

THE INSTITUTION OF CIVIL ENGINEERS GREEK LOCAL ASSOCIATION NEWSLETTER



March 2014

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Foreword

This issue outlines all the important activities and actions that took place between November 2013 and mid March 2014.

Restructuring of the Greek Local Association Committee

Following the resignation of Evangelos Giannoudis, from Chairman of the ICE Greek Local Association, in December 2013, in January 2014 the Greek Local Association Committee announced to its members the restructuring of the roles within the Committee.

The new structure of the Committee is:

Chairman:

Panayiotis Kaberis CEng MICE

Vice Chairman:

Eleni Papageorgiou CEng MICE

Honorary Secretary:

Theodosia Ifigeneia Tsoumba CEng MICE

Honorary Treasurer:

George Sboukis CEng MICE

Press Officer:

Maria-Theresa Marangos CEng MICE

and

ICE Representative in Greece:

George Sboukis CEng MICE

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The new Committee is promising to continue their dedicated work for the Greek Local Association.

ICE LA 2014 Cutting of the New Years' Cake Event, Athens

Once again we celebrated the coming of the New Year 2014 with the traditional Cutting Cake Ceremony. The event took place on Saturday 1st February 2014 at the roof garden of the City Gate Hotel, Athens. The Chairman and the Committee of Local Association of ICE gave a speech reminding all the events that took place on 2013 and wished to all attendant members a prosperous 2014 with health and happiness. The

Chairman also reminded the members of the big event of 2014, the European Local Association Conference ELAC 2014 which is to take place in Athens in May 2014, where he urged the members to honor the Committee by participating.

The lucky attendant who found the hidden coin in his piece of the traditional cake was Mr. Kokkosis, (President of the Local Association of Electrical Engineers IET), who along with Mr. Panagiotidis, (President of the Mechanical Engineers, IMEchE) once again honored us with their presence. On the day the lucky winner received as a memory gift from the Local Association of ICE, the book "Proceedings of ICE".

The event was closed with free food and drinks for everyone who enjoyed the rest of the ceremony and had the chance to talk to other members and discuss the progress of the profession of Civil Engineering in Greece.

All food that was left over was given to Ag. Dionisios Church to be handed over to the homeless.



Photo 1: ICE LA Committee and Members at the 2014 Cake Cutting Ceremony

ELAC 2014 Athens



Less than two months are remaining for the ELAC 2014 in Athens!

The Greek Local Association Committee and Representative have been working very hard to organise such a prestigious conference in Greece and especially in the middle of the Economical Crisis.

The Second Announcement was circulated to all European Members a few days ago!

The topic of the Technical Conference taking place on the 9th May 2014 is:

"Greece - A Sea & Road Transportation Hub Through the Centuries"

This is a great opportunity for our Greek LA Members to be able to attend such a Conference at your doorstep! You will have the privilege to actively participate in the audience and also meet and socialise with our colleagues for all around Europe and with key persons from the ICE headquarters.

The Greek Local Association Committee and Representative are hoping to make this conference one to remember!

Your participation is needed!!

Note that this will count as whole day CPD and certificates will also be given to participants.

The Need for an In-Depth Geotechnical Site Investigation and Characterization Study: The Case of JCCI Project in Jeddah, KSA.,

by Dr. Constantine I. Sachpazis, BEng(Hons) Civil Eng. UK, Dipl. Geol, MSc Eng UK, Ph.D. NTUA (E.M.IT), Post Doc. & by Dr. Anthimos S. Anastasiadis, Dipl. Struct. Engineer, Ph.D., Eurlng, GeoStatic Partnership, www.geostatic.eu

A new development the “**Extension of the JCCI building**” is under way to be constructed in a “design-build delivering system – scheme. The client performed a detailed architectural design as well as a preliminary structural and geotechnical one. The aforementioned studies were carried out by the ‘Mohamed Harasani Architects’ and the ‘Terrell Group’, respectively. In this direction a manager, the Avion Synergies (Pvt) Ltd., engaged the GeoStatic to support their actions in order to find out the appropriate design-build team, as well as our partnership being also a potential Geo-Static designer.

