SUMMER 2001

Volkert Views

NEW APPROACH TO WASTEWATER TREATMENT BENEFITS CITIZENS AND ENVIRONMENT

The Alabama Society of Professional Engineers and the Mobile Area Council of Engineers have individually recognized the Hutchens Decentralized Wastewater Treatment and Disposal Facility as their 2001 Engineering Project of the Year. The facility is an alternate treatment approach that brings wastewater management to unserved areas without extending interceptor sewers. It is the first utility-managed decentralized wastewater treatment facility in Alabama.

Mobile Area Water and Sewer System (MAWSS) owns and operates the facility, which was designed by Volkert & Associates, Inc. The Mobile County Public School System provided the land to build the system, which is serving Nora Mae Hutchens Elementary School and almost 200 area homes in west Mobile County.

A nearby subdivision will go online for service this year. Six additional modules are permitted and will be added during the next five years. This will increase the system's capability to full capacity with the ability to serve 1,072 nearby homes.

Project Manager Kathryn Wilhelm, P.E., has presented a paper on decentralized wastewater treatment and disposal at several conferences across the nation. This resulted in a number of contacts requesting more information on the system. The Sydney Water Authority in Sydney, Australia was especially interested because of the similarities between Mobile and Sydney in rainfall, climate, and proximity to major bodies of water. All these factors support the possibility of a successful result for this type of system in Sydney, according to Ms. Wilhelm.

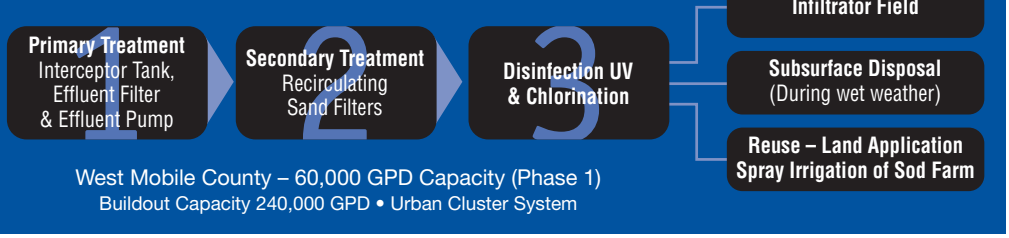
With this program, MAWSS is taking an innovative and progressive approach to economical wastewater management solutions in less densely populated areas of Mobile County. According to MAWSS Director Malcolm Steeves, P.E., Hutchens is the first of several such facilities that "MAWSS expects to become a mainstay in eliminating dependence on conventional septic systems in rural and non-urban areas." He adds that the facility "will produce irrigation water for the School Board's sod growing operations. The 'no discharge' aspect of this facility is a design consideration that addresses concerns of area residents regarding surface waters."

In a letter supporting the project's nomination, Charles M. Shirk, P.E., director of the Onsite Division of the Mobile County Health Department, points out that Mobile County's 10 percent failure rate of septic tank systems presents "a nuisance to public health through direct exposure to diseases, and contamination of ground and surface water." Shirk says that the Hutchens project will enhance the quality of life in the area by eliminating septic tanks at the school and for over 1,000 private residences.

"This project is a perfect example of private-sector engineering, utility, academia, and the local school system working together to solve a rather complex problem, while protecting public health and the environment, all in an innovative manner," according to Kevin D. White, Ph.D., P.E., professor of civil engineering at the University of South Alabama. White notes that management of a decentralized system by a large municipal water/wastewater utility is an innovative component of this project and will be viewed nationally as a model.

Volkert's team also included Tim Patton, P.E., principal in charge, and Harold C. Baker, P.E., senior project manager.

Hutchens Decentralized Wastewater Facility



West Mobile County – 60,000 GPD Capacity (Phase 1)
Buildout Capacity 240,000 GPD • Urban Cluster System

IN THIS ISSUE...

