

**Modification Number One
Mitigation Bank Instrument
Water Resources, LLC
Lick Creek Wetland Mitigation Bank Number 1
Greene County, Tennessee**

May 18, 2015

Submitted To:

**U.S. Army Corps of Engineers
U.S Environmental Protection Agency
U.S. Fish and Wildlife Service
Natural Resources Conservation Service
Tennessee Valley Authority
Tennessee Department of Environment and Conservation
Tennessee Wildlife Resources Agency**

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Introduction

Construction of Lick Creek Wetland Mitigation Bank Number One (LCMB1) was completed on September 5, 2010 and site planting completed on November 19, 2010. Failure to meet the vegetation performance standards in the first year (WR, 2011) resulted in a replanting of the site in January 2012. Because the failures appeared most closely tied to prolonged saturation and inundation on some parts of the bank, these follow-up plantings emphasized water-tolerant shrubs. Subsequent monitoring (WR 2012, WR 2014), however, indicated further survivorship problems, particularly among hard mast species. Additional plantings made in January 2013 were designed to make up shortfalls especially among these hard mast trees.

The on-going failure to meet planted woody vegetation standards has prompted an in-depth review of its causes and has resulted in proposed changes to the site's performance standards and modifications to monitoring protocols. In the past we have treated the 35-acre property as a uniform entity with similar edaphic features and hydrologic regimes. This approach has proven not to be feasible. Instead we are proposing to assess and manage the site based on vegetation community suitability. Those areas with the most prolonged saturation will be managed to promote the development of scrub/shrub and emergent communities, since these areas would transition into this type of community under natural conditions. Those locales with better soils and more favorable drainage will be managed to promote palustrine forested (bottomland hardwood) communities. Any supplemental plantings (beginning in 2015) will be made with these community-based management objectives in mind.

Reflecting this change in approach, the site's monitoring protocols will be also altered to better capture plant demographics within each community type. Permanent vegetation monitoring plots will be repositioned and distributed evenly within each type to insure a consistent sampling intensity.

The following document further details the history of the LCMB1 and provides recommendations for future management and monitoring of the property. At the request of the US Army Corps of Engineers, these changes have been incorporated within the general framework of a standard Mitigation Banking Instrument (MBI).

I. Preamble

A. Project Purpose

The wetland mitigation bank is being established to help offset unavoidable impacts to the waters of the United States authorized through the issuance of Department of the Army and the State of Tennessee permits pursuant to Sections 404 and 401 of the Clean Water Act.

B. Project Description

Water Resources, LLC has acquired 35 acres of farmland in rural Greene County Tennessee (36.2852 N, 82.8538 W) (Appendix A, Figure 1). The site is bounded on two sides by Lick

Creek, a major tributary to the Nolichucky River. Anecdotal information indicates that the property has been in pasture since at least 1920. Approximately 50% of the site contains hydric soils and has been drained through ditching and contouring. Water Resources has restored hydrology to these areas by removing water control structures and re-sculpting the site to more natural contours. On most remaining portions, wetlands were created by augmenting hydrologic input and increasing the residence time of water. This was accomplished by trapping precipitation and overbank flow from Lick Creek in a series of shallow depressions. Other passive techniques such as earthen berms and water diversion were also employed. The site was then planted with a variety of hard-mast producing trees and shrubs that are indigenous to bottomlands in the Lick Creek drainage. This also included 2.58¹ acres of existing wetlands (Appendix A, Figure 2) that were enhanced by tree planting and livestock exclusion. A narrow riparian zone that lies adjacent to the creek, and which presently contains a relatively mature stand of bottomland hardwood trees, will be preserved in order to provide structural and dietetic diversity for local wildlife.

C. Project Objectives

The objective of the project is to reestablish an ecologically diverse bottomland hardwood forest interspersed with scrub/shrub wetlands and a small amount of emergent wetland habitat. These areas will provide flood control, nutrient transformation, and habitat for water dependent flora and fauna. They will also generate compensatory mitigation credits which will be available for sale upon approval of the Interagency Review Team (IRT).

D. Location and Ownership/Sponsor

The location of the bank is shown on Figure 1 in Appendix A. This bank is located adjacent Lick Creek in the rural north-central section of Greene County in eastern Tennessee. Water Resource LLC, is the owner.

E. Mitigation Bank Review Team (IRT)

1. Member Agencies

The IRT is comprised of individuals representing five federal agencies and two state agencies as listed below:

US Army Corps of Engineers, Nashville District, Chair
US Environmental Protection Agency, Region 4
US Fish and Wildlife Service
Tennessee Valley Authority
National Resources Conservation Service
Tennessee Dept. of Environment and Conservation
Tennessee Wildlife Resources Agency

The establishment, use, and operation of the LCMB1 are carried out in accordance with the following authorities:

¹ The entire site contains 2.91 acres of wetlands but 0.33 acres fall within a TVA right-of-way.

Federal:

- Clean Water Act (33 USC 1251 et. seq.)
- Rivers and Harbors Act (33 USC 403)
- Fish and Wildlife Coordination Act (16 USC 661 et. seq.)
- Regulatory Programs of the U.S. Army Corps of Engineers, Final Rule (33 CFR parts 320-330)
- Guidelines for Specification of Disposal Sites for Dredged and Fill Material (40 CFR part 230)
- Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army concerning Determination of Mitigation Under the Clean Water Act, Section 404 (b)(1) Guidelines (February 6, 1990)
- Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (60 F.R. 58605 et. seq.)
- Army Corp of Engineers RGL 02-2, and RGL 01-1.

State:

- Water Quality Certification (40 CFR 122, 123, 124, 125, 144, 146, 403, and 503)

2. Required Permits (if applicable)

Since the work has impacted jurisdictional waters, both a Section 404 permit from the USACE and a Water Quality Certification from the Tennessee Department of Environment and Conservation (TDEC) were obtained prior to commencing work at the site. The USACE has issued a Nationwide 27 Permit (Stream and Wetland Restoration Activities).

II. Modification of the Bank

A. History and Current Condition of the Bank

The LCMB1 site contains a total of 35.19 acres. A TVA right-of-way transits the northern edge of the property and reduces the available land for wetland banking to 32.69 acres (Appendix A, Figure 2). The property supports 14.39 acres of wetland restoration on lands already containing relict hydric soils, 6.98 acres of wetland creation on lands which lack hydric soils, and 2.58 acres of wetland enhancement on lands which already contain jurisdictional wetlands.

1. Construction

The LCMB1 is made up of two distinct sections; the western section contains approximately 25 acres and the eastern section about 10 acres. Each has a different drainage pattern and was designed differently to obtain proper hydrologic inputs. A summary of the site construction is described below.

Western Section: The western section is primarily a restoration area which formerly supported four man-made drainages which carried water entering the site from the north, and shunted it toward Lick Creek (Appendix A, Figure 3). Apparently, when the drainages were originally excavated, the spoil was placed on top of the native hydric soils adjacent to each drain. This

resulted in a series of elongated hummocks that ranged from 1.5 to 2.5 ft above the bottoms of the adjacent drainages. During bank construction a portion of these excess soils were graded back into the drainages, but at an elevation no higher than the drainage elevations on the adjoining property lying to the north (henceforth referred to as the "Casteel" property). Currently, the elevations of some portions of the Casteel property are the same, or slightly lower, than the ditch elevations on the LCMB1. As a consequence, water drains slowly towards Lick Creek but ponds quite evenly on both sites during periods of high precipitation, especially when soils are saturated.

Because the threat of flooding neighboring properties was a constant concern, Water Resources leveled the landscape as much as possible in order to spread water across more of the site and to promote better drainage from the Casteel tract. The eastern-most drainage (which currently contains Wetland D, (Appendix A, Figure 2) was deepened slightly to act as a relief drain for the Casteel property. However, in order to capture as much water as possible before it exits the wetland, a shallow spreader pond (0.11 acres) was built about halfway down the ditch to intercept the flow and convey part of it to the western portion of the property. Excess soils were placed in berms along the property's southern end. These berms direct water into the existing drainages to Lick Creek. The remaining soils were used to bring the existing ditches up to the desired grade. Before the ditches were filled, however, about 6 in. of soil was excavated from the bottom of them in order capture a source of wetland plant seeds. This material was then placed on top of the filled drainage. In order to prevent erosion, and to comply with state regulations, the entire site was seeded with annual rye. The lowermost ends of the ditches that lie within 100 ft of Lick Creek were found to be relatively stable. However, in order to prevent back-cutting and sediment deposition to these areas, the ends of the drains were armored with rock and filter fabric. Shrubs were also planted there to hasten stabilization. Since efforts to increase hydrology required the filling of 1.33 acres of wetlands associated with the drainages, Wetlands B, C, and D have been re-established *in situ* at a 1:1 ratio. These wetlands, along with Wetland A are counted as part of the proposed wetland enhancement credit inventory.

Eastern Section: The eastern section is principally a wetland creation area that makes use of precipitation and flood water as principal water sources. Currently the land gently slopes from Lick Creek on the site's eastern boundary towards the drainage way near the central part of the property. Since the soils are not hydric they must be converted by increasing the residence time of water. Water is retained by flattening the site, and using low-head berms to direct floodwaters from an existing flood entrance to all parts of the eastern section. In some cases, small depressions were created in effort to better hold surface water. Excess soil was used to create a more substantial berm located along the southern boundary of the site about 15 ft out from the top-of-bank of Lick Creek. The purpose of this larger berm was to capture precipitation input and flood water long enough to foster wetland development, but not create extensive ponding. Two small ponds, however, were constructed specifically to generate emergent

wetland habitat. These, along with the 0.11 acre spreader pond located near the center of the property, constitute 0.67 acres of emergent wetlands.

2. Hydrology

The main goal of site contouring was to keep the elevations below those of the adjoining property to avoid backing water onto that tract. Therefore, while the bank site is elevationally lower, it is also relatively flat and encourages water to linger to enhance wetland conditions. It receives water from four sources: rainfall, overbank flow, seasonal high groundwater, and groundwater seepage flow. Rainfall-derived surface flow enters from at least three adjoining properties and crosses the LCMB1 before entering Lick Creek. Overbank flow from the creek also provides large amounts of hydrology, but this is sporadic in nature. FEMA Flood mapping shows that about 95% of the LCMB1 lies within Zone A (high risk for flooding)(Appendix A, Figure 4). Not unexpectedly, most important flood events tend to occur during the winter or early spring when the most rainfall occurs. During this time frame, groundwater levels are also at their highest. All wetland areas, for example, have been completely saturated to the surface during the time of replanting of the site over the last four years. While less important than the other three sources, groundwater seepage, originating near the western side of the site, supplies most of the hydrology that feeds Wetland Area A (Appendix A, Figure 2).

3. Soils

Hydric soils are already well-established within about 18 acres of restored and enhanced wetlands. In the 7 acre creation area the development of “anaerobic conditions in the upper part” of the soil profile had occurred at 50% of the sample sites in 2013. There was evidence of weak mottling (including depletions and concentrations) within the upper 17 in. of the solum in one sample and within 8 in. in another. Both of these also exhibited oxidized rhizospheres and weak mineral concretions. The remaining sample areas still retained relatively bright, well-oxygenated coloration, although mottling was becoming more apparent and chromas had consistently dropped into the range of 3, especially at depths below 16 in.

4. Vegetation Composition

From a plant community perspective, the goal of the mitigation is to foster the re-establishment of two primarily types of wetlands: a mid-successional palustrine forested wetland (PFO1E) (bottomland hardwood) of a type which now rarely occurs in the Lick Creek watershed because of agriculture and other local land use patterns, and a scrub/shrub wetland (PSS1E). A minor component of the bank will incorporate several small areas of emergent wetlands (PEM1J) which occur in shallowly-excavated depressions. While it is our intention to promote the

establishment of these three community types within the bank’s proof-of-performance time frame, it is highly likely that in the long-term, succession will result in the site evolving into a palustrine forested system in all but the very wettest parts.

Initially, in 2010, we planted 12,610 trees (435 stems/acre) and 1,670 shrubs (Appendix B, Tables 1 and 2) but overall survival was poor (Appendix B, Tables 3 and 4). Since poor survival was attributed to excess water, we consulted onsite with representatives from the Corps and TDEC and chose a species mix better suited to match site hydrology. In January 2012 6,285 trees were planted in dryer areas and 5,560 shrubs in areas prone to longer-term soil saturation (Appendix B, Tables 1 and 2) with the understanding that all woody stems would count towards the performance goals. By year 4 all areas except the small enhancement area contained > 300 stems/acre (Appendix B, Table 3). Survival of hard mast species, however, was poor (Appendix B, Table 5) and water-tolerant buttonbush comprised an average of 39% of the total number which exceeds the 25% limit for any one species. In addition, in October 2014, the IRT ruled that only hard mast species could be counted towards meeting the 300 stems/acre performance standard. This ruling, plus the dominance of buttonbush, has resulted in a proposed re-definition of performance standards and the initiation of a community-based monitoring approach.

B. Mitigation Site Plan

Low survival rates among planted hard mast species, and the dominance of the planted water-tolerant buttonbush, indicate that elevated levels of hydrology are playing a major role in the survival of woody vegetation throughout portions of this site. Because of this, we propose that the bank be managed as two major and one minor community type: PFO1 Tree Establishment Areas, PSS1 Scrub/Shrub Establishment Areas, and PEM1 Emergent Wetlands (Appendix A, Figure 5).

1. Tree Establishment Areas

The Tree Establishment Areas (TEA) constitute 18.26 acres of the site and contain restoration, creation, and enhancement mitigation components. Nine species of oaks and hickories (65% of those planted) as well as sugarberry, blackgum, and persimmon have been planted within these zones (Appendix B, Table 1). Because the TEAs should have better drainage it is assumed that hard mast trees will have a better chance of survival here than on the wetter portions. After consulting with the IRT it was proposed that red and silver maple combined could constitute a small percentage of the stocking density ($\leq 5\%$) within the TEAs. Although these are early-successional soft mast species that normally occur in great numbers within bottomland hardwood stands within the Lick Creek watershed, they were noticeably absent from the LCMB1. By including them it was felt that the resulting species mixture would better represent the typical bottomland community found along Lick Creek.

In June 2014 sampling indicated that there are 289 planted trees/acre in the TEA (Table 6). The indicator status of each is indicated below.

Hard Mast Wetland Species	Indicator Status
Shumard oak (<i>Quercus shumardii</i>)	Fac
willow oak (<i>Quercus phellos</i>)	Fac
swamp chestnut oak (<i>Quercus michauxii</i>)	Facw
swamp white oak (<i>Quercus bicolor</i>)	Facw
shellbark hickory (<i>Carya laciniosa</i>)	Fac
sugarberry (<i>Celtis laevigata</i>)	Facw
blackgum (<i>Nyssa sylvatica</i>)	Fac
sweetgum (<i>Liquidambar styraciflua</i>)	Fac
persimmon (<i>Diospyros virginiana</i>)	Fac

Approved Soft Mast Wetland Species

red maple (<i>Acer rubrum</i>)	Fac
silver maple (<i>Acer saccharinum</i>)	Facw

Transition Zone Species	Indicator Status
black walnut (<i>Juglans nigra</i>)	Facu
white oak (<i>Quercus alba</i>)	Facu
shagbark hickory (<i>Carya ovata</i>)	Facu
bitternut hickory (<i>Carya cordiformis</i>)	Facu

The TEA also contains a 2.14 acre area that was not disturbed during construction because the elevation did not need to be adjusted. Consequently the original fescue and green ash saplings have out-competed the planted material. This location, called the “Oak Establishment Area”, will be treated mechanically and with herbicides this summer and replanted with oaks and a lesser number of shellbark hickories.

The overall goal of the TEA will be to have a density of at least 300 surviving, planted stems/acre at the end of the proof-of-performance period. No single planted species will constitute more than 25% of the total stocking density. Therefore, no species may contribute more than 75 stems/acre toward meeting the performance standard, even if there are more than 75 stems/acre present. Because shrubs are a natural component of bottomland hardwood communities and provide additional structural and dietetic diversity for wildlife, we recommend that up to 10% of the stocking density (30 stems/acre) be permitted to contain wetland shrub species.

2. Scrub/Shrub Establishment Areas: The Scrub/Shrub Establishment Areas (SSEA) encompass 5.02 acres. These areas tend to exhibit seasonal inundation and protracted soil saturation well into the growing season in most years. Shrubs have been planted in these areas for the last four years and include the following:

Species	Indicator Status
silky dogwood (<i>Cornus amomum</i>)	Facw
stream alder (<i>Alnus serrulata</i>)	Obl
false indigobush (<i>Amorpha fruticosa</i>)	Facw
buttonbush (<i>Cephalanthus occidentalis</i>)	Obl
spicebush (<i>Lindera benzoin</i>)	Fac
elderberry (<i>Sambucus canadensis</i>)	Fac
black chokeberry (<i>Aronia melanocarpa</i>)	Fac

Although buttonbush has made up only 35% of the planting density in the first 3 years (Appendix B, Table 2), it has had a much better survival rate than any other planted species. Because of this it was found to comprise 63% of the surviving planted woody stems (trees and shrubs) within the proposed SSEA by the end of year 4 (Appendix B, Table 7). Supplemental planting of shrubs in January 2015 has dropped the stocking density to 22% (Appendix B, Table 2) in an attempt to increase species diversity within this zone.

