

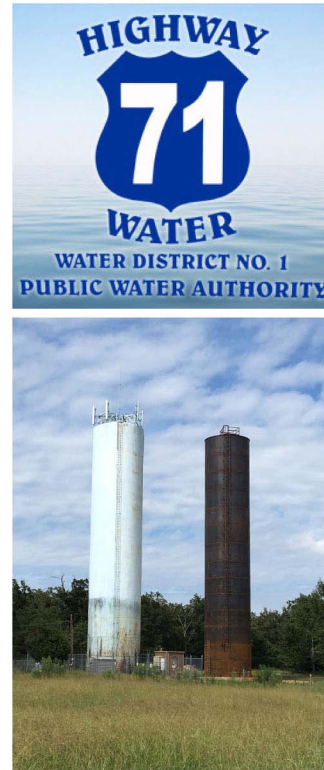
HW Assists Highway 71 Water District No. 1 PWA with Water Storage Needs

Highway-71 Water District No. 1 Public Water Authority, a rural water utility serving approximately 2,500 customers in Crawford County, Arkansas, is in need of additional water storage to provide customers with 24 hours of net effective water storage in the northern service area of their distribution system. In addition to providing additional water storage, the Utility also needs a means by which to take their existing water storage tank out of service for cleaning and recoating. In order to secure funding for the project, Hawkins-Weir Engineers, Inc. (HW) prepared a Preliminary Engineering Report, Environmental Assessment Document, and assisted the Highway 71 Water District with

the preparation of funding applications to the Arkansas Water and Wastewater Advisory Committee. HW also assisted Highway 71 Water and the Western Arkansas Planning and Development District in completing a Low to Moderate Income (LMI) survey. Funding agencies use median household income, typically from US Census data, to qualify an entity's grant eligibility and loan interest rate. In the absence of such data for project-specific areas or when an entity feels the US Census data is inaccurate, a LMI survey can be performed to establish the median household income for the project area and can potentially qualify a project for grant funding or reduce the interest rate on a

construction loan. Highway 71 Water was awarded a low interest loan from USDA Rural Development for the design, construction, construction observation, and construction administration of a 250,000-gallon water storage standpipe, master meter, and tank mixing system. HW estimated the project cost at \$489,000.00 and the project was awarded to Circle P Welding for \$431,783.00. The Contractor has completed the tank's erection and is currently preparing the tank for coating applications. Construction of the new tank started in late May and is on schedule and on budget. [HW](#)

New tank erection is complete and preparing for coating application.



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HW HighLights

HW Team News



HW welcomes *Amin K. Akhnouk, Ph.D., P.E.*, to our Little Rock office as a staff engineer. Dr. Akhnouk has a Ph.D. in

Construction Engineering from the University of Nebraska-Lincoln, an M.S. in Civil Engineering from Kansas State University, and a B.S. in Civil Engineering from Cairo University in Egypt. He is a licensed Professional Engineer in Arkansas and Cairo, and an Associate Constructor, American Institute of Constructors.



HW welcomes staff engineer *Steven Y. Bishop, P.E.* to our Little Rock office. He is a graduate of the University of Arkansas

with a B.S. in Civil Engineering, and a licensed Professional Engineer in Arkansas.



HW welcomes *Nelson Heringer, E.I.* to our Little Rock office as a staff engineer. He is a

graduate of the University of Arkansas with a B.S. in Biological Engineering and an Engineering Intern in Arkansas.



HW welcomes *Jason Winters* to our Van Buren office as a draftsman. He is a graduate of the University of Arkansas -

Fort Smith with an Associate's Degree in Mechanical Drafting.

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HW Assists with Water Storage Needs

A Tribute to Rural Water Associations in Arkansas!

By: *Brett D. Peters, P.E., President & CEO*

The Summer 2016 Edition of the Hawkins-Weir newsletter is dedicated to Rural Water Associations in Arkansas and the rural Arkansans they serve by helping to provide a safe and reliable water supply. We make this tribute prior to the 39th Annual Conference of the Arkansas Rural Water Association (ARWA) scheduled for September 18-21, 2016, in Hot Springs, Arkansas. Unfortunately, these professionals are often "unsung heroes" because we, as end users, frequently take clean water for granted, only taking notice when occasionally inconvenienced by an interruption in water service. I ask you to consider how vital water is to each of us in our daily lives, and I thank those in the industry that play a part in its safe and reliable delivery.

