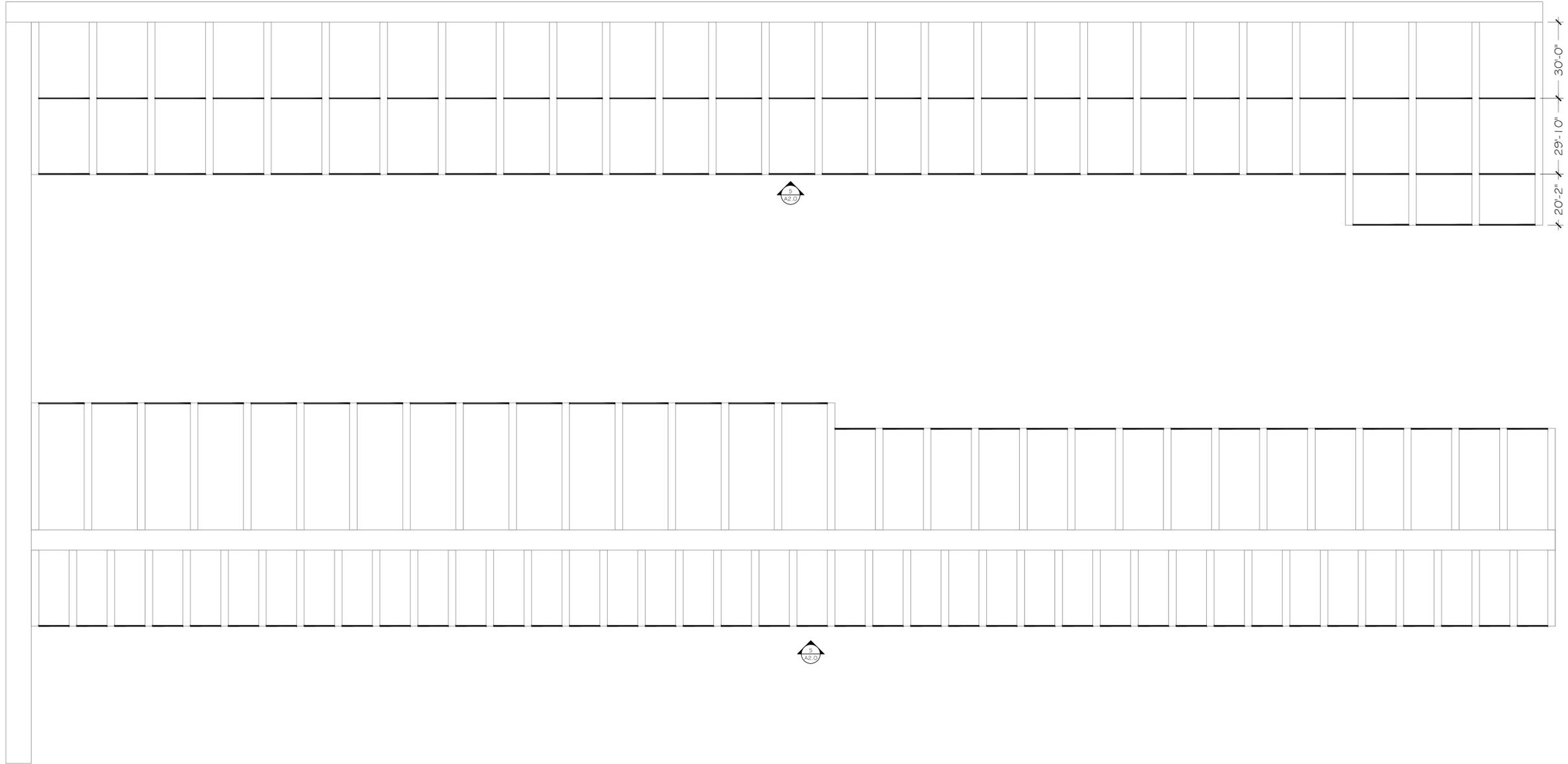
PROJECT NAME AND ADDRESS
HARBOR LIGHTS
SODDY DAISY, TN

SHEET NAME
FLOAT LAYOUT PLAN

PROJECT NUMBER	SHEET
	1.3

DATE: 2-24-17
SCALE: AS NOTED

FOR REVIEW ONLY



General Notes

No.	Revision/Issue	Date

USA DOCKS
ROBERT JUDD

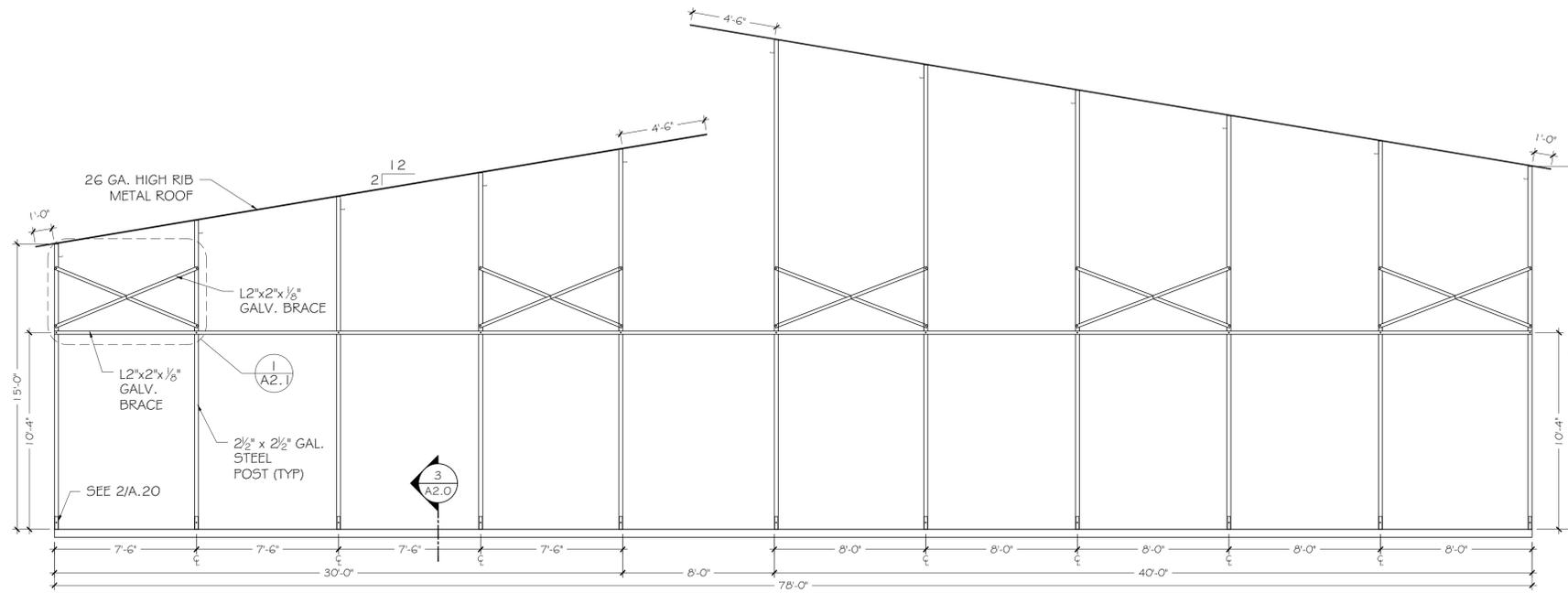
PROJECT NAME AND ADDRESS
HARBOR LIGHTS
SODDY DAISY, TN

SHEET NAME
UNDER WATER BRACING
LAYOUT PLAN

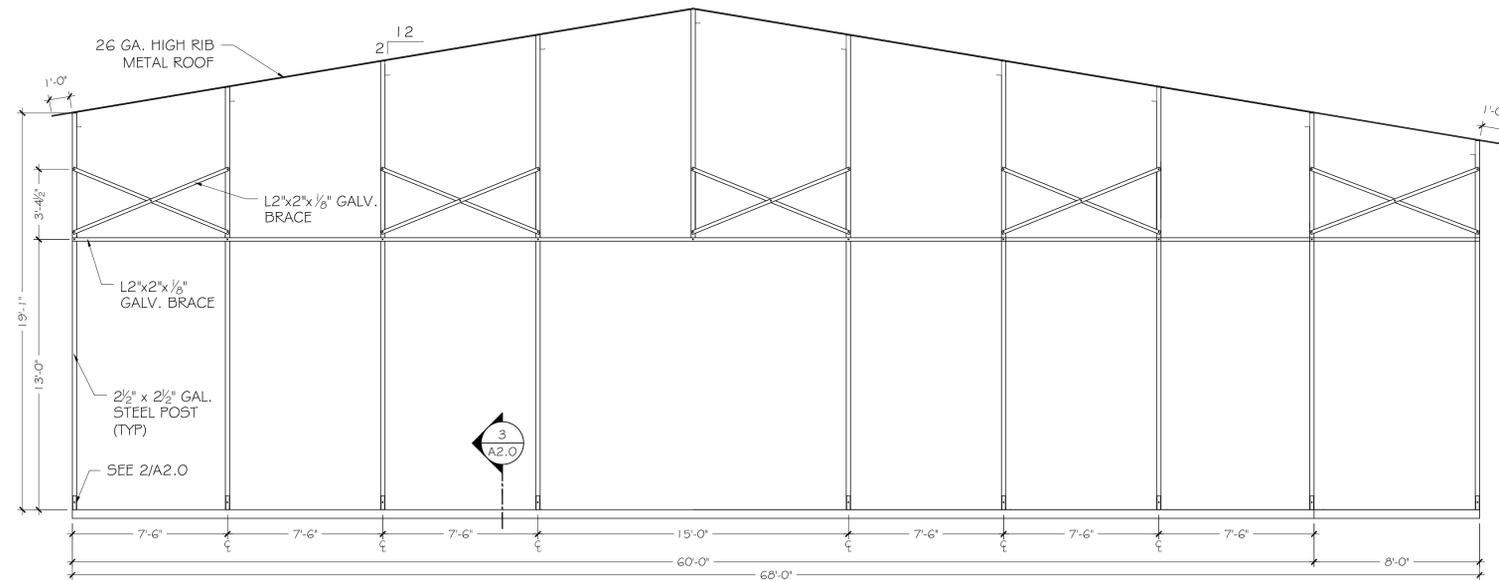
PROJECT NUMBER	SHEET
	1.4

DATE: 2-24-17
SCALE: AS NOTED

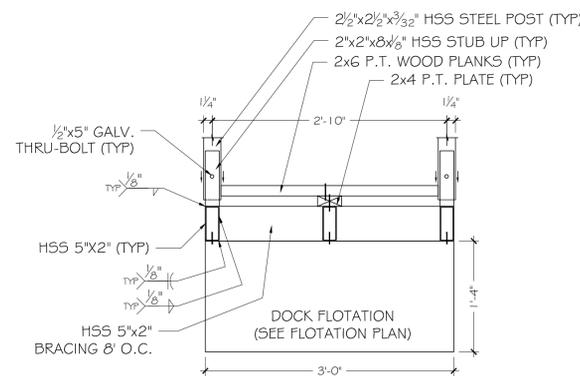
FOR REVIEW ONLY



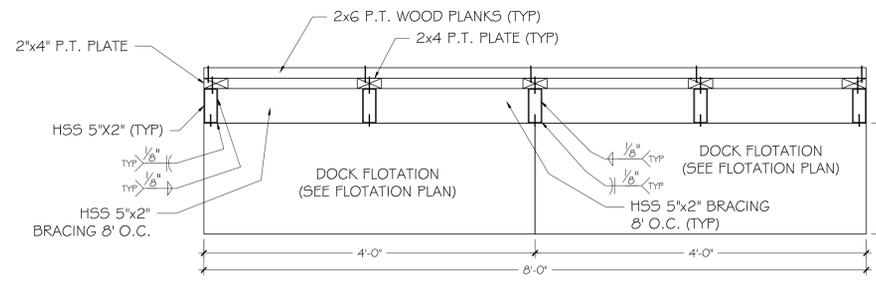
1 ROOF FRAMING SECTION
SCALE- 1/4" = 1'



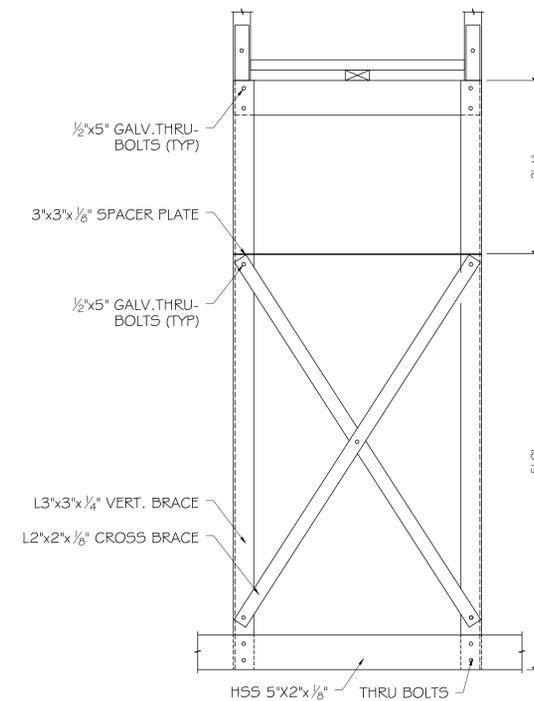
2 ROOF FRAMING SECTION
SCALE- 1/4" = 1'



3 CROSS SECTION
SCALE- 1" = 1'



4 CROSS SECTION
SCALE- 1" = 1'



5 UNDERWATER BRACING
SCALE- 1" = 1'

General Notes

No.	Revision/Issue	Date

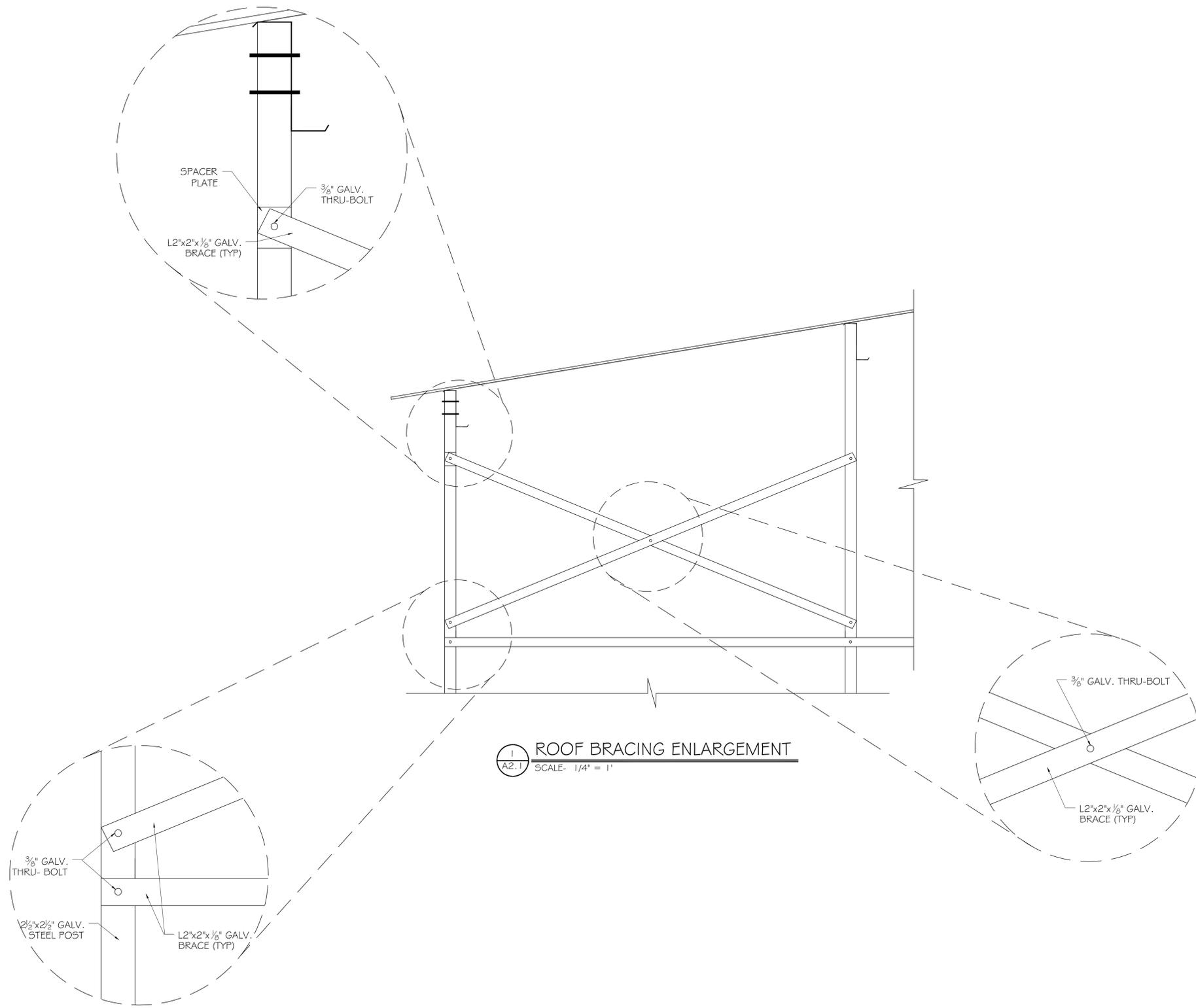
USA DOCKS
ROBERT JUDD

PROJECT NAME AND ADDRESS
HARBOR LIGHTS
SODDY DAISY, TN

SHEET NAME
DETAILS

PROJECT NUMBER	SHEET
DATE: 2-24-17	A2.0
SCALE: AS NOTED	

FOR REVIEW ONLY



1 ROOF BRACING ENLARGEMENT
A2.1 SCALE: 1/4" = 1'

General Notes		
No.	Revision/Issue	Date
USA DOCKS <small>ROBERT JUDD</small>		
