NORTH CAROLINA
Department of Transportation

CAPA/NCDOT Spec Committee Meeting

October 20th, 2021

Topics / Outline

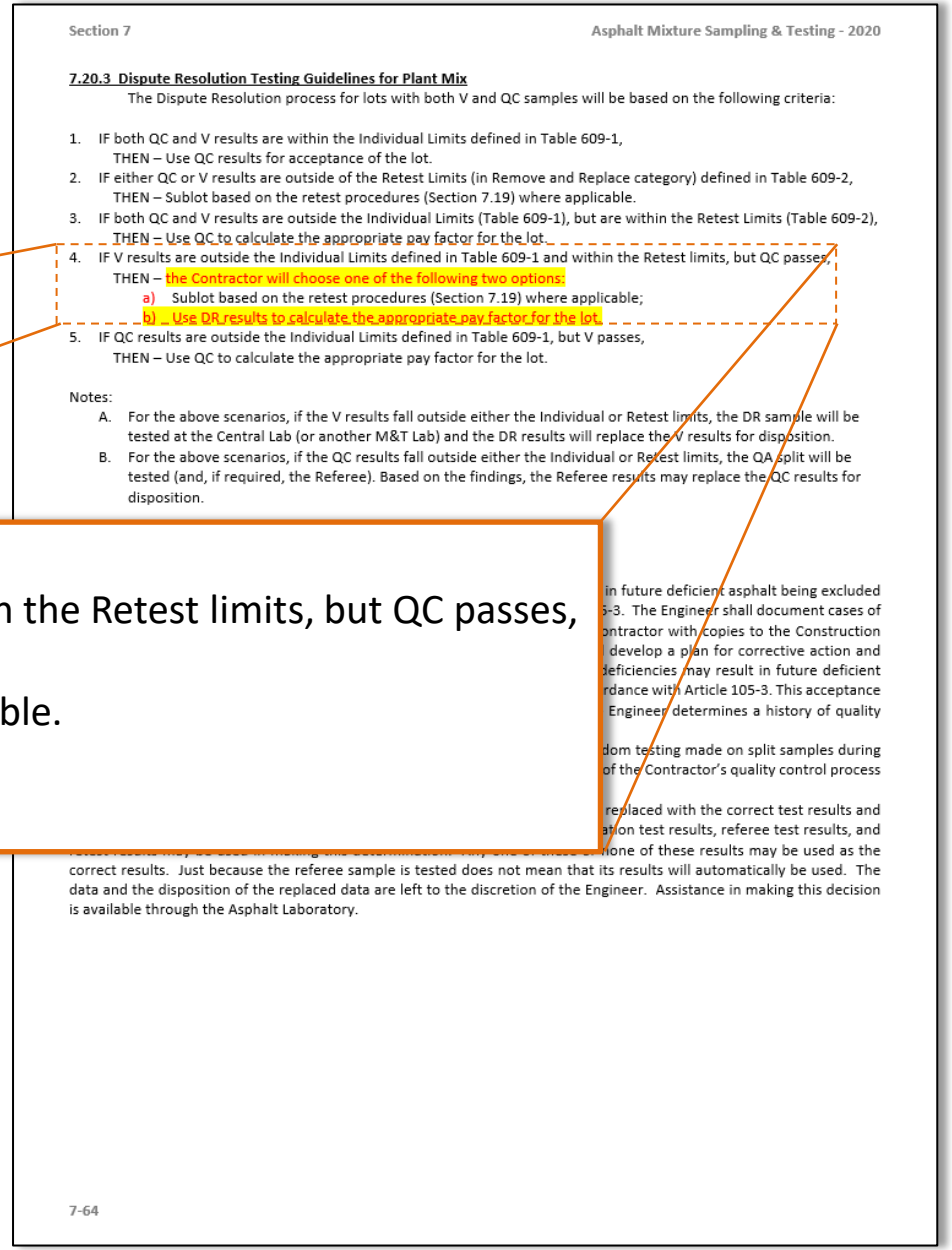
- Previous Spec Committee Meeting QMS Changes
  - Sublots
  - Warm-mix Additives in Lieu of Fibers in OGFC
- 2022 Asphalt QMS Manual Changes
- Flagging vs Closing Y Lines
- Lift Thickness when Paving on AST
- JMF Changes
- E-Ticketing Update
- Control Strip Requirements
- Level II Class prerequisites
- 2021 Training & Certification Classes
- 2022 Training & Certification Classes
- 2021 Technician Assessments & Audits
- COVID Updates

Sublots

See 2020 QMS Manual: Page 7-64 > Section 7.20.3 > Item #4

4. IF V results are outside the Individual Limits defined in Table 609-1 and within the Retest limits, but QC passes,
   THEN – the Contractor will choose one of the following two options:
   a) Sublot based on the retest procedures (Section 7.19) where applicable.
   b) Use DR results to calculate the appropriate pay factor for the lot.

Sublotting is now optional when Department samples are:
- Outside Individual Limits
- Within Retest Limits
- AND QC meets specs.



Section 7 Asphalt Mixture Sampling & Testing - 2020

7.20.3 Dispute Resolution Testing Guidelines for Plant Mix

The Dispute Resolution process for lots with both V and QC samples will be based on the following criteria:

1. IF both QC and V results are within the Individual Limits defined in Table 609-1,
   THEN – Use QC results for acceptance of the lot.
2. IF either QC or V results are outside of the Retest Limits (in Remove and Replace category) defined in Table 609-2,
   THEN – Sublot based on the retest procedures (Section 7.19) where applicable.
3. IF both QC and V results are outside the Individual Limits (Table 609-1), but are within the Retest Limits (Table 609-2),
   THEN – Use QC to calculate the appropriate pay factor for the lot.
4. IF V results are outside the Individual Limits defined in Table 609-1 and within the Retest limits, but QC passes,
   THEN – the Contractor will choose one of the following two options:
   a) Sublot based on the retest procedures (Section 7.19) where applicable;
   b) Use DR results to calculate the appropriate pay factor for the lot.
5. IF QC results are outside the Individual Limits defined in Table 609-1, but V passes,
   THEN – Use QC to calculate the appropriate pay factor for the lot.

Notes:

A. For the above scenarios, if the V results fall outside either the Individual or Retest limits, the DR sample will be tested at the Central Lab (or another M&T Lab) and the DR results will replace the V results for disposition.
B. For the above scenarios, if the QC results fall outside either the Individual or Retest limits, the QA split will be tested (and, if required, the Referee). Based on the findings, the Referee results may replace the QC results for disposition.

...in future deficient asphalt being excluded
...-3. The Engineer shall document cases of
...ontractor with copies to the Construction
... develop a plan for corrective action and
...eficiencies may result in future deficient
...rdance with Article 105-3. This acceptance
... Engineer determines a history of quality

...dom testing made on split samples during
...of the Contractor's quality control process

...replaced with the correct test results and
...ation test results, referee test results, and
...none of these results may be used as the correct results. Just because the referee sample is tested does not mean that its results will automatically be used. The data and the disposition of the replaced data are left to the discretion of the Engineer. Assistance in making this decision is available through the Asphalt Laboratory.

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Sublots

- Option is Already Being Used where Various Conditions Exist:
  - Situations where the road must be completed and opened as soon as possible and cannot wait for Sublot test results;
  - Situations where paving schedule results in the Base, Intermediate, and/or 1st Surface lift is placed and cannot wait for Sublot test results;
  - Other situations involving safety, WZTC phasing, etc.

➢ These are Situations where Division and the contractor agree the penalty is the more economical choice to resetting traffic control and coring for sublots.