Proposed success criteria for shrubs will be at least 225 stems/acre at the end of the required proof-of-performance period (75% of the original stocking density of 300 stems/acre). No single planted species will constitute >40% of the overall stocking density. Therefore, no one species may contribute >90 stems/acre toward meeting the performance standard, even if there are > 90 stems/acre present.

3. Emergent Areas: The wettest areas on site are three small ponds that together encompass just 0.67 acres (Appendix A, Figure 5). These areas were excavated to encourage habitat diversity in the creation area. Dominant vegetation currently includes common cattail, northern frog fruit, and valley redstem. Because they become dewatered for several months during the dry season, they also are being colonized by woody elements such as sycamore, black willow, and trumpet-creeper vine. The largest of these ponds has been photographed each year but not monitored. In the future, surface water levels will be recorded during well monitoring. Pond vegetation will be assessed during the annual monitoring. Visual estimates of the percentages of emergent and woody vegetation cover will be made at this time

C. Credit Calculation and Determination of Credits

The Water Resources LCMB1 will provide bottomland hardwood, scrub/shrub, and emergent credits that are generated by wetland restoration, wetland creation (establishment), and wetland

enhancement. Additionally, the project proposes to preserve wooded riparian buffers to protect the site's aquatic resources. Aside from these traditional mitigation approaches, it is further anticipated that a small amount of land adjacent to these buffers, as well as a number of other embedded areas may fail to convert to jurisdictional wetlands, even though they will contain planted wetland species. Because they provide an important element of habitat diversity, they too are viewed as contributing potential credits. Such areas are called Planted Uplands.

Compensation ratios for each of the mitigation methods cited above are determined by the IRT, but are assumed to be as follows:

- **Restoration** (1:1 replacement value): One acre of restored wetland is required to generate one compensation credit.

Wetland restoration involves the manipulation of the physical, chemical, or biological characteristics of a former wetland, or highly degraded wetland, in order to return it to its natural and/or historic functions. Restoration of a wetland most commonly involves the reestablishment of hydrology to a site which has been drained.

- **Creation (Establishment)** (minimum 2:1 replacement value): Two acres of created wetlands are required to generate one compensation credit.

Creation is the establishment of a wetland in an area where one did not formerly exist. Frequently a site must be lowered and water introduced. The introduction of hydrology must result in the establishment of a wetland plant community and soils which become chemically reduced from prolonged exposure to saturated conditions.

- **Enhancement** (minimum 2.5:1 replacement value): Two-and-a-half acres of enhanced wetlands are required to generate one compensation credit.

Enhancement is the manipulation of the physical, chemical, or biological characteristics of a wetland in order to improve wetland functioning. It frequently involves augmenting one or more of the functions of an existing wetland such as flood storage, sediment filtering, wildlife habitat, etc.

- **Planted Uplands** (minimum 5:1 replacement value): Five acres of planted uplands are required to generate one compensation credit.

Planted uplands occur as embedded areas within the larger wetland mitigation matrix. Although initially targeted for creation or enhancement, embedded areas fail to develop a full suite of wetland attributes for one or more reasons. Their principal value is to provide islands of habitat diversity for local wildlife. Planted berms lying immediately adjacent to the mitigation wetlands may also qualify as planted uplands.

- **Riparian Preservation** (no replacement value)

The table below shows the calculation of potential credits generated by LCMB1. Loss of 2.14 potential credits compared to the original MBI is primarily due to constructed berms.

Approach	Ratio	Wetland Type	Acreage	Credits
Wetland Restoration	1:1	PFO1	10.74	10.74
Wetland Restoration	1:1	PSS1	3.54	3.54
Wetland Restoration	1:1	PEM1	0.11	0.11
Wetland Creation	2:1	PFO1	5.29	2.65
Wetland Creation	2:1	PSS1	1.13	0.57
Wetland Creation	2:1	PEM1	0.56	0.28
Wetland Enhancement	2.5:1	PFO1	2.23	0.89
Wetland Enhancement	2.5:1	PSS1	0.35	0.14
Riparian Preservation	n/a	---	2.53	0.00
Uplands/Berms	5:1	---	4.59	To be determined
Water (Lick Creek)	n/a	---	1.62	0.00
TVA Right-of-Way	n/a	---	2.50	0.00
Totals			35.19	18.92

A summary of the potentially marketable credits being produced is as follows: PFO1=14.28 (76%), PSS1=4.25 (22%), PEM1=0.39 (2%).

D. Bank Development Plan

The LCMB1 is situated on 35.19 acres in Greene County, Tennessee. The property supports 2.58 acres of existing wetlands that are confined to excavated ditches and to a small spring-seep area. Site contouring filled 1.33 acres of wetlands that are found within the drainages, but these were reestablished. The reestablished wetlands have been enhanced and are counted as part of the enhanced credit base with 0.31 acres being PSS1 and 1.02 acres being PFO1. The site also contains 2.50 acres of TVA right-of-way which is not part of the wetland bank since it is periodically maintained by onsite tree removal and aerial herbicide applications.

In general, the site was re-contoured to make it more level by eliminating the spoil areas created in the past when four north/south-trending ditches were excavated on the western part of the property (Appendix A, Figure 3). The hydrology in these ditches is controlled by reducing some capacity but allowing the water instead to spread over the entire site. It is critical that these actions do not push water onto the neighboring Casteel horse farm. As a safety precaution a shallow ditch was dug along the property line that separates the LCMB1 from the Casteel property. This ditch directs water to the eastern-most drainage which enables water to be carried off of the Casteel Property at an elevation slightly below that which currently exists.

Overbanking occasionally floods the entire site. When this occurs, water flows generally from east to southwest before emptying back into Lick Creek. In order to capture some of this flow, plus precipitation input, the area outside of the riparian zone was leveled and then shaped to form a series of shallow (3-4 in.), randomly located, depressions.

The site has a potentially large source of seed from soft mast species that line the banks of Lick Creek. Typical species include green ash, boxelder, American elm, and sycamore. Since early successional species such as these produce very large quantities of seed, planted, mid-successional, hard-mast saplings can be easily out-competed by their faster growing neighbors. This is particularly true in the main "seed rain" zone within several hundred feet of the parent trees.

Because naturally-invading species have become established in vastly greater numbers than planted species, population demographics can be greatly skewed. Therefore, any planted area lying within this "seed rain" area (Appendix A, Figure 5) will be monitored and reported separately from the rest of the bank. We also suggest that the success criteria in the "seed rain" area be adjusted to permit a successful outcome to be achieved if the combined density of planted and naturally-invading woody species is at least 300 viable stems/acre for five consecutive years, and that more than 50% of the planted and naturally-invading species are wetland indicators.

In addition to mechanical methods, unwanted vegetation may be controlled by spraying approved herbicides with back pack sprayers. Unwanted vegetation includes all species listed

as a “severe” or “significant” threat by the Tennessee Exotic Pest Plant Council or those identified by the IRT as “unwanted”.

E. Permits and Regulations

1. Cultural Resources

A cultural resources survey, conducted in February and March, 2009 by Dr. Jay Franklin of East Tennessee State University, found no evidence of cultural artifacts on site. An executive summary of Dr. Franklin’s findings are presented in Appendix B.

2. Threatened and Endangered Species

a.) Current Certification

In February and March 2009, Water Resources requested information on state and federally-listed rare, threatened and endangered species from TDEC’s Division of Natural Areas, the U.S. Fish and Wildlife Service (USFWS), and Tennessee Wildlife Resources Agency (TWRA). Each of these agencies responded and has indicated that they have no records of listed species within one mile of the project boundaries (Appendix B). Additionally, plant surveys conducted by Water Resources failed to detect any state or federally-listed species.

b.) Potential Use of Site by T & E Species

Considering the fact that the proposed bank site has been drained and used for agricultural purposes for many years, it would appear unlikely that the site would be suitable for terrestrial threatened and endangered species.

3. Jurisdictional Waters of the U.S.

A wetland delineation was conducted by Water Resources in late January 2009 using the 1987 USACE wetland delineation protocols. On March 3, 2009 the USACE conducted an onsite jurisdictional determination meeting and on March 13, 2009 issued its formal concurrence letter. A copy of this letter is located in Appendix B.

4. Water Quality Certification

Water quality certification from the State of Tennessee is on file.

5. Construction Best Management Practices Plan (BMP)

Best management practices were used, as indicated in the Stormwater Pollution Prevention Plan. TDEC issued a certificate of compliance on January 5, 2012 after site construction was completed.

F. Financial Assurances

Remedial: Water Resources, if required, will set aside 5% of the sales of all credits into a trust account to be used by the USACE in case Water Resources cannot fulfill its obligation for maintenance or any other IRT requirement. After the monitoring has been completed, any

remaining funds will be transferred to Water Resources one month after the proof-of-performance period is closed.

Long-Term: After the proof-of-performance is completed, long-term management of the property will be transferred to TWRA.

G. Site Protection Instrument

It is Water Resource's intent for TWRA to own the Lick Creek Property, Fee-Simple. TWRA (represented by Mr. Rob Todd), has indicated a willingness to accept the land. A conservation easement has been approved by all parties (Appendix C) and will be recorded when the land is transferred to TWRA. The transfer will occur as soon as the monitoring requirements of the bank have been met.

The IRT, and its authorized agents, shall have the right to enter the LCMB1 property for the purposes of inspection and to take actions necessary to verify compliance with the conservation easement. The conservation easement shall be enforceable by any proceeding at law or in equity or administrative proceeding by the IRT, including the USACE or TDEC. Failure by any agency (or owner) to enforce any provision shall in no event be deemed a waiver of the right to do so thereafter.

H. Adaptive Management

The IRT accepts that all ecological restoration projects are site specific, that multiple endpoints are possible owing to the stochastic nature of ecological processes, and that human activity, offsite and beyond the control of the mitigation bank, may influence the course of restoration. For these reasons, the IRT and Sponsor may review the restoration strategy, objectives, and the performance standards and monitoring protocols at any time prior to full project release. Proposed changes to the MBI must be made in writing and must qualify as adaptive management in response to site-specific conditions and must be approved by the IRT. If approved, the conditions of the MBI may only be amended or modified with the written approval of all signatory parties. The mitigation bank must demonstrate good-faith efforts to comply with restoration requirements and cannot invoke an alleged need for adaptive management as a pretext for poor management.

I. Long-term Management and Catastrophic Events

Water Resources will manage the property according to the requirements of the MBI and conservation easement until the monitoring period has been completed. After this time TWRA will manage the property and be bound by the conservation easement. Prior to transferal to TWRA, Water Resources will repair any changes to the site caused by catastrophic events if those changes threaten the success of the site as a wetland bank. Otherwise, no attempt will be made to effect changes due to natural causes.

J. Real Estate Provisions

The free and clear title to the property is owned by Water Resources, LLC (Appendix C). This title will be transferred fee simple to the TWRA along with the conservation easement.

1. Subsurface and Mineral Rights (if applicable)

The mineral rights belong to Water Resources, LLC. There is no record of mineral rights being separate from surface rights therefore the mineral rights are the property of Water Resources, LLC and will be transferred to TWRA.

2. Utility and Transportation Corridors

A Tennessee Valley Authority power line easement already exists on the site. This easement encompasses 2.50 acres and is shown on Figure 2 in Appendix A. None of this easement acreage is considered part of the mitigation bank for the purposes of credit generation. The mitigation bank Sponsor will not encourage the placement of a utility or transportation corridor that will impact the mitigation bank property. In the event all or part of this property is taken by exercise of the power of Eminent Domain, or acquired by purchase in lieu of condemnation, whether by public, corporate, or other authority, so as to terminate the conservation easement in whole or in part, the mitigation bank sponsor or long-term steward is responsible for replacing any wetland mitigation credits lost with in-kind wetland mitigation credits.

III. OPERATION OF THE BANK

A. Description of Service Area

1. Service Area

The primary service area for the LCMB1 will include all portions of USGS French Broad/Holston River Accounting Unit 060101 (USGS 1990). Specific hydrologic unit codes (HUC) and associated counties are presented in the table below.

HUC Code	Associated Counties
06010101	Hawkins, Sullivan
06010102	Johnson, Sullivan, Washington
06010103	Carter, Johnson, Unicoi
06010104	Grainger, Hamblen, Hawkins, Jefferson
06010105	Cocke, Greene
06010106	Cocke
06010107	Blount, Cocke, Jefferson, Knox, Sevier
06010108	Greene, Unicoi, Washington

The bank will compensate for future unavoidable impacts to in-kind wetlands (bottomland hardwoods, scrub/shrub wetlands and emergent wetlands), and to out-of-kind wetlands, within the service area, on a case-by-case basis.

2. Use of Proximity Factor

Mitigation outside of the primary service area will be allowed on a case-by-case basis by using the proximity multiplier method as specified by the IRT.

B. Access

The IRT has the right to access the protected property for purposes of inspection, and to take actions necessary to verify compliance with the restrictions specified in the MBI and conservation easement. The Holder, USACE, and TDEC shall also have the rights of visual access and to access the Protected Property for purposes of making scientific or educational observations and studies, and taking samples, in such a manner as will not disturb the quiet enjoyment of the Protected Property by Grantor. However, this Conservation Easement conveys no right of access or entry by the general public to any portion of the Protected Property.

C. Ecological Performance Standards

For this wetland mitigation project to be considered a success, the restored and created wetlands must meet the criteria set forth in the USACE Wetland Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (USACE 2012). The specific performance standards are detailed in the following table.

Mitigation Component	Success Criteria	Failure	Maintenance Action
<p>Hydrophytic Vegetation</p>	<p>Trees: The density of planted hard mast and approved soft-mast species within tree establishment areas must be ≥ 300 stems/acre. Up to 10 % of the stocking density may also include wetland shrubs. This condition must be maintained for three consecutive years (or longer if determined necessary by the IRT). Also in this zone, $>50\%$ of the remaining naturally-invading, woody species must be wetland-adapted. The indicator status of the various taxa will follow those of the USACE National Wetland Plant List (USACE 2014).</p> <p>Within the tree establishment/seed rain zone combined density of planted hard mast and approved soft mast species, plus any naturally-occurring trees species must be ≥ 300 stems/acre. Furthermore, $>50\%$ of the species must be wetland-adapted.</p>	<p>Trees: Survivorship of planted hard mast and approved soft-mast species is within tree establishment areas is <300 stems/acre and/or $<50\%$ of the naturally-invading species are wetland-adapted.</p> <p>Within the tree establishment/seed rain zones the total density of planted and naturally-occurring woody species is <300 stems/acre and/or $<50\%$ of the naturally-invading species are wetland-adapted.</p>	<p>On those portions of the bank not meeting the tree density success criterion, additional seedlings of wetland-adapted species will be planted such that the area conforms to targeted densities.</p>

Mitigation Component	Success Criteria	Failure	Maintenance Action
	<p>Shrubs: Within scrub/shrub establishment areas, survivorship rates of planted shrubs must be maintained at >75% for three consecutive years (or longer if determined necessary by the IRT). Assuming that the preferred density is 300 stems/acre, the performance standard is 225 stems/acre. Because of the limited number of suitable wetland shrubs indigenous to the Lick Creek watershed, we suggest that any one planted species may be permitted to constitute up to 40% of the stocking density. If the density of a given species exceeds 40%, the excess stems cannot be counted towards attainment of the performance standard. Additionally, because of the expense of multiple plantings which have taken place in the past, we suggest that 100% of the surviving hard mast trees lying within the scrub/shrub establishment zones be allowed to be considered as a component of the overall stocking density.</p> <p>Emergent: Within the emergent habitat community, success will require the establishment of a dominance of herbaceous wetland vegetation. Open water areas (deep water habitats) are permissible but these cannot comprise > an average 10% of the total area present during the growing season. Cattails are also permissible but these cannot occupy >25% of the area.</p>	<p>Survivorship rates are not maintained at 225 stems/acre over the proof-of-performance monitoring period.</p> <p>Emergent habitats fail to become colonized by a dominance of herbaceous hydrophytes. Open water areas exceed 10% of the total area during the course of the growing season. Cattail dominance exceeds >25% of the total area.</p>	<p>On those portions of the bank not meeting the shrub density success criterion, additional seedlings of wetland-adapted species will be planted such that the area conforms to targeted densities. Alternative corrective actions may include modifications to ground and/or surface water hydrology to decrease the residence time of water on the site.</p> <p>On those portions of the bank not meeting the herbaceous cover success criterion, wetland herbs, indigenous to Greene County, may be sown. Alternative corrective actions may include modifications to ground and/or surface water hydrology to increase or decrease the residence time of water. If cattails become over-abundant, these may be controlled by applying an environmentally appropriate herbicide.</p>
	<p>Herbs (Exclusive of Emergent Areas): At the end of five years of monitoring <u>≥</u>50% of the naturally-invading herbaceous plant cover must be comprised of wetland-adapted species.</p> <p><i>Because four years of monitoring have thus far shown that herbaceous cover averages 78% site-wide, and that 89.2% of all species are wetland indicators, we recommend that no future herbaceous cover monitoring be required.</i></p>	<p>At the end of five years, field monitoring indicates that invading wetland herbs comprise <50% of herbaceous cover.</p>	<p>On those portions of the bank not meeting the herbaceous cover success criterion, wetland herbs, indigenous to Greene County, will be sown. Alternative corrective actions may include modifications to ground and/or surface water hydrology to increase the residence time of water on the site.</p>

Mitigation Component	Success Criteria	Failure	Maintenance Action
Wetland Hydrology	During years with normal precipitation, inundation or saturation to within 12 in. of the soil surface must be observed for at least 5% of the growing season (the approximate equivalent of 14 consecutive days from the onset of observed biological activity in the spring until the first hard freeze). Additional hydrologic features sought will include sediment deposits, drift lines, drainage patterns, water marks, etc.	Well monitoring, surface water monitoring, and other reconnaissance indicates that the site is not meeting the saturation/inundation standards.	Corrective action will be taken to introduce additional surface and/or ground water hydrology into areas not meeting the success criterion.
Hydric Soils	Soil evaluations will take place only on portions of the mitigation site where hydric soil occurrence has not already been confirmed by the Greene County Natural Resources Conservation Service or during previous onsite wetland delineations. The purpose will be to establish baseline conditions from which to judge the progression toward hydric soils under the influence of augmented hydrologic input. Evaluations will include a description of soil colors, structures, and textures, as well as the presence of hydric indicators. Hydric indicators will be those described in Field Indicators of Hydric Soils in the United States (NRCS 2010). In the absence of field indicators, hydrologic data may be considered in determining whether the soils meet the hydric soil criteria for inundation or saturation within 12 in. of the surface for at least 5% of the growing season	Soils (in areas not previously determined as containing hydric characteristics) fail to acquire hydric indicators or alternatively, fail to meet the hydric soil criteria for inundation or saturation.	Corrective action will be taken to increase the residence time of water on the site or introduce additional surface and/or ground hydrology.