Specialized High Tech Buildings House Telecommunications Technology

Do you ever wonder how your computer accesses all those remote web sites, or how you can receive and send mega bits of information thousands of miles with a click of the mouse? The infrastructure needed to process that data is all around us and is expanding to keep up with demand.

Volkert is involved in the growth of telecommunications technology infrastructure with recent projects for Cox Communications, Urban Media, Broadwing, and Hamilton County, Tennessee. These projects involved the design and construction of controlled environments that support and house state-of-the-art electronic telecommunication equipment.

Master Telecommunications Centers (MTC), Point of Presence (POP) sites, repeater stations, and HUB sites serve as centralized locations where fiber optic, co-axial, and twisted pair cables converge. Satellite dish farms and antenna towers are also used to gather and transmit digital signals in these centralized locations. Although each location is unique in its equipment design, they all share certain requirements to ensure the performance and reliability of telecommunications systems.

Satellite Dish Farm

Design Features

Projects located in Florida, for example, have specialized design features to withstand Category 4 hurricane loads. All locations have redundant (standby) electrical service with automatic load transfer switches. Uninterruptible Power Systems (UPS) provide continuous service in case of utility loss. Temperature and humidity controls are also redundant to maintain strict operating environmental conditions. Fire protection systems include automatic FM 200 suppression and pre-action sprinklers as back up. Special floor covering is specified and connected to the building's grounding system to prevent static electric discharge.

Typical MTC Control Station

In addition to designing the buildings to accommodate these special requirements, other project challenges include meeting extremely short-fuse schedules, maintaining existing equipment operations, and coordination and installation of owner-supplied materials and equipment. The telecommunications business is extremely competitive, therefore bringing new equipment on-line quickly allows Volkert's clients to provide new and improved services to their customers and improve their bottom line.

Project Benefits

As new telecommunications equipment is brought on-line, new types of services are made available to target customers and the general public. Interactive cable TV, broadband internet access, video teleconferencing, and enhanced telephone, mobile phone and pager services are just a few of the amenities made possible by this equipment and the facilities that support it.

MTC, Ft. Walton Beach, Florida

Volkert's office responsible for this design work took advantage of improvements to their local telecommunications services. "One of the more noticeable improvements," according to Todd Sazama, AIA, assistant vice president, "was to our Ft. Walton Beach office internet service. After we completed the Cox Communications MTC project here, our down-load time for a typical CAD drawing went from three-five minutes to five-10 seconds!"

Project Design Team

Volkert

Todd Sazama, AIA, Project Manager
Nelson Russell, P.E., Electrical
Lloyd Pitts, P.E., Structural
David Skipper, E.I., Civil

Consultants

Chris DeArmon – CDC Engineers
Todd Capes - Capes Engineering
Sergio Reyes – Eng Denman & Associates
Allen Tucker – Gustin, Cotheren & Tucker

Volkert Chairman Receives National Engineering Honor

Photo: Malcolm Yunker

T. Keith King, P.E., Chairman of the Board, President and CEO of Volkert and Associates, Inc., received the National Society of Professional Engineers (NSPE) 2001 Distinguished Service Award at the annual meeting in July. NSPE is made up of 80,000 members, and the award is presented to an individual who has made outstanding contributions to the engineering profession and has consistently promoted the social and professional interests of the engineer.

This honor recognizes King's 40+ years of service to the engineering profession. King served the NSPE as Vice President – Southeastern Region and chaired the Membership Committee and the Licensure and Qualifications to Practice Committee. He served the Alabama Society as president and for many years represented Alabama on the national board of directors.

King was appointed to two five-year terms on the State of Alabama Board of Registration for Professional Engineers and Land Surveyors and actively served on the National Council of Examiners for Engineering and Surveying. He is a licensed engineer in eight states, and is a Fellow of NSPE and of the American Society of Civil Engineers.

King served on the board of directors that founded the Alabama Engineering Hall of Fame, was a charter member of the Alabama Industrial Council on Engineering Education, and currently chairs the Business Council of Alabama.