My first few engineering projects upon graduation from the University of Arkansas with a B.S.C.E. degree involved rural water extensions to the South Ozark Water Users Association, as well as to the Cedarville Waterworks Facilities Board. The South Ozark Project served 400 plus customers between Ozark and Lavaca in Franklin and Sebastian Counties, Arkansas. The North Rudy Extension to the Cedarville Waterworks served approximately 300 customers in Crawford County, Arkansas. Although I grew up in the small town of Mountainburg as the son of a water treatment plant operator, I did not realize until working on those projects that everyone in Arkansas does not have access to a safe and reliable water supply. Prior to these projects, these customers depended upon private, individual water wells, many of which were inadequate in either

quality, quantity, or both. I have had the privilege of working on many rural water projects since those early days, and am proud to say that these clients/customers are some of the most appreciative folks that I have ever had the pleasure of working with, several of whom remain my close friends today.

I learned the importance of rural water firsthand when my wife and I purchased my grandfather's farm near Mountainburg that did not have access to potable water. For almost a decade, we had to depend upon a private water well that was relatively good in quality but inadequate in quantity. We had to haul water from the nearby City of Fort Smith water treatment plant in Mountainburg for several years to supplement our well water supply. Thankfully, this was prior to our three daughters becoming teenagers. I may not have been able to haul enough water if they had. In the early 2000s, our firm designed a new water system for the Locke-Fern and Dollard Road Waterworks Facilities Board, and we became a proud rural water customer in December 2004. I still treasure my monthly water bill and the appreciation I have for no longer having to operate and maintain my own pump, storage tank, and treatment system. My gratitude not only goes out to Locke-Fern and their leadership, but all rural water associations that go about their daily business of providing safe and reliable water supplies, without fanfare, throughout Arkansas. My appreciation also goes out to ARWA, its leadership, and the organization that they created in 1977 to support these rural water associations. Remember them all the next time you turn on the faucet! [HW](#)

Kibler Water Chlorine Booster Project

The heat of summer touches most every aspect of life in Arkansas, including our water supplies. Rising water temperatures can cause chlorine residuals to fall. After struggling with this problem for a few years, the City of Kibler turned to Hawkins-Weir Engineers to find a cost-effective, low-maintenance solution. Nestled in the heart of the River Valley between Interstate 40 and the Arkansas River, Kibler is the quintessential Arkansas small town. Kibler purchases wholesale water from the neighboring City of Alma. Discussions with Alma's water department confirmed that the utility maintained a sufficient chlorine residual throughout their retail system. Concerns over disinfection by-product formation prevented the utility from increasing their chlorine residual to help their wholesale partner address its seasonally low readings.

After verifying that the chlorine residual issue could not be resolved at the source, the City of Kibler began implementing a plan to boost chlorine before distributing finished water to their customers. The water purchased by Kibler flows to a common pump station that provides the pressure required to serve all of their users and fill the City's water storage tank. Kibler had the option of adding chlorine at either their master meter or at the pump station. After evaluating both locations with City staff and the Mayor, Hawkins-Weir recommended that the booster station be located at the existing pump station. This option took advantage of the existing pump instrumentation to provide the necessary control signals for

the new chlorine booster system. It also lowered project costs by making use of existing building space.

There are several options for boosting chlorine remotely in a water distribution system. A traditional gaseous chlorine injection system was initially considered due to its low operational cost. After discussing the pros and cons of that option, particularly the associated safety concerns, the City elected to install a sodium hypochlorite system. Sodium hypochlorite is a bleach solution that is readily available from chemical suppliers. It is used by many water utilities in Arkansas including larger systems like Central Arkansas Water. Peristaltic or hose pumps are often the preferred choice for injecting sodium hypochlorite due to its high off gassing potential. Due to the high pressure (over 90 psi) of this application, however, diaphragm pumps were selected. Sodium hypochlorite demand was determined based on historic system demand and chlorine residuals. To best match the capacity of the pump to the demand curve for sodium hypochlorite, a 5.25% solution was recommended in lieu of the more common 12% solution. A new chlorine meter was installed as a part of the project to optimize the chemical feed rate.

This project is currently under construction and is expected to be completed in September 2016. [HW](#)



55-gallon sodium hypochlorite tank

City of Redfield Water Treatment Plant

Located about 25 miles south of Little Rock, the City of Redfield is a growing community that typifies Arkansas values and opportunity. The City's water source, which is located over 700 feet below its parks and well-manicured lawns, is the Sparta aquifer. The primary function of Redfield's water treatment plant is to remove iron and manganese from the groundwater before it is delivered to the community's over 1,500 residents.

The water treatment plant was constructed in 1974. It was last modified 25 years ago in 1991. Hawkins-Weir Engineers began working with Redfield Water Works in 2014 to obtain the necessary funding to replace their antiquated treatment plant. Hawkins-Weir is currently designing a state-of-the-art 1.0 MGD treatment plant for the City. Among its many features, the ANRC funded treatment facility will include automated filter controls, a safer chlorine system utilizing sodium hypochlorite, and a modern operations building. The project is set to bid during the 4th quarter of 2016 and is expected to be online in 2018. [HW](#)



The water treatment plant was constructed in 1974. HW is currently designing a new state-of-the-art 1.0 MGD plant for the City.

