

2014-00251

# Preliminary Engineering Report

RECEIVED

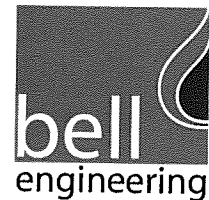
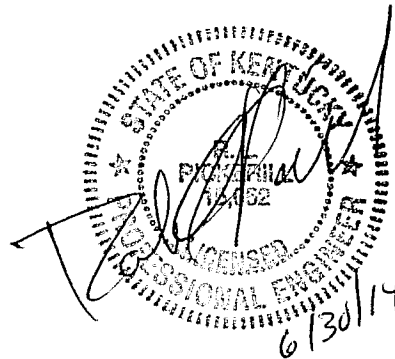
JUL 11 2014

PUBLIC SERVICE  
COMMISSION

## Cerulean Area Water System Improvements

Barkley Lake Water District  
Trigg County, Kentucky

January, 2012



---

## Index to Report

---

|   |    |
|---|----|
| I. Introduction .....   | 2  |
| II. Planning Area.....  | 3  |
| III. Existing Facilities.....   | 3  |
| IV. Need for the Project.....   | 6  |
| V. Alternatives .....   | 7  |
| Cerulean Area Water System Improvements.....                            | 7  |
| VI. Proposed Project .....  | 8  |
| New Water Storage Tank and Booster Station .....                        | 8  |
| Main Street and Highway 624 Water Main Replacements.....                | 8  |
| Highway 126 (Cobb Road) Water Mains .....                               | 9  |
| VII. Environmental Impacts.....   | 9  |
| VIII. Land Requirements .....   | 10 |
| IX. Construction Problems.....  | 10 |
| X. Hydraulic Calculations.....  | 10 |
| XI. Opinions of Probable Project Costs.....                             | 11 |
| Opinion of Probable Construction Costs .....                            | 11 |
| Opinion of Probable Projects Costs .....                                | 12 |
| XII. Annual Operating Budget.....                                       | 13 |
| XIII. Conclusion and Recommendations.....                               | 13 |
| Map #1, Barkley Lake Water District Service Area and Project Area ..... | 14 |
| Map #2, Proposed Tank and Pump Location.....                            | 15 |
| Map #3, Existing Tank and Pump Location .....                           | 16 |
| Map #4, Main Street and Highway 624 Locations .....                     | 17 |
| Map #5, Highway 126 (Cobb Road) Line Locations.....                     | 18 |
| Appendix A: Detailed Opinion of Probable Construction Costs .....       | 19 |
| Appendix B: State Clearinghouse Letter SAI# KY20111121-1350.....        | 20 |

# **Preliminary Engineering Report**

## **Cerulean Area Water System Improvements**

### **I. Introduction**

The Barkley Lake Water District (BLWD) desires to provide more reliable water service to the Cerulean portion of their service area. The existing tank, booster pump station, and transmission lines were constructed in the late 1970's and although the system was adequate at the time, higher water demand due to growth in the area, and increased maintenance issues due to age, is making it increasingly difficult and costly for the BLWD to operate and maintain the system in a reliable manner. The current system is undersized, aging, and in need of upgrades and replacements to allow the BLWD to continue to supply an adequate, safe, reliable water supply for its customers in this area.

A new water storage tank is needed to provide additional capacity and increase system pressures in the service area. A new Booster Pump station will be needed to supply the new tank and will have the added benefit of replacing the out-dated, existing booster pump station. Existing transmission lines will be replaced with new, larger lines in order to help alleviate supply inadequacies near the farthest reaches of the system. And lastly, a new section of transmission main will be constructed along Cobb Road to allow a "cross-country" water main to be taken out of service.

These improvements would serve to benefit approximately 400 customers in the Cerulean area by way of increased supply, increased pressure, and reliability of the system. Currently, the booster pump station in Cerulean runs 24 hours per day to provide service to customers in the area. Any interruptions due to equipment failure or loss of electrical power result in a loss of service to a significant number of customers.

The proposed improvements should reduce the number of service interruptions through replacement of the undersized, aged, equipment with upgraded, more efficient modern equipment.

## II. Planning Area

The BLWD service area encompasses most of Trigg County, Kentucky with some water sales to the adjoining counties of Caldwell, Christian, and Lyon counties in Kentucky and Stewart County in Tennessee. The BLWD also has a sales agreement with the City of Cadiz. The area affected by this project is the Northern portion of Trigg County North of Interstate 24 around the small community of Cerulean. The BLWD also supplies water to the Christian County Water District through this part of their system. Please see attached Map No. 1. Water service to the Christian County Water District is also fed through this system.

## III. Existing Facilities

The Barkley Lake Water District owns and operates water treatment facilities on the shores of Lake Barkley near the community of Canton. This facility is in the late stages of a plant upgrade which will increase the capacity of the plant from 2 mgd to 3.75 mgd. Transmission piping upgrades near the plant will allow efficient distribution of the treated water to meet rising demands. The BLWD distribution system is comprised of approximately 531 total miles of transmission mains and 6 water storage tanks listed as follows:PVC PIPE

| Miles | Size: |
|-------|-------|
| 30.5  | 2"    |
| 102.5 | 3"    |
| 170   | 4"    |
| 68    | 6"    |
| 17    | 8"    |
| 12    | 12"   |
| 2     | 14"   |
| 2     | 16"   |
| 404   | TOTAL |

**ASBESTOS-CEMENT PIPE**

| Miles | Size: |
|-------|-------|
| 63    | 4"    |
| 41    | 6"    |
| 17    | 8"    |
| 3     | 10"   |
| 3     | 12"   |
| 127   | TOTAL |

**WATER STORAGE TANKS**

| Name:                   | Type:     | Capacity (Gal.): | Overflow El. | Ground El. |
|-------------------------|-----------|------------------|--------------|------------|
| Plant Tank              | Standpipe | 500,000          | 620.         | 493.       |
| Rogers Tank             | Standpipe | 450,000          | 704.         | 594.       |
| Pete Light Tank         | Elevated  | 1,000,000        | 735.5        | 625.5.     |
| South Road Tank         | Elevated  | 300,000          | 815.         | 727.       |
| Siloam Tank             | Elevated  | 300,000          | 704.         | 614.       |
| Cerulean                | Standpipe | 150,000          | 594.         | 564.       |
| Storage Capacity Total: |           | 2,700,000        | Gallons      |            |