The superstructure is a complex of two multi-storey buildings, connected with a bridge type structure, conformed as a diagrid steel structural system with RC cores, Fig. 1. The sub-structure consists of 4 underground stories retained by an anchored perimetrical slurry wall and a pile-raft foundation.

From the analysis of the contract documents missing information was revealed with regard to the local geotechnical site conditions and site characterization. Thus, a general study was performed, by using our in-practice and scientific database and experience, in order to point out a more detailed geotechnical site investigation, which is further going to propose and/or optimize the foundation system, and the soil – structure interaction behaviour under seismic excitation.

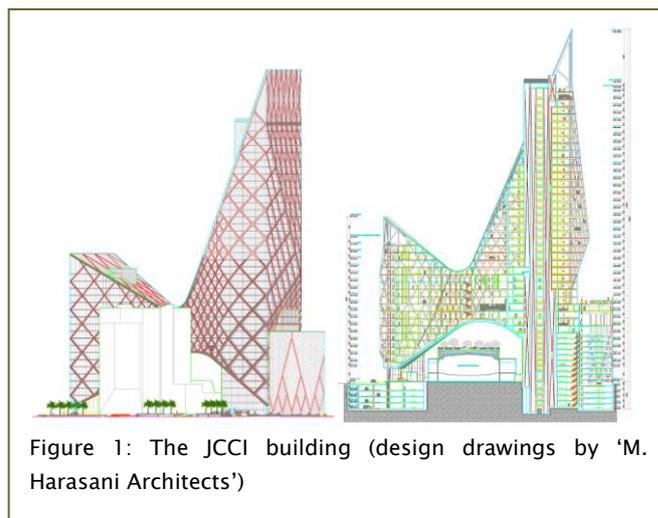


Figure 1: The JCCI building (design drawings by ‘M. Harasani Architects’)

The extension of the Jeddah Chamber of Commerce & Industry (JCCI Project) is situated in the middle – eastern part of the city of Jeddah, KSA, nearby the Red Sea coastal plain, known as Tihama, and is exactly 990 m away from the shoreline. The wider project area is almost flat and the absolute ground level elevation is about 6 to 7 m above sea level. According to our state-of-the-art and practice in geo-engineering sourcing with regard to geotechnical & geological conditions (not presented herein due to space limitations), the city of Jeddah lies along the Red Sea coast over a mixture of layers formed by Quaternary deposits and thick Tertiary deposits of silt and gravel, overlain by limestone, Fig 2a. Furthermore, the city is divided into two parts, the western part of which is mainly a depositional plain with materials such as coral, silt, clay and sand and accumulations of coral and shell fragments, while the eastern part is covered by poorly sorted silt, sand and gravels derived from the crystalline rocks by mechanical weathering and redistributed as sheet-like layers of sediments during the periods of flooding, Fig. 2b. With regard to earthquake hazard, it is well known that the Arabian plate moves towards the Eurasian plate squeezing Anatolian plate. Hence, it is crucial to have knowledge on the characteristics and dynamics of the tectonic fault lines to mitigate this hazard, due to the fact that Jeddah city is approximately moving 4.3 cm / year

