



Florida Department of Transportation

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SECRETARY

MEMORANDUM

DATE: November 17, 2014

TO: Specification Review Distribution List

FROM: Daniel Scheer, P.E., State Specifications Engineer

SUBJECT: Proposed Specification: **1080000 Protection of Existing Structures.**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

This change was proposed by Juan Castellanos of the State Construction Office to add new Section 108 to address protection of existing structures. Until now, Section 455 addressed this, but referred to only construction of foundations. This new section will address protection of existing structures during any construction operation including roadway compaction and other work that is not related to foundation construction.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or online at <http://www2.dot.state.fl.us/SpecificationsEstimates/Development/IndustryReview.aspx> . Comments received after **December 15, 2014**, may not be considered. Your input is encouraged.

DS/dt
Attachment

PROTECTION OF EXISTING STRUCTURES.

(REV 11-6-7-14)

The following new Section is added after Section 107.

SECTION 108
PROTECTION OF EXISTING STRUCTURES

108-1 Description.

Provide settlement, vibration and groundwater monitoring in accordance with the requirements of this Section.

Evaluate the need for, design of, and provide any necessary precautionary features to protect existing structures from damage. Employ construction methods that will not produce damaging vibrations, soil movement, soil loss, or instability of existing structures.

Preserve all property from damage in accordance with 7-11.1.

108-2 Construction.

108-2.1 Inspection and Settlement Monitoring:

108-2.1.1 Miscellaneous Structures: *When constructing foundations for miscellaneous structures such as sign, signal, lighting, or intelligent transportation system structures, inspect and document the condition of the existing structures shown in the Plans, and survey and monitor for settlement the existing structures shown in the Plans.*

108-2.1.2 Structures other than Miscellaneous: *When excavating or constructing retaining walls and foundations for bridges and structures other than miscellaneous structures, inspect and document the condition of the following existing structures, and survey and monitor for settlement the following existing structures:*

- 1. as shown in the Plans.*
- 2. within a distance of five shaft or auger cast pile diameters, or the estimated depth of drilled shaft or auger cast pile excavation, whichever is greater, measured from the center of these foundation elements.*
- 3. within a distance of three times the depth of other excavations.*
- 4. within 200 feet of sheet pile installation and extraction operations.*
- 5. for projects with pile driving operations, inspect and document the condition of all structures within a distance, in feet, of pile driving operations equal to 0.25 times the square root of the impact hammer energy, in foot-pounds. Survey and monitor for settlement all structures within a distance, in feet, of pile driving operations equal to 0.5 times the square root of the impact hammer energy, in foot-pounds.*

108-2.1.3 Roadway Compaction Operations: *When performing embankment and asphalt compaction, inspect and document the condition of the following existing structures, and survey and monitor for settlement the following existing structures:*

- 1. as shown in the Plans.*
- 2. within 75 feet of vibratory compaction operations.*

108-2.1.4 Inspection and Documentation Requirements: *Inspect and document the condition of the existing structures and all existing cracks with descriptions and pictures using a qualified Specialty Engineer. Prepare two reports documenting the condition of the structures: one report before beginning the construction operations that may affect the existing*

structures such as but not limited to foundation construction, excavations, vibratory compaction, dewatering and retaining wall construction, and a second report after completing such construction operations. Include in the reports the Specialty Engineer's assessment of any damage present, and in the event of damage, the Specialty Engineer's assessment of whether the observed damage is the result of the construction operations. The Department will take ownership of both reports. Do not inspect and document the condition of bridges owned by the Department except when shown in the Contract Documents.

The Department will make the necessary arrangements to provide right of way entry to the existing structures.

108-2.1.5 Settlement Surveying and Monitoring Requirements: *Obtain the Engineer's approval for the number and location of monitoring points. Survey and monitor for settlement the structures, recording elevations to 0.001 foot:*

- 1. before beginning construction*
- 2. daily, during the driving of any casings, piling, or,*
- 3. daily, during compaction*
- 4. daily, during foundation drilling*
- 5. weekly, for two weeks after stopping pile driving*
- 6. during excavation*
- 7. during blasting*
- 8. or, as directed by the Engineer*

Upon either detecting movement of 0.005 feet or damage to the structure, immediately stop the construction operations affecting the structure, backfill any open excavations, and contact the Engineer for instructions.

108-2.2 Vibration Monitoring: *When shown in the Contract Documents, employ a qualified Specialty Engineer to continuously monitor and record vibration levels at the structures shown in the Plans during the operation of any equipment causing vibrations or during blasting operations. Furnish the vibration records to the Engineer within 24 hours of performing the monitoring activity. Provide vibration monitoring equipment capable of detecting velocities of 0.1 inches per second or less. Obtain the Engineer's approval of the number and locations of the monitoring points.*

Upon either detecting vibration levels reaching 0.5 inches per second or damage to the structure, immediately stop the source of vibrations, backfill any open excavations, and contact the Engineer for instructions.

108-2.3 Groundwater Monitoring: *When shown in the Contract Documents, install piezometers at the locations shown in the Plans. Monitor the piezometer and record the ground water elevation level daily. Notify the Engineer of any ground water lowering near the structure of 12 inches or more.*

108-3 Method of Measurement.

The quantities to be paid for will be lump sum, completed and accepted. No separate payment will be made for the design, furnishing, construction, and removal of precautionary features, such as but not limited to sheeting, shoring, or bracing, installed for protection of existing structures.

108-4 Basis of Payment.

Price and payment will be full compensation for all work and materials specified in this Section.

Payment will be made under:

- Item No. 108- 1 Protection of Existing Structures - Inspection and Settlement Monitoring - lump sum.*
- Item No. 108- 2 Protection of Existing Structures - Vibration Monitoring - lump sum.*
- Item No. 108- 3 Protection of Existing Structures - Groundwater Monitoring - lump sum.*

ORIGINATION FORM

Date: **8/26/2014**

Originator: **Juan Castellanos**

Contact Information: **Juan Castellanos 850-414-4276**

Specification Title: **Protection of Existing Structures**

Specification Section, Article, or Subarticle Number: **108**

Why does the existing language need to be changed? **This new section for Protection of Existing Structures is needed to address this for any type of work in FDOT. Until now, section 455 was addressing this, but section 455 refers to only construction of foundations. This new section will address protection of existing structures during any construction operation including roadway compaction and other work that is not related to foundation construction.**

Summary of the changes: **Add new section 108.**

Are these changes applicable to all Department jobs? **Yes**

If not, what are the restrictions?

Will these changes result in an increase or decrease in project costs? **Unknown**

If yes, what is the estimated change in costs?

With who have you discussed these changes? **Construction, Design and Specifications offices**

What other offices will be impacted by these changes? **None**

Are changes needed to the PPM, Design Standards, SDG, CPAM or other manual? **Yes; PPM changes are being performed to address protection of existing structures.**

Is a Design Bulletin, Construction Memo, or Estimates Bulletin needed? **No**

Contact the State Specifications Office for assistance in completing this form.

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