

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

HOT MIX ASPHALT (HMA) – NON QC/QA

Project # - PCN

GENERAL

In addition to the requirements of Section 430, “Hot Mix Asphalt (HMA)”, the following provisions apply.

CONSTRUCTION REQUIREMENTS

A. Contractor Personnel.

Replace Section 430.04 A, “Contractor Quality Control (QC)” with the following:

Provide personnel meeting the requirements of the NDDOT Technician Certification Program (Level II) for the following tests:

- T 2 – Sampling of Aggregates
- T 248 – Reducing Samples of Aggregate to Testing Size
- NDDOT 5 – Sampling and Splitting Field Verification of HMA Samples
- NDDOT 2 – Contractor Coring

B. Determination of Specific Gravity.

Provide the Engineer with the results of the specific gravity determination made under Section 430.02 of the Field Sampling and Testing Manual.

Section 430.04 C.2, “Determination of Specific Gravity” is optional. The Engineer will determine if specific gravity correlations will be required.

If the Engineer determines that the correlation of specific gravity is not necessary, the Contractor will be notified and the Contractor may then proceed with the development of a mix design.

C. Mix Design Verification.

The Engineer will have the option of verifying the mix design specified in Section 430.04 D.1, “General”. If the Engineer determines that mix design verification is necessary, verification will be conducted in accordance with the standard specifications and the Field Sampling and Testing Manual.

D. Control Limits.

Replace Section 430.04 E.5, “Control Limits” with the following:

The field test results may vary from the mix design target values as shown in Table 1.

Comment [Tech Serv1]: The District should determine whether or not this optional item is mandatory when the SP is set up.

If it is to be mandatory, then this section will be removed.

This comment is a permanent part of the boilerplate SP and is directions to the preparer.

Comment [Tech Serv2]: The District should determine whether or not this optional item is mandatory when the SP is set up.

If it is to be mandatory, then this section will be removed.

This comment is a permanent part of the boilerplate SP and is directions to the preparer.

Table 1

Test/Assessment		Single Test Target Value Control Limit
Asphalt Content (based on totalizer reading)		+ 0.30
ND T 27	Control Sieves	
	1/2"	+ 6
	#4	+ 6
	#30	+ 5
	#200 ¹	+ 2.0
SFN 50289	% Air Voids	2.0 – 6.0
ND T 113	Lightweight Pieces in Aggregate	Not more than maximum specified
NDDOT 4	Course Aggregate Angularity	Not less than the minimum specified
ND T 304	Fine Aggregate Angularity	Not less than the minimum specified
ND D 4791	Flat and Elongated Particles	Not more than maximum specified
ND T 176	Clay Content/Sand Equivalent	Not less than the minimum specified

¹Not to exceed maximum specified

If an individual test falls outside the single test target value control limits, take immediate corrective action. After implementation of the corrective action, collect a sample and conduct the test that fell outside the control limits. If the test following the corrective action falls outside of the control limits discontinue paving operations until the cause is found and corrected. Resume paving operations only after obtaining approval from the Engineer.

The test following the corrective action is used to determine the effectiveness of the corrective action. It is not used for acceptance of material and will not be factored into the moving average.

If an individual gradation test a single control sieve falls outside the single test target value control limits, continued production is allowed only if the air voids are within the control limits and the material passing the #200 sieve does not exceed the maximum specified in Table 430-01.

Discontinue paving operations if 2 consecutive tests exceed the single test target value control limit for any of the following:

- ND T 113, Lightweight Pieces in Aggregate;
- ND T 304, Fine Aggregate Angularity;
- NDDOT 4, Percentage of Fracture Particles in Coarse Aggregate; or
- ND T 176, Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.

Resume paving operations only after taking corrective action and obtaining approval from the Engineer.

E. Aggregate Acceptance.

Replace Section 430.04 M.1, "Aggregate" with the following:

The Engineer will accept aggregate used in the mix based on tests performed specified in section F "Aggregate Testing" and section D, "Control Limits" of this provision.

If the results for an aggregate gradation test fall outside the single test target value control limits, the Engineer will apply a contract price adjustment as specified in Section 430.06 C, "Contract Price Adjustments".

F. Aggregate Testing

The Engineer will perform tests at the frequencies shown in Table 2. At times directed by the Engineer, obtain aggregate samples from the cold feed belt according to ND T 2.

Obtain a mix sample from behind the paver each time an aggregate sample is obtained for sieve analysis.

**Table 2
Testing Frequencies**

Test/Assessment	Minimum Testing Rate
ND T 11 Materials Finer than No. 200 Sieve	1 per 1500 tons of material produces and Minimum of 1 per production day
ND T 27 Sieve Analysis of Fine and Coarse Aggregate	1 per 1500 tons of material produces and Minimum of 1 per production day
% Air Voids	1 per 1500 tons of material produces and Minimum of 1 per production day
ND T 113 Lightweight Pieces in Aggregate	Once per project
ND T 166 Bulk Specific Gravity of Compacted Hot Mix Asphalt Using Saturated Surface-Dry Specimens and Maximum Theoretical Density	Each time ND T 11 and ND T 27 are performed
ND T 176 Clay Content/Sand Equivalent	Once per project
ND T 209 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures	Each time ND T 11 and ND T 27 are performed
ND T 304 Fine Aggregate Angularity	Each time ND T 11 is performed
ND T 312 Preparing and Determining the Density of Hot Mix Asphalt Specimens by Means of Superpave Gyratory Compactor	Each time ND T 11 and ND T 27 are performed
ND D 4791 Flat and Elongated Particles	Once per project
NDDOT 4 Course Aggregate Angularity	Once per project