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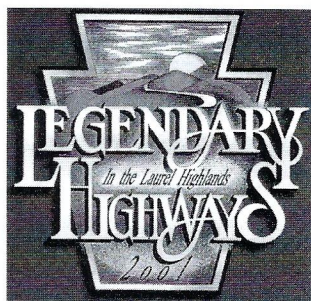
NEWSLETTER OF THE AMERICAN SOCIETY OF  
HIGHWAY ENGINEERS



May 2001 - 2

## ASHE WELCOMES NORTH FLORIDA TO REGION 9

By June Clark, P.E., Public Relations, North Florida



The North Florida Section of ASHE, located in Florida's Capital City of Tallahassee, has recently been added to the growing numbers of new ASHE Chapters around the country. The North Florida Section joins the Gold Coast (Ft. Lauderdale), Tampa Bay, Central Florida, and North East Florida (Jacksonville) Sections of Region 9 in Florida.

The North Florida Section was chartered on January 11, 2001. ASHE National President Domenic Piccolomini attended the charter dinner in Tallahassee where he presided over the chartering ceremonies and installed the new chapter officers. Mr. Tom Barry, Secretary of the Florida Department of Transportation, was the guest speaker for the evening. Secretary Barry discussed issues facing the Department and the future role of consultants in FDOT's activities.

Charter membership of the new North Florida Section was comprised of persons from state and local government as well as the consulting industry. Forty-one new members were installed in the initial charter and include engineers, surveyors and CADD technicians. In the future the



OFFICERS OF THE NEWLY CHARTERED  
NORTH FLORIDA SECTION OF ASHE

*Front Row (L. to R.)* Gevin McDaniel – Program Director, Jacques Registe, Membership Director, Melissa Streetman – Public Relations Committee, Mariano Berrios – Vice President. *Back Row (L. to R.)* John Sliger – Nominations Director, Dave Snyder – President  
*Not Pictured:* Billy Hattaway – Secretary, Jim Sullivan – Treasurer, June Clark – Public Relations

Section plans to expand, increasing membership from structural and drainage disciplines as well as from the education and construction industry.

One of North Florida Section's goals is to promote public awareness of ASHE. In keeping with this goal, the first community activity of the North Florida Section was to help sponsor the Lawton Chiles High School Applied Technology Club's trip to University of Florida. Board Members have also agreed to start a scholarship fund to support local high school students in their pursuit of an engineering degree.

The North Florida Section grew from a mutual desire and interest in sharing ideas and information regarding the highway industry. The group began meeting in October 1999 and has held regular monthly lunch

meetings with presentations on topics such as local land development projects, unique bridge structures, current surveying technology, stormwater facilities design and construction, techniques in erosion and sediment control and legal issues in drainage design. Lunch meetings have been well attended and the North Florida membership continues to increase.

ASHE members have remarked how beneficial face-to-face interaction with each other has been. Consultants frequently work together with government clients on highway projects, but many of the engineers, designers and technicians may never actually meet in person during a design project. ASHE provides a chance

for these individuals to build both professional and personal relationships which will benefit them as the highway industry continues to grow and evolve.

The 2001-2002 North Florida Section officers and board members are as follows:

### Officers

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Dave Snyder, PE  
Vice President  
Mariano Berrios, PE  
Secretary  
Billy Hattaway, PE  
Treasurer  
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# National Board News

National board members met for a regular board meeting on April 27, 2001, at the Sheraton Baltimore North, in Towson, Maryland. National President Domenic Piccolomini presided over the meeting. The following are highlights of the committee reports and board actions:

## **Membership:**

There is an increase of 194 members since the January 2001 meeting, President Piccolomini reported. Total membership in ASHE now stands at 5,330.

## **President's Report:**

President Piccolomini attended ASHE section meetings and dinner events including Southwest Penn, Central Florida, and North Central West Virginia. He participated in the Board of Director's Meeting for Region 6 and attended the Delaware Valley regular dinner meeting.

A highlight of Piccolomini's activities was his attendance at the Pennsylvania Transportation Industry Spring Conference held at Hershey, Pennsylvania on March 16, 2001. He represented ASHE in the unveiling of the new Pennsylvania Partnership for Highway Quality Vision and Mission statements and participated in the signing of the rededication.

## **New Sections:**

Director Tracy Hill reported that a meeting is scheduled in Wheeling, West Virginia on May 9, 2001, with several local people who are interested in chartering a new section. President Piccolomini and Kevin Duris of the New Section's Committee will represent ASHE.

Director Ron Purvis will be working on a new marketing brochure this year in addition to compiling a PowerPoint presentation to aid in the start-up of new sections.

## **Conference Committee:**

**Conference 2001:** President Piccolomini noted that registration packages were mailed to all members in mid April, also additional information is available on the ASHE web page at "highwayengineers.org". Attendance is expected at 550 with many pleasurable spouse trips, an excellent technical program, and plenty

of fellowship opportunities for all.

**Conference 2002:** Director Stuttler reported that plans are progressing well to host the conference in Erie, Pennsylvania with an "Intermodal" theme. The Board was invited to hold the October meeting at the Avalon Hotel in Erie in support of the upcoming conference.

**Conference 2003:** Director Hochevar reported that Region 1 went through a selection process to determine the best suited section to host the conference with Cuyahoga Section being selected. This will be a Regional Conference that will be held in the Akron, Ohio area.

## **Technical & SCANNER:**

Director Peda reported that the Winter issue provided notice of the new advertising rates and that a new "Ad Rate Mailer" and contract was being printed for distribution to the Sections by the next Board meeting. This was a record 22-page format thanks to the support of the Sections and advertisers.

## **Web Site Committee:**

Director Peda reported that the updated ASHE web page was released on April 20, 2001 having a very expanded format. Work is in progress to add the "Section's Operating Manual" and the "ASHE Strategic Plan". Also, the Harrisburg and Carolina Triangle Section web pages were approved by the Web Site Committee and linked to the ASHE page. Come visit our new look at "highwayengineers.org".

## **Society History:**

Steve Lester provided a draft "ASHE History" document that was compiled by his committee composed of several ASHE National Past Presidents. The Board members were asked to provide comments by the summer conference and any ASHE member is invited to provide photographs of our past events to add value to this fine document.