D. Conditions on Crediting and Debiting

Credits will be withdrawn from the mitigation bank to provide compensatory mitigation for approved permitted projects under Section 404 and 401 of the Clean Water Act. The Sponsor will coordinate with applicants for wetland and stream impacts to provide information on the service area and available credits. The responsibility for demonstrating that the LCMB1 credits constitute adequate and appropriate compensation for proposed impacts lies with the impact applicant. The presence or proposed use of the LCMB1 will not affect the requirement that a project go through the process of avoidance and minimization.

Water Resources will provide the USACE physical evidence of purchased credits with an updated credit ledger. The ledger will differentiate between PFO1, PSS1, and PEM1.

If at any time the number of credits debited exceeds the number released, then no further credit sales shall be permitted by the IRT until the Sponsor has implemented corrective actions and achieved the success criteria so as to provide the number of credits to be greater than or equal to the number of credits debited to cover permitted impacts with this mitigation bank.

At the written request of the Sponsor, the IRT will perform a compliance visit to determine whether targeted success criteria have been met.

It is understood that "in-kind" compensation for wetland resources is preferred and generally required. "Out-of-kind" compensation and compensation for impacts outside the service area should be considered for this bank on a case-by-case basis by the regulatory agencies. In the interest of achieving functional replacement, in-kind compensation of aquatic resource impacts should generally be required.

Out-of-kind compensation may be acceptable if it is determined to be practicable and environmentally preferable to in-kind compensation (e.g., of greater ecological value to a particular region). Decisions regarding out-of-kind mitigation are typically made on a case-by-case basis during the permit evaluation process by the regulatory agencies.

E. Schedule of Credit Availability

The credit release schedule for the LCMB1 has been modified by the IRT. The original credit schedule was based on 21.5 potential credits with all credits being available for PFO1 or PSS1 type impacts. The current modified schedule is based on the bank generating only 18.92 credits with 10.75 already released. Any additional credits will be classified as PFO1, PSS1, or PEM1. PFO1 credits can mitigate for all impact classes, whereas PSS1 and PEM1 credits can only mitigate for PSS1 and PEM1 impacts.

Original Credit Schedule ^a

Benchmark	Credits Released	Credits Sold	Credit Balance
Signing of MBI and Filing of Conservation Easement	4.300	0.000	4.300
Completion of Hydrologic Modifications	3.225	0.000	7.525
Completion of Tree Planting	3.225	0.000	10.750
		9.98	0.77

a) Based on the bank generating 21.5 credits.

Modified Credit Schedule ^a					
Benchmark	Percent Credit Release	Number of Credits to be Released	Potential Credits Released ²		
			PFO1	PSS1	PEM1
First Modified Annual Monitoring Report	0	0	0.00	0.00	0.00
Second Modified Annual Monitoring Report	40	3.27	2.49	0.72	0.06
Third Modified Annual Monitoring Report	30	2.45	1.86	0.54	0.05
Final USACE Approval	30	2.45	1.86	0.54	0.05
Potential Credits Available (8.17)	100	8.17	6.21	1.80	0.16

a) Based on the bank generating 18.92 credits with 10.75 already released which leaves 8.17 to be released.

**F. Maintenance Activities
 Post Construction Phase**

Throughout the mitigation site's proof-of-performance period, an in-depth monitoring effort will be made during each growing season to determine the status of planted and invasive vegetation, the condition of the soils, and hydrologic regimes (see Section IV-A Monitoring Requirements). Additionally, the general integrity of hydrologic control structures, functioning of erosion control mechanisms, and overall site condition will be assessed at this time.

Beyond the in-depth annual summer survey, a less intensive dormant season survey will be made during the proof-of-performance period. The same parameters will be evaluated, but no detailed information will be collected. The sole purpose of these inspections will be to detect physical problems which, if left unaddressed, could compromise the integrity or functioning of the mitigation site. Again, Water Resources will carry out the work.

The dormant season evaluations will consist of the following:

a.) Invasive Species Assessment:

A botanist will walk the entire site and identify any plants that are listed by the Tennessee Exotic Pest Plant Council as severe or significant threats (TNEPPC 2014). Special attention will be paid to exotic species that may become invasive in wetlands. Recommendations will be made as to whether herbicides or mechanical removal should be administered.

² Credit availability has been prorated according to the amount of acreage available within each community type. (i.e. PFO1 = 76%, PSS1 = 22%, PEM1 = 2%)

b.) Erosion Control Assessment:

Erosion control will consist of temporary vegetative cover and a limited amount of energy-absorbing riprap in the ditch outfalls near the southern boundary of the site. Other areas of concentrated water movement, such as lower berm slopes will also be inspected and recommendations made for corrective measures if necessary.

c.) Hydrologic Control Assessment:

These control measures consist of berms that help slow water moving through the constructed wetlands, drainage diversion structures, and armored outfalls at the end of drainages. Each feature will be inspected and maintained as needed. Also, since drainage on the site will be critical for both water retention and prevention of water back-up onto the Casteel property, the drainage patterns will be closely monitored once the fall and winter rains begin. Any needed adjustments that can be done by hand will be made during this time.

d.) Site Disturbance:

Since the mitigation site is located on private property, and is bounded by tracts controlled by others, disturbance is always a possibility. Another potential source of disturbance is the TVA power line right-of-way that bisects a portion of the site. Any future utility maintenance that takes place could potentially impinge upon the mitigation. In order to lessen the likelihood of inadvertent disturbance or encroachment from other abutting landowners, signage indicating the presence of a federally protected mitigation area has been placed every 300 ft along all shared property lines and rights-of-way boundaries.

If any significant disturbance occurs, Water Resources will provide the IRT Chair with a brief letter report which summarizes the site condition and offers any appropriate remedial action.

IV. Monitoring and Maintenance of the Bank

A. Monitoring Requirements and Procedures

The site has been in existence for over four years and field monitoring has taken place during each of those years. The fourth year monitoring data was used in preparing this document but a final monitoring report was not formally submitted upon the direction of the IRT. However, once the IRT approves of a plant community-based approach to mitigation credit assignment, monitoring will recommence. Monitoring will be conducted in year five using the criteria presented in this document. As previously, field assessments will be conducted between June 15 and July 15 and comprehensive monitoring reports will be submitted to the IRT by the end of the calendar year. **We suggest that the monitoring be conducted for an additional three years and then the data products be reevaluated by the IRT to determine if additional inventories are warranted.**

Trees, Shrubs, Vines, and Other Woody Seedlings: Monitoring plots were established four years ago in order to assess the composition, survivorship, and dominance of the planted woody seedlings, plus any other invasive woody vegetation. Fixed-area (0.1-acre) sample plots were installed within each of the mitigation zones (enhancement, creation, restoration) using a systematic random array. Some of these will now be relocated to ensure that the TEA's and the SEA's are properly represented. Separate plots will also be relocated within the seed rain areas to capture the unique demographics that occur there. In addition, some plots will be added to better represent the changes in the site such as the addition of the Oak Establishment Area.

Enough plots will be installed in each location to maintain a minimum sampling intensity of 2% (see Appendix A, Figure 5). As in past years, all woody seedlings occurring within the 0.1-acre plots will be identified to species and assessed to determine whether they are living or dead. Plant demographic summaries will be presented in tabular or graphic form and will include average relative density, frequency, and cover. These statistics will then be used to determine if the success criteria presented in Section III C are being attained.

Because surface inundation persists within emergent zones well into the growing period, fixed area sampling methodologies are not appropriate for analyzing these communities. Instead the vegetation that does exist within the limited amount of emergent habitat (0.67 acres) will be evaluated using subjective measurements. The percent cover of various woody and herbaceous species, as well as open water areas, will be ocularly estimated.

Herbs: Apart from emergent communities, we propose that in the future only trees and shrubs be monitored since robust populations of herbaceous hydrophytes have been consistently retained onsite. The herb cover has been monitored for four years and during that time has been shown to average 78% site-wide. Moreover, >89% of herbaceous-layer flora are considered wetland-adapted according to the latest information from the National Wetland Plant List database. Of those, just under one-third are wetland obligates. This far exceeds the requirement that 50% of the plants be wetland-adapted.

Water Regimes: Field surveys will involve the evaluation of site hydrology to document that it is meeting the criteria set forth by the USACE Wetland Delineation Manual (Environmental Laboratory 1987). These evaluations will take place during the annual assessment. Hydrologic features sought will include inundation, saturation, sediment deposits, drainage patterns, water marks, drift lines, etc. Maximum surface water depths within emergent areas will be determined by using either staff gauges or through direct measurement. Groundwater levels will also be assessed across the rest of the site throughout the growing season using a series of 3 ft-deep monitoring wells. The proposed locations of the monitoring wells are shown on Figure 5 in Appendix A. Water Resources recommends biweekly sampling during the first two months of the growing season and monthly thereafter. According to the NRCS National Water and Climate Center website, the average growing season for Greene Co., Tennessee, for the past 30 years,

has extended from April 15 through October 23 (NRCS 2009). While these dates will be used as a general benchmark, actual sampling will begin when soils become warm enough to support biological activity and when such activity is actually observed (USACE 2012).

Soils: Since mitigation actions will take place in areas that have been documented as containing both hydric and non-hydric soils, intensive soil surveys will be focused on non-hydric soil areas. Soils will be examined down to the level of the B-horizon to determine if hydrologic alterations have begun to produce changes in non-hydric series. A variety of indicators will be used to detect the chemical reduction of iron compounds. These will include, for example, the production of hydrogen sulfide, ferrous iron tests, and colorimetric tests to determine the occurrence of gleyed or low chroma matrices. In the absence of field indicators, hydrologic data may be considered in determining whether the soils meet the hydric soil criteria for inundation or saturation within 12 in. of the surface for at least 5% of the growing season.

B. Contingency Plans/Remedial Actions: In the event the mitigation bank or a specific phase of the bank fails to achieve success criteria as specified in the banking instrument, the Sponsor shall develop necessary contingency plans and implement appropriate remedial actions for the bank or that phase in coordination with the IRT. In the event the Sponsor fails to implement necessary remedial actions within one growing season after notification by the USACE of necessary remedial action to address any failure in meeting the success criteria, the IRT (acting through the Chair) will notify the Sponsor and the appropriate authorizing agencies and recommend appropriate remedial actions.

If the authorizing agencies determine that the bank is operating at a deficit, debiting by the Sponsor of credits shall immediately cease, and the authorizing agencies, in consultation with the IRT and the Sponsor, will determine what remedial actions are necessary to correct the situation. As determined by the IRT Chair, in coordination with the IRT and the Sponsor, if conditions at the bank site do not improve or continue to deteriorate within one growing season from the date that the need for remediation was first identified in writing to the Sponsor by the USACE through the Chair of the IRT, the agent responsible for the financial assurances shall be directed by the USACE to transfer the amount necessary to correct the deficiency to a party acceptable to the IRT, to undertake corrective measures.

C. Bank Ledgers

A report will be sent to the IRT Chair after each sale. The report will be a letter stating the transaction has been completed and a credit table will be attached that contains the following: Date of Credit Transfer, Recipient of Credits (permit number and name), Number of Credits and Type (Emergent, Scrub/Shrub or Bottomland Hardwoods) and Balance of Credits.

VI. Long-Term Management

A. Long-Term Steward

1. Name Long-Term Steward Party/Parties

TWRA has agreed to accept long-term stewardship of the bank. They have approved the conservation easement (Appendix C) and will begin their responsibilities after all monitoring of the site has been completed.

2. Responsibilities of Steward

The long-term steward agrees to perform all work necessary to maintain the LCMB1, in perpetuity, in an ecological condition consistent with the final ecological requirements/success criteria required by the MBI. Maintenance will include any and all activities necessary to improve and sustain the ecological function of the site. Such may include, but are not limited to tree planting and application of mechanical and chemical means to control and eliminate exotic and nuisance species as described elsewhere in this document.

The steward is also responsible for long-term monitoring requirements of the site, biannual reporting, providing access to the site for the IRT as required for inspections, and for managing and reporting on the long-term stewardship fund.

B. Long-Term Management Fund Endowment

TWRA will manage the land with existing funds as part of their Lick Creek Wetlands Program.

C. Provisions Covering the Use of the Land

Use of the land will be restricted as detailed in the conservation easement. After the number of bank credits has been finally determined through monitoring, the land will serve the public in a manner determined by TWRA, but these must strictly adhere to the constraints of the conservation easement.

VII. Other Provisions

A. Force Majeure Clause

Nothing herein shall be construed to authorize proceedings against the bank sponsor for any damages to the bank property caused by acts of God such as earthquake, fire, flood, storm, war, civil disturbance, strike, or similar causes. In the event of a force majeure event, the bank sponsor will notify the members of the IRT and work with the IRT to resolve the damages, if any, caused by the event. However, if the acts of God do not preclude the bank sponsor from resuming bank operations without unreasonable expense, then it shall not be relieved of its obligations under this document. Any impact to future credit releases or numbers of credits available for sale shall be discussed and determined by the IRT at that time.

B. Dispute Resolution

Resolution of disputes about application of this Banking Instrument will be in accordance with those stated in the Federal Guidance for the Establishment, Use and Operation of Mitigation Banks (60 F.R. 58605 et seq., November, 1995).

C. Validity, Modification, and Termination of the Banking Instrument

This MBI will become valid upon issuance of the USACE and TDEC permits and execution of the MBI by the IRT agencies. The initial credit release is typically authorized following the recordation of the conservation easement and execution of the financial assurances requirements. This MBI may be amended, altered, released or revoked only by written agreement among the parties hereto or their heirs, assigns or successors-in-interest, which amendment will be filed in the public records of Greene County, Tennessee. Any of the IRT members may terminate their participation upon written notification to all signatory parties. Participation of the IRT members will terminate 30 days after written notification.

D. Specific Language of the Banking Instrument Shall be Controlling

To the extent that specific language in this document changes, modifies, or deletes terms and conditions contained in those documents that are incorporated into the Banking Instrument by reference, and that are not legally binding, the specific language within the Banking Instrument shall be controlling.

E. Signature Pages

The original signature pages are on file at the USACE office, Nashville, TN.

VIII. References

- Environmental Laboratory. 1987. Wetland delineation manual. U.S. Army Corps of Engineers, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. Technical Report Y-87-1.
- NRCS. (U.S. Department of Agriculture, Natural Resources Conservation Service). 2009. National water and climate center. [Internet]. [cited 2015 March 10]; Available from: <http://www.wcc.nrcs.usda.gov/climate/climate-map.html>.
- NRCS. 2010. Field indicators of hydric soils in the United States, version 7.0, ed. L.M. Vasilas, G.W. Hurt, and C.V. Noble. USDA NRCS in cooperation with the National Technical Committee for Hydric Soils.
- TNEPPC (Tennessee Exotic Pest Plant Council). 2014. Invasive exotic plants in Tennessee. [Internet]. [cited 2015 March 10]; Available from: http://www.tneppc.org/Invasive_Exotic_Plants.htm.
- USACE (U.S. Army Corps of Engineers). 2012. Regional supplement to the Corps of Engineers wetland delineation manual: eastern mountains and piedmont region version 2.0, ed. J.F. Berkowitz, J.S. Wakeley, R. W. Lichvar, and C.V. Noble. ERDC/EL TR-12-9. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USACE. 2014. National wetland plant list, version 3.2. USACE Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. [Internet]. [cited 2015 March 10]; Available from: http://wetland_plants.usace.army.mil/.
- USGS. (U.S. Department of the Interior, U.S. Geological Survey). 1990. Hydrologic unit map-1974, State of Tennessee" in Cooperation with the Interagency Advisory Committee on Water Data. Reston, Va.
- Water Resources, LLC. 2011. First year monitoring report, Lick Creek Wetland Mitigation Bank Number 1, Greene County, Tennessee (DOA File/Permit Number 2009-00306)(TDEC §401 Water Quality Certification Number NRS 08.081).
- Water Resources, LLC. 2012. Second year monitoring report, Lick Creek Wetland Mitigation Bank Number 1, Greene County, Tennessee (DOA File/Permit Number 2009-00306)(TDEC §401 Water Quality Certification Number NRS 08.081).
- Water Resources, LLC. 2014. Third year monitoring report, Lick Creek Wetland Mitigation Bank Number 1, Greene County, Tennessee (DOA File/Permit Number 2009-00306)(TDEC §401 Water Quality Certification Number NRS 08.081).

