



2015-2016

May Meeting Notice

Minnesota Geotechnical Society

Should We Use Extensive Testing or Field Observations for Geotechnical Analysis and Design? Two Case Studies with Unconventional Approaches.

CHADI EL MOHTAR, Ph.D.

PART I- Millwoods Double Barrel Replacement SEM Tunnel Project: A case study from Field to Lab to Field.

Construction of the Millwoods Double Barrel commenced in 2009 and was expected to be completed by 2015. The total cost is expected to be \$56 million (Can). To facilitate ongoing city development in south Edmonton, the City implemented construction of a major sanitary trunk network along 91 Street and 30 Avenue. The Millwoods Double Barrel Replacement Project involved the design and construction of approximately 1.2 miles of 7.8-ft sanitary tunnel and 2.1 miles of 11.5-ft. and 9.5-ft. storm tunnel. During construction of the 9.5-ft. diameter tunnel, the City of Edmonton encountered a large pocket of flowing sand that flooded the TBM and caused significant surface subsidence, stopping further tunneling by the TBM through this zone. The presentation highlights a unique collaborative effort between the the city, consulting engineers and academic researchers to develop the optimal strategy for grouting the problematic soils to allow for the completion of the tunneling. The site has a sand layer with a thickness varying between 20 and 30 ft.

PART II- GEER Recon of the 2015 Kfarnabrakh, Lebanon landslide

During the early hours of November 30th, 2015, the mountain town of Kfarnabrakh experienced a major landslide at one of the town's rock cliffs. Kfarnabrakh is 1,150 meters above the sea level, 45 km south-east of Beirut, and about 30 km away from the Mediterranean seacoast. The landslide was well documented with multiple cellphone videos captured by the local residents that were later used to finalize the failure mechanism. The rock cliffs are located at the north-northeast edge of the village with houses constructed within few meters of the cliff edges. Seventeen houses were evacuated and the families were provided temporary housing until the stability and safety of the sliding zone is assessed. A drone was used for aerial photography acquisition and a Digital Surface Model was generated for the area of interest. Geologic and hydrogeological maps of the area were used to help understand the cause of failure. Rainfall and seismic records didn't show any major events in the days leading to the failure. The failure occurred in the C3 formation, a highly jointed chalky limestone. The C3 formation has an embedded thin layer (about 0.3-0.5m thick) of high plasticity Blue Marl clay located 20-25 m. from the top of the formation. Water accumulation on top of the Blue Marl layer (due to joint opening above it) reduced its shear strength and created a weak zone underneath the rock mass. The weakened Blue Marl layer initiated the rock mass sliding and eventual overturning and collapse.

President	Vice President	Secretary	Treasurer	Program Chair	ASCE Chair	Past President	Duluth Representative
Josh Van Abel	Kyler Bender	Brian Sanchez	Joe Rozmiarek	Kurt Schimpke	Joe Bentler	Joel Swenson	Peter Demshar
952-995-2310	651-389-4182	763-447-4230	651-646-8148	952-832-2897	651-603-6616	952-832-2799	218-788-6309

<http://www.mngeotechnicalsociety.com>

Date: Wednesday May 11, 2016

Location: Rose Vine Hall (downstairs at Grumpy's Bar & Grill)
2801 Snelling Ave. N., Roseville, MN

Time: 6:00 Social Hour – Sponsored by TBD

7:00 Dinner: Salad, Rolls, and a choice of:

1. 10-Ounce Top Sirloin - Char-grilled and topped with bleu cheese garlic butter. Served with white cheddar mashed potatoes and a sautéed vegetable medley – \$40.00
2. Chicken Marsala - A chicken breast lightly breaded and drizzled with marsala wine sauce, mushrooms and onions– \$35.00
3. Feta Cheese and Sun-Dried Tomato Stuffed Walleye - Served over white cheddar mashed potatoes with a drizzle of lemon thyme butter sauce – \$35.00
4. Chicken Fettuccine Alfredo - Fettuccine noodles, snow pea pods, and mushrooms tossed in an Alfredo cream sauce and topped with a grilled chicken breast and parmesan cheese – \$30.00
5. Cobb Salad - Iceberg topped with turkey, ham, bacon, hard cooked eggs, avocado, diced tomatoes, bleu cheese crumbles, and black olives with choice of dressing (Ranch, Fat Free Ranch, Bleu Cheese, French, Fat Free French, Italian, Fat Free Italian, Balsamic Vinaigrette) – \$25.00

8:00 Presentation – Chadi El Mohtar, Ph.D.

(One PDH toward continuing education requirements for Professional Engineers is available).

9:00 Coffee and Dessert – Sponsored by TBD

Cost: Paid 2015-2016 MGS Members receive a \$5 meeting discount on the meal costs listed above.

The cost for full-time students is \$5, payable to MGS at the door.

Reservations: Requested by 12 Noon, Friday, May 6, 2016

PayPal Now Available for online reservation

President	Vice President	Secretary	Treasurer	Program Chair	ASCE Chair	Past President	Duluth Representative
Josh Van Abel	Kyler Bender	Brian Sanchez	Joe Rozmiarek	Kurt Schimpke	Joe Bentler	Joel Swenson	Peter Demshar
952-995-2310	651-389-4182	763-447-4230	651-646-8148	952-832-2897	651-603-6616	952-832-2799	218-788-6309

<http://www.mngeotechnicalsociety.com>