

*And the winner is...*

## Engineering Excellence Awards 2007

ACECH's annual Engineering Excellence Awards competition serves as a forum for Hawaii's consulting engineering firms to show off their accomplishments. The Awards competition showcases the outstanding work done by engineering firms in Hawaii. These projects exemplify the best of the profession and underscore the widespread contributions by engineers. So high is the caliber of entries from our State, several Hawaii projects have gone on to win awards at the national competition. Judges consider the following factors: original or innovative application of raw or existing technologies; technical value to the engineering profession; social and economic considerations; complexity; and meeting or exceeding owner/client need.

### **GRAND CONCEPTOR AWARD:**

**FORD ISLAND WATERLINE REPLACEMENT**  
By Fukunaga & Associates, Inc.

A new 24-inch water line installed under the Pearl Harbor channel has greatly improved the performance and reliability of the Navy's water distribution system. The effectiveness of the new line and other related water system improvements has been seen in reduced energy costs associated with pumps operating within the Navy's system. NAVFAC Hawaii estimates that energy costs have been reduced by approximately \$50,000 per year, based on current energy costs. The water system improvements, installed as part of the \$12 million Ford Island Water Line Replacement project, supplement the Navy's existing 75-year-old primary transmission main.

The most challenging part of the project involved the crossing of the Pearl Harbor channel, adjacent to the Admiral Clarey Bridge. In order to avoid disturbing the sediment deposits on the harbor bottom that were feared to contain hazardous and/or toxic material, horizontal directional drilling (HDD) methods were modified to

install two separate pipe strings over water from each side of the channel. Two pipelines (3,100 and 2,800 linear feet) were floated and pulled over the waters of Pearl Harbor and then joined together underwater by divers using a prefabricated splice piece and the connection point covered with a special concrete matting system to protect and secure the waterline in its permanent position. In all, over 23,800 linear feet (4.5 miles) of new waterline was installed. The project was completed at a cost of \$12.0 million, well below the programmed budget of \$12.6 million. Much of the construction cost savings can be attributed to the innovative design of the under channel pipeline crossing.

### **EXCELLENCE AWARD:**

**WAIPAHU INTERMEDIATE SCHOOL CAFETERIA**  
By Lincolne Scott, Inc.

The Waipahu Intermediate School (WIS) Cafeteria is the first project for the State of Hawaii to incorporate sustainable design elements and achieve a LEED (Leadership in Energy and Environmental Design) certification from the US Green Building Council. By utilizing the natural energy systems at the site (solar energy, sunlight, and breezes), Lincolne Scott developed a design response that integrates mechanical and electrical systems within the building architecture. Some of these design elements include:

- Careful orientation of the building and shading to eliminate direct solar heat gain into the space.
- Incorporation of a natural ventilation system within the building architecture that allows ventilation through the occupied space; a thermal roof assembly that draws air through and removes heat from the space even on still days.
- Careful design and orientation of the windows and exterior shades to maximize the natural daylight while minimizing glare.

As a result of the above design elements, the WIS Cafeteria is expected to have an 81% reduction in energy consumption, a 74% reduction in potable water consumption, and a 333% improvement in outside air ventilation rate.

### **EXCELLENCE AWARD:**

**P-193 Waterfront Improvements for Wharves K10-K11**

By Wilson Okamoto Corporation

Prior to the revitalization of the K10-K11 Wharves, FISC operations were performed from various facilities, many of World War II era and in deteriorated condition, scattered throughout Pearl Harbor. The P-193 Waterfront Improvements at K10-K11 consists of three new distinct elements: 1) A reinforced concrete wharf on concrete piles with capacity to support heavy-weight supply container loading and unloading operations; 2) A staging area consisting of a pile-supported concrete relieving platform and concrete slab-on-grade, that can provide support for 25-ton forklifts, 50-ton mobile cranes, and the staging of containers and heavy equipment awaiting shipment; and 3) A steel-framed Waterfront Transit Shed to store cargo and provide offices for FISC personnel.

The design and construction of these structures had to integrate the reliability to provide a service life of over 50 years with minimal maintenance, in harsh marine environments and under heavy conditions of service. To ensure adequate performance of the new wharf structure, state-of-the-art structural models of the wharf were used to design the structure to withstand the wide range of loads, including the mooring forces of aircraft carriers and large cargo ships, to which the facility can be exposed. Due to the relatively poor soil conditions at the site, special attention was given to analyze and design the structure

*(continued on page 9)*





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Additions and/or corrections to the Wiliki mailing list should indicate the proper society, institution or association. Corrections to email addresses should be submitted to your society coordinator.

Laverne Higa

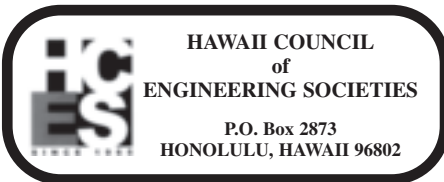
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**2007 MATHCOUNTS OAHU CHAPTER COMPETITION**

The 24th Oahu Chapter Competition was held February 10, 2007 at the Kamehameha Schools Kalama Dining Hall. It is considered a prelude to the annual Engineers Week, February 18-24. Participating were 32 public and private schools, including 221 Mathletes who competed in the Sprint, Target and Team Rounds.



*The first place Iolani Scholl team.*

**MATHCOUNTS** is a national math competition for 6th, 7th and 8th graders. Students compete individually in the Sprint Round solving 30 math problems in 40 minutes. Next comes the Target Round where students try to solve eight problems within approximately 30 minutes. The Team Round finishes the written portion of the competition. In this round students work together solving 10 problems in 20 minutes.

The National **MATHCOUNTS** Competition will be held Friday, May 11, 2007, at the Fort Worth Convention Center and Renaissance Worthington Hotel, Fort Worth Texas. Lockheed Martin again is the main sponsor for this national event. Last year they sponsored the event in Arlington, VA.

