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PHILADELPHIA SECTION
AMERICAN SOCIETY OF CIVIL ENGINEERS
 P. O. Box 58186, Philadelphia, PA 19102-8186
 Electronic Message Hotline: (215) 934-3639 (24 hours a day)

Vol. 67-4

Our 81st Year

November, 1994

NOVEMBER DINNER MEETING

Philadelphia Section, American Society of Civil Engineers

THURSDAY, NOVEMBER 10, 1994

WILLIAMSON'S GSB Building • City Line Ave. • Philadelphia, PA (See Location Map Below)
 Cocktails – 5:30 p.m. Dinner – 6:30 p.m. Meeting – 7:30 p.m.

SUBJECT: THE CHESAPEAKE & DELAWARE CANAL BRIDGE ON S.R. 1, ST. GEORGES, DELAWARE

SPEAKER: Kenneth V. Butler, P.E., Engineer of Project Development, Figg Engineering Group, Tallahassee, Florida

SPECIAL FEATURE: SWARTHMORE COLLEGE NIGHT

The ASCE Student Chapter, Alumni and Faculty of the Civil Engineering Department of Swarthmore College will be honored at this meeting. All Students, Faculty and Alumni are cordially invited.

TOUR ARRANGED AT BRIDGE SITE

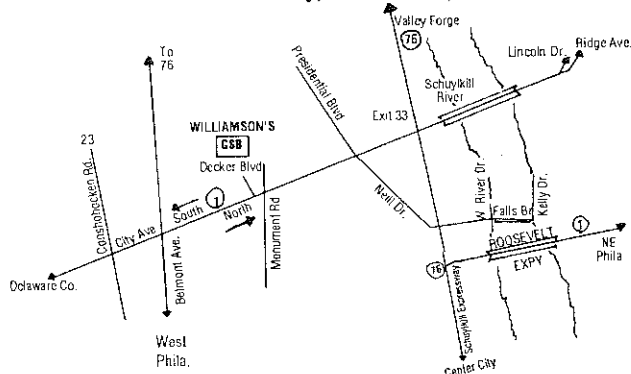
Through the efforts of Structural Group Chairman **Rich Roberts** and Past Chairman and Group consultant **Dave VanOcker**, a tour of the new Chesapeake and Delaware Canal Bridge, now under construction, has been arranged at the site, to be escorted by Figg Construction Services office. **The tour group will be limited to 30.** Attendees are requested to call Dave VanOcker's office for reservations (ask for **Rena Baker**, or leave message with number of attendees).

Everyone must plan to arrive at the bridge site by 3:00 P.M. (November 10, 1994). The tour will last about one hour, and we'll head back to Philadelphia by 4:15 p.m. for the dinner meeting at Williamson's GSB. The approximate drive time (as per the directions) is one hour from Philadelphia.

The 4,650' long Chesapeake & Delaware Canal Bridge on S.R. 1 is located between Dover and Wilmington, Delaware. The cable-stayed bridge was designed for the Delaware Department of Transportation. Two 12' deep precast concrete segmented box girders will carry the 127'-3" wide 545,560 sq. ft. 6-lane roadway deck from abutment to abutment. Typical approach spans are 150'. At the canal the

(Continued on page 2)

RESERVATIONS ARE REQUIRED. Please send your check for the number of attendees @ \$25 per member or guest; \$13 ASCE Student members, payable to Phila. Section, ASCE, P.O. Box 58186, Phila., PA 19102-8186; or call the Electronic Message Center: **(215) 934-3639** (open 24 hours/day). Deadline for reservations is **Monday, November 7, 1994.**



**LOCATION MAP
for
Williamson's
GSB Building,
City Line Ave.,
Phila.**

TECHNICAL GROUP ACTIVITIES

Transportation Group

November Meeting

Date: **Thursday, November 3, 1994, 7:00 pm**

Location: University of Pennsylvania, Towne Building, Room 337 (3rd floor), on Smithwalk, off 33rd Street, Enter from Smithwalk.

