

2024 NDOT Asphalt Field Technician I/II

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Binder & Emulsion Sampler Recertification

This is a five-year recertification for those who have previously taken the Asphalt Field Technician I & II Training and the Binder/Emulsion Certification. Your responsibility is to read and understand this document and complete and pass the quiz at the end with a minimum score of 80%. After completion, e-mail your completed quiz to jacob.reynolds@nebraska.gov. If you have any questions, feel free to contact any of the Quality Assurance Staff listed below. There is a HMA Reference Guide included for your use.

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Mix Types

We are currently using 5 main mix types and 1 base mix.

5 Main Types of Mixes



SPR: Standard Paving Recycle Mix

High Recycle Mix (Up to 55% RAP)

For Low, Medium, Medium+ Volume Roadways

60% of NDOT Annual Tonnage

Improved In-Place Density

Increased Joint Density

Great Rut Resistance

High Strength Mix

SPH: Super-Pave Heavy – Special Use Mix

Special Use Applications – Intersections and some Urban Corridors

Up to 35% RAP

High Angularity Aggregates

<5% of NDOT Annual Tonnage

SPS: Standard Paved Shoulder Mix

Shoulder Mix
Very Economical
Designed to allow high RAP – Max. 65%

LC: Leveling Course Mix

Leveling Course or SAMI Layer
Fine gradation mix for thin lift of asphalt
Can place 5/8"-1"+ Thick
Higher Binder Content
Helps Prevent Roller Bumps
Up to 35% RAP

SLX: Surface Laminate Xtreme Thin Mix

Placed 1-2" Thick (Fine Gradation), now used in many thickness applications up to 6 inch
Min. 20% 1/4" Crushed Rock Chips
20-35% Fractionated RAP
Works in all applications

Base Mix SRM

Special (Warm) Reclamation Mix
Used as base in lieu of HLSS or Cold Foam
Typically 4-5" Lift
Coarser High Strength Mix
35%-65% RAP
0.9% Warm Mix Additive Required
Can compact at lower temperatures

PG Binder/Emulsion/Hydrated Lime - Warm Mix Additives

Projects will typically have the following grades: 58S-34, 58H-34, 58V-34 or 58E-34

PG BINDER GRADE DEFINITIONS

PG = PERFORMANCE GRADE

Expected Loading on Roadway:

S (STANDARD), H (HEAVY), V (VERY HEAVY), E (EXTREME)

PG 58V-34

7- day Max Pavement
Temperature (°C)

1-day Min. Pavement
Temperature (°C)

94

With these grades, the contractor will still be allowed to blend grades only when transitioning to an asphalt mixture requiring a different grade of binder and if NDOT is notified and approves it. When going from a lower grade to a higher, the blended material must meet the specifications required by the NDOT Rheology Lab for the first sample. Every subsequent sample must meet the specified grades requirements.

Binder is sampled by the certified contractor representative in observance of NDOT staff in 1 two-quart container after a minimum of 1 gallon is poured to waste. The metal containers are available from the NDOT Supply Base. One two-quart sample is required for every 200 tons or fraction thereof, of each grade of binder used on the project for each supplier – minimum 1 sample for each type of binder used on the project. Containers must be kept dry and free from contaminants. Do not allow spilled material on the container to be cleaned with any type of solvent. Binder samples must reach the Lincoln Bituminous Rheology Lab within 10 days of being sampled. Print the SiteManager/AASHTOWare Project label and include it with the sample.

Emulsion is sampled at a rate of 1 sample for each type of emulsion (for each supplier if more than one) used per project, regardless of the amount used on the project. One sample consists of 1 – one-quart sample taken by the certified contractor representative in observance of NDOT inspection staff. The sample is taken after a minimum of one gallon is poured to waste. The plastic containers are available from the NDOT Supply Base. The containers must be kept dry and free from contaminants. Do not allow spilled material on the container to be cleaned with any type of solvent. Emulsion samples must reach the Lincoln Bituminous Rheology Lab within 5 days of being sampled. Print the SiteManager/AASHTOWare Project label and include it with the sample.

The pay item for Hydrated Lime (used as a Binder Anti-strip agent) has been changed to Hydrated Lime/Warm Mix Asphalt and is paid 1 unit for each 1 ton of Hot Mix Asphalt that contains anti-strip agents.

Random Sampling Schedule (RSS):

If you do not receive a RSS or it is lost or compromised, contact your District QA Manager.