**THE RESULTS**

After the test sheets were scored and tallied it was determined that the following teams, listed first through sixth place, moves on to the State Competition on March 10, 2007: Iolani School (team members: Teresa Ou, Sam Savitz, Dustin Shigaki, and Tracy Young; coaches: Li Ann Wada and Annette Matsumoto); Washington Middle School (team members: Richard Chang, Julia Chen, Jonathan Huang, and Naoki Shigeta; coaches: Cynthia Ching and Lance Iida); Niu Valley Middle School (Victoria Kim, Amy Luo-Xu, Eun-Young Park, and Wataru Sugahara; coach: Joel Mochida); Highlands Intermediate School (Taylor Ishikawa, Jordan Komoda, Daron Lee, and Merrie Oshiro; coaches: Mark Yamashita and Sandra Sato); Punahou School (William Chen, Alda Lam, Nicholas Lee, and Sarah Loui; coach: Todd Chow Hoy); and Maryknoll School (Rikuro Fukusato, Derek Lee, Alta Li, and Tiffany Ramos; coach Lynn Mitchell). As you can see public and private schools were 50-50 showing the quality of our public schools' math programs.

The top ten individuals recognized as a result of the Sprint and Target Rounds were: First Place: Richard Chang of Washington Middle School; Second Place: Hao Chen of Iolani School; Third Place: Naoki Shigeta of Washington Middle School; Fourth Place: Sam Savitz of Iolani School; Fifth Place: Sarah Loui of Punahou School; Sixth Place: Adam Ching of Iolani School; Seventh Place: Dustin Shigaki of Iolani School; Eighth Place: Tracy Young of Iolani School; Ninth Place: Travis Le of Punahou School; and Tenth Place: Jordan Komoda of Highlands Intermediate School.

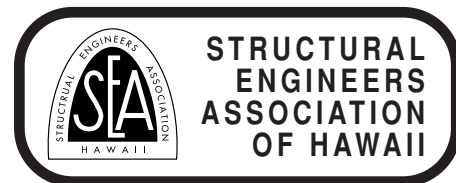
The final competition of the event was the Countdown Round where the top 12 scoring Mathletes competed in pairs against each other. This is a fast-paced, oral competition where the pairs of Mathletes compete against each other and the clock to solve problems, and calculators are not permitted. Jordan Komoda of Highlands was outstanding moving from his tenth place individuals ranking to take first place. Second place went to Sam Savitz of Iolani.

**THE SPONSORS**

The Hawaii Society of Professional Engineers (HSPE) sponsors the Hawaii competitions with significant support from Aloha Airlines, Hawaiian Electric Company, inc., and Kamehameha Schools. The participating HSPE members include Dr. Michael Chun, Queenie Komori, Ken Morikami, Barry Nakamoto, Lennie Okano, Guy Pasco, Jeff Pearson, Scott Seu, Carolyn Witcher, and Nathan Yuen.

**THE PROCTORS AND SCORERS**

Besides the students, coaches, HSPE, and the **MATHCOUNTS** Steering Committee, the competitions would not be possible without proctors and scorers. We recognize the following organizations who provide these volunteers for each competition: the American Society of Civil Engineers (leader: Jennifer Chang), the American Society of Mechanical Engineers (leader: Ron Flegal), Hawaiian Electric Company, Inc. (leader: Ed Chang), the U.S. Corp of Engineers (leader: Lou Muzzarini), SSFM International (leader: Kevin Nakamoto), and the Society of American Military Engineers or SAME (leader: Morgan LaRue).



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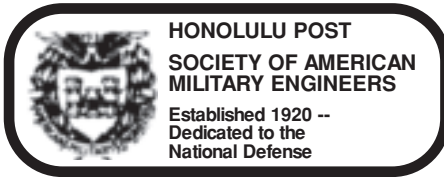
**HIGHLIGHTS OF BOD MEETING**

February 12, 2007

**Committee Reports:**

- General Membership Meetings/Technical Seminars/Events:
- AISC Seismic Design Seminar has been rescheduled to Summer or Fall of 2007.

*(continued on page 7)*



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#### 2007 SAME College Scholarship

The Society of American Military Engineers, Honolulu Post intends to award multiple \$2,500 scholarships to Engineering and Architecture Students for the 2007-2008 school year. For more information and the application, visit <http://posts.same.org/honolulu/> or contact CDR Roger Wykle at 808-541-2200 or email at [roger.n.wykle@uscg.mil](mailto:roger.n.wykle@uscg.mil).

#### Construction Camp Success Story

In 2005, the SAME Honolulu Post sent Joseph Ritt of Ewa Beach, to the United States Air Force Academy (USFA) Engineering Camp. The Post has just been informed that Joseph has received and accepted an appointment to USAFA and will

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proudly be a member of the class of 2011. "This is a really great success for both Joe Ritt and SAME Honolulu and a testament to how SAME Honolulu can help make a difference for young up-and-coming engineers", said Morgan LaRue, Youth Programs Officer for SAME Honolulu.

If you wish to learn more about the USAFA Engineering Camp or other SAME sponsored camps please visit: <http://posts.same.org/camps/#>.

#### ASCE History, from page 9

erected."

Do you know of a civil engineering accomplishment or event that your fellow ASCE members might find interesting? Please send a brief description to C.S. Papacostas (fax 956-5014, email [csp@wiliki.eng.hawaii.edu](mailto:csp@wiliki.eng.hawaii.edu)). Previous articles in the series may be found at the Section's web site. Just point your browser to <http://www.ascehawaii.org>.



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#### Hawaii SFPE Seminars

The Hawaii Chapter of the Society of Fire Protection Engineers is sponsoring these two excellent seminars through a special arrangement with the National Fire Sprinkler Association. These seminars will be very useful for those responsible for sprinkler plan review, plan preparation, or inspection of fire sprinkler systems.

Date & Time: Seminar 1 - March 28 & 29, 2007  
7:30 AM - 5:00 PM Seminar 2 - March 30, 2007  
7:30 AM - 5:00 PM

Location: Honolulu Fire Department Headquarters, 636 South Street. Parking is not available at the facility.

Deadline: The registration deadline is Friday March 23, 2007. Please register early as we expect this to be a very popular seminar. Reservations and cancellations will not be accepted after that date. No shows will be billed for full attendance. Telephone reservations will be accepted provided they are followed by written confirmation.