SPEAKER: Dr. Vukan R. Vuchic, Professor of Transportation, University of Pennsylvania

SUBJECT: "A Plan for Improving SEPTA's Regional Rail System"

Dr. Vuchic will present the findings of his paper prepared for SEPTA and the Mid-Atlantic Universities Transportation Center. SEPTA's Regional Rail System has an extensive network of seven diametrical lines. However, its ridership is only 90,000 per week-day, much lower than the riderships of recently built regional metrorail systems, such as BART, and WMATA. Dr. Vuchic will present some of the improvements that could be made that would be expected to result in significant ridership increases.

Come out and make this first Group meeting of the year a well attended one. Future topics and proposed field trips will also be discussed. *Light refreshments will be served afterwards.* For further information and reservations, please call **Greg Yates**, Chairman, Transportation Group, **(215) 923-5077.**

Geotechnical and Environmental/ Water Resources Groups

(Combined Program for 1994-95)

Program activities will begin by January, 1995. Watch THE NEWS for announcements.

An Important Message to Phila. Section, ASCE Members

Because of time constraints and other unavoidable printing, post office handling and processing delays in getting sufficient lead time for the Main Section Monthly Meeting notices, THE NEWS urges the members to **MARK YOUR CALENDARS FOR ALL THE REMAINING MEETING DATES AS PRINTED ON THE LAST PAGE OF EVERY ISSUE OF THE NEWS.** All Main Section Meetings, whether Dinner Meeting, Luncheon Meeting, or Tour are scheduled on the **second**

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THE PRESIDENT'S MESSAGE

The President's Message should appear in next month's (December, 1994) issue of THE NEWS.

November Dinner Meeting

(Continued from Page 1)

750 cable-stayed main span will provide a 138' vertical clearance and 450' horizontal clearance for navigation. Loads from the parallel box girders are transferred to the stays through delta frames placed every 20'. The bridge is scheduled for completion in the Fall of 1995. Total project cost is \$57,869,000 or \$98/sq.ft.

Kenneth V. Butler, P.E., received his B.S. in Civil Engineering from the University of Maryland in 1984. He is a Registered Professional Engineer in the State of Florida. In his present position, he is responsible for the planning and coordination of the firm's internal and external communications, including marketing and proposal development.

Mr. Butler spent two years as Senior Project Engineer at the C&D Canal Bridge. He was in charge of overseeing the inspection staff and reviewing contractor proposals with respect to construction analysis of the structure, erection procedures, and casting geometry. Prior to his assignment at the C&D Canal Bridge, Mr. Butler was a bridge designer in Figg Engineers, Inc. Southeastern Regional Design Office. While there, he worked on the design/analysis of major segmental and steel structures, including the main span pylons and foundations for the C&D Canal Bridge.

DIRECTIONS TO C&D CANAL BRIDGE FIELD OFFICE

Leave Philadelphia International Airport and head South on I-95.

Stay on I-95 South through Wilmington. It becomes JFK Parkway and there is a toll but you will exit before you have to pay a toll. Do not exit onto any of the Interstate spurs like I-495 or I-295.

Exit on Hwy 7 South towards Christiana Mall. This is Exit 4B.

Hwy 7 joins State Route 1 heading to Dover. Stay on State Route 1.

Follow the signs to Dover.

State Route 1 will end by merging into Highway 13 South. Stay on 13 South and in about 5 miles you will cross the C&D Canal in St. Georges, Delaware. This is the only large bridge you will cross.

You will need to be in the left lane and take the first left which is at the bottom of the bridge. This left will take you across 13 North and into the parking lot where the field trailers are set up.

Figg Construction Services is located in the Brown and Green trailers.

Phone number of the office (302) 834-9532.

1995 DANIEL W. MEAD CONTEST FOR YOUNGER MEMBERS

The Daniel W. Mead Prize for Younger Members was established in 1939 to honor the memory and accomplishments of the 67th President of the American Society of Civil Engineers. The talents of many of the leaders of the profession were first recognized in previous contests for this significant professional honor. The current contest provides another opportunity for alert young civil engineers to further their professional development and gain national attention.

Papers must be written on:

"Do Civil Engineers Have An Ethical Responsibility To Their Client At The Expense Of The Environment?"