NEBRASKA DEPART

Asphaltic Concrete Pavement

Project No:		NH-80-4(139)		Name of Road:								
Control No.		61429		Asphalt Weight:		65000						
				8 ft	12 ft	14 ft	16 ft					
Lot Number	Sublot Number	Ton to be Sampled		Distance from Edge	Distance from Edge	Distance from Edge	Distance from Edge	Distance to Core	FAA/ CAA Cold Feed Recuts: Distance to Core	Field Density	Joint Density*	TSR
		Lot	PJT									
1	1	611	611	7	4	8	15	-29				
1	2	1111	1111	0	10	9	5	-89			OUT	
1	3	2707	2707	3	12	2	15	-99				X
1	4	3066	3066	3	8	12	15	71				
1	5	4239	4239	1	12	14	11	-80	X	20	X	
2	1	910	5910	0	10	3	0	-1		54		IN
2	2	1513	6513	0	0	4	1	15		-93		
2	3	2294	7294	6	4	5	15	-43		-3		
2	4	3866	8866	0	12	8	6	-21	X	42	X	
2	5	4339	9339	6	1	9	4	8		-42		
3	1	539	10539	4	2	7	0	-77		39		
3	2	1521	11521	7	8	5	2	-62		-74		OUT
3	3	2518	12518	4	11	6	0	-35		14		
3	4	3638	13638	7	8	12	12	-50		44		
3	5	4134	14134	4	5	1	0	-65	X	-93	X	
4	1	517	15517	2	8	8	1	-48		-78		

Sublot size is 1000 tons, with a full lot equaling 5000 tons. For Urban projects, see the Special Provisions. All asphalt bag samples, (with the corresponding cold feed samples), and cores delivered to the branch laboratories are required to have individual SiteManager/AASHTOWare Project sample identification included with the sample, along with a copy of the contractor's Superpave software results. The laboratories prefer to have a digital copy of the entire updated Superpave software sent to them each time a sample is delivered.

The "Ton to be Sampled" column indicates, that is the tonnage that should be in the truck from which the sample is taken.

For densities, if the contractor chooses to cut cores for the entire project, they should send the one indicated by the "Field Density" column to the branch lab for each lot. If they choose to use a gauge, they must send all the cores cut from lot 1 to correlate their gauge and the others core they cut from the project. The additional cores should be at a minimum, 1 for every 15 density tests with the gauge. Any density readings taken with a gauge that are below 90% must have a core cut at that location. Additionally, all recuts must be 5 cores and they must all be sent to the branch labs for verification. There are multiple "Distance from Edge" columns for varying width areas and is used to indicate the transverse location on the roadway to take field densities. The "Distance to Core" is the longitudinal distance ahead station, (positive number), or back station, (negative number), to the density location from the original HMA sample station. The "Recuts: Distance to Core" is the longitudinal distance for recuts from the original HMA sample station, if requested by the contractor within one day of the completion of a lot. Use the original "Distance to Edge" value for the recuts. If the contractor requests recuts, they must be used to calculate incentive/disincentive values for the entire lot.

The “FAA/CAA Cold Feed” column indicates the subplot that must have an accompanying cold feed sample taken and is the sample that must be delivered to the branch laboratories for verification testing. SPS does not require cold feed sampling.

“Joint Density” indicates the location where an additional density shall be taken for the subplot indicated. It shall be at the same station as the subplot density sample, but shall be taken 1” from the edge indicated on the RSS. “Out” is the shoulder side edge and “In” is the centerline side edge. There is a column on the Superpave software for this information and a separate pay factor is calculated for Joint Density. If the contractor chooses to use a gauge for Joint Densities, they must cut a joint core in Lot 1 to establish a correlation. Additional correlation check cores must be cut every 3rd lot to verify the gauge correlation value and submitted for verification along with the Joint Density submitted for verification testing.

Joint Densities are always taken a maximum 1” from the seam or edge.