Goals of this committee are to distribute two books to each Section and to put portions of it on the ASHE web site. Publication is scheduled for fall 2001. ■

# THE SCHUYLKILL RIVER BRIDGE/DIAMOND RUN VIADUCT PROJECT

By I. Victor Warnquist, P.E., Urban Engineers, Inc.

In 1998, the Pennsylvania Turnpike Commission (PTC) began modernization of 1.8 miles of the Pennsylvania Turnpike between Valley Forge and Norristown. The widening of the Schuylkill River Bridge, as part of this contract, constituted a major technical challenge for the PTC and Urban Engineers, Inc., the Designer, Construction Manager, and Construction Inspector.



This project involved rehabilitating the existing westbound bridge and "shoehorning" a new 1224-foot long eastbound bridge between the existing Turnpike right-of-way and an existing Conrail railroad bridge just 55 feet south of the Turnpike. Additionally, foundations for the new bridge were built in a Karst limestone area; steelwork spanned an active SEPTA commuter rail line, the Schuylkill River and State Route 23; the Diamond Run Creek was diverted for construction of new abutments and piers for the Conrail Bridge; a 660' long viaduct was replaced with fill between two bridges; and 3000 cubic yards of compaction grouting were placed in a void under a new abutment; all while four lanes of traffic were maintained throughout the project.

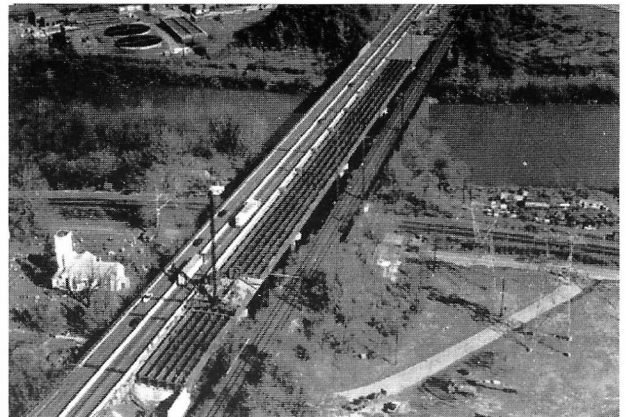
Upon completion of the project the new Schuylkill River Bridge carries eastbound traffic and the existing improved bridge carries westbound traffic. Two of the three new travel lanes in each direction were opened after construction.

The PTC called this project "the most complex in the Commission's history." The technical aspects of this project were such that a high degree of engineering, innovation and construction resourcefulness were required.

Significant features concerning this project as constructed by IA Construction/Tony DePaul & Sons, Inc., A Joint Venture (IA/DePaul) included:

- **Abutment and Pier Design and Construction in a Complicated Karst Setting**

This Norristown-Valley Forge locality has a unique transitional geologic setting. Three formations of Cambrian rocks have been altered, fractured, and deformed in the geologic history. The final result is a



complicated Karst setting characterized by significant rock voids, boulders, sloping rocks, and numerous faults.

As a result of geotechnical analyses, the Schuylkill River EB west abutment and Piers 1 EB through 3 EB were founded on 30" caissons, 30' to 80' deep, with 36" sockets; the Schuylkill River Piers 4 EB and 5 EB and the east abutment used spread footings; the Conrail Bridge piers and east abutments, and the west abutments on

*continued on page 10*

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# Drivers, Welcome to the 21st Century!

by Mark Owens, P.E., ASHE Central Dacotah Section

"Computer, tell me what the road conditions and weather will be like 60, 120, and 180 miles ahead of my present location". Does this sound a little like a science fiction traveler in the distant future on a highly automated highway system? Maybe, but the ability to do just this exists today in the first rural in-vehicle information system in the United States. Both North Dakota and South Dakota travelers have enjoyed the ability to use their cellular phones as "long range sensors" since November 1, 1996. Upon telling the system where they are, they receive a road condition and weather forecast report reaching out in front of their current location along a state highway or interstate that provides highway specific information in their direction of travel. This system known as #SAFE?, is the nations first rural en-route traveler information system and is provided as a part of the Advanced Transportation Weather Information System (ATWIS).

Begun as a research project in July 1995 at the University of North Dakota's Regional Weather Information Center, ATWIS set out to demonstrate how current technologies in mesoscale weather forecasting and analysis could be effectively merged with telecommunications and road condition monitoring to produce a safer and more efficient transportation system. This goal was accomplished through two key objectives: an en-route traveler information system for commercial and general travel, and information designed to improve resource planning for highway maintenance activities.

According to the U.S. Department of Transportation, 80 percent of the road miles in the United States are located in rural or small urban areas and account for about 60 percent of all traffic fatalities. With these facts in mind, ATWIS was developed to enhance the efficiency and safety along these rural highways through America.

At issue in the Northern Great Plains are the extremes in weather that are experienced every day. With wide-open spaces and vast distances between cities and towns, weather and road information can save time and lives.

From summer temperatures in the 100s to winter blizzards, driving in North Dakota and South Dakota becomes a skill necessary to a very special way of life here. For the first time in the history of North Dakota's interstate system, the complete interstate system was closed not

once but twice during the first six months of operations for #SAFE?.

Forecast and road condition reports provide drivers with up-to-the-minute site-specific information about the road and short term forecasted weather conditions for 27,000 plus road miles across North Dakota, South Dakota, and Minnesota. Forecast and road conditions are updated 24 hours a day, 365 days a year. Travelers access the system by dialing # 7233 (Pound sign 7233) or (#SAFE?) on their cellular phones. After answering 3 or 4 questions about their location and direction of travel, the system provides the latest road/weather conditions available for approximately one hour driving time utilizing Interactive Voice Response (IVR) technology. Each forecast is direction specific based on the traveler's planned destination.

The ATWIS system also assists each state's Department of Transportation by reducing maintenance costs through better planning. Each day transportation district forecasts are prepared and e-mailed directly to the 2 transportation districts for manpower and equipment planning. Area and state-wide forecasts are also available over the World Wide Web for viewing by the general public.