Who should attend: Fire Protection Contractors, Building & Fire Officials, Fire Inspectors, Fire Protection Engineers, Building Engineers, and Insurance Loss Control Representatives.

For information and to register contact: Sam Dannaway, Program Chairman, Hawaii Chapter SFPE Tel (808) 526-9019 / Fax (808) 537-5385; E-mail: [ssda@hawaii.rr.com](mailto:ssda@hawaii.rr.com).

**SEMINAR NO.1: (2-Day) NFPA 13 OVERVIEW & INTRO TO PLAN REVIEW AND INSPECTION OF FIRE SPRINKLER SYSTEMS.** This seminar provides attendees with vital information on determining compliance of fire sprinkler systems with NFPA 13. System layout, component selection, water supplies, hazard and commodity classification, quick response technology, design approaches and hydraulic calculations are all part of an informative educational seminar using NFPA 13-2002.

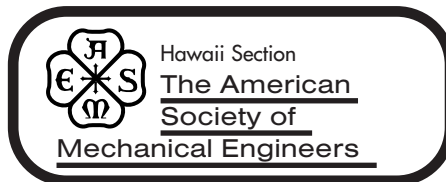
Cost: \$225 (\$150 for SFPE members, Chapter Friends, and Fire Service Personnel). Seminar attendees will receive a seminar workbook and certificate of completion. Lunch is not included. Attendees should bring a copy of NFPA 13 and a calculator.

**SEMINAR 2: (1-Day) INSPECTION, TESTING AND MAINTENANCE OF WATER BASED FIRE PROTECTION SYSTEMS INSPECTION, TESTING AND MAINTENANCE OF WATER BASED FIRE PROTECTION SYSTEMS.** This one-day seminar provides the attendees with

vital information related to the procedures and responsibilities for properly inspecting, testing & maintaining a water based fire protection system. The seminar also discusses the various responsibilities of the building owner, contractor and authority having jurisdiction (AHJ) as they relate to the requirements contained in NFPA 25.

Cost: \$150 (\$100 for SFPE members, Chapter Friends, and Fire Service Personnel). Seminar attendees will receive a seminar workbook and certificate of completion. Lunch is not included. Attendees should bring a copy of NFPA 25.

Payment: FEE MUST ACCOMPANY APPLICATION. Payment may be made by check or money order. Charge cards will not be accepted. Make checks payable to Hawaii Chapter SFPE and mail to Hawaii Chapter SFPE, c/o 720 Iwilei Road, Suite 412, Honolulu, Hawaii 96817.



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#### MARCH ASME-HAWAII SECTION MEETING

Date: March 13, 2007  
Time: 5:30 pm to 7:00 pm  
Agenda: To be announced  
Place: Hawaiian Electric Ward Avenue Cafeteria

Please contact Ray Liu or Ron Flegal for directions and for more information.

#### 2007 BALLOT & SURVEY

As of February 11, 2007, we received 29 ballots and less than 29 survey responses. This included 18 responses via SurveyMonkey.com. The Ballot & Survey deadline was February 23, 2007.

The Hawaii Section elected officers and directors for 2007-2008 are Chairman, Raymond Liu; Vice-Chairman, Derick Kam; Treasurer, Kevin Dang; Secretary, Ron Flegal; and Director, James Grogan. Chester Kaitoku is our "hold-over" Director.

Results of the survey will appear in future Wiliki articles.

#### 2007 MATHCOUNTS COMPETITIONS

The Oahu Chapter Competition was held Saturday, February 10, 2007, at the Kamehameha Schools Kalama Dining Hall. The following ASME members volunteered their Saturday morning to help proctor or score the competition: Ed Chang, Ron Flegal, James Grogan, Andy Ho, Chester Kaitoku, Derick Kam, Charly Kinoshita, Raymond Liu, and Derek Sato. Please see the MATHCOUNTS article in this Wiliki issue.

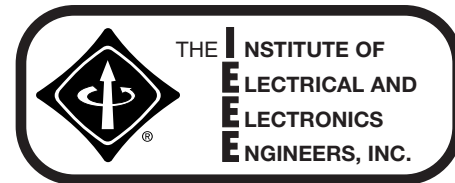
#### ASME AND AIChE SERIES OF ONLINE SEMINARS ON SUSTAINABLE ENGINEERING

ASME in collaboration with the American Institute of Chemical Engineers (AIChE) will present five virtual seminars on sustainable engineering beginning March 15, 2007.

A virtual seminar is an Internet-based program of information exchange allowing participants to obtain useful technical knowledge in an interactive forum with experts in the field of sustainable development and product life-cycle analysis.

The five ASME-AIChE programs will present case studies on the successful application of sustainable engineering practices at leading global firms, including Wal-Mart and Bristol-Meyers Squibb. For more information, please go to [www.asme.org/NewsPublicPolicy/PressReleases/AIChE\\_Present\\_Series\\_Online.cfm](http://www.asme.org/NewsPublicPolicy/PressReleases/AIChE_Present_Series_Online.cfm).

(continued on page 7)



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IEEE will sponsor a meeting with students at the UH-Manoa Campus Center (2nd Floor—room back of cafeteria). Seniors and Juniors are interested in hearing about the world of engineering from working engineers. Bring your business cards to pass around to students. That's why this networking event is called the IEEE Business Card Exchange. Have a pupu dinner with us. You need not be a member to attend. March 22, 2007, Thursday at 6pm. Please RSVP to Al Toda [aet@ieee.org](mailto:aet@ieee.org).