**PUMPS (All Electric)**

| Location       | Type:        | GPM   | HP  | No. |
|----------------|--------------|-------|-----|-----|
| Plant (Intake) | Raw Water    | 1,400 | 50  | 2   |
| Plant          | Low Service  | 1,400 | 100 | 2   |
| Plant          | High Service | 1,400 | 60  | 2   |
| Pete Light     | Booster      | 800   | 40  | 2   |
| Rogers         | Booster      | 300   | 25  | 2   |
| McUpton        | Booster      | 600   | 30  | 2   |
| Cerulean       | Booster      | 200   | 20  | 2   |
| South Road     | Booster      | 300   | 25  | 2   |

Additional components in the system are approximately 70 large hydrants and 638 flush hydrants. The BLWD also has four disinfection units with a combined maximum chlorine feed rate of 150 pounds per day.

According to the Kentucky Infrastructure Authority's "Drinking Water System Information" page, The BLWD operational statistics are as follows:

|  |                 |                                 |
|--|-----------------|---------------------------------|
| <b>Total Annual Volume Produced (MG):</b>                    | <b>519.499</b>  |                                 |
| <b>Total Annual Volume Purchased (MG):</b>                   | <b>0.467</b>    |                                 |
| <b>Total Annual Volume Provided (MG):</b>                    | <b>519.966</b>  |                                 |
| <b>Estimated Annual Water Loss:</b>                          | <b>12.68%</b>   |                                 |
| <b>Wholesale Customers:</b>                                  | <b>4</b>        | <b>Usage (MG): 67.050</b>       |
| <b>Residential Customers:</b>                                | <b>5,556</b>    | <b>Usage (MG): 235.000</b>      |
| <b>Commercial Customers:</b>                                 | <b>68</b>       | <b>Usage (MG): 39.230</b>       |
| <b><u>Industrial Customers:</u></b>                          | <b><u>5</u></b> | <b><u>Usage (MG): 5.231</u></b> |
| <b>Total Customers:</b>                                      | <b>5,633</b>    |                                 |
| <b>Flushing, Maintenance and Fire Protection Usage (MG):</b> |                 | <b>107.500</b>                  |
| <b>Total Water Usage (MG):</b>                               |                 | <b>454,011</b>                  |

The distribution system with water line sizes and the proposed Cerulean Project Area is shown on Map #2. The BLWD system is generally in good repair; however, some components were installed when the system was much smaller and are in need of upgrading while others are showing signs of wear because of many years of use.

The BLWD is currently in compliance with all Federal and State Regulations regarding the sanitary features of the distribution system. In addition, the BLWD is governed by the Public Service Commission, and they have no current violations of PSC regulations.

## **IV. Need for the Project**

The pump station currently located in Cerulean must run continuously in order to supply adequate water service to the higher elevations in the service area. There are also problems with supply at some of the farthest reaches of the system. These issues are compounded in that the whole area is serviced by a single 6" transmission main from pumps located approximately 9 miles away near the town of Cadiz.

There is a definite need for upgraded storage and pumping equipment to service the Cerulean area. Currently, with the continually running pumps, any repair, maintenance, or interruption of electrical power service to the pumps results in an interruption of water service to a significant amount of customers in the area. Replacement of these pumps with new pumps and the addition of a new storage tank would result in a more dependable water supply with fewer periods of disrupted service. The new storage tank would also allow the BLWD to more effectively utilize the 6" main by filling the tank during periods of low demand.

There is also a need to upgrade existing water transmission mains to improve service in the area. When the system was first installed, a large amount of 3" and 4" piping was installed. Through the years, these lines have been extended, resulting in long runs of undersized piping. This situation, coupled with increased demand, is making it increasingly difficult to maintain an adequate water supply at the farthest reaches of the system. A larger (6") line through the most heavily populated section of the community is needed to more effectively supply these lines. A 6" line along Main Street, and another along Highway 624 to its intersection with Jack Mize Road are planned to help eliminate restrictions in the system in these areas.

A new line is also needed along Highway 126 (Cobb Road) west of Cerulean. This line would replace a "cross country" line that is presenting issues both in observing for leaks and for accessing and repairing the line. The cross-country line extends from Washington Avenue in Cerulean to near 633 Cobb Road (Highway 126) and is laid across steep, rocky terrain and agricultural fields. The new line will be along Highway 126 and will include a crossing at Muddy Fork Creek. Upon completion of this line, the existing cross country line will be abandoned.

Lastly, a new 6" water main will be needed to supply the proposed new tank near the intersection of Highways 126 and 128 (See Map no. 2 for location).

These proposed improvements should aid the BLWD in maintaining an adequate, safe, dependable water supply to customers in the service area and allow the BLWD to continue to sell water to the Christian County Water District.

## **V. Alternatives**

### **Cerulean Area Water System Improvements**

**Alternative 1:** Increase the size of the existing pump stations that currently supply the service area.

**Alternative 2:** Install a larger transmission line from the pumps at Cadiz to the existing storage tank/ booster pumps.

**Alternative 3:** Construct a new transmission main along U.S. Highway 68/80 and tie into the Cerulean Area near Gracey.



## **VI. Proposed Project**

### **New Water Storage Tank and Booster Station**

The pump station and water storage tank located in Cerulean is undersized for the growing customer base in the Cerulean Area. Also, the elevation of the current facilities (overflow elevation 594.0') makes it necessary for the booster pumps to run 24 hours per day in order to provide adequate service to customers. A newer and larger water storage tank, located at a higher elevation (overflow elevation ~ 670.0 +/-), is needed to adequately serve the area. This tank would allow the system to gravity feed with booster pumps running only to maintain the tank levels. A new booster pump station will be needed to fill the tank. Approximately 1000' of water main will be needed to connect the tank with the current system. . This part of the project will improve water service to approximately 400 customers in the Cerulean Area and will also give the BLWD the option to increase water sales to the Christian County Water District at Gracey. A map of the proposed new tank location is included as Map 3.