Appendix A

Figures

- ***Location Map***
- ***Wetland Map***
- ***Grading Plan Map***
- ***FEMA Map***
- ***Site Monitoring Map***

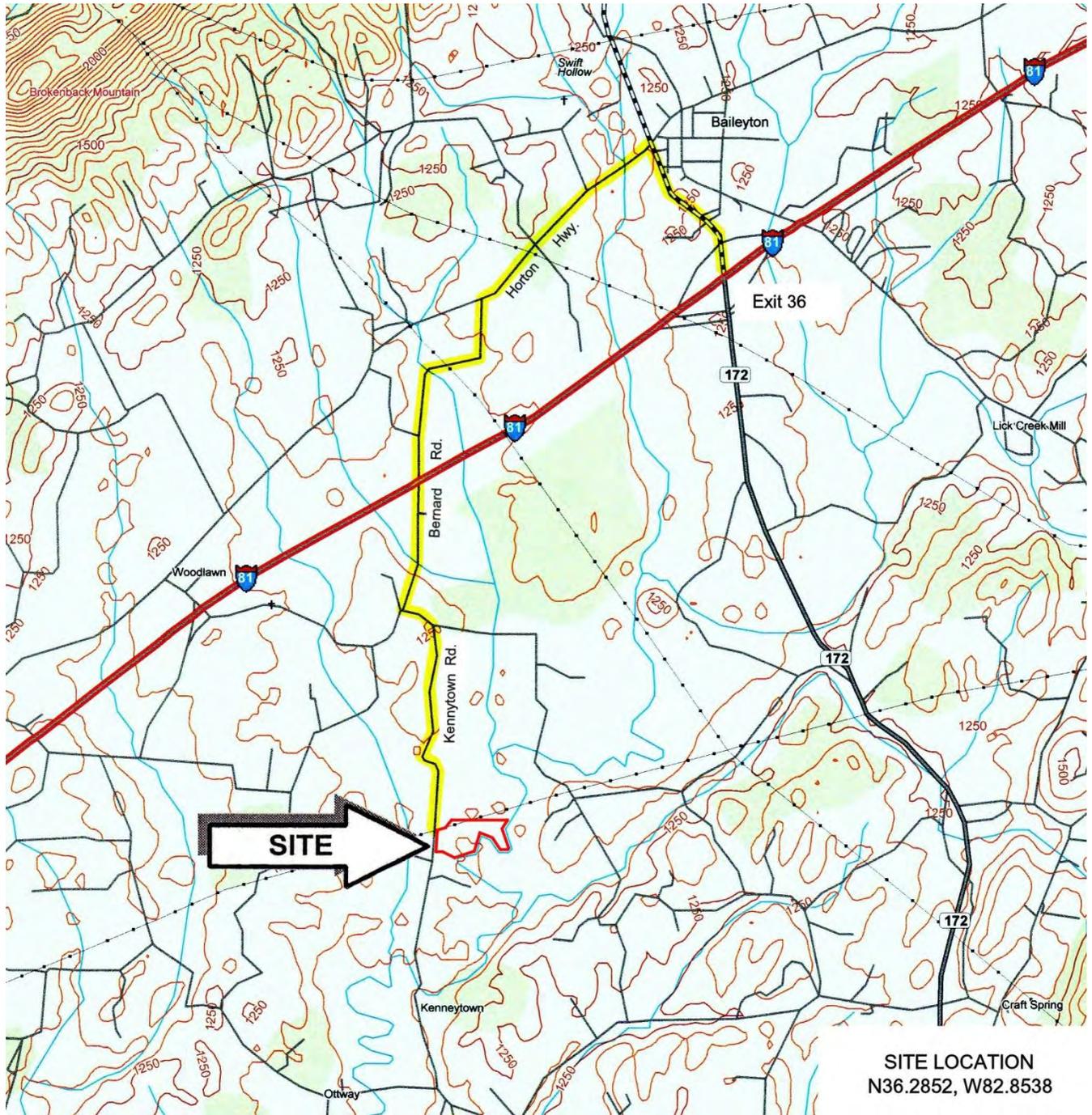


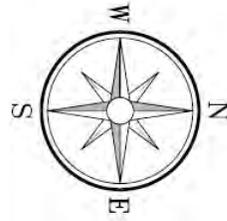
Figure 1. Location Map
DeLorme 3-D TopoQuads™
Baileyton, TN Quad (1971)

SCALE 1 : 43,200

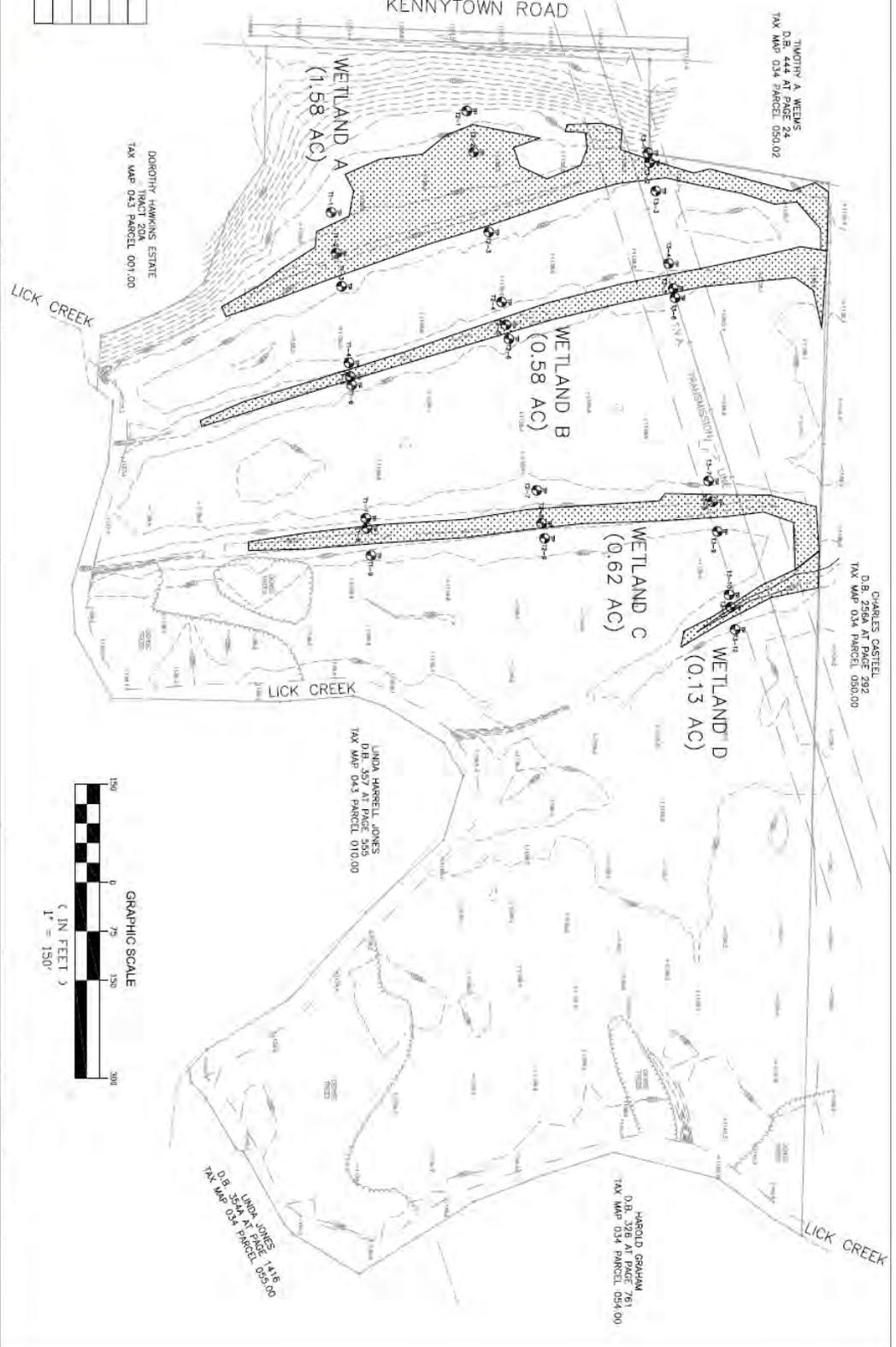
3,600 2,700 1,800 900 0 FT. 3,600

N

WATER RESOURCES



WETLAND	AREA (AC)
A	1.58
B	0.58
C	0.62
D	0.13
TOTAL	2.91

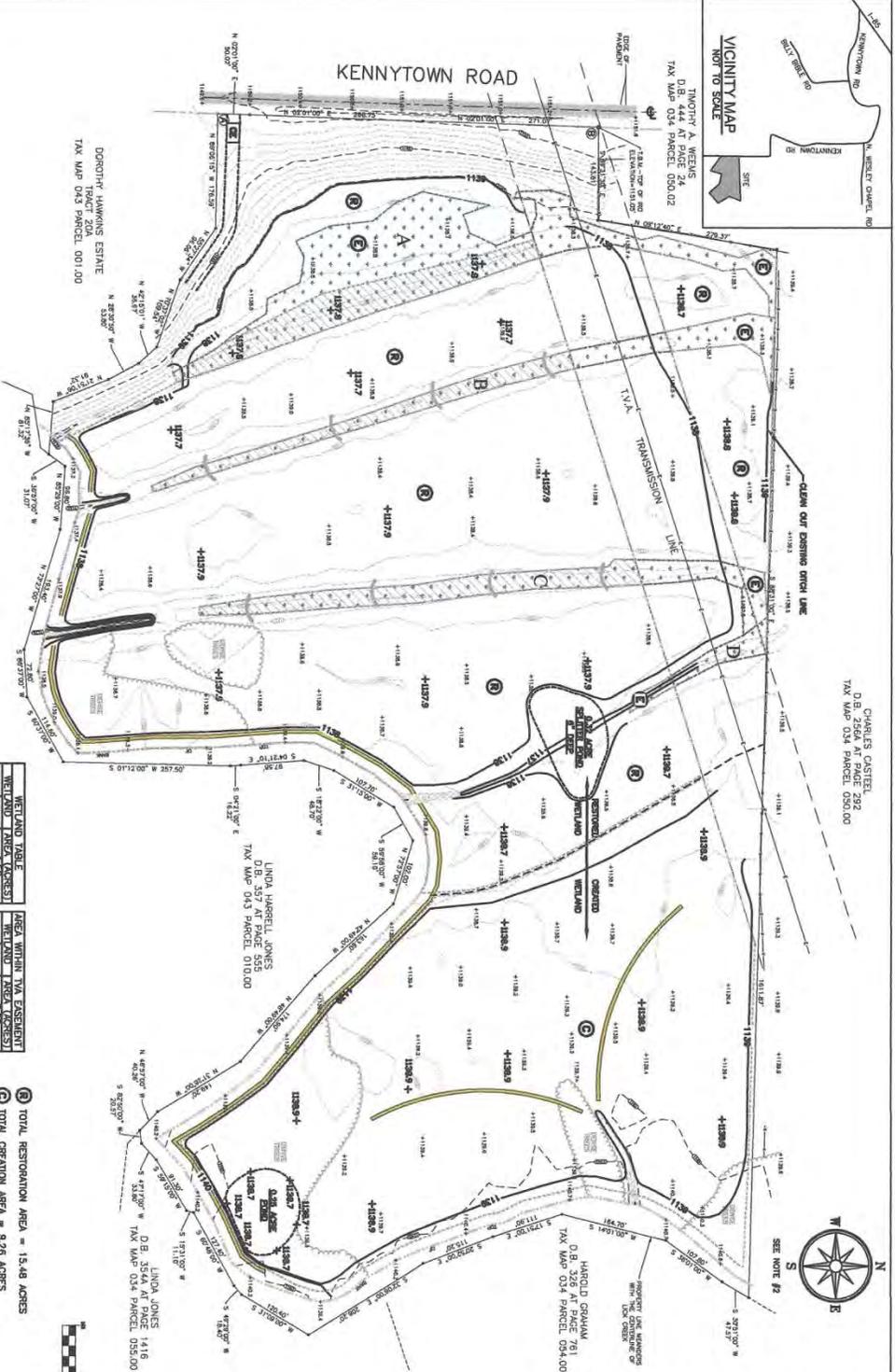
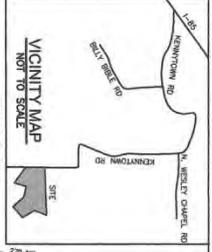


Quantum Engineering & Services, LLC
156 Dunlap Road
Knoxville, TN 37718
PHONE (603) 897-1362 FAX (603) 897-9444

PROJECT NO.	PROJECT OR. DES.
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DATE	CHECKED BY
SOCKET/STRT	BOOK END
REV. NO. 0	FIELD-NBS

Water Resources, LLC
Knoxville, Tennessee

WATER RESOURCES LLC
TRACT 198
LICK CREEK VIEW ESTATE
GREENE COUNTY, TENNESSEE



- GENERAL NOTES**
- THIS DRAWING REPRESENTS A PROPOSED GRADING PLAN PREPARED BY QES, INC. BASED UPON SURVEY DATA PROVIDED BY THE CLIENT. THE CLIENT IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
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 - THE TOTAL AREA OF THE PROPOSED GRADING PLAN IS 1.28 ACRES.

- LEGEND**
- TOP OF BANK AT CROSSING
 - HIGH-OF-WAY LINE (EXISTING)
 - EDGE OF ROAD (EXISTING)
 - ADJOINING LOT LINE
 - BOUNDARY LOT LINE (BY PLAT-NO SURVEY)
 - OVERHEAD T.V.A. TRANSMISSION LINE (EXISTING)
 - BARBED WIRE FENCE
 - SPOT ELEVATION
 - DEED BOOK
 - HOW NOT OLD (FOUND)
 - WETLAND
 - PROPOSED FILLED WETLANDS
 - PROPOSED SPOT ELEVATION
 - PROPOSED CONSTRUCTION ENTRANCE
 - WETLAND DIVERS
 - SITE AREAS
 - PROPOSED CONTOUR
 - PROPOSED CORNER
 - RESTORATION AREA
 - CREATION AREA
 - DRAINAGE AREA

WETLAND TABLE

WETLAND AREA (ACRES)	WETLAND AREA (ACRES)
W1	0.10
W2	0.10
W3	0.10
TOTAL	0.30

AREA WITHIN T.V.A. EASEMENT

WETLAND AREA (ACRES)	WETLAND AREA (ACRES)
W1	0.10
W2	0.10
W3	0.10
TOTAL	0.30

- (A)** TOTAL RESTORATION AREA = 13.48 ACRES
- (B)** TOTAL CREATION AREA = 9.26 ACRES
- (C)** TOTAL ENHANCEMENT AREA = 1.12 ACRES
- (D)** FILED WETLANDS = 1.28 ACRES