PROJECT NAME AND ADDRESS		
HARBOR LIGHTS SODDY DAISY, TN		
SHEET NAME		
DETAILS		
PROJECT NUMBER	SHEET	
DATE:	A2.1	
2-24-17		
SCALE AS NOTED		





SITE INFORMATION CHECKLIST

Section 26a and Land Use

Applicant Harbor Lights Marina		TVA Tract No. XCR-67	RLR No. 281477
Inspected By	Inspection Date	Project Description New docks, expansion of harbor limits	

26a Category I
 26a Category II
 26a Category III
 Land Use
 Other

LOCATION (Section 26a reviews only)

1. Will the proposed facility(ies) be?
 - off reservoir *(skip to question 11)* on reservoir or regulated stream
2. Will the proposed facility(ies) be on?
 - flowage easement - *vegetation management plan (VMP) not required* TVA-owned land - *VMP required* N/A
3. Will the proposed facility(ies) be in a?
 - pre-Shoreline Management Policy (SMP) subdivision - *Pre-SMP Waiver Guidelines may apply (for TVA-owned land: use pre-SMP vegetation management guidelines or document current practices)*
 - SMP subdivision - *Section 26a Regulations apply (for TVA-owned land: VMP required; mark SMZ & access corridor)*
 - N/A

SITE DATA

Take a minimum of 4 photos—one in each direction on site. Make sure to note facility locations on photos **before** initiating coordination.

