US Army Corps of Engineers ®
Wilmington District

FINDING OF NO SIGNIFICANT IMPACT

JORDAN LAKE AERATION SYSTEM
FOR THE CARY/APEX WATER TREATMENT FACILITY
CHATHAM COUNTY, NORTH CAROLINA

September 2013

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Jordan Lake Aeration System
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1.0 INTRODUCTION

The National Environmental Policy Act of 1969, as amended (NEPA), requires consideration of the environmental impacts for major federal actions. The proposed action and the environmental impacts of the proposed action were addressed in the Environmental Assessment for Direct Impacts of the Proposed Jordan Lake Aeration System for the Cary/Apex Water Treatment Facility, Chatham County, North Carolina (EA), dated December 2012. The EA was coordinated with various regulatory agencies and the public and comment letters were received. This Finding of No Significant Impact (FONSI) documents the environmental considerations, the decision that no significant impacts would occur if the proposal is implemented, and explains the rationale used in selecting the alternative proposed for implementation.

This FONSI has been prepared pursuant to NEPA in accordance with the Council on Environmental Quality (CEQ) regulations as contained in 40 CFR Parts 1500 to 1508, which directs federal agencies on how to implement the provisions of NEPA.

2.0 PROPOSED ACTION

The Town of Cary, in partnership with the Town of Apex, proposes to construct, operate, and maintain a lake aeration system at B. Everett Jordan Reservoir (Jordan Lake) in the vicinity of the raw water intakes and Raw Water Pumping Station (RWPS) for the Cary/Apex Water Treatment Facility (CAWTF) (Exhibit 1).

The purpose of the proposed lake aeration system is to assist with improving lake water quality in the vicinity of the Towns' water supply intakes in Jordan Lake. The aeration system would reduce dissolved manganese and iron concentrations, likely reduce the proliferation of blue green algae blooms in the vicinity of the intake and associated taste and odor issues, and improve the overall Lake quality in the area in which the intakes are located. Providing better Lake water would reduce energy demands, chemical treatment requirements and resulting waste residuals generated at the CAWTF. In addition, it would allow the Towns to continue to maintain their high levels of service in providing a reliable and safe drinking water to customers while holding down costs of treating the Jordan Lake supply and provide more flexibility to treat water during droughts.

The construction, operation, and maintenance of a lake aeration system in Jordan Lake are consistent with the congressionally authorized use of the Reservoir for water supply storage. Other authorized purposes of the Reservoir include recreation, flood control, and fish and wildlife conservation.

The proposed aeration system is a mechanical aeration system that would destratify a portion of the Lake by slowly circulating oxygen rich water from the surface of the lake to the oxygen poor lake depths resulting in better circulation in the lake for overall improved water quality. The proposed system would consist of two floating platforms located approximately 100 feet apart (Exhibit 2) and approximately 2,500 feet from the existing RWPS. Each platform would contain two 15-ft diameter aeration units located approximately 12-ft apart from each other. Each aerator would be equipped with a 7.5 HP electric motor driven by a variable frequency drive. Other components of the aeration system would include a connecting walkway between the two aeration units, aeration pumps, a standing platform, baffle curtains, anchoring cables, anchoring concrete blocks, and a power supply.

Each aeration pair would be anchored to the Lake bottom with four to six anchoring cables which would be connected to concrete anchors on the Lake bottom. The floating platform therefore moves with the operating water level.

Power would be supplied to the aeration system via the RWPS. Two construction options for the submersible cable include surface lay or burial in a trench. Survey and geotechnical borings would need to be conducted for the proposed route to determine Lake bottom conditions and identify any potential obstructions to the proposed cable route and installation method.

A temporary assembly and launching area would be required to assemble the aeration systems and for launching the systems with a crane into the Lake. The estimated temporary assembly/launching area requirement is 100 ft x 100 ft. The marina located northeast of the existing CAWTF RWPS site is the proposed assembly/launching area. The marina was used previously for temporary launching of construction equipment in 2002 associated with raising the existing lower raw water intake unit.

The Town of Cary has requested a total real estate easement of approximately 60,000 square feet (1.4 acres) from the USACE. Approximately 0.8 acres of the requested easement would include areas for the aeration units, the anchoring cables, the concrete anchors, the submersible electrical cable, and a buffer area for establishing a no-boating-or-recreational-activities area around the aeration units. The remaining 0.6 acres of easement area was requested for a maintenance corridor to access the submersible electrical cable. The estimated easement area for the submersible electrical cable is based on a 10-ft wide easement along the length of the cable and 2,500 ft distance between the RWPS and the aeration system location. The easement is not anticipated to require changes in land use surrounding the easement, removal of existing structures, or relocation or abandonment of existing utilities.

3.0 CHANGES TO ENVIRONMENTAL ASSESSMENT

Section 3.3 Hypolimnetic Aeration via Oxygenation / Aeration, of the EA contained incorrect information concerning the effects of hypolimnetic aeration systems on blue-green algae growth. This section has been revised and corrected by updating the section's final paragraph, and accompanying advantages/disadvantages table, to read as follows:

> Fish species present in Jordan Lake, as noted by North Carolina Wildlife Resources Commission (NCWRC) in its September 2011 scoping comments, are characterized as warm water species (Appendix B). In addition, Jordan Lake is considered a medium depth reservoir and does not have a significantly large hypolimnion. Further, the CAWTF intakes are located at various depths within the water column, making it more desirable to achieve water quality improvements across the water column than just within the hypolimnion. Finally, hypolimnetic aeration systems can indirectly impact blue-green algae production and taste and odors and do not fully address the purpose and need for the proposed Lake Aeration System. For these reasons, hypolimnetic aeration systems are not considered the appropriate technology for the project area. The advantages and disadvantages of this alternative are summarized as follows:

Advantages	Disadvantages
Provides oxygen to the lower portion of the lake reducing levels of dissolved iron and manganese, and other problem constituents in the hypolimnion	May have limited benefit in addressing blue green algal growth and associated taste and odor issues
For cold water reservoirs, increases habitat for cold water fisheries	Generally better suited for deep reservoirs with large hypolimnion but can result in nutrient reduction

Bottom mounted technologies result in lower interference with boaters in comparison to floating mixers. Aeration compressors and equipment are mounted on the shore	Generally, does not address water quality concerns in the epilimnion but can result in nutrient reduction which can impact algal productivity
	Does not fully address project purpose and need

Section 3.4 Mechanical Aeration using Solar Bee Aeration System, of the EA contained incorrect information concerning flow patterns achieved by the Solar Bee Aeration System. This section has been revised and corrected by updating the section's second and third paragraphs, as well as the accompanying advantages/disadvantages table, to read as follows, omitting incorrect flow pattern language:

> The system was not selected as the preferred alternative because it would require an estimated 20 floating aerators in the Lake, resulting in significantly higher navigational and recreational impacts in comparison to the proposed alternative.
>
> A summary of the advantages and disadvantages of the Solar Bee System follows.

Advantages	Disadvantages
Mixes both the epilimnion and the hypolimnion.	Requires 20 mixers to achieve needed aeration.
Destratification of the Lake would reduce the proliferation of algae blooms and improve overall Lake quality in the sub-Lake in which the intakes are located.	Would cause significant interference to boat traffic.
Lowest energy cost for active Lake quality improvements alternatives by use of solar energy.	
Aerators can be accessed for maintenance.	

4.0 ALTERNATIVES CONSIDERED

Several alternatives were considered in the EA, including several different alternative destratification systems and the No Action Alternative.