King is active with his alma mater, Auburn University. He is on the board of the Auburn Alumni Association, served two years as chairman of the Auburn Alumni Engineering Council, and served on the Highway Research Advisory committee. A licensed engineer in eight states, King has numerous personal awards recognizing his contributions to the engineering field.

Signing System Guides Visitors and Mobilians Around Downtown

Visitors to downtown Mobile, Alabama, have a new ally in their search for directions to prominent landmarks in the area. Main Street Mobile, a non-profit organization of business and government leaders created to promote business in the downtown area, has developed a directional signing system for the City of Mobile. The system leads downtown patrons to historical locations, government offices, entertainment, recreational facilities and other landmarks located within the vibrant downtown area.

Elizabeth Sanders, the director of Main Street Mobile, developed the project with local business leaders and Mobile city officials to help promote the entertainment and cultural locations within the downtown area. The additions of new restaurants, museums, a convention center and a new city/county government complex have rejuvenated the area in recent years.

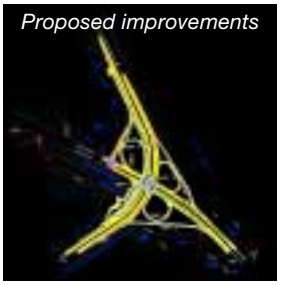
Main Street Mobile contacted Volkert and Associates to create a signing layout plan, develop construction plans, select a contractor and perform the construction inspection. Malcolm Beasley, P.E., principal in charge, and David Webber, P.E., civil project manager, worked with Ms. Sanders to develop a signing schematic that would clarify directions for drivers and pedestrians.

The signs are uniquely designed for the Mobile area. They are constructed from aluminum and painted with an acrylic polyurethane dark green paint. The destination names in Franklin Gothic Bold type are made from white reflective vinyl. The aluminum and steel posts are painted dark green to match existing light poles and signal poles in the downtown area.

Setting sign posts in the congested underground world of "Old Mobile's" sewers, telephone lines, power lines and abandoned utilities provided a challenge during construction of the signing project. Volkert also prepared construction documents and performed construction inspection to replace the neon signs at the Mobile Civic Center for the City of Mobile under the signing contract. Braxton Counts, P.E., construction manager, and Steve Perrigin, E.I., resident engineer, performed the construction services for both projects.

The signs are being placed in phases as money becomes available. Phases I and II are complete with 92 signs erected. Volkert is currently working on Phase III of the directional signing plans, which will incorporate approximately 30 more signs into the system. Phase III will include special signs to commemorate the "Henry Aaron Loop," which is named for baseball player and Mobile native Hank Aaron. David Chaltain is the civil designer for the signing project.

Aging Urban Infrastructure Gets Major Facelift


Proposed improvements

The Route 50/27 interchange in Arlington County, Virginia is a heavily traveled urban interchange. Approximately 60,000 motorists from Northern Virginia and Washington, DC pass through it each day. The interchange, part of the original Pentagon roadway network built in the 1940's, is in need of operational, safety and capacity enhancements.

The Virginia Department of Transportation selected Volkert to develop a solution. The challenge associated with improving the interchange is to do so without acquiring any additional right-of-way. High density and federally owned properties surround the interchange. Fort Myer and Arlington Cemetery border the eastern edge of the site.

"Improving the operational deficiencies of the existing cloverleaf interchange is difficult," explains Ray Koenig, PE, Volkert's project director. "We've looked at seven alternatives and VDOT, with help from concerned citizens, will select one." The Volkert team's traffic evaluation for the alternative improvements included traffic volume analyses, level-of-service and operational analyses, and an assessment of traffic and safety effects.

The existing Route 50 bridge over Route 27 is too low by today's standards and must be replaced. Raising the height of Route 50 affects all the ramps carrying traffic onto the roadway. Volkert's design includes the demolition of the existing bridge structure while maintaining traffic though the interchange and replacing the bridge and all ramps leading onto the roadway. The improvements include the addition of acceleration, deceleration, and weave lanes at all ramps as well as multipurpose trails for pedestrian and bicycle traffic.