Warm Mix Additives for OGFC

Option in lieu of Fiber

- WMA Additives approval will require a 2-step process:
  - Approved Warm Mix Asphalt Technologies List
  - Show existing projects where additive was used in lieu of fibers in OGFC
- Warm mix additives already in use for WMA dense graded mix still need to show successful use in OGFC to prevent draindown
- Case-by-case basis for Provisional Approval

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Topics / Outline

- Previous Spec Committee Meeting QMS Changes
  - Sublots
  - Warm-mix Additives in Lieu of Fibers in OGFC
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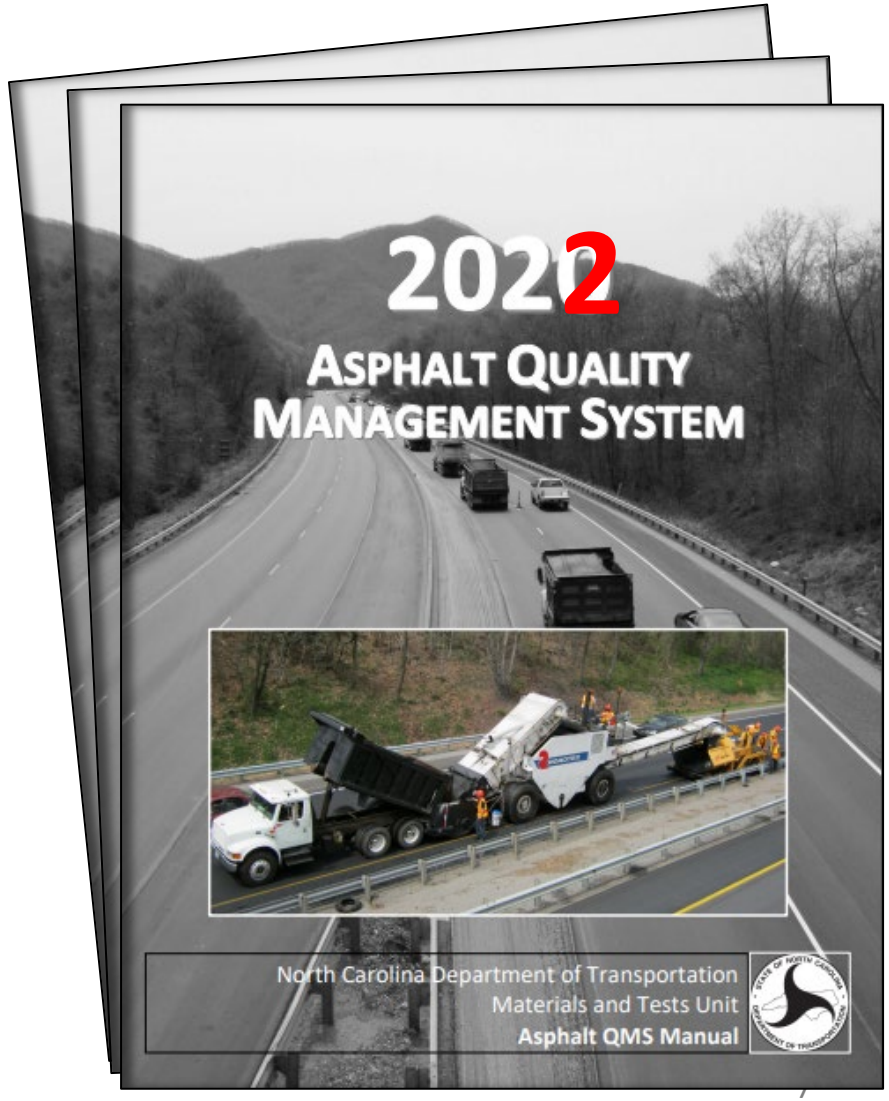
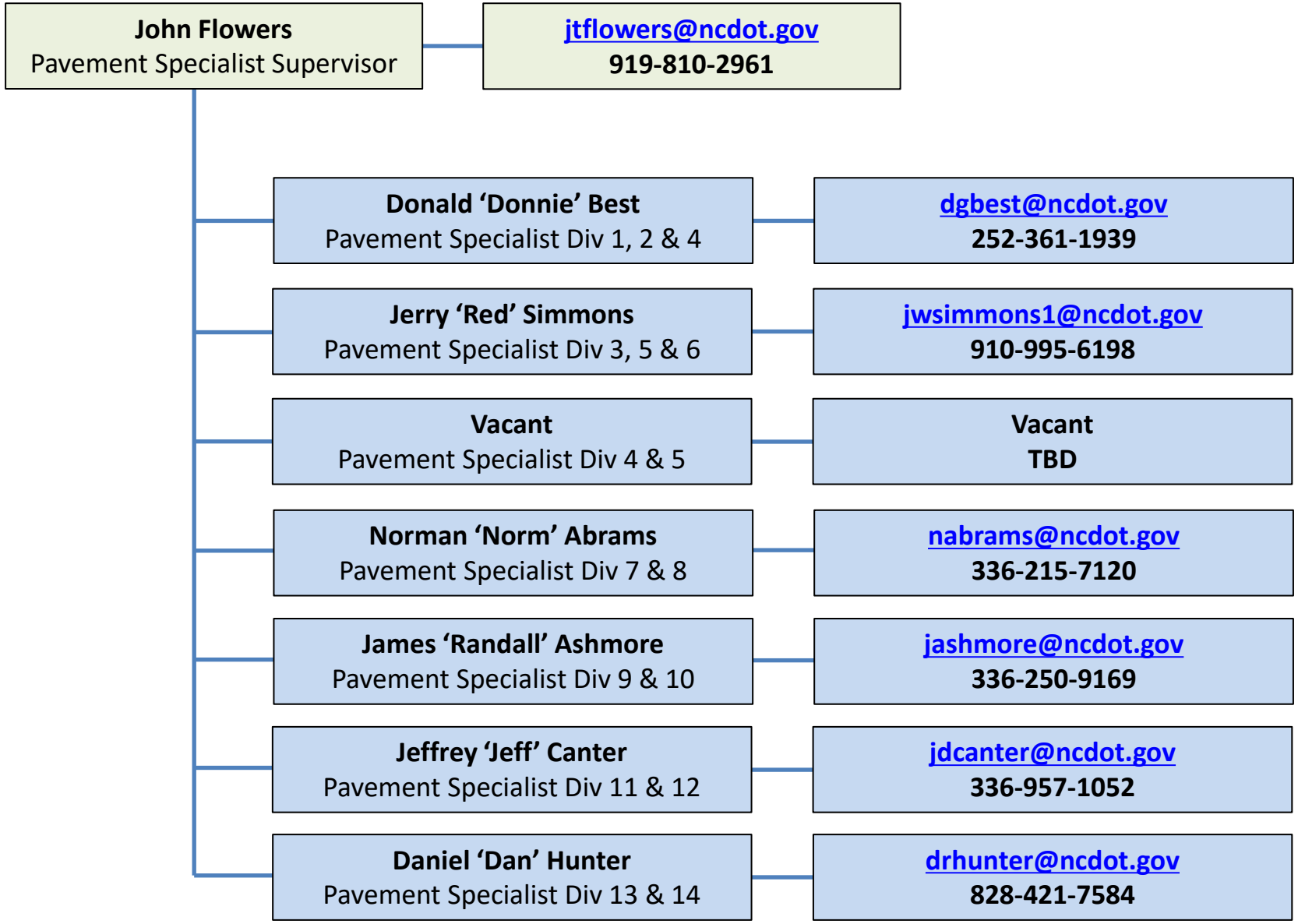
2022 Asphalt QMS Manual

- 2022 Manual
  - Published in electronic and hard copy
  - After printing, contact local Pavement Specialist for additional hardcopies

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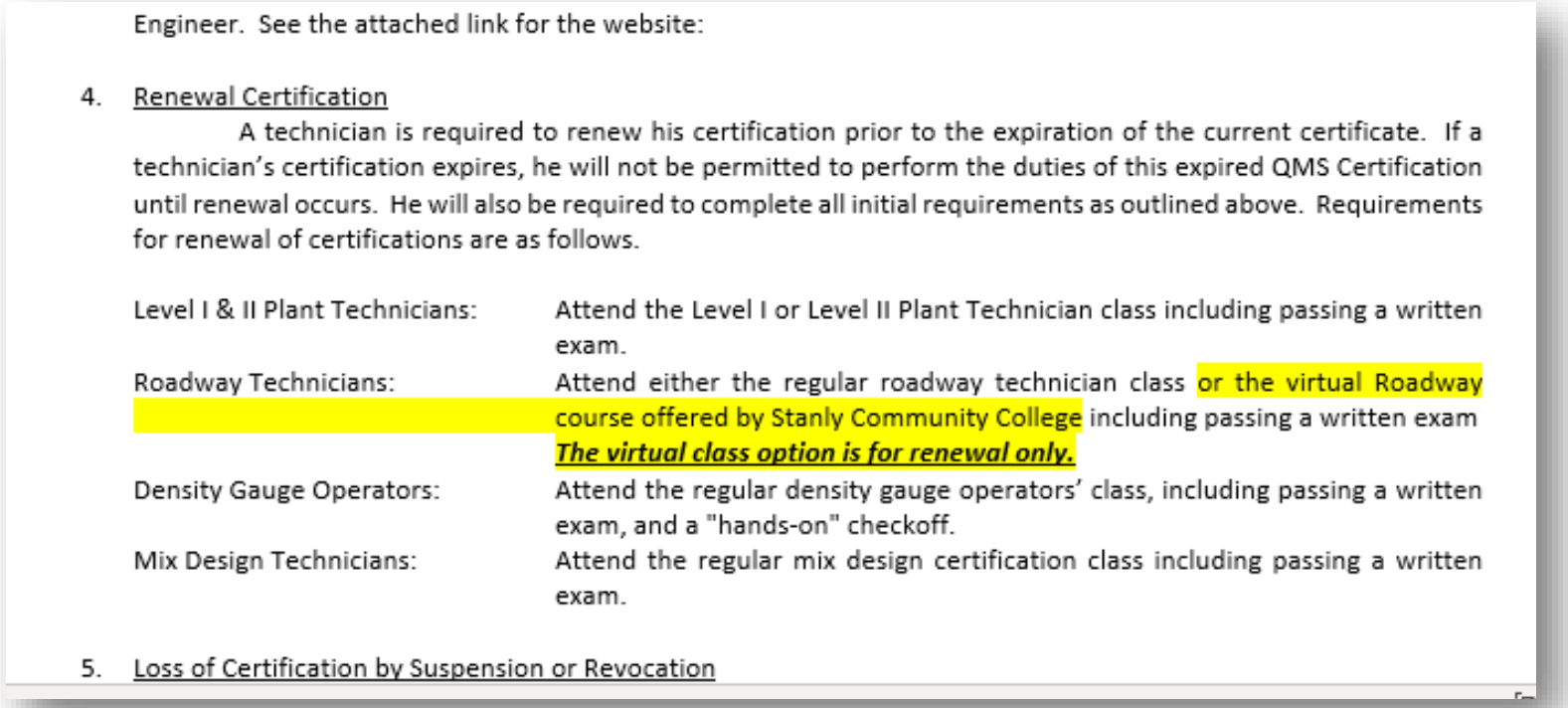
Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 1: Quality Management System (QMS) for Asphalt Pavements**

