On-site interview Harajuku station, Tokyo, Japan

Ms. Hongjuan He IPA Secretariat

I interviewed Mr. Okochi (Ozawa Civil Engineering and Construction Co. Ltd. Hereafter, Ozawa) and Mr. Hamada (GIKEN SEKO CO., LTD. Hereafter, SEKO.) on August 22, 2017 who worked in the Press-in project on "Improvement work of Harajuku station". SEKO received the order of this project and was responsible for managing the piling work and installing the steel tubular piles. Ozawa Civil Engineering and Construction Co. Ltd. installed the steel sheet piles under SEKO's management. I thank them for giving us valuable insights during this interview.

Profile of Mr. Yasuaki Okochi , Ozawa Civil Engineering and Construction Co. Ltd.

Mr. Okochi has worked for Ozawa Civil Engineering and Construction Co. Ltd. since 1986. He has experienced in construction for 31 years including 25 years of experience as an operator of the Press-in Machine. He was engaged as a main operator for this project. He has the qualifications of "First-class Press-in Operation Engineer", and the license of welding and various cranes etc.

Profile of Mr. Koji Hamada, GIKEN SEKO CO., LTD.

Mr. Hamada has joined GIKEN SEKO CO., LTD. in 1990 with 25 years of experience in Press-in Method. He had a lot of experiences working in USA, Singapore, Canada, and Mexico for 10 years. He was responsible for operating and managing the project. He has the qualifications of "First-class Press-in Operation Engineer", "Second-class Civil Engineering Works Execution Managing Engineer", and "Supervisor for safety program in charge" and others.

Q1. Can you explain the background, overview and features of this project?

- Mr. Hamada: As you know, the Olympic and Paralympic games will be held in Tokyo, in 2020. It can be expected that many people will come to Harajuku Station which is a popular place among tourist. Japanese Railway Company decided to increase entrances and some facilities to avoid congestion. The main purpose of the Press-in project is to construct an embedded retaining wall, adding another platform.
- Mr. Okochi: The significant point of the project is to conduct the Press-in operation nearby the Meiji Shrine (Picture 1) which is famous. There are 2 severe limitations for the operation. One is the operation time from 7:00 pm to 4:00 am. In order not to affect the tourists' activities, we can only install the sheet piles during the limited time after the Meiji Shrine closes. The other one is the fact that the Meiji Shrine has many trees planted more than a century ago. It was required to pay very careful attention, particularly for material hoisting to protect the trees in the operation to pitch a sheet pile.







Picture 1 Construction overview

Q2. What were the significant points for the Press-in Method to overcome constraint conditions on the project?

Mr. Hamada: There were 3 points. Firstly, non-vibration and low-noise Press-in Method did not affect interfere waiting passengers at the existing platform. Secondly, the construction site was very close to the busy railway, however, the train operation was required to be in operation as usual. Finally, the most important was to resolve the narrow space problem. It is impossible to utilize the conventional methods which require to place the necessary machines and equipment side by side on the narrow and steep slope. So we introduced the Non-staging system, as shown in Photo 1, which is only the system enabling all the piling machineries for the Piling operation to walk on the previously installed sheet piles by itself (self-walking). It was able to operate in the narrow space and does not require cutting the trees in the Meiji Shrine.



Photo 1 Non-staging System

Q3. What did you need to pay attention at the night operation?

Mr. Okochi: As welding emits light and smoke, we install the protective sheet to protect the eyes of both the driver and passengers, as shown in Photo 2. Because the area of Press-in operation was nearby the railway, so we thought that the measurement should be essential to secure the safety of the project installation.



Photo 2 Side-view



Photo 3 The mechanical joint with bolts

Q4. Has the construction been carried out on time? Can you tell us about difficulties or concerns that you have faced on the project?

Mr. Hamada: Yes, the construction of tubular piles has carried out on schedule. To improve the productivity of the project and reduce the impact of the welding, we adopted the mechanical joints with bolts to connect pieces of the sheet piles, as shown in Photo 3. Actually, the mechanical joint has one disadvantage because we have to remove all the bolts when the sheet pile is extracted, due to the interference of the chuck part of the machine main body and the bolts. At that time, we took out of the bolts, extracting the steel sheet pile and resumed the extraction. It took much more time than usual. Depending on the geological conditions, it was very tough to predict what will happen.



Photo 4 Mr. Okochi is operating the Silent Piler.

Mr. Okochi: The installation of the sheet piles should be completed on time, however, we found obstacles such as concrete rubbles in the ground. It took a week to get rid of the obstacles. It was difficult to assume the underground obstructions. So, we should have prepared the countermeasures against obstructions, just in case.

Q5. Please share with us your toughest operational experience.

Mr. Okochi: I experienced difficulties to install the sheet piles into Lava stones by a Crush Piler in Fujimiya city, Shizuoka Prefecture. At that time, I didn't have enough experience and the ground is absolutely stiff. Finally, I asked my supervisor to send someone from SEKO for help to solve the problem.

Mr. Hamada: It was the embedded retaining wall with steel sheet piles to

construct the lamps on the highway in New York. There is a Labor Unions in the United States. Depending on each region or occupation, their system is different. Construction companies must contract with the Labor Unions and hire the members of the unions to work on the project. In this project there were eight employees from different companies. There were labors who set the laser, drive heavy machineries, welding and so on. The division of labors was very clear, and they just did their assigned works. There was a boulder on the planned line where the sheet piles are installed. We could not remove the boulder by ourselves, so we needed to ask earth workers for help. At that time, there was no earth workers on the site. Unfortunately, we had to stop working, waiting for earth workers. This was my first overseas experience. Every country has its own laws and rules, systems and culture. I strongly recognized that it is very important to understand the rules of the country before planning the construction.



Photo 5 Mr. Hamada is checking the laser.

Mr. Okochi: Press-in Method is quieter and more environmentally than any other methods, and it will be more and more popular in the future. If I have a chance, I would go abroad to popularize Press-in technology.

★Comments

When I visited the site of construction, I saw a lot of people from all over the world at the Harajuku station, taking pictures of the construction site. They probably have the same question like me, "The machine is walking by itself?!" It was first time I saw the self-walking system, I was surprised at its speed and safety. I listened to two people's long-term field experience, so I realized that the Press-in method can be applicable for various site conditions, actual construction might not progress as scheduled, and preparing countermeasures against expected problems should be useful. I also confirmed that this technology is the only one that can construct without interfering with the neighboring environment of Meiji Shrine through this interview.

I would like to express my sincere appreciation toward Mr. Okochi, Mr. Hamada and all who are concerned in this interview. Thank you so much.



Photo 6: Interviewing with Mr. Okochi and Mr. Hamada

We welcome the on-site operators who are able to accept the interview. If you have any questions, please contact to IPA Secretariat address to Ms. Hongjuan He (<u>ipa.ka@press-in.org</u>). We are waiting for you!