Oak Grove Water Users Association

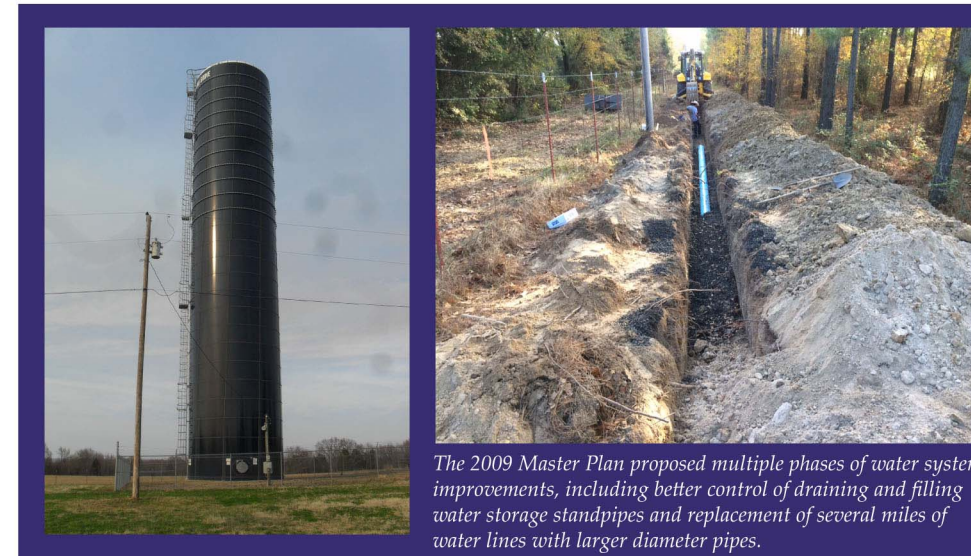
Oak Grove Water Users Association is a rural water provider in southern Crawford County, Arkansas. Oak Grove's water service area covers approximately 17 square miles and is bounded by the City of Van Buren, Arkansas to the west, the City of Kibler to the east, US Highway 64 to the north, and the Arkansas River to the south. Oak Grove's water system includes 47 miles of water lines and provides water to approximately 1,100 customers. Since 2009, Hawkins-Weir has been providing engineering services to the

Oak Grove Water Users Association including development of a Water System Master Plan to identify system deficiencies, project future system needs, and recommend improvements to meet these identified needs.

The 2009 Master Plan proposed multiple phases of Water System Improvements. The Phase I Water System Improvements included the installation of solenoid control valves and radio telemetry at each of Oak Grove's two (2) master meter locations to allow better control of draining and

filling the Association's two (2) water storage standpipes. This project was completed in September 2011 at a construction cost of \$116,000. The Phase II Water System Improvements included replacement of several miles of 3-inch and 2-inch diameter water lines with 8-inch and 6-inch diameter water lines. Oak Grove continues to implement the Phase II Water System Improvements including most recently the replacement of approximately 5,200 linear feet of 2-inch water line with an 8-inch diameter water line along Old Rouw Road. These improvements were completed in January of 2016 at a construction cost of \$222,000. The Oak Grove Water Users Association is currently considering replacement of an additional 2,600 linear feet of 2-inch diameter water line with an 8-inch diameter water line along South 40th Street.

Oak Grove Water Users Association's systematic approach to implementing the 2009 Master Plan has allowed the Association to improve their water system without the need for a rate increase. [HW](#)



The 2009 Master Plan proposed multiple phases of water system improvements, including better control of draining and filling water storage standpipes and replacement of several miles of water lines with larger diameter pipes.

Wildwood Water Association Highway 335 Water Relocation

Hawkins-Weir Engineers provided design phase services for the relocation of multiple water lines along U.S. Highway 335 in El Dorado, Arkansas in preparation for proposed roadway improvements by the Arkansas State Highway & Transportation Department (AHTD). This project will include the construction of approximately 29,500 linear feet of 4-inch and 3-inch PVC water lines including road bores, service reconnections, post hydrants, and other

appurtenances. As part of this project, Hawkins-Weir is assisting the Wildwood Water Association in obtaining project cost reimbursement from AHTD for design, construction, construction engineering, easements, and regulatory review fees. Hawkins-Weir will also provide construction phase services including resident inspection for this project. Construction is expected to begin in late 2016 or early 2017. [HW](#)



HW provided design phase services for the relocation of multiple water lines along U.S. Highway 335 in El Dorado, AR