### **Main Street and Highway 624 Water Main Replacements**

The new water main along Main Street will improve service to residents throughout the Cerulean Community by helping to alleviate restrictions in the area. Currently Most of Main Street is supplied by a 3" water main which also supplies customers on Highway 126 (Cobb Rd.), Highway 124, Highway 624, and most of the Northern half of the service area. The new 6" water main will be laid along Main Street through town to a point where the existing branch lines may be supplied from it. The 6" will also be installed along Highway 624 to its intersection with Jack Mize Road. Currently there are 3" PVC water mains on Highway 624 and Jack Mize Road that are supplied by the 3" water main along Main Street in Cerulean. These mains are undersized due to both the demands on the lines and their lengths. Compounding this problem are two customers on these roads that have high peak water demands. During these peak demands water pressure is diminished along both roads. There is 1,750' of 6" PVC

planned along Main Street and 4,500' of 6" PVC planned along Highway 624. A map of these line locations is include as Map no. 4

### **Highway 126 (Cobb Road) Water Mains**

The Highway 126 water main will connect customers along highway 126 with the aforementioned 6" water main replacement along Main Street in Cerulean. This will improve service to customers along Highway 126, Ed Mitchell Rd., and Hart Road. The installation will also replace a cross-country line that currently runs across steep, rocky terrain, crosses Muddy Fork Creek, and then extends across agricultural cropland. The location of this line poses problems to the BLWD in that it is inaccessible for both leak detection, and accessing the line for maintenance and repair. Upon completion of the Highway 126 water mains, the BLWD proposes to abandon and plug this line. There is 4,000' of 4" PVC planned along Highway 126. A map of this line location is included as Map no. 5.

## **VII. Environmental Impacts**

Environmental impacts are related to the construction of the elevated storage tank. All of the line construction is replacing the existing undersized water mains and the new lines will be laid adjacent to the existing lines. The exception is the Highway 126 line which will be laid through farmland which has been cultivated for years. The project has also been submitted to the Kentucky clearing house, which is designated as the single point of contact pursuant to Presidential Executive Order 12372. The clearinghouse letter SAI# KY20111121-1350 is included in Appendix B.

## **VIII. Land Requirements**

The project will be constructed predominantly on property on which the BLWD already holds easements, and State and County Roadway Right-of Ways. There will, however, be easements that will need to be obtained for the Highway 126 line and property will need to be purchased for the storage tank and booster pump station.

## **IX. Construction Problems**

Construction problems are not anticipated for the pump station or storage tank. There is an area on Highway 126 at the Muddy Fork Creek crossing that will present some problems due to steep terrain and rocky conditions.

## **X. Hydraulic Calculations**

A KYPIPE 2010 model was developed from system schematics and discussions with system operators. Demand data was developed from meter books and their associated routes. Tank overflow elevations and pump station data was provided by the BLWD. Hydraulic grades at master meters were established from a hydraulic model developed by Bell Engineering for the BLWD. The results of the hydraulic analysis are available on request.

## **XI. Opinions of Probable Project Costs**

### **Opinion of Probable Construction Costs**

Opinions of probable construction costs are provided in the Table 1 below.  
A detailed opinion of probable construction costs is listed in Appendix A.

Table 1

| Item  | Description  | Size   | Quantity          | Total Cost        |
|---|--|--------|-------------------|-------------------|
| 1   | Water Tank<br>Booster Pump Station<br>Transmission Main for Tank<br>Relocate Telemetry | 6 inch | 300,000<br>1,000' | \$646,780.        |
| 2   | PVC water line along Main<br>Street and Hwy. 624                                       | 6-inch | 6,590<br>feet     | \$49,030.         |
| 3   | PVC waterline along Hwy.<br>126 (Cobb Road)  | 4-inch | 3,685<br>feet     | \$93,050.         |
| <b>Preliminary Opinion of<br/>Probable Construction<br/>Costs</b> |  |        |                   | <b>\$788,860.</b> |

## Opinion of Probable Projects Costs

Opinions of probable project costs are provided in the Table 2 below.

**Table 2**

### **Cerulean Area Water System Improvements**

| Opinion of Probable Costs                   |  |                    |
|---|--|--------------------|
| Total Project                               |  |                    |
| Administration                              |  | \$19,750.          |
| Legal                                       |  | \$19,750.          |
| Land, Appraisals, Easements                 |  | \$39,500.          |
| Planning--PER                               |  | \$7,500            |
| Engineering Fees-Design and<br>Construction |  | \$71,400.*         |
| Engineering Fees-Inspection                 |  | \$40,000*          |
| Interest During Construction                |  | \$10,000           |
| Construction                                |  | \$788,860.         |
| Contingencies                               |  | \$69,240.          |
| <b>Total</b>                                |  | <b>\$1,066,000</b> |

\*Calculated from RD Design and Inspection  
Fees

## **XII. Annual Operating Budget**

The annual operating budget will be included in the Summary Addendum.

## **XIII. Conclusion and Recommendations**

The distribution system upgrades outlined in this report will substantially increase the reliability and capacity of the BLWD distribution system. The increased pumping and storage capacities of the proposed system upgrades should provide ample amounts of water for all of the existing customers and also allow increased sales to the Christian County Water District, benefitting customers in the eastern portion of their service area. The upgrades should also be adequate to service increased demand due to growth in the area for years to come.

The water line replacements in the Cerulean area should relieve flow restrictions in the system and enhance water service to customers in the area. The new water line along Highway 126 will allow the BLWD to eliminate the access and maintenance problems associated with a cross country line and therefore improve service to their customers along Highway 126, Ed Mitchell Road, and Hart Road. This line may also be extended in the future to complete a loop to existing BLWD lines near the Cobb Community to improve operational capabilities of the system.