To develop a solution that meets the needs of all, Volkert is coordinating its efforts with the citizens of Arlington County as well as with special interest groups such as the recreational and commuter bicyclists in the area. "Improvements to this interchange will affect thousands of people every day," says Koenig. "It is important to maximize operational efficiencies for the long-term."

Field Notes

Nelson Russell, P.E., assistant vice president, was named Electrical Engineer of the Year by the Mobile Area Council of Engineers (MACE), and **Kathryn Wilhelm, P.E.,** project manager-utilities, was named Mechanical Engineer of the Year. Russell, a graduate of Tennessee Technological University, is a registered professional engineer in nine states and has been with Volkert since 1974. Ms. Wilhelm, a graduate of Wichita State University, is a registered professional engineer in six states and has been with Volkert since 1999. Both honorees are active in a number of professional organizations at the local and state level.

Malcolm N. Beasley, P.E., vice president in Mobile, was inducted as a member of the Auburn Alumni Engineering Council at his alma mater, Auburn University. The council provides continuing support, particularly in the areas of development and public affairs, to the Samuel Ginn College of Engineering and to the university. Beasley is also serving a second term on the board of directors for the American Consulting Engineers Council of Alabama.

Promotions and Registrations

Anthony Bryant, P.L.S., Mobile survey department manager, was promoted to assistant vice president.

David Shumer, P.E., Mobile Civil Department; **Stephen Delahunty, P.E.,** Mobile Structural Department; and **Britt Bumpers, P.E.,** Mobile Civil Department, passed the examination for professional engineering to earn the Professional Engineer registration in Alabama.

Stuart Smith, P.L.S., Gulf Shores, passed the fundamentals of land surveying exam and is a registered Professional Land Surveyor.

Steve Commander, P.E., vice president and manager of the Gulf Shores office, is serving as president-elect of the American Consulting Engineers Council of Alabama.

Lloyd Pitts, P.E., is serving for the second year on the Civil Engineering External Advisory Committee for the University of South Alabama. The committee meets with Civil Engineering Department Chairman Joe Olsen, Ph.D., and the civil engineering faculty to provide opinions and advice from the viewpoint of engineers in practice.

Volkert's corporate and architectural brochures with coordinating folder received a first-place Lantern Award in the full-color brochure category from the Southern Public Relations Federation. Members of the organization are public relations practitioners from Alabama, Mississippi, Louisiana, and Northeast Florida. The competition entries are judged on public relations programming and planning, research, execution, and results.

Nathaniel D. "Skeeter" McClure, IV, P.E., FASCE, project manager with Volkert Environmental Group, co-authored "Environmental Restoration Measures on the Tennessee-Tombigbee Waterway—an update" with Norman L. Connell, Sr., P.E. The article was published in Environmental Geology, February 2001. The original paper was written and presented at an ASCE national conference in 1996 when the authors worked for the U.S. Army Corps of Engineers. McClure was chief of the Mobile District Planning and Environmental Division and Connell was project manager, Tennessee-Tombigbee Project Management Office.

Chattanooga's 13th Street Improvements Enhance Appearance and Benefit Environment

With construction of the new Chattanooga Conference Center underway and expansion of the Chattanooga Trade and Convention Center planned for the following year, the city saw an immediate need to upgrade adjacent streets. Volkert & Associates designed Chattanooga's 13th Street Improvements Project, featuring the streetscape design for 4,000 feet of urban roadway and a graywater collection system that will collect storm water from rooftops and landscaped areas and store the water to use for irrigation.

The design of a graywater collection system is a major element in the improvement of the 13th Street area. It improves a storm drainage system that was draining to an egg-shaped brick combined sewer system dating from the turn of the century.