Page No.	*Subsection*	*Change*
1-7	1.3.7	4. Renewal Certification on Roadway Technicians



Engineer. See the attached link for the website:

4. Renewal Certification

A technician is required to renew his certification prior to the expiration of the current certificate. If a technician's certification expires, he will not be permitted to perform the duties of this expired QMS Certification until renewal occurs. He will also be required to complete all initial requirements as outlined above. Requirements for renewal of certifications are as follows.

Level I & II Plant Technicians:	Attend the Level I or Level II Plant Technician class including passing a written exam.
Roadway Technicians:	Attend either the regular roadway technician class or the virtual Roadway course offered by Stanly Community College including passing a written exam ***The virtual class option is for renewal only.***
Density Gauge Operators:	Attend the regular density gauge operators' class, including passing a written exam, and a "hands-on" checkoff.
Mix Design Technicians:	Attend the regular mix design certification class including passing a written exam.

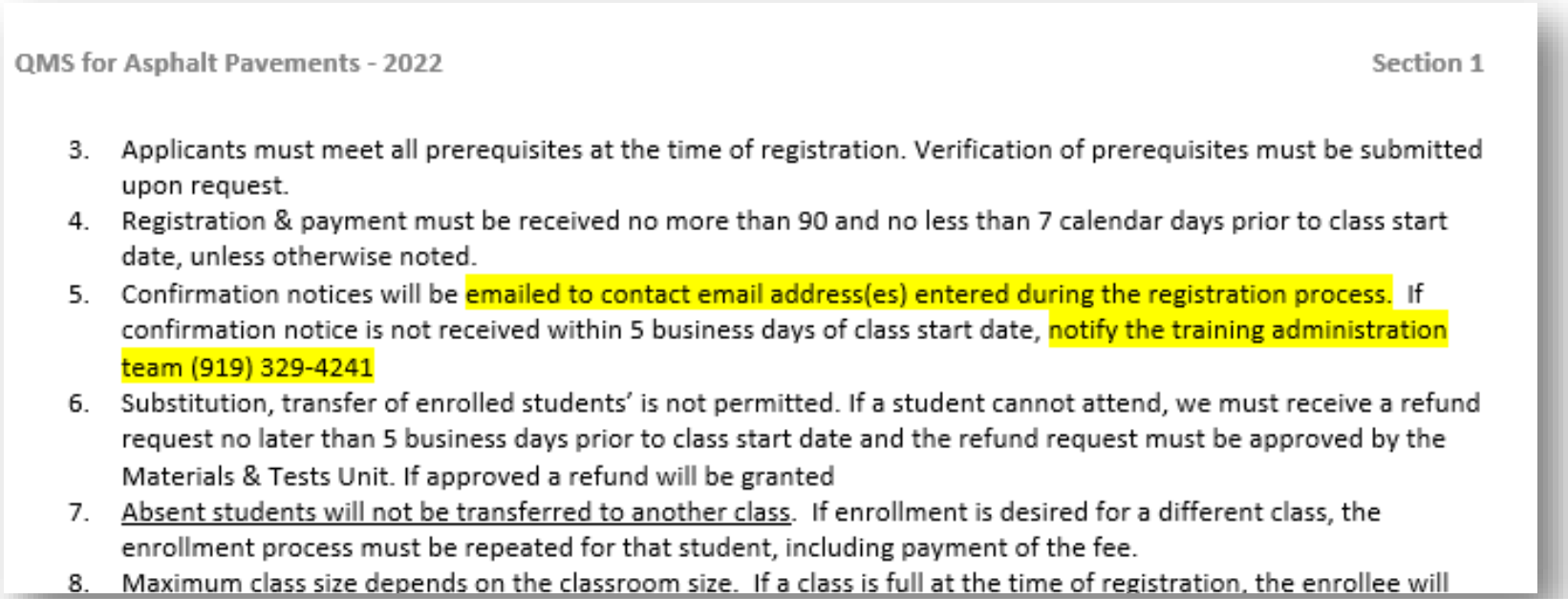
5. Loss of Certification by Suspension or Revocation

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 1: Quality Management System (QMS) for Asphalt Pavements**

Page No.	*Subsection*	*Change*
1-8	1.3.8	5. Renewal Certification on Roadway Technicians



QMS for Asphalt Pavements - 2022 Section 1

3. Applicants must meet all prerequisites at the time of registration. Verification of prerequisites must be submitted upon request.
4. Registration & payment must be received no more than 90 and no less than 7 calendar days prior to class start date, unless otherwise noted.
5. Confirmation notices will be emailed to contact email address(es) entered during the registration process. If confirmation notice is not received within 5 business days of class start date, notify the training administration team (919) 329-4241
6. Substitution, transfer of enrolled students' is not permitted. If a student cannot attend, we must receive a refund request no later than 5 business days prior to class start date and the refund request must be approved by the Materials & Tests Unit. If approved a refund will be granted
7. Absent students will not be transferred to another class. If enrollment is desired for a different class, the enrollment process must be repeated for that student, including payment of the fee.
8. Maximum class size depends on the classroom size. If a class is full at the time of registration, the enrollee will

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 1: Quality Management System (QMS) for Asphalt Pavements**

Page No.	*Subsection*	*Change*
1-8	1.3.8	6. Substitution or transfer of enrolled students is not permitted.

3. Applicants must meet all prerequisites at the time of registration. Verification of prerequisites must be submitted upon request.
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7. Absent students will not be transferred to another class. If enrollment is desired for a different class, the enrollment process must be repeated for that student, including payment of the fee.

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 2: Materials Used In Asphalt Paving**