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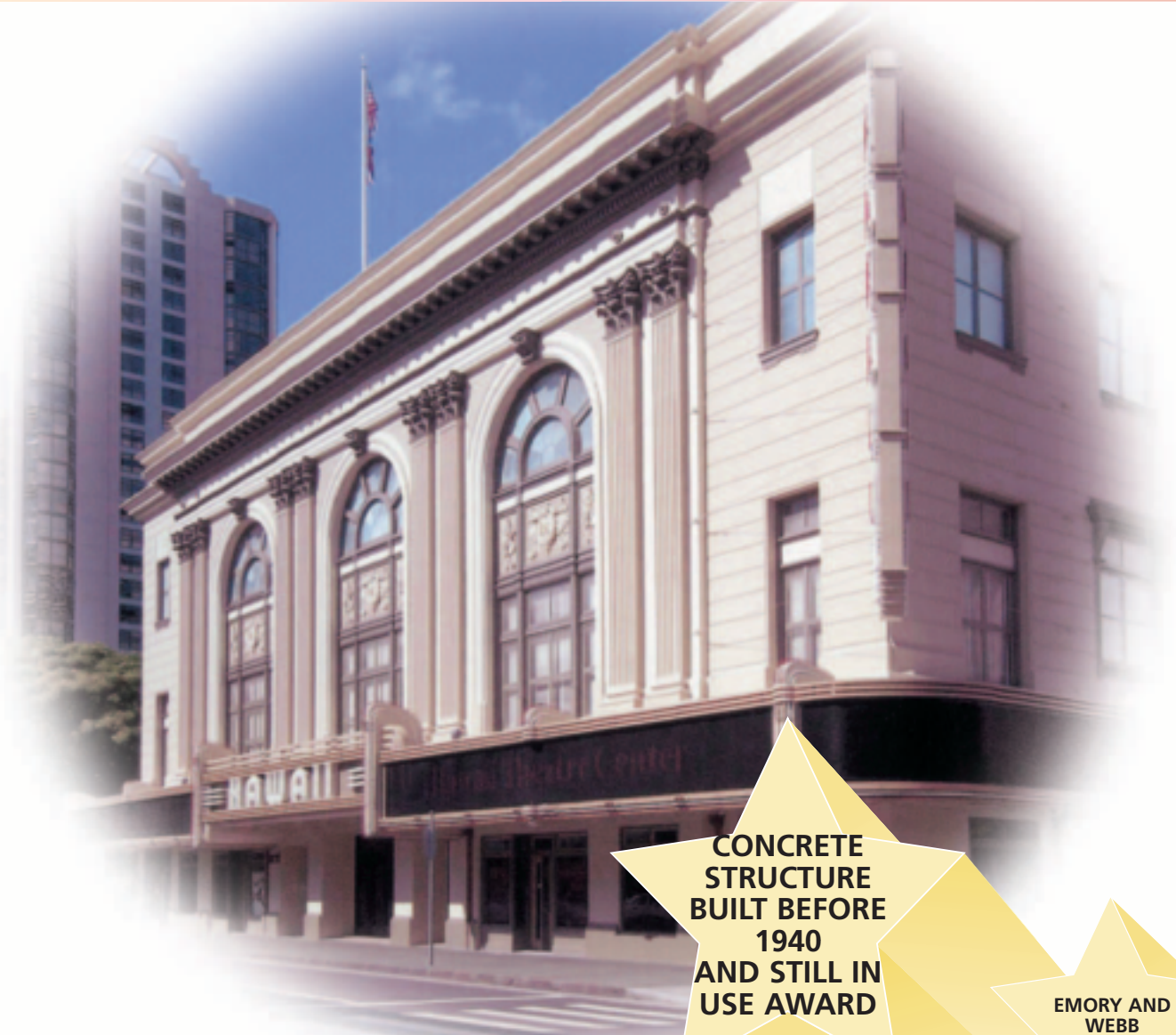


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# 2006 CONCRETE ACHIEVEMENT AWARDS



## HAWAII THEATRE CENTER

The theater is rectangular in shape and the structure of the building is a reinforced concrete skeleton frame with concrete and hollow tile curtain walls, and concrete footings set on solid coral foundations. The eclectic building is primarily Beaux Arts in design and is significant because of its excellent architectural and interior design, craftsmanship, and detailing.

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### Cold-Formed Steel Engineers Institute

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#### The CFSEI National Meetings in March 2007 in Honolulu, Hawaii

The Cold-Formed Steel Engineers Institute (CFSEI) will hold its national annual meeting in conjunction with the **2007 Pacific Rim Steel Framing Conference (2007 PACRIM) and the Steel Framing Alliance Spring Forum** on March 14-17, 2007 at the Hilton Waikiki Prince Kuhio in Honolulu, Hawaii.

Leading experts in cold-formed steel engineering and design, as well as cutting-edge researchers will be in attendance. A wide variety of seminar tracks will be offered that will interest engineers, contractors, and homebuilders. Speakers from around the world will address topics on economics, home forecasts, architectural and engineering issues, as well as new construction tools and technologies.

#### CFSEI Annual Dinner Meeting & Installation Banquet

The CFSEI Hawaii Chapter is hosting the National Annual dinner meeting and installation banquet on Wednesday, March 14, 2007 at the Hilton Waikiki Prince Kuhio in Honolulu, Hawaii. The chapter has invited Mr. Donald O. Dusenberry, Senior Principal of Simpson Gumpertz & Heger Inc. as guest speaker.

Mr. Dusenberry received his bachelor's and master's in civil engineering from Cornell University in 1974. He is an active participant in many industry organizations, including ASCE and the American Concrete Institute. Mr. Dusenberry has conducted numerous investigations, analyses, designs and peer reviews of buildings, building components and infrastructures. He has consulted on the development of GSA guidelines for prevention of progressive collapse and for the National Institute of Building Sciences on the development of a state-of-the-practice guideline for prevention of progressive collapse. He has also written extensively on such topics as blast and fire damage, and structural performance.

Frank de Lima will also be making a special appearance at the banquet. Coincidentally it was De Lima who entertained during the launching of the Hawaii Pacific Steel Framing Alliance at Washington Place 10 years ago.

#### CFSEI Technical / Engineering Track

The Hawaii Chapter CFSEI is sponsoring the technical/engineering track with four sessions on Friday, March 16, 2007, 8:45am – 4:45pm. These sessions both have professional develop-

ment hours and AIA Learning Units.