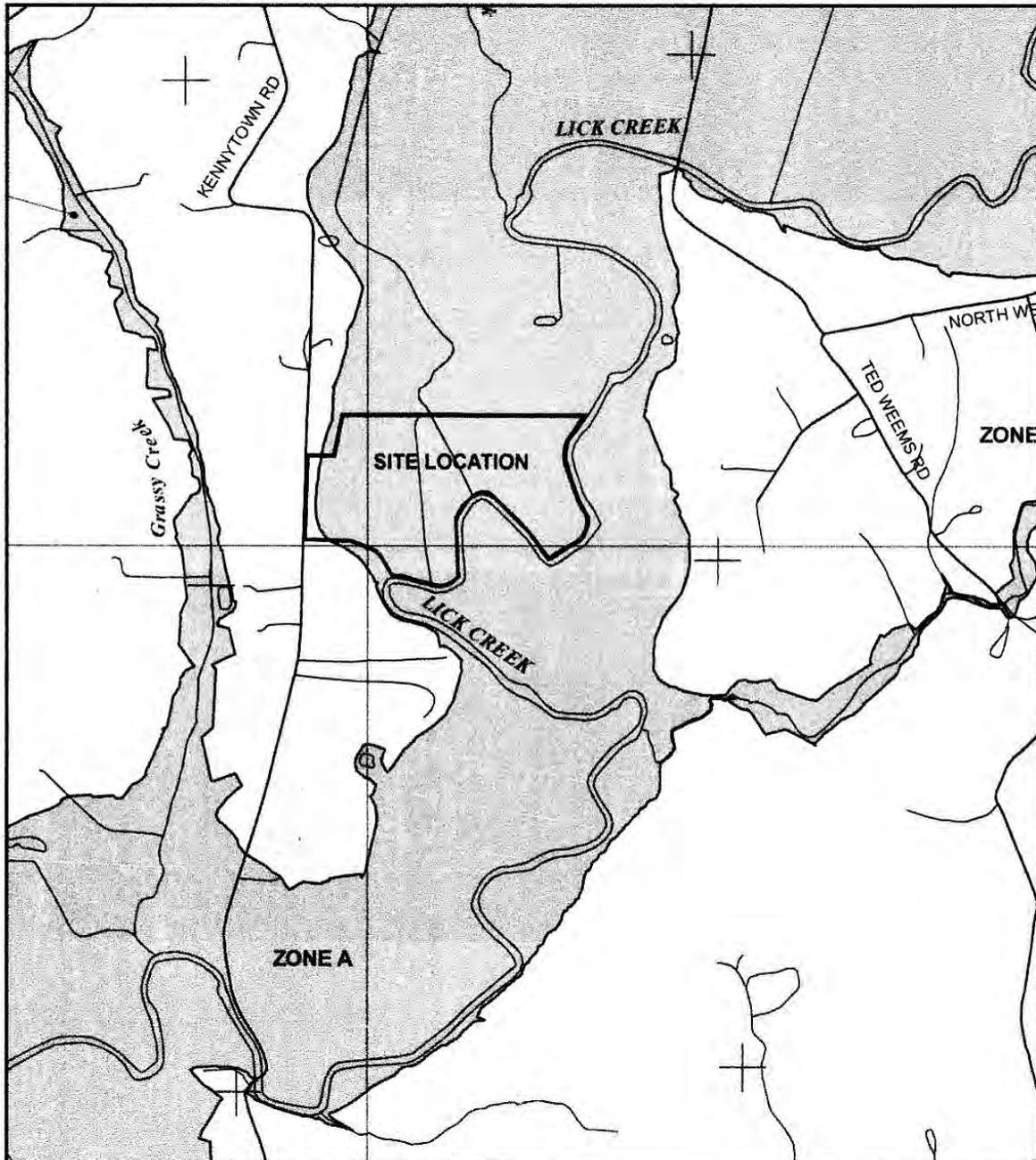
Quantum Environmental & Engineering Services, LLC
 186 Dante Road
 Knoxville, TN 37918
 PHONE (606) 699-1200, FAX (606) 699-4644

PROJECT INFO

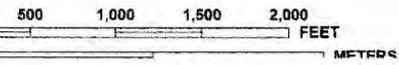
NO.	DATE	DESCRIPTION OF REVISION
1	04-20-09	T.V.A. VESSEMENT REVISION FROM TOP TO 100'
2	03-17-09	ORIGINAL DRAWING RELEASE
3	03-17-09	DESCRIPTION OF REVISION

Water Resources, LLC
 Knoxville, Tennessee

LICK CREEK # 1-WETLAND BANK
 KENNYTOWN RD.
 GREENEVILLE, TENNESSEE



MAP SCALE 1" = 1000'



PANEL 0115D

FIRM
FLOOD INSURANCE RATE MAP
GREENE COUNTY,
TENNESSEE
AND INCORPORATED AREAS

PANEL 115 OF 500
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GREENE COUNTY	470345	0115	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

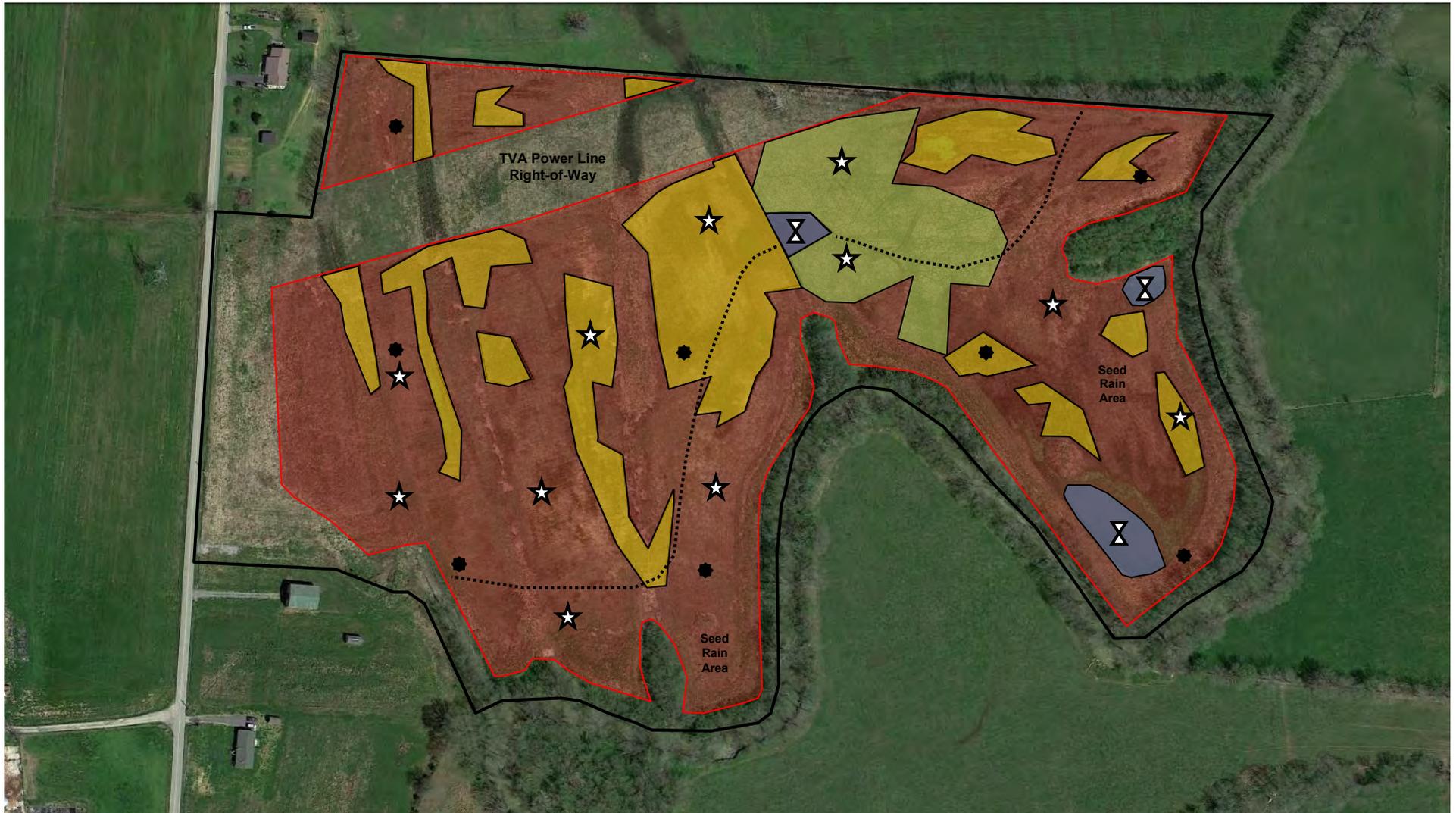


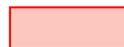
MAP NUMBER
47059C0115D

EFFECTIVE DATE
JULY 3, 2006

Federal Emergency Management Agency

Figure 4. FEMA Flood Map



 = PFO1 Tree Establishment Areas (16.12 acres)

 = PSS1 Scrub/Shrub Establishment Areas (5.02 acres)

 = PEM1 Emergent Areas (0.67 acres)

 = PFO1 Oak Establishment Area (2.14 acres)

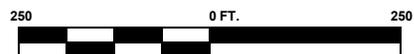
 = Groundwater Monitoring Well and Photo-Documentation Point

 = Surface Water Monitoring and Photo-Documentation Point

 = Vegetation Sampling Plot

Figure 5. Lick Creek Wetland Mitigation Bank 1
Adaptive Management: Vegetation Establishment Zones
and Site Monitoring Map
Google Earth © 2014 Google

APPROX. SCALE 1: 3,000



Appendix B
Table

Table 1
Trees Planted in Lick Creek Wetland Mitigation Bank 1

Species	Dates Planted				Totals	Percent
	11/2010	1/2012	1/2013	2/2015		
Hard Mast Wetland Species						
Shumard oak	3,000	1,500		185	4,685	19.7
willow oak	2,000	1,500		370	3,870	16.2
blackgum	1,460	500	400	740	3,100	13.0
persimmon	1,500	300		555	2,355	9.9
swamp chestnut oak	1,000	300	425	185	1,910	8.0
shellbark hickory	750	300		185	1,235	5.2
sugarberry	750			370	1,120	4.7
sweetgum		500	400		900	3.8
swamp white oak				740	740	3.1
Approved Soft Mast Wetland Species						
silver maple				185	185	0.8
red maple				185	185	0.8
Other Soft Mast Wetland Species						
sycamore		500			500	2.1
Transition Zone Species						
white oak	500	175			675	2.8
black walnut	325	80			405	1.7
bitternut hickory	1,000	600			1,600	6.7
shagbark hickory	325	30			355	1.5
TOTAL	12,610	6,285	1,225	3,700	23,820	100

Table 2

Shrubs Planted in Lick Creek Wetland Mitigation Bank 1

Species	Dates Planted					Totals	Percent
	11/2010	1/2012	1/2013		2/2015		
				Percent			
buttonbush	480	2,730		35.5		3,210	21.8
silky dogwood	380	430	1,000	20	800	2,610	17.7
elderberry	80	330	400	9	1,650	2,460	16.7
false indigo bush	300	830		12.5	800	1,930	13.1
silky willow				0	1,650	1,650	11.2
black chokeberry	80	330		4.5	800	1,210	8.2
stream alder	200	430	400	11.4		1,030	7.0
winterberry holly		480		5.3		480	3.3
spicebush	150			1.7		150	1.0
TOTAL	1,670	5,560	1,800	100	5,700	14,730	100

Table 3

**Lick Creek Wetland Mitigation Bank 1
History of Surviving Planted and Invasive Woody Vegetation (stems/acre)**

	Restoration		Creation		Enhancement		Seed Rain	
	Planted	Invasive	Planted	Invasive	Planted	Invasive	Planted	Invasive
Year 1	128	15	65	1,175	65	395	58	7
Year 2	338	2,541	285	9,196	70	650	228	16,826
Year 3	522	3,509	325	9,680	65	1,330	325	17,908
Year 4	593	3,872	470	17,666	130	2,291	460	27,588

Table 4				
Lick Creek Wetland Mitigation Bank 1				
History of Surviving Approved Tree Densities (stems/acre) ^a.				
	Restoration	Creation	Enhancement	Seed Rain
Year 1	30	65	35	55
Year 2	52.5	105	25	67.5
Year 3	180	140	60	80
Year 4	158	205	55	110

^a. See Table 1 for list of approved tree species.

Table 5				
Lick Creek Wetland Mitigation Bank 1				
History of Surviving Planted Soft Mast and Shrub Densities (stems/acre) ^b.				
	Restoration	Creation	Enhancement	Seed Rain
Year 1	98	0	30	3
Year 2	286	200	50	160
Year 3	357	235	10	247
Year 4	398	260	55	350

^b. See Table 1 for list of soft mast species and Table 2 for list of shrub species.

Table 6**Lick 1 Planted Woody Stems Surviving in Tree Establishment Areas
June 2014**

Shrubs	Stems/Acre	Percent
buttonbush	147	26
silky dogwood	63	11
false indigobush	47	8
stream alder	13	2
black chokeberry	2	0.3
witch-hazel	2	0.3
elderberry	2	0.3
TOTAL	269	47.9
Trees	Stems/Acre	Percent
Shumard oak	63	11
swamp chestnut oak	53	9
sweetgum	43	8
sycamore	37	7
blackgum	22	4
willow oak	20	4
swamp white oak	18	4
persimmon	17	3
shagbark hickory	13	2
sugarberry	2	0.3
TOTAL	289	52.1

Table 7**Lick 1 Planted Woody Stems Surviving in Scrub-Shrub Establishment Areas
June 2014**

Shrubs	Stems/ Acre	Percent
buttonbush	211	63
silky dogwood	37	11
false indigo bush	17	5
winterberry holly	2	0.5
TOTAL	271	79.5
Trees	Stems/ Acre	Percent
sugarberry	13	4
persimmon	12	3
shagbark hickory	10	3
blackgum	8	2
willow oak	7	1
sycamore	5	1
witch-hazel	3	1
Shumard oak	3	1
river birch	2	0.5
American hornbeam	2	0.5
black walnut	2	0.5
swamp chestnut	2	0.5
TOTAL	65	20.0

Appendix C _____
Support Documents

- ***Cultural Resources Summary***
- ***Threatened and Endangered Species Letters***
- ***Jurisdictional Determination Letter***
- ***Property Title and Warranty***
- ***Conservation Easement***

Cultural Resources Response

(Excerpted from:)

*Phase I Archaeological Survey of the Lick Creek Wetland Bank 1, Civil District 11,
Greene County, Tennessee*
March 2009

Submitted by:
Jay D. Franklin, PhD
Assistant Professor
Department of Sociology & Anthropology
Box 70644
East Tennessee State University
Johnson City, Tennessee 37614

Management Summary

In February and March, 2009, archaeologists from East Tennessee State University, under the direction of Jay D. Franklin, *PhD*, conducted a Phase I archaeological reconnaissance survey of the proposed Lick Creek Wetland Bank I in Civil District 11, Greene County, Tennessee. The project area consists of 35 acres of floodplain along Lick Creek. There are already several designated wetland areas within the proposed project area. Further, in more than 50% of the proposed project area, the water table was at, above, or very near the current ground surface during the time of survey. Archaeological survey was accomplished by means of bucket auger testing at 30 meter intervals across several transects. No archaeological sites were recorded within the proposed project area. However, one prehistoric archaeological site was recorded adjacent to the proposed project area (40Gn281). No cultural materials at all were recovered in the proposed project area, and therefore no further archaeological work is recommended.



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Natural Areas
7th Floor L&C Annex
401 Church Street
Nashville, Tennessee 37243
Phone 615/532-0431 Fax 615/532-0046

March 2, 2009

Paul Durr
Water Resources, LLC
4208 Eiffel Lane
Knoxville, TN 37938

Subject: Lick Creek Wetland Mitigation Bank
Greene County, Tennessee
Rare Species Database Review

Dear Mr. Durr:

Thank you for the letter and map you sent requesting an environmental review for the proposed Lick Creek Wetland Mitigation Bank in Greene County, Tennessee.

We have reviewed the state's natural heritage database with regard to the project location, and we find that there are no previous observations of rare species in the immediate vicinity of the site (1 mile radius). Within four miles of the project, the state-special concern-listed plant, purple milkweed (*Asclepias purpurascens*), is the sole observation. Purple milkweed is typically found in barrens type habitats. For further reference, you may wish to consult our watershed and county species lists located on our website at <http://state.tn.us/environment/na/data.shtml>.

If suitable habitat for rare species exists on or downstream of the site, we ask that project plans incorporate protective measures for them. We ask that you coordinate this project with the Tennessee Wildlife Resources Agency (Rob Todd, rob.todd@state.tn.us) to ensure that any legal requirements for protection of rare animals are properly addressed. We also ask that you contact the US Fish and Wildlife Service, Cookeville, Tennessee Office to determine whether the project will impact any federally listed rare species.

For stabilization of disturbed areas, the Division of Natural Areas advocates the use of native trees, shrubs, and warm season grasses, where practicable. Care should be taken to prevent re-vegetation of disturbed areas with plants listed by the Tennessee Exotic Pest Plant Council as harmful exotic plants.

Lick Creek Wetland Mitigation Bank, Greene County
Page 2, March 2, 2009

Please keep in mind that not all areas of Tennessee have been surveyed and that a lack of records for any particular area is not a statement that rare species are absent from that area. For information regarding the protection status and ranks, please visit our website at <http://state.tn.us/environment/na>.

Thank you for considering Tennessee's rare species throughout the planning of this project. Should you have any questions, please do not hesitate to contact me at (615) 532-0440.

Sincerely,

A handwritten signature in cursive script that reads "Silas Mathes".

Silas Mathes
Heritage Data Manager

TWRA Rare Species Response

[Print](#) | [Close Window](#)

Subject: Re: Threatened and Endangered Species

From: "Rob Todd" <Rob.Todd@state.tn.us>

Date: Wed, Mar 04, 2009 5:30 pm

To: <paul@waterresourcesllc.com>

Mr. Durr:

Thank you for the opportunity to review the information on the proposed Lick Creek Wetland Mitigation Bank in Greene County for proposed impacts to rare species. We have reviewed our databases of state listing species and found no rare species under our authority within the project boundaries. It is the opinion of The Tennessee Wildlife Resources Agency that impacts to State listed endangered, threatened, or deemed-in-need-of-management species protected and managed under our authority due to this project will not be significant.