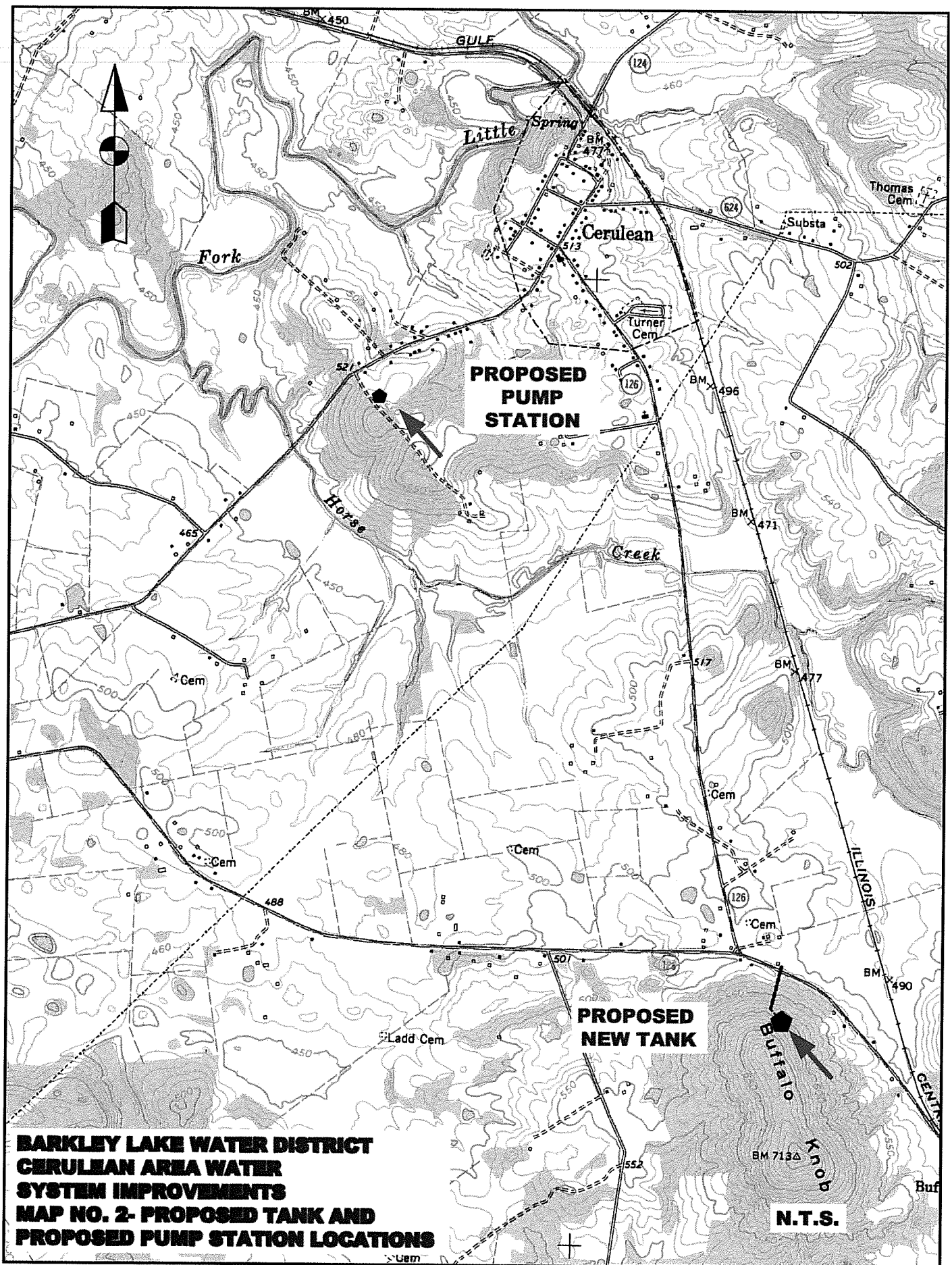
Based on current and projected demands, these improvements will allow the BLWD to supply the needs of customers in the Cerulean area for the next several years.