Improved Intersection at 12th and Broad

The graywater collection system is routed along 13th Street and will flow to a storage basin where it will be filtered and pumped to an architecturally designed aboveground storage tower and later used for irrigation. Diverting a large portion of the drainage into the graywater system will reduce the amount of storm water going into the combined sewer system to be treated at the wastewater treatment plant and will help prevent flooding of streets in low areas. During a major storm, the graywater collection system will flow over a weir structure and into the new stormwater collection system, which collects storm water from the roadways and parking areas and connects to the combined sewer system at two points.

Streetscape completed on 13th Street

The streetscape design blends with the landscaping of the new Chattanooga Conference Center and planned adjacent park areas. The trees are placed every 25 feet and pedestrian lights every 50 feet. Taller streetlights are on street corners and midway on each block. The large tree wells are surfaced with red pervious concrete pavers in some sections and with Bermuda grass sod in others. A drip irrigation system fed by the graywater system provides water for the trees.

The new design removed two abrupt bends to straighten 13th Street and smoothed out the grades at the intersections. Additions included parking lanes on both sides of the streets and one signalized intersection. Red stamped concrete at the intersections indicates the crosswalks and gray stamped concrete designates the center of the intersections.

Volkert emphasized communication and coordination throughout the project. The fast track schedule required intensive coordination with the City of Chattanooga Public Works Department. To avoid the turn-around time for a conventional plan review and comments, the city's engineering project coordinator, Dennis Malone, spent several days during the final plan preparation process at the Volkert office going through the plans. Due to the high-profile location of the project, Volkert project designers met with the city's urban planners to ensure implementation of the proper streetscape plan. Ongoing communication with the Chattanooga Conference Center and with Chattanooga Convention and Trade Center design groups was necessary to coordinate graywater collection locations, sidewalk grades, and related items.

One of the most challenging aspects of the project was the coordination of utility relocation. All above ground utilities in the area were to be placed below ground, and most utilities took that opportunity to upgrade their systems to allow for future growth.

Volkert and Associates worked with the utilities to prepare a master plan of the area showing horizontal location and depth of existing and new utilities in order to avoid as many difficulties as possible.

The location of the project in an older section of town provided some challenges during construction. Unexpected underground obstructions included a concrete tunnel that followed an abandoned rail line and an unused basement under the existing sidewalk. Also, the pipe installation contractor had to trench through unstable, shifting foundry sand that was used as fill material to combat the flooding problems experienced before construction of the TVA dam system.

In addition to providing design services, Volkert & Associates assisted the city with the solicitation of bids, construction services, and preparation of record drawings. Construction of Phase I was completed in March 2001. Volkert is currently assisting the City of Chattanooga on other streetscape projects.

For information about this project, contact Gregg Albritton, P.E., assistant vice president, 706-278-9288, galbritton@volkert.com, or Chris Davis, P.E., project engineer, 706-278-9288, cdavis@volkert.com.

Summerford Recognized for Achievement by Volkert, ASPE, and MACE

Senior Vice President Rodney W. Summerford, P.E, received the David G. Volkert Chairman's Award in recognition of his contribution to the firm during 2000. In addition to this prestigious honor by the firm, Summerford was named 2001 Professional Engineer of the Year by the Alabama Society of Professional Engineers (ASPE) and honored as 2001 Engineer of the Year by the Mobile Area Council of Engineers (MACE).

Summerford is responsible for all engineering and environmental assignments for Volkert's offices in Mobile and Birmingham, Alabama. He serves on the Board of Directors of David Volkert & Associates, Inc., and has been with the firm since 1964.

Summerford is a licensed engineer in four states and is active in numerous professional organizations including the American Society of Civil Engineers, National Society of Professional Engineers, Society of American Military Engineers, American Consulting Engineers Council, Joint Engineers Council of Alabama, American Water Works Association, American Public Works Association, Florida Airport Managers, Alabama Aviation Association, and Water Environment Federation.

A civil engineering graduate of the University of Alabama, Summerford was named a Distinguished Engineering Fellow and an Outstanding Civil Engineering Fellow in 1992 by his alma mater. He serves on the University's Capstone Engineering Society Board of Directors and is a member of the University of South Alabama's Industrial Advisory Board.

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