RULES

- Authors must be Associate Members, Members or Affiliates of the Society 32 years of age or less on February 1, 1995.
- Only one person can write each paper.
- Each Section or Branch can submit only one paper.
- Paper must contain no more than 2,000 words.
- One winner may be selected from each of the four Zones and International membership of the Society.
- The national winner, selected from the Zonal winners, will receive a wall plaque and a certificate.

- The national winner may be invited to present his/her paper at the ASCE National Convention, San Diego, California, in October, 1995.
- The paper by the national winner will be submitted for publication in **Civil Engineering**.

By February 1, 1995, seven copies of each paper must be submitted through the Section or Branch Secretary to: ASCE Awards Department, 1015 15th St. NW, Suite 600, Washington, DC 20005.

Philadelphia Section Younger Members are urged to get to work on the Mead Competition. We are proud of our past winners and want to continue to be in the forefront.

Important Message

(Continued from Page 1)

Thursday of the month. Adequate advance notice will be published if there is any change in the schedule.

The staff of THE NEWS and the distribution team do their best to get the newsletter in the mail as early as possible before each meeting, but adequate lead times each month are extremely difficult to achieve. Thanks for your cooperation. Sincerely, Sid Robin, Chairman of Publications

MEMBERS IN THE NEWS

Phila. Section ASCE Past President (1986-1987) **Albert M. Tantala, P.E.**, recently gave a seminar on *Wind Engineering* at the Eastern States Sign Council (ESSC) Conference in Marlborough, Massachusetts. Mr. Tantala is President of Tantala Associates, Consulting Engineers, with offices in Philadelphia and Margate, NJ.

PHILA. SECTION, ASCE OFFICERS 1994-1995

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**COPY DEADLINE FOR
DECEMBER 1994 ISSUE
NOVEMBER 10, 1994**

OCTOBER DINNER MEETING

October 13, 1994

Williamson's GSB Building, Philadelphia, PA

Spectrum II Corestates Arena

By Bob Wright, Staff Writer

The Philadelphia Section, ASCE, inaugurated its 1994-95 season with an in-depth analysis of planning and design of the new Sports/Cultural Complex Spectrum II Corestates Arena, adjoining the existing Spectrum in South Philadelphia. Phila. Section President **William T. Thomsen** ably presided and Principal Speaker was **Anthony G. Rohr, AIA**, Project Designer, Ellerbe Becket, Inc., Architects and Engineers, Kansas City, Missouri.

Widener University Night

In keeping with the Philadelphia Section's policy of recognizing the ASCE Student Chapters and Civil Engineering Departments of area colleges and universities, the meeting honored Widener University. **Professor John Davis**, Faculty Advisor, and ASCE Student Chapter President **Renaldo Aponte**, thanked the Section for its courtesies, and described the busy and ambitious activities and planned programs for the Widener Student Chapter. President Aponte acknowledged his fellow Chapter officers: Vice President, **Matt Pugh**; Treasurer, **Tara Rocco**; Secretary, **Mark Roberts**; and other Chapter members in attendance: **Eric Littlehales**, **Angela Davia**, **Grayson Murray**, **John Lessig**, **Todd Kaufman**, and **Brett Endy**.

Mr. Rohr is Introduced

President Thomsen introduced **Anthony G. Rohr** of Ellerbe Becket Inc., Project Architects for the Corestates Spectrum II Arena, who was the meeting's featured speaker.

Mr. Rohr explained that his firm is currently involved in the design of new indoor arenas for various cities which have National Hockey League and National Basketball Association franchises. The Spectrum project was unique in that it would provide dual arenas, which would offer many capabilities for simultaneous sports and cultural events. There is a pronounced need for this because the existing Spectrum accommodates the largest number of events of any arena in the United States.

The site for the new arena was originally occupied by the John F. Kennedy Stadium. This outdoor arena, built in the 1920's, was dilapidated and rarely used. The design team was asked to save the former VIP entrance (the southernmost portal) and incorporate it into the new building as a historical gesture. The request has been granted.

