

**STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION 878
INSPECTION AND COMPACTION TESTING of UNBOUND MATERIALS**

April 18, 2008

- 878.01 Description**
- 878.02 Personnel Requirements**
- 878.03 Field Test Methods**
- 878.04 Test Equipment**
- 878.05 Acceptance of Field Inspection**
- 878.06 Compaction Equipment**
- 878.07 Notification of Non-compliance**
- 878.08 Forms, Documentation, Monthly and Final Report**
- 878.09 Quality Assurance Testing**
- 878.10 Method of Measurement**
- 878.11 Basis of Payment**

878.01 Description. This work consists of performing inspection, compaction testing and documentation for Items 203, 204, 205, 206, 304, 307, 411, 503, 603 and select granular backfill for MSE walls.

878.02 Personnel Requirements. Provide a Registered Engineer to supervise technicians' work and act as liaison with Department personnel. Have the Registered Engineer available to discuss questions and problems which arise relative to construction, inspection and compaction testing and be available at the bimonthly progress meetings.

Provide at least one lead technician with NICET Level II, Construction Materials Testing – subfield Soils certification and 5 years relevant experience per project.

Provide technicians with NICET Level II, Construction Materials Testing – subfield Soils certification, and 2 years relevant experience, at all times for every operation requiring inspection, compaction testing and documentation. At a minimum, provide full time inspection and documentation, when unbound material is being placed.

Provide a list of all required personnel to the Engineer for acceptance 7 days prior to the work.

Until July 1, 2007, the Engineer may accept alternate personnel qualifications that document similar NICET training and relevant experience.

878.03 Field Test Methods. Perform inspections and compaction tests according to Supplement 1015. Use the online documentation forms from the Construction Inspection Manual of Procedures (<http://www.dot.state.oh.us/construction/OCA/default.htm>).

Use Table 1015.10-1 in Supplement 1015 Compaction Testing of Unbound Materials for the different materials, minimum testing frequencies and the appropriate test or method for controlling each material.

878.04 Test Equipment. Provide the serial number, manufacturer, model number, calibration data, and frequency of calibrations for nuclear gauges. Provide documentation of the 3 block calibration (minimum every 18 months), leak tests (minimum every 6 months), and stability tests (minimum every project) for each gauge.

Perform standard counts at intervals recommended in the manufacturers operating manual and at least once a week.

Define the procedure for performing a stability check on nuclear gauges which are not within the tolerance range after the standard count and during the interval between calibrations. Standard counts derived during the stability check for stable gauges may be used in lieu of the manufacturer's standards. Do not use gauges found to be unstable until repaired and calibrated.

878.05 Acceptance of Field Inspection. At the start of compaction operations and quality control testing, Contractor and Department personnel will perform nuclear moisture and density tests at the same location. The test results must agree before compaction operations may continue.

878.06 Compaction Equipment. Provide a list of all proposed compaction equipment including make, model, and weight or applied force at which each roller will be operated. If adding ballast to a roller, indicate the type and quantity of ballast along with the method for verifying the gross weight. Include manufacturer's specifications for the compaction capabilities for each roller or define the procedures that will be used to verify the compaction capabilities of each roller.

878.07 Notification of Non-compliance. Immediately notify the Engineer and the Contractor when any field tests note non-compliance.

878.08 Forms, Documentation, Weekly and Final Reports. Provide accurate inspection information, tests, and calculations. Report the inspection and compaction tests on Department forms defined in S-1015. Provide the inspections, compaction test results and measurements to the Engineer daily. Provide a summary of the inspections, compaction tests and measurements weekly. Include all inspections, measurements and compaction test results including failing lots, moisture checks, etc. Have the Registered Engineer sign the weekly and final reports certifying that all the inspections and compaction tests meet all the contract requirements. Submit the final report 30 days after the completion of the work.

878.09 Quality Assurance Testing. The Department will perform quality assurance (QA) tests to verify that the inspections and compaction testing conform to the Items of Work. The Department will test every 5th lot for acceptance. The tested lot will be determined at random. The lot results will be recorded. If the material does not require a compaction test, such as rock or hard shale, and it is being placed according to the specifications then the material will not be QA tested.

If the random quality assurance lot fails, the Department will test one additional lot of the original five. If only the original lot fails, re-compact the failed lot. If the original and second lot fails, re-compact all five lots represented by the original quality assurance lot tests. Notify the Engineer when any re-compacted lot is ready for quality assurance verification.

After re-compaction, the Department will either test all five lots for acceptance or witness the testing and documentation by the field inspection personnel. If any lot fails again the Engineer will stop construction until the lead technician determines and resolves the problem and submits a plan to eliminate future problems.

878.10 Method of Measurement. The Department will not measure the Inspection and Compaction Testing of Unbound Materials.

878.11 Basis of Payment. The Department will pay the lump sum as follows:

Upon approval of the project personnel	10 %
Uniform monthly progress payments	80 %
Upon acceptance of the final report	10 %

If all the work under this specification is performed on MSE wall select granular backfill, then the Department will pay for the work under the 840 pay item, SGB Inspection and Compaction Testing.

The Department will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
878	Lump Sum	Inspection and Compaction Testing of Unbound Materials

Designer Note: Use this note when construction personnel are limited and the District wants full time inspection and compaction testing for the work. Contact the District Construction Engineer before incorporating this note into the plans.

SS 878 and 879 are very similar specifications. SS-878 pays for the inspection and compaction testing as a lump sum pay item and covers Items 203, 204, 205, 206, 304, 307, 411, 503, 603 and MSE wall select granular backfill. SS-879 pays for the work as an incentive pay to the contract. The Contractor would be more responsible for the work under 879 but SS-879 only covers Items 203 and 204.

SS 840 for MSE walls requires that this Supplemental Specification be included in the plans. If all the inspection and compaction testing will be done on MSE wall select granular backfill, then a separate 878 pay item is not required. If there will be inspection and compaction testing on material in addition to the MSE wall select granular backfill, then include an 878 pay item and do not include an 840 pay item for SGB Inspection and Compaction Testing.