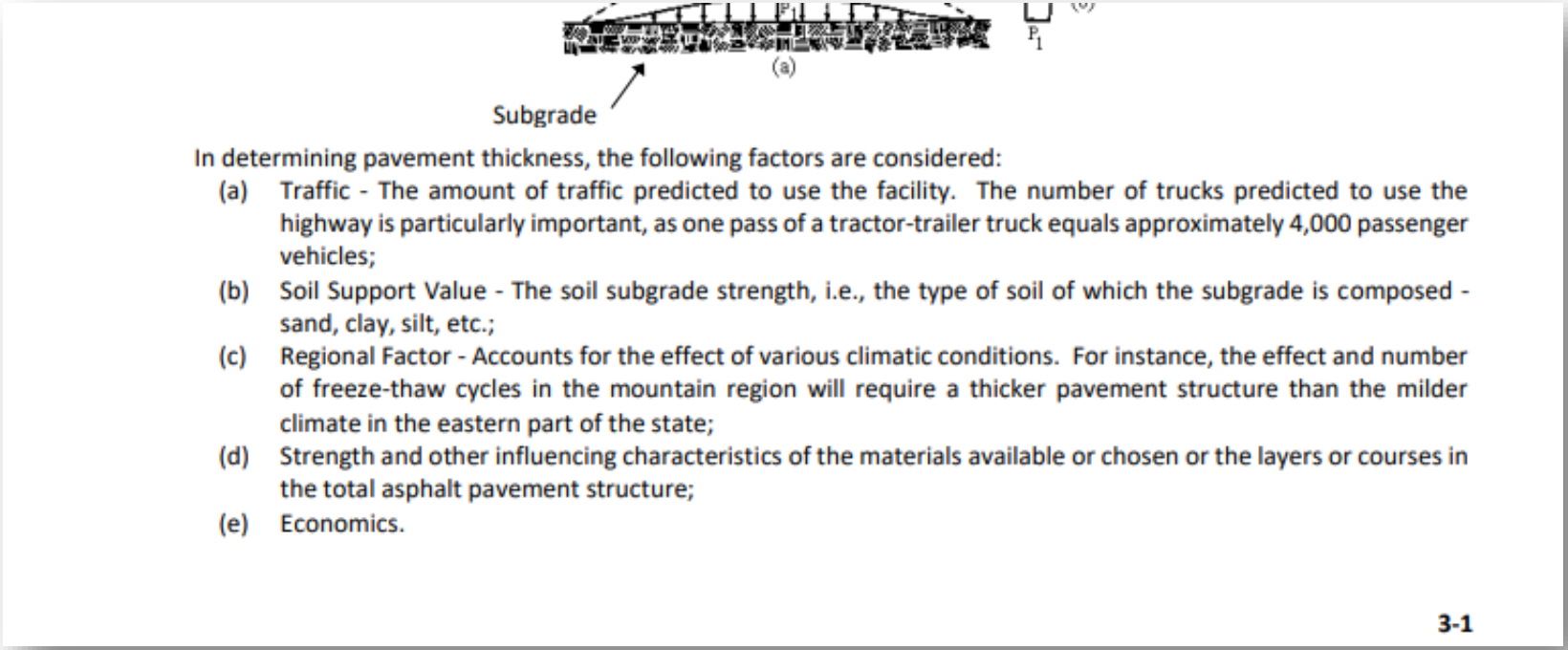
  No updates

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 3: Asphalt Pavement Design**

Page No.	*Subsection*	*Change*
3-1	3.1	Possible changes to Design requirements – Minimum Lift thicknesses?



(a)

Subgrade

In determining pavement thickness, the following factors are considered:

(a) Traffic - The amount of traffic predicted to use the facility. The number of trucks predicted to use the highway is particularly important, as one pass of a tractor-trailer truck equals approximately 4,000 passenger vehicles;

(b) Soil Support Value - The soil subgrade strength, i.e., the type of soil of which the subgrade is composed - sand, clay, silt, etc.;

(c) Regional Factor - Accounts for the effect of various climatic conditions. For instance, the effect and number of freeze-thaw cycles in the mountain region will require a thicker pavement structure than the milder climate in the eastern part of the state;

(d) Strength and other influencing characteristics of the materials available or chosen or the layers or courses in the total asphalt pavement structure;

(e) Economics.

3-1

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 3: Asphalt Pavement Design**

Page No.	*Subsection*	*Change*
3-4	3.5	Updated table Typical Asphalt % Pb with new averages per mix type

Asphalt Pavement Design - 2020 **Section 3**

3.5 TYPICAL ASPHALT BINDER CONTENTS (BY WEIGHT OF TOTAL MIX)

PG 64-22		PG 76-22	
SA-1	6.8%		
S 4.75 A	7.0%		
S 9.5 B	6.7%		
S 9.5 C	6.0%	S 9.5 D	5.7%
I 19.0 C	4.8%		
B 25.0 C	4.5%		
PADC, Type P-57	2.5%	OGFC, Type FC-1 Mod.	6.1%
PADC, Type P-78M	3.0%		

Asphalt Pavement Design - 2022

3.5 TYPICAL ASPHALT BINDER CONTENTS (BY WEIGHT OF TOTAL MIX)

PG 64-22		PG 76-22	
SA-1	6.8%		
S 4.75 A	7.0%		
S 9.5 B	6.5%		
S 9.5 C	5.9%	S 9.5 D	5.8%
I 19.0 C	4.8%		
B 25.0 C	4.5%		
PADC, Type P-57	3.0%	OGFC, Type FC-1 Mod.	6.2%
PADC, Type P-78M	3.0%		

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 4: Asphalt Mix Design and Job Mix Formulas**

Page No.	*Subsection*	*Change*
4-6	4.4.6	Corrected Image

MIXTURE VOLUMETRIC PROPERTIES AND RELATIONSHIPS

Figure 4-2
Illustration of VMA in a Compacted Mix Specimen

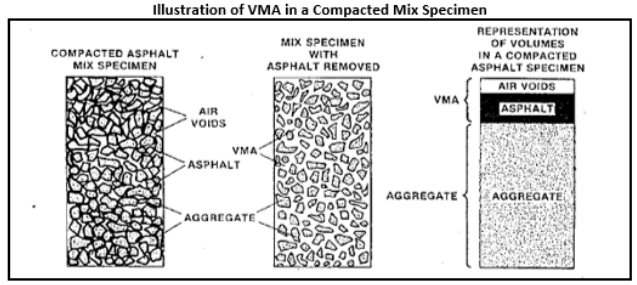


Figure 4-3
Diagram Illustrating the Air Voids and Voids in Mineral Aggregate (VMA)

Hot Mix Asphalt Materials, Mixture Design and Construction

voids in mineral aggregate = air voids plus volume of effective asphalt

EXAMPLE: ASSUME BULK SPECIFIC GRAVITY OF COMPACTED MIX = 2.250
VOLUME OF AIR VOIDS = 4%
ASPHALT CONTENT = 6.2%
ABSORPTION = 2%
EFFECTIVE ASPHALT CONTENT = 4.2%

$$\text{VOLUME OF EFFECTIVE ASPHALT CONTENT} = \frac{2.250 \times .042}{1.02} \times 100 = 9.3\%$$

VOLUME OF VOIDS IN MINERAL AGGREGATE = 4% + 9.3% = 13.3%

(Note: For simplification the volume of absorbed asphalt is not shown.)

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 5: Asphalt Plant Equipment**

Page No.	*Subsection*	*Change*
5-2	5.3	Updated Figure 5-2 (Asphalt Plant Certificate). J.C. Sawyer Signature

NORTH CAROLINA DEPARTMENT of TRANSPORTATION

HMA/QMS

Certified Asphalt Plant

This asphalt plant has been inspected and certified as meeting the requirements of North Carolina Department of Transportation Standard Specifications for Roads and Structures Article 610-5, dated January, 2002 and other contract provisions currently in effect. This Certification shall remain effective from the date of issuance until there is a change in ownership, location, or major modifications are made to the plant equipment, subject to continued compliance with the specifications.

Quality Paving Co., Inc. — Owner

RDU — Make

Drum — Type

PDT-400 — Model No

400 TPH — Rated Capacity

01-2345 — Serial No.

Everywhere, NC — Site

BR-549-R001 — Air Quality Permit No.

March 31st, 2029 — Expiration Date

Yes — Certified for Recycled Mixes? (Y/N)

AS-205 — Plant Certification No.

Jim Sawyer

Jim Sawyer, PE, CPM
Field Services Engineer

Topics / Outline

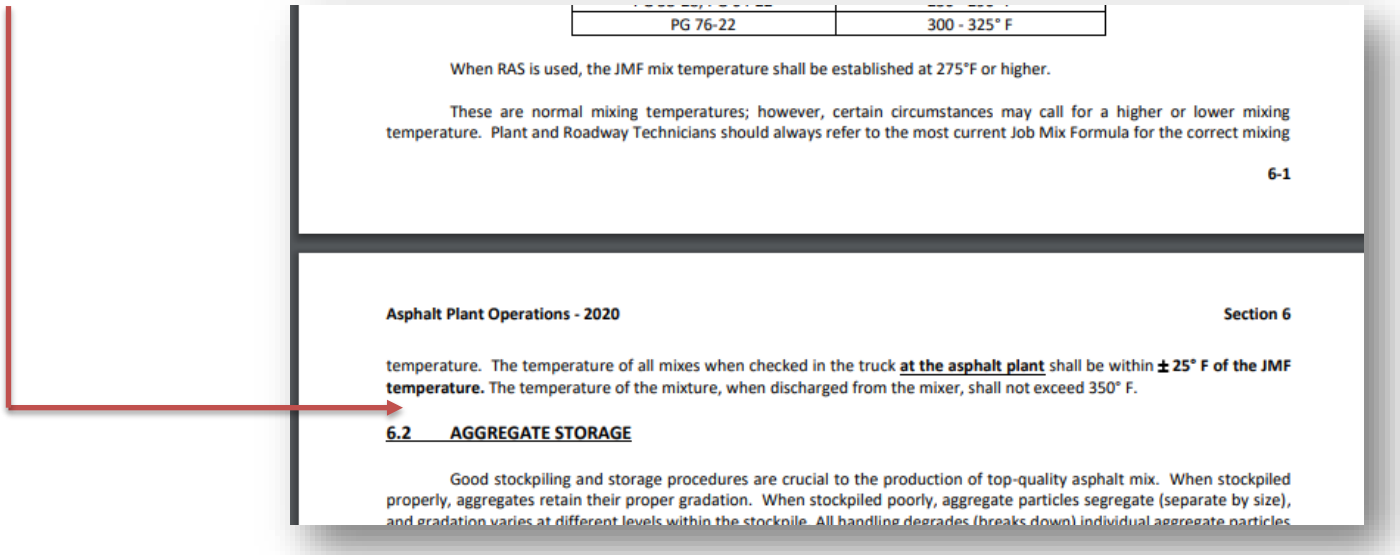
- 2022 Asphalt QMS Manual Changes

- **Section 6: Asphalt Plant Operations**

  Page No. *Subsection* *Change*

  6-2 6.1.2 Addition the 3rd paragraph with the following:

  Check the temperature of the mixture at beginning of production and periodically throughout the day on regular intervals at a rate of not less than one measurement every hour during production. Record the readings in the lab daily diary for a permanent record.