Accompanied by a beautifully rendered set of architectural design drawings, in color (executed by Mr. Rohr and a staff of his assistants), Mr. Rohr presented a clear and detailed description of the planning and design processes of the Complex. He noted that the first proposals for the new arena angled it on a seven degree tilt from the north-south axis. This would permit entrances at the northwest and southeast corners to accommodate large crowds and allow them to disperse patrons efficiently around the arena. The building surrounding the arena would be oriented parallel to Broad

Street. A connector building between the Spectrum and the new arena would provide space for shops, restaurants and a large parking garage. Pedestrians and motor vehicles would be separated to the extent possible on the site to reduce conflicts and make the site pedestrian friendly.

As the arena design developed, it was determined that it would have a capacity of over 20,000 for hockey and would offer excellent sight lines for spectators. Over 60% of the seating would be on the lower deck. A number of suites and luxury boxes, the current major consideration for owners of arenas, would be provided, with 80 suites (capacity of 80-150 attendees), and 26 "skyboxes" on the upper level, to be included.

The Ramifications of Design

An office building adjacent to the west side of the arena was to be provided for the building owners, team owners, team management and other users. This was later deleted when it was learned that sufficient space for these needs was available in the arena proper. This change allowed the west elevation to become a glass-enclosed area, which permitted more natural light into the building and made it slightly more aesthetically pleasing.

Mr. Rohr showed floor layouts of the various levels. Multiple locker facilities were provided to accommodate various planned uses. Substantial areas will allow concessionaire storage, setup operations and other activities. Elevators and escalators will transport spectators throughout the various levels efficiently. Conference rooms will be constructed to offer corporate clients the ability to conduct business and attend sports functions in the same building.

Building materials will to some extent mimic the brown brick of the existing Spectrum, although much of the brick area will be more rectangular as opposed to the elliptical shape of the Spectrum. Glass and white metal panels will adorn much of the east and west facades to allow daylight to enter and offer a glow of sorts from interior lights at night. The structure itself is primarily steel, with precast concrete risers and treads in the stairwells, and a concrete roof which Mr. Rohr compared to the shape of a potato chip.

Connector Building Deleted

In the final recommendations, the connector building was deleted. The area between the arenas will be landscaped and some parking will be provided. Future plans may resurrect the original intent of the connector structure, but it was found to be economically infeasible at this time. The project will include some renovations to the existing Spectrum, which is beginning to show its nearly thirty years of use. Some thought may be given to major revisions in lower-deck seating arrangements to facilitate events such as theater-in-the-round and other similar cultural programs.

The entire site encompasses a total of 47 acres. Parking for 6400 automobiles will be provided on

the site in surface lots. The preserved south portal (previously mentioned) will be placed at the north end of the new arena and will again demarcate the VIP entrance to the building. It will serve as the entry to the main elevator bank to arena levels.

Mr. Rohr indicated that the total project cost is \$180 million, with the arena itself accounting for \$106 million of this amount. A total of \$29 million of the total is coming from public sources, most of it in the form of state grants. The construction is now underway and is hoped to be completed in time for the 1996-97 basketball and hockey seasons.

Question and Answer Discussion

Mr. Rohr competently fielded many questions and comments from the floor concerning the ambitious project.

President Thomsen offered the Section's collective appreciation to Mr. Rohr for his excellent presentation.

SECTION OFFERS PDH'S

The Philadelphia Section, ASCE, has begun to offer Professional Development Hours (PDH) credits for all attendees of Section meetings.

What is a PDH, you may ask? A PDH is a credit which recognizes the efforts of individuals to be technically current. It is offered for participation in technical activities.

At present, three states (Alabama, Iowa and West Virginia) require all Professional Engineers to acquire at least 15 PDH's per year as a condition of license renewal. Roughly a dozen other States currently are considering changes in registration law to require this. While no State in the immediate area of the Section is thinking about this, it is certainly a possibility in the near future. Almost every other profession requires continued professional development (CPD) as a condition of continued registration.

The Section has decided to begin the issuance of PDH's now in advance of any State action as an added benefit to our Membership. When you attend any Section meeting, you will be asked to sign a sheet indicating your attendance. However, the ultimate onus of tracking PDH's will fall on the individual. Thus, we ask that you keep track of your own PDH's. In the three States that require PDH's for upkeep of professional registration, the individual must attest that he/she has earned the required PDH's. No proof is needed. The Section will not have a mechanism to allow the members to double-check this. The Section cannot supply proof of attendance, certificates, records, verification, etc. later to substantiate an individual's attendance at functions. The recording system is for the Section's records only and the Section does not have the resources to assist individuals in this manner.