With approval by the Federal Communications Commission (FCC) for the activation of a nationwide 511 traveler information number, #SAFE? is undergoing a number of enhancements. World Wide Web access and additional information on hotels, restaurants, hospitals, rest stops, services, road restrictions, and height clearances will be added as options during 2001. #SAFE? directly addresses a number of the questions the FCC left the states to answer. Financing, continuity for the user across a regional system, operating location or locations, and cost were all considered during development. Now, completing its fifth year of operation, #SAFE? is meeting the challenges of providing a complete traveler information system within a single state or a region of states by finally bringing ITS advancements to the public.

For additional information about #SAFE? or ATWIS, please contact Mark Owens at 701-777-6519. To speak to highway personnel using the maintenance portion of ATWIS, please contact Edwin Ryen at 701-328-2545.







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# PENNSYLVANIA SETS AGENDA FOR SOUND LAND USE

by George H. Willis, PE, Urban Engineers, Inc., ASHE Franklin Section  
Quoted from the Pennsylvania Constitution Section 27 (Adopted May 18, 1971)

## "Natural Resources and the Public Estate:

"The people have a right to clean pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."

In June 1997, Governor Ridge established the 21st Century Environment Commission to recommend methods and policies that would improve environmental quality in the Commonwealth. The intent was to enhance economic and social progress. Among the Commissions specific recommendations, one gave top priority to the challenge of promoting responsible land use.

Existing trends nationwide and in Pennsylvania showed communities struggling to manage rapid growth as a result of the economic prosperity of the times. Land was frequently committed to new uses, often in ways which would not enhance our environment nor the long term regional economics. Pennsylvania's problem was very specific. From 1992 to 1997 the Commonwealth was converting cropland, forests and other open space to development at the second highest rate in the nation.

In January 1999, Governor Ridge issued executive order 1999-1 citing Pennsylvania's sound land use policy objectives. Following, in February of that year, the Governor proposed the "Growing Greener" budget initiative designed to refocus environmental spending to promote sound land use, enhance natural resources and to implement a watershed approach to protecting Pennsylvania's environment. This initiative became law in December 1999 providing funding of nearly \$650 million for the next 5 years to preserve farmland, create greenways and trails; and protect open space.

The power to plan for development and regulate land use is primarily vested in the local municipal entities by the Municipal Planning Code (MPC). The State agencies also play a role because so many projects are reviewed for funding, regulatory approvals, or permits.

To help develop the Governor's land use policy in Pennsylvania a series of 53 public land use forums were held statewide in the summer of 1999. Input was received from the public on current practices, problems; and included significant general discussion. Concurrently the Governor appointed representatives from across Pennsylvania to the Sound Land Use Advisory Committee. This committee was charged with producing an inventory of Land Use in

Pennsylvania, demonstrating various practices and tools.

In Pennsylvania, the Governor's Center for Local Government Services (<http://www.dced.state.pa.us>) is the primary agency responsible for land use assistance and monitoring. Utilizing the forum information, the inventory, and other resources, the Governor's Center in January 2000 made three primary recommendations which were successfully implemented in 2000.

1. Changes to the MPC relative to locally designated growth areas, multi-municipal transferable development rights, and promoting general consistency. Act 67 and 68 of 2000 provided these changes.
2. Promote Land Use education and training under a stateside program including an inventory of educational opportunities. Statewide Growing Smarter Courses are offered and Center maintains a website.
3. Promote Planning Assistance through increased funds and technical support. Specifically \$3.6 million through LUPTAP Grants and Technical Assistance.

Of significance to the Pennsylvania Transportation Industry are some of the effects from implementation of Acts 67 and 68 to the MPC. The first State agency to respond was the PaDEP. A September 2000 correspondence to local Government officials from DEP Secretary James Seif, noted the DEP will now require municipalities and developers to submit with all permit applications, information on consistency or conflicts with county land use ordinances and comprehensive plans. Quoting from the letter "These steps affect permit applications reviewed by DEP for new facilities – buildings and structures – and infrastructure – transportation, water, wastewater, stormwater, energy, and communication services." Community growth must now be consistent with the Commonwealth "Grower Smarter" initiative. The reality of this statement is, that the DEP, in concert with local municipalities, now has the option to deny a permit application that conflicts with local land use ordinances. This ability brings a new set of controls to the local community for managing growth.

The smart growth initiative will have far reaching consequences throughout Pennsylvania. If you would like more information check the website at: <http://www.landuseinpa.com> To quote from the Governor's Center 2000 Annual Report on Land Use, "There is great promise in the number of individuals and communities working together to support and promote land use planning." This is the nations leading edge in responsible land use planning which will drive revitalization in Pennsylvania." ■





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# DOREMUS AVENUE RECONSTRUCTION AND BRIDGE REPLACEMENT

by Thomas W. Anella, P.E., Parsons Brinckerhoff-FG, Inc.,  
and Robert DiBartolo, P.E., New Jersey Department of Transportation

In 1994 the New Jersey Department of Transportation (NJDOT) selected Parsons Brinckerhoff for the design of the replacement of the Doremus Avenue Bridge over Conrail's Oak Island Railroad Yard in Essex County, New Jersey. The bridge spans over thirty-three (33) active rail tracks. This rail yard is one of the busiest yards east of the Mississippi River. Doremus Avenue provides the primary north-south access along the City of Newark's waterfront industrial area east of the NJ Turnpike and also serves as a primary access to and from the shipping terminals located in Port Newark and Port Elizabeth. These ports are major facilities located within New York-New Jersey harbors.

The existing bridge, originally built in 1918, was functionally obsolete and structurally deficient. It has two lanes and an AADT of over 8,500 vehicles, with over 40% of the total traffic consisting of heavy trucks. The north abutment was reinforced in 1919 with the construction of an additional section of footing on piles placed in front of the just-built full height wall to contain lateral movement due to substantial settlement. Differential settlement had also occurred throughout the entire length of the bridge. Most of the settlement appears to have occurred just after the completion of the original bridge. This settlement is attributed to an undetected soft compressible layer of clay and organic peat beneath an upper layer of sand and silt, into which the original timber piles were driven. The entire superstructure was raised in 1929 to provide additional vertical track clearance. The current structure's profile is like riding on a roller coaster.

An interesting historical side note to this bridge is that the eighteen (18) independent simple span through-girder structures [which vary in length and size] were transplanted from other railroad structure sites throughout the Northeast corridor area by two railroad companies, the Pennsylvania Railroad and the Lehigh Valley Railroad, each of which were responsible for half of the bridge's construction.