**Map #1, Barkley Lake Water District Service Area and Project Area**



## Map #2, Proposed Tank and Pump Location

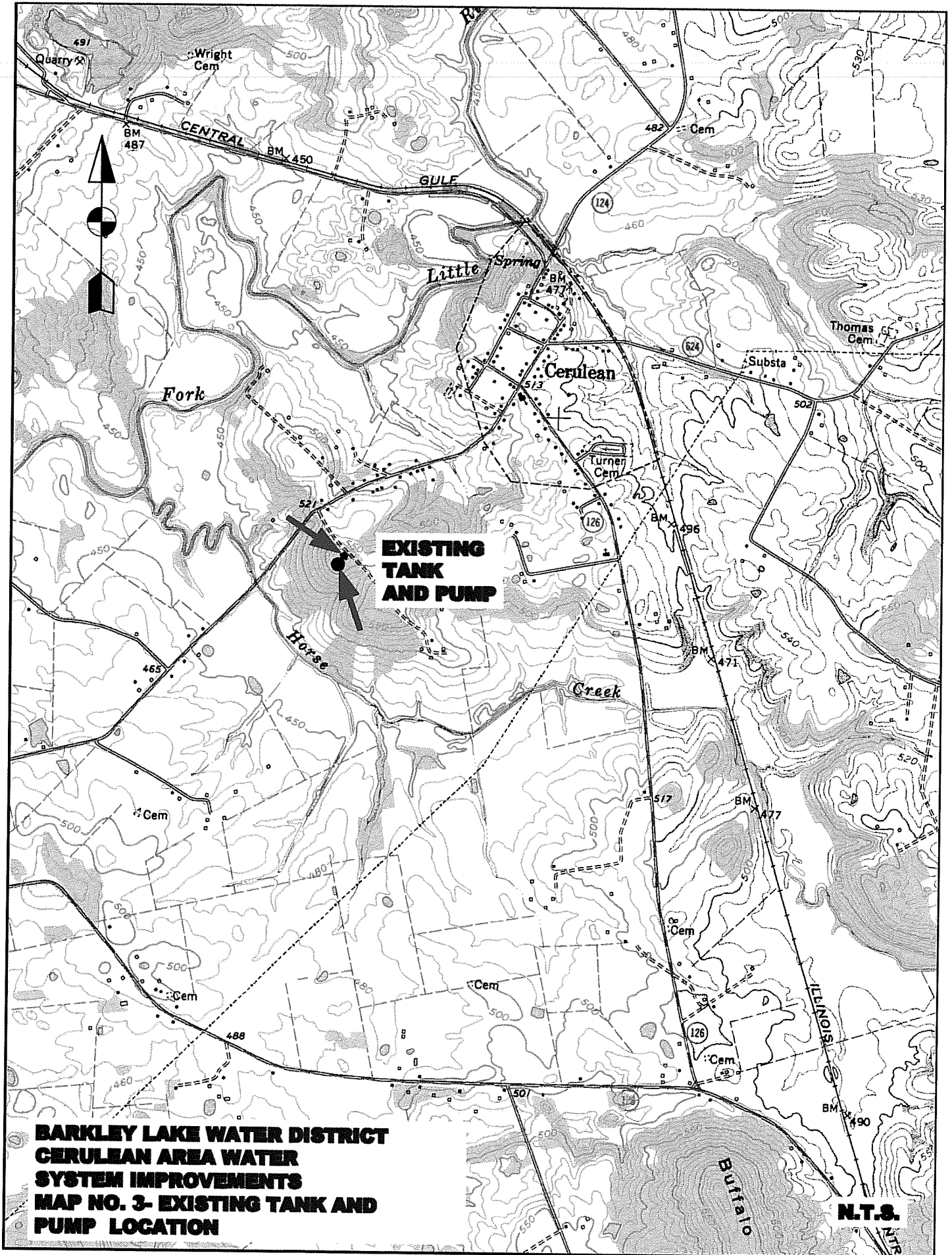




**BARKLEY LAKE WATER DISTRICT  
CERULEAN AREA WATER  
SYSTEM IMPROVEMENTS  
MAP NO. 2- PROPOSED TANK AND  
PROPOSED PUMP STATION LOCATIONS**

**N.T.S.**

**Map #3, Existing Tank and Pump Location**

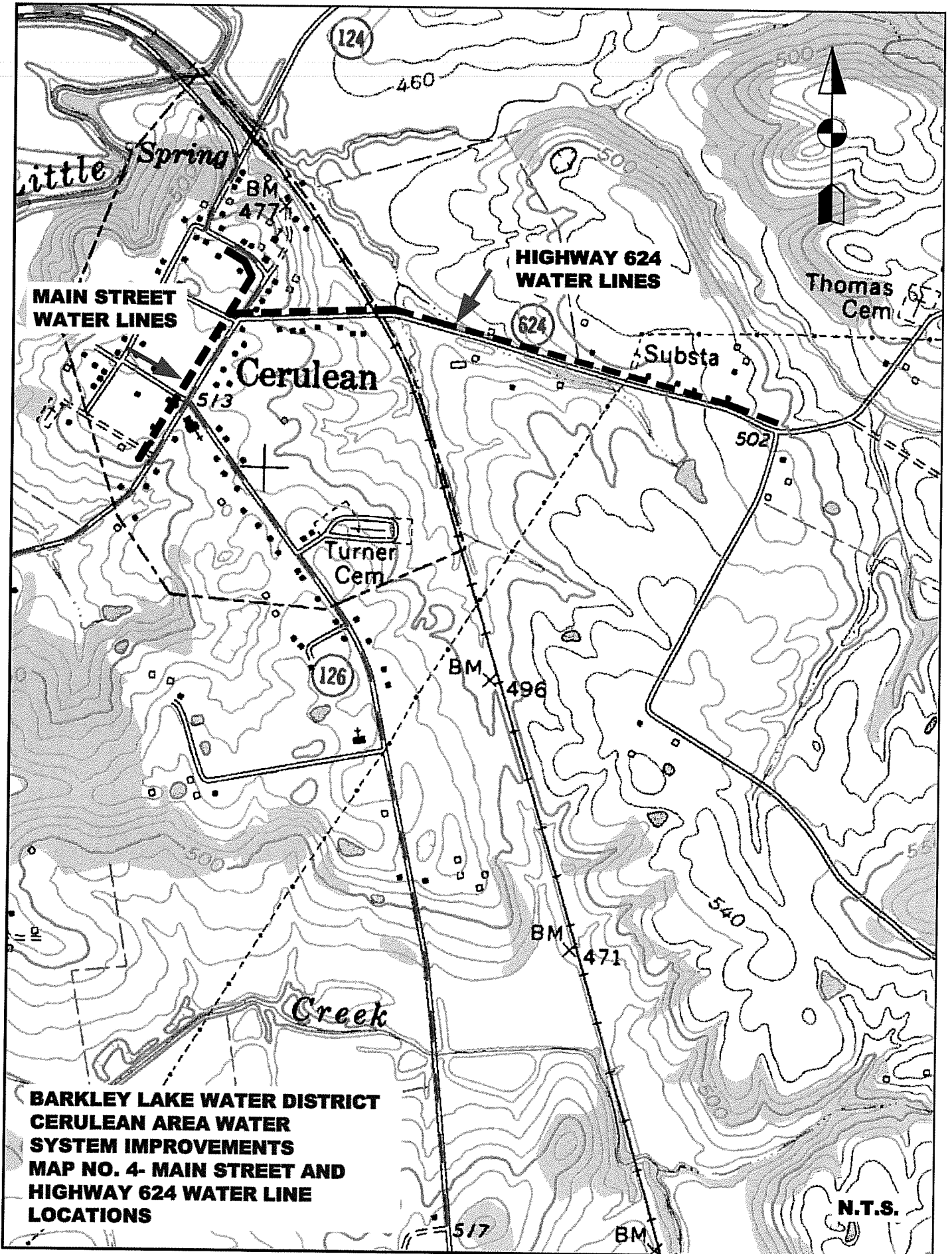


**BARKLEY LAKE WATER DISTRICT  
CERULEAN AREA WATER  
SYSTEM IMPROVEMENTS  
MAP NO. 3- EXISTING TANK AND  
PUMP LOCATION**

