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SUPPLEMENTAL SPECIFICATION

AMENDMENT TO SECTION 401 – PLANT MIX PAVEMENTS -- GENERAL

The purpose of this Supplemental Specification is to clarify requirements for roller trains and to require informational density cores on shoulders for every 750 tons placed and lessen the density penalty for overlays on pavement where the roadway has not been leveled prior to the overlay. This specification also allows the reduction of the number of cores cut from small quantity paving jobs.

Replace 3.12 with the following:

3.12 Compaction.

3.12.1 General. Unless an alternate compaction package is approved at the project pre-pave meeting, roller trains shall consist of the equipment describe herein.

3.12.2 Method Requirements.

3.12.2.1 Immediately after the hot asphalt mix has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. The initial rolling shall be done with a static or vibratory steel-drum roller. Intermediate rolling shall be done by a pneumatic-tired roller. Final rolling shall be done with a static steel-drum roller or a roller of the steel-drum three-axle type, locked. The completed course shall be free from ridges, ruts, humps, depressions, objectionable marks, visible segregation, or irregularities and in conformance with the line, grade, and cross-section shown in the Plans or as established by the Engineer. Rollers must be in good mechanical condition, free from excessive backlash, faulty steering mechanism, or worn parts. The empty weight and the ballasted weight shall be properly marked on each roller. The minimum weight of static steel-drum rollers shall be 8 tons. When a vibratory roller is being used, the vibration shall stop automatically when the roller is stopped or reversing direction of travel.

3.12.2.2 Pneumatic-tire rollers shall be self-propelled and shall be equipped with smooth tires of equal size and diameter. The wheels shall be so spaced that one pass of a two-axle roller accomplishes one complete coverage. The wheels shall not wobble and shall be equipped with pads that keep the tires wet. The rollers shall provide an operating weight of not less than 2,000 lb per wheel. Tires shall be maintained at a uniform pressure between 55 and 90 psi with a 5 psi tolerance between all tires. A suitable tire pressure gauge shall be readily available.

3.12.2.3 Unless otherwise directed, rolling shall begin at the sides and proceed longitudinally parallel to the roadway center line, gradually progressing to the crown of the roadway. The overlap shall be one-half the roller width for wheeled rollers and 6 in for vibrating rollers. No overlap is required for pneumatic-tired rollers. When paving in echelon or abutting a previously placed lane, the longitudinal joint shall be rolled first followed by the regular rolling procedure. On superelevated curves, the rolling shall begin at the low side and progress to the high side by overlapping of longitudinal passes parallel to the centerline.

3.12.2.4 Rollers shall move at a slow but uniform speed with the drive roll or drive wheels nearest the paver, except on steep grades. Static and pneumatic-tired rollers shall not operate at speeds in excess of 6 mph. All courses shall be rolled until all roller marks are eliminated.

Cores shall be collected by the Contractor at locations as determined and witnessed by the Engineer. One core per lane mile, but no less than two, shall be taken for each roadway segment paved. When shoulders are overlayed, cores shall be collected solely for density information at a frequency of one core for every 750 tons of mix.

The Contractor will deliver the cores to the designated testing laboratory once NHDOT chain of custody measures have been applied.

The minimum compaction requirement shall be 91% of maximum theoretical density as determined in accordance with AASHTO T 209. The following reductions in unit price shall apply for all tonnage placed that is represented by any core (excluding shoulder cores) that does not meet the minimum requirement: for results below 91% but equal to or greater than 90%, a 5% reduction will be assessed; for any results below 90%, a 10% penalty for all tonnage placed will be assessed. At the Engineer's discretion, the Contractor may be required to remove noncompliant material below 90% (no payment will be made for this material or its removal).

3.12.2.4.1

All cores need not be cut at the same time.

- The Contractor is allowed the option to collect cores through all placed lifts at once, provided cores are collected within two working days of placing the first course. Corrective action to any covered course is at the Contractor’s risk.

3.12.2.5 Any displacement occurring as a result of reversing the direction of a roller, or from other causes, shall be corrected at once by the use of lutes and the addition of fresh mixture when required. Care shall be exercised in rolling so as not to displace the line and grade of the edges of the bituminous mixture.

3.12.2.6 To prevent adhesion of the mixture to the rollers, the wheels shall be kept properly moistened with water or water mixed with very small quantities of detergent or other approved material. Excess liquid will not be permitted. All steel rollers shall be equipped with adjustable wheel scrapers.

3.12.2.7 Along forms, curbs, headers, and similar structures and other places not accessible to a normal full-sized roller, sidewalk rollers weighing at least 2,000 lb (900 kg) shall be used. Where rollers are impracticable, the mixture shall be thoroughly compacted with heated or lightly oiled hand tamps or vibrating plate compactors.

3.12.2.8 Unless the Engineer determines that for the weight and placement conditions a lesser number will be satisfactory to obtain the desired pavement densities, the following is the list of required compaction equipment. The output of each paver placing wearing course (Table 1) materials shall be compacted by the use of one each of the following complement of rollers as a minimum: a static or vibratory steel-wheel roller, a pneumatic-tired roller and a three-axle roller or a static steel-wheeled roller. If the required density is not being obtained with the rollers supplied, the use of additional rollers of the specified type may be ordered. Paving widths in excess of 16 ft (5 m) will require additional rollers as ordered.

3.12.3 Performance Requirements (QC/QA).

3.12.3.1 Immediately after the hot asphalt mix has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted. The completed course shall be free from ridges, ruts, humps, depressions, objectionable marks, visible segregation, or irregularities and in conformance with the line, grade, and cross-section shown in the Plans or as established by the Engineer. If necessary, the mix design may be altered to achieve desired results.

3.12.3.2 All compaction units shall be operated at the speed, within manufacturers recommended limits, that will produce the required compaction. The use of equipment, which results in excessive crushing of the aggregate will not be permitted. Any asphalt pavement that becomes loose, broken, contaminated, shows an excess or deficiency of asphalt binder, or is in any way defective, shall be removed and replaced at no additional cost with fresh hot asphalt mix, which shall be immediately compacted to conform with the surrounding area. Hot asphalt mix shall not be permitted to adhere to the roller drums during rolling.

3.12.3.3 The type of rollers to be used and their relative position in the compaction sequence shall be the Contractor's option, provided specification densities are attained and with the following stipulations:

(a) At least one roller shall be pneumatic-tired.
(b) Vibratory rollers shall not be operated in the vibratory mode under the following conditions: When checking or cracking of the mat occurs, when fracturing of aggregate occurs, and on bridge decks.