The new bridge will be 401m (1315') in length and the overall project improvement limit is 1755m (5758') in length. The superstructure consists of three 3-span continuous welded plate girder units. The curb-to-curb width of the roadway and bridge will be 19.2m (63'), consisting of two 3.6m (12') lanes and a 2.4m (8') shoulder in each direction. The roadway width will increase to 22.8m (75'). The bridge cross-section includes a 2.1m (7') extension beyond the bridge parapet of the west fascia to carry a 610mm (24") diameter water main and a 254mm (10") diameter

sanitary sewer force main across the bridge.

The proposed south approach roadway grade rises from the relatively flat 0.610 percent to 3.90 percent, and then flattens slightly to 3.682 percent to the crest of the bridge. The north approach roadway grade falls from the crest of the bridge at 4.244 percent and flattens slightly to 4.045 percent before reaching the base of the bridge at 0.615 percent.

During the final scope development and preliminary design phases of the project, NJDOT design practice specified the use of

working stress design (WSD). With the introduction of AASHTO's Load and Resistance Factor Design (LRFD) specifications, the Department decided to evaluate the merits of this new design methodology through the redesign of the Doremus Avenue Bridge Replacement project.

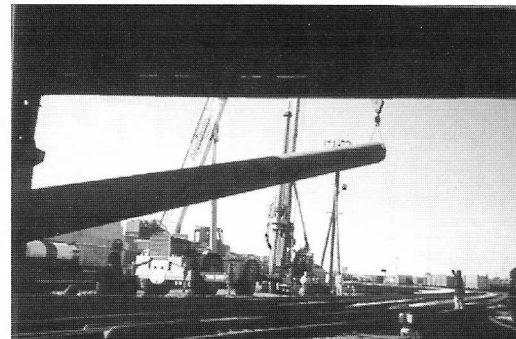
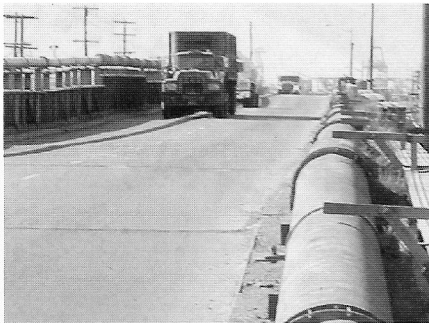
This was the first time that the LRFD specification was used in New Jersey.

Some interesting facts learned from the design and during construction are:

- NJDOT used this project as a pilot program to establish the state's LRFD criteria for use on the Doremus Avenue Bridge replacement and for all future bridge designs within the state.
- Anticipated settlement on the south approach embankment (> 3') was addressed with a substantial wick drain program combined with a

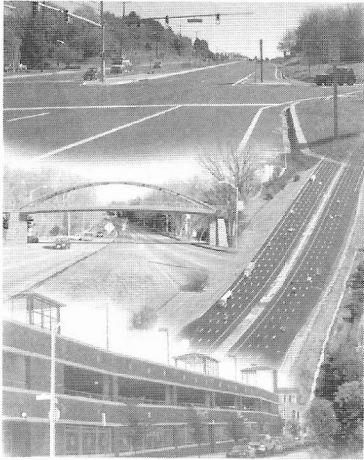
16-month surcharge period and the use of Lightweight Cellular Concrete Fill material (a First in the state).

- The pier foundations are 6-shaft, 1220mm (48") diameter drilled caissons approximately 27m (90') in length and socketed 3m (10') into the rock layer.
- In collaboration with Rutgers University, one of the 3-span continuous units and its associated substructure units will be fully instrumented to monitor actual stress levels, both during and after completion of the structure, for three years. In addition, a Weigh-In-Motion system will be permanently installed in the south approach roadway to accurately gather vehicle loading information. The information collected will be used to compare the actual stress levels in the structure against the original LRFD anticipated levels. If conclusive evidence is found that actual stress levels are significantly different from those anticipated, the current LRFD specification may be modified to reflect more accurate structural element responses.





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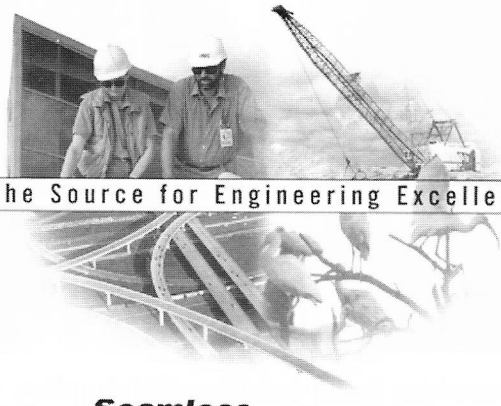
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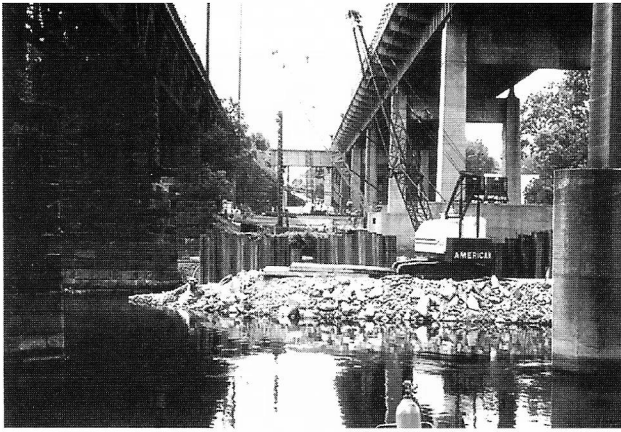
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Conshohocken Road were founded on piles; and the Conshohocken Road east abutment was supported on 3000 CY's of compaction grouting.