4. What is the Residential Shoreline Categorization? green yellow red N/A
5. Are existing facilities present? Yes No If yes, document with photos and dimensions for each
6. If existing facilities present, are they permitted? Yes No If NO, document with photos and enter a V&E record.
7. Did the ALIS Heritage SMI Database* indicate potential to affect protected species? Yes No N/A
8. Did the ALIS Wetlands SMI Database* indicate potential to affect wetlands? Yes No N/A
9. Did the ALIS Archaeological SMI Database indicate potential (red) to affect archaeological resources? Yes No

* Database to be developed from existing SMI data.

SITE COMPATIBILITY (Section 26a reviews only)

10. Will the proposed facility(ies) extend beyond 1/3 of the cove or slough?
 - Yes - *refer to Prescreening Criteria Checklist* No
11. Is space limited in this part of the reservoir so that the proposed facility may affect existing and future facilities? In jointly owned outlot situations, see Regulations §1304.206. Yes - *modify plans* No

NAVIGATION

12. Will the proposed facility(ies) be located near the following?
 - Check all that apply and refer to Prescreening Criteria Checklist.*
 - a navigation marker a light a safety harbor shoreline which requires navigation review

If the site needs review by a navigation specialist, indicate any shoreline characteristics that may affect navigation's approval of the facility.

 - rock outcroppings bank erosion other _____
13. Does the Navigation Database indicate navigation concerns? green red N/A

TRANSMISSION SYSTEM

14. Is there a TVA transmission line crossing at the site (lot)? Yes - *refer to Prescreening Criteria Checklist* No

SITE INFORMATION OBSERVATIONS

15. Adjacent/backlying land use:
 - no development residential recreational commercial industrial agricultural
16. Natural shoreline features:
 - undercut bank rock outcroppings height of bank in feet

SITE INFORMATION OBSERVATIONS - Continued

17. Shoreline erosion:

- none (stabilized, rock outcrop, bluff)
- minimal (adequate vegetative cover, grass/shrub cover)
- moderate (<2' vertical bank and/or limited vegetative cover)
- severe (>2' vertical bank and/or limited vegetative cover, bank sloughing, rills and gullies)

18. Manmade shoreline features:

- riprap
- seawall
- other _____

19. Topography / percent (%) slope:

- gentle / (0-5%)
- medium / (6-20%)
- steep / (>20%)

20. What is the visible soil type or parent material at or below pool?

- sand
- clay
- silt
- gravel
- rubble or cobblestones
- bed rock (solid rock underlying surface material)

21. Indicate vegetation cover on TVA property:

(Choose S = at shoreline, B = at backlying TVA property, or S&B = at shoreline and backlying TVA property)

- | | | |
|-------------------------------|----------------------------|---------------------|
| ___ bare soil | ___ grass/forb | ___ pine/grass |
| <u>S&B</u> hardwood/grass | ___ lawn/maintained field | ___ pine/undercover |
| ___ hardwood/undercover | <u>S&B</u> shrub/grass | ___ pine/cedar |
| ___ trees fallen into water | ___ shrub/brush | ___ pine/hardwood |

RESOURCE INDICATOR OBSERVATIONS

22. Are any of the following indicated?

- streams
- several submerged stumps
- springs/seeps
- fish attractor (brush pile)

23. Are any of the following observed?

- caves (endangered bats, etc.)
- nests greater than 3' in diameter or several large nests (eagle, osprey)

24. Are any of the following conditions present?

- emergent wetland (cattail, bulrush; i.e., plants in the water along water's edge)
- scrub/shrub wetland (buttonbush, black willow, river alder, silky dogwood; i.e., bushes along water's edge)
- aquatic bed wetland (water milfoil, naiads, pondweeds; i.e., plants in the water)
- forested wetland (willow, sycamore, silver maple, river birch; i.e., trees along shore)

25. Are any of the following observed or on acquisition map? (Include submerged features)

(Provide copy of the appropriate portion of the acquisition map to reviewers)

- spring
- sinkhole(s)
- other _____
- house foundation
- orchard
- barn
- outhouse
- roadbed(s)
- pump house

26. Are any structures 50 years old or older present or visible from impact area? Yes No

27. Are any archaeological materials observed? (Such as flint chips, pot shards, bones, old mussel shells, bricks, etc.) Yes No

INDIANA BAT HABITAT ASSESSMENT

28. Does project include the removal of vegetation greater than three inches in diameter? Yes No

If YES, how many trees? _____ If YES, proceed to 29

29. Is habitat in project area suitable for summer roosting Indiana bat present?

- Yes No Check YES if any of the criteria below are present and proceed to 30.

Are live/dead trees present that are three inches in diameter or greater, AND have 1) exfoliating/sloughing bark present on the trunk or limbs OR 2) cavities, hollows or pits present?

- Yes No If YES, provide numbers below.

Number of live trees: _____ Number of dead trees: _____

Do any of the trees identified above rise above the surrounding canopy of trees?

- Yes No (NO, if the top of trees are below surrounding canopy, shaded and no solar exposure.)

30. If Indiana bat habitat is present, photograph, number and document tree species (if identifiable) to be removed and include close-up photos of trunk(s), top of tree(s), and surrounding vegetation/habitat(s).

Notes:

Table 1. Records of state- and federal-listed aquatic animal species located within a 10 mile radius search

Scientific Name	Common Name	EO Rank	State	State Rank	State Status	Federal Status
Carpoides velifer	Highfin Carpsucker	E - Verified extant (viability not assessed)	TN	S2S3	D	
Lampsilis abrupta	Pink Mucket	H - Historical	TN	S2	E	LE

Table 2. Records of state- and federal-listed plant species and champion tree points located within a 5 mile radius search

Scientific Name	Common Name	EO Rank	State	State Rank	State Status	Federal Status
Sacciolepis striata	Gibbous Panic-grass	E - Verified extant (viability not assessed)	TN	S1	S	
Scutellaria montana	Large-flowered Skullcap	E - Verified extant (viability not assessed)	TN	S4	T	LT

Table 3. Records of state- and federal-listed terrestrial animal species and heronry points located within a 3 mile radius search

Scientific Name	Common Name	EO Rank	State	State Rank	State Status	Federal Status
Colonial Wading Bird Colony	Colonial Wading Bird Colony	E - Verified extant (viability not assessed)	TN	SNR		
Colonial Wading Bird Colony	Colonial Wading Bird Colony	AB - Excellent or good estimated viability	TN	SNR		
Colonial Wading Bird Colony	Colonial Wading Bird Colony	F - Failed to find	TN	SNR		
Haliaeetus leucocephalus	Bald Eagle	E - Verified extant (viability not assessed)	TN	S3	D	DM
Haliaeetus leucocephalus	Bald Eagle	F - Failed to find	TN	S3	D	DM
Haliaeetus leucocephalus	Bald Eagle	F - Failed to find	TN	S3	D	DM
Pandion haliaetus	Osprey	E - Verified extant (viability not assessed)	TN			
Pandion haliaetus	Osprey	BD - Good, fair, or poor estimated viability	TN			
Pandion haliaetus	Osprey	Not ranked	TN			
Pandion haliaetus	Osprey	AC - Excellent, good, or fair estimated viability	TN			
Pandion haliaetus	Osprey	AC - Excellent, good, or fair estimated viability	TN			
Peucaea aestivalis	Bachman's Sparrow	E - Verified extant (viability not assessed)	TN	S1B	E	

Table 4. Records of Managed Areas (MABR) points located within a 5 mile radius search

Managed Area Code	Managed Area ID	Managed Area Name	Manager	Ownership
M.USTVHP*762	1085	HARRISON BAY STATE RECREATION PARK		
M.USTVHP*19	1255	CHIGGER POINT TVA HABITAT PROTECTION AREA	HEATHER HART	
M.USTVHP*1043	1294	HAMILTON COUNTY PARK		
M.USTVHP*36	1443	SODDY CREEK TVA HABITAT PROTECTION AREA	HEATHER HART	
M.USTVHP*634	598	SEQUOYAH NUCLEAR GENERATING FACILITY	STEPHANIE HOWARD OR RUTH ANN HURT	
M.USTVHP*910	886	UNIVERSITY OF TENNESSEE FRIENDSHIP FOREST		
M.USTVHP*3	942	WARE BRANCH BEND TVA HABITAT PROTECTION AREA	HEATHER HART	

Table 5. Records of Heritage Sites (SBR) points located within a 5 mile radius search

Site ID	Site Name	Site Code
251	CHIGGER POINT	S.USTVHP*4582
7	WARE BRANCH BEND	S.USTVHP*4643
818	SODDY CREEK	S.USTVHP*4634

Table 6. Records of Heritage Natural Areas points located within a 3 mile radius search

State	MA Name	Key ID Number	MA Type	MA Unit Code	Acres	Designation
Tennessee	CHIGGER POINT TVA HABITAT PROTECTION AREA	Y	HP	HP	15.3	Managed Area
Tennessee	HAMILTON COUNTY PARK	Y	PK		322	Managed Area
Tennessee	HARRISON BAY STATE PARK	Y	SP		1844.4	Managed Area
Tennessee	SODDY CREEK TVA HABITAT PROTECTION AREA	Y	HP	HP	35.8	Managed Area
Tennessee	UNIVERSITY OF TENNESSEE FRIENDSHIP FOREST	Y	FO		600	Managed Area

Table 7. Records of caves sites located within a 3 mile radius search

Scientific Name	Common Name	EO Rank	State	State Rank	State Status	Federal Status
None Found						



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

January 31, 2017

Mr. Clinton E. Jones
Tennessee Valley Authority
Biological and Cultural Compliance
400 West Summit Hill Drive
Knoxville, TN 37902

RE: TVA / TENNESSEE VALLEY AUTHORITY, Harbor Lights Yacht Club Harbor Limits Expansion, ,
HAMILTON COUNTY, TN

Dear Mr. Jones:

In response to your request, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, we concur that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects, the specific location, size, scope and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties, the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register, or it will not alter an eligible Historic Property's location, setting or use. We have no objections to your proceeding with your undertaking.