#### Update on the Latest Steel Framing Standards and How They Will Affect Us (8:45am-10:00am)

- Jay W. Larson, P.E., Director of Construction Standards Development, American Iron and Steel Institute (AISI).
- Jeffrey Klaiman, P.E., Principal, ADTEK Engineers

The AISI Committee on Framing Standards (COFS) has continued with earnest its mission to eliminate regulatory barriers and increase the reliability and cost competitiveness of cold-formed steel framing through improved design and installation standards. Its suite of six ANSI-approved, building code adopted, 2004 edition standards was enhanced with a new Code of Standard Practice for Cold-Formed Steel Structural Framing in 2005. In 2007, it is anticipated that new standards on Floor and Roof System Design, Product Data, and Load and Span Tables will be completed. This presentation provides an overview of these significant documents and describes the ongoing work of the committee.

#### Cold-Formed Steel Mid-Rise Load Bearing Structures: Proper Design Advantages and Limitations (10:30am-12nn)

- Don Allen, P.E., Director of Engineering, Steel Framing Alliance

Multi-story structures present a unique opportunity in cold-formed steel construction: short- to medium floor spans and repetitive room sizes are well suited to framing with cold-formed steel. Today's market for these types of structures is high, with hotels, motels, apartments, condominiums, assisted living facilities, being built at a rapid rate across the nation. With codes that provide incentives for non-combustible construction more and more structures are being built. How high can these structures go? What other framing members and materials work well with steel? What are some of the challenges and benefits? What are some of the mistakes that have been made, and how can you avoid them in your next project? Don will answer all of these questions in this technical seminar sponsored by CFSEI.

#### Steel Framing Research Developments: Making Steel Framing Easier, An Update on SFA/CFSEI Sponsored Research (1:30pm-3:00pm)

- Jay W. Larson, P.E., Director of Construction Standards Development, American Iron and Steel Institute (AISI).

The Steel Framing Alliance established the Technology Development Committee (TDC) in June 2005 as a combination of the former SFA Technology Team and LGSEA Research Development Committee. This group endeavors to eliminate technological barriers and expand opportunities for advanced technologies leading to the increased use of steel framing in residential, commercial, and institutional construction. This presentation will review results of the recent research and development TDC Priority Survey and highlight SFA/CFSEI sponsored research initiatives that are recently completed, currently underway, and presently planned for the near future.

#### Diaphragm and Shear Wall Design for Cold-Formed Steel Construction (3:15pm-4:45pm)

- Jeff Ellis, P.E., S.E., Senior Engineering Project Manager, Simpson Strong-Tie Company and

President-Elect CFSEI

This presentation will focus on the latest edition of the AISI Standard for Cold-Formed Steel Framing – Lateral Design. It includes and overview of the development of shear wall and diaphragm design for cold-formed steel construction and a comparison of the similarities and differences of cold-formed steel framed shear wall requirements for the 1997 UBC, 2006 IBC, and the Lateral Design Standard. Jeff will discuss the different types of shear walls, deflection requirements, and explain the general design procedures.

We welcome everyone to join us for the 2007 Pacific Rim Steel Framing Conference. Visit [www.cfsei.org](http://www.cfsei.org) and [www.hawaiisteel.com](http://www.hawaiisteel.com) for registration information.

Other Chapter news: The ballot for directors 2007-2008 are being circulated through the membership for voting. Please return with your votes as indicated on the ballot.



### Hawaii Association of Land Surveyors 1st Annual Golf Tournament

Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
April 13, 2007

Registration/Lunch: 11:00am  
Shotgun Starts: 12:00pm  
Tournament Fee: \$135.00 per player  
All proceeds to benefit "Hospice Hawaii"  
Includes: lunch, green fee, cart, 1 mulligan, prize contests, beverages, Buffet Dinner & Prizes  
Scramble Format: Min. 4 Drives per Player, Maximum 2 Putt

For more information contact Kevin Kea at (808) 521-3990  
Respond by March 20, 2007  
Make checks payable to: "HALS"  
Mail to:  
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  - 3 sleeve logo balls
  - company tee sign
  - lunch, dinner
  - 1 mulligan each
- HALS Sponsor \$500.00
  - no players
  - 3 tournament shirts
  - company tee sign

**ASME, from page 4****KALAKAUA MIDDLE SCHOOL CAREER DAY**

Derick Kam of ASME/SFPE and Alison Lee of IEEE coordinated engineering participation for Career Day for 8th graders at Kalakaua Middle School on February 28, 2007. Derick represents both ASME and SFPE at just about all the Oahu schools career days. The Kalakaua career awareness event format included two 30-minute sessions on engineering followed by questions and answers period.

**NOMINATIONS FOR ASME-HI SECTION 2007 PROJECT/DESIGN OUTSTANDING ACHIEVEMENT AWARD**

The nomination deadline is April 30, 2007. You can submit nominations any time before that date. If you know of any unusual or outstanding mechanical engineering-type project or design that have been completed within the past five years, please contact Ed Chang at 543-4227. The nomination process is very simple, easy, and fast.

**2006-2007 YMF Officers**

		Phone
President	Lori Nishida <a href="mailto:lori.nishida@ch2m.com">lori.nishida@ch2m.com</a>	440-0205
Vice-Pres	Lisa Takushi <a href="mailto:ltakushi@ascehawaii.org">ltakushi@ascehawaii.org</a>	531-4252 ext 14
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Past Pres	Florence Ching <a href="mailto:fching@ascehawaii.org">fching@ascehawaii.org</a>	472-1342

**Next YMF General Meeting**

The next two YMF general meetings are scheduled for Wednesday, March 7th, 6:00 p.m., at Tower Grill in the Aloha Tower Marketplace, 537-4446, and Wednesday, April 4th, 6:00 p.m. at Sam Snead's Tavern located at the Navy-Marine Golf Course Club House at 943 Valkenburgh, 421-7267. If you are interested in attending to find out what the YMF is all about, please contact Lori Nishida at 440-0205 or [lori.nishida@ch2m.com](mailto:lori.nishida@ch2m.com).

