

Bouchedid, Michel/SEA

From: asceseattlesectiongeotechnicalgroup@seattlegeotech.talklist.com on behalf of Michel.Bouchedid@CH2M.com
Sent: Tuesday, October 19, 2010 9:26 AM
To: ASCE Seattle Section Geotechnical Group
Subject: ASCE Seattle Section Geotechnical Group Announcements
Attachments: ASCE Dinner meeting_21OCT2010_Badger.pdf; ASCE Fieldtrip_23OCT2010_ST_UW_Station_Slurrywall.pdf

Dear ASCE Seattle Section Geotechnical Group Members,

This is a reminder to make your reservation by 4:00 PM today to take advantage of the advance RSVP rate for our October 21st dinner meeting.

Please see below for more information on the following topics:

- ASCE SSGG October 21st Planning Meeting
- ASCE SSGG October 21st Dinner Meeting
- ASCE SSGG October 23rd Field Trip

OCTOBER 21st PLANNING MEETING

The monthly planning meeting will be held at the Red Lion on Thursday October 21st at 4:00 PM. The meeting will last approximately 1.5 hours and will be followed by the dinner meeting social hour. We would like to see representatives from all firms present at our planning meetings. Please RSVP by noon on Tuesday October 19th to Tyler Stephens TJS@shanwil.com if you wish to attend.

OCTOBER 21st DINNER MEETING

Topic: The Nile Valley Landslide: Failure Mechanics and Remedial Plans

Speaker: Tom Badger, L.E.G., L.H.G., P.E., Assistant Chief Engineering Geologist, WSDOT

Time: 5:30 (Social); 6:30 (Dinner); 7:30 (Program)

Location: Red Lion Inn, 11211 Main St, Bellevue, WA

Details: See attached flier for details.

OCTOBER 23rd FIELD TRIP

Topic: Slurry Wall Construction at Sound Transit UW Station

Tour Host: Matt Burdick, PE, Traylor Frontier-Kemper JV

Time: Saturday October 23rd at 8:00 AM

Location: UW Station Construction Site, Husky Stadium South Lot, Seattle, WA

Details: See attached flier for details.

Regards,

Michel Bouchedid, P.E.

Geotechnical Engineer

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**ASCE SEATTLE SECTION GEOTECHNICAL GROUP JOINT DINNER MEETING with the
ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS (AEG)
THURSDAY October 21st, 2010**

Topic: THE NILE VALLEY LANDSLIDE: FAILURE MECHANICS AND REMEDIAL PLANS

Time: 5:30 – Social Hour, 6:30 – Dinner, 7:30 – Program

Place: Red Lion Inn, 11211 Main St, Bellevue, WA

RSVP: Please RSVP with your dinner entrée preference (Pork Tenderloin Medallions or Ratatouille Linguine) via: Our website www.seattlegeotech.org, e-mail to rsvp@seattlegeotech.org; or phone to Tyler Stephens at (206) 695-6915 **by 4:00 PM on Tuesday October 19th, 2010 for the advance RSVP rate.** Please let us know in advance if you would like to cancel.

Cost: \$35 with advance RSVP. \$40 with reservations made after October 19th deadline or at the door. \$15 for non-reimbursed public agency employees and students. If you are a student and would like to be sponsored, please specify when you RSVP. You can pay via Paypal or credit card online, or at the door by cash or check payable to "ASCE Seattle Geotechnical Group"

Speaker: Tom Badger, L.E.G., L.H.G., P.E., Assistant Chief Engineering Geologist, WSDOT

Abstract: On Sunday morning October 11th, 2009, purportedly without warning, a very large translational landslide, referred to as the Nile Valley Landslide (NVL), destroyed more than 2,000 ft of State Route 410 near the community of Nile, located about 25 miles northwest of Yakima. Four of the five residences sited on the landslide were severely damaged, and the other was buried by the advancing debris front. A gravel mine operating on the southern flank of the landslide was similarly inundated in debris. Landslide-related uplift of the adjacent Naches River channel diverted the river flow onto the right bank floodplain, and the unchannelized flow subsequently damaged four more residences. Eyewitness accounts, Pacific Northwest Seismic Network records, and an intensive subsurface investigation have revealed a fascinating evolution of failure: an initial shallow failure within the unconsolidated surficial deposits, followed by failure within a 250-ft-deep, adversely dipping, claystone interbed between two Grand Ronde Basalt flows. The underlying basalt flow contains a highly pressurized aquifer, which apparently drives the deeper failure. The NVL is located at the base of Cleman Mountain, an anticlinal ridge that hosts the enormous Sanford Pasture landslide complex (SPLC). Geochemical analyses of basalts encountered in the numerous borings and outcrops within and around the NVL suggest that the basal failure zones of these two landslides are different, and that the NVL is likely not a reactivation of the SPLC. Extensive analyses have been performed to evaluate the current stability of the four primary domains of the NVL, and to evaluate remedial options to reestablish the highway around or across the landslide. Final design efforts are underway for an alignment around the landslide toe, utilizing mostly an avoidance approach with some grading for stabilization.

