

Special Provision Item XXXX-XXXX Intelligent Compaction

I. Description:

This work is the compacting of construction materials using specialized Intelligent Compaction (IC) equipment that automatically displays and records roller position, speed, surface temperature, and material stiffness values in real time, during construction.

Implement IC in accordance with Publication 771, "Procedures for Implementing Intelligent Compaction on PennDOT Projects".

IC applies to the following bid items in this contract: *Insert item numbers* _____ - _____, _____ - _____, _____ - _____, and _____ - _____.

II. Material:

IC is a construction methodology, no IC materials are incorporated into the completed project.

III. Construction:

a) **Equipment.** Provide, calibrate and use equipment that meets the requirements in Publication 771 Section III.

- **Rollers.** Use roller(s) meeting the requirements of Section 108.05(c)3.h and the special IC requirements listed in Publication 771 Section III.A. Provide at least one IC equipped roller and other associated equipment necessary to complete the IC portion of the work
- **Real Time Kinematic Global Positioning System (RTK-GPS).** Provide RTK-GPS equipment in accordance with Publication 771 Section III.B. Also, provide a person with a rover unit to obtain coordinates at points of interest to the Department whenever IC construction is in progress. Label all points of interest and provide the Department with a key to the labels.

b) **Construction Training and Technical Assistance.** Coordinate with appropriate technical representatives (IC roller manufacturer and GPS equipment representatives) to provide special training & technical assistance in accordance with Publication 771 Section IV:

- Provide special IC training to educate Contractor and Department staff in the proper set-up and use of IC equipment, and interpretation of IC data. This requirement may be waived if the contractor can demonstrate successful use of IC on at least five PennDOT projects, and the Representative authorizes that the training is not needed for the project.
- Provide on-site technical assistance during the initial setup and verification testing of the IC roller(s).

c) **Pre-Placement Submittals.** Prepare and submit to the Representative for review at least 6 weeks before the pre-placement conference the following written documents in accordance with Publication 771 Section V.

- IC Work Plan;
- Paving Quality Control Plan as specified in Section 409.3(a), and as directed; and
- IC Quality Control Plan.

d) **Notification and Execution of IC Work.** Notify the Representative at least 2 weeks before beginning roller operations or before resuming production if operations have been temporarily suspended. Comply with all paving equipment requirements specified in Publication 408 Section 409. Conduct roller operations and test sections in accordance with Publication 771 Section VI.

- Hold a pre-placement conference at least 2 weeks before the start of roller operations.
- Do not begin work until the Representative has reviewed and accepted the IC pre-placement sub-

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mittals, the IC equipment, and the proposed data file names.

- Label each layer/lift that is being compacted with IC equipment with suitable file names.
- Test Section(s) Required. Conduct IC test sections for each of the IC designated materials at location(s) and lengths agreed to by the Contractor and the Representative within the project limits.
- Use the IC roller(s) to compact the lifts of each type of material within the areas indicated.

e) Data Handling.

- **Project Plan Files.** If available, upload the project plan files to the roller's IC computer prior to the start of production.
- **Data File Names.** Submit, prior to the start of production, the proposed data file names for approval (see Publication 771 Section VII.B). Suitable data file names will include as a minimum the ECMS number, the SR number, the lane number, the roller number, lift number, date, and time. Submit a key for all lane numbers, roller numbers, lift numbers, etc.
- **Format.** Export the IC data from this project in a format suitable for processing by the version of the "VEDA" software that the Department is using.
- **Real Time Kinematic Global Positioning System (RTK-GPS).** Reference equipment to the appropriate zone of the Pennsylvania State Plane Coordinate System. Compute all Pennsylvania State Plane Coordinate System information in the North American Datum of 1983 (NAD 83). Compute all vertical survey information in the North American Vertical Datum of 1988 (NAVD 88). The use of local coordinate systems is not acceptable.
- **Construction Submittals.** Save copies of all the IC data from all of the passes, as well as data from just the last pass within a given area. Save copies of all hand-held rover measurements. During construction, submit upon request to the Representative interim copies of data collected. At the completion of the IC construction, submit to the Representative record copies of all the IC data files, coordinates of points of interest, and other requested information on CDs or DVDs. Label the CDs or DVDs with the date, the ECMS number, and the CD or DVD number.
- **Manufacturer's Web-Based Software.** Provide the Department with a user account that can access the web-based data for a period of at least 1 year following completion of the IC construction. The Department's user account can be deactivated after the Department confirms accessibility of the record data files on the CDs/ DVDs. All costs associated with providing, and maintaining, the user account is considered incidental to this item.

f) Quality Control. Prepare and submit daily to the Representative for review, the documentation required by Publication 771 Section VIII.

- **Quality Control Tests.** Prepare and submit to the Representative for review all quality control test results, including temperature and density testing, within 24 hours of testing.
- Check the GPS system for adequate signal strength and for proper functioning at least every two hours during IC construction. Take appropriate steps to correct any deficiencies detected.
- Record all of the ICMV values and compare to the target ICMV values determined from the test sections at least daily. Bring to the Department's attention any areas not meeting the target ICMV values while construction is underway. Investigate and correct irregularities if authorized by the Department.

g) Material Acceptance Testing. Material acceptance is not based upon this IC item but is in accordance to the appropriate section of Publication 408 for the material being compacted. For bituminous materials, take additional research cores for information only in accordance with Publication 771 Section IX.

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IV. Measurement and Payment:

- a) **Intelligent Compaction Special Training. Lump Sum.** If conducted and not waived for this project by the Representative.
- b) **Intelligent Compaction. Square Yard.** Bituminous or roller compacted concrete (RCC) pavement areas compacted using IC technology in accordance with Publication 771 will be paid for this IC item work by square yard. Material acceptance is not based upon this IC item but is in accordance to the appropriate section of Publication 408 for the material being compacted.
- c) **Intelligent Compaction. Cubic Yard.** Embankment areas or subbase materials compacted using IC technology in accordance with Publication 771 will be paid for this IC item work by cubic yard. Material acceptance is not based upon this IC item but is in accordance to the appropriate section of Publication 408 for the material being compacted.

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