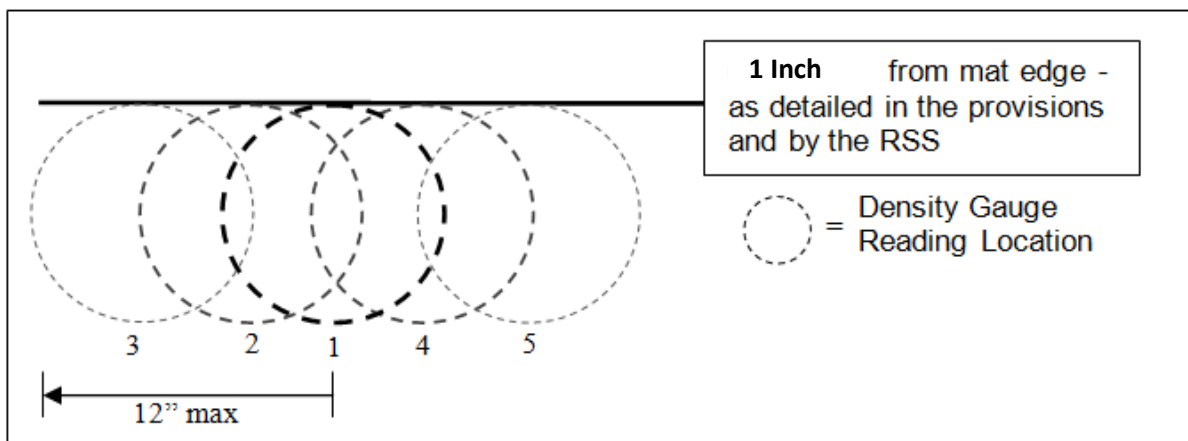


Figure 2: Asphalt density gauge reading pattern less than 6” from mat edge

The “TSR” column indicates when you need to notify the contractor to make Tensile Strength Ratio, (TSR) gyratory pucks to be sent to Lincoln. A SiteManager/AASHTOWare Project identification is required to be made by inspection staff and given to the contractor to send in with the TSR puck. TSR’s are not required to be made for SPS mix.

Hot Mix Asphalt Reference Guide

I Mix Design Submittal

Submitted to Bituminous Aggregate Lab by contractor thru consultant on NDOT Mix Design Submittal form – available on NDOT website.

Attachment A: Mix Design Submittal form

Approved Mix Design in Onbase by Bituminous Aggregate Lab - labeled as Approval Letter in NDOT Mat Material Acceptance Documentation – includes Job Mix Formula (JMF) number.

Attachment B: Approval Letter

Any mix design changes shall be submitted on the NDOT Mix Design Submittal form to the Bituminous Aggregate Lab thru the consultant.

II Emulsion and Binder Sampling

Emulsion – One 1 Quart sample per type of emulsion per project for each supplier. Delivered to Bituminous Rheology Laboratory within 5 days of obtaining sample.

Binder – One 2 Quart sample per 200 tons binder or portion thereof, per binder grade for each project (for each supplier if more than one). Delivered to Bituminous Rheology Laboratory within 10 days of obtaining sample.

Both to be tested at the Bituminous Rheology Laboratory in Lincoln.

III Production Sampling and Testing, and Cold Feed Sampling and Testing, and Density

Acceptance Testing – contractor will sample and test all Control Strip samples, unless waived, and all subplot samples from mainline or shoulder paving (not drives or intersections). Sample size should be 75 lbs. – split into 2 representative portions and properly identified. Possession of the verification split sample shall be maintained in a clean, dry, and secure location.

Sample Identification – See Tech Talk 1 on the NDOT Website

<https://dot.nebraska.gov/business-center/materials/>

HMA Samples

One Unique Sample ID# for each verified subplot sample – Cold Feed samples do not have a separate ID#.

Density Cores

One Unique Sample ID# for each verified subplot core or Joint Density core.

All samples shall be marked as Complete (if all results correlate), or Fail (if any test results do not correlate), and authorized upon completion of tests in SiteManager or AASHTOWare Project.

Tensile Strength Ratio Specimens

One Unique Sample ID# for each set of 6 TSR's

Documentation of TSR results to be entered on NDOT Lab Summary Software by Bituminous Aggregate Laboratory in Onbase.

Verification Testing - if contractor runs a Control Strip – all 3 Control Strip samples shall be verified – contractor chooses location within each of the three 200 ton sections. Control Strip must be accepted prior to full production.

If Control Strip is waived, Sublot 1-1 and all sublots identified with an “X” in the FAA/CAA Cold Feed column shall be verified at the indicated tonnage on the Random Sample Schedule (RSS).

Attachment I: Random Sample Schedule

Cold Feed Sampling

Shall be taken to represent the material taken for the HMA sample. Must be taken before the truck with the tonnage shown on the RSS is loaded.

Contractor must take minimum 1 Cold Feed for FAA/CAA testing per lot as identified on RSS.

Contractor may take Cold Feed for FAA/CAA on any other sublots they choose.

Verification Testing – test the same subplot Cold Feed for FAA/CAA as the HMA sample, as indicated on the RSS.

Density Testing

Contractor will choose cores or density gage.

Cores – contractor will test 1 for every subplot plus 1 Joint Density per lot at locations indicated on RSS. Cores shall be properly identified and maintain possession in a climate controlled, secure location after completion of contractor testing.

Verification – 1 per subplot as indicated on RSS, plus 1 Joint Density per lot.