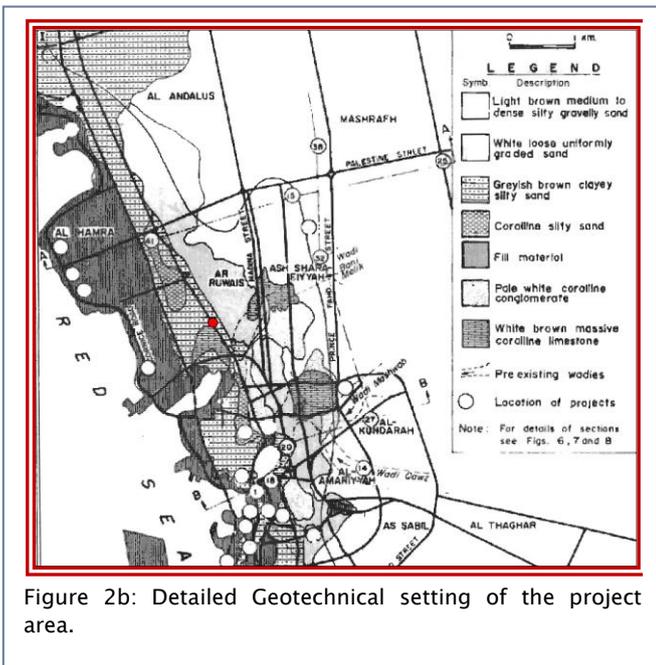
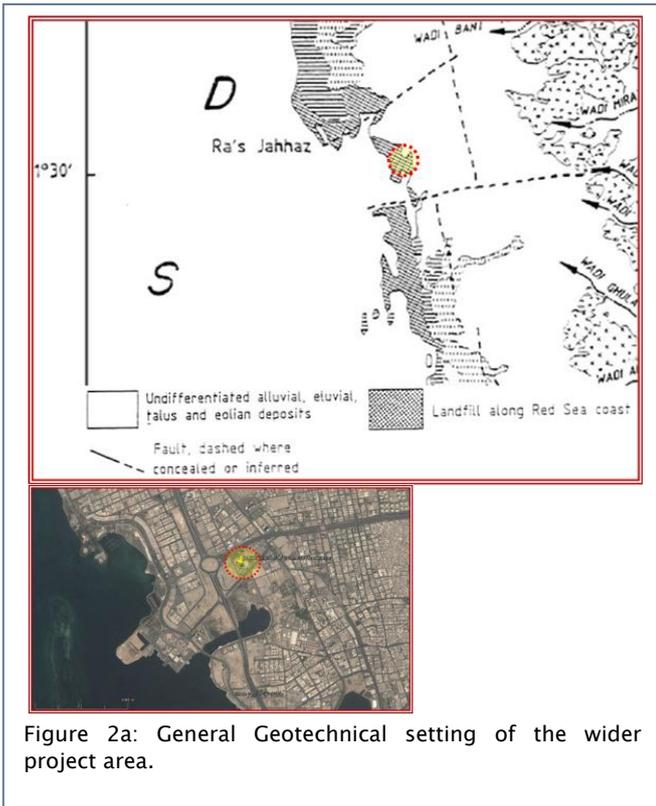
towards NE direction and this movement might trigger off seismic activity in the area. Moreover, from figure 2a we can observe a fault line in the vicinity of our project, which under different circumstances might develop a near-source seismic action, which in turn could possibly further induce a liquefaction risk in the high rise buildings' foundation area.

According to our research and studies so far, regarding the foundation engineering conditions and the soil – structure interaction behaviour of the JCCI Project, we can deduce, conclude and mention the following important facts:

- The foundation ground of the JCCI Project of the Twin-Tower Buildings consists of recent Quaternary (Alluvial) deposits, and more precisely of "Greyish brown clayey silty sand", which from geotechnical engineering point of view is not considered as a competent and sound foundation ground material especially in seismically active regions and conditions.
- This foundation soil type exhibits Standard Penetration Tests (SPT) values in the very low range of $N_{(SPT)} = 2$ to 28, which define an extremely loose to moderately loose up to locally dense "SM" soil type. According to the Saudi Code, these $N_{(SPT)}$ values specify a very low Site Soil class. Hence, in case that this sandy soil type in the immediate foundation zone of the JCCI Project, consists of its lower relative density and strength range, i.e. with an $N_{(SPT)}$ value in the order of 2 to 15, then the ground foundation bearing capacity and condition is extremely problematic and literally speaking dangerous for the overall stability of the JCCI Buildings, especially under seismic actions. According to Saudi Code "KSA CODE 301 Structural-Loading and Forces-Seismic Design", the foundation ground class definition for this Soil type is "class F".