PG 76-22	300 - 325° F

When RAS is used, the JMF mix temperature shall be established at 275°F or higher.

These are normal mixing temperatures; however, certain circumstances may call for a higher or lower mixing temperature. Plant and Roadway Technicians should always refer to the most current Job Mix Formula for the correct mixing

6-1

Asphalt Plant Operations - 2020 **Section 6**

temperature. The temperature of all mixes when checked in the truck **at the asphalt plant** shall be within **± 25° F of the JMF temperature.** The temperature of the mixture, when discharged from the mixer, shall not exceed 350° F.

6.2 AGGREGATE STORAGE

Good stockpiling and storage procedures are crucial to the production of top-quality asphalt mix. When stockpiled properly, aggregates retain their proper gradation. When stockpiled poorly, aggregate particles segregate (separate by size), and gradation varies at different levels within the stockpile. All handling degrades (breaks down) individual aggregate particles

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 6: Asphalt Plant Operations**

Page No.	*Subsection*	*Change*
6-22	6.8	Corrected reference to Section 5.10 – NCDA & CS scale certification requirements.

6.8 SCALES AND PUBLIC WEIGHMASTER (ARTICLE 106-7)

Specifications for weighing asphalt materials, which are to be paid for on a ton basis, can be found in Article 106-7 of the Standard Specifications. This Article requires that any scales, which are to be used to determine the weight for payment purposes, shall be certified by the North Carolina Department of Agriculture and Consumer Services. This may include platform scales and/or the plant aggregate and asphalt binder scales, depending upon which scales are being used by the Contractor's public weighmaster to issue the weigh ticket. ***See Section 5.10 for specific details of the NCDA & CS certification requirements.*** Requirements for automatic weighing, recording and printing of tickets are listed under Article 106-7. It should be noted that this Article also requires that the JMF No. be recorded on each asphalt weigh ticket. Also included in Article 106-7 are provisions for checking the scales by re-weighing a truck load of material on another set of approved platform scales.

It is the Resident Engineer's and Pavement Specialist's responsibility to assure that the Contractor is meeting the requirements of Article 106-7 before any weigh tickets are issued. The requirements of this Article or approval of the weighing equipment is not covered by the plant certification. Weigh tickets provide essential records for the control of project operations, quality, and quantity of mix delivered. Although different systems are used by various agencies, certain items related to tickets remain generally the same from project to project. Weigh tickets numbered consecutively are generally issued at the asphalt plant. They must state the project number, the origin of the load, time loaded, the temperature and weight of the load, the truck number, the type of mix, the JMF Number, Plant Certification Number and location (station number) where the mix was placed. It will also list the weight and roadway temperature of the mixture. See Section 10.1.3, the Project Special Provisions, and the Construction Manual for detailed requirements for asphalt weigh tickets.

Topics / Outline

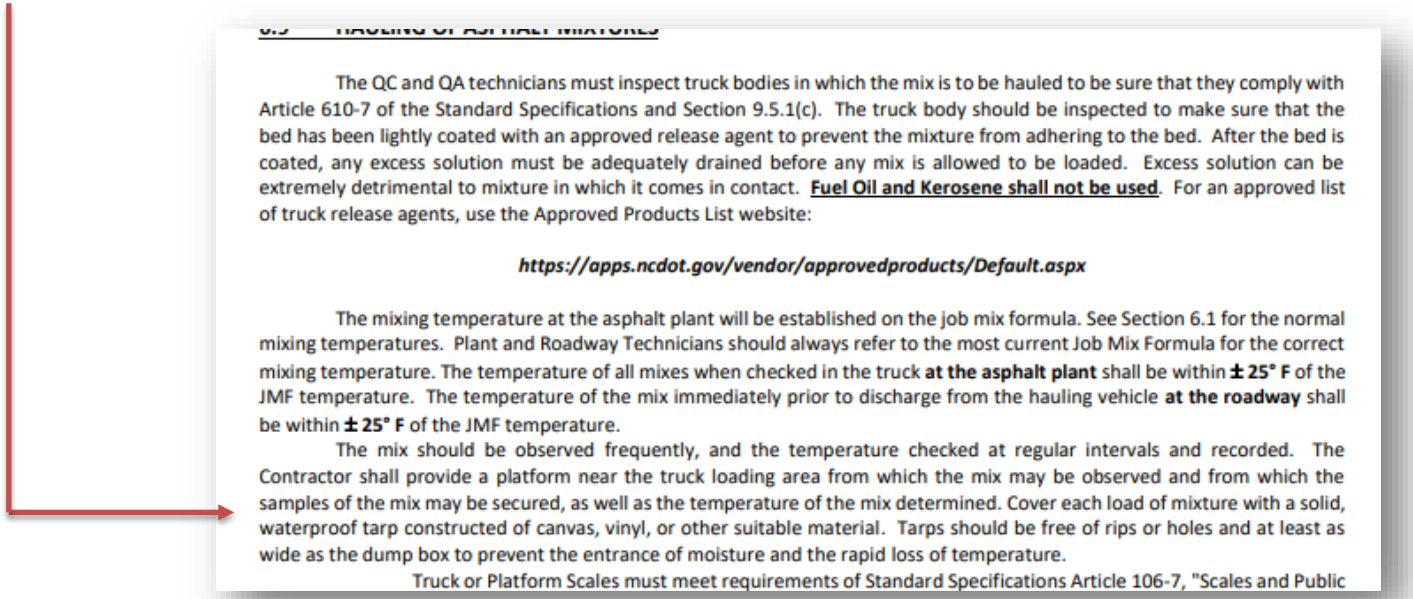
- 2022 Asphalt QMS Manual Changes

- **Section 6: Asphalt Plant Operations**

  Page No. *Subsection* *Change*

  6-22 6.9 Addition the 3rd paragraph with the following:

  … and the temperature checked at beginning of production and then on regular intervals at a rate of not less than one measurement every hour during production and recorded in the lab daily diary for a permanent record.



6.9 HAULING OF ASPHALT MIXTURES

The QC and QA technicians must inspect truck bodies in which the mix is to be hauled to be sure that they comply with Article 610-7 of the Standard Specifications and Section 9.5.1(c). The truck body should be inspected to make sure that the bed has been lightly coated with an approved release agent to prevent the mixture from adhering to the bed. After the bed is coated, any excess solution must be adequately drained before any mix is allowed to be loaded. Excess solution can be extremely detrimental to mixture in which it comes in contact. **Fuel Oil and Kerosene shall not be used**. For an approved list of truck release agents, use the Approved Products List website:

https://apps.ncdot.gov/vendor/approvedproducts/Default.aspx

The mixing temperature at the asphalt plant will be established on the job mix formula. See Section 6.1 for the normal mixing temperatures. Plant and Roadway Technicians should always refer to the most current Job Mix Formula for the correct mixing temperature. The temperature of all mixes when checked in the truck **at the asphalt plant** shall be within **± 25° F** of the JMF temperature. The temperature of the mix immediately prior to discharge from the hauling vehicle **at the roadway** shall be within **± 25° F** of the JMF temperature.

The mix should be observed frequently, and the temperature checked at regular intervals and recorded. The Contractor shall provide a platform near the truck loading area from which the mix may be observed and from which the samples of the mix may be secured, as well as the temperature of the mix determined. Cover each load of mixture with a solid, waterproof tarp constructed of canvas, vinyl, or other suitable material. Tarps should be free of rips or holes and at least as wide as the dump box to prevent the entrance of moisture and the rapid loss of temperature.