**N.T.S.**

**N.T.S.**

**Map #4, Main Street and Highway 624 Locations**



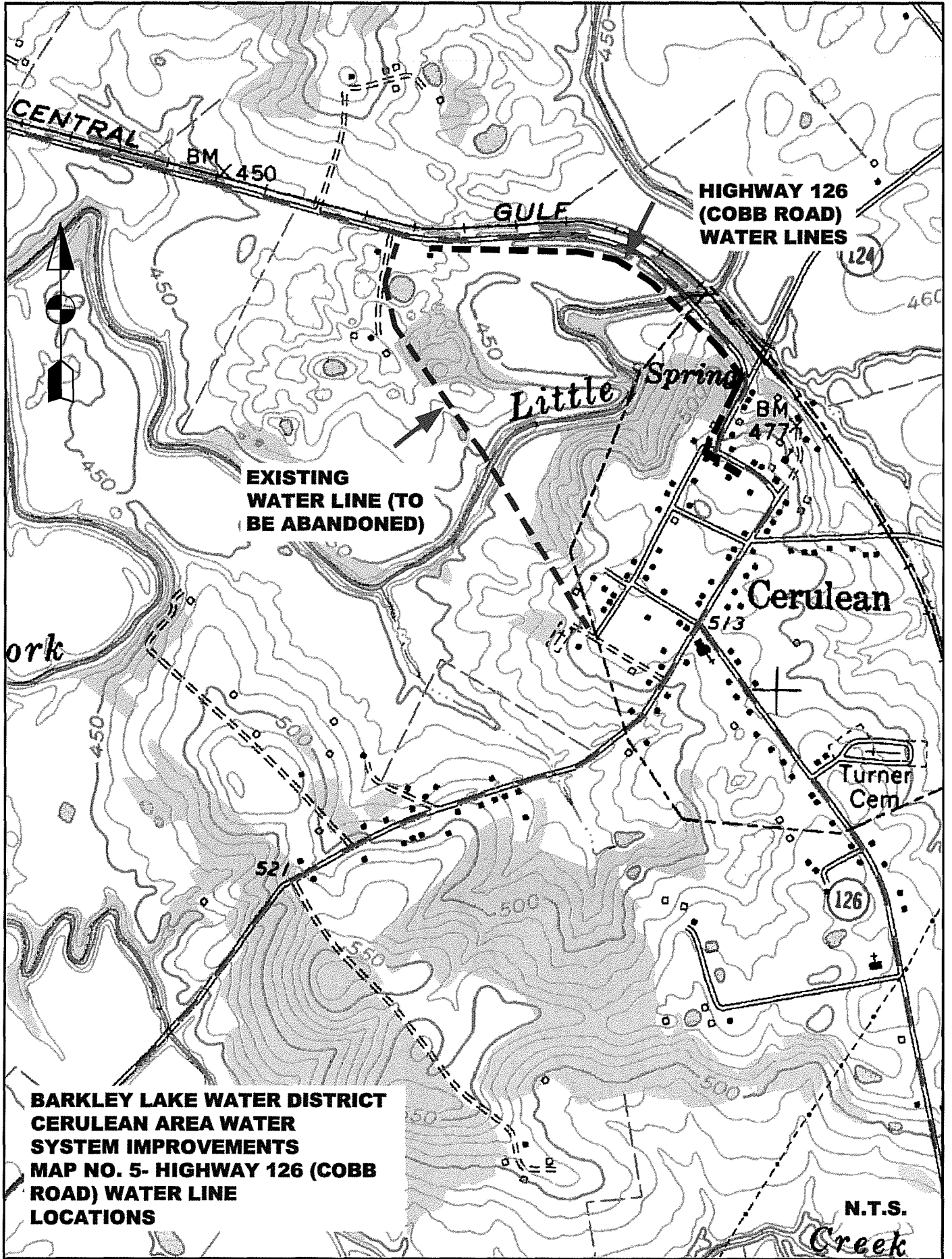
**MAIN STREET  
WATER LINES**

**HIGHWAY 624  
WATER LINES**

**BARKLEY LAKE WATER DISTRICT  
CERULEAN AREA WATER  
SYSTEM IMPROVEMENTS  
MAP NO. 4- MAIN STREET AND  
HIGHWAY 624 WATER LINE  
LOCATIONS**