Gage - contractor will cut minimum first 3 cores in first lot and lot 1 Joint Density core, and run gage in same location, as indicated on RSS, for correction factor determination (gage results before cutting cores). Joint Density will have a separate correction factor. Correction factor verification cores will be cut for every 15th density and at the Joint Density in the same lot. Usually cores are cut at 1-1, 1-2, 1-3, 1JD, 4-1, 4JD, 7-1, 7JD, 10-1, 10JD, etc. for verification and gage correlation.

Gage results below 90% are inaccurate and a core must be cut in that location.

Core results below 90% shall not be used to establish or verify correction factor.

Verification – If using gage, every core cut shall be verified.

IV QA/QC Lab Verification Testing

Contractor Test Results

Entered on correct version of NDOT Superpave Software and e-mailed to verification testing laboratory and project staff promptly upon completion of tests (Usually daily).

Attachment J: Superpave Software

Verification Laboratory Test Results

Entered on correct version of NDOT Lab Summary Software and e-mailed to contractor and project staff promptly upon completion of tests (Usually the day tests are complete). The NDOT Lab Summary Software is JMF specific and is provided by the NDOT Bituminous Aggregate Laboratory in Onbase in NDOT Mat Material Acceptance Documentation as Test Summary. This document should be filled out in Onbase and updated as a revision, as results are entered.

Attachment K: Lab Summary Software

Test Results

HMA Sample and Cold Feed Correlating Results

All results correlate – contractor’s results are used for pay factor determinations.

Density Correlating Results

Contractor’s results used for pay factor determination. Verify correction factors are calculated correctly.

HMA Sample and Cold Feed Non-Correlating Results

An Independent Assurance (IA) Review is required for those tests.

Notify contractor and project staff promptly via e-mail.

Attachment L: IA E-mail example

Check and record all contractor’s equipment and procedures used to obtain sample and test material.

Test a biased split sample of material to verify results.

Include contractor and verification lab’s IA Review results on NDOT Lab Summary Software.

Notify contractor and project staff of findings and test results via e-mail.

Attachment M: Findings E-mail

Upload all correspondence to Onbase.

Testing of additional sublots in that lot may be required. Can seek guidance from NDOT.

If Air Voids or FAA test results do not correlate, the verification lab’s results must be used to calculate pay factors. These values will be required to be entered in the appropriate **Red Box** on the contractor’s NDOT Superpave Software.

All other non-correlating results will consider the findings of the IA Review and additional subplot test results to determine which results will be used for pay factors on a case by case basis.

Density Non-Correlating Results

Notify contractor and project staff promptly via e-mail.

The core shall be dried and an IA Review performed at the contractor’s lab with the core.

Check and record all contractor's equipment and procedures used to obtain sample and test material.

If the contractor's new results correlate with the verification results, those results shall be used for pay factor calculations. If not, the verification lab's results shall be used for pay factor calculations.

Include contractor and verification lab's IA Review results on NDOT Lab Summary Software.

Notify contractor and project staff of findings and test results via e-mail.

Upload all correspondence to Onbase.

Density Re-cuts

Contractor may request re-cuts on any lot or Joint Density with a pay factor less than 1.00.

Re-cuts must be completed by the working day following completion of the lot testing or Joint Density testing.

Lot density re-cuts are all 5 cores in the lot – **gage not allowed** – and must use all 5 re-cut cores to calculate pay factors. Must be in location as indicated on RSS – distance from edge does not change from original density location.

Joint Density re-cuts must be a core – **gage not allowed** – and must use the re-cut to calculate pay factor. Must be in location as indicated on RSS – In or Out does not change from original joint density location.

All re-cut cores are verified at verification testing laboratory.

Referee Testing

The contractor may request Referee Testing on any non-correlating result.

Will be performed at NDOT Central Lab if enough material remains in the verification lab's split HMA sample or Cold Feed sample for the subplot with non-correlating results.

V Final Details

Final Lot

HMA samples, Cold Feed Samples, and Joint Densities for mainline or shoulder paving shall be taken at the tonnage indicated on the RSS.

If one or more HMA samples are taken, a minimum of 3 lot density samples are required to calculate lot average density.

The final subplot tonnage may be greater than normal subplot size if the next sample isn't acquired based on the RSS tonnage.

Project Completion

Review contractor's final NDOT Superpave Software to verify:

Everything filled in correctly

All pay factors are calculated correctly

Red Boxes are filled in if necessary

Reported tonnage is correct

Upload the Superpave Software Excel file to Onbase in NDOT Mat Material Acceptance Documentation with the correct Sample ID# as Superpave Software.