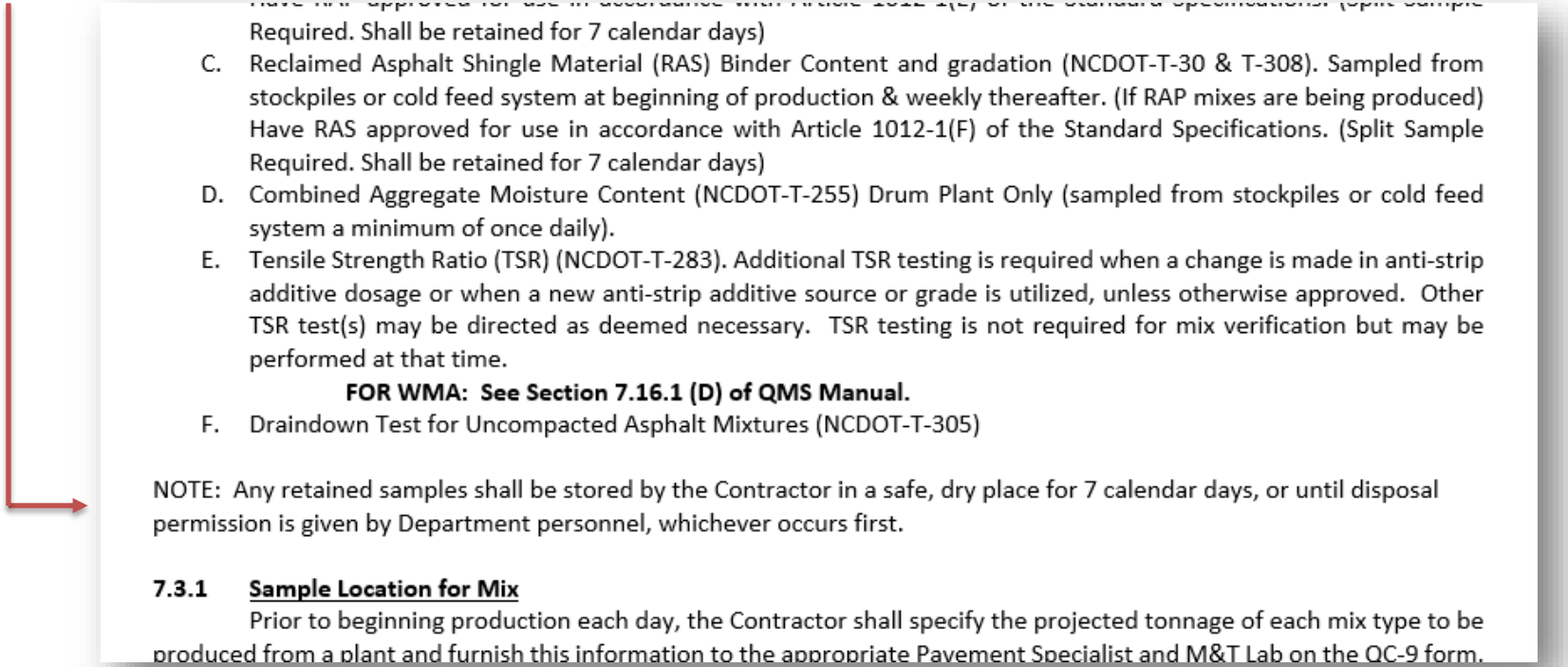
Truck or Platform Scales must meet requirements of Standard Specifications Article 106-7, "Scales and Public

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 7: Asphalt Mixture Sampling and Testing**

Page No.	*Subsection*	*Change*
7-11	7.3. NOTE:	Added; properly labeled



Required. Shall be retained for 7 calendar days)

C. Reclaimed Asphalt Shingle Material (RAS) Binder Content and gradation (NCDOT-T-30 & T-308). Sampled from stockpiles or cold feed system at beginning of production & weekly thereafter. (If RAP mixes are being produced) Have RAS approved for use in accordance with Article 1012-1(F) of the Standard Specifications. (Split Sample Required. Shall be retained for 7 calendar days)

D. Combined Aggregate Moisture Content (NCDOT-T-255) Drum Plant Only (sampled from stockpiles or cold feed system a minimum of once daily).

E. Tensile Strength Ratio (TSR) (NCDOT-T-283). Additional TSR testing is required when a change is made in anti-strip additive dosage or when a new anti-strip additive source or grade is utilized, unless otherwise approved. Other TSR test(s) may be directed as deemed necessary. TSR testing is not required for mix verification but may be performed at that time.

FOR WMA: See Section 7.16.1 (D) of QMS Manual.

F. Draindown Test for Uncompacted Asphalt Mixtures (NCDOT-T-305)

NOTE: Any retained samples shall be stored by the Contractor in a safe, dry place for 7 calendar days, or until disposal permission is given by Department personnel, whichever occurs first.

7.3.1 Sample Location for Mix

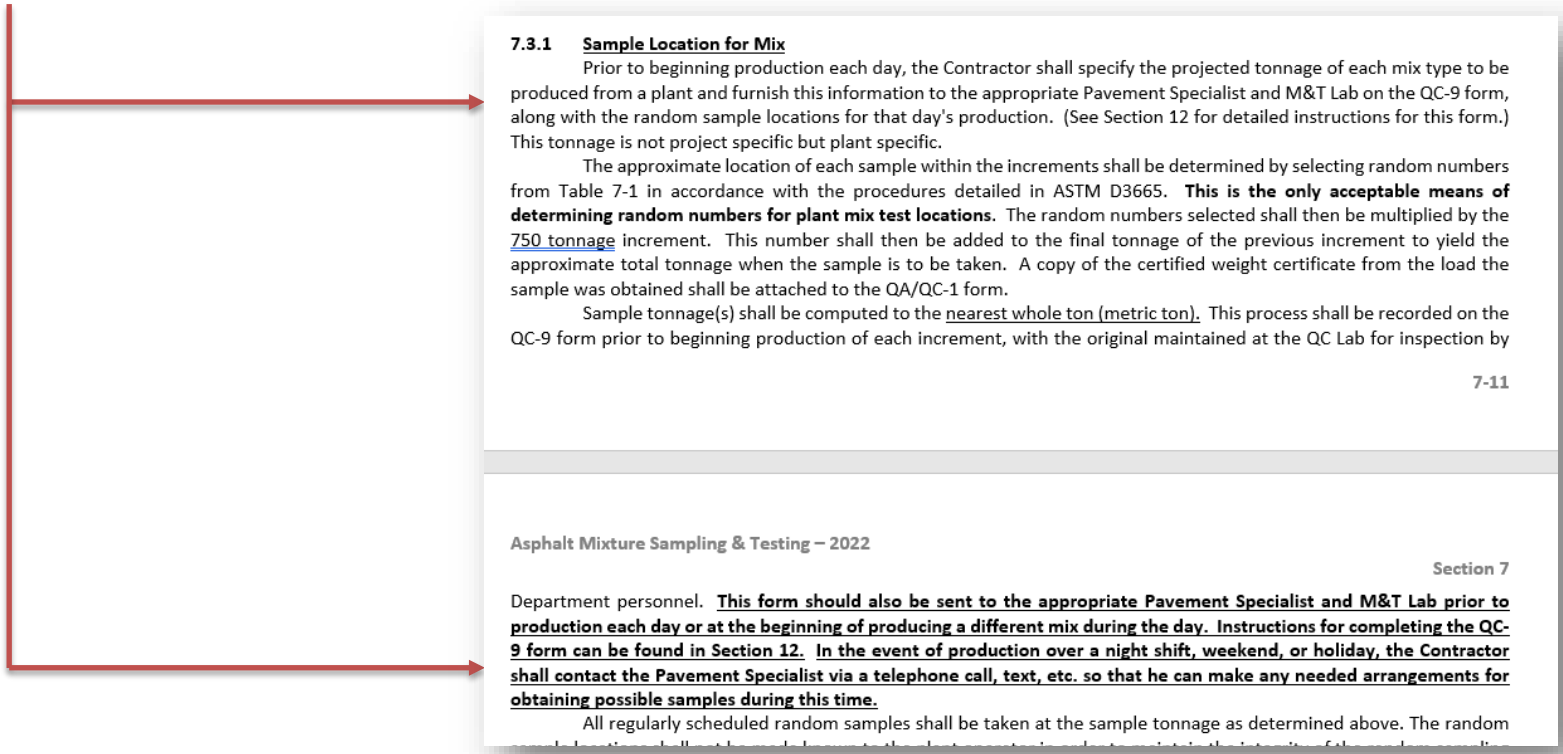
Prior to beginning production each day, the Contractor shall specify the projected tonnage of each mix type to be produced from a plant and furnish this information to the appropriate Pavement Specialist and M&T Lab on the QC-9 form.

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 7: Asphalt Mixture Sampling and Testing**

Page No.	*Subsection*	*Change*
7-11	7.3.1	1st & 3rd paragraph: Added 'or their NCDOT representative'



7.3.1 Sample Location for Mix

Prior to beginning production each day, the Contractor shall specify the projected tonnage of each mix type to be produced from a plant and furnish this information to the appropriate Pavement Specialist and M&T Lab on the QC-9 form, along with the random sample locations for that day's production. (See Section 12 for detailed instructions for this form.) This tonnage is not project specific but plant specific.

The approximate location of each sample within the increments shall be determined by selecting random numbers from Table 7-1 in accordance with the procedures detailed in ASTM D3665. **This is the only acceptable means of determining random numbers for plant mix test locations**. The random numbers selected shall then be multiplied by the 750 tonnage increment. This number shall then be added to the final tonnage of the previous increment to yield the approximate total tonnage when the sample is to be taken. A copy of the certified weight certificate from the load the sample was obtained shall be attached to the QA/QC-1 form.