Robert M. Todd
Tennessee Wildlife Resources Agency
Environmental Services Division
Ellington Agricultural Center
P.O. Box 40747
Nashville, TN 37204
Phone: 615-781-6572
Fax: 615-781-6667
E-mail address: Rob.Todd@state.tn.us
>>> <paul@waterresourcesllc.com> 03/04/09 9:57 AM >>>



United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

March 31, 2009

Mr. Paul C. Durr
Water Resources
4208 Eiffel Lane
Knoxville, Tennessee 37938

Re: FWS # 09-FA-0310

Dear Mr. Durr:

Thank you for your correspondence of March 4, 2009, requesting a list of federally threatened and endangered species regarding the proposed formation of the Lick Creek Mitigation Bank Number 1 Project in Greene County, Tennessee. The proposed bank would be created on a 35-acre site between Kennytown Road and Lick Creek as shown on the attachments to your correspondence. U.S. Fish and Wildlife Service (Service) personnel have reviewed the information submitted and we offer the following comments.

Endangered species collection records available to the Service do not indicate that federally listed or proposed endangered or threatened species occur within the impact area of the project. We note, however, that collection records available to the Service may not be all-inclusive. Our data base is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality.

Thank you for the opportunity to comment on this proposed action. If you have any questions regarding the information which we have provided, please contact Wally Brines of my staff at 931/528-6481, extension 222, or at wally_brines@fws.gov.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor



DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
Eastern Regulatory Field Office
501 Adesa Blvd., Suite 250
LENOIR CITY, TENNESSEE 37771

March 13, 2009

REPLY TO

Eastern Regulatory Field Office

SUBJECT: File No. LRN-2009-00306; Approved Jurisdictional Determination, Lick Creek Watershed, Lick Creek Mile 44.2R, Nolichucky River Mile 16.0R, Greene County, Tennessee: Lick Creek Mitigation Bank 1

Mr. Paul Durr
Water Resources, LLC
4208 Eiffel Lane
Knoxville, Tennessee 37938

Dear Mr. Durr:

This is in response to your request for a waters of the United States determination at the proposed Lick Creek Mitigation Bank 1 in Greene County, Tennessee. Please refer to Department of the Army (DA) File No. LRN-2009-00306 in future correspondence and permit application submittals regarding this project.

Our agency has regulatory responsibilities pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). The Clean Water Act prohibits the discharge of dredged or fill material into waters of the U.S. without a Section 404 permit. The Rivers and Harbors Act requires Section 10 permit for work in navigable water of the United States.

Based upon my March 3, 2009 on site investigation, areas within the proposed project area were found to meet all the required characteristics to be classified as a wetland; i.e., presence of hydric soils, a predominance of hydrophytic vegetation and evidence of sufficient hydrology. These wetland areas were also determined to be connected to Lick Creek, which is also considered waters of the U.S.

Our jurisdictional determination is that wetlands and streams on this site are waters of the U.S. and are subject to Corps of Engineers' regulatory jurisdiction under Section 404 of the Clean Water Act. Enclosed is a map indicating the areas reviewed. If any additional resources which may be considered waters of the U.S. are located during design or construction, these areas should be avoided until a jurisdiction determination can be provided. This determination is valid for a period of five years from the date of this letter.

It should be noted that this verification is only for the wetlands shown on the attached maps, and does not authorize any work on the site. Impacts to waters of the United States should be avoided during the design phase whenever practicable. When these resources cannot be avoided, the work should be designed to minimize adverse impacts. A Department of Army (DA) permit pursuant to Section 404 of the Clean Water Act will be required for any work which entails the direct filling or excavation in waters of the United States. A DA permit application should include a survey of all waters of the U.S. on the site, a plan showing any proposed fill or excavation in waters of the U.S., a description of efforts taken to avoid and minimize the proposed fill and a plan to mitigate any unavoidable fill in waters of the U.S.

The enclosed Notification of Administrative Appeal Options (NAAO) identifies your rights and options regarding an administrative appeal of this determination. Impacts to waters of the United States should be avoided whenever practicable. When these resources cannot be avoided, the work should be designed to minimize adverse impacts.

Our permitting requirements for the project would depend on the specific construction methods and associated stream and wetland impacts. Our concerns center on the potential activities in waters of the United States. Potential impacts to these waters should be identified. Potential alternatives and methods that avoid and minimize such impacts should be considered in the design scheme of the project and addressed in your environmental documentation.

If you have any questions, please contact me at the above address or telephone (865)986-7296.

Sincerely,


Ken Jones
Regulatory Specialist
Operations Division

Enclosures

Copies Furnished:

State of Tennessee
Division of Water Pollution Control
3711 Middlebrook Pike
Knoxville, Tennessee 37921
(865) 594-6035

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: Water Resources, LLC (Lick Creek Mitigation Bank 1)		File Number: LRN-2009-00306	Date: 13-Mar-09
Attached is:			See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)		B
<input type="checkbox"/>	PERMIT DENIAL		C
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION		D
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

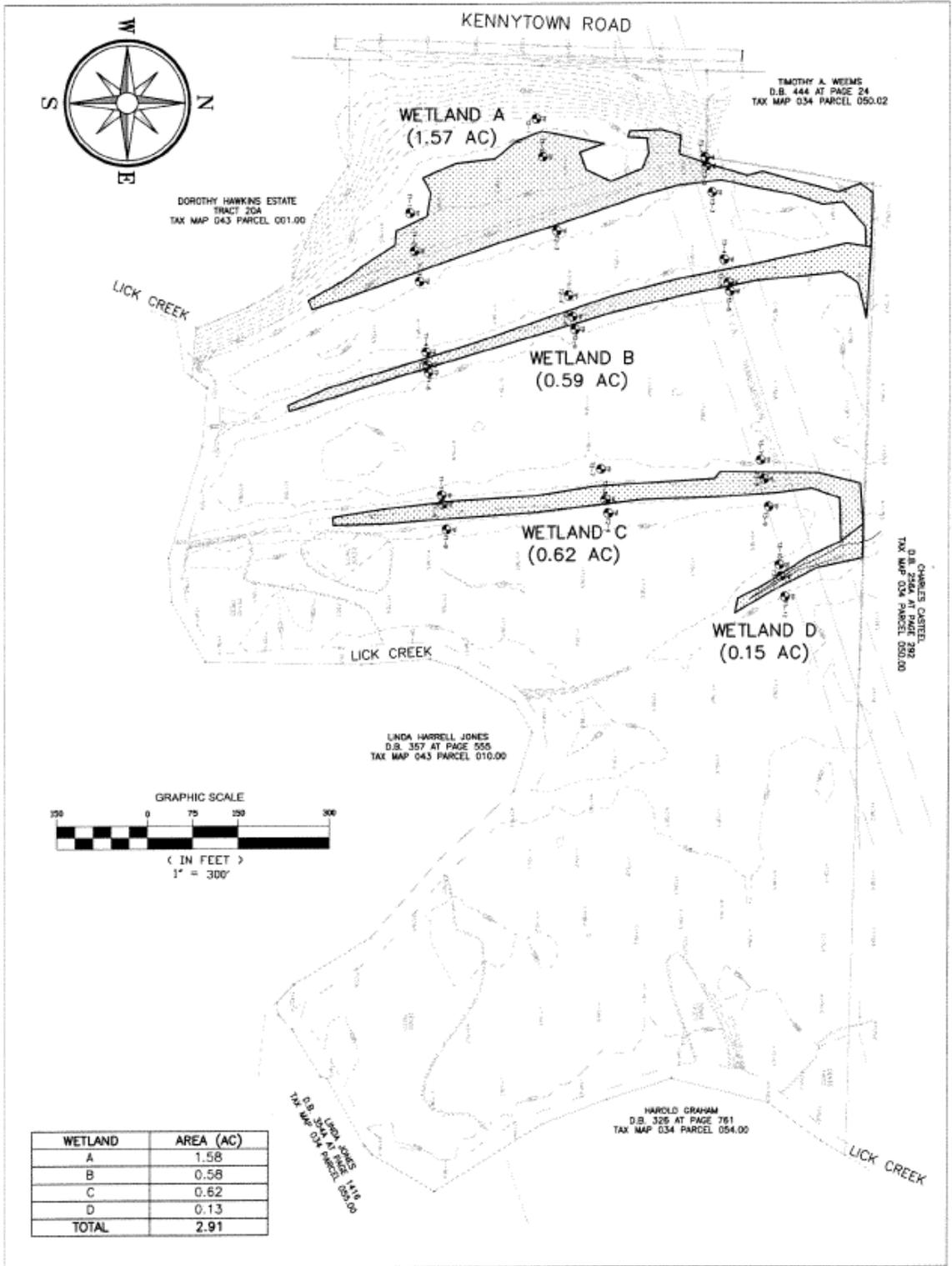
C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

file LRW-2009-00306



WETLAND	AREA (AC)
A	1.58
B	0.58
C	0.62
D	0.13
TOTAL	2.91

NOTES:

 <p>Quantum Environmental & Engineering Services, LLC 126 Bonte Road Knoxville, TN 37918 PHONE 1800 589-1295, FAX 615 589-1844</p>	DESIGNED BY: DEH	<p>WATER RESOURCES LLC TRACT 19R OF THE DOROTHY HAWKINS ESTATE LICK CREEK WETLAND BANK I GREENE COUNTY, TENNESSEE</p> <p>FIGURE 3 WETLAND MAP</p>
	CHECKED BY: XXX	
	CAUSA BY: DEH	
	DRAWN BY: DEH	
	SCALE: 1"=300'	
	DATE: 02-04-09	
REVISION NO: 0	PROJECT NO: 500638	FILENAME: 500638-AR-1.DWG

WARRANTY DEED

FOR AND IN CONSIDERATION of the sum of Ten Dollars (\$10.00), cash in hand paid, and other valuable considerations, the receipt of all of which is hereby acknowledged, we, JOHN R. CARTER, by and through my duly authorized Attorney-in-Fact, ANGELA F. CARTER, and wife, ANGELA F. CARTER, hereinafter referred to as the GRANTORS, have this day bargained and sold, and do hereby transfer and convey unto WATER RESOURCES, LLC, hereinafter referred to as the GRANTEE, its successors and assigns, the following described real estate:

SITUATE in the 11th Civil District of Greene County, Tennessee, and being more particularly described as follows:

BEGINNING at an iron rod situated in the eastern margin of the right-of-way of Kennytown Road and corner to Weems (444-24); thence running with Weems two (2) calls: South 89 deg. 31 min. 30 sec. East 143.61 feet to an iron rod; thence North 09 deg. 12 min. 40 sec. East 279.37 feet to an iron rod, corner to Casteel (256A-292); thence running with Casteel South 88 deg. 31 min. 30 sec. East 1,611.87 feet to an iron rod situated in the approximate center of Lick Creek and corner to Graham (326-761); thence running with the approximate center line of Lick Creek and with the common boundary of Graham five (5) calls: South 30 deg. 51 min. West 47.57 feet to an iron rod; thence South 36 deg. 01 min. West 107.80 feet to an iron rod; thence South 14 deg. 01 min. West 164.70 feet to an iron rod; thence South 17 deg. 51 min. East 111.90 feet to an iron rod; thence South 20 deg. 52 min. East 115.20 feet to an iron rod; thence continuing with Graham and later Jones (354A-1416) South 32 deg. 06 min. East 208.20 feet to an iron rod; thence continuing with Jones four (4) calls: South 31 deg. 09 min. West 120.40 feet to an iron rod; thence South 49 deg. 29 min. West 18.40 feet to an iron rod; thence South 60 deg. 48 min. West 127.40 feet to an iron rod; thence South 15 deg. 31 min. West 11.10 feet to an iron rod; thence South 59 deg. 15 min. West 91.30 feet to an iron rod, corner to Harrell (357-555); thence running with Harrell eighteen (18) calls: South 47 deg. 17 min. West 33.80 feet to an iron rod; thence South 82 deg. 50 min. West 20.57 feet to an iron rod; thence North 46 deg. 57 min. West 40.26 feet to an iron rod; thence North 31 deg. 28 min. West 149.20 feet to an iron rod; thence North 48 deg. 49 min. West 174.90 feet to an iron rod; thence North 42 deg. 49 min. West 163.60 feet to an iron rod; thence North 72 deg. 57 min. West 102.00 feet to an iron rod; thence South 59 deg. 58 min. West 59.10 feet to an iron rod; thence South 31 deg. 15 min. West 107.70 feet to an iron rod; thence South 18 deg. 22 min. West 48.70 feet to an iron rod; thence South 04 deg. 21 min. 10 sec. East 97.58 feet to an iron rod; thence South 04 deg. 21 min. East 16.22 feet to an iron rod; thence South 01 deg. 12 min. West 257.50 feet to an iron rod; thence South 60 deg. 37 min. West 114.60 feet to an iron rod; thence South 86 deg. 37 min. West 72.80 feet to an iron rod; thence North 73 deg. 27 min. West 193.40 feet to an iron rod; thence North 85 deg. 29 min. West 96.80 feet to an iron rod; thence South

I or we, hereby swear or affirm that the actual consideration for this transfer of value of the property transferred, whichever is greater is \$10.00, or whichever amount is equal to or greater than the amount which the property transferred would command at a fair voluntary sale.

PROPERTY GRANTOR FOR PAYMENT OF TAXES IS

Name Water Resources, LLC

Address 89 Daniel Boone Dr

Bohacurville, KY 40106

MAP 43 GROUP PARCEL 1 P 6

Form Prepared By
ANGELA F. CARTER, MARSHALL, HOOD & CO., L.L.C.

1000 37740

1-423-600-6105

Subscribed and sworn to before me this _____ day of _____, 20____

Notary

36 deg. 57 min. West 31.07 feet to an iron rod, corner to Tract 20R, containing 6.18 acres, more or less; thence running with Tract 20R eight (8) calls: North 85 deg. 17 min. 36 sec. West 29.15 feet to an iron rod; thence North 85 deg. 17 min. 36 sec. West 52.17 feet to an iron rod; thence North 21 deg. 51 min. 06 sec. West 91.32 feet to an iron rod; thence North 28 deg. 30 min. 50 sec. West 53.80 feet to an iron rod; thence North 42 deg. 15 min. 01 sec. West 36.97 feet to an iron rod; thence North 70 deg. 37 min. 02 sec. West 109.54 feet to an iron rod; thence North 55 deg. 27 min. 34 sec. West 96.06 feet to an iron rod; thence North 89 deg. 06 min. 15 sec. West 176.59 feet to the point of BEGINNING, containing 35.19 acres, more or less, according to a survey of Gary Weems, Tennessee Registered Land Surveyor No. 1845, dated October 18, 2008, and being depicted as Tract No. 19R thereon.

BEING a portion of the same property conveyed to John R. Carter and wife, Angela Carter, by Executor's Deed of Ronald W. Woods and Whitney A. Ball, Co-Executors of the Estate of Dorothy Self Hawkins, dated June 16, 2008, and appearing of record in Deed Book 451A, page 1359, in the Register's Office for Greene County, Tennessee.

TO HAVE AND TO HOLD with the hereditaments and appurtenances thereto appertaining to the said GRANTEE, its successors and assigns, in fee simple, forever.

We covenant that we are lawfully seized and possessed of the above-described real estate, that we have a good and lawful right to sell and convey the same, and that, except as provided above, said real estate is free from all encumbrances, except for 2008 ad valorem taxes which shall be prorated between the parties at closing.

We further covenant and bind ourselves, our heirs and representatives, to forever warrant and defend the title to the above property to the said GRANTEE, its successors and assigns, against all lawful claims of all persons whomsoever.

WITNESS my hand on this the 6th day of November, 2008.


JOHN R. CARTER

By: ANGELA F. CARTER, attorney in fact


ANGELA F. CARTER

STATE OF TENNESSEE
COUNTY OF GREENE

On the ____ day of _____, 2008, personally appeared before me the undersigned authority, a Notary Public for State and County aforesaid, ANGELA F. CARTER, Attorney-in-Fact for JOHN R. CARTER, by a Power of Attorney appearing of record in Deed Book 347A, page 564, in the Register's Office for Greene County, Tennessee, to me known to be the person acknowledged that she executed the within instrument for the purposes therein contained in behalf of JOHN R. CARTER, and who further acknowledged that she is the Attorney-in-Fact of the maker and is authorized by the maker to execute this instrument on behalf of the maker.

Notary Public

My Commission Expires: _____

STATE OF TENNESSEE
COUNTY OF GREENE

On this the ____ day of _____, 2008, before me personally appeared ANGELA F. CARTER, to me known to be the person (or proved to be such person on the basis of satisfactory evidence) described in and who executed the foregoing instrument, and acknowledged the execution thereof as her free act and deed for the purposes therein contained.

Notary Public

My Commission Expires: _____

The Legal Description of the Real Estate Has Been Furnished to the Draftsman by the Grantor(s) or a Third Party or Has Been Obtained from the Public Records. The Draftsman Assumes No Liability as to the Accuracy or Content Thereof. Unless a Separate Title Opinion Has Been Furnished to the Grantee(s), the Draftsman Assumes No Liability as to the State of Title of this Real Estate and Then Only to the Extent as Set Forth in the Title Opinion. Failure to Promptly Record this Deed in the Appropriate Register of Deeds' Office Could Jeopardize the Grantee(s)' Right in and to this Real Estate.