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Resources

Standard Specifications for Highway Construction

Sections 500, 1028, 1080, 1081, and 1082

Material Sampling Guide

Sections 2, 3, 4, and 28

Attachments - I

NEBRASKA DEPARTMENT OF ROADS

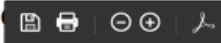
Asphaltic Concrete Pavement Random Sampling Schedule

Project No: STP-59-6(101) Name of Road: JCT. N-57 - JCT. N-15 Page: 1 of 1
 Control No: 32126 Asphalt Weight: 32000 Asphalt Type: SPR Lot Size: 5000 Tons

Lot Number	Sublot Number	Ton to be Sampled		8 ft	12 ft	14 ft	0 ft	FAA/CAA Cold Feed Recuts: Distance to Core	Field Density	Joint Density*	TSR	Lot Number	Sublot Number	Ton to be Sampled		8 ft	12 ft	14 ft	0 ft	FAA/CAA Cold Feed Recuts: Distance to Core	Field Density	Joint Density*	TSR	
		Lot	PJT	Distance from Edge	Distance from Edge	Distance from Edge	Distance from Edge							Distance from Edge	Distance from Edge	Distance from Edge	Distance from Edge	Distance from Edge	Distance from Edge					Distance from Edge
1	1	505	505	8	5	10	0	-47			IN	11	1	335	50835	8	1	11	0	-62	X	98		
1	2	1425	1425	3	7	0	0	51				11	2	1501	53501	0	1	14	0	-77		77		OUT
1	3	2401	2401	7	0	13	0	-59	X		X	11	3	2848	52848	2	1	7	0	-40		43		
1	4	3204	3204	5	10	5	0	94				11	4	3715	53715	0	12	4	0	76		-87		
1	5	4788	4788	2	6	11	0	-80				11	5	4194	54194	4	2	12	0	-8		65		
2	1	496	5496	6	11	7	0	67			OUT	12	1	349	55349	6	3	1	0	69		4		IN
2	2	1680	6680	5	6	9	0	-40				12	2	1862	56862	0	6	5	0	81	X	5		X
2	3	2139	7139	3	9	5	0	-41				12	3	2681	57681	3	10	7	0	-6		17		
2	4	3916	8916	6	9	1	0	-96				12	4	3855	58855	2	10	13	0	36		5		
2	5	4566	9566	2	2	8	0	-42	X		X	12	5	4174	59174	7	12	13	0	96		74		
3	1	358	10358	6	9	9	0	-91	X		X	13	1	881	60881	7	7	8	0	59		-4		
3	2	1696	11696	4	3	3	0	-70			IN	13	2	1206	61206	3	1	7	0	11		-47		
3	3	2727	12727	7	4	6	0	-86				13	3	2585	62585	8	12	9	0	-10	X	45		X
3	4	3934	13934	4	8	12	0	-40				13	4	3319	63319	3	10	2	0	20		-31		
3	5	4195	14195	0	7	0	0	20				13	5	4690	64690	0	11	2	0	-25		-59		OUT
4	1	326	15326	0	12	1	0	-74	X		X	14	1	293	65293	0	3	10	0	-47		-93		
4	2	1963	16963	3	1	8	0	-41				14	2	1158	66158	8	7	2	0	30		8		
4	3	2757	17757	6	4	4	0	54				14	3	2970	67970	2	9	8	0	-54		2		
4	4	3411	18411	8	6	1	0	65				14	4	3320	68320	3	4	10	0	-93	X	-17		X IN
4	5	4779	19779	6	8	13	0	85			IN	14	5	4598	69598	5	2	7	0	47		-74		
5	1	371	20371	3	8	7	0	6				15	1	713	70713	6	0	6	0	87	X	36		X OUT
5	2	1446	21446	7	2	8	0	-18			IN	15	2	1713	71713	4	3	8	0	11		-92		
5	3	2855	22855	1	7	8	0	-39				15	3	2115	72115	5	1	14	0	93		-22		
5	4	3168	23168	2	5	14	0	25				15	4	3390	73390	4	1	11	0	-69		5		
5	5	4294	24294	3	5	11	0	-27	X		X	15	5	4760	74760	1	11	6	0	11		-32		

Attachments - I

Asphaltic



Project No: STP-59-6(101) Name of Road: Asphaltic
 Control No: 32126 Asphalt Weight: 32000