If your agency proposes any modifications in current project plans or discovers any archaeological remains during the ground disturbance or construction phase, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. You may direct questions or comments to Jennifer M. Barnett (615) 741-1588, ext. 105. This office appreciates your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb

Entered in ENTRAC on 3/22/2017

SECTION 26a FILE 281477 - CEC 35861 - MARINA/EXPANDED HARBOR LIMITS - HARBOR LIGHTS MARINA - DARRELL JONES - 20 C / D STAGE STREAM(S) – CHICKAMAUGA RESERVOIR – TENNESSEE RM 482R

Darrell Jones has made application to modify previously approved harbor limits for the Harbor Lights Marina. The applicant is requesting to replace existing slips on the Main River side of the property with new, larger slips, (approximately 95 new slips) requiring an expansion of the harbor limits to 400' long x 600' wide.

TVA Natural Resources, TVA Navigation, USACE Regulatory Office, USACE Navigation have discussed the proposed harbor limit at length due to the close proximity to the marked Navigation Channel as well as the Home Owners Association and subdivision next door to the marina.

This location on the Tennessee River is in a bend of the river with the river itself approximately 2,000 feet wide. The marked navigation channel is over 1,000 feet wide, occupying over half of the river. As tows travel through this area, typically they transit the middle of the channel. However, certain conditions, such as weather or multiple tows or recreation vessels transiting at the same time, would cause commercial traffic to favor the right descending side of the navigation channel, causing safety concerns. TVA Navigation, in conjunction with the USACE, feels that 400 feet lakeward extension is far too close to the navigation channel from a safety standpoint.

In addition, the marina is adjacent to the River's Edge Subdivision where many homes have docks in close proximity to the marina. The public, including many homeowners have voiced concern for safety, noise, lighting, traffic both on land and in the river, and water quality. From a navigation standpoint, we feel the 600 foot width of the marina, which will add approximately 95 more slips, is encroaching on the space and safety of nearby existing docks in addition to creating more of a traffic hazard for commercial vessels. TVA Navigation will approve only 550 feet, as opposed to the requested 600 feet width, for the harbor limits.

On Friday, March 24, USACE Navigation staff, TVA Natural Resources staff, and the marina owner met to discuss the harbor limits. Following that meeting, it was agreed upon to reduce the harbor limits to approximately 300 feet lakeward extension on the most southern side and angled out to extend approximately 375 feet lakeward extension on the most northern side. The dock would be angled to contour the channel for better water depth accessibility without further extending into the channel. The revised harbor limits are included for clarification.

We therefore, recommend issuance of the requested permit contingent upon the following conditions:

1. The proposed new harbor limits shall extend 550' north to south and 300 - 375' lakeward extension from the normal summer pool elevation of 682.5.
2. All facilities shall be contained within the new revised harbor limits.

3. All floating facilities shall be securely anchored to prevent them from floating free during major floods.
4. The applicant is advised in writing that the facility will front a recreational and commercial navigation channel which makes the facility and any moored boats vulnerable to wave wash and possible collision damage from passing vessels.

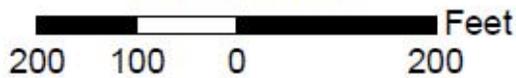
NCB

cc: Mark Mcintosh, USACE Eastern Field Office, Lenoir City, Tennessee
26a Memo/281477

Attachment 1 - Approved TVA Navigation Harbor Limits



Harbor Lights Marina
Proposed Dock Expansion
Revised: 550-ft W x 300/375-ft L Harbor Limit (Green)
RLR 281477
TN River Mile 482R



Provided by Jerry Fouse, Specialist, Recreation Strategy:

Water-related recreation – The study area considered in the water-related recreation analysis extends roughly upstream from the Chickamauga Dam at TN River mile 470.9 approximately 21.1 miles up the main arm of Chickamauga Reservoir in Hamilton County, Tennessee. For purposes of this boating density assessment total surface acres are considered summer pool at about 15,317 surface acres for analysis. There are several existing public, private and commercial recreation facilities that provide recreational boating access to Chickamauga Reservoir in the study area, including ten commercial marinas and yacht clubs, seventeen public recreation areas, 1980 private community docks, piers and boathouses, 240 private ramps and 400 community slips. These facilities and study area are considered as the “base case” for this recreation analysis. Commercial and public boating-related facilities available include forty-one boat-launching ramps with a combined parking capacity of 398 trailers and wet and dry slip accommodations for 2,911 vessels (see attached worksheet).

Property to support the Harbor Lights Marina expansion is privately owned by the applicant requesting approval under TVA's 26a permit process. Applicant has requested approval to construct and operate a commercial marina with 95 wet slips at TRM 482R. Applicant plans to provide thirty-nine parking spaces to support access for marina clients.

Boating Density

Development of the proposed marina expansion would provide additional boating services in this area of Chickamauga Reservoir. To gauge the impact this proposed expansion would potentially have on recreational boating traffic and boating safety, the boating activity patterns in the vicinity of the proposed marina have been assessed in the context of general boating activity patterns on TVA reservoirs.

In order to determine boating usage on TVA reservoirs, TVA completed a study in 2009 *Boating Density Analysis* (TVA 2009b, Appendix I) to estimate recreational boating densities based on observations of boating use patterns across the Tennessee River reservoir system. The *Boating Density Analysis* (TVA 2009b, Appendix I) included a review of boating density standards and guidelines used by other federal agencies. The capacity thresholds used by TVA were derived from a compilation of these assessments and guidelines. In the 2009 study, TVA estimates the percentage of vessels that are likely in use that are stored at commercial marinas and permitted private access facilities (such as permitted private docks, community docks, and private marinas) across the Tennessee River reservoir system. Similarly, public boat-launching ramps are in use on any given day but generally are not used at full vehicle/trailer parking capacity.

In order to determine the boating density for Chickamauga Reservoir, water-related recreation facilities as shown on the attached worksheet and existing private boat

docks, piers and boathouses in the recreation study area have been considered at 100 percent occupancy . TVA estimated the private access boating units for Chickamauga Reservoir using the 26a permit data base. The estimated private access boating units included in TVA's total permits from 26a records reflect 1,980 permits for private docks, piers and boathouses with a field estimate of 1.78 recreational boats per permit for an estimate of around 3,524 stored recreational boats and 400 community slips. These estimates for boats stored totals around 3,924 and is used as the "base" throughout the remaining calculations in the boating density worksheet.

For purposes of this evaluation, current boating use on TVA reservoirs was estimated for three different points in the peak summer boating season (May through September): (a) non-holiday week days, (b) non-holiday weekend days, and (c) peak use holiday weekend days (Memorial Day, July 4th, and Labor Day).

- (a) Non-holiday weekdays. This case estimates 15 percent of vessels stored at commercial marinas and private access facilities are likely to be in use, and 20 percent of estimated parking spaces for boat-launching ramps are likely in use each non-holiday weekday (Monday through Thursday) from May to September.
- (b) Non-holiday weekend days. This case estimates 25 percent of vessels stored at commercial marinas and private access facilities are likely to be in use, and 60 percent of estimated parking spaces for boat-launching ramps are likely in use during non-holiday weekend days (Friday, Saturday, and Sunday) from May to September.
- (c) Peak use holiday weekend days. This case estimates 35 percent of vessels stored at commercial marinas and private access facilities are likely to be in use, and 75 percent of estimated parking spaces for boat-launching ramps are likely in use during holiday weekend days (Friday, Saturday, Sunday, and Monday) from May to September.

The estimate of watercraft currently using the study area of Chickamauga Reservoir on an average daily basis on a weekday is 1,264 boating units with 12.12 surface acres per boating unit. Non-holiday weekend days are currently estimated to have 2,405 boating units with 6.37 surface acres per boating unit. Peak use holiday weekend days are estimated to currently have 3,266 boating units with 4.69 surface acres per boating unit. These estimates are based on the 15,317 surface acres. Optimum recreational boating density thresholds should allow at least 6.0 surface acres per boating unit. The current boating density thresholds are within or above optimum recreational boating density thresholds for the weekday and weekend periods estimated for the peak summer boating season and is estimated to exceed the 6.0 surface acres for the two holiday weekends of Memorial Day and Fourth of July . However, peak holiday weekends usually exceed recreation capacities for recreation opportunities.