Sample tonnage(s) shall be computed to the nearest whole ton (metric ton). This process shall be recorded on the QC-9 form prior to beginning production of each increment, with the original maintained at the QC Lab for inspection by

7-11

Asphalt Mixture Sampling & Testing – 2022

Section 7

Department personnel. **This form should also be sent to the appropriate Pavement Specialist and M&T Lab prior to production each day or at the beginning of producing a different mix during the day. Instructions for completing the QC-9 form can be found in Section 12. In the event of production over a night shift, weekend, or holiday, the Contractor shall contact the Pavement Specialist via a telephone call, text, etc. so that he can make any needed arrangements for obtaining possible samples during this time.**

All regularly scheduled random samples shall be taken at the sample tonnage as determined above. The random

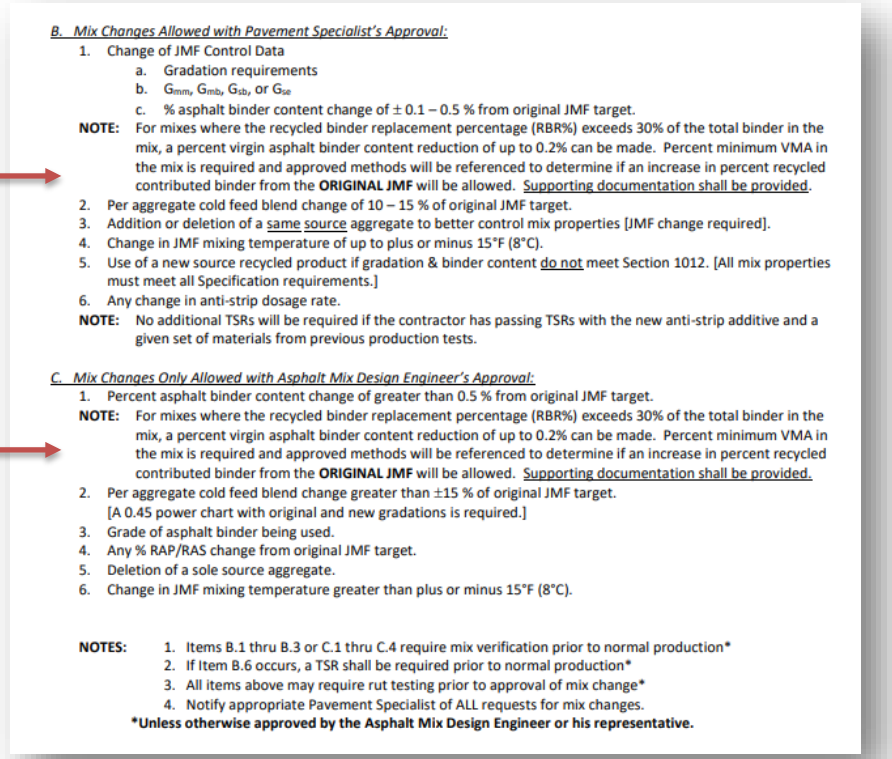
Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 7: Asphalt Mixture Sampling and Testing**

Page No.	*Subsection*	*Change*
7-18	7.4.2 (B) & (C)	Added to Note on Allowable

Adjustments for changes to Recycled mixes: “Supporting documentation shall be provided”...



B. Mix Changes Allowed with Pavement Specialist's Approval:

1. Change of JMF Control Data
   a. Gradation requirements
   b. G_{mm}, G_{mb}, G_{sb}, or G_{se}
   c. % asphalt binder content change of ± 0.1 – 0.5 % from original JMF target.

NOTE: For mixes where the recycled binder replacement percentage (RBR%) exceeds 30% of the total binder in the mix, a percent virgin asphalt binder content reduction of up to 0.2% can be made. Percent minimum VMA in the mix is required and approved methods will be referenced to determine if an increase in percent recycled contributed binder from the **ORIGINAL JMF** will be allowed. Supporting documentation shall be provided.

2. Per aggregate cold feed blend change of 10 – 15 % of original JMF target.
3. Addition or deletion of a same source aggregate to better control mix properties [JMF change required].
4. Change in JMF mixing temperature of up to plus or minus 15°F (8°C).
5. Use of a new source recycled product if gradation & binder content do not meet Section 1012. [All mix properties must meet all Specification requirements.]
6. Any change in anti-strip dosage rate.

NOTE: No additional TSRs will be required if the contractor has passing TSRs with the new anti-strip additive and a given set of materials from previous production tests.

C. Mix Changes Only Allowed with Asphalt Mix Design Engineer's Approval:

1. Percent asphalt binder content change of greater than 0.5 % from original JMF target.

NOTE: For mixes where the recycled binder replacement percentage (RBR%) exceeds 30% of the total binder in the mix, a percent virgin asphalt binder content reduction of up to 0.2% can be made. Percent minimum VMA in the mix is required and approved methods will be referenced to determine if an increase in percent recycled contributed binder from the **ORIGINAL JMF** will be allowed. Supporting documentation shall be provided.

2. Per aggregate cold feed blend change greater than ±15 % of original JMF target. [A 0.45 power chart with original and new gradations is required.]
3. Grade of asphalt binder being used.
4. Any % RAP/RAS change from original JMF target.
5. Deletion of a sole source aggregate.
6. Change in JMF mixing temperature greater than plus or minus 15°F (8°C).

NOTES:
1. Items B.1 thru B.3 or C.1 thru C.4 require mix verification prior to normal production*
2. If Item B.6 occurs, a TSR shall be required prior to normal production*
3. All items above may require rut testing prior to approval of mix change*
4. Notify appropriate Pavement Specialist of ALL requests for mix changes.

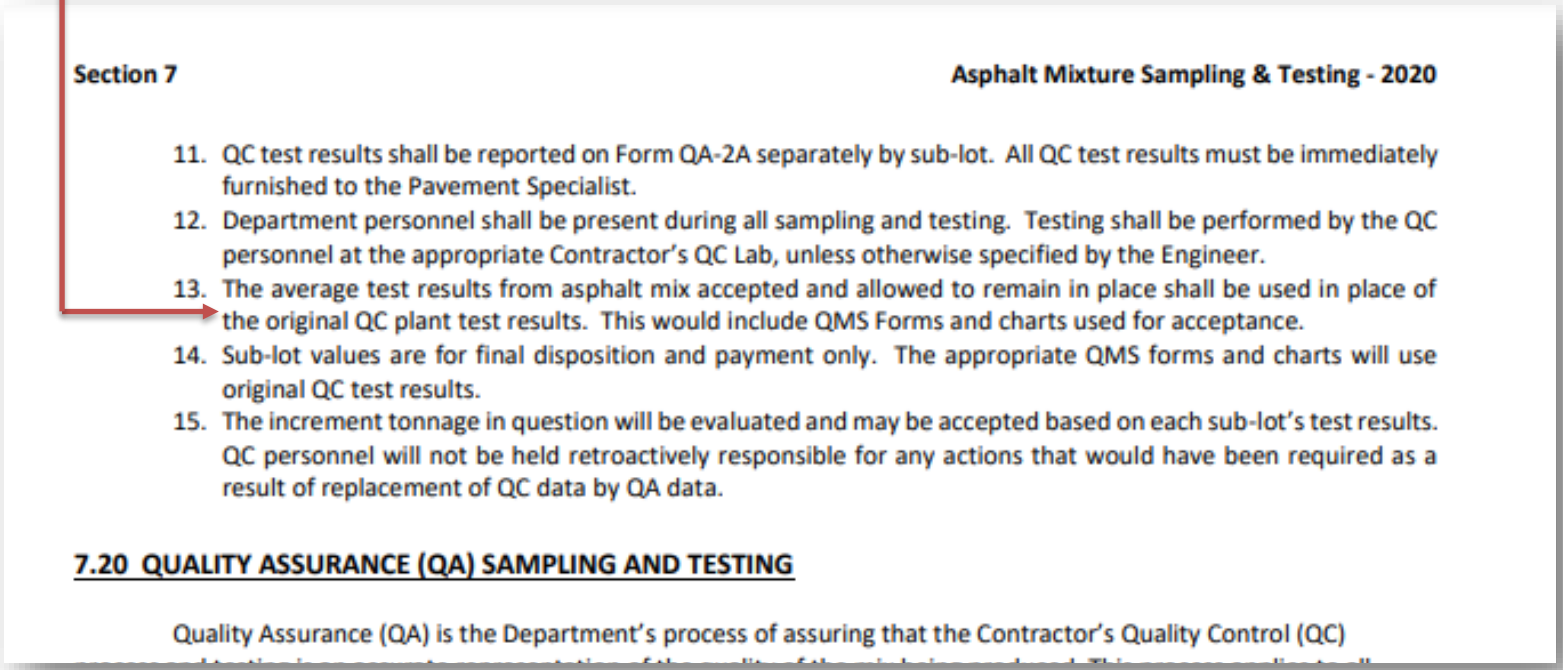
***Unless otherwise approved by the Asphalt Mix Design Engineer or his representative.**

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 7: Asphalt Mixture Sampling and Testing**

Page No.	*Subsection*	*Change*
7-61	7.19.2	Clarify Item 13 or 14 using Sublot averages to replace original QC test



Section 7 **Asphalt Mixture Sampling & Testing - 2020**

11. QC test results shall be reported on Form QA-2A separately by sub-lot. All QC test results must be immediately furnished to the Pavement Specialist.
12. Department personnel shall be present during all sampling and testing. Testing shall be performed by the QC personnel at the appropriate Contractor's QC Lab, unless otherwise specified by the Engineer.
13. The average test results from asphalt mix accepted and allowed to remain in place shall be used in place of the original QC plant test results. This would include QMS Forms and charts used for acceptance.
14. Sub-lot values are for final disposition and payment only. The appropriate QMS forms and charts will use original QC test results.
15. The increment tonnage in question will be evaluated and may be accepted based on each sub-lot's test results. QC personnel will not be held retroactively responsible for any actions that would have been required as a result of replacement of QC data by QA data.