Lot Number	Sublot Number	Ton to be Sampled		8 ft	12 ft	14 ft	0 ft	Distance to Core	FAA/CAA Cold Feed Recuts: Distance to Core	Field Density	Joint Density*	TSR
		Lot	PJT	Distance from Edge	Distance from Edge	Distance from Edge	Distance from Edge					
1	1	505	505	8	5	10	0	-47			IN	
1	2	1425	1425	3	7	0	0	51				
1	3	2401	2401	7	0	13	0	-59	X		X	
1	4	3204	3204	5	10	5	0	94				
1	5	4788	4788	2	6	11	0	-80				
2	1	496	5496	6	11	7	0	67			OUT	
2	2	1680	6680	5	6	9	0	-40				
2	3	2139	7139	3	9	5	0	-41				
2	4	3916	8916	6	9	1	0	-96				
2	5	4566	9566	2	2	8	0	-42	X		X	

Attachments - J

AutoSave Letting After Nov 1, 2020 QC Superpave - Excel Search Reynolds, Mike

File Home Insert Draw Page Layout Formulas Data Review View Developer Help Onbase Reporting PGraph

V50 Version 4.3

NEBRASKA DEPARTMENT OF TRANSPORTATION
2021 SUPERPAVE SOFTWARE - LETTING AFTER NOV 1, 2020

PROJECT NUMBER: NAME OF ROAD: CONTROL NUMBER: CONTRACTOR: LAB TECHNICIAN: LAB NUMBER: PROJECT MANAGER:

NEBRASKA
Good Life. Great Journey
DEPARTMENT OF TRANSPORTATION

MIX TYPE: JMF NUMBER: BINDER SOURCE & GRADE: COMPACTION TEMPERATURE: BULK SPECIFIC GRAVITY OF AGG.: FAA AGG. SPECIFIC GRAVITY:

Version 4.3

Mix Design Targets

	% FAA Bm-off	% FAA Cold Feed	% CAA Bm-off	% CAA Cold Feed	Rice (Green)	Density @Nets	%Voids @Nets	% Binder	Dust / Binder Ratio	% VMA	% VFA	3/4"	1/2"	3/8"	No. 4	No. 8	No. 15	No. 30	No. 50	No. 200	
Enter your targets in the appropriate column																					

Binder Correction Factor: 0.00

Software Legal Disclaimer: The Nebraska Department of Transportation (NDOT) allows the use of the software, but NDOT expressly disclaims warranty of any type for such information, and makes no representation whatsoever regarding the correctness, the completeness, the merchantability or fitness for a particular use of such information. NDOT does not warrant such information against deficiencies of any type or nature. The use of such information for work which is under contract with NDOT does not relieve the contractor of any obligation assumed by the contractor for the complete and proper fulfillment of the terms of the contract. NDOT shall not be responsible for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

Introduction Control Strip Lots 1-6 Density 1-6 Lots 7-12 Density 7-12 Lots 13-18 Density 13-18 Lots 19-24 Density 19-24

Attachments - J

AutoSave Letting After Nov 1, 2020 QC Superpave - Local Local Search Reynolds, Mike

File Home Insert Draw Page Layout Formulas Data Review View Developer Help Onbase Reporting PGraph

K135

NEBRASKA DEPARTMENT OF TRANSPORTATION
SUPERPAVE SOFTWARE CONTROL STRIP

PROJECT NUMBER: NAME OF ROAD: CONTROL NUMBER: CONTRACTOR: LAB TECHNICIAN: LAB NUMBER: PROJECT MANAGER:

NEBRASKA
Good Life. Great Journey
DEPARTMENT OF TRANSPORTATION

MIX TYPE: JMF NUMBER: BINDER SOURCE & GRADE: COMPACTION TEMPERATURE: BULK SPECIFIC GRAVITY OF AGG.: FAA AGG. SPECIFIC GRAVITY:

Sample Number	SAMPLE ID		DATE / LOCATION		MIX VOLUMETRICS AND PROPERTIES										GRADATION (Percent Passing)										
	JMF	Date	Station/Lift/Lane	%FAA Bm-off	%FAA Cold Feed	%CAA Bm-off	%CAA Cold Feed	Rice (Green)	Density @Nets	%Voids @Nets	% Binder	Dust / Binder Ratio	% VMA	% VFA	3/4"	1/2"	3/8"	No. 4	No. 8	No. 15	No. 30	No. 50	No. 200		
CS-1			--																						
CS-2			--																						
CS-3			--																						
	#N/A			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	#N/A			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Lab Calculations Control Strip 1

Page 1

Introduction Control Strip Lots 1-6 Density 1-6 Lots 7-12 Density 7-12 Lots 13-18 Density 13-18 Lots 19-24 Density 19-24