This is a major benefit to you, the member. The Section is happy to be able to offer it at this time. Keep in mind, also, that the number of PDH's earned is roughly equivalent to the number of hours spent at a function. For Main and Technical Group Meetings, the Section will generally offer one PDH for each. For longer seminars, this could total upwards of seven PDH's per event.

JOIN THE SECTION'S TECHNICAL GROUPS

Architectural Engineering

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STV Group
11 Robinson St.
Pottstown, PA 19464
(610) 326-4600

Liaison

George J. Stanley
SEPTA Systems Eng'g.
714 Market Street, 3rd Floor
Philadelphia, PA 19106
(215) 580-7060

Younger Member Forum

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West Chester, PA 19382
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110A Summit Ave.
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IMPORTANT! 1994-1995 MEETING NOTICES

MARK YOUR CALENDAR for the dates of the remaining Philadelphia Section, ASCE monthly meetings and social functions, as follows: (Check each issue of coming editions of THE NEWS for details, possible date and topic changes.) THIS IS A TENTATIVE LIST.

ALL DINNER MEETINGS (Except as noted for Luncheon Meetings)

Cocktails – 5:30 p.m. Dinner – 6:30 p.m. Meeting – 7:30 p.m.

STUDENTS: All dinner and/or luncheon charges one-half price. If you prefer, you are welcome to attend all meetings after dinner or luncheon, at no charge.

Thursday, December 8, 1993 – LUNCHEON MEETING

“Tour of the new Criminal Justice Center, Center City” (Arr. by Construction Group)
University of Pennsylvania Day.

Thursday, January 12, 1995 – Dinner Meeting, Williamson’s City Line

“Transportation Funding – Intermodal Surface Transportation Efficiency Act (ISTEA)” (Arr. by Transportation Group)

Thursday, February 9, 1995 – Harbour League Club, Camden, NJ

Joint Dinner Meeting with South Jersey Branch, New Jersey Section, ASCE
“New Jersey Infrastructure Program” (Arr. by South Jersey Branch & Construction Group).
Drexel University Night.

Thursday, March 9, 1995 – Dinner Meeting, Williamson’s City Line

“Sun Oil Co. Middle Creek Project” (Arr. by Environmental Group)
Villanova University Night.

Thursday, April 13, 1995 – Dinner Meeting, Williamson’s City Line

Joint Meeting with Society of American Military Engineers (S.A.M.E.)
“Philadelphia International Airport” (Arr. by Engineering Management Group)
Temple University Night.

Friday Evening, May 5, 1995 – Annual Spring Dinner Dance

Sugarloaf Conference Center, 9230 Germantown Ave., Phila., PA 19118

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CIVIL ENGINEERING - PE REVIEW WORKSHOPS

Saturday December 3, 1994; Saturday January 28, 1995; Saturday March 25, 1995; 8:30am to 4:30pm

As preparation for taking the CIVIL-SANITARY-STRUCTURAL Professional Engineering (PE) Examination, the Civil Engineering Department at Temple University is offering Saturday workshops for PE Examination Applicants.

The workshops are designed to supplement other preparation which may include well-selected graduate or undergraduate courses, self study, and more extensive PE Review Courses. The workshops are considered appropriate as an early start and as a final opportunity to develop or confirm readiness for the examination.

For Saturday, December 3, 1994 we scheduled a review of **Design, Analysis and Construction of Transportation Facilities; Surveying; Soils; Design and Analysis of Foundation and Retaining Structures**

For Saturday, January 28, 1995 we scheduled a review of **Hydrology and Hydraulics; Design and Analysis of Drainage/Flood Control Systems; Design and Analysis in Relation to Natural Water Systems; Structural Engineering; Design and Analysis of Buildings, Bridges and Special Structures**

For Saturday, March 25, 1995 we scheduled a review of **Sanitary Engineering; Design, and Analysis of Water Supply Systems, Waste Water Treatment Systems, and Solid/Hazardous Waste Systems; Transportation; Design, Analysis and Operation of Traffic Systems**

Each workshop includes a testing exercise with criteria-specific feed back from presenters highly qualified in the specific areas covered by the workshop. Refreshments, lunch, brief video-labs, notes, and reviews of PE-exam literature and exam requirements are also included.