This Instrument Prepared By
ROGERS, LAUGHLIN, NUNNALLY, HOOD & CRUM
100 South Main Street
Greenville, TN 37743

DEED OF CORRECTION

WHEREAS, by a warrant deed dated November 6, 2008, in Greene County, Tennessee, JOHN R. CARTER, by and through my duly authorized Attorney-in-Fact, ANGELA F. CARTER, and wife, ANGELA F. CARTER, hereinafter referred to as the GRANTORS, conveyed title to a certain tract of land to WATER RESOURCES, LLC, hereinafter referred to as the GRANTEE;

WHEREAS, the said warranty deed contained an incorrect description, and the GRANTORS wish to correct same;

NOW THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

FOR AND IN CONSIDERATION of the sum of Ten Dollars (\$10.00) cash in hand paid and other valuable considerations, the receipt of all of which is hereby acknowledged, we, JOHN R. CARTER, by and through my duly authorized Attorney-in-Fact, ANGELA F. CARTER, and wife, ANGELA F. CARTER, hereinafter referred to as the GRANTORS, hereby transfer and convey unto WATER RESOURCES, LLC, hereinafter referred to as the GRANTEE, its successors and assigns, the following described real estate:

SITUATE in the 11th Civil District of Greene County, Tennessee, and being more particularly described as follows:

BEGINNING at an iron rod situated in the eastern margin of the right-of-way of Kennytown Road and corner to Weems (444-24); thence running with Weems two (2) calls: South 89 deg. 31 min. 30 sec. East 143.61 feet to an iron rod; thence North 09 deg. 12 min. 40 sec. East 279.37 feet to an iron rod, corner to Casteel (256A-292); thence running with Casteel South 88 deg. 31 min. 30 sec. East 1,611.87 feet to an iron rod situated in the approximate center of Lick Creek and corner to Graham (326-761); thence running with the approximate center line of Lick Creek and with the common boundary of Graham five (5) calls: South 30 deg. 51 min. West 47.57 feet to an iron rod; thence South 36 deg. 01 min. West 107.80 feet to

PROPERTY OWNER
NAME: Water Resources, LLC
ADDRESS: 89 Daniel Boone Dr, Barboursville, KY 40906
MAP: 43 GROUP: 1170 PARCEL: 1170

I or we, hereby swear or affirm that the actual consideration for this transfer of value of the property transferred, whichever is greater is \$ 10.00, whichever amount is equal to or greater than the amount which the property transferred would command at a fair voluntary sale.

Subscribed and sworn to before me this 11th day of July 2008
11-88-11



Received of Moses
CHECK CASH
MAIL FILE

an iron rod; thence South 14 deg. 01 min. West 164.70 feet to an iron rod; thence South 17 deg. 51 min. East 111.90 feet to an iron rod; thence South 20 deg. 52 min. East 115.20 feet to an iron rod; thence continuing with Graham and later Jones (354A-1416) South 32 deg. 06 min. East 208.20 feet to an iron rod; thence continuing with Jones four (4) calls: South 31 deg. 09 min. West 120.40 feet to an iron rod; thence South 49 deg. 29 min. West 18.40 feet to an iron rod; thence South 60 deg. 48 min. West 127.40 feet to an iron rod; thence South 15 deg. 31 min. West 11.10 feet to an iron rod; thence South 59 deg. 15 min. West 91.30 feet to an iron rod, corner to Harrell (357-555); thence running with Harrell eighteen (18) calls: South 47 deg. 17 min. West 33.80 feet to an iron rod; thence South 82 deg. 50 min. West 20.57 feet to an iron rod; thence North 46 deg. 57 min. West 40.26 feet to an iron rod; thence North 31 deg. 28 min. West 149.20 feet to an iron rod; thence North 48 deg. 49 min. West 174.90 feet to an iron rod; thence North 42 deg. 49 min. West 163.60 feet to an iron rod; thence North 72 deg. 57 min. West 102.00 feet to an iron rod; thence South 59 deg. 58 min. West 59.10 feet to an iron rod; thence South 31 deg. 15 min. West 107.70 feet to an iron rod; thence South 18 deg. 22 min. West 48.70 feet to an iron rod; thence South 04 deg. 21 min. 10 sec. East 97.58 feet to an iron rod; thence South 04 deg. 21 min. East 16.22 feet to an iron rod; thence South 01 deg. 12 min. West 257.50 feet to an iron rod; thence South 60 deg. 37 min. West 114.60 feet to an iron rod; thence South 86 deg. 37 min. West 72.80 feet to an iron rod; thence North 73 deg. 27 min. West 193.40 feet to an iron rod; thence North 85 deg. 29 min. West 96.80 feet to an iron rod; thence South 36 deg. 57 min. West 31.07 feet to an iron rod, corner to Tract 20R, containing 6.18 acres, more or less; thence running with Tract 20R eight (8) calls: North 85 deg. 17 min. 36 sec. West 29.15 feet to an iron rod; thence North 85 deg. 17 min. 36 sec. West 52.17 feet to an iron rod; thence North 21 deg. 51 min. 06 sec. West 91.32 feet to an iron rod; thence North 28 deg. 30 min. 50 sec. West 53.80 feet to an iron rod; thence North 42 deg. 15 min. 01 sec. West 36.97 feet to an iron rod; thence North 70 deg. 37 min. 02 sec. West 109.54 feet to an iron rod; thence North 55 deg. 27 min. 34 sec. West 96.06 feet to an iron rod; thence North 89 deg. 06 min. 15 sec. West 176.59 feet to an iron rod in the eastern margin of the right of way of Kennytown Road; thence running with the eastern margin of the right of way of said road, North 02 deg. 01 min. East 266.75 feet to an iron rod; thence, North 02 deg. 01 min. East 271.07 feet to the point of BEGINNING, containing 35.19 acres, more or less, according to a survey of Gary Weems, Tennessee Registered Land Surveyor No. 1845, dated October 18, 2008, and being depicted as Tract No. 19R thereon.

BEING a portion of the same property conveyed to John R. Carter and wife, Angela Carter, by Executor's Deed of Ronald W. Woods and Whitney A. Ball, Co-Executors of the Estate of Dorothy Self Hawkins, dated June 16, 2008, and appearing of record in Deed Book 451A, page 1359, in the Register's Office for Greene County, Tennessee.

The GRANTORS hereby execute this Deed of Correction to correct the property description.

TO HAVE AND TO HOLD with the hereditaments and appurtenances thereto appertaining to the said GRANTEE, its successors and assigns, in fee simple, forever.

We covenant that we were, on November 6, 2008, lawfully seized and possessed of the above described real estate, that we had a good and lawful right to sell and convey the same, and that said real estate was free from all encumbrances.

We further covenant and bind ourselves, our heirs and representatives, to forever warrant and defend the title to the above property to the said GRANTEE, its successors and assigns, against all lawful claims of all persons whomsoever.

WITNESS our hands on this the 11th day of Nov., 2008.

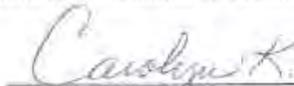

JOHN R. CARTER

By: ANGELA F. CARTER, attorney in fact

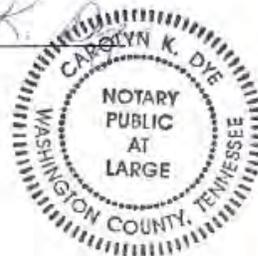

ANGELA F. CARTER

STATE OF TENNESSEE
COUNTY OF GREENE

On the 11th day of Nov., 2008, personally appeared before me the undersigned authority, a Notary Public for State and County aforesaid, ANGELA F. CARTER, Attorney-in-Fact for JOHN R. CARTER, by a Power of Attorney appearing of record in Deed Book 347A, page 564, in the Register's Office for Greene County, Tennessee, to me known to be the person acknowledged that she executed the within instrument for the purposes therein contained in behalf of JOHN R. CARTER, and who further acknowledged that she is the Attorney-in-Fact of the maker and is authorized by the maker to execute this instrument on behalf of the maker.


Notary Public

My Commission Expires: 1-25-2012



ATTORNEY'S PRELIMINARY TITLE REPORT

Dated: November 3, 2008 @ 8:00 a.m.

To: Water Resources, LLC, its successors and/or assigns, only

Re: 35.19 acres in the 11th Civil District of
Greene County, Tennessee

Gentlemen:

Pursuant to your request, we have made an examination of the title to the property described in Schedule "A" below, for a period of the past 20 years, and from such examination, as reflected by the properly indexed public records of Greene County, Tennessee, we are of the opinion that title to said property is presently vested of record in JOHN R. CARTER and wife, ANGELA CARTER, subject to the liens and encumbrances on, objections to, or requirements of title as noted under the respective subdivisions of Schedule "B" below.

SCHEDULE "A"

SITUATE in the 11th Civil District of Greene County, Tennessee, and being more particularly described as follows:

BEGINNING at an iron rod situated in the eastern margin of the right-of-way of Kennytown Road and corner to Weems (444-24); thence running with Weems two (2) calls: South 89 deg. 31 min. 30 sec. East 143.61 feet to an iron rod; thence North 09 deg. 12 min. 40 sec. East 279.37 feet to an iron rod, corner to Casteel (256A-292); thence running with Casteel South 88 deg. 31 min. 30 sec. East 1,611.87 feet to an iron rod situated in the approximate center of Lick Creek and corner to Graham (326-761); thence running with the approximate center line of Lick Creek and with the common boundary of Graham five (5) calls: South 30 deg. 51 min. West 47.57 feet to an iron rod; thence South 36 deg. 01 min. West 107.80 feet to an iron rod; thence South 14 deg. 01 min. West 164.70 feet to an iron rod; thence South 17 deg. 51 min. East 111.90 feet to an iron rod; thence South 20 deg. 52 min. East 115.20 feet to an iron rod; thence continuing with Graham and later Jones (354A-1416) South 32 deg. 06 min. East 208.20 feet to an iron rod; thence continuing with Jones four (4) calls: South 31 deg. 09 min. West 120.40 feet to an iron rod; thence South 49 deg. 29 min. West 18.40 feet to an iron rod; thence South 60 deg. 48 min. West 127.40 feet to an iron rod; thence South 15 deg. 31 min. West 11.10 feet to an iron rod; thence South 59 deg. 15 min. West 91.30 feet to an iron rod, corner to Harrell (357-555); thence running with Harrell eighteen (18) calls: South 47 deg. 17 min. West 33.80 feet to an iron rod; thence South 82 deg. 50 min. West 20.57 feet to an iron rod; thence North 46 deg. 57 min. West 40.26 feet to an iron rod; thence North 31 deg. 28 min. West 149.20 feet to an iron rod; thence North 48 deg. 49 min. West 174.90 feet to an iron rod; thence North 42 deg. 49 min. West 163.60 feet to an iron rod; thence North 72 deg. 57 min.

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5. SPECIAL EXCEPTIONS.

6. GENERAL EXCEPTIONS.

This title report does not make any representation with regard to (a) any parties in possession; (b) deficiencies in quantities of land; (c) boundary line disputes; (d) roadways; (e) any unrecorded easements; (f) any unrecorded liens; (g) accuracy of the index books of any Register's Office; (h) any matter not of public record which would be disclosed by an accurate survey or inspection of the premises; (i) any undisclosed heirs; (j) any fraud or forgery in connection with any of the instruments in the chain of title; (k) mental incompetence; (l) confusion with regard to the name or proper identity of parties; (m) improprieties with regard to delivery of deed; (n) marital rights (spouse or former spouse of past owners not revealed in the instrument); (o) any instrument executed by a minor; (p) lack of corporate capacity in the event a corporation is in the chain of title; (q) consequences of an attack on the estate or interest herein examined under any federal or state law dealing with bankruptcy, insolvency or creditor's rights; (r) any matters of any nature created, suffered, assumed, agreed to and/or known to persons who are in any way owners of, or parties connected with, the property described herein in any way, and not disclosed fully to the examiner in writing prior to the date hereof, which matters in any way affect title to the real property described herein; (s) any possible hazardous waste disposal sites or the presence of unlawful contaminants and any lien in favor of the Environmental Protection Agency or any other governmental authority arising therefrom; (t) any claims by the State or Federal Government to recover for nursing facility services which are not recorded liens in the Register's Office for the county where the real property which is the subject of this opinion is situated.

This title report is subject to any municipal, county or state zoning restrictions.

These items listed under Item 6 are matters which would not be revealed by an examination of the records of the Register's Office for Greene County, Tennessee, and, therefore, matters in which we have no means of securing the necessary information. The matters under (a), (b), (c), (d) and (e) could be protected against by an accurate survey by a qualified licensed surveyor. Item (f), unrecorded liens, could be guarded against by inspection of the premises for new improvements, and if such appear to have been present, the utilization of the notice of completion and waiting ten (10) days to close as per T.C.A. Section 66-11-143, et seq. The remaining items listed under Item 6, (g) through (p), may be insured against by the utilization of title insurance, and should you desire more information in that regard, we would be pleased to discuss the same with you and our position, if you desire, to arrange for title insurance to be secured.

SCHEDULE "C"

REMARKS:

This title examination is issued for the sole use and benefit of Water Resources, LLC, by whom we were employed, and not to any other person or party.

ROGERS, LAUGHLIN, NUNNALLY, HOOD
& CRUM

BY: 

Attorney

CONSERVATION EASEMENT AND ACCEPTANCE

This Agreement is made this 4th day of February, 2010, by Water Resources, LLC, a limited liability company registered in the State of Kentucky at 89 Daniel Boone Drive, Barbourville, Kentucky 40906 (henceforth known as "Grantor") and the Tennessee Wildlife Resource Agency (henceforth known as "Holder").

WHEREAS, Grantor is the owner in fee simple of certain real property located in Greene County, State of Tennessee, more particularly described in Attachment 1 hereto which is incorporated and made apart hereof as if fully set forth herein ("Protected Property");

WHEREAS, the Protected Property possesses certain ecological values of aesthetic and environmental benefit to the people of the State of Tennessee and the United States, and of great importance to the Grantor and the Holder

WHEREAS, the U. S. Army Corps of Engineers is responsible for implementing Section 404, of the Clean Water Act, and overseeing the creation of the Lick Creek Wetland Mitigation Bank Number One, and the Tennessee Department of Environment and Conservation is responsible for implementing Section 401 of the Clean Water Act and is also overseeing the creation and maintenance of this mitigation site, will retain Third Party Rights of Enforcement for this Conservation Easement.

WHEREAS, the Protected Property has been approved by Interagency Review Team (U.S. Army Corps of Engineers, Tennessee Department of Environment and Conservation, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, Tennessee Valley Authority, and Tennessee Wildlife Resources Agency) for use as a mitigation site, to be known as the Lick Creek Wetland Mitigation Bank 1 (LCWMB1), the purpose of which is to develop 35.19 acres into a wetland bank. This mitigation would compensate for wetland and stream impacts pursuant to Section 404 and Section 401 of the Clean Water Act and Section 10, Rivers and Harbor Act.

WHEREAS, the Protected Property will be recontoured to create, restore, and enhance wetlands and wetland buffers pursuant to *the Mitigation Bank Instrument, Water Resources, LLC, Lick Creek Wetland Mitigation Bank Number 1, Greene County, Tennessee (MBI)*, a copy of which is on file at the Nashville District Office of the U.S. Army Corps of Engineers;

WHEREAS, the Grantor desires to convey to the Holder a conservation easement, thereby placing certain limitations and affirmative obligations on the Protected Property for the protection of wetlands, scenic, resource, environmental, and other values, and in order that the Protected Property shall remain substantially in its natural condition, forever;

WHEREAS, the Grantor desires by this instrument to convey to the Holder the right to conserve and protect the conservation and environmental values of the property in perpetuity;

WHEREAS, the conservation and environmental values of the property include: restoration of native, self-sustaining habitat historically characteristic of the area; improved energy dissipation for Lick Creek; decreased sedimentation due to pasturing, short-term surface water storage, nutrient cycling, retention of particulates, and buildup of organic carbon; improved biological functions; increased vegetative diversity; and improved habitat for wetland biota.

WHEREAS, the Holder agrees by accepting this conveyance to honor the intentions of the Grantor stated herein and to conserve and protect in perpetuity the conservation values of the Protected Property in accordance with the terms of this Conservation Easement for the benefit of this generation and the generations to come;

WHEREAS, the term "natural condition" shall mean the condition of the Protected Property at the time of this grant, and as restored, enhanced, and preserved pursuant to the Mitigation Plan, and shall be evidenced in part by a surveyed plat of the Protected Property showing all relevant property lines, and major, distinct natural features such as waters of the United States, on file with the U.S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation and the Holder. Also, on-site photographs of all major natural features of the Protected Property shall be taken as close as possible to the date the donation is made, and after completion of the restoration, creation, enhancement and preservation activities required by the Mitigation Plan.

WHEREAS, the Grantor and Holder agree that third-party rights of enforcement shall be held by the U.S. Army Corps of Engineers, Nashville District (to include any successor agencies), and by the Tennessee Department of Environment and Conservation, and may be exercised through the appropriate enforcement agencies of the United States, and that these rights are in addition to, and do not limit, the rights of enforcement under Department of the Army Permit No. _____, or any permit or certification issued by the Third-Party to Grantor in regards to the Protected Property;

NOW THEREFORE, for the foregoing consideration, and in further consideration of the restrictions, rights, and agreements herein, Grantor hereby conveys to Holder, its successors and assigns, forever and in perpetuity, a conservation easement over the Protected Property consisting of the following:

A. PURPOSE

It is the purpose of this Conservation Easement to assure that the Protected Property will be retained forever in a natural state, that the scenic and natural character of the property will be maintained as it currently exists, and as restored and enhanced pursuant to the MBI, and to prevent any use of the Protected Property that will impair or interfere with the conservation values of the Protected Property. The Grantor intends that grant of this Conservation Easement

will assure that the Protected Property will be used only for such activities as are consistent with the conservation purpose of this easement.