Not installing a Lake Aeration System (No Action Alternative) would not address the poor water quality that historically occurs when the Lake stratifies and could result in increased taste and odor issues, high dissolved iron and manganese levels, increase in chemical consumption and residuals generation, reduced treatment efficiency, and increased risk of Safe Drinking Water Act (SDWA) violations at the CAWTF during periods of poor water quality. There are also concerns that recurring droughts, climate change, and future withdrawals from the Lake from other uses may increase variability of Lake operating levels and result in more frequent use of the existing lower intake which typically experiences poorer raw water quality conditions. Additional treatment systems would need to be implemented at the CAWTF to accommodate poor raw water quality. Lake management is a more cost-effective strategy than providing additional treatment systems at the CAWTF for accommodating poor raw water quality. It is therefore concluded that the No Action Alternative does not meet the project purpose and need.

During the development of alternatives for the proposed action, several different alternative destratification systems other than the preferred downward circulation system were considered for the project. These options included artificial circulation via a bottom-mounted diffused aeration system,

hypolimnetic aeration systems (including oxygen injection and air injection systems), and mechanical aeration systems including upward circulation systems. These alternatives were eliminated based on several factors, including environmental impacts, power requirements, maintenance costs, recreational/public impacts, secondary water quality concerns, and not fully addressing the project purpose and need.

5.0 PUBLIC AND AGENCY COORDINATION

On February 6, 2013 the Environmental Assessment for Direct Impacts of the Proposed Jordan Lake Aeration System for the Cary/Apex Water Treatment Facility, Chatham County, North Carolina was mailed to federal and state agencies and the interested public for a 30-day review and comment period.

The February 2013 EA mistakenly contained the word 'DRAFT', included on the cover page. The USACE NEPA guidance does not provide for Draft and Final Environmental Assessments comparable to Draft and Final Environmental Impact Statements. The February 2013 EA was distributed to federal and state agencies and the interested public. The EA as well as the comments received from the public have been considered in the decision to prepare this FONSI in accordance with NEPA requirements.

Letters and memoranda on the EA were received from the following:

Federal Agencies
- US Environmental Protection Agency, Region 4
- US Fish & Wildlife Service
- National Resources Conservation Service

State Agencies
- North Carolina Department of Administration State Clearing House
- North Carolina Department of Environment and Natural Resources
  - North Carolina Division of Water Resources, Public Water Supply Section
  - North Carolina Wildlife Resources Commission
  - North Carolina Office of Conservation, Planning, and Community Affairs, National Heritage Program
  - North Carolina Department of Transportation
  - North Carolina Division of Emergency Management, Floodplain Management Program
  - North Carolina Department of Cultural Resources – State Historic Preservation Office
  - North Carolina Division of Land Quality

Local Communities
- None

Elected Officials
- None

Conservation Groups
- None

Interested Businesses, Groups, and Individuals
- Aqua Sierra, Inc.
- Jim Frei, Stormwater Services Group, LLC
- SolarBee, GridBee, Medora Corporation
- BlueInGreen

Comments received primarily concerned alternative aeration systems and boater safety. None of the comments received identified any reasonable alternatives or major substantive issues that were not already addressed in the EA.

6.0 IMPACTS OF THE PROPOSED ACTION

The proposed action is anticipated to have no to minimal impacts to the existing environment. It is anticipated that the proposed action would improve existing Lake water quality in the vicinity of the CAWTF intakes. A summary of project impacts is presented in Table 1.

Table 1. Environmental Impacts Comparison of Proposed and No Action Alternative

Resource	Proposed Alternative	No Action
Geology	None	None
Topography	Minimal – would return grades to existing contours	None
Soils	Minimal – most soils in the project footprint were previously disturbed	None
Floodplain	Minimal – the proposed units float with anchors on the Lake bottom	None
Surface Hydrology	Minimal – small footprint within Jordan Lake	None
Water Quality	Creates better water quality	Remains same
Air Quality	None – electric motors	None
Noise	Minimal – the proposed motors are smaller than the typical boat motor	None
Cultural Resources	None	None
Hazardous Waste	Temporary – construction equipment would be required; however, it is expected that it would be maintained properly for leaks, fueling, etc.	Greater potential for increased quantities of chemicals needed at the treatment plant for subsequent treatment of poor quality water
Aesthetics	Minimal overall small footprint	None
Vegetation	Minimal – vegetation in the proposed footprint is maintained	None
Fish and Wildlife	Minimal – Screens/velocities for the aeration system are similar to those required for the intakes, potential for increasing warm water fish habitat by increasing D.O. in the water column.	None
Endangered and Threatened Species	None	None
Wetlands	Minimal – potential for a small area of fringe wetlands to be impacted due to laying of the electric line depending on Lake level	None
Land Use	None	None
Vehicular Traffic	None	None
Recreation	Minimal – Small footprint, considerations for Lake user safety	None
Water Supply and Conservation	None	None
Energy Needs	Minimal – small motors required use less energy than most other options	Greater as needs for subsequent treatment increase
Safety	Minimal – Buoys, lighting, etc would	None

Resource	Proposed Alternative	No Action
	be used to ensure Lake user safety as well as protect the aeration units from damage	
Consideration of Property Ownership	An additional 1.4 acres of easement would be required from the Corps of Engineers.	None

7.0 FINDING OF NO SIGNIFICANT IMPACT

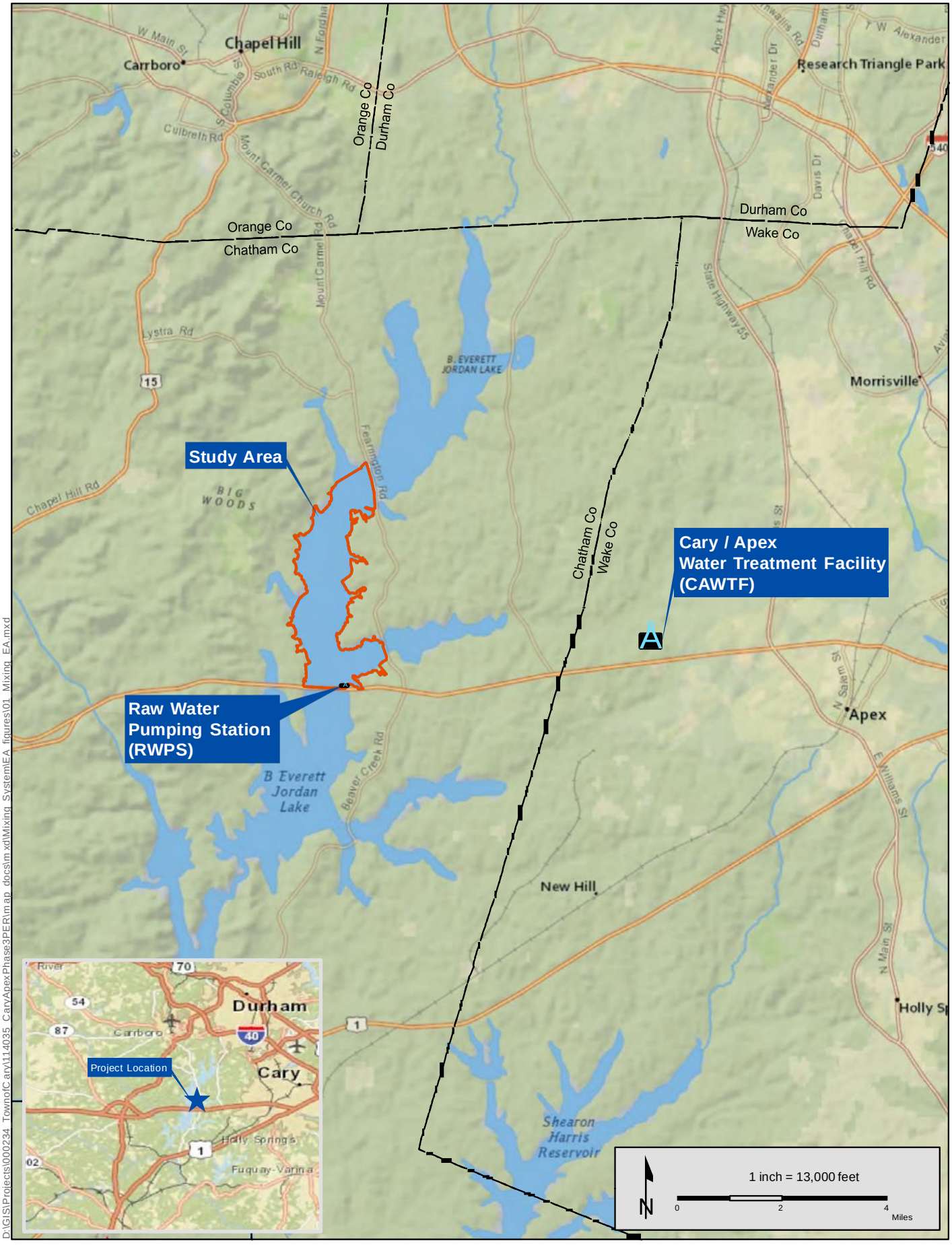
I have reviewed the Environmental Assessment for Direct Impacts of the Proposed Jordan Lake Aeration System for the Cary/Apex Water Treatment Facility, Chatham County, North Carolina, the information provided by interested parties, and the information contained in this Finding of No Significant Impact, and I find that the proposed aeration system will not significantly affect the quality of the human or natural environment. Therefore, preparation of an Environmental Impact Statement pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended, is not required.