**N.T.S.**

**Map #5, Highway 126 (Cobb Road) Line Locations**



## **Appendix A: Detailed Opinion of Probable Construction Costs**



**OPINION OF PROBABLE PROJECT COSTS  
 CERULEAN PROJECT PROFILE  
 BARKLEY LAKE WATER DISTRICT  
 AUGUST, 2011**

| <b>No.</b>                                     | <b>Item</b>                                   | <b>Amount</b> | <b>Unit</b>     | <b>Unit Cost</b> | <b>Total</b>          |
|--|---|---------------|-----------------|------------------|-----------------------|
| 1  | 300,000 Gallon Ground Storage Tank            |               | 1 Each          | \$375,000.00     | \$375,000.00          |
| 2  | Booster Pump Station                          |               | 1 Each          | \$150,000.00     | \$150,000.00          |
| 3  | 6" SDR17 PVC Water Line                       | 7,590         | LF              | \$17.00          | \$129,030.00          |
| 4  | 4" SDR 21 PVC Water Line                      | 3,685         | LF              | \$10.00          | \$36,850.00           |
| 5  | 6" DIMJ Valve                                 | 3             | Ea.             | \$900.00         | \$2,700.00            |
| 6  | 4" DIMJ Valve                                 | 2             | Ea.             | \$650.00         | \$1,300.00            |
| 7  | Above Ground Blow-Off Assembly                | 2             | Ea.             | \$1,250.00       | \$2,500.00            |
| 8  | Tie-in to Existing 3" Water Line inc. valve   | 8             | Ea.             | \$1,800.00       | \$14,400.00           |
| 9  | 8" Directional Boring - Inc. Pipe             | 300           | LF              | \$125.00         | \$37,500.00           |
| 10   | 4" Test Meters Inc. Vault                     | 2             | Ea.             | \$1,250.00       | \$2,500.00            |
| 11   | 8" Boring and Jacking State Hwy.              | 70            | LF              | \$50.00          | \$3,500.00            |
| 12   | 8" Steel Cover Pipe                           | 80            | LF              | \$40.00          | \$3,200.00            |
| 13   | Freebore for 6" PVC                           | 18            | LF              | \$35.00          | \$630.00              |
| 14   | Trench-Width Repaving                         | 150           | LF              | \$30.00          | \$4,500.00            |
| 15   | Gravel Drive Repair                           | 60            | ton             | \$20.00          | \$1,200.00            |
| 16   | Service Reconnects                            | 39            | Ea.             | \$400.00         | \$15,600.00           |
| 17   | Meter Relocations                             | 4             | Ea              | \$300.00         | \$1,200.00            |
| 18   | DIMJ Fittings                                 | 250           | Lbs.            | \$5.00           | \$1,250.00            |
| 19   | Extra Crushed Stone on Order of Engineer      | 50            | Tons            | \$20.00          | \$1,000.00            |
| 20   | Relocate Telemetry                            | 1             | LS              | \$5,000.00       | \$5,000.00            |
| <b>Probable Construction Cost</b>              |   |               |                 |                  | <b>\$788,860.00</b>   |
|  | Administration and Legal Expenses             |               | 5%              |                  | \$39,500.00           |
|  | Land, Structures, Rights of Way, Appraisals   |               | 5%              |                  | \$39,500.00           |
|  | Architectural and Engineering Fees            |               | 8.48% R&D Curve |                  | \$66,900.00           |
|  | Other Architect and Engineering, Geotechnical |               | 1.50%           |                  | \$12,000.00           |
|  | Project Inspection Fees                       |               | 5.04% RD Curve  |                  | \$40,000.00           |
| <b>Subtotal</b>                                |   |               |                 |                  | <b>\$986,760.00</b>   |
|  | Project Contingency                           |               | 10%             |                  | \$79,240.00           |
| <b>Total Opinion of Probable Project Costs</b> |   |               |                 |                  | <b>\$1,066,000.00</b> |

**Appendix B: State Clearinghouse Letter SAI# KY20111121-1350**



**STEVEN L. BESHEAR**  
GOVERNOR

**DEPARTMENT FOR LOCAL GOVERNMENT**  
**OFFICE OF THE GOVERNOR**  
1024 CAPITAL CENTER DRIVE, SUITE 340  
FRANKFORT, KENTUCKY 40601-8204  
PHONE (502) 573-2382 FAX (502) 573-2939  
TOLL FREE (800) 346-5606  
WWW.DLG.KY.GOV

**TONY WILDER**  
COMMISSIONER

December 21, 2011

Mr. Willis Jackson  
Bell Engineering  
354 Waller Avenue  
Lexington, KY 40504

**RE: BARKLEY LAKE WD - WATER TANK AND BOOSTER PUMP STATION**  
**WX21221012**  
**SAI# KY20111121-1350**

Dear Mr. Jackson:

The Kentucky State Clearinghouse, which has been officially designated as the Commonwealth's Single Point of Contact (SPOC) pursuant to Presidential Executive Order 12372, has completed its evaluation of your proposal. The clearinghouse review of this proposal indicates there are no identifiable conflicts with any state or local plan, goal, or objective. Therefore, the State Clearinghouse recommends this project be approved for assistance by the cognizant federal agency.

Although the primary function of the State Single Point of Contact is to coordinate the state and local evaluation of your proposal, the Kentucky State Clearinghouse also utilizes this process to apprise the applicant of statutory and regulatory requirements or other types of information which could prove to be useful in the event the project is approved for assistance. Information of this nature, if any, concerning this particular proposal will be attached to this correspondence.

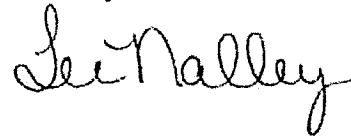
You should now continue with the application process prescribed by the appropriate funding agency. This process may include a detailed review by state agencies that have authority over specific types of projects.

This letter signifies only that the project has been processed through the State Single Point of Contact. It is neither a commitment of funds from this agency or any other state or federal agency.

**The results of this review are valid for one year from the date of this letter.**  
Continuation or renewal applications must be submitted to the State Clearinghouse annually.  
An application not submitted to the funding agency, or not approved within one year after  
completion of this review, must be re-submitted to receive a valid intergovernmental review.

If you have any questions regarding this letter, please feel free to contact my office at  
502-573-2382.

Sincerely,

A handwritten signature in black ink that reads "Lee Nalley". The signature is written in a cursive style with a large, looping "L" and "N".

Lee Nalley  
Kentucky State Clearinghouse

Attachments

The Fish & Wildlife has made the following advisory comment pertaining to State Application Identifier Number KY201111211350

To minimize impacts to the aquatic environment the Kentucky Dept. of Fish & Wildlife Resources recommends that erosion control measures be developed and implemented prior to construction to reduce siltation into waterways located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed. Please contact Dan Stoelb @ 502-564-7109 ex. 4453 or Danlel.stoelb@ky.gov if you have further questions or require additional information.

The Natural Resources has made the following advisory comment pertaining to State Application Identifier Number KY201111211350

This review was based upon the information that was provided by the applicant through the Clearinghouse for this project. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

Division for Air Quality (502-564-3999)

Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at <http://air.ky.gov/Pages/OpenBurning.aspx>

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Brochure located at <http://air.ky.gov/Pages/OpenB>

The Division would like to offer the following suggestions on how this project can help us stay in compliance with the NAAQS. More importantly, these strategies are beneficial to the health of citizens of Kentucky.

- \* Utilize alternatively fueled equipment.
- \* Utilize other emission controls that are applicable to your equipment.
- \* Reduce idling time on equipment.

The Division also suggests an investigation into compliance with applicable local government regulations.

