TECHNICAL SPECIAL PROVISION
FOR
SETTLEMENT PLATES

44TH AVENUE EAST FROM 30TH STREET EAST TO 45TH STREET EAST
MANATEE COUNTY, FLORIDA
MANATEE COUNTY PROJECT NO. 6071160

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SETTLEMENT PLATES

T-141-1 DESCRIPTION

A. Fabricate, install, protect and maintain settlement plates in accordance with Florida Department of Transportation (FDOT) Design Standard index 540, these Technical Special Provisions, the details shown on the plans and as directed by the Engineer. The Contractor shall be responsible for the fabrication, installation, protection and maintenance of settlement plates.

B. The system of settlement plates is designed to enable the Engineer to observe and determine the magnitude and rate of embankment settlement. The determination of the time at which the at which the necessary consolidation settlement has taken place and the embankment may be released for additional lifts or placement of roadway base will be determined by the Engineer on the basis of the data obtained from the combined settlement monitoring instrumentation.

T141-2 MATERIALS

The settlement plate assemblies shall be constructed in accordance with the plate and stem options as shown in Standard Index 540. All iron pipe and fittings shall be schedule 40; the size shall be as shown on Standard Index 540. Materials will be accepted on the basis of a visual inspection.

T141-3 INSTALLATION

A. Install the settlement plates once the causeway embankment fill height is approximately 6 inches above the water level within Seller's Pit at the time of construction; establishing a working platform.

B. Install the settlement plates at the locations shown on the **Settlement Monitoring for Causeway Construction** plan sheet.

C. Make an excavation slightly larger than the settlement plate. Excavate to form a pit a minimum of twelve inches deep with a level bottom.

D. Place the plate in the pit with one section of marker pipe attached. The attached marker pipe shall be 4.5 feet in length as shown in FDOT Standard Index 540. Ensure that the plate has full bearing and the marker pipe is plumb before proceeding with the stem assembly. When realignment of the plate and marker pipe is necessary, remove the plate and pipe and reshape the pit bottom for proper alignment. If timber plates are selected for installation, and the soil is dense enough to suspend the plate on the fabrication bolts, seat the plate by grooving the bottom of the pit under the lines of bolts.

E. With plate and marker pipe in place, wrap the lower 6 inches of marker pipe with oakum; slip one section of casing pipe over the marker pipe; and lower the casing to uniformly encase the oakum seal while seating the casing on the plate as shown in FDOT Standard Index 540.

F. With marker pipe and casing centered with respect to each other and maintained in a vertical position, backfill the pit in layers by hand and thoroughly compact by hand to the elevation of the natural ground. Prior to backfilling the pit, determine the elevation of the

top of the plate. A maximum of one foot of soil cover can be placed to stabilize the settlement plates.

G. When the installation described in these Technical Special Provisions is complete, the Contractor shall notify the Surveyor to determine the elevation of the top of the marker pipe at that time. No embankment fill shall be placed until this elevation has been determined. The casing shall be capped, as shown in Standard Index 540, immediately after the elevation is determined. The settlement plate shall be flagged and protected from construction vehicles and equipment. If the settlement plate assembly is disturbed, it shall be replaced in kind within 24 hours, unless otherwise directed by the Engineer.

H. Place and compact the embankment material in the immediate vicinity of the settlement plate stem in accordance with the requirements of the FDOT Standard Specifications, or as directed by the Engineer. Hand place and hand compact embankment within three feet of the stem with non-impact, light vibratory plate compactors.

I. When surface of the embankment reaches a level approximately two feet below the top of the stem section in place, notify the Engineer. After the Surveyor establishes the elevation of the marker pipe in place, install the next section of marker pipe and casing in the presence of the Engineer. As soon as the Surveyor establishes the elevation of the added marker pipe, cap the casing and flag the stem for protection. Added sections will be five feet in length.

J. As the height of the embankment increases, repeat this procedure until the embankment is completed.

K. Settlement plate assemblies shall remain in place and become the property of the County.

L. Monitoring of the settlement plates shall be performed by a Professional Land Surveyor licensed in the State of Florida. In no cases shall a foreman, site superintendent or other unqualified person collect the data from the settlement plates. In the event a settlement plate is reported as rising or increasing in elevation, the data set should be sent immediately to the Engineer of Record and all points should be surveyed a second time with an alternate benchmark to confirm the results. The Surveyor will obtain and record all measurements and elevations necessary for accurate determinations of settlement data during construction of the embankment and surcharge. Settlement measurements shall be taken by the Contractor's Professional Land Surveyor and provided to the Geotechnical Engineer.

T141-4 PROTECTION AND MAINTENANCE

A. The settlement plate stem shall remain in a vertical position at all times during the life of this Contract. The Contractor shall operate his equipment in a manner to insure that settlement plate assemblies are not damaged or displaced laterally. Each assembly shall be clearly marked and flagged as approved by the Engineer and protective barricades shall be erected around each assembly. Stems deviating from a vertical position, becoming uncoupled or broken shall be repaired or replaced by the Contractor, as directed by the Engineer, at the Contractor's Expense.

B. The Contractor will not be held responsible for repair or replacement of any settlement plate assembly which is made inoperable as a result of instability of the embankment

caused by factors, which in the opinion of the Engineer, are beyond the control of the Contractor.

END OF THIS TECHNICAL SPECIAL PROVISION