Bio: Tom Badger, L.E.G., L.H.G., P.E. is an assistant chief engineering geologist with WSDOT, providing geotechnical support for design, construction, and emergency response for the agency since 1984. Tom is the geotechnical project manager for the investigation and remedial designs for the Nile Valley landslide. Tom specializes in soil/rock slope engineering and the characterization and mitigation of geologic hazards. Tom

ASCE Seattle Section Geotechnical Group – 2009-2010 Officers

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earned a BS in geology from Western Washington University and an MS in geological engineering from University of Nevada Reno. Tom has been a member of AEG since 1997, was the WA Section Chair from 1999 to 2000 and 2002 to 2003, and is currently the Education Chair for the WA Section.

Planning Committee Meeting: Thursday October 21st at 4:00 PM at the Red Lion. We would like to see a representative from each organization at our planning committee meetings. Please e-mail Tyler Stephens at tjs@shanwil.com no later than noon on Tuesday October 19th if you plan to attend our planning meeting.



ASCE SEATTLE SECTION GEOTECHNICAL GROUP FIELDTRIP

SATURDAY October 23rd, 2010

Topic: SLURRY WALL CONSTRUCTION at SOUND TRANSIT UW STATION

Time: 8:00 am

Place: UW Station Construction Site, Husky Stadium South Lot, Seattle, WA

RSVP: RSVP REQUIRED – ATTENDANCE LIMITED TO 20 PEOPLE – FIRST COME, FIRST SERVED:
 Please send RSVP to tjs@shanwil.com or call Tyler Stephens at (206) 695-6915 **by 4:00 PM on Tuesday October 19th** to reserve your spot. Please let us know in advance if you would like to cancel.

Cost: Free

Parking: Parking is very limited. Attendees are strongly encouraged to carpool or take the bus. Parking is available a short distance from the site in the E5 parking lot north of the IMA facilities.

PERSONAL PROTECTIVE EQUIPMENT IS MANDATORY! ALL ATTENDEES MUST PROVIDE STEEL TOE SAFETY BOOTS, HARDHAT, SAFETY GLASSES, REFLECTIVE VEST

Tour Host: Matt Burdick, PE, Traylor Frontier-Kemper JV

Abstract: Primary component of the U220 contract is construction of 11,400 feet of twin subway tunnels from University of Washington Station (UWS) to Capitol Hill Station (CHS) plus sixteen cross passages. Main line tunneling will be accomplished by two earth pressure balance tunnel boring machines launched from the UWS site and retrieved from CHS site while the cross passages will be excavated using the sequential excavation method. Geology along the alignment is predominantly stiff clay with several valleys of silts and sands.

TBM mining will be complicated by the high cover (over 300 feet) and groundwater table potentially generating EPB pressures in excess of six bar. The TBMs will also pass under the Montlake Cut with approximately eight feet of cover which creates another set of challenges. The overall project schedule is very tight and will require cross passage excavation and construction to occur concurrently with main line TBM mining which is not a standard practice.

Preparatory work at the UWS site includes utility relocation, access road construction, soldier pile wall construction, mass excavation to working grade and slurry wall construction followed by shaft excavation and cross lot bracing. There is also a large geotechnical instrumentation package installed at the UWS site and along the alignment.

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Slurry Wall Details:

The UWS slurry walls will serve as temporary shoring for shaft excavation and as the permanent structural walls of the station. All slurry walls are four feet thick comprised of heavily reinforced concrete. Slurry wall panel depth varies from 110 feet to 160 feet to ensure 30 feet of toe into the clay. South half of the station has roughly fifty feet of dense glacial till overlying the stiff clay. There is a small layer of sand near the top of groundwater roughly thirty feet deep. The farther north along the station the deeper the clay layer is located. At the extreme north end the top of clay is roughly 130 feet below grade.

Typical Slurry Panel Construction Sequence: (Panel layout is attached)

1. Construct guide walls
2. Excavate and place primary panels. Typical primary panel has two eight foot wide rebar cages.
3. Excavate and place secondary panels between two primary panels. All secondary panels have a single rebar cage.

Primary panels and secondary panels alternate as you work your way around the station

Primary panels are roughly 22 feet wide and are excavated in three bites using the hydrofraise. Secondary panels are roughly nine feet wide and are excavated in a single bite by the hydrofraise. Excavation of the secondary panel includes removing seven inches of concrete from the previously place primary panel on both sides of the secondary. Initial 20 – 40 feet of excavation of either panel type is accomplished with a mechanical clamshell.

Site specific issues:

1. The job site is incredibly small for what we are trying to do and creates more problems than anything else.
2. There is a good chance of encountering boulders during the slurry wall excavation which has the possibility of creating schedule problems.
3. Panel depth – deep panels at the north end will require cage splicing over the hole
4. Clay content – creates problems with the separation plant and wastes good bentonite

What you will see:

If all goes according to plan you should see both hydrofraises and the desanding plant in operation along with a concrete placement. Soldier pile installation around the crossover box will also be underway.