**ASCE YMF Technical Presentation: Inter-Island Ferry Project by Moffatt & Nichol**

By Lori Nishida, YMF President

On February 8th, 2007 members of the Hawaii Section Younger Member Forum, University of Hawaii engineering students, and transportation



**Younger Members and Moffatt & Nichol attendees from left to right (Sara Toyama, Karynn Niimi, Florence Ching, Bob Cordell, Ted Bell, Sherry Hennes and Lori Nishida).**

engineers from the community gathered at the CH2M HILL downtown office for a presentation on Hawaii's future mode of inter-island transport. Theodore W. Bell, P.E., associate vice president and director for Moffatt & Nichol's waterborne transit practice gave the presentation highlighting the technical points of the ferry's construction and its planned schedule of operation. The ferry is on schedule to be in operation by mid 2007 with service to the Big Island by 2009.

**Storm Drain Stenciling**

By Jennifer Chang/Emi Kiyoi, Community Service Chairs

**Volunteer participants in the "E Malama I Ka Wai Ola, Help Protect Our Waters....For Life" Storm Drain Stenciling**

On Saturday January 20th, 2007 approximately twenty Civil Engineering students from the University of Hawaii at Manoa and ten Younger Forum Members assisted the City and County of Honolulu with a storm drain stenciling event called "E Malama I Ka Wai Ola, Help Protect Our Waters....For Life."

Although the event got rained out in the Manoa neighborhood, everyone was eager to relocate to the Salt Lake neighborhood. Over 100 storm drains were stenciled on the storm drains to educate residents not to dump waste into the storm drains. Handout bags with pollution tips were handed out to interested residents. Members also assisted with a curbside cleanup and were educated about illegal dumping. The event was highly successful and ended with a bento lunch from Sugoio's.

**MATHCOUNTS**

By Jennifer Chang, Community Service Co-Chair

On February 10th, 2007, members assisted with the Mathcounts 2007 Oahu Chapter Competition at Kamehameha Schools. MATHCOUNTS® is a national math enrichment, coaching and competition program that promotes middle school mathematics achievement through grassroots involvement in every U.S. state and territory. Volunteers assisted with correcting and scoring tests.

**SEAOH, from page 2**

- 2007 SEAOH Convention will be held at the Hapuna Beach Prince Hotel in Kona. Dates have been changed to August 24 and August 25, 2007.

**New Business:**

Membership Directory: The SEAOH Membership Directory will be updated shortly after the 2007 membership renewal. Please send in your membership renewal form as soon as possible.

SEAOH 2006 Convention: A DVD with a compilation of photos from the Convention is available for those who attended the convention and are interested in obtaining the DVD. If you are interested in obtaining a DVD, please contact Beverly Ishii-Nakayama or a SEAOH BOD member.

Big Island to adopt 2006 IBC: Big Island sent G. Chock a copy of their proposed amendments. Review of the amendments would be the first task for the 2007 Code Committee (Glenn Miyasato, Dean Doi, Gary Chock, Afaq Sarwar, and Scott Listavich). Review would identify whether any Honolulu structural amendments should also apply to the County of Hawaii. The committee will also provide advice on any developments towards a possible State Building Code.

**New Member Application:**

The following member application has been received and is open for comments from the membership: Sean D. Gates, Miyasato Kuniyoshi Engineers, LLC., as an Allied member. His application will be voted on at the March Board Meeting. Please notify any SEAOH Officer prior to the March Board Meeting if you wish to comment on this prospective member.

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### FY 2007 ASCE Hawaii Section Executive Committee

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Past Pres	Walter Billingsley email: <a href="mailto:wbillingsley@beltcollins.com">wbillingsley@beltcollins.com</a>	846-3232 538-7819
Region 8 Chair:	Westley Chun, Ph.D., P.E.	

### MARCH DINNER MEETING

Program: "Waikiki Beach Replenishment" by Sam Lemmo of the State of Hawaii Department of Land and Natural Resources.

Date: Thursday, March 15, 2007

Location: Treetops at Paradise Park, Manoa Valley

Time: 5:30 p.m. - Social Time  
6:30 p.m. - Dinner  
7:30 p.m. - Program  
9:00 p.m. - Adjourn

Menu: Multi-entree buffet

Cost: \$22.00 for Hawaii Section members  
\$25.00 for non-section members and guests  
\$11.00 for UH Student Chapter members

Please RSVP and mail checks to Roger Babcock by Monday, March 6, 2007. Checks should be made payable to ASCE-Hawaii Section and mailed to Roger Babcock, ASCE Treasurer, Department of Civil & Environmental Engineering, University of Hawaii at Manoa 2540 Dole Street, Holmes 383, Honolulu, Hawaii 96822.

### ASCE HAWAII SECTION STUDENT SCHOLARSHIPS

Please help us increase our scholarship endowment so that we can recognize those deserving students. We continue to accept tax deductible donations with the goal of increasing the annual scholarships. Make your check payable to 'ASCE Hawaii Section' and mail to ASCE Scholarship Committee, P.O. Box 917, Honolulu, HI 96808. If you have any questions, please contact Walter Billingsley at (808) 846-3232, or [wbillingsley@ascehawaii.org](mailto:wbillingsley@ascehawaii.org).

### ASCE JOB LISTINGS

The following employers have openings they would like to fill:

- Austin Tsutsumi & Associates, Inc. (Civil Engineer - Honolulu and Wailuku, Land Surveyor - Honolulu)
- Bills Engineering Inc. (Civil Engineer, Engineering Assistant & CADD Technician)
- CH2MHILL (Transportation/Traffic Engineer - Honolulu Office)
- Engineering Solutions, Inc. (Civil/Sanitary Engineers - Honolulu)
- Fewell Geotechnical Engineering (Geotechnical Engineer - Honolulu)
- Fukunaga & Associates (Civil and

(continued on page 9)

## KNOW YOUR ASCE HISTORY

by C.S. Papacostas

### "A LEAKING DAM OR A TIGHT DAM"

With small installments every month, the story of the Dam at Nu'uuanu Reservoir No. 4 has so far taken more than a year of creeping-along. We are now entering a couple of critical turns which, encouraged by many of you, I will take a few more months to talk about before moving on to another topic.

In the January 2007 issue, we saw the July 6, 1906 arrival of Santa Ana consulting engineer H. C. Kellogg to investigate the structural integrity of the dam that was under construction for about a year.