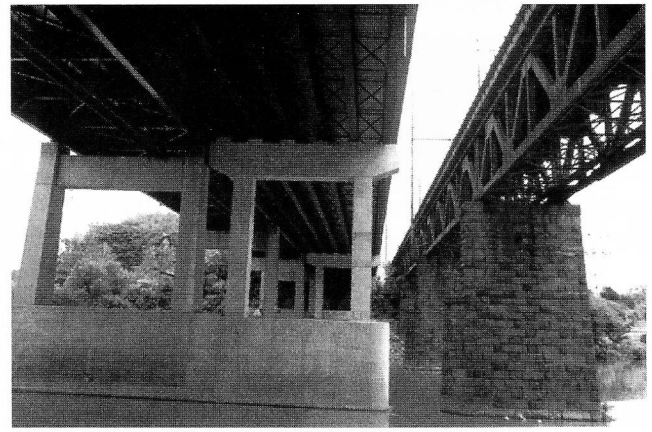
♦ **EB Structural Steel Erection of Girders**

On this project, EB structural steel girders on Spans 6 through 1 needed to be erected by crane and traveler over SEPTA, the Schuylkill River, SR 23, and Fourth Street. This girder bridge was located in a 55' slot with active PTC traffic on the north and the Conrail Bridge, including a 13.8 KW electric service line, to the south.

In order to erect Span 6 steelwork, the PTC allowed a weekend outage in their special provisions. After raising Span 6 by a crane, a platform derrick/crane combination erected 90' to 130' girders at night delivered directly to the existing bridge EB travel lane.

♦ **Rehabilitation of the Existing Bridge (New WB)**

Some of the more complex engineering and construction issues on this project were the removal of the existing concrete deck, originally placed in 1953; the jacking of sections of this 11-span, 1224' deck; dismantling of the existing 3' high fixed and expansion bearings; placement



of a 2.5' concrete pier stem extension; erection of seismic isolation bearings; and jacking down of the bridge steelwork to these new bearings.

♦ **Schedule**

Since this project had a \$20,000 per day Incentive/Disincentive clause the schedule was "king". Urban updated the schedule with IA/DePaul bi-weekly and presented these results at each succeeding bi-weekly progress meeting. If work approached the critical path, IA/DePaul was ever aware of the situation and worked men and equipment overtime to get work back on schedule.

The major goal at the onsite of work was to switch traffic from Stage 2 to Stage 3 on or ahead of schedule and after work started in Stage 3, to complete most deck pours prior to winter 1999/2000. IA/DePaul met or bettered all milestones.

This project demonstrates that the resourcefulness and management skills of today's engineers can overcome technological challenges. ■

## Altoona ASHE Hosts National Bridge Building Winners

Six National bridge building winners, all from the Mifflin County School District (the Lewistown area of Pennsylvania), were honored by Altoona ASHE members at the November meeting.



The students, along with advisors and school administrators, talked about the complications and frustrations leading up to the National Competition held in June at Atlanta, GA. The competitions, regional, state-wide and nationally, are sponsored each year by the Technology Student Association.

Kristin Aurand and Daniella Reynolds, now juniors, designed and built the winning bridge out of balsa wood to capture the 2000 Structural Engineering National Championship. There were 150 teams from high schools throughout the United States participating in this level of

continued on page 11



competition. All the competitors were in one large room, talking and working at the same time.

The girls said the competition began when they were given the specifications for the bridge, the materials and told they had 2½ hours to design and complete the structure. In past competitions, the girls were able to carve the thick pieces of balsa wood in order to lower the structure weight, but one of the stipulations this time was "NO CARVING."

"At first we panicked," the girls said, "and we thought we didn't have much of a chance." Knowing that the secret was to keep the bridge weight low since the formula used to determine the winner (strength of the bridge before breaking) was the weight of the bridge verses the weight it can hold. After discussing several methods, the girls decided to take a straight pin and "hollow out" the structure pieces.

The strategy worked and the bridge, weighing just ounces, held 19.9 pounds before it broke apart. The girls were the National Champions.

Another pair of first place winners, Matt Aurand and Cyle Vogt from the Strodes Mills Middle School of the Mifflin

County School District, captured their division by building a structure that stayed together holding 42 pounds before it broke apart. The second place winner was far behind at 34 pounds.

Prototypes of the two first place winners were passed around for the ASHE members to examine.

Two other students, Britney Watt and Chris McKee, won a 12<sup>th</sup> place award in their division. They are both students at Lewistown Middle School.

Accompanying the students to the ASHE meeting were the two advisors, William C. Aurand, J. Stanley Stuck, assistant superintendent, and Edward Curry, high school principal.

The students and advisors were presented certificates for their accomplishments, and the school district was presented a plaque, honoring the students, advisors and the school board members who provided all the financial support for the students and advisors to go to all the competitions. The presentations were made by ASHE Altoona Section President Joe Keller. ■



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## DOWNSIZING OF BRIDGE TECHNOLOGY

# FRANKLIN COUNTY, OHIO'S FIRST CABLE STAY BRIDGE

Mark D. Sherman, P.E., Franklin County Engineers Office

David W. Jones, P.E., Jones-Stuckey Ltd., Inc.

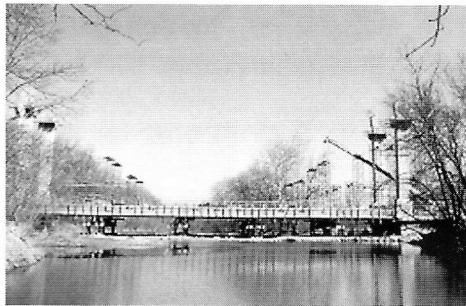
Can an owner ever justify building a bridge that costs 50% more than a standard bridge? As the environmental process becomes far too cumbersome to justify working against it, the use of longer span bridges may relieve the strain on the relationship between engineer and environmentalist. The bridge engineer must work outside his knowledge base to understand all ramifications of replacing bridges in sensitive environments. The bridge engineer needs to find solutions that shorten the project time, which includes the environmental process. In Franklin County, the Engineers Office used this theory to build its first cable stay bridge.