The proposed project is subject to Division of Water (DOW) jurisdiction because the following are or appear to be involved: the construction of a new 300,000 gallon ground storage tank, booster pump station, and 11,275 linear feet of waterlines and appurtenances. Prior approval must be obtained from the DOW before construction can begin. When submitting plans and specifications, the applicant must cite the State Application Identifier: SAI # KY201111211350

This project is consistent with the TRIGG County Water Management Plan. It is approved for water management planning. It is approved for water withdrawal by the Water Quantity Management Section of DOW. From the application data, DOW ascertains that the proposed project is located in a floodplain area; therefore, a floodplain construction permit is required for this project. Any construction taking place in the floodplain will require submittal of a 'floodplain construction permit application' to the Division of Water for further review of the proposed project. Julia Harrod 502 564 3410

This project will consist of the construction of a new 300,000 gallon ground storage tank, booster pump station, and 11,275 linear feet of waterlines and appurtenances. These improvements will serve to ease supply issues, reduce costs, eliminate/reduce maintenance issues, and allow the continuance of water sales to an adjoining district.

The Barkley Lake Water District currently operates a 75,000 gallon ground storage tank and booster station in the Cerulean area that was constructed in 1976. Due to the elevation of this tank, it is necessary for the booster pumps to run continually in order to provide the pressure necessary to supply customers located in the higher elevations of the area. Service interruptions to a significant number of customers occur any time there is an interruption of electric service or the pumps require maintenance or repair. Also, due to the fact that the tank and pumps are approximately 35 years old, repairs are becoming more frequent. These issues are compounded because of several large agricultural customers with high peak demands in the area. This line was constructed cross-country to avoid a waterline crossing along highway 126 at Muddy Fork Creek. Steep banks and solid limestone would have made a creek crossing very difficult & costly at this location. Advances in rock excavation methods & equipment and directional boring make this crossing more feasible at this time and the installation of this line at this location will allow the district to abandon the cross-country line. The completion of this project will allow the Barkley Lake Water District to provide better service to the 400 customers in the area.

The Engineering Section of the Water Infrastructure Branch has no objections to the proposed project. Plans and specifications along with hydraulic analysis of the proposed project (including fill/drain cycles of the tank to justify adequate tank turn over, pump curves and its design information etc.) must be submitted to the Division of Water's Water Infrastructure Branch by a registered professional engineer in Kentucky. A written approval must be received from the Division of Water prior to beginning construction.

Best management practices shall be utilized to reduce runoff from the project into adjacent surface waters. John Brumley, Environmental Scientist II, 564-3410

If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) storm water discharge permit.

Utility line projects that cross a stream will require a Section 404 permit from the US Army Corps of Engineers and a 401 Water Quality Certification from DOW.

The Heritage Council has made the following advisory comment pertaining to State Application Identifier Number KY20111211350

The applicant must ensure compliance with relevant state and federal regulations regarding cultural resources. These may include any or all of the following: the Advisory Council on Historic Preservation's Rules and Regulations for the Protection of Historic and Cultural Properties (36CFR, Part 800) pursuant to the National Historic Preservation Act of 1966; the National Environmental Policy Act of 1969; Executive Order 11593; Kentucky Antiquities Act (KRS 164.705-164.735, KRS 164.990); Kentucky Cave Protection Act (KRS 433.871-433.885); and graves protection legislation (KRS 525.105, KRS 525.110, KRS 525.115, KRS 525.120, KRS 72.020, and 901 KAR 5:090).

In order to make a preliminary determination if properties eligible for listing in the National Register of Historic Places will be affected by this project, the applicant must submit photographs of all structures 50 years or older that are within, adjacent to the project area, or visible from the proposed water tank (including the height of the proposed tower). Each photograph should be labeled by street address with a brief description of potential impacts or proposed treatment, and should be accompanied by a project map showing their location. Upon completion of our review, the State Historic Preservation Officer will advise the applicant if further consultation is required.

In addition, the lines and infrastructure within existing state right-of-ways or utility easements do not require an archaeological survey; however, the lines and infrastructure outside of the right of way and easements must be surveyed by a professional archaeologist to determine if sites eligible for listing in the National Register of Historic Places will be affected by the undertaking. A report documenting the results of this investigation must be submitted to the State Historic Preservation Officer (SHPO) for review, comment

and approval. Where a given project area or portions thereof have been disturbed by prior construction, the applicant may file documentation of that disturbance with the SHPO and may request an opinion concerning the need of an archaeological survey. Note that agricultural activity, such as plowing, is not sufficient disturbance to preclude the need for an archaeological survey.

Pending our review of the requested documentation, there may be a need for additional consultation with our office to determine how to avoid, minimize, or mitigate any adverse effects to significant cultural resources. If you have any questions, please contact Philip Mink at the Kentucky Heritage Council (State Historic Preservation Office) at (502)564.7005, ext. 140, or at Philip.Mink@ky.gov.

The Office of State Budget Director has made the following advisory comment pertaining to State Application Identifier Number KY201111211350

Pinkerton, Geoff: No comments

The Housing, Building, Construction has made the following advisory comment pertaining to State Application Identifier Number KY201111211350  
no comment

The Transportation has made the following advisory comment pertaining to State Application Identifier Number KY201111211350

Herring (D-1), Jessica: The Kentucky Transportation Cabinet is responsible for controlling both public and private usage of right-of-way of the State road system. Any firm, individual, or government agency desiring access to a State road or desiring to perform any type of work (including signage, boring, etc.) on or adjacent to State right-of-way must obtain a permit from the Department

Any proposed access or encroachment of a State maintained road right-of-way should be coordinated at the earliest stage with:

Chris Kuntz, P.E., Permits Engineer  
Kentucky Department of Highways, District 1  
5501 Kentucky Dam Road, Paducah, Kentucky 42003  
Telephone: (270) 898-2431 or 1 (800) 338-4283, Fax: (270) 898-7457

Endorsed by:  
Jessica Herring, EIT, Planning Section Supervisor  
Kentucky Department of Highways, District 1  
5501 Kentucky Dam Road, Paducah, Kentucky 42003  
Telephone: (270) 898-2431 or 1 (800) 338-4283, Fax: (270) 898-7457

The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number KY201111211350

PW RATES MAY APPLY IF CONSTRUCTION IS OVER 250,000.00. CONTACT KY LABOR CABINET AT 502-564-3534

The Kentucky Housing Corporation has made the following advisory comment pertaining to State Application Identifier Number KY201111211350  
No comments.