The local press documented his progress and actions in detailed daily reports from the moment he set foot on the island to the time of his departure. Thus, the Evening Bulletin [EB] informed the public about the minute fact that two of the people he met on his first day were C. S. McMillan and a Japanese contractor (identified only as Tashiro) with whom he had worked on "the construction of the Wahiawa dam and irrigation system." In response to an alleged belief by many that Kellogg's investigation might be biased, the newspaper editor admonished "if Kellogg has any friends to favor or any personal axes to grind, he will gain prestige by quitting before he starts in."

On his very first day, the engineer stayed up until 11:45 p.m. poring over the project's plans and specs. The next morning, a Saturday, he undertook a general reconnaissance of the site in the company of Territorial Public Works Supt. C. S. Holloway and Asst. Supt. J. H. Howland. To help his examination, he asked for cross-cuts, trenches, pits and core drill borings at various critical locations.

Of particular concern was the place below the dam's core wall where, inspector Patterson claimed, an iron rod was thrust 16 feet without reaching solid rock, a claim that contractor L. M. Whitehouse had also made in a statement questioning Howland's judgment [Hawaiian Star, HS, 6/20].

On July 11, Kellogg received contradictory reports from, by then, ex-inspector Patterson and resident engineer C. H. Smith but could not see any of the people that had previously commented in the press, either anonymously or over

their signature, as only "a few small boys made up the 'public' which was so cordially invited" via newspaper ads [HS, 7/11]. His final trip to the site was on July 20, one day before his scheduled departure. Photographs he had reportedly taken at the site are probably deposited in some public or private archive awaiting rediscovery.

Before he left the island, speculation arose that he would in fact sustain Patterson's accusations but that no matter what his conclusions were "the controversy would go on [HS, 7/21]." Later, Governor G. R. Carter admitted that he expected Kellogg to find at least several deficiencies because "this would be quite natural as no two engineers would agree exactly on such a proposition [EB, 8/8/1906]." As a result, the governor had asked Kellogg to take over as supervising engineer to implement his recommendations, whatever they might be. Kellogg, however, declined saying that he had other pressing work awaiting him on the coast.

An unanticipated delay in receiving his report added fuel to the speculative fire and had Kellogg consulting in Los Angeles with J. D. Schuyler, the designer of the Wahiawa Dam, while facing the interesting predicament "that he will assume a terrible responsibility if he approves the dam, for if he should declare it safe, and it should give way after the great reservoir is filled, his reputation would be utterly ruined [HS, 8/13]."

Kellogg's report, "a very long typewritten report, accompanied by numerous drawings and tables [HS, 8/17]" arrived on Aug. 17 and precipitated a major debate. In essence, it identified a number of weaknesses in specifications, materials and methods and made several recommendations to address them. Reviewing a condensed version of the report that appeared in the EB [8/18], about two-dozen items were identified and several others could be gleaned from other accounts reporting the reactions of the major actors. Here are some of his main conclusions: The plans were described as "quite complete" but the specifications were "not sufficiently definite and complete in regard to the kind of material and class of work performed." Thus, inferior northern pine was used for the effluent pipe piercing the dam, where first class redwood was more appropriate. Although omissions were to be supplied by the engineer, the contractor did not always abide by the instructions, as when he

(continued on page 9)



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List will be used for CE VI positions in this and other departments.

Applications available online and at the Department of Human Resources, 650 S. King Street, 10th Floor (Fasi Municipal Building - Photo I.D. required for entrance).  
Hrs. 7:45am-4:30pm; Mon-Fri, call 768-8531 for complete requirements or visit City's website at <http://www.honolulu.gov/hr>.

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**ASCE, from page 8**

- Civil/Environmental Engineers - Honolulu
- Mitsunaga & Associates, Inc. (Civil Engineers)
- Warren S. Unemori Engineering (Project Engineer, Civil Engineer, & CAD Operator - Wailuku)

For more information on these job listings, please visit the ASCE Hawaii Section website at <http://www.ascehawaii.org/jobs/jobs.html>.

**ASCE HAWAII SECTION'S WEBMAIL LIST – SIGN-UP AND/OR UPDATE**

If you would like to receive e-mail notices of upcoming meetings or activities, please sign-up for the ASCE Hawaii Section's webmail list at <http://www.ascehawaii.org/emailform.html>. You may also update your email address on that same webpage. Please consider helping the ASCE Hawaii Section reduce operating costs by receiving your monthly issue of the Wilki via e-mail. If you have any questions, please contact Webmaster Joanna Seto at 586-4329 or [jseto@ascehawaii.org](mailto:jseto@ascehawaii.org).

**ASCE History, from page 8**

decided to build up the two ends of the dam leaving a gaping middle, rather than starting "at the bottom, and the dam carried up longitudinally on a level."

Furthermore, Kellogg found poor workmanship such as open joints and hollow places between the pipe and its inadequately thin and porous concrete armor. He recommended removing the constructed effluent pipe and the valve tower and to "substitute a different construction," with the tower resting on a pile foundation. When cut off by the core wall, Kellogg suggested, "the super-saturation would render the outer slope unsafe" and there was a need to incorporate irregularly stepped benches on the side of the canyon to "secure a contact and bond with the natural formation."

By far, however, "the greatest new proposition advanced by Kellogg" was, as Schuyler described it in his 1908 milestone textbook on dams and reservoirs, "the substitution of a rock-fill on the down-stream side of the core-wall, over the channel section, about 150 feet in length."

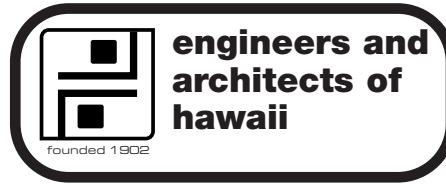
To this, both Holloway and Howland objected, but they were over-ruled by the governor who opted to implement Kellogg's recommendation in toto. Otherwise, "if there was any change made from them, no matter how slight, it would mean that if they were not a success he would say that it was our fault [EB, 8/22]."