Date: 5 SEP 13

Steven A. Baker
Colonel, U.S. Army
District Commander

APPENDIX A

EXHIBITS



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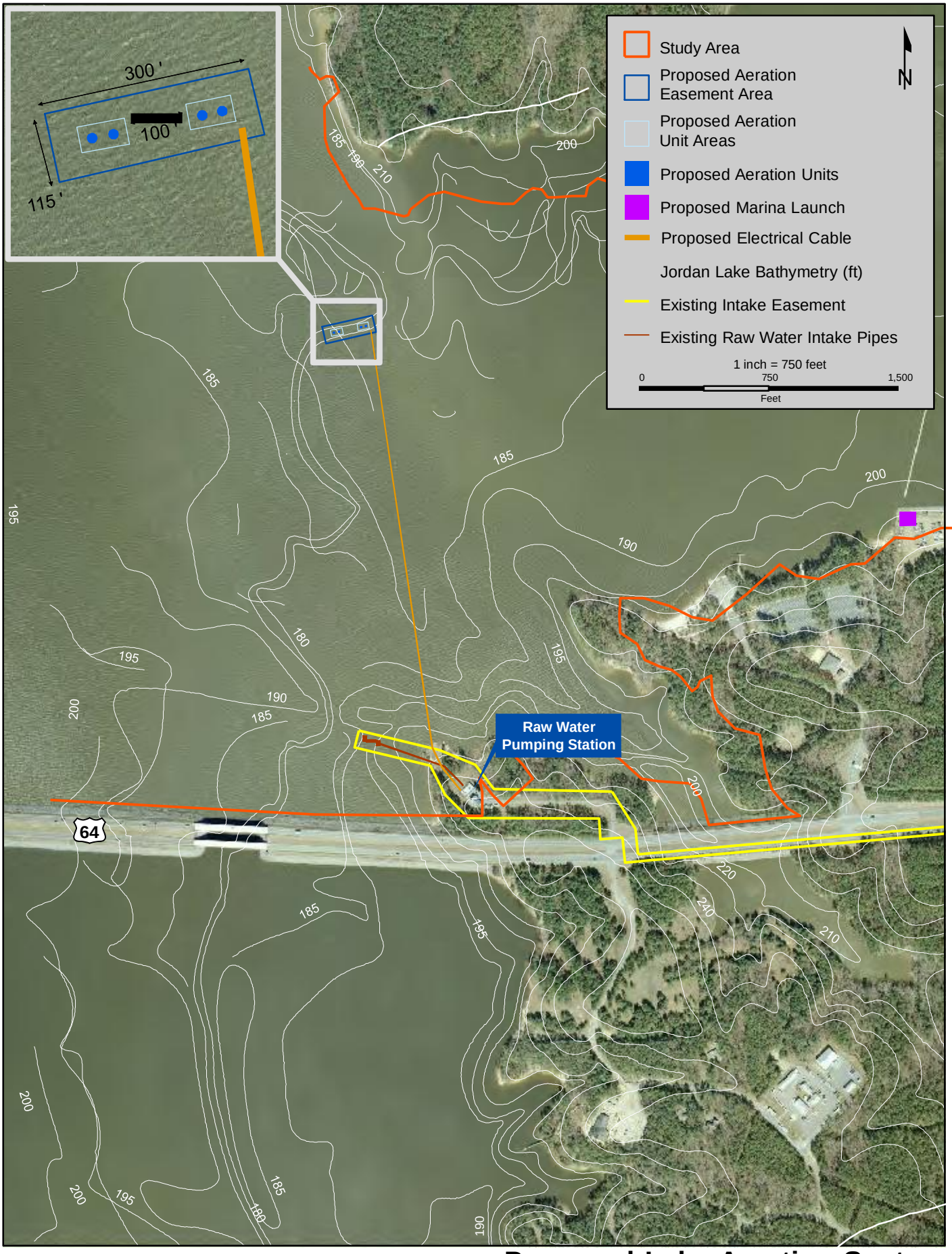
HDR ONE COMPANY | Many Solutions

General Project Location

Exhibit 1

Source: National Geographic



Proposed Lake Aeration System

Exhibit 2

HDR ONE COMPANY | *Many Solutions*

Source: 2007 Chatham County Aerial

APPENDIX B

RESPONSES TO ENVIRONMENTAL ASSESSMENT COMMENTS

Environmental Assessment for Direct Impacts of the Proposed Jordan Lake Aeration System for the Cary/Apex Water Treatment Facility, Chatham County, North Carolina
Responses to Environmental Assessment Comments

Comments from Peter Stitcher, Aqua Sierra, to Michael Hosey, USACE in a letter dated February 25, 2013

Comment 1 - A breakdown of our concerns regarding the DEIS, a detailed comparison of the preferred alternative verses the ASI proposed alternative, and supporting data are contained in the following discussions. It is clear, however, that the discrepancies and deficiencies in the DEIS are of such magnitude that they can only be addressed through the preparation of a Supplemental DEIS (40 CFR 1502.9(c)).

Response to Comment: The applicant prepared an Environmental Assessment (EA) and not a Draft Environmental Impact Statement (DEIS). The information contained in the EA and comments received on the EA will be used in the preparation of a FONSI.

Comment 2 - In the case of the WEARS Australia Remix System as presented in the DEIS, the treatment claims are supported only by the limited "experience" and "expectations" of their sales staff as shared in "Personal Communication", a very limited data set that is not statistically sound, and in many cases stands opposed to the claimed benefits.