The estimate of recreational boating density factoring in the proposed 95-slip marina expansion calculated to be 1278 boating units with 11.98 surface acres per boating unit for weekday boating. Non-holiday weekend days are currently estimated to have 2428 boating units with 6.31 surface acres per boating unit. Peak use holiday weekend days with the proposed marina expansion is estimated to have 3,299 boating units with 4.64 surface acres per boating unit. The boating density thresholds are within or above optimum recreational boating density thresholds for the weekday and weekend time frames and is estimated to exceed the 6.0 surface acres per boat for the two holiday weekends in the peak summer boating season. The threshold may be exceeded during peak use holiday weekends.

With the addition of the proposed 95-slip marina expansion based on projections of the resulting recreation development and boating use estimates, it appears Chickamauga Reservoir could accommodate non-holiday weekday, non-holiday weekend and holiday boating activity without going below generally accepted recreational boat thresholds of 6.0 to 7.6 surface acres per boat (TVA 2009b).

As watercraft use increases, the number of visitors, both on and off the reservoir, experiencing a feeling of overcrowding may increase, especially among historic users of Chickamauga Reservoir. Visitors seeking an experience of solitude and quiet out on a water body would be adversely impacted as visitation increases over time. These users may eventually seek other areas of the reservoir that offer a more rural undeveloped or semi-primitive experience. It is anticipated that the experience on Chickamauga Reservoir would be less crowded during the shoulder season for weekends in the months just before and after the peak boating season (May through September).

Under the proposed action, the total anticipated increase in watercraft on Chickamauga Reservoir would be 14, 23 and 33 boating units during non-holiday weekday, non-holiday weekend, and peak use holiday weekends, respectively. This is based upon the assumption of 100 percent occupancy for all slips, dry storage, ramp parking, and private docks, piers and boathouses on Chickamauga Reservoir. A total increase of about 1.0 percent in watercraft over the current weekday, non-holiday weekend and current peak use holiday weekend daily watercraft estimate could result from this alternative at (1.11%, .96% and 1.01% respectively).

Boating Safety

TWRA is responsible for preparing Tennessee's annual boating safety reports. The data in these boating safety reports are derived from efforts that document "reportable boating accident" incidents completed by TWRA officers investigating boating accidents. To be considered a reportable boating accident, an accident involves death, a missing person, an injury requiring medical treatment beyond first aid, or property damage of \$2,000 or more. The annual boating safety reports are analyzed in an effort to create proactive plans to reduce the number of boating accidents and their related fatalities, injuries, and property damage.

The 2015 *Tennessee Boating Accident Statistical Report* (TWRA 2015) has been published. In 2015, the number of boating fatalities among Tennessee's waterways decreased to 13 fatalities from the 17 fatalities reported in 2014 (TWRA 2014). There was a decrease in personal watercraft (PWC) fatalities from four in 2014 to three in 2015. With the exception of commercial whitewater accidents, the leading type of boating accident was collision with vessel (five fatalities), most often occurring while cruising, and most often because of no proper lookout. The top primary cause for fatal accidents was alcohol use and improper lookout, with 5 fatalities each (TWRA 2015).

On Chickamauga Reservoir, there was one boating fatality and five accidents reported in 2015; one injury accident and three property damage accidents. When compared to other reservoirs in Tennessee, Chickamauga had a relatively low occurrence of boating and PWC accidents (TWRA 2015). In 2015, (with the exception of commercial whitewater accidents on the Ocoee River), Center Hill Lake had the highest occurrence of boating incidents reported at 12. The most PWC accidents in 2015 occurred on Fort Loudon reservoir with two. For complete boating safety reports by date, see <http://www.tn.gov/twra/article/boating-publications>.

Boating accident reports were reviewed for the immediate area of Chickamauga Reservoir between TRM 481 to 483 for 2014 and 2015. A total of two incidents occurred in each year with only one a moving boat collision resulting from a wind storm. The other three involved bilge pump failures and a swimming ladder accident. For this area of the reservoir and review period, no watercraft accidents were reported as a result of boat operations involving a collision while under power.

Under the proposed action, there would be an increase in recreational boating traffic. Given this analysis and review, TVA has determined permit approval can move forward at this time. Implementation of the permit condition(s) would reduce potential water-related recreation impacts to insignificant levels. Furthermore, the analysis reveals the addition of the 95 slips as proposed would not significantly impact water-related recreation and the reduction in reservoir surface area per boat does not significantly affect the boater recreation experience.

Recreational Boating Density Assessment Worksheet

Reservoir: Chickamauga
Watershed Group: **Central**

Worksheet with estimated boating densities from proposed Harbor Lights Marina Expansion with
estimates for 95 Wet slips @ TRM 482R

				Estimated Private Access Water Craft Units	2016	Harbor Lights	Including	
					Existing	Proposal	Harbor Lights	
							Marina Prop.	
* Total Water Craft From 26a Records (docks, boat slips and boathouses @ 1.78 water craft per permit) for 1980					3524		3524	Private Only
Multiple Slips (+) (marinas)					1951		1951	
Community Slips (+)					400		400	***
Commercial Marinas (-)					-1951		-1951	
Adjusted Private Access Total					3924		3924	
				Estimated Water Craft Units w/marina slips - Total				
Adjusted Private Access Boating Units					3924		3924	
Commercial Wet Slips					1951	95	2046	
Commercial Dry Slips					1060		1060	
Subtotal Boating Units					6935		7030	
				Estimated Ramp Parking Spaces				
Public Ramp Parking					398		398	
Private Community Ramp Parking					720		720	
Subtotal Ramp Parking Spaces					1118		1118	
				Estimated % Water Craft Units In Use *				
				Ave. Summer		Ave. Summer		Peak Holiday **
				Weekday %		Weekend Day %		Summer %
Commercial and Private Wet & Dry Slips				15%		25%		35%
Public/Private Ramp Parking				20%		60%		75%
Full Pool Surface Acres				15,317	For TRM 492 to Chickamauga Dam			
				Current as of end 2016				
				Ave. Summer		Ave. Summer		Peak Holiday **
				Weekday		Weekend Day		Summer
Est Water Craft Units in Use				1264		2405		3266
Surface Acres Per Water Craft Unit				12.12		6.37		4.69
				With Hrbor Lights Marina Proposal				
Est Water Craft Units in Use				1278		2428		3299
Surface Acres Per Water Craft Unit				11.98		6.31		4.64

Notes and Assumptions:

* Assumes 100% occupancy of all docks, boat houses, wet slips and dry storage for water craft calculations and multiple water craft stored along shoreline at the rate of 1.78 per private docks, boathouses, and piers.

** Assumes highest potential use over three "Peak Holiday" weekends during summer boating season where recreation demand usually exceeds capacity.

*** Visual review indicated not more than 300. Used 400 to be conservative.

Summary

The Boating Density Worksheet captures a rapid, objective, and inexpensive means of

assessing the density of recreational boats on TVA reservoirs.

estimated boating density using boat storage numbers from the preferred alternative

Available literature provides standards that can be used to judge the acceptability of boating capacity levels on reservoirs. These standards are based on the assumption that the measure of surface acre per boat provides a suitable metric for measuring acceptability. Further assumptions are that the mix of recreational boating types and activities are similar and range from human-powered and wind-powered craft to motorized boats of various horsepower and size. If boating capacity estimates exceed a relevant standard, a more detailed analysis may be necessary. Managing to a boating density of 6.0 surface acres per boat appears to be appropriate.

TVA VISUAL RESOURCES SCENIC VALUE CRITERIA FOR SCENERY INVENTORY AND MANAGEMENT

The criteria for classifying the quality and value of scenery has been adapted from a scenic management system developed by the U.S. Forest Service and integrated with current planning methods used by the Tennessee Valley Authority. The classification process is also based on fundamental methodology and descriptions adapted from Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook Number 701, U.S. Forest Service, U.S.D.A. 1995.

The process and criteria are used to compare the value of scenery to other resource values during inventory and land planning tasks. They are also used to evaluate the extent and magnitude of visual changes that could result from proposed projects, as part of the environmental review required under NEPA. In addition they can be useful to help establish management objectives for improving or maintaining the scenic quality of managed lands.

Scenic Attractiveness - 3 levels

Attractiveness is a measure of scenic quality based on human perceptions of intrinsic beauty as expressed in the forms, colors, textures, and visual composition of each landscape. The combination of rock outcrops, water bodies, landforms, vegetation patterns, and other natural features that shape landscape character also help define scenic importance. The presence or absence of these features, along with valued attributes such as variety, uniqueness, mystery, pattern, order, vividness, harmony, and balance are used to classify the scenic attractiveness of a landscape.

Category 1: Distinctive - Areas where the variety of land forms, rock, vegetation patterns, water, and other features have outstanding or unique visual quality. These areas have strong, positive attributes that are relatively uncommon in the characteristic landscape. This category also includes areas in visually strategic locations that have somewhat more common attributes.

Category 2: Common - Areas where the land forms, rock, vegetation patterns, water, and other features have ordinary or common visual quality. These areas have generally positive but typical attributes, with a basic variety of forms, colors, and textures that are normally seen throughout the characteristic landscape.