Attachments - J

NEBRASKA DEPARTMENT OF TRANSPORTATION SUPERPAVE SOFTWARE LOTS 1-6 SUMMARY

PROJECT NUMBER:						MIX TYPE:																	
NAME OF ROAD:						JMF NUMBER:																	
CONTROL NUMBER:						BINDER SOURCE & GRADE:																	
CONTRACTOR:						COMPACTION TEMPERATURE:																	
LAB TECHNICIAN:				BULK SPECIFIC GRAVITY OF AGG.:																			
LAB NUMBER:				FAA AGG. SPECIFIC GRAVITY:																			
STATION NUMBER:				DEPARTMENT OF TRANSPORTATION		LIFT:																	
DATE / LOCATION		MIX VOLUMETRICS AND PROPERTIES										GRADATION (Percent Passing)											
Sample Number	JMF	Date	Station/LR/Lane	NMA (m ³ /m ³)	NMA Defined	NMA Burnoff	NMA Defined	Ret (mm)	Depth (ft)	Wash (ft)	% Bone	Dur/ Bone	NMA	NVA	1/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 200
Mix Design Targets																							
Sublot 1-1																							
Sublot 1-2																							
Sublot 1-3																							
Sublot 1-4																							
Sublot 1-5																							
Sublot 2-1																							
Sublot 2-2																							
Sublot 2-3																							
Sublot 2-4																							
Sublot 2-5																							
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Sublot 6-1																							
Sublot 6-2																							
Sublot 6-3																							
Sublot 6-4																							
Sublot 6-5																							

AASHTO T30, T166, T209, T245, T269, T304, T308, T283, T312, D5821
*All Specifications are minimums, except for Air Voids and Gradations

Attachments - J

Lab Calculations 1-1

PROJECT NUMBER:						MIX TYPE:			
NAME OF ROAD:						JMF NUMBER:			
CONTROL NUMBER:						BINDER SOURCE & GRADE:			
CONTRACTOR:						COMPACTION TEMPERATURE:			
LAB TECHNICIAN:				BULK SPECIFIC GRAVITY OF AGG.:					
LAB NUMBER:				FAA AGG. SPECIFIC GRAVITY:					
STATION NUMBER:		DATE:		DEPARTMENT OF TRANSPORTATION		LIFT:		LANE:	

Gyrotory Bulk Gravity Wt. Air: <input type="text"/> Wt. SSD: <input type="text"/> Wt. Water: <input type="text"/> Volume: <input type="text"/> Gmb: <input type="text"/>		Maximum Mix Gravity Cont. and Mix wt. Container in air: <input type="text"/> Mix in air: <input type="text"/> Cont./Mix in water: <input type="text"/> Container in water: <input type="text"/> Mix in water: <input type="text"/> Mix Volume: <input type="text"/> Gmm: <input type="text"/>		Fine Aggregate Angularity (FAA) Cylinder Volume: <input type="text"/> Cylinder Weight: <input type="text"/> Specific Gravity: <input type="text"/> Cyl. & Agg. Wt. #1: <input type="text"/> Cyl. & Agg. Wt. #2: <input type="text"/> Average FAA: <input type="text"/>				Grad. Sample Wt: Sieve: <input type="text"/> Wt. gm: <input type="text"/> % Ret.: <input type="text"/> % Pass.: <input type="text"/>	
Gmm: <input type="text"/> Gmb: <input type="text"/> D/B: <input type="text"/> %VMA: <input type="text"/> %VFA: <input type="text"/>		Ht., mm: <input type="text"/> Gmb: <input type="text"/> %Gmm: <input type="text"/> %Air Voids: <input type="text"/>		Coarse Aggregate Angularity (CAA) Sample Wt.: <input type="text"/> 1 fractured face: <input type="text"/> 2 fractured face: <input type="text"/>				Burn-Off Oven Results Calibrated Binder Content: <input type="text"/> Correction Factor: <input type="text"/> Total Binder Content: <input type="text"/>	

DO NOT fill in unless directed by NDOT.

NDOT Air Void Results:

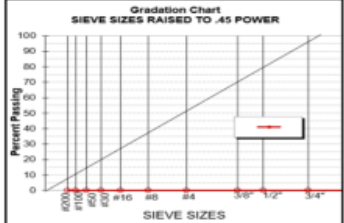
NDOT Binder Results:

NDOT Dust/Binder Results:

NDOT FAA Results:

NDOT FAA Results:


Remarks:



Attachments - K

LAB TEST 1

PROJECT NUMBER: _____
 NAME OF ROAD: _____
 CONTROL NUMBER: _____
 CONTRACTOR: _____
 LAB TECHNICIAN: _____
 LAB ID #: _____
 DATE RECEIVED: _____



MIX TYPE: _____
 JMF NUMBER: _____
 BINDER SOURCE & GRADE: _____
 COMPACTION TEMPERATURE: _____
 BULK SPECIFIC GRAVITY OF AGG.: _____
 FAA AGG. SPECIFIC GRAVITY: _____
 S-M NUMBER: _____