Response to Comment 2: WEARS has installed over 50 ResMix systems world-wide including Sublette, Illinois and Denver, Colorado. Water quality enhancement data was provided for select ResMix installations; no available data during the preparation of the EA was omitted. Since late 2010, when the ResMix system was considered for Jordan Lake, WEARS has installed six ResMix systems into United Kingdom, three systems into the US and 7 units into Australia with another 3 systems awarded for delivery prior to winter 2013-2014.

Comment 3 - The final data set was supposed to be representative of the DO, iron, and manganese levels recorded in Cottar Reservoir. WEARS deliberately failed to report that this system was removed from Cottar Reservoir in 2009. The efficacy of this system or the weight of this data is should be called into question with the removal of the towers in Cottar reservoir. The team at Aqua Sierra will be proposing a bottom diffused aeration system to help mitigate and manage the ongoing nutrient and metal loading issues experienced in Cottar Reservoir.

Response to Comment 3: The system in Cotter Reservoir was in fact removed in 2012, NOT 2009 as Aqua Sierra, Inc. reported. The client, ACTEWAGL (Mr. Michael Bursle, Project Manager) had operated the system since 20/12/2004. The success of this system then led to an installation into the Googong Reservoir (120,000ML) for the same client on 15/03/2007. The ongoing success in Googong Reservoir then led to the inclusion of the ResMix system for an Expanded Cotter Reservoir. Cotter Reservoir has undergone a major upgrade with a new dam wall adding 20 times the storage capacity (to 80,000 ML and 80m deep). The ResMix 3000 system previously installed was therefore removed and placed into another upstream reservoir. A new ResMix 5000CC system is currently being installed into the Expanded Cotter Reservoir. Aqua Sierra, Inc. indicated that they will propose a differing system for Cotter Reservoir, but the contract was awarded to WEARS as a sole supplier in 2012.

Comment 4 - The process of pushing warm surface water towards a colder, denser hypolimnion works against the physics governing temperature/density gradients and is the least effective and energy efficient means to attempt thermal destratification. The attempt to push warm, less dense surface water into the colder, denser hypolimnion would be best illustrated by someone attempting to take a basketball in hand and force it down through the water column to the bottom of the lake. As summer progresses and the temperature gradient between the epilimnion and hypolimnion increases, an attempt to mix the reservoir becomes even less effective and efficient. The fact that the WEARS Remix towers employ four 7.5 hp motors is inconsequential as no energy cost savings is realized if there are no measureable or significant treatment benefit provided.

Response to Comment 4: To overcome the head due to density is a matter of providing sufficient energy. The ResMix system decays this head due to density, producing a near isothermal water column and therefore either eliminating or minimizing the head due to thermal strata, thus minimizing even further the power required. For example, in a water column 10 meters deep the system would need to overcome a density gradient of approximately <15 deg C in a strongly stratified reservoir or conservatively 3kg/m3. The system develops 500kg of thrust which is more than would be required for Jordan Lake.

Comment 5 - The electrical cable powering the remix towers would need to be buried, at great cost to the shareholders, and with significant disturbance to the lakebed and suspension of sediment. These tightly compacted sand and clay horizons would require the ½ mile run of cable to by buried in the lakebed using a "dredger or marine trencher" (DEIS pg. 15; Para. 1) for an additional undisclosed cost.

Response to Comment 5: Trench burial of the power cable is discussed on page 15 of the EA. "Two construction options for the submersible cable include surface lay or burial in a trench. Survey and geotechnical borings would need to be conducted for the proposed route to determine Lake bottom conditions and identify any potential obstructions to the proposed cable route. The appropriate construction method and cable type depend on Lake bottom conditions". Two options for cable installation options will be considered during design with the selected option based on the results of a subsurface investigation. If subsurface conditions will allow trenching of the cable beneath the subsurface, this method will be utilized. Disturbance to the lakebed will be short-term and minimal. If surface lay is utilized, this method would be similar to that proposed for the Aqua Sierra system. The construction cost opinion for the ResMix system includes the cost to provide electrical service to the units.

Comment 6 - With the near certain need to bury the trench and bury the cable in the substrate, a significant weight (in a magnitude of tons) of nutrient sediment would be suspended in the water column upstream of the raw water intakes, causing numerous water quality issues and creating additional water treatment costs for the shareholders.

Response to Comment 6: Water quality and cost impacts will be minimal if direct burial of the electrical cable is performed. Disturbance will be localized to the immediate trenching area.

Comment 7 - Pages 23 and 33 of the DEIS states that Best Management Practices (BMPs) would be employed and "sediment and erosion control devices" used to mitigate the suspension of sediment. The claim that BMPs could be employed in the burying of the electrical cable is misleading at best if not purposefully deceptive as no sediment control measure can be employed when dredging or trenching the lakebed. Water quality will be significantly impaired.

Response to Comment 7: Options for placement of the cable will be evaluated during design and appropriate sediment mitigation measures will be considered at that time. Possible options include trenching with two parallel rows of silt curtains, plowing the cable into the bottom to minimize the amount of material that must be disturbed, laying the cable directly on the bottom of the lake, and laying the cable on the bottom and covering the cable with a clear stone having no fine particles to become suspended.

Comment 8 - The installation of the WEARS Remix system would require the use of a crane for installation and in the cases of removal for maintenance or emergencies, all at an undisclosed added cost to the shareholders throughout the life of the system.

Response to Comment 8: The installation of the WEARS ResMix would require the use of a crane for initial installation. Routine maintenance can be performed on-site. Removal of the unit from the lake would require the use of a crane.

Comment 9 - There were a number of undisclosed and unaccounted for long-term costs associated with seasonal maintenance, mechanical adjustments due to varying water levels, response to storm events, and the patrolling of the easement and tower platform.

Response to Comment 9: Similar to the Aqua Sierra system as well others evaluated, the WEARS ResMix system would require periodic maintenance which would be performed by Cary staff at the mixing platform. Each system evaluated has pros, cons and costs associated with routine and emergency maintenance. The Aqua Sierra system would have several components situated near the lake bottom which would need to be located and removed if a failure were observed. Routine maintenance would also be needed for the Aqua Sierra system compressors and ozone systems. The WEARS ResMix system consists of axial flow pumps and motors with minimal maintenance requirements. Since there are only four units located within two platforms, the extent of routine and emergency maintenance would be minimal.

Comment 10 - Reduction of Recreational Access to the Water is a Disadvantage

Response to Comment 10: The reduction in Jordan Lake acreage associated with the easement area would be about 0.8 acres which represents a reduction of 0.006%. This impact is minimal when considering different aeration/mixing alternatives.

Comment 11 - The proximity of the proposed tower site to Crosswinds Marina, the open container laws of North Carolina allowing boaters to consume none spirit alcoholic beverages, and the permissibility of minors to operate both mechanized and non-mechanized watercraft makes the use of the WEARS system a significant legal liability to its shareholders.

Response to Comment 11: The presence of two well marked platforms with marker buoys containing signal lighting covering an area of approximately 0.8 acres would not result in significant liability. The proposed location was evaluated and considered for adequate line of site from all directions. One of the reasons the WEARS ResMix system was recommended over other floating systems was the limited number of units that would be required. Two of the reasons the ResMix system was recommended over diffuser systems were the concerns of boaters and fishermen over snagging diffuser lines/rings/air piping, and the higher energy demands associated with diffuser systems.