- The ground water table is estimated to be at a shallow depth of about 2 to 5 m b.g.l.. In addition, due to this very shallow water table (ground water piezometric surface) condition, this type of foundation soil is also susceptible and prone to liquefaction failure under dynamic loading / triggering (i.e. in case of an earthquake), which is further aggravated due to near-source earthquake conditions.
- Moreover, certain karstic solution cavities and conduits / openings might exist in the underlying Coralline Limestone bedrock, where the deep end-bearing group of piles will be founded in order to transfer all superstructure loads to the Coralline Limestone bedrock. Thus, in case that such karstic solution cavities and conduits / openings will be encountered in the Coralline Limestone bedrock, the results and the consequences for the integrity of the JCCI structures will be detrimental.

Therefore, in order to mitigate and eliminate these risks and danger, either certain specialized and well designed ground improvement intervention measures and techniques must be applied and implemented, or a very carefully and specifically designed group of piles foundation type have to be implemented, based on proper and accurate geotechnical engineering properties, data and parameters. However, the proper, cost-effective and safe design of the foundation for the JCCI building requires a profound soil-structure interaction analysis, an analysis of possible scenarios of near fault effects, a detailed and constructability design of the foundation solution, and hence in this direction a close and efficient cooperation between geotechnical and structural, i.e. GeoStatic, engineers.



*Read next:
CPD Events*

November 2013 CPD Event in Athens

On the 26th November 2013, Mrs. Natalia Manara, Quality, Safety and Environment Manager at NEA ODOS S.A., gave a presentation to ICE Members on:

“H&S Management & Implementation of Management Systems in Motorway Concession Projects”

The presentation was focused on what a H&S Management is and how it is implemented on Concession Projects i.e. in all the stages of a project that is construction, operation and maintenance. Relevant regulations and legislations were also presented emphasising the efforts made in order to reassure their application.

The event took place in Nea Odos S.A. premises in Maroussi, Attiki and a satisfactory participation of ICE Members.

The relevant presentation may be found in ICE Local Association's website: <http://icelocal.gr/ice-greek-local-association-cpd-presentations>

January 2014 CPD Event in Athens

The first CPD for the year 2014 that took place on Friday the 17th of January, was the **“Routes to ICE Membership Workshop No1”**.

Initially the Greek LA Representative Mr George Sboukis CEng MICE made a presentation about the steps for the completion of **Development Objectives**, specially focused on those planning to apply for a Career Appraisal.

Then, the Committee of the Local Association gave valuable advice and answered all the questions and queries made by the participants. We encourage all the graduate members to become professionally qualified by becoming Chartered or Incorporated with the ICE.

It should be noted that this was the first of our workshops for those willing to apply for a Professional Review. Next on the series will be presentations for preparing the Experience Report, Project Report and Written Essays. The workshops are also intended for hands-on advice to those that have started completing their Development Objectives and Reports and wish to get some guidance from corporate members of ICE (already chartered engineers).

The event took place in Nea Odos S.A. premises in Maroussi, Attiki, with a satisfactory participation.

The relevant presentation may be found in ICE Local Association's website: <http://icelocal.gr/ice-greek-local-association-cpd-presentations>

February 2014 CPD Event in Athens

On the 28th of February 2014 Dr. Costas Sachpazis, Civil and Geotechnical Engineer of Geodomisi Ltd. and a member of the Greek Local Association, gave a presentation to the rest of the members on:

“Deep Excavations supported by Anchored Reinforced Concrete Piled Retaining Walls, Construction Phases and Procedures”.

The presentation was split in 3 parts. Part one was focusing on Geotechnical Site Investigations, identifying all the steps of a site investigation in order to collect soil data needed and all necessary geotechnical information that are required for the design of infrastructure projects such as buildings, dams, retaining walls/structures, bridges etc.