This is what the governor partly wrote to Holloway on Aug. 23: "That Walker's plan is the Eastern method of an earth dam, one in which the structure is impervious to water and in which the line of saturation falls well within the toe of the lower or outer earth slope, with ample coefficient of safety throughout; while Kellogg recommends the more modern Western method of a supporting stone or rock fill on the outer or lower wall,

into which seepage, if any, is induced."

In simple terms, the choice was, according to an HS headline, between "A LEAKING DAM OR A TIGHT DAM." According to the governor, "under either system a safe structure can be

*(continued on page 3)*



po box 4353, honolulu, hawaii 96813  
An association for Hawaii's Engineers and Architects  
WEB Address <http://community.hei.com/eah>

**2006- 2007 Officers**

President	Travis Hylton	531-3017
1st VP	Ardalan Nikou	523-8874
2nd VP	Michael Albright	536-1737
Secretary	Sam Gillie	543-4739
Treasurer	Ralph Dobson	227-2746

Meetings held every Friday (except Holidays) at YWCA room 205 on Richards Street downtown. Meetings start at NOON and end promptly at 1:00 pm. Parking at Alii Place off Alakea Street for \$1.50 per hour.

Buffet Lunch: Members-\$10.00, Guests-\$12.00, BYO lunches welcome. If not having the Buffet Lunch a donation is requested: Members \$2, Guests \$3; to help cover room rental costs.

Program schedule may be adjusted. Call Secretary Sam Gillie at 543-4739 (543-4804 FAX) to confirm speaker. Anyone wanting a weekly email meeting notice please send your email address to Sam Gillie at [sgillie@hei.com](mailto:sgillie@hei.com).

**ACECH Award, from page 1**

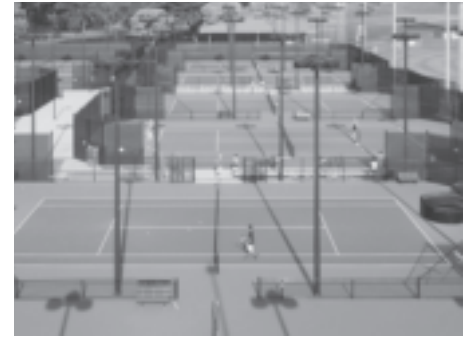
under seismic loads. The structure was analyzed using state-of-the-art 3-dimensional techniques that modeled the wharf slabs, beams, and piling under seismic spectral loads.

**HONOR AWARD:**

University of Hawaii Tennis Facility Renovation  
By Belt Collins Hawaii

Belt Collins Hawaii was contracted by the University of Hawaii to plan and design renovations to the existing 12-court tennis complex located in the lower Manoa campus. Being able to expand the facility within the physical constraints of the existing site was a major challenge. Challenges and constraints included a quarry wall to the north; an existing softball field to the south; an existing softball field to the south, and an underground 36-inch drain line to the west. The University's goal was to keep the same number of courts, but expand the complex by adding both bleachers for the center courts and a gathering place in the center of the complex. During the programming stage, many options were con-

sidered; the alternatives and their related costs and benefits were studied for months before arriving at the final configuration. Through teamwork and communication, the design and construction team was able to build a world-class



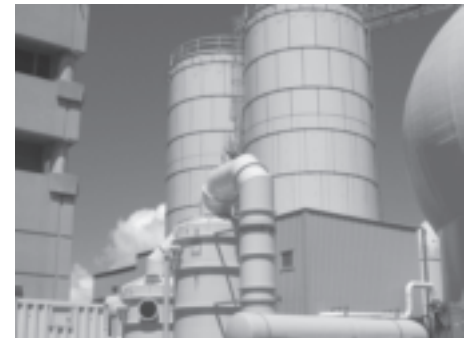
facility that met all of the University's goals. The facility received a 2005 Outstanding Tennis Facility Award from the American Sports Builders Association.

**HONOR AWARD:**

In-Vessel Bioconversion Facility at Sand Island WWTP

By KFC Engineering Management, Inc.

The City & County of Honolulu, in collaboration with the construction manager, KFC Engineering Management, Inc. and the design-build-operate contractor, Synagro WWT, Inc. recently completed the construction of Hawaii's first In-Vessel Bioconversion Facility, a completely enclosed biosolids processing plant, at the Sand Island Wastewater Treatment Plant. The biosolids processing plant is designed to divert sludge material away from Oahu's limited number of near-capacity landfills and convert wastes into high-quality fertilizer. Using a number of processes involving state-of-the-art technology, the facility converts biosolid waste into commercial grade, high-quality fertilizer for the State of Hawaii. The facility, which is capable of producing up to 10,000 dry tons of material annually, complements Oahu's H-Power plant that generates electricity from refuse-derived fuel and the Sand Island Wastewater Treatment Plant for industrial and agricultural use.



**Professional Directory**

<p><b>SHIMABUKURO, ENDO &amp; YOSHIZAKI, INC.</b> Civil, Environmental &amp; Structural Engineers</p> <p><b>JEY</b> 1126 12th Avenue, #309 Honolulu, Hawaii 96816-3715 Phone: (808) 737-1875 Fax: (808) 734-5516 Email: <a href="mailto:seyeng@lava.net">seyeng@lava.net</a></p>	<p><b>ms</b> Consulting Engineers</p> <p><b>Marc M. Siah &amp; Associates, Inc.</b> 810 Richards Street, Suite 888, Honolulu, HI 96813, Ph: 538-7180</p> <ul style="list-style-type: none"> <li>• CIVIL</li> <li>• STRUCTURAL</li> <li>• ENVIRONMENTAL</li> <li>• OCEAN</li> </ul>	<p><b>SSFM</b> INTERNATIONAL</p> <p>501 Sumner Street, Suite 620 Honolulu, Hawaii 96817 Ph (808) 531-1308   Fax (808) 521-7348 Project Managers, Planners, &amp; Engineers <a href="http://www.ssfm.com">www.ssfm.com</a></p>	<p><b>WES THOMAS ASSOCIATES</b> Land Surveyors</p> <p>75-5749 Kalawa St., Kailua-Kona, Hawaii 96740-1817 Tel: 808 329-2353 Fax: 808-329-5334 Surveying Hawaii Since 1975</p>
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