B. DURATION

This Conservation Easement shall be perpetual, in gross, run with the land and be binding on the Grantor's heirs, successors, administrators, assigns, lessees, or other occupiers and users, forever, provided however in the event that the Corps or any other cognizant agency does not permit the full implementation of the MBI or if the Grantor does not complete the implementation of the MBI then any part of the Protected Property which has not been subjected to the requirements of the MBI, shall be released from the operation of the easement granted herein by judicial proceeding.

C. RIGHTS OF THE HOLDER

To accomplish the purpose of this Conservation Easement, the following rights are conveyed to the Holder and the Third-Party:

1. **General.** The Holder, the U.S. Army Corps of Engineers, and the Tennessee Department of Environment and Conservation shall have the right to conserve and protect the conservation values of the Protected Property in perpetuity. The Holder, the U. S. Army Corps of Engineers, and the Tennessee Department of Conservation shall have the right to prevent any activity or use of the Protected Property that is inconsistent with the purpose of the Conservation Easement, and to require the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use, pursuant to the remedies set forth in the Mitigation Plan.

2. **Rights of Access and Entry.** The Holder, the U.S. Army Corps of Engineers, and the Tennessee Department of Environment and Conservation shall have the right to enter and go upon the Protected Property for purposes of inspection, and to take actions necessary to verify compliance with the Restrictions as set out herein. Holder, the U.S. Army Corps of Engineers, and the Tennessee Department of Environment and Conservation shall also have the rights of visual access and view, and to enter and go upon the Protected Property for purposes of making scientific or educational observations and studies, and taking samples, in such a manner as will not disturb the quiet enjoyment of the Protected Property by the Grantor.

D. PROHIBITED AND RESTRICTED ACTIVITIES

Any activity upon, or use of, the Protected Property inconsistent with the purposes of this Conservation Easement is prohibited. The following activities and uses are expressly prohibited:

1. **General.** There shall be no filling, flooding, excavating, mining or drilling; no dumping of materials; and, no alteration of the topography in any manner except as specifically set forth herein and as specifically provided for in the Mitigation Plan.

2. **Waters and Wetlands.** There shall be no draining, dredging, damming or impounding; no changing the grade or elevation, impairing the flow or circulation of waters, reducing the reach of waters; and no other discharge or activity requiring a permit under applicable clean water or water pollution control laws and regulations, except as specifically set forth herein and as specifically provided for in the MBI.
3. **Trees/Vegetation.** There shall be no clearing, burning, cutting or destroying of trees or vegetation, except as expressly authorized in the Reserved Rights; there shall be no planting or introduction of non-native or exotic species of trees or vegetation except as specifically set forth herein and as specifically provided for in the MBI.
4. **Uses.** No agricultural, industrial, or commercial activity shall be undertaken or allowed.
5. **Structures.** There shall be no construction, erection, or placement of buildings, billboards, or any other structures, or any additions to existing structures except as specifically set forth herein.
6. **New Roads.** There shall be no construction of new roads, trails or walkways without the prior written approval of the U.S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation, and the Holder, including of the manner in which they are constructed.
7. **Use of Off Road Vehicles.** There shall be no use of off road vehicles, 4-wheel drive vehicles, all terrain vehicles or similar vehicles except on existing roads and trails and except as necessary to manage the Property.
8. **Utilities.** There shall be no construction or placement of utilities or related facilities without the prior written approval of the U.S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation, and the Holder except as specifically set forth herein.
9. **Pest Control.** Except as provided in the MBI, there shall be no application of pesticides or biological controls, including for problem vegetation, without prior written approval from the U.S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation, and the Holder.
10. **Other Prohibitions.** Any other use of, or activity on, the Protected Property which is or may become inconsistent with the purposes of this grant, the preservation of the Protected Property substantially in its natural condition, or the protection of its environmental systems, is prohibited.

E. GRANTOR'S RESERVED RIGHTS

Notwithstanding the foregoing Restrictions, the Grantor reserves for the Grantor, its successors and assigns, the following Reserved Rights, which may be exercised upon providing prior written notice to the Holder and to a Third-Party, except where expressly provided otherwise:

1. **Land Management.** Landscaping by the Grantor to prevent severe erosion or damage to the Protected Property or portions thereof, or significant detriment to existing or permitted uses, is allowed, provided that such landscaping is generally consistent with preserving the natural condition of the Protected Property.
2. **Other Reserved Rights.** The Grantor and the Holder reserve the right to conduct actions which are essential and necessary for the preservation and maintenance of the Protected Property as a bottomland hardwood wetland, even if generally prohibited by the Restrictions, so long as they are not inconsistent with the conservation purposes of this grant, the preservation of the Protected Property substantially in its natural condition, and the protection of its environmental systems. However, any invasive, destructive, or similar measures which cause or may cause disturbances to wildlife, vegetation, soils, or hydrology, must be approved by the Holder, the U. S. Army Corps of Engineers, and the Tennessee Department of Environment and Conservation in advance.

F. ENFORCEMENT

1. **Notice of Violation; Corrective Action.** If the Holder or the U. S. Army Corps of Engineers and the Tennessee Department of Conservation determine there has been a breach or violation of the terms of this Conservation Easement, by the Grantor or another party, the U. S. Army Corps of Engineers and the Tennessee Department of Environment and Conservation and/or the Holder shall give written notice to the Grantor of such violation and demand corrective action sufficient to cure the violation, and where the violation involves injury to the Property resulting from any use or activity inconsistent with the purposes of this Easement, to restore the portion of the Property so injured to its prior condition in accordance with a plan to be approved by the Holder, the U.S. Army Corps of Engineers, and the Tennessee Department of Environment and Conservation.
2. **Injunctive Relief.** If the Grantor fails to cure the violation within thirty (30) days after receipt of such notice to thereof, or under circumstances where the violation cannot reasonably be cured within a thirty (30) day period, fails to begin curing said violation within the thirty (30) day period, or fails to continue diligently to cure such violation until finally cured, the U. S. Army Corps of Engineers and the Tennessee Department of Environment and Conservation and/or the Holder may undertake such actions, including legal proceedings, as are necessary to effect such corrective action, including to enjoin the violation, ex parte as necessary, by temporary or permanent injunction, and to require the restoration of the Property to the condition that existed prior to any such injury.

3. **Emergency Enforcement.** If, however, the Holder or the U. S. Army Corps of Engineers and the Tennessee Department of Environment and Conservation, solely by the exercise of its discretion, determine that circumstances require immediate action to prevent or mitigate significant damage to the conservation values of the Protected Property, the Holder and/or the U.S. Army Corps of Engineers or the Tennessee Department of Environment and Conservation may pursue remedies under this Easement without prior notice to the Grantor, or waiting for the period provided for cure to expire.

4. **Damages.** The U. S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation, and the Holder shall be entitled to recover damages for violation of the terms of this Conservation Easement or injury to any conservation values protected by this Easement, including, without limitation, damages for the loss of scenic, aesthetic, or environmental values.

5. **Costs of Enforcement.** The costs of a breach or violation, correction or restoration, including the U.S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation, and/or the Holder expenses, court costs, and attorneys' fees, shall be paid by Grantor, unless Grantor ultimately prevails in a judicial enforcement action, in which case each party shall bear their own costs.

6. **Forbearance.** Enforcement shall be at the discretion of the U. S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation, and/or the Holder, and any forbearance to exercise rights under this Easement shall not be deemed or construed to be a waiver of such terms or of any subsequent breach of the same or any other term of this Easement or of any of the Holder, the U.S. Army Corps of Engineers or the Tennessee Department of Environment and Conservation's rights under this Easement. No omission or delay in the exercise of any rights or remedies shall constitute a waiver of any enforcement right, or in any way impair any right or remedy.

7. **Venue.** Shall be construed by the laws of the State of Tennessee and these enforcement rights are cumulative and are in addition to, and shall not limit, enforcement rights available under other provisions of law or equity, or under any applicable permit or certification.

8. **Events Beyond Grantor's Control.** Nothing herein shall be construed to authorize the U. S. Army Corps of Engineers, the Tennessee Department of Environment and Conservation, or the Holder to institute any proceedings against Grantor for any changes to the Protected Property caused by acts of God or circumstances beyond the Grantor's control such as earthquake, fire, flood, storm, war, civil disturbance, strike, the unauthorized acts of third persons, or similar causes. However, if the acts of God or circumstances beyond the Grantor's control do not preclude the Grantor from maintaining the Protected Property in its natural condition without unreasonable expense, then it shall not be relieved of its obligations under this document.

G. GENERAL PROVISIONS

1. **Obligations of Ownership.** The Grantor is responsible for any real estate taxes, assessments, fees, or charges levied upon the Protected Property. The Grantor shall keep the Protected Property free of any liens or other encumbrances for obligations incurred by the Grantor. The Holder, the U.S. Army Corps of Engineers, and the Tennessee Department of Environment and Conservation shall not be responsible for any costs or liability of any kind related to the ownership, operation, insurance, upkeep, or maintenance of the Protected Property, except as expressly provided herein. Nothing herein shall relieve the Grantor of the obligation to comply with federal, state or local laws, regulations and permits which may apply to the exercise of the Reserved Rights.

2. **Hold Harmless.** The Grantor shall hold harmless, indemnify and defend the U. S. Army Corps of Engineers, the Tennessee Department of Conservation, and the Holder, and its members, directors, officers, employees, agents, and contractors and the heirs, personal representatives, successors, and assigns of each of them from and against all liabilities, penalties, costs, losses, damages, expenses, causes of action, claims, demands, or judgments, including reasonable attorneys fees arising from or in any way connected with the existence or administration of this Easement.

3. **Extinguishment.** In the event that changed conditions render impossible the continued use of the Protected Property for the conservation purposes, this Conservation Easement may only be extinguished, in whole or in part, by judicial proceeding.

4. **Eminent Domain.** If all or any part of the Property is taken by exercise of the power of eminent domain or acquired by purchase in lieu of condemnation, whether by public, corporate, or other authority, so as to terminate this Easement, in whole or in part, the Grantor and Grantee shall act jointly to recover the full value of the interests in the Property subject to the taking or in lieu of purchase and all direct or incidental damages resulting there from. This Conservation Easement constitutes a real property interest immediately vested in the Holder. In the event that all or a portion of this Protected Property is sold, exchanged, or involuntarily converted following the extinguishment or the exercise of eminent domain, the Holder shall be entitled to the fair market value of this Conservation Easement. The Holder shall use its share of the proceeds in a manner consistent with the purposes of this Conservation Easement.

5. **Notification.** Any notice, request for approval, or other communication required under this Conservation Easement shall be sent by registered or certified mail, postage prepaid, to the following addresses (or such address as may be hereafter specified by notice pursuant to this paragraph):

To Grantor: Water Resources, LLC
89 Daniel Boone Drive
Barbourville, KY 40906
Attention: Richard McLean

To Holder: Tennessee Wildlife Resources Agency
Ellington Agricultural Center
P. O. Box 40747
Nashville, TN 37204

To Corps: U.S. Army Corps of Engineers
Nashville District Office
Regulatory Branch
P.O. Box 1070
Nashville, TN 37202-1070

To: Tennessee Department of Environment and Conservation
Water Pollution Control
Natural Resources Section
7th Floor L&C Annex
401 Church St.
Nashville, TN 37243

6. **Assignment.** This Conservation Easement is transferable, but only to a qualified holder and subject to the approval of the U. S. Army Corps of Engineers and the Tennessee Department of Environment and Conservation. As a condition of such transfer, the transferee shall agree to all of the restrictions, rights, and provisions herein, and to continue to carry out the purposes of this Conservation Easement. Assignments shall be accomplished by amendment of this Conservation Easement under paragraph 9.

7. **Failure of Holder.** If at any time the Holder ceases to be a qualified holder, and if, within a reasonable period of time after the occurrence of one of these events, the Holder fails to make an assignment pursuant to paragraph 6, then the Holder's interest shall become vested in another qualified holder in accordance with an appropriate proceeding in a court of competent jurisdiction.

8. **Subsequent Transfer.** The Grantor agrees to incorporate the terms of this Conservation Easement in any deed or other legal instrument which transfers any interest in all or a portion of the Protected Property. The Grantor agrees to provide written notice of such transfer at least thirty (30) days prior to the date of transfer. The failure of the Grantor to comply with this paragraph shall not impair the validity or enforceability of this Conservation Easement.

9. **Amendment.** This Conservation Easement may be amended, but only in writing, signed by all parties hereto, and provided such amendment does not affect the qualification of this Conservation Easement or the status of the Holder under any applicable laws, and is consistent with the conservation purposes of this grant.

10. **Severability.** Should a court of competent jurisdiction find any separable part of this Conservation Easement void or unenforceable, the remainder shall continue in full force and effect.

11. **Warranty.** The Grantor warrants that it owns the Protected Property in fee simple, and that the Grantor either owns all interests in the Protected Property which may be impaired by the granting of this Conservation Easement or that there are no outstanding mortgages, tax liens, encumbrances, or other interests in the Protected Property which have not been expressly subordinated to this Conservation Easement. The Grantor warrants that there is no pending or threatened litigation in any way affecting, involving, or relating to the Protected Property. The Grantor further warrants that Holder shall have the use of and enjoy all the benefits derived from and arising out of this Conservation Easement.

12. **No Extinguishment Through Merger.** The Grantor and Holder agree that should the Holder, or any successor in interest to the Holder, come to own all of a portion of the fee interest in the Protected Property subject to this Conservation Easement, (i) said owner shall observe and be bound by the obligations and restrictions imposed upon the Protected Property by this Conservation Easement, (ii) this Conservation Easement shall not be extinguished through the doctrine of merger in whole or in part in view of the public interest in enforcement, and (iii) said owner shall promptly assign the Holder interest in the Conservation Easement to another entity or person qualified to hold conservation easements.

13. **Funding for Long-Term Maintenance.** The Grantor has provided funds for the purpose of fulfilling the Grantor's obligations for the long-term operation and maintenance of the Protected Property in its natural condition as follows: The Grantor shall set aside 5% of the sales of the wetland credits into a specific escrow account to be used for the long term monitoring and maintenance of the Protected Property (the "Catastrophic Event and Long-Term Management Fund"). At such time as the monitoring is completed in accordance with the Mitigation Plan, the Catastrophic Event and Long-Term Management Fund shall be transferred to Water Resources, LLC.

14. **Recordation.** The Grantor shall record this instrument in a timely fashion in the official records of Greene County, Tennessee, and shall re-record it as may be required to preserve this Conservation Easement.

15. **Marking of Property.** The perimeter of the Protected Property shall at all times be plainly marked by permanent signs saying, "Protected Natural Area," or by an equivalent,

permanent marking system. The Holder shall be permitted to place appropriate signage upon the Protected Property to identify its role as the long-term steward.

TO HAVE AND TO HOLD, unto the Holder, its successors and assigns, forever. The covenants agreed to and the terms, restrictions and purposes imposed as aforesaid, shall be binding upon Grantor, his personal representatives, heirs, successors and assigns, and shall continue as a servitude running with the land in perpetuity with the property, so long as the terms and conditions set out herein are satisfied or maintained with respect to the subject property or any portion thereof and in the event any term or condition fails, then said property shall revert to the Grantor, its successors or assigns.

IN WITNESS WHEREOF, the Grantor and Holder have executed this Conservation Easement, and the U.S. Army Corps of Engineers and the Tennessee Department of Environment and Conservation has approved this Conservation Easement, on the date written above.

GRANTOR:

Water Resources, LLC

By: _____

Richard McLean, Managing Member

ATTEST:

By: _____

Its: _____

HOLDER:

Tennessee Wildlife Resources Agency

By: _____

Ed. Carter, Executive Director

This Instrument Prepared By:

STATE OF TENNESSEE)
KNOX COUNTY)

Before me, the undersigned authority, a Notary Public in and for said County, in said State, hereby certify that Richard McLean whose name as Managing Member of Water Resources, LLC, a Kentucky limited liability company organized under the laws of the State of Kentucky, is signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of said instrument, he, as such officer and with full authority, executed the same voluntarily for and as the act of said corporation.

GIVEN under my hand and official seal on this 4 day of February, 2010.

[AFFIX NOTARY SEAL]



Julie E. Branum
NOTARY PUBLIC
My Commission Expires: 11-10-2013

STATE OF TENNESSEE)
DAVIDSON COUNTY)

Before me, the undersigned authority, a Notary Public in and for said County, in said State, hereby certify that Ed Carter, whose name as Executive Director, of the Tennessee Wildlife Resources Agency, is signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of said instrument, he, as such officer and with full authority, executed the same voluntarily for and as the act of said corporation.

GIVEN under my hand and official seal on this 28th day of January, 2010.

[AFFIX NOTARY SEAL]



Shaely D. Dalton
NOTARY PUBLIC
My Commission Expires: 7-8-13