7.20 QUALITY ASSURANCE (QA) SAMPLING AND TESTING

Quality Assurance (QA) is the Department's process of assuring that the Contractor's Quality Control (QC)

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 8: Recycling of Asphalt Pavements**
  No updates

- **Section 9: Roadway Paving Operations**
  No updates

Topics / Outline

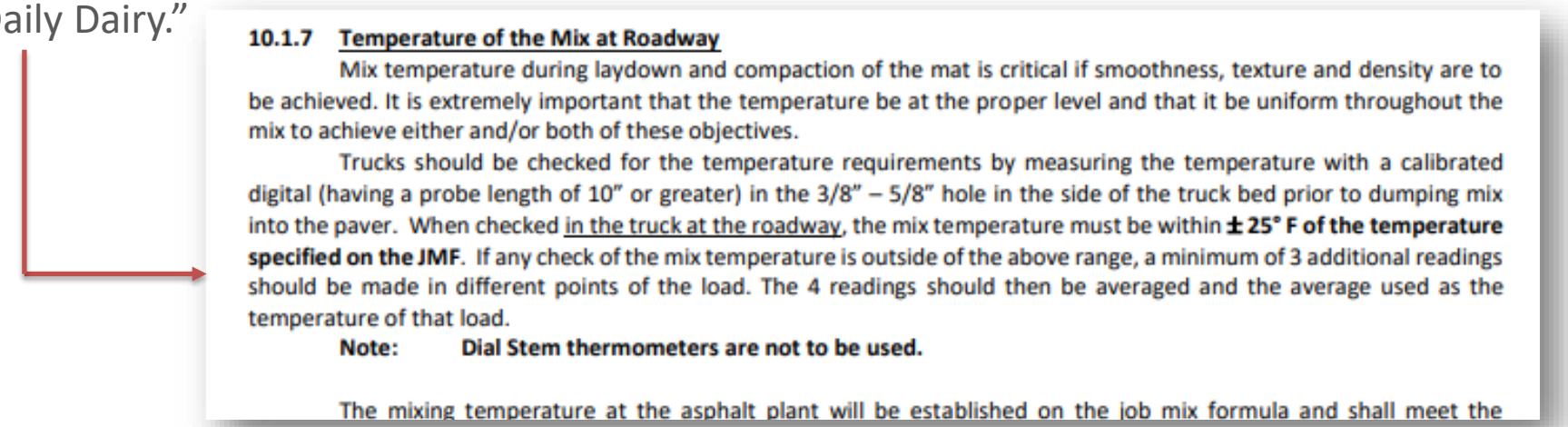
- 2022 Asphalt QMS Manual Changes

- **Section 10: Roadway Inspection and Testing of Asphalt Pavements**

  Page No. Subsection Change

  10-6 10.1.7 2nd paragraph: Add:

  "The normal frequency for taking asphalt mix temperatures in the truck for each day production, on each JMF, should be on the first five loads and thereafter at a rate of not less than one measurement every hour. Or any time there was temporary hold on production start the process again. The inspector may increase the frequency of temperature measurements at any time. Record the readings on the Load tickets, the M&T 605 form, and Daily Dairy."



10.1.7 Temperature of the Mix at Roadway

Mix temperature during laydown and compaction of the mat is critical if smoothness, texture and density are to be achieved. It is extremely important that the temperature be at the proper level and that it be uniform throughout the mix to achieve either and/or both of these objectives.

Trucks should be checked for the temperature requirements by measuring the temperature with a calibrated digital (having a probe length of 10" or greater) in the 3/8" – 5/8" hole in the side of the truck bed prior to dumping mix into the paver. When checked in the truck at the roadway, the mix temperature must be within **± 25° F of the temperature specified on the JMF**. If any check of the mix temperature is outside of the above range, a minimum of 3 additional readings should be made in different points of the load. The 4 readings should then be averaged and the average used as the temperature of that load.

Note: Dial Stem thermometers are not to be used.

The mixing temperature at the asphalt plant will be established on the job mix formula and shall meet the

Topics / Outline

- 2022 Asphalt QMS Manual Changes

- **Section 11: Pavement Smoothness / Rideability**
  No updates

- **Section 12: Records and Reports**
  No updates

Topics / Outline

- Previous Spec Committee Meeting QMS Changes
  - Sublots
  - Warm-mix Additives in Lieu of Fibers in OGFC
- 2022 Asphalt QMS Manual Changes
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- Lift Thickness when Paving on AST
- JMF Changes
- E-Ticketing Update
- Control Strip Requirements
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2021 Training & Certification - Summary of Classes

Class	Number of classes	Total Attendees	Unused seats
QMS Level I	3	38	35
QMS Level II	3	64	9
QMS Roadway	19	277	25
QMS Density Gauge	10	177	92

Remaining Classes	Date	Location	Availability (approx.)
QMS Level I	12/8/2021	Clemmons	13 seats
QMS Level II	12/15/2021	Clemmons	1 seat
QMS Roadway	12/1/2021	Clemmons	0 seat
QMS Density Gauge	10/28/2021	Raleigh	13 seats
QMS Density Gauge	11/28/2021	Asheville	31 seats

2021 Training & Certification Provisional Summary

- Individuals needing to maintain or renew certification may request provisional extension
  - Request for Provisionals can still be approved with enough evidence of quality field training
  - Requests evaluated on case-by-case basis
  - Valid until December 31, 2021
  - Process has met the needs of clients to help ensure project delivery

Certification	Provisional (Total)	Asphalt Producer	CEI	DOT
QMS Level I	32	3	22	7
QMS Level II	15	4	11	0
QMS Roadway	13	0	10	3
QMS Density Gauge	18	3	11	4

Topics / Outline

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2022 Training & Certification Classes

- Tentative 2022 schedule developed
- Currently working to confirm dates and venues
  - 2022 class registration opening mid-December in CVENT (first 3-months only)
  - PDF 2022 schedule will be posted for reviewing
  - 2022 classes may be cancelled, or enrollment reduced on short notice

Class	Number of classes
QMS level I	2
QMS Level II	2
QMS Roadway	18
QMS Density Gauge	10

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2021 Technician Assessments Summary

118 Technicians were assessed for 2021. Of the 118 technicians, there was **Two** unsatisfactory assessments. This averages to a **98.31%** satisfactory rate for 2021. 100% of reassessments were satisfactory. Of the 118 Technicians that were Assessed, 109 were on mix and113 were on cores.

Reasons for unsatisfactory assessments in 2021:

- **Quartering Asphalt Sample Correctly**
  Technician did not separate Rice and Burn on splitting table as required. (7.5.7 (Step 3) pg. 7-26, 2020 Asphalt QMS Manual)
- **NCDOT – T 312** –
  Technician did not check mix temperature by placing a thermometer in the center of the specimen on the first specimen. (7.11.4 (4) pg. 7-40, 2020 Asphalt QMS Manual)
- **NCDOT – T 312** –
  Technician did not gyrate the gyratory pills at the correct compaction temperature. Pills were gyrated at outside of the range for the mix that was being compacted. 7.11.3 (B) pg. 7-39, 2020 Asphalt QMS Manual

2021 Facility Audits

Pavement Specialist have just started with their Lab Audits, they have complete about 35 to date.

1 **Several labs had time issues with equipment:**

- Techs says they have trouble keeping time right on that NCAT oven.

2 **Minor paperwork issues:**

- Wrong project number on QC-1.
- One test was missing gyro printouts. Response was they were lost.
- Tonnage was not entered into Hicams and QAP Data
- We have technicians who focus on running actual tests and not on proper documentation/paperwork.
- Samples were not tagged or properly labeled

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Questions ?