Comment 12- Noise Pollution – Exceedance of Allowable Levels set by the Chatham County Noise Ordinance

Response to Comment 12: The predominant noise would be caused by the motors and gearboxes under full load. These units would be located over 1000 meters from the nearest public dwelling. Sound intensity (energy) falls inversely proportional to the square of the distance $1/r^2$ from the sound source. Consequently, the noise from these units at the shore (Chatham County) would be insignificant. See section 4.1.8 of the EA for additional information.

Comment 13: No Measurable Benefit to the Fishery

Response to Comment 13: The primary purpose of the installing the WEARS ResMix system is to improve water quality and treatability of the water supply for the CAWTF. Increasing dissolved oxygen through the use of a lake destratification system would improve the aquatic habitat.

Comment 14 – Wildlife Impacts - It can be logically deduced that the cumulative noise created by the towers and the strobe lights marking the platform and towers will have a detrimental and dispersing effect on the birds and waterfowl currently using the area around the proposed tower site.

Response to Comment 14: Jordan Lake is a multi-use recreational lake accessed by fisherman and recreational boaters and there is already significant noise and disruption from these recreational activities. In addition, the lake already contains marker buoys, such as those at the intakes for the Cary/Apex WTF. The presence of two small floating platforms and the noise and lighting impacts associated with the WEARS ResMix system would have minimal additional impacts on wildlife.

Comment 15 - The prevalence of bird species on and around Jordan Lake and the perceived safety from predation provided by the floating platform, it can be reasonably expected the WEARS system will act as a perch and catch the birds' defecation.

Response to Comment 15: This potential also exists at other sites on and near Jordan Lake at which birds may be attracted. Bird defecation will not alter functionality of WEARS ResMix System, which is constructed of inert, non-corrosive materials.

Comment 16: The addition of buoyed corridors, strobe light mounted platforms, feces encrusted infrastructure, and waters clouded by the trenching of the lakebed combine to create a long-term impairment to the aesthetic of the lake and should be counted as a disadvantage to the WEARS alternative.

Response to Comment 16: In general, systems that are located at the bottom of the lake as opposed to floating on the surface of the lake would be more advantageous from the standpoint of aesthetics.

Comment 17: The proposed WEARS Remix System has the greatest initial cost, requires the most man-hours, equipment, and resources to police and maintain, and carries with it a host of hidden or omitted costs.

Response to Comment 17: The proposed WEARS ResMix System does have the highest initial cost of the alternatives evaluated, though without the costs of all of the components "provided by others" for the

Aqua Sierra system we cannot be certain. The WEARS ResMix system has significantly lower energy demands when compared to the energy requirements associated with the 40 HP compressors and cathode ozone generator required for the Aqua Sierra system. There are maintenance costs associated with each of the alternatives evaluated. In addition, the amount of easement and extent of lake coverage required for the WEARS ResMix would be significantly less than would be required for the Aqua Sierra system or Solar Bee System.

Comment 18 - Two DO/temperature profiles taken from an undisclosed location, and possibly cherry picked from other samples is not a statistical or quantitative proof of function.

Response to Comment 18: The EA included all data available for current installations at the time the document was prepared. Our research has shown that most of the entities that have installed aeration and/or mixing systems, including diffused aeration, SolarBees and WEARS ResMix systems, have not monitored water quality impacts pre and post installation.

Comment 19 - A vendor cannot claim that their system removes thermal stratification and provides oxygen to an anoxic hypolimnion unless they honestly represent the depth of the resource and provide DO/Temperature readings from the surface to the lakebed.

Response to Comment 19: For the applications provided, the vendor never claimed complete destratification for deep lakes, as shown in the EA. The goal is to lower the thermocline to impact the water quality at the depth of the intake. The data depict that.

Comment 20 – Finally, in the data representing the two post installation DO/Temperature profiles, thermal stratification still existed. In the sample taken January 14th 2001, thermal stratification and its precipitate drop in hypolimnetic DO occurred at 12 meters, while the sample taken January 15th 2002 showed stratification beginning at 8 meters.

Response to Comment 20: There was never a claim that the WEARS ResMix System would destratify a deep lake. The depth and area of impact is a function of the size and number of systems, as well as the depth of the draft tube. The data depict a shift in the depth of the thermocline.

Comments from Daniel Holliman, US EPA Region 4 to Michael Hosey, USACE in an email dated March 7, 2013

Comment 1 - NPDES Stormwater Permit Coverage: The NPDES stormwater program in North Carolina requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more, including smaller sites in a larger common plan of development or sale, to obtain coverage under an NPDES permit for their stormwater discharges. If the COE determines that the proposed project will disturb 1 acre or more, NPDES permit coverage will be needed. The State of North Carolina has an authorized NPDES Stormwater permitting program and we encourage the COE and/or the responsible party for this project visit the State's NPDES Stormwater website at: http://portal.ncdenr.org/web/wq/ws/su/construction

Response to Comment 1: As indicated in Section 4.1.3., page 19, it is anticipated that "approximately 0.6 acre of temporary disturbance to the Lake bottom would occur during installation of the 2,500 feet submersible electrical cable and 8-12 concrete anchors (125 lbs each)." Less than 0.05 acres would be

disturbed on land during the laying of the electric cable. If, during the project design, it is determined that more than an acre of disturbance would occur, NPDES permit coverage would be obtained.

Comment 2 - Best Management Practices (BMPs): A review of the NC construction related 303(d) list (updated with 2010 Assessment) reveals that Jordan Lake and specifically this segment is listed on the draft 2010 303(d) list for turbidity violations or a construction-related pollutant. Since this segment is impaired for turbidity, extra caution should be taken when developing and implementing the BMP plan for this project. EPA recommends that the project engineer design and implement Best Management Practices (BMPs) which will minimize stormwater impacts associated with this project. The construction best management practices plan should include implementable measures to prevent erosion and sediment runoff from the project.

Response to Comment 2: During the preparation of the final design drawings, the engineer will develop stormwater management and erosion and sediment control plans as needed and required, including appropriate BMPs. Required plans will be submitted to NC DENR for review and approval.

Comment 3 – Wetlands: Based on our review, it appears that the NWI is the only source used to determine impacts to wetlands for this project. EPA recommends an on-site assessment of the potential impacts to wetlands be conducted and disclosed in the final EA. We do acknowledge that "A USACE approved jurisdictional determination and 404 permit as well as an appropriate NCDWQ water quality certification (401) would be applied for before the commencement of construction" (p. 33). In addition impacts to wetlands appear to be minimal for this project.

Response to Comment 3: Impacts to wetlands would be minimal on this project. There would be limited construction to install an electrical cable to the Raw Water Pumping Station. The cable would be trenched to the water's edge with minimal short-term impacts. The construction method for the subaqueous electrical cable would be determined based on soils and geotechnical investigations that would occur during preliminary design. At that time, the Town and their authorized agent will seek an approved jurisdictional determination, a 404 permit and a NCDWQ water quality certification (401). These approvals will be in place prior to the commencement of any construction.

Comment 4 - Uncertainty of WEARS system: As stated by other commenters, there seems to be some degree of uncertainty relating to the proposed WEARS system, mostly due to the fact that this will be the first system of its type to be installed in the US. EPA recommends details be provided in the final EA that outlines how performance of this system will be measured. Will a sampling plan be developed to periodically evaluate DO vertical profiles and the overall performance of the system?