SUBLOT: _____

Gyratory Bulk Gravity

Wt. Air _____
 Wt. SSD _____
 Wt. Water _____
 Volume _____
 Gmb _____

Maximum Mix Gravity

Cont. and Mix wt. _____
 Container in air _____
 Mix in air _____ 0.0
 Cont. Mix in water _____
 Container in water _____
 Mix in water _____ 0
 Mix Volume _____ 0.0
 Gmm _____

Fine Aggregate Angularity (FAA)

Cylinder Volume _____
 Cylinder Weight _____
 Specific Gravity _____
 Cyl. & Agg. Wt. #1 _____
 Cyl. & Agg. Wt. #2 _____
 Average FAA _____

Coarse Aggregate Angularity (CAA)

Sample Wt. _____
 1 fractured face _____
 2 fractured face _____

Grad. Sample Wt.:

Sieve	Wt. gm	% Ret.	% Pass.
1"			
3/4"			
1/2"			
3/8"			
#4			
#8			
#16			
#30			
#50			
#100			
#200			

Gmm _____ Gmb _____ D/B _____ %VMA _____ %VFA _____

Ht., mm _____ Gmb _____ %Gmm _____ %Air Voids _____

N des = _____

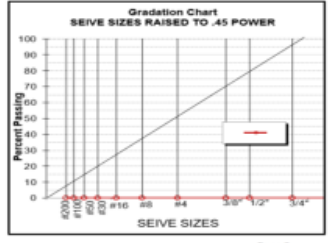
Burn-Off Oven Results

Calibrated Binder Content _____ From Ticket _____
 Correction Factor _____
 Total Binder Content _____

Burn-Off Oven Weights

Empty Basket	
Full Basket	
Weight of Sample	
Weigh Back Weight	

Gradation Chart
 SEIVE SIZES RAISED TO .45 POWER



Contractor required to use these results.

NDOT Air Void Results: _____
 NDOT Binder Results: _____
 NDOT Dust/Binder Results: _____
 NDOT FAA Results: _____
 NDOT FAA Results: _____

Burn CF _____ CAA Burn: _____ One Two _____
 CAA CF: _____

Remarks: _____

Attachments - L

Letter for an IA Review

Contractor X,

The Lot 2-4 aggregate gradation results do not correlate with the branch lab's results on the 1/2" and #4 sieves. Please have your technician check the equipment used for this test. An IA review will be scheduled on a biased sample today or tomorrow. The remaining split samples from Lot 2 will be delivered to the branch lab for possible testing.

Thank you,

Quality Assurance Manager
 State Branch Lab

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Attachments - M

Follow-up Letter

Contractor X,

I performed an IA review on the splitting, washing and sieving in the lab located north of Fremont on 10-21-10. **A #10 or #16 cover sieve is needed for the wash test.** I couldn't find any other issues with the equipment or technicians techniques. The IA sample and subsequent samples are within testing tolerances for gradations.

The Norfolk Branch Lab air voids for sample 3-2 do not correlate with your technicians results. Be advised the Norfolk Branch Lab results shall be used for single test results and when calculating running average of 4 tests for air voids. I will request the remaining split samples from lot 3 be delivered to the branch lab for testing. I plan to be at this lab tomorrow for IA review of equipment and procedures related to the RICE test and gyratory compaction.

Thank you,

Quality Assurance Manager
State Branch Lab

2024 NDOT Asphalt Field Technician I/II & Binder & Emulsion Sampler Recertification Quiz

1. When a PG binder or Asphalt Emulsion sample is taken, how much material is required to pass through the sample valve first?
 - a. Just until a steady stream is flowing thru the valve
 - b. Two Quarts
 - c. One Gallon
 - d. Two Gallons

2. How often are Joint Densities required to be taken by the contractor?
 - a. 1 Joint Density every subplot or 1000 tons.
 - b. 1 Joint Density randomly per project.
 - c. 1 Joint Density for each Lot or 5000 tons.
 - d. 1 Joint Density per day of production.

3. Where is the Type SPS Mix used ?
 - a. Mainline Paving
 - b. Shoulder Paving
 - c. Curb and Gutter paving with Flumes
 - d. All the above

4. Are Tensile Strength Ratio (TSR) sample pucks required for a SPS mix?
 - a) Yes
 - b) No

5. The frequency a binder sample should be obtained is:
 - a) every 200 tons of binder used or fraction thereof
 - b) every 1000 tons of binder used or fraction thereof
 - c) every 750 tons of asphalt used
 - d) on every tanker that delivers binder to the project