The second part was concentrated on Earth Retaining Structures presenting as a case study one of Dr. Sachpazis' anchored reinforced concrete piled retaining wall designs' on Aigiptou Square, Alexandras Avenue, Athens, Greece. This part of the presentation demonstrated the construction method and all its stages identifying useful details of each stage.

In the third part of the presentation which was titled: Analysis and Design Case Study, Dr. Sachpazis focused on the problems that appear on inadequate Earth Retaining Structures. The example analyzed was the slope failure that occurred in “Achladokambos Wind Farm Power Station Project” due to an excavation carried out without a proper retaining structure. Under this scope, laboratory tests were discussed and their role in classifying Geomechanical Soil Profile.

Additionally the design and construction stages of anchored reinforced concrete piled retaining walls

were presented in detail and useful rules of thumb were given which of course are the result of the broad and extensive years of Dr. Sachpazis' experience.

The event took place in J&P Avax premises in Maroussi, Attiki, with a satisfactory participation.

The presentation may be found in: <http://icelocal.gr/ice-greek-local-association-cpd-presentations>

2014 CPD Programme

The ICE Greek Local Association Committee has prepared the program for the 2014 CPD Events, that is focused on covering several fields of the Civil Engineering Profession and providing vast knowledge to all members.

The planned events for 2014 are listed in the table below.

We hope to have a healthy participation by the ICE members to these events, for which CPD certificates will be given to the participants.

The Greek ICE Local Association Committee is welcoming any suggestions for CPD events, by contacting any of the committee members.

	2014 CPD EVENTS	Date	Venue
1	Routes to ICE Membership Workshop No 1	17 January 2014	Nea Odos Head Offices Marousi, Athens
2	2014 New Year's Cake Cutting Ceremony – «Κοπή Βασιλόπιτας»	1 February 2014	Athens Gate Hotel
3	Deep Excavations supported by Anchored Reinforced Concrete Piled Retaining Walls. Construction Phases and Procedure by Dr C. Sachpazis	28 February 2014	J&P Avax Offices Marousi, Athens
4	European Local Association Conference ELAC 2014: Greece – A Sea & Road Transportation Hub Through the Centuries	9 May 2014 09:00-17:15	Divani Hotel
5	Routes to Membership Workshop No 2	May 2014	Nea Odos Head Offices Marousi, Athens
6	Development & Execution of Drainage Designs, by George Sboukis	June 2014	Nea Odos Head Offices Marousi, Athens
7	Field Trip	June 2014	To be confirmed
8	Insulation Systems & Rehabilitation Works, by Sika	September 2014	To be confirmed
9	Wood Structures	September 2014	To be confirmed
10	Annual General Meeting	October 2014	To be confirmed
11	Tunnels	October 2014	To be confirmed
12	Technical Seminars at Stavros Niarchos Site	November 2014	SNFCC Visitor's Center

**Exact dates and further details of events will be confirmed by the Greek LA Committee via circulars to the LA Members*

Important Notes to all Members

1. For the next issues of the ICE Greek LA Newsletter, we would like to remind you that you are invited to submit your article(s), to be included in the Newsletter.

If you are working on a project or you would like to cover a topic related to civil engineering that you think it would be of interest to other ICE members and would like to submit an article (approx. up to 500 words), then we would like to hear from you. The ICE Greek LA Newsletter is a great opportunity for ICE Members in Greece to learn about each other's work, specialties and share their knowledge in areas of interest.

Please note that your participation is of great importance to the Local Association.

Articles to be submitted at papageorgiou@icelocal.gr

2. The LA Committee is welcoming any feedback from their members regarding all issues in order to improve the Association.
3. The LA Committee would like to remind you that we are available to all questions, queries or help required by our members.
4. All members are reminded to fill in the "*Greek Local Association of ICE Members' Questionnaire*" that was sent to you on the 25th October 2013. The questionnaire is very important for the LA Committee in order to enable us to identify our current Members' contact details, professional status and qualification needs.