REGISTRATION AND FEE

For each workshop, registration and a fee of \$100 are due **14 days prior** to the scheduled date of the workshop.

Substitutions may be made at any time. Full refunds will be made if cancellations are required and requested in writing **7 days prior** to the date of the workshop.

Additional information may be obtained by contacting the Civil Engineering Department at (215) 204-7814 (FAX 204-6936) or by writing to the address shown.

Workshop Location: TEMPLE UNIVERSITY,
Engineering Building: 12th & Norris Streets, Philadelphia
Parking Lot 6 (12th & Diamond Streets). The room number will be posted.

----- cut and mail -----

REGISTRATION FORM for the Civil/Sanitary/Structural Engineering - PE REVIEW WORKSHOP(S)

FOR Dec. 3, '94] Jan. 28, '95] Mar. 25, 95]

Name: _____

Bus. Phone: _____

Address: _____

Res. Phone: _____

Amount Enclosed: _____

Check Number: _____

Please make your check payable to "Temple University" and mail this form and the check to **Professor Stephen G. Jochum, P.E., Department of Civil Engineering, Temple University (084-53), Philadelphia PA 19122.**

Engineer-In Training (EIT) and Professional Engineering (PE)

EXAMINATIONS and PREPARATION

Temple University offers an EIT REVIEW COURSE on Fundamentals in Engineering (FE) and PE REVIEW WORKSHOPS for Civil, Sanitary, Structural Engineering and Professional Practice (PP). EIT & PE Examinations are scheduled for April and October of each year.

EIT/FE

The EIT examinations may be taken during the senior year or later and are the same for graduates in all disciplines. The EIT Review Course meets primarily on Tuesday evenings, starting early in January and finishing in time for the April Examinations. The 1995 EIT REVIEW COURSE fee is \$270 and includes a free text for those who register **prior to December 12, 1994.**

PE/PP

PE examinations are different for the various disciplines. To be admitted to the PE EXAMINATION, candidates generally need four years of practical experience in positions with increasing engineering responsibilities. With the necessary prerequisite knowledge, qualified individuals are encouraged to register (as matriculating or non-matriculating students) for well selected graduate and undergraduate courses, as needed. At Temple University, Saturday WORKSHOPS are scheduled to review material for the CIVIL-SANITARY-STRUCTURAL Professional Engineering Examination. December 3, 1994, January 28, 1995 and March 25, 1995 are now scheduled. Each workshop addresses a well selected section of the required topics and includes a video-lab and notes. The fee is \$100 per workshop.

REGISTRATION & APPLICATIONS

To obtain registration forms for the EIT REVIEW COURSE or the PE WORKSHOPS and on-campus access to video tapes for the PE workshops, you may write to the Department of Civil Engineering at the address shown, send a FAX to the attention of Professor Stephen G. Jochum, P.E. at (215) FAX 204-6936, or place a call to (215) 204-7814. To register for COURSES AT THE GRADUATE OR UNDERGRADUATE LEVEL, you may contact Dr. Frederick C. Schmitt at the same telephone numbers or at the following address:

Department of Civil Engineering
Temple University - 084-053
Philadelphia PA 19122.

In Pennsylvania the PE and EIT examinations are scheduled for October 28&29, 1994; April 7&8, 1995; October 27&28, 1995. Complete applications must be submitted 3 to 4 months prior to the scheduled date of these tests, which is **by November 30th for the April tests** and by June 30th for the October tests. To obtain the information and the **APPLICATIONS FOR THE EXAMINATIONS**, please contact:

Pennsylvania State Board for PE Registration
Post Office Box 2649
Harrisburg, PA 17105-2649
Phone (717) 783-7049 or (800)877-3926

Other states have similar requirements and some earlier and some later due dates for the completed applications. Details are available from the specific State Boards for Professional Engineering Registration.