Response to Comment 4: There are currently three US installations at the time of this response. The Town of Cary has contracted with USGS to perform water quality testing prior to, during and after installation of the mixing system to monitor and evaluate performance. The USGS study will:

1. *Evaluate the spatial and seasonal extent of a vertical-mixing system's effect on water-column stratification;*
2. *Document water-quality characteristics related to both drinking-water treatability and environmental health, before and after the installation of a mixing system; and*
3. *Prepare a report summarizing the findings.*

Data will be collected from four sampling sites in the lake. Relevant parameters include:

Property or Constituent	Biweekly sampling at 4 sites, April-October, 2012-2015			
	Vertical profile	1 meter below surface	Photic-zone vertical composite	1 meter above lake bed
Field Properties				
Water temperature	X			
Dissolved oxygen	X			
Specific conductance	X			
pH	X			
Turbidity		X		
Secchi depth		At surface		
Depth to 1% incident light		At surface		
Iron and Manganese				
Iron, total		X		X
Iron, dissolved		X		X
Manganese, total		X		X
Manganese, dissolved		X		X
Nutrients				
Nitrogen, ammonia			X	X
Nitrogen, total ammonia + organic			X	X
Nitrogen, nitrite + nitrate			X	X
Phosphorus, orthophosphate			X	X
Phosphorus, total			X	X
Phytoplankton and Taste and Odor Compounds				
Chlorophyll *a*			X	
Phytoplankton identification and enumeration			X[1]	X[1]
Geosmin			X[1]	X[1]
2-Methylisoborneol (MIB)			X[1]	X[1]

[1] Constituent will be collected only at site 4 near the Cary-Apex intake

Comment 5 - Water Quality and Non-point Source Pollution: As stated in the EA, Jordan Lake is impaired for Chl a and low DO. Per the Jordan Lake Phase I Nutrient TMDL "Elevated nutrient concentrations in Jordan Reservoir result from a combination of point and nonpoint source loads. The point source loads include three major wastewater treatment plants at the headwaters of the New Hope arm and seven major wastewater treatment plants upstream on the Haw River. There are also several smaller dischargers. Nonpoint loading includes runoff from urban areas in Durham, Chapel Hill, Cary, Burlington, Greensboro, and several other small municipalities, as well as a variety of rural sources." It appears that steps are being taken to address non-point pollution issues in the watershed through the development and implementation of a nutrient management strategy (see http://portal.ncdenr.org/web/jordanlake <http://portal.ncdenr.org/web/jordanlake>). EPA supports these efforts to reduce nutrient loading in the watershed and to Jordan Lake and see this management strategy as a longer term solution to the Jordan Lake WQ issues.

Response to Comment 5: No response required.

Comments from Jim Frei, Stormwater Services Group, LLC to Justin Bashaw, USACE in an email dated February 7, 2013

As a frequent boater on Jordan Lake, I have several concerns:

Comment 1: Referring to Exhibit 13, what are the dimensions of the outer limits of the exclusion zone to be marked with "Keep Out" buoys? Table 6 (pg 21) is misleading and does not indicate total area to be restricted from navigation. According to Exhibit 13, the restricted navigation area is larger than indicated in the EA report at Table 6.

Response to Comment 1: Although not included in Exhibit 13, the dimensions of the outer limits of the exclusion zone are shown in Exhibit 2 and further described on page 35, "The proposed aeration system units, totaling 0.8 acre, would be off limits to boaters and other recreational watercraft. This area would be marked appropriately to protect the recreational safety of Jordan Lake users during day and night."

Comment 2: There will be a line of "Warning - Submerged Utility" buoys at 200 ft intervals (pg 37) between the shore at the raw water pump station to the aerators. That's a lot of buoys, and they are across an area that has high boat traffic. Several solutions I recommend:

a. Bury the power cable in a trench and cover, or
b. Increase buoy spacing to 500 ft, or
c. Use signs on shore and at aerator platform at each end of cable to indicate electrical cable crossing/ no anchoring. Charts must be updated to show submerged cable crossing, or
d. Install solar panels/ batteries on aerator platforms, thus negating the need for a submerged power cable.

Response to Comment 2: The proposed alternative (in terms of power supply) does suggest a single submersible electrical cable and this has been identified as a measure to minimize impacts to boaters (page 17).

Response to Comment 2a: Trench burial of the power cable is discussed on page 15, "Two construction options for the submersible cable include surface lay or burial in a trench. Survey and geotechnical borings would need to be conducted for the proposed route to determine Lake bottom conditions and identify any potential obstructions to the proposed cable route. The appropriate construction method and cable type depend on Lake bottom conditions". Two options for cable installation options will be considered during design with the selected option based on the results of a subsurface investigation. If subsurface conditions will allow trenching of the cable beneath the subsurface, this method will be used and signs will be placed at the shore and the aerator platform indicating electrical cable crossing/no anchoring. If subsurface conditions do not allow for this option, and require a surface lay armored cable, marker buoys will be provided along the cable route.

Response to Comment 2b: It was determined that a 200ft spacing between marker buoys would be appropriate to avoid any conflicts with boaters (such as snagging of anchors or fishing lines) while protecting the proposed project components from potential damages.

Response to Comment 2c: As indicated on Page 37, "Permanent buoys and strobe lights would be installed at the location of the proposed aeration system to ensure the safety of all boating traffic... These features would protect boaters and allow for boating traffic to navigate around the aeration

system. Keep out buoys would be placed within the aeration system easement to warn boaters to stay out of the area and would be located approximately 60 feet from the structures." Exhibit 13 offers examples of the buoy signage to be used for this proposed project. Similar to the response to Comment 2b, the extent, quantity, and spacing of signage will offer awareness and warning to recreational boaters of potentially hazardous conditions for navigation and snagging.

Response to Comment 2d: Unlike the Solar Bee Aeration System described on page 11, the proposed aeration system is not designed to operate on solar power (or a battery system), thus the need to be powered via the RWPS onshore. Based on the size motors required, providing solar power would require an extremely large floating platform or a shore based solar array which would still require a power cable to be installed in the lake.

Comment 3: All buoys must be lighted at night.

Response to Comment 3: Safety for the users of Jordan Lake and surrounding lands is important to all the federal, state and private entities involved in managing the areas resources. As noted on page 35, "This (project) area would be marked appropriately to protect the recreational safety of Jordan Lake users during day and night. The Town has also agreed to permanently install buoys and lights within the proposed aeration system unit to ensure recreational safety. Seen on page 37, "Permanent buoys and strobe lights would be installed at the location of the proposed aeration system to ensure the safety of all boating traffic. The Town would ensure that the markers comply with all USACE and USCG specifications. These features would protect boaters and allow for boating traffic to navigate around the aeration system. A total of 6 strobe lights would be mounted on each of the aerator platforms (20 feet x 60 feet). Four strobe lights would be placed at each of the aerator platform four corners and one at each of the midpoints of the longer sides. Keep out buoys would be placed within the aeration system easement to warn boaters to stay out of the area and would be located approximately 60 feet from the structures." If buoys are required for the electrical cable, they will be equipped with strobe lights as well.

Comment 4: If warning buoys are used, signage should indicate "electric power cable." If the cable is not trenched and buried, someone will eventually hook it with an anchor and electrocute themselves.

Response to Comment 4: The proposed project currently assumes trenching burial of power cables (see response to your comment 2a) and appropriate, 'WARNING - SUBMERGED UTILITY' signage (Exhibit 13) to ensure boater safety. All warning signage will comply with USACE and USCG specifications (page 37).

