June 17th, 2021 KISC-COPB-003

City of Pompano Beach (GO Bond)
100 West Atlantic Boulevard, Room 276
Pompano Beach, Florida 33060

Attn: Jay Olsen

Project: SE 5th Ave Bridge Replacement
Project No. 19360

Subject: New Concrete Seawall - Unforeseen Differing Condition

Mr. Olsen,

This letter serves as notification that Kiewit Infrastructure South Co. ("KISC") has encountered an unforeseen differing condition while installing the new precast concrete seawall panels for the SE 5th Avenue Bridge project.

Prior to beginning the operation, and during GMP development it was believed the existing seawall and soil conditions would allow for the new designed concrete sheet pile seawall to be installed utilizing industry standard methods.

KISC has exhausted all industry standard means and methods of concrete sheet pile installation which included:

1) Water jetting with several different size pipes, at several locations around the pile, with a hydraulic pump.
2) Air jetting with several different size pipes, at several locations around the pile, with a compressor.
3) Combination of Air and Water jetting with several different size pipes, at several locations around the pile.
4) Pre-driving steel piles to break-up the existing soils in the new wall alignment to full pile tip elevation, then proceeded with jetting the pile with both air and water.
5) Fabrication and use of an airlift/geyser pump to jet and remove the material for the pile installation.

Due to the unforeseen differing conditions of the existing seawall and geotechnical properties of the materials behind the existing seawall both in the limits of the bridge and adjacent private properties all of the attempted methods have proven unsuccessful and to date have generated the same outcome of excessive erosion of the soils adjacent to the existing seawall.

If continued utilizing any standard method of installation the project would risk imminent critical slope failures of the bridge embankment and neighboring private properties, resulting in major damages and delays to the project.

Please see below for a brief timeline of the events leading to this letter and the meeting on June 10th, 2021.

June 1st, 2021: The site was prepared for concrete sheet pile installation. This included both erecting a template and driving a spud in all concrete sheet pile locations. A large steel beam (spud), approximately 30' in length, was driven to the minimum tip of the seawall panels to clear any obstruction and break up any hard soil layers or large rocks.

June 2nd, 2021: KISC began water jetting the concrete sheet pile. After approximately 4 hours of water jetting, it was noted that small holes and cracks in the soil began developing. At this point the operation was shutdown. Upon investigation, it was determined that a void was forming underneath the soil surface. The void later became a hole with visible dimensions approximately 9'Wx9'Lx5'D. Following this, KISC notified both the City of Pompano

KIEWIT INFRASTRUCTURE SOUTH CO.
1580 Sawgrass Corporate Parkway, Suite 300
Sunrise, FL 33323
(954) 835-2228

Beach and the EOR (T.Y. Lin) Representative that continued erosion posed a safety risk to both KISC and the residents neighboring properties.

June 3rd, 2021: KISC began backfilling the hole to stabilize the site and prevent further erosion. After completing backfilling, KISC began to install the concrete sheet pile again, with the EOR Representative and H2R Representative (Geotechnical consultant) present. During this time KISC utilized both air jetting and water jetting to install the concrete sheet pile. As the operation continued, all backfilled material was washed out. KISC was advised, by the geotechnical consultant, that the erosion would continue to travel East and West but was unlikely to advance towards the crane (South). At this point KISC deemed the operation unsafe to continue, as the extent of the erosion could not be completely determined. The hole was again backfilled on June 4th, and material stockpiled on site to use as needed.

June 10th, 2021: After investigation of alternate installation methods, KISC fabricated an airlift/geyser pump to install the concrete sheet pile. An airlift/geyser pump functions by injecting air, through a pipe, into water contained in a larger diameter pipe. This process effectively reduces the density of water and creates suction in the pipe. After proceeding with the installation of the sheet pile using the airlift, the soils behind the existing seawall began eroding again. Following this, the operation was again shutdown and an emergency meeting was held between the City of Pompano Beach, EOR, and KISC. See below for meeting summary:

- KISC explained that spudding, water jetting, air jetting, and air lifting have all been attempted to install the concrete sheet pile. During all methods, the soil behind the existing seawall is being excessively and dangerously eroded. KISC explained that this erosion appears to be horizontally extending south into the bridge embankment and west towards private property neighboring the bridge.
- KISC proposed that a temporary steel sheet pile retaining wall be installed prior to continuing with the concrete sheet pile installation. This temporary steel sheet pile wall would require at least 12 pairs to span the distance of the new seawall. Additionally, pairs would need to be approximately 40’ in length to cover enough vertical distance to protect the soil behind the wall. After the installation of the concrete sheet pile, the steel sheets would be removed and reused on the North side of the bridge.
- The City of Pompano Beach demonstrated interest in the proposal and wanted to know what the cost would be to leave the sheet pile in place permanently.
- KISC explained that procurement of steel was a concern due to current market demands and prices. Additionally, KISC was concerned that there would be additional design requirements if the sheets were to be left in place. Additionally, it was explained that the existing seawall tiebacks would have to be cut for the installation of the steel sheet pile retaining wall.
- The EOR explained that no additional design checks would be necessary as the concrete sheet pile and new seawall would ultimately provide retaining after installation. EOR also explained that the existing tie backs could be removed/cut, as there is currently no live load on the existing seawall.
- KISC explained that procurement of rental sheet pile could begin rapidly, but a decision would need to follow shortly after.
- In conclusion, it was agreed by all parties that KISC would begin procurement of material for the steel sheet pile retaining wall and begin erecting the wall as soon as possible. KISC indicated that they would begin procurement of steel sheet piles to prevent further schedule delays. It was also agreed that KISC would investigate the costs associated with leaving the steel sheet pile in place versus reusing rented sheets on the north side of the bridge.

At this point, KISC is reserving its’ rights for equitable adjustment to the GMP regarding this matter. It is KISC position that the differing site condition could not have reasonably foreseen due to a lack of as-built information provided/available on the existing seawall. The impact of this differing condition will exceed the remaining available funds in the current GMP Contingency and therefore KISC is requesting a separate change order be issued for the cost and time impacts associated with the differing site condition.

Attached is KISC proposed estimate of the cost and time impacts for proceeding with the sheetpile mitigation to continue seawall installation.

Option A – Installation and removal of temporary rented steel sheet piles:

- Cost = $158,640

- Schedule = 3 weeks addition time.

Option b – Installation and leave in place steel sheet piles:

- Cost = $292,490
- Schedule = 3 weeks addition time

If you have any questions regarding this matter, please contact me at: (954) 218-3852 / Pedro.Laguna@Kiewit.com.

Sincerely,

Pedro Laguna
Project Engineer

Cc: Bruce Applegate (Bruce.Applegate@Kiewit.com)
Job File