Category 3: Minimal - Areas where the natural features have little change in form, line, color or texture resulting in low visual quality. Rock forms and vegetation patterns of any consequence are often not present, and these areas generally have weak or missing attributes. All areas not classified as 1 or 2 are included in this category.

Scenic Integrity - 4 levels

Integrity is a measure of scenic importance based on the degree of visual unity and wholeness of the natural landscape character. Human alteration can sometimes raise integrity, such as an impounded water body that unifies the landscape while adding variety, mystery, harmony, and balance. Most often scenic integrity is lowered by human alteration and the addition of visually disruptive elements. The presence and degree of discordant alteration is used to classify the scenic integrity of a landscape.

- High:** Areas where the valued landscape character appears to be intact and unaltered, with very minor deviation. Any deviation present must repeat the form, line, color, texture and pattern of the landscape so closely and at such a scale that they are not evident.
- Moderate:** Areas where the valued landscape character appears to be slightly altered. Noticeable deviations must be visually subordinate to the landscape being viewed, and borrow much of the natural form, line, color, texture and pattern.
- Low:** Areas where the valued landscape character appears to be modestly altered. Deviations begin to dominate the landscape being viewed, but the alterations should share natural color, shape, edge pattern, and vegetation characteristics in order to remain compatible or complimentary.
- Very Low:** Areas where the valued landscape character appears to be heavily altered. Deviations strongly dominate the landscape and may not share any of the visual attributes. The alterations may be visually disruptive and provide significant negative contrast to the natural landscape characteristics.

Scenic Visibility - 2 parts, 3 levels each

Landscape visibility is a measure of scenic importance based on several essential interrelated considerations which include viewer context and sensitivity, number of viewers, frequency and duration of view, level of detail seen, and seasonal variation. A large number of highly concerned viewers who view the landscape for a long time period may raise the scenic importance significantly. The importance may be much lower when only a few viewers with low concern see the landscape for a brief period. These considerations are combined in two parts which are used to classify the scenic visibility of a landscape.

Sensitivity: The level of scenic importance based on expressed human concern for the scenic quality of land areas viewed. Sensitivity may be derived/confirmed by resident and visitor surveys.

- Level 1:** High - Areas seen from the reservoir, lake shore residents, and lake view residents, where the number of viewers and concern for scenic quality are normally quite high.
- Level 2:** Moderate - Areas seen from principle roadways, use areas, and other public viewing areas. Concern for scenic quality is generally high while the number of viewers, view frequency and duration are moderate.
- Level 3:** Low - Areas seen from secondary travel routes, use areas, and any not included in the other levels. Concern may be high in some areas, but number of viewers is generally low.

View Distance: A principal indicator of scenic importance based on the distance an area can be seen by observers, and the degree of visible detail within that zone.

- Foreground:** From 0 feet to ½ mile. A distance zone where the individual details of specific objects are important and easily distinguished. Details are most significant within the immediate foreground, 0 - 300 feet.
- Middleground:** From ½ mile to 4 miles. The zone where most object characteristics are distinguishable, but their details are weak and they tend to merge into larger patterns. When landscapes are viewed in this zone they are seen in broader context. Human alteration may contrast strongly with the larger patterns and make some middleground landscapes more sensitive than the foreground.

Background: From 4 miles to the horizon. The distant landscape, where specific features are not normally discernible unless they are especially large, standing alone, or have a substantial color contrast. Details are generally not visible and colors are lighter.

Scenic Value Class - 4 levels

The value class of a landscape is determined by combining the levels of scenic attractiveness, scenic integrity and visibility. The selection matrix below shows the various combinations and the resulting scenic class. It is a guide that is intended to complement both a thorough field analysis and careful review of the visual absorption capacity.

Excellent: Areas with outstanding natural features that appear unaltered. Very minor deviations may be present but are generally unnoticeable even in the foreground. These areas are highly visible in the foreground and middleground from both land and water. Unaltered areas that may be less outstanding but are in a visually strategic location are also classified as excellent scenic value.

Good: Areas with attractive but common scenic quality and no distinctive natural features. Minor human alteration may be seen in the foreground but is barely noticeable in the middleground. These areas have relatively high visibility from both land and water.

Fair: Areas of common or minimal scenic quality with little or no interesting features. Moderate human alteration provides discordant contrast that is seen in the foreground but is less distinct in the middleground due to compatible form and color. These areas have relatively high visibility from both land and water.

Poor: Areas that have very little scenic importance and/or visually significant disturbances resulting from human activity. The alterations provide discordant contrast in the natural landscape due to incompatible size, shape, color, and material. The areas are clearly visible in the foreground and middleground, and have relatively high visibility from both land and water.

Severity of impact

The threshold of significance is the extent or magnitude of alteration to the existing landscape that is sufficient to change the Scenic Value Class by two levels or more.

SCENIC VALUE CLASS SELECTION MATRIX															
Visibility:	Sensitivity Level			1			1			2			2		
	View Distance			foreground			middleground			foreground			middleground		
Scenic Attractiveness Categories		1	2	3	1	2	3	1	2	3	1	2	3		
Scenic Integrity Levels	High	E	G	F	E	E	G	E	G	F	E	E	G		
	Moderate	G	G	F	E	G	F	G	G	F	E	G	F		
	Low	F	F	P	F	F	P	F	F	P	F	F	P		
	Very Low	P	P	P	F	P	P	P	P	P	F	P	P		
		Scenic Value Class: E = Excellent; G = Good; F = Fair; P = Poor													

Visual Absorption Capacity

Absorption capacity indicates the relative ability of a landscape to accept human alteration with the least loss of landscape character and scenic value. These indicators are useful to help predict potential difficulty or success with proposed development and scenic management. They are based on characteristics of the physical factors found in a landscape. Each characteristic has a capacity range from less to more, and the primary ones are shown in the list below. Visual absorption is also affected by the variety of landscape patterns, and the amount of screening provided by landforms, rock, water bodies, and vegetation.

<u>Factor</u>	<u>Least Capacity to Absorb Change</u>	<u>Greatest Capacity to Absorb Change</u>
Slope	Steep Unstable geology	Level Stable geology
Vegetation	Sparse cover Low cover, grasses and shrubs Few species, little or no pattern	Dense cover Tall cover, trees Multiple species, diverse pattern
Landforms	Simple shape	Diverse shapes, heavily dissected
Soils	Easily eroded Poor; slow re-vegetation	Erosion resistant Rich; fast re-vegetation
Shoreline	Simple line, little or no interruption	multiple interruptions, diverse features
Color	Narrow range of indigenous colors	Broad range of indigenous colors

Desired Landscape Character

Scenic attractiveness and the existing level of scenic integrity serve as the foundation for selecting the preferred landscape character. Lake adjacency and ecosystem trends should be considered along with the historic visual character to help any changes be more complete, attractive, and sustainable. Several types of landscape character and the related long range objectives for scenic integrity are described below.

Natural Evolving landscape character expressing the natural change in ecological features and processes with very limited human intervention.

Natural Appearing landscape character that expresses predominantly natural qualities but includes minor human interaction along with cultural features and processes that are relatively unobtrusive.

Pastoral landscape character expressing dominant human developed pasture, range, and meadow, along with associated structures, reflecting historic land uses, values, and lifestyles.

Rural landscape character that expresses sparse but dominant human residential and recreational development, along with associated structures and roadways that reflect current lifestyles.

Urban landscape character expressing concentrations of human activity in the form of commercial, residential, cultural, and transportation, facilities, along with supporting infrastructure.

Visual Management Objectives

Based on the scenic value class, management objectives may be developed to accomplish or maintain the visual character desired for each area.

Preservation:

Areas classified Excellent, and managed for a natural evolving landscape character. Only very low impact recreational and scientific activities are allowed, and no facilities are permitted.

Retention:

Areas classified Good, and managed for a natural appearing landscape character. Permitted activity or minor development should repeat the natural form, line, color, and texture of the area and remain visually subordinate to the surrounding landscape. Changes in the size, intensity, direction and pattern of activity should be unobtrusive and not readily evident.

Modification:

Areas classified Good or Fair, and managed for pastoral or rural landscape character. Permitted activity and development may dominate the original character but should remain visually compatible with the remaining natural landscape. Vegetation and landform alterations should repeat the natural edges, forms, color, and texture of the surrounding area. The scale and character of structures, roads, and other features should borrow naturally established forms, lines, lines, colors and patterns to provide the greatest possible visual harmony.

Maximum Modification:

Areas classified Fair or Poor, and managed for urban landscape character. Permitted activity and development generally dominates the original visual character. Vegetation and landform alterations should remain visually harmonious with the adjacent landscape. When seen in the foreground and middleground, they may not fully borrow the surrounding natural forms, lines, colors and textures. Likewise, development features seen from the same distances may be out of scale and have significant details that are discordant with the natural landscape character. Overall development should be directed toward achieving the greatest possible visual harmony.

Enhancement:

Any area classified less than Excellent, with a relatively short term management objective intended to restore and/or improve the desired scenic quality. Rehabilitation activities may include alteration, concealment, or removal of obtrusive and discordant elements. Enhancement activities may include addition or modification of natural elements and man-made features to increase the variety and attractiveness of spaces, edges, forms, colors, textures, and patterns.