The bridge replacement for Beach Road over Big Darby Creek had several environmental issues to overcome:

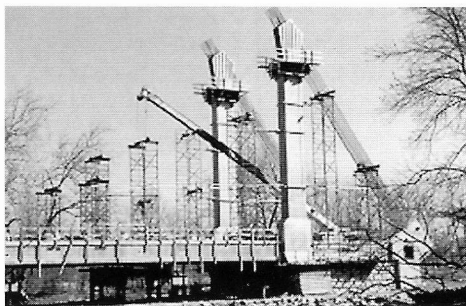
- ♦ The existing bridge was an historic wrought iron truss built in 1888. The single truss spans 175 ft. across the Big Darby Creek. The State Historic Preservation Office requested that the replacement structure relate to the historic nature of the truss and be the same language in design as the truss we were replacing. That is to say, it should be a single-span structure with above-deck supports leaving the river channel open and clear.
- ♦ The Big Darby Creek is both a State Scenic River and National Scenic River. For its protection, a well organized local group looks into any and all proposed work along the stream and its tributary.
- ♦ Wetlands located near the river did not allow for a significant modification to the roadway profile.
- ♦ The Big Darby Creek has no flood-control devices upstream from the site, resulting in very high peak water levels during storm events. The roadway profile would need to

be raised significantly in order to allow the 100-year discharge under a conventional bridge.

A single span bridge addressed all of these issues and was acceptable to all the opponents, but "Why a cable stay bridge at this location?" While the initial cost is more than an owner would normally spend on a bridge this size, several cost saving factors made this type of bridge an attractive solution. First, time and money was saved that would have been spent on a lengthy environmental evaluation. Second, the site had shallow bedrock that assisted in reducing the

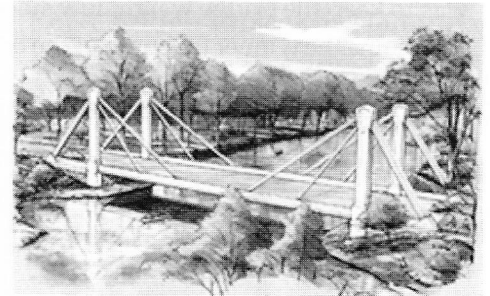


foundation cost. Third, there was no skew on the bridge, which made the super-structure geometry simple. Additionally, the overhead suspension system allowed the superstructure to clear the 100 year flood, and the



precast nature of the girders, floor beams and deck panels made for a relatively maintenance free bridge with a service life in excess of 100 years. It became obvious to those involved with the project that the two-tower (three span) cable stay configuration met all of the criteria for this application.

The new bridge is scheduled for completion in the spring of 2001. It consists of drilled shaft foundations for the towers and rock anchors for the end span tie-downs. The super-structure consists of prestressed, segmented, post-tensioned concrete



edge girders, with prestressed, post-tensioned concrete floor beams, supporting precast, stay-in-place deck panels. The deck is cast-in-place with high performance concrete. The cables of the bridge are actually high-strength steel rods that are grouted into a 4-inch diameter HDPE tube. These bar cables are anchored individually at the top of the towers and the bottom of the edge girders. The towers are cast-in-place concrete supporting a structural steel anchoring plate assembly, which is encased in concrete after the cables are installed. To provide for thermal movement of the deck and edge girders, the back-span edge girders have a vertical link assembly that allows movement in the girder while anchoring the cables vertically into the bedrock directly below the link assembly.

The bridge was engineered by Jones-Stuckey Ltd., Inc. of Columbus and is being constructed by C.J. Mahan Construction Company of Grove City, Ohio. It was a unique solution to a very environmentally sensitive site. With its beauty emanating from its structural design, the bridge will serve the citizens of Franklin and Madison Counties for a long time to come. ■

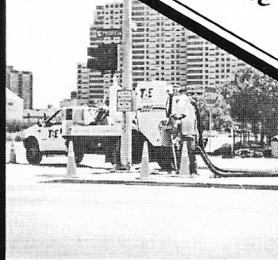




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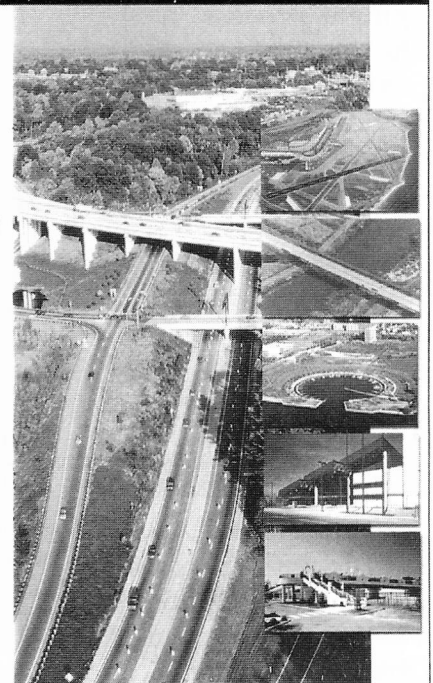
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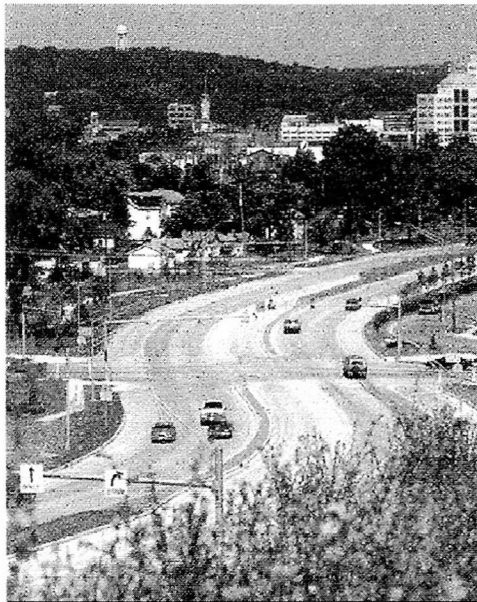
# ASHE TRIKO Valley Presents Prestigious Awards

by Ted B. Hubbard, P.E.-P.S., Section President

The TRIKO Valley Section of the American Society of Highway Engineer's (ASHE) proudly presented the first annual Donald C. Schramm Transportation Improvement Awards at its meeting on March 27, 2001. The Michael A. Fox Highway Project in Butler County, Ohio and the Five Mile Road Bridge Project in Hamilton County, Ohio were the award winning projects for the year 2001.

The ASHE TRIKO Valley Section membership is made up of contracting, consulting and governmental transportation professionals from southeast Indiana, northern Kentucky and southwest Ohio. The membership established the Donald C. Schramm Transportation Improvement Awards to recognize completed transportation projects that truly improve efficiency, safety and quality of life.

