SP-150290
(New)

SPECIAL PROVISIONS
FOR
THERMAL INTEGRITY PROFILING DEMONSTRATION

Jackson County
BRFN-052-1(97)--39-49

Effective Date
July 18, 2017

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150290.01 DESCRIPTION.

A. One drilled shaft will be selected for a thermal integrity profiling demonstration. The specific shaft will be selected by the Engineer. The drilled shaft acceptance will be on the basis of the Crosshole Sonic Log (CSL) testing as specified in Section 2433 of the Standard Specifications.

B. Thermal wires will be installed by Pile Dynamics, Inc. at a rate of one wire full length wire for each foot of shaft diameter. Thermal Wires run vertically on longitudinal bars of the drilled shaft reinforcing cage. The Contractor shall provide advanced notice of drilled shaft construction and site access to Pile Dynamics, Inc. for wire installation and data collection. The contractor shall protect the wire installation from damage.

C. The drilled shaft installation plan submitted by the Contractor in accordance with Section 2433 of the Standard Specifications will be shared with Pile Dynamics, Inc. by the Engineer.

150290.02 MATERIAL.

All materials for thermal integrity profiling demonstration will be supplied by Pile Dynamics, Inc.

150290.03 CONSTRUCTION.

A. Pre-pour.

1. Notice.
Contractor shall provide 2 weeks advance notice of shaft installation to the Engineer and Jim Zammataro, Pile Dynamics, Inc. so travel can be arranged. Typically, wires are installed while the cage or cages are on the ground the day or two before lifting and pouring commence.

Jim Zammataro
Product Director
Thermal Integrity Profiling
Pile Dynamics, Inc.
Email: JZammataro@pile.com
Cell: 216-470-2291
Direct: 440-996-0635
Office: 216-831-6131 x135

2. Identify potential damage points.

Communication with the contractor is necessary to identify cage lift points, CSL tube locations, reinforcements that will be removed after the Thermal Wires are installed and other aspects that could cause wire damage.

- **a.** Lift points: Lift points need to be avoided because straps or chains are typically used and have the possibility of crushing the wires. PDI will consult the contractor onsite prior to wiring the cage to have these areas marked if not done already.
- **b.** Reinforcement removal: This usually occurs by torching or saw cutting and the installers attempt to avoid wiring in areas where that will take place. Between lift points and these cutting areas, it can limit bar selection for the Thermal Wires. Even spacing around the cage is preferable if it can be worked out, but installation is flexible if a change in spacing is necessary due to the lift point and reinforcement cutting needs of the contractor. If reinforcements are to be torch cut while the cage is hanging, PDI requests if possible, that the cut bars not be allowed to drop down the cage.
- **c.** CSL tubes: Thermal Wires are not installed on CSL tubes or in the same space as CSL tubes. CSL tubes have a tendency to shift during cage lift so the wires are run in a way that the CSL tubes can't damage them during a lift.
- **d.** It is requested of the contractor that once the cage is wired they not step on or grab the wires while getting the cages ready for lifting.

B. During Pour.

1. Protect.

Thermal Wires are installed in a way to protect them as much as possible during cage lifting and concrete pouring.

- **a.** Avoid vibrating concrete or digging near the wires at the top of pour
- **b.** If torching is necessary during pour, protect adjacent wires if possible

2. Splicing.

In shafts where multiple cage sections will be spliced during the lift, Thermal Wires are provided with built-in quick connect plugs. Once the cage sections and CSL tubes are spliced, installed Thermal Wire sections are brought together, plugs are connected and locked with zip ties and wires are zip tied back in place. Excess sensors at a splice need to be counted. This typically takes 1-3 minutes per wire and can be done simultaneously during CSL tube splicing if space allows. This can take longer depending on cage design and access issues. Cage section drawings from the contractor would be helpful in planning.

C. Post-pour Data Collection.

1. Once the pile top is clear the data loggers will be connected and cable tied to the cage. PDI will work with the contractor for the best placement to protect them during any post pour pile top work that would occur before data collection is complete, typically 12 to 72 hours.

2. Once peak temperature is achieved the data loggers are removed so top of shaft access is necessary during this time period.

150290.04 METHOD OF MEASUREMENT

No separate measurement.

150290.05 BASIS OF PAYMENT

No separate payment will be made for the work of accomodating the thermal integrity profiling demonstration. The cost of providing notice, access, wire installation time, data collection access and protection of the installation shall be included in the payment for Concrete Drilled Shaft, 72 in. Diameter.