Appendix B:

Public Comments and Responses

APPENDIX B – PUBLIC COMMENTS AND RESPONSES

TVA Public Comment Period

In accordance with TVA's policy on Section 26(a) permit requests for expanding commercial recreation harbor limits, the applicant issued a public notice on December 19, 2016 in the Chattanooga Times Free Press. The notice initiated a 30-day public comment period ending on January 18, 2017. TVA received no comments during the stated period. However, two comments were received immediately after the closing of the comment period and were accepted into the record. A third commenter submitted comments as well, but later informed TVA they wished to not have their comments included in the record.

The Home Owners Association for the River's Edge Subdivision requested a public meeting to address the questions and concerns from the residents of the neighboring subdivision. TVA hosted an informal meeting with the residents of the subdivision on March 7, 2017 at the Sequoyah Nuclear Plant (SQN) Training Center. Eight residents from the subdivision attended the meeting. No additional written comments were received.

The comment submissions were carefully reviewed and subdivided into 12 distinct comment statements. Additionally, two questions posed during the public meeting which were not formally submitted are also addressed.

Comments Regarding Navigation Concerns

Comment 1. What impacts will the increased harbor limits cause to navigation on this stretch of the Tennessee River? (Craze and Freeman)

Response: The marina owner's original request was for harbor limits of 600' wide by 400' deep. TVA Natural Resources, TVA Navigation, USACE Regulatory Office, and USACE Navigation have discussed the proposed harbor limit at length due to its close proximity to the marked Navigation Channel as well as the subdivision next door to the marina. Because of these concerns, TVA and the USACE Navigation staff met with the marina owner who agreed to reduce the requested harbor limits to approximately 300 feet lakeward extension on the most southern side and angled out to extend approximately 375 feet lakeward extension on the most northern side. The dock would be angled to contour the channel for better water depth accessibility without further extending into the channel.

TVA considered the requested 600 foot width of the marina, which would add approximately 95 more slips. TVA navigation determined the proposed 600 foot marina as encroaching on the space and safety of nearby existing docks in addition to creating more of a traffic hazard for commercial vessels. TVA Navigation will approve only 550 feet, as opposed to the requested 600 feet width, for the harbor limits. Further, the following conditions will apply:

- The proposed new harbor limits shall extend 550' north to south and have a 300 - 375' lakeward extension from the normal summer pool elevation of 682.5.
- All facilities shall be contained within the new revised harbor limits.

- All floating facilities shall be securely anchored to prevent them from floating free during major floods.
- The marina owner is advised in writing that the facility will front a recreational and commercial navigation channel which makes the facility and any moored boats vulnerable to wave wash and possible collision damage from passing vessels.

Comments Regarding Aquatic Impacts

Comment 2. What impacts to wildlife will occur from the marina operations and increased number of boats? (Freeman)

Response: A review of TVA's natural heritage data for special status aquatic species within 10 miles of the project showed a historical occurrence of 1 state and federal endangered species (Pink Mucket) and 1 state "in need of management" species (Highfin Carpsucker). Suitable habitat for these species does not occur at or near the project site, and therefore the project will not affect these species. And with the implementation of general and standard best management practices to prevent sediment from entering aquatic habitats and for the operation/maintenance of this facility, potential effects to aquatic species in general will be insignificant.

Review for plant species showed 1 state and federal threatened species (Large-flowered Skullcap) and 1 state special concern species (Gibbous Panic-grass) within 5 miles of the project site. Suitable habitat for these species does not occur at or near the project site and the project has a minimal connection to terrestrial habitat - as a result the project will not affect these species.

Review of TVA heritage data shows records for 1 state "in need of management" avian species within 3 miles of the project site. The project will not affect nesting or feeding habitat for this species - as a result, the project will not affect this species.

Records for bald eagle and osprey were found within 3 miles of the project site. The project is sufficiently distant (>660 feet) to avoid disturbance of these resources.

No records for special status terrestrial animal species were found within 3 miles of the project site. Effects to terrestrial species will be avoided with implementation of general and standard best management practices for this project. Additionally, the Indiana bat is listed as a federally endangered species for this area. Northern long-eared bat also has the potential to occur in this area and has been listed as federally threatened. Both species hibernate in caves, and in the summer generally roost behind the loose bark of dead or dying trees or in tree cavities. No trees would be removed as a result of the proposed project. Therefore, TVA has determined that the proposed actions would not affect Indiana bat or northern long-eared bat.

Comment 3: What impacts to water quality will occur? (Craze and Freeman)

Response: This project is located in Hamilton County, TN and the area drains within the potentially affected Tennessee River (06020001) 8-digit HUC watershed. The proposed project is located directly in the Chickamauga Reservoir/Tennessee River. This stream is not listed as impaired on the Tennessee's 303(d) Draft 2016 list. Chickamauga Reservoir/Tennessee River at approximately TRM 482 is classified by

TDEC for domestic water supply, industrial water supply, fish and aquatic life, recreation, livestock watering and wildlife, irrigation and navigation. A storm water construction permit would not be required unless the project disturbs more than one acre. No commitments are required beyond standard TVA requirements—i.e., compliance with all applicable federal, state and local environmental laws and regulations, proper implementation of BMPs and best engineering practices, and proper containment/treatment/disposal of wastewaters, stormwater runoff, wastes, and potential pollutants. With compliance with these standard requirements, impacts to water quality should be insignificant.

Additionally, it is recommended that the Tennessee Valley Clean Marina Guidebook for BMPs and site management be implemented and followed. The BMPs and techniques described in this manual could provide additional protection to surface waters.

Should the proposed action require management of aquatic plants through the use of herbicides, discharges of water pollutants may result. Any discharge of pollutants through the use of herbicides for aquatic weed control are regulated under state NPDES laws and procedures (see Section G on Aquatic Weeds).

Review of TVA heritage data indicates the potential for wetlands in the vicinity of the project. However, review of site information and photos shows no wetlands in the project vicinity. The project will not affect wetlands. Further review of TVA heritage data, site information and photos, and project plans shows no designated critical habitat or other types of unique or important aquatic habitat. The TVA heritage data shows 7 managed areas, 5 natural areas, and 3 heritage sites within 5 miles of the project site. The project will not affect these resources due to its nature (modification of existing dock facilities and harbor limits) and its distance from these resources.

Comments Regarding Vehicle Traffic and Parking

Comment 4. The area receives heavy use, particularly in the summer. What is the anticipated needs for additional parking—based on industry standard ratio for the number of new slips? (Craze and Freeman)

Response: Parking for the marina expansion will be accommodated by designating for marina parking 25 spaces within the existing parking area at and around the current restaurant, as well along the entrance. Additional parking will be made available within the graveled area just west of the marina entrance. This will be developed to accommodate an additional 30+ spaces to accommodate the total needed to meet the standard for 0.6 spaces per slip. Golf carts will be used to ferry patrons as needed from the distant parking (see attached map).

Comment 5. How will the increased need for parking be addressed? (Craze and Freeman)

Response: During high-use periods or as needed, parking will be made available within the open graveled area just west of the entrance onto the marina. This will be developed to accommodate an additional 30+ spaces and golf carts will be used to ferry patrons as needed. Also, the marina owns the restaurant that is currently on site, which has less than 12 months remaining on the lease. If needed, the restaurant could be closed so that the parking will be made available for the marina.

Comment 6. What is the anticipated increase in vehicle traffic? (Freeman)

Response: The marina currently has a capacity of over 425 boats, including dry storage, and is at 95%+ capacity. The additional slips will increase total capacity less than 25%. Periods of peak usage may result in a noticeable increase in localized traffic, but the on-site entrance roadway is over 800' long and there will be expanded parking to keep traffic moving into the marina without creating traffic delays on the access road.

Comments Regarding Boating Traffic and Safety Concerns:

Comment 7. Is there an assessed need for the number of proposed slips for this area of the reservoir? (Craze)

Response: The marina operator has the necessary deeded rights on the subject property and the shoreline is allocated as Commercial Recreation in the 2017 Chickamauga Reservoir Land Management Plan. Therefore, TVA must accept and review the 26a permit request.

The marina owner stated the marina is currently at 96% occupancy and has a wait list of 20 +/- for the new facility. The ownership has assessed the need for additional capacity in this area of the reservoir and determined that the increased capacity is worth the investment in expanding the marina.

TVA's capacity assessment found that the average percent increase in boating traffic is estimated at around 1% (see attached assessment). The non-holiday weekend days are currently estimated to have 2,405 boating units along a 20-mile reach of the reservoir (with the marina at the midpoint). This assessment determined the marina expansion will result in 6.37 surface acres per boating unit within the 20-mile reach. Optimum recreational boating density thresholds should allow at least 6.0 surface acres per boating unit.

With the completion of the proposed marina expansion, the boating density thresholds are within or above optimum recreational boating density thresholds for the weekday and weekend periods estimated for the peak summer boating season. This number is estimated to exceed the 6.0 surface acres for the two holiday weekends of Memorial Day and Fourth of July. However, peak holiday weekends usually exceed recreation capacities for recreation opportunities.

Comment 8. How will public safety be assured given the anticipated increase in boating traffic? (Freeman)

Response: TVA reviewed boating accident reports for the immediate area of Chickamauga Reservoir between TRM 481 to 483 for 2014 and 2015 (see attached analysis). A total of 4 incidents occurred in the years analyzed. One incident involved a moving boat collision resulting from a wind storm, two involved bilge pump failures, and the final was a swimming ladder accident. For this area of the reservoir and review period, no watercraft accidents were reported as a result of boat operations involving a collision while under power.