The awards were named after the late Donald C. Schramm, P.E.-P.S. who was a leader in the transportation engineering field and in Hamilton County government. He served as the Hamilton County Engineer in the Cincinnati area from 1973 to 1992. Mr. Schramm and his administration made every attempt to hasten the completion of the Ronald Reagan Cross County Highway Project through the very complex Federal-aid development process. The personal and professional attributes displayed by Mr. Schramm during his tenure inspired the ASHE TRIKO Valley Section to name the Transportation Improvement Awards in his honor.



**The Michael A. Fox Highway Project,  
Butler County**

The Michael A. Fox Highway was named the award winning project for the "over \$2 million" category. The \$158 million facility provided the long awaited freeway connection from the City of Hamilton, Ohio to Interstate 75 through central Butler County. The work also included the creation of six acres of

wetlands, a wetlands park, and a critical link of a planned bikeway system. The project owner was the Butler County Transportation Improvement District, which utilized innovative methods to finance and administer the construction of this most needed facility which saved taxpayers approximately \$562,000. Kokosing Construction Company Inc. was the general contractor. KZF Design Inc. and LJB Inc. provided engineering design services.

The Five Mile Road Bridge Project in Hamilton County, Ohio was named the award winner for the



**Five Mile Road Bridge Project,  
Hamilton County**

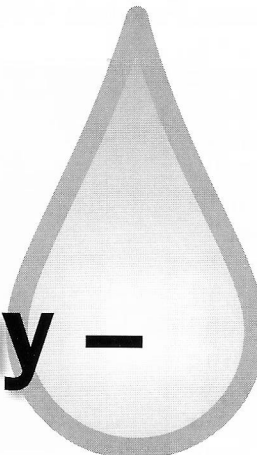
"\$2 million and under" category. This \$651,000 project included the replacement of an existing concrete deck with a revolutionary new lightweight Fiber Reinforced Polymer Composite deck. The application of placing composite deck panels over concrete beams was the first of its kind in the country. This new impermeable, corrosion proof, high strength superstructure could last for more than 100 years. The project owner was the Hamilton County Engineer's Office. Ft. Defiance Construction and Supply Inc. was the general contractor. LJB Inc. provided engineering design services.

The ASHE TRIKO Valley Section is pleased to recognize the above noted projects through the Donald C. Schramm Transportation Improvement Awards Program. The organization looks forward to recognizing future projects in years to come that provide positive benefits to the traveling public and region.

Questions should be directed to the undersigned at (513)-946-8903. ■



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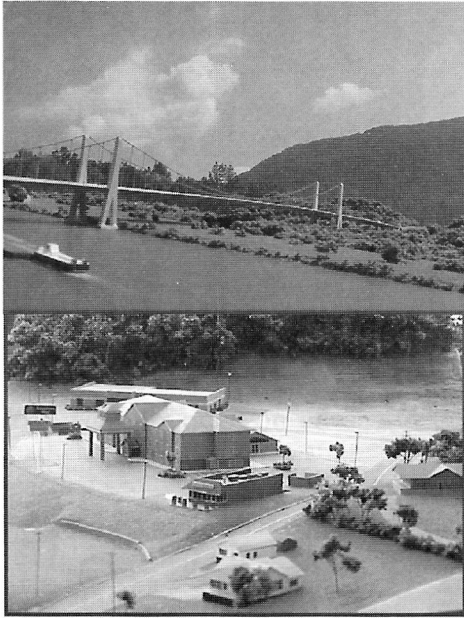
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## Old Dominion Section News

by John A. Stuart, President, ASHE Old Dominion Section

A presentation was given on May 2nd, on two new valuable technologies in the world of engineering and surveying: Topographic Scale Models and New Surveying Technology. Presented by Mr. Robert H. Tuck, President of Tuck Engineering, Inc. Tuck Engineering has developed a method of cutting scale models of engineering plans superimposed over digital mapping that can be as detailed as necessary to show a completed project. Pictures of a model are shown below. Mr. Tuck also provided a review of airborne laser mapping, an emerging technology in the field of remote sensing that is capable of rapidly generating high-density, geo-referenced



## THE RBA GROUP CONDUCTS TRAFFIC CALMING SEMINAR FOR THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION

**New York** – The RBA Group was awarded a contract by New York State Department of Transportation (NYSDOT) to develop and conduct six Traffic Calming Training Seminars across the state. The seminar is a two-day effort that educates New York state employees on the history and application of traffic calming. In February 1999, the NYSDOT adopted a new chapter in their Highway Design Manual, entitled *Chapter 25 – Traffic Calming*. Interest in traffic calming has grown tremendously over the years on both a community and government agency level. A number of states/municipalities, including New York State, have shown a great deal of interest in the benefits of traffic calming. Four seminars have successfully been completed in Buffalo, Hauppauge, Rochester and Syracuse. Two more will be held in Westchester and Albany, for completion at the end of May. Each seminar is led by a team comprised of the following highly skilled staff at The RBA Group: Linda Reardon, Director of Highways; Jackson Wandres, Principal Landscape Architecture/Planner; Mike Dannemiller, Transportation Planner; and Donna Madey, Director of Planning. Upon completion of these seminars, The RBA Group will conduct a "Train the Trainer" course where they will instruct ten NYSDOT employees how to teach this traffic calming training course to their co-workers. This will permit NYSDOT to continue this course internally.

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### WEBSITE

Get ready! The official launch of the Old Dominion Section website is right around the corner. The website will be a great resource for getting updates on section activities including our schedule of upcoming events, scholarship information and links to useful transportation industry websites. [www.\\_\\_\\_\\_\\_.org](http://www._____.org) (any guesses?)

We had an excellent presentation provided by Mr. Phillip Shucet of Baker Engineers on the Hampton Roads Third Crossing (HRTC) Project which he has been involved with for over eight years. Mr. Shucet gave a review of the extensive planning effort that has gone into the HRTC from its beginning to present. It is a certainly a monumental project for transportation in Virginia.