5. Who will maintain the buoys? Will Town of Cary reimburse USCOE or other agency to maintain the buoys?

Response to Comment 5: The Town of Cary will maintain the buoys.

Comments from Michelle McCadden, East Coast Manager of Solar Bee to Michael Hosey dated March 8, 2013

Comment 1: We understand the Wears option was chosen, and believe that selection may have been influenced by some misconceptions concerning SolarBee deployments. The EA states that the SolarBee "was not selected as the preferred alternative because it would require an estimated 20 floating aerators in the lake, resulting in significantly higher navigational and recreational impacts in comparison to the proposed alternative." This has not been the case in about 300 lakes where SolarBee circulators are installed to suppress cyanobacteria, thereby reducing turbidity, chlorophyll-a, and pH. We submit the attached white paper that describes boating and recreational activities in lakes with SolarBees.

Response to Comment 1: Previous documentation provided by SolarBee indicated that 20 floating units would need to be deployed to provide mixing and aeration in Jordan Lake in proximity to the Cary/Apex Water Treatment Facility Intake. The SolarBee units would occupy a significantly greater area of the lake. This would require the Town to acquire a significantly more extensive easement from the Army Corps of Engineers. In addition, the proposed area is a high boating traffic area as boats travel on the lake in a northerly direction under the US-64 bridge and to the Crossroads Marina located off of Farmington Road. Locating approximately 20 SolarBee units in this heavily traveled area would pose risks to boaters, restrict boating travel, potentially limit public access, and increase liability for the Towns of Cary and Apex. In addition, having 20 floating units as opposed to two floating WEARs systems would require more maintenance and posses a greater concern in the event that a catastrophic weather event were to occur, such as a hurricane. We believe that the SolarBee system is a viable system for lake mixing and aeration, but for the reasons stated, is not the preferred alternative for providing mixing and aeration at the Cary/Apex WTF intake.

Comment 2: The EA further states the SolarBee "flow pattern from hypolimnion to epilimnion increases concern for poor water quality being brought to the surface during initial start-up." We believe there is a misunderstanding about the flow patterns created by SolarBees, or about how SolarBees are deployed to suppress cyanobacteria. SolarBees draw water to the intake hose radially, from all horizontal directions, in near-laminar flow. This occurs because a steel plate is suspended 1 foot below the intake hose. Water at the density of that in the 1 foot opening is drawn to the units from all radial directions. The water flows to the surface both internal and external to the hose. Water departs from the unit just below and above a distribution dish at the surface with little to no chance of clogging with debris due to the unique features of the SolarBee. The resulting flow pattern is from the depth of the steel plate to the surface and back to the depth of the steel plate. No water below the steel plate is disturbed by the SolarBees. SolarBees intakes are set just above the thermocline to suppress cyanobacteria. Only the epilimnion is circulated; no water is drawn from the hypolimnion into the epilimnion, the water column is not destratified. Some locations have chosen to deploy SolarBees with epilimnetic circulation to suppress cyanobacteria, and to deploy other SolarBees with the intake lowered into the hypolimnion to oxidize and precipitate manganese and iron. In this case, turbidity, chlorophyll-a, and pH decrease in the epilimnion, and manganese and iron concentrations decrease in the hypolimnion.

Response to Comment 2: We acknowledge and accept the description of the SolarBee hypolimnion and epilimnion aeration and mixing systems and have modified the EA accordingly. The primary objective of the Cary/Apex Mixing System is to provide destratification to promote oxidation of dissolved metals such as iron and manganese which pose treatment and regulatory challenges at the Cary/Apex WTF. A secondary objective is to assist with control of Cyanobacteria which contribute to taste and odors which must be abated using expensive technologies such as powdered activated carbon and ozone. The most

effective strategy to address these water quality concerns is a system that will destratify the water column, lower or eliminate the thermocline and increase redox conditions in the vicinity of the Town's intake. A combination of hypoliminetic and epilimnetic mixing and aeration using the SolarBee technology would address the treatment objectives, however the number of units required to accomplish this objective is not compatible with the multiple uses of Jordan Lake in the vicinity of the intake.

Comments from Peter Benjamin, Field Supervisor, US Fish and Wildlife to Daniel Brown, US Army Corps of Engineers, Wilmington District dated March 8, 2013

Comment 1: In accordance with the Endangered Species Act of 1973, as amended, (ESA) and based on the information provided, and other available information, it appears the action is not likely to adversely affect federally listed species or their critical habitat as defined by the ESA. We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied for this project. Please remember that obligations under the ESA must be reconsidered if: (1) new information identifies impacts of this action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Response to Comment 1: It is noted that the requirement of Section 7(a)(2) of the ESA has been satisfied for the project. The Applicant recognizes that the obligations under the ESA will be reconsidered if: *(1) new information identifies impacts of this action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.*

Comments from Stephanie Goglia, Acting Assistant State Conservationist for Easements and Water Resources, Natural Resources Conservation Services to Michael Hosey, US Army Corps of Engineers, dated February 20, 2013

Comment 1: The Natural Resources Conservation Service does not have any comments at this time.

Response to Comment 1: No response required.

Comments from Clay Thompson, Senior Engineer, BlueinGreen to Michael Hosey, US Army Corps of Engineers, dated March 7, 2013

Comment 1: In response to the following EA statement:

"However, because hypolimnetic aeration systems do not achieve mixing within the entire water body, these systems do not reduce algal growth and therefore do not address taste and odor and water treatment issues associated with blue green algae blooms.

Keeping phosphorus and nitrogen in a state that is not bio-available will assist in control of blue green algae. By transitioning the hypolimnion from anoxic to aerobic conditions, phosphorus and nitrogen that would be available for algal growth in the epilimnion during lake turnover or mixing will stay bound in

the sediment. Therefore, the taste and odor compounds that are associated with blue green algae are reduced as well."

Response to Comment 1: Maintaining aerobic conditions in the hypolimnion through hypolimnetic aeration can be effective in binding phosphorus and nitrogen to the sediments. The impact on the control of blue green algae will depend on the effectiveness of the hypolimnetic system on maintaining aerobic conditions near the bottom sediments as well as what nutrients are limiting with respect to the growth of blue green algae. With a shallow lake such as Jordan Lake, a major source of phosphorus is from run-off so the purported benefits of hypolimnetic aeration may be muted. The same benefit can be derived by a destratification system. In addition, the WEARS ResMix System pumps blue green algae to deeper non-photic zone areas decreasing light exposure and thereby reducing their growth rate. The EA has been revised accordingly.

Comment 2: In response to the following EA statement:

"Hypolimnetic aeration is better suited for deep reservoirs with large hypolimnion."

The main premise behind hypolimnetic oxygenation is to only oxygenate the volume of the lake that needs it most and that can maximize the cost benefit ratio. HO systems are not intended to be a stand-alone solution that will solve all problems, but when coupled with a restoration program becomes an integral part to facilitate remediation.

Response to Comment 2: As reported in "Advances in Taste and Odor Treatment Control, (I. H. Suffet, Joël Mallevialle, Elizabeth Kawczynski, 1995, "hypolimnetic aeration systems are most successful in large deep reservoirs with a stable thermocline." One goal of hypolimnetic aeration is to maintain the thermocline. In shallower reservoirs, this can be become more unstable due to the ratio of hypolimnetic and epilimnetic volumes and the impact of water withdrawals. It is acknowledged that hypolimnetic aeration can be effective in binding nutrients and maintaining aerobic conditions in the deeper portions of the lake. The goal of this project is to destratify the lake in the vicinity of the water supply intakes to provide a consistent water quality and reduce dissolved iron and manganese and taste and odor compounds in the water column available to the raw water supply intakes. The EA has been modified to reflect Comment 2.