The marina must install and maintain adequate safety lights, reflectors, and/or signals that would allow the boating public to recognize the marina's water-based structures

between dusk and dawn. This shall be coordinated with the Tennessee Wildlife Resources Agency's Boating & Law Enforcement Division. Further, the continued use of a no-wake area along the Harbor Lights Marina and Harbor Lights Yacht Club will be maintained to allow for safe passage within the secondary channel.

Comments Regarding Noise Concerns

Comment 9. What noise impacts will be associated with the project? (Freeman)

Response: The marina is currently allocated for commercial recreation in the draft Chickamauga Reservoir Lands Plan (December 2016). The primary source of noise from this allocation is from commercial operation of the marina and from motorized watercraft. Noise emission levels for land uses allocated to this zone can range from 40 dBA (very quiet) to 90 dBA (jet ski). Noise levels for motor boats and jet skis may also exhibit short elevated bursts of noise as a result of speed of the watercraft and other operation factors.

Noise impacts can be expected during the construction of facility. Construction noise impacts are anticipated to be temporary. Piles will need to be driven to stabilize the facility, and this activity is estimated to take 1 week. All construction work would be restricted to daylight hours, Monday through Friday.

Based on the recreation study, the proposed facility (at 100% capacity) would create a 1% increase of the number of boats within a 5 mile radius of TRM 482. This increase in boats would create a minor increase in overall noise from power boats with the completion of the expanded facility.

Comment 10. How will lighting associated with the marina use and operations be managed in a manner appropriate for the mixed residential-commercial area? (Freeman)

Response: Coast-guard approved lighting will be used to illuminate the corners of the floating structure to provide navigation aids for low light conditions. All site lighting will be equipped with full cutoff features which limit the amount of waste light produced at a vertical angle of 80 degrees above the lowest light emitting portion of the luminaire.

Additional lighting commitments developed during the visual assessment of the proposed expansion project require that all permanent and associated temporary construction lights will be fully shielded or have internal low-glare optics, such that no light is emitted from the fixture at angles above the horizon.

Comments Regarding Marina Structures

Comment 11. How tall will the structure be and how will the sections be situated? (Verbal comment during public meeting)

Response: The eave heights will range from 12' to about 20' on the larger slips. The roof pitch will be kept at a minimum to maximize views and reduce wind drag.

Comment 12. How will the structure impact the visual viewshed of the area? (Freeman)

Response: The marina expansion would be seen in the foreground by area residents and up to middle ground distances by recreation users along the river. For residents, these views would be at angles to the main channel and would be influenced by elevation differences between the proposed marina and the much higher existing residential development. These elevation changes influence the natural landscape and greatly decreases negative impacts on scenic character when viewed in context of the overall view shed. Most views by area residents would be of slip roofs during daylight hours and would be reduced during night operations as a factor of landscape visibility and the use of 'dark-sky' lighting techniques. Recreation users would likely see a minor disruption in shoreline integrity; however, these disruptions would likely be brief and visually similar to other developments within ten miles of this stretch of the Tennessee River.

Additional vehicular traffic as a result of this project would have minor visual impact to residents and motorists along local roadways. This increase in traffic would be visually insignificant to area residents within the view shed of the proposed marina due to existing vegetative screening and elevation changes.

Potential negative visual impacts of new structures would be minimized if colors used are compatible with natural background colors and dark roofs are provided on proposed boat slips. Colors within this range merge into broader patterns within the middle ground and background distances and details are not as discernible.

The marina expansion would add to the number of discordantly contrasting elements that would be seen long this section of the Tennessee River. Additional watercraft on the lake and increased traffic on local roads would contribute to an increase in visual congestion. New structures and additional watercraft would combine to reduce the existing scenic value class. However, the development would likely not reduce scenic class by two levels or more, the threshold of significance.

The following commitments were developed during the visual analysis to reduce visual impacts of the proposed expansion project.

Structures- All color schemes for roofs and boat slip exteriors will be visually compatible with natural background colors such as dark brown, gray, or green.

Lighting: All permanent and associated temporary construction lights will be fully shielded or have internal low-glare optics, such that no light is emitted from the fixture at angles above the horizontal (Nelson, 2006).

Comment 13. How will the marina install and maintain the structure/mooring system to ensure it remains in place given the exposed location fronting the river? (Freeman)

Response: An extensive system of spud poles and cabled cross-bracing will be used (see attached plans).

Ultimately, it is the responsibility of the marina owner/applicant to securely anchor all floating facilities to prevent them from floating free during major floods. It is also the responsibility of the marina owner/applicant to adequately locate the facility per the 26a permit and construct and maintain the facility in good, safe, and substantial condition to keep it from being a navigable hazard.

Comments Regarding Aquatic Vegetation Management

Comment 14. Increased boating and use of the area will likely require weed control. How will the marina manage weeds in a manner that will be both environmentally and aesthetically responsible? (Verbal comment during public meeting)

Response: The proposed action may require continual maintenance management of aquatic plants to achieve the purpose and goals of the action (boating, recreation). Aquatic plant management has created controversy particularly among angling and hunting communities. Aquatic plants provide habitat for fish and wildlife, and removal at a large scale can impact those populations. However, invasive species like hydrilla and Eurasian watermilfoil have been known to reduce biodiversity and cause both economic and environmental damage in areas where they are allowed to grow.

The proposed action would likely require management of the area that would primarily target those invasive species. Should the marina operator decide to manage aquatic plants in this area, it should be done in accordance with Tennessee law; including, but not limited to, the following regulation:

0080-09-04-.10: REQUIREMENTS FOR LICENSEES IN AQUATIC WEED CONTROL. Any person applying herbicides in state waters for the control of aquatic weeds must be under the direct supervision of pest control operator licensed and certified in Aquatic Pest Control. Authority: T.C.A. §§ 4-3-203 and 62-21-118. Administrative History: Original rule filed April 1, 2016; effective June 30, 2016.

US Army Corps of Engineers Public Comment Period

The U.S. Army Corps of Engineers (USACE) issued a 30-day public notice on April 20, 2017. This was not a Joint Public Notice with TVA, but the notice did indicate that the action required a 26(a) permit from TVA. In response to the notice, both USACE and TVA received comments via phone, email and traditional mail. Several comments were received that requested a meeting with both the USACE and TVA. TVA participated in an informal meeting held by the Corps on June 1, 2017 at the SQN Training Center. Twenty two members of the public attended the meeting and 11 individuals provided written comments to the USACE. Many of these comments were also addressed to TVA. Several of the individuals provided multiple comments and two separate attorneys representing one or more individuals from the neighboring subdivision provided multiple comments as well.

After reviewing the comments addressed to TVA, many of the comments received were substantively similar to those reviewed and addressed during TVA's public comment period and public meeting. However, additional comments determined to be unique will be included in the record. The comments and TVA's responses are discussed below.

Comments Regarding Electrical Codes.

Comment 15. How can a marina which receives electrical power be permitted adjacent to residential docks? (Hodge and Freeman, received on June 16, 2017)

Response: The 2015 Noah Dean and Nate Act created a series of requirements to aid in the prevention of electrical shock, electrocution, or injury to users of marinas and boat docks. (Authority: T.C.A. § 68-102-602). The regulation identifies specific equipment and signage that marinas must install to aid in preventing electrical injuries and fatalities.

TVA requires applicants to obtain and abide by all applicable Federal, state, and local laws and regulations. Therefore, the applicant must abide by the Noah Dean and Nate Act and any other applicable requirements of federal, state, or local statute, regulation, ordinance, or code, including, but not limited to, applicable building codes, now in effect or hereafter enacted, in addition to abiding by the specific requirements of the Section 26a permit.

Comments Regarding the Location of Facilities on Private Property

Comment 16. Several comments were received that provisions in the private deeds executed when separating the marina property from the residential properties restrict the location of structures along the property boundary. (Verbal comment during USACE's public meeting)

Response: The marina operator is responsible for accurately locating the facility, and any authorization is valid and effective only if the facility is located as shown on the application or as otherwise approved by TVA in the permit. The facility must be located on land owned or leased by the permit operator, or on TVA land at a location approved by TVA.

Comments Regarding the Marina Operations

Comment 17. Can the marina have year-round residential stays? (Verbal comment during USACE's public meeting)

Response: TVA does not allow residential use of marina facilities.

Comment 18. Several comments and photos were received regarding concerns with boats mooring and motoring between the marina and the adjacent private dock. Are these actions permissible? (Hodge, Freeman)

Response: The extent of the proposed harbor limits will be 50 feet away from the neighboring private dock facility, north of the marina. TVA requires that all commercial operations of the marina be maintained within the harbor limits. No mooring would be allowed on the north-east side of docks, between the marina and residential docks.

Comments Regarding Environmental Review

Comment 19. How has the development of the adjacent residential neighborhood been factored into the review? (Davis)

Response: Direct and indirect impacts of the proposed marina expansion have been considered in this Environmental Assessment.

Comment 21. Why is this marina expansion project considered minor and categorically excluded by TVA? (Davis)

Response: Although TVA has an approved Categorical Exclusion for approvals of minor structures, boat docks, and shoreline facilities under Section 26a of the TVA Act (TVA 5.2.26) due to the substantial controversy over possible environmental effects of the proposed project, the level of review for this action was elevated to an Environmental Assessment.

The USACE will document the comments from their comment period and public meeting in their decision document per 33 CFR 325.