Everyone has been ready to get back out to the Route 895 project for a field trip but we are going to wait until late summer so that we can see some **roads**, drainage structures and bridges this time. Many members are looking forward to have The VDOT Stream Team providing a presentation on stream restoration on July 11. Some other activities are in the planning stages including a technical seminar. There has also been some discussion on having a more social (family), fun, non-technical activity this year. Any new and creative ideas out there? ■

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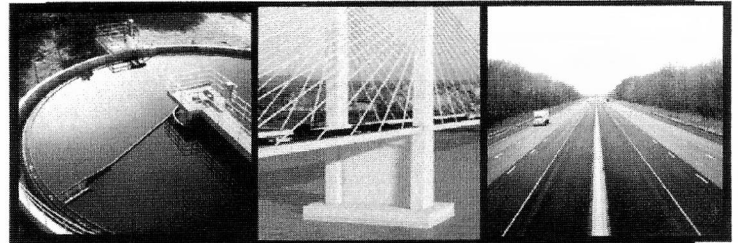
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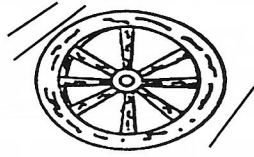


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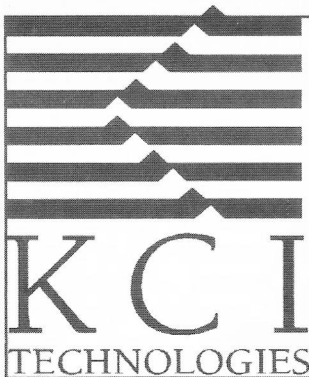
## AS THE WHEEL TURNS...



**Chester L. Allen, P.E.** was recently named Engineer of the Year for 2001 by the Central Pennsylvania Engineers Week Council. He is senior vice president and director of transportation at Gannett Fleming, an international consulting engineering and construction management firm.

Allen was recognized for his outstanding contributions to the engineering profession and its principles of practice during the Council's National Engineers Week banquet celebration held at the Holiday Inn Grantville on February 22, 2001.

**D. Craig Camp** has joined the San Diego office staff of Haley & Aldrich as a Senior Engineer and member of the firm's Tunnels and Trenchless Technology Team. With over 21 years of experience in underground construction, Camp's expertise encompasses all phases of microtunneling and trenchless technology including planning, design, construction, and issue resolution.



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## Ted Stitt — Current Past President of the Central Ohio Section 1946 - 2001

Theodore J. Stitt, age 55, of Westerville, passed away Tuesday, January 16, 2001 at University Hospital, Columbus. He is retired from the State of Ohio, ODOT after 28 years service. Mr. Stitt served as the Director of Transportation for ms consultants, inc. In this capacity he managed multidiscipline teams of highway, structural and traffic engineers, drainage specialists and environmental planners on a wide range of transportation projects in Ohio. He also had the corporate responsibility to ensure that transportation services are state-of-the-art. Additional responsibilities included a growth of market share. Mr. Stitt was a 1968 graduate of Youngstown State University. His work experience included: 1991 to 1992 Planning & Design for ODOT; 1988 to 1991 acting Deputy Director, Division of Planning & Design for ODOT, statewide responsibility for monitoring project development through the Transportation Development Process, Chairman, Work Zone Traffic Control Task Force and special assignments; 1982 to 1987 Roadway Maintenance Engineer, Bureau of Maintenance Roadway Maintenance Section, Central Office, ODOT statewide responsibility for off pavement maintenance contracts, maintenance agreements and county ditch assessments; 1970 to 1982 Environmental Engineer, District Six, ODOT. His professional affiliations included the American Society of Highway Engineers, Central Ohio Section Officer, Engineers Club of Columbus, Member of TRB Subcommittee-AIF02 Environmental Analysis in Transportation, Ohio Transportation Engineers Conference Program Committee, Representative to Mississippi Valley Conference (1988, 1989, and 1990), Representative to AASHTO (1988, 1989, and 1990), and Zone Traffic Control Task Group (1987-1989). He received the 25 year service award from AASHTO and AASHTO Subcommittee on Design Service Certificate. Preceded in death by father Robert Stitt. Survived by loving wife of 33 years, Veronica; son, Joey Stitt of Westerville. ■

## Special Thanks

Additional thanks is appropriate for two articles in the recent 2001-1 SCANNER. Justin Smith provided significant information for the article and the graphic for 'North Shore Infrastructure - It's More Than New Stadiums', and Jeff Quay and Bob Grove provided the in-depth detail for the article 'Important New Transportation Corridor Opens In Pittsburgh'. Their respective efforts were invaluable to the creation of these articles, and was very much appreciated.

Geoffrey B. Nara, P.E., L.A.

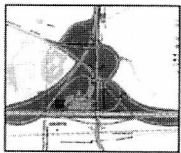


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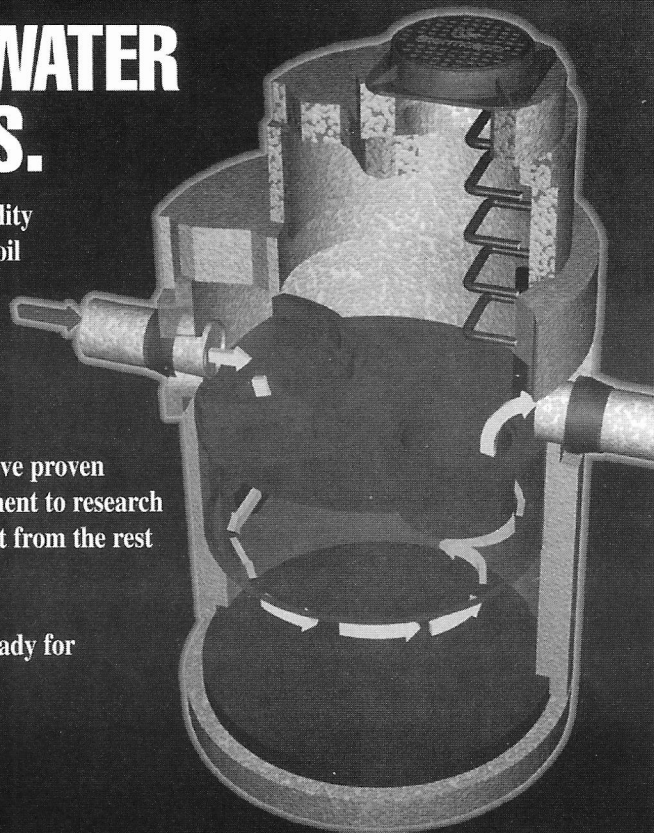
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