

Bituminous Update



2012 Fall MEO

Meeting

April 18, 2012

John Garrity

Today's Discussion

- 2012 Specification Changes
- 2012 Construction Season

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2012 Bituminous Specification

- The 2012 specification is final and is dated March 5, 2012.
 - May letting is (probably) the earliest it will be in contracts.
- The 2012 specification update(s) will be inserted in Contract special provisions.



Summary of Documents Needed for 2012 Bituminous Construction

- 2360 Specification
- 3139 Graded Aggregate for Bituminous
- 2357 Tack Spec
- 2399 Pavement Smoothness

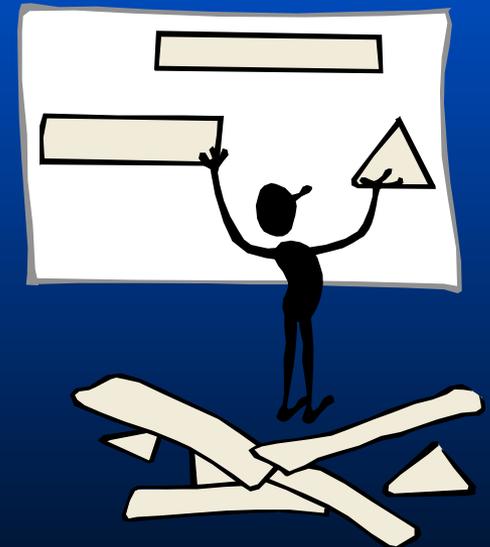




2012 Construction Season

Specification Changes

- Fine Gradation
- 70% add ac/total ac
- Alternate Agency Core Testing
- JMF Request for Adjustment



3139

Fine Aggregate Gradation Size “A”

Sieve Size (inch [mm])	A (OLD)	<u>A (NEW)</u>
1 inch [25.0]		
3/4 inch [19.0]		
1/2 inch [12.5]	100 ^(*)	100 ^(*)
3/8 inch [9.5]	85-100	85-100
#4 [4.75]	25-90	60-90
#8 [2.36]	20-70	45-70
#200 [0.075]	2.0-7.0	2.0-7.0

70% Ratio add ac/total ac

- When PG XX-28, PG 52-34, PG 64-22, PG 49-34 is the specified asphalt binder grade
 - » No maximum limit on RAP
- Purpose: To ensure a certain amount of new asphalt is being incorporated into the mixture.... Rejuvenate.



70% Ratio + 20% Max. RAP/RAS

- When PG 58-34, PG 64-34, or PG 70-34 is the specified asphalt binder grade.
- Purpose: To ensure a certain amount of new asphalt is being incorporated into the mixture and ensure the low temperature characteristic of the AC is not compromised.



Department Core Testing Provision

- Special Provision Insert (District Decision)
- Contractor can request all density cores be tested by the Department.
- Half the number of cores are cut.



Department Core Testing Provision

- District bulks the cores in the field.
- Contractor is permitted to observe and record all weighing of the cores and record saturated surface dry, immersed weight of the cores and air dry.

Department Core Testing Provision

- Contractor Responsibilities:
 - Traffic control, coring and patching core holes, measuring and cutting cores (in the lab).



Department Core Testing Provision

- Department Responsibilities:
 - Test the cores after they are measured and cut.
 - Density results will be determined by the end day in which the cores were cut provided they are in the Department's possession by 10:00am .

JMF Request for Adjustment

- Submit a request for JMF adjustment when the cumulative change on any one product exceeds 10% from the original MDR.
 - Not meant to be punitive, rather, to keep MDR's current with actual mix production.
 - » Most Districts already update MDR's on annual basis, Metro does not.

2012 Paving Items

- Ignition Oven Calibration Factor
- Plant Recordation
- Alternate Sampling Locations
- Coarse Mix/Corelok Use
- PG Selection and Construction Type
- Dispute Resolution
- Test Turnaround

Ignition Oven Calibration Factor

- Both Contractor and MnDOT establish CF on the 1st day of production.
- Both Contractor and MnDOT will agree on an asphalt value to which the oven will be calibrated.
 - CF based on MnDOT solvent extraction
 - » Contractor has option to run their own. If they do, both parties must agree on which value to use.
- Lab Manual Procedure 1853





Plant Recordation Printout

- Both the virgin and recycle belt feed rates (tons/hr),
- Feeder bin proportions (%),
- Total % asphalt cement in the mixture,
- Virgin asphalt cement added (%)
- Mixture Temperature °F [°C],
- Mixture code,
- Date and time stamp, and
- Current tons of mixture produced and daily cumulative tons of mixture produced at time of printout.
- Daily SPAN values (1 time per day)



Why Plant Recordation Printout?

- Main purpose is so we can verify Add AC to calculate add AC/Total AC

Alternate Mixture Sampling Location

■ Truck box Sampling

- Consider allowing truck box sampling , at the plant site, when there is significant travel between plant and project site.
 - » Take verification behind paver.



Coarse Mixtures

Core Testing

- Interconnecting air voids are a possibility.
- Use of the corelok device may be required.



Concerns with Bulking of Coarse Mixes

- Overestimating Field Density
 - Water lost as the core is transferred from the immersed weight condition to the saturated surface dry weight.
 - » Lower calculated core volume indicates higher bulk specific gravity.
 - Higher density

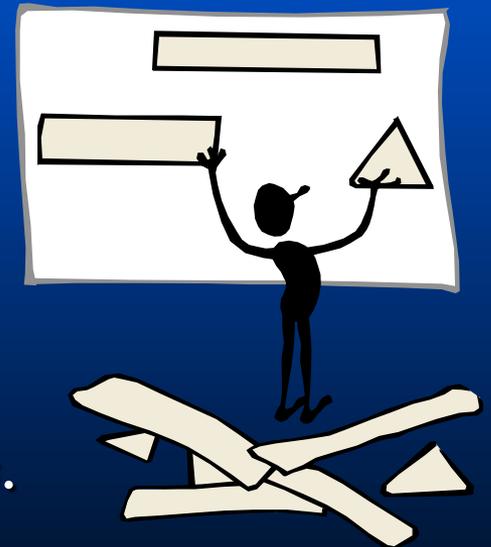


Corelok Criteria

- Look at % Passing #8 & % Passing #4:
 - #8 sieve is $\leq 39\%$ passing, and
 - #4 sieve is approximately 40% passing
 - **USE CORELOK** eponymous
- Contact Bituminous Office when only item is #8 sieve $\leq 39\%$ passing

Low AC Mixes

- Low AC, <4.7%
- Coarse Aggregate
- Typically, 2-3 Contractors routinely producing on the coarser side.
- Things we should do:
 - Run Production TSR's
 - Make sure we have good density
 - Make note, and track performance.



Dispute Resolution

- Agency/Industry group developed dispute Process.
 - Progressive approach to resolve differences between parties in a fair and timely manner.
- Flowchart is available on Bituminous Office Website.



Dispute Resolution Items

- Mixture Volumetrics
 - Production Tests
- Aggregate qualities



Test Turnaround

- Test Turnaround includes:
 - Time for delivery of sample from field to testing lab, and
 - Time to test sample in laboratory
- Agency should strive to:
 - Get samples to lab ASAP
 - Test ASAP
 - Get test results to the field ASAP
- At Pre-con discuss delivery time to lab.

Test Turnaround

- Get samples to lab ASAP
- Test ASAP
- Get test results to the field ASAP