Comment 3: In response to the following EA statement:

"Hypolimnetic aeration systems do not address water quality in the epilimnion."

Per aforementioned responses, HO systems are designed to remediate anoxic conditions in the hypolimnion. As a result, the oxic conditions improve water quality by suppressing the accumulation of nutrients, metals and toxic compounds in bottom waters; this in turn results in fewer algal blooms associated with lake turnover. Coupled with a nutrient management program, overall lake health (epilimnion and hyplimnion) will start to improve and meet remediation targets. The concern with destratification technologies is the amount of DO in the epilimnion is not sufficient to meet the DO demand of the hypolimnion. Also by mixing hypolimnetic waters rich in nutrients, due to anoxic

conditions, into the photolytic zone, the soluble nutrients that are now bioavailable will encourage algal growth/blooms.

Response to Comment 3: It is agreed that hypolimnetic systems are designed to remediate anoxic conditions in the hypolimnion and one potential benefit of maintaining oxic conditions is binding of the nutrients including phosphorus and nitrogen. The impact on water quality and blue-green algae production will also depend on nutrient contributions from runoff which can control primary productivity. The WEARS ResMix System is unique in that it take highly oxygenated surface water and conveys that in a downward fashion thereby providing a large source of dissolved oxygen while disrupting blue-green algae. The source of oxygen is not limiting. In addition, since this is a surface process, mixing occurs from the top down minimizing the impacts of benthic dissolved nutrients on algae production.

Comments from Michael Douglas, NC DENR, Division of Water Resources, Public Water Supply Section (From Jackie Roddy to Lyn Hardison), dated March 1, 2013

Comment 1: The applicant should be advised that plans and specifications for all water system improvements must be approved by the Division of Water Resources/Public Water Supply Section prior to the award of a contract or the initiation of construction (as required by 15A NCAC 18C .0300et.seq.).

Response to Comment 1: The Applicant will submit plans and specifications for review and approval to the Division of Water Resources/Public Water Supply Section prior to contract award or construction initiation.

Comments from Shari Bryant, Piedmont Regional Coordinator, North Carolina Wildlife Resources Commission (to Lyn Hardison), dated March 1, 2013

Comment 1: It appears that the aeration system would be operated between April and October when poorer raw water quality conditions typically occur, but may be operated year round. We anticipate operation of the aeration system would improve aquatic habitat particularly during the summer and fall months when the thermocline typically forms. However, it is unclear how long it would take the thermocline to redevelop once the aeration system is stopped. Sudden shifts in available aquatic habitat could affect fishery resources. Therefore, to minimize impacts to fishery resources, we recommend that if the aeration system is operated only seasonally, then it should be started prior to the formation of the thermocline and should not be stopped until the thermocline has disappeared.

Response to Comment 1: If the aeration system is operated seasonally, it will be started prior to the formation of the thermocline and will not cease operation until the thermocline has disappeared. That would be consistent with the water quality goals and is the most efficient way to operate the system.

Comment 2: The applicant indicates a deflector plate could be installed beneath the aeration unit to minimize turbidity in the area surrounding the aeration system. We recommend a deflector plate is installed to minimize scouring and turbidity.

Response to Comment 2: The need for a deflector plate will be determined during pre-design once a survey of the area is completed and length of the curtain is determined.

Comment 3: According to information in the Environmental Assessment, the electric cable for the aeration system would be placed on the surface of the bottom of the lake or be buried in a trench. If the cable must be placed on the surface of the bottom of the lake, then the cable would be marked with buoys at 200-foot spacing to avoid boaters snagging anchors or entangling fishing lines in the cable. We understand the need to protect the electric cable, but we are concerned about buoys being placed every 200 feet. It appears approximately 12 buoys would be needed to mark the cable. Boating traffic in this area is high due to two public boat launch areas on White Oak Creek and it is a travel corridor between the upper and lower sections of the reservoir. The placement of buoys every 200 feet may create navigational obstacles or hazards, and may attract attention to the electric cable. Also, it is unclear who would be responsible for maintaining and replacing buoys, what would be considered a violation and how it would be enforced. We prefer the electric cable be buried in a trench. If the electric cable cannot be buried, then we recommend a durable casing be installed over the electric cable rather than installing buoys every 200 feet. Also, if installation of the cable would require significant disturbance of sediments on the bottom of the lake, then silt curtains or other appropriate sediment and erosion control measures should be used to minimize turbidity in the construction area.

Response to Comment 3: Trench burial of the power cable is discussed on page 15 of the EA, "Two construction options for the submersible cable include surface lay or burial in a trench. Survey and geotechnical borings would need to be conducted for the proposed route to determine Lake bottom conditions and identify any potential obstructions to the proposed cable route. The appropriate construction method and cable type depend on Lake bottom conditions." Two options for cable installation options will be considered during design with the selected option based on the results of a subsurface investigation. If subsurface conditions will allow trenching of the cable beneath the subsurface, this method will be used and signs will be placed at the shore and the aerator platform indicating electrical cable crossing/no anchoring. If subsurface conditions do not allow for this option, and require a surface lay armored cable, the feasibility of installing a durable casing will be investigated during design. Otherwise, marker buoys will be provided along the cable route at 200 foot intervals. The Town of Cary will maintain the buoys. Options for placement of the cable will be evaluated during design and appropriate sediment mitigation measures will be considered at that time. Possible options include trenching with two parallel rows of silt curtains, plowing the cable into the bottom to minimize the amount of material that must be disturbed, laying the cable directly on the bottom of the lake, and laying the cable on the bottom and covering the cable with a clear stone having no fine particles to become suspended.

Comments from Harry LeGrand, Natural Heritage Program (to Lyn Hardison), dated March 1, 2013

Comment 1: The Natural Heritage Program has no records of (extant) populations of rare species, natural communities, or significant natural heritage areas in the immediate project area. The facilities are located within the conservation lands owned by the U.S. Army Corps of Engineers (B. Everett: Jordan Reservoir Project), and managed by the N.C. Division of Parks and Recreation (Jordan Lake State Recreation Area). Thus these two agencies may well make comments on the project, as small portions of the lands they own or manage might be impacted. However, our Program believes that no significant natural heritage resources would be impacted by the project.

Response to Comment 1: No response required.

Intergovernment Project Review Comments to Lyn Hardison, dated March 8, 2013

Comment 1: The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are disturbed. Plan filed with proper Regional Office (Land Quality Section) at least 30 days before beginning activity.

Response to Comment 1: An erosion and sedimentation control plan will be prepared and filed for approval if the proposed activities results in the disturbance of one or more acres of land.

Intergovernmental Project Review Comments from Ms. Carrie Atkinson, Clearinghouse Coordinator, Dept. of Transportation to Lyn Hardison, dated March 14, 2013

Comment 1: No Comment.

Response to Comment 1: No response required.

Intergovernmental Project Review Comments from Ms. Renee Gledhill-Earley, Clearinghouse Coordinator, Dept. of Cultural Resources to Lyn Hardison, dated February 26, 2013

Comment 1: No Comment.

Response to Comment 1: No response required.

Intergovernmental Project Review Comments from Ms. Carolyn Penny, Clearinghouse Coordinator, CC&PS, Div. of Emergency Management to Lyn Hardison, dated February 19, 2013

Comment 1: No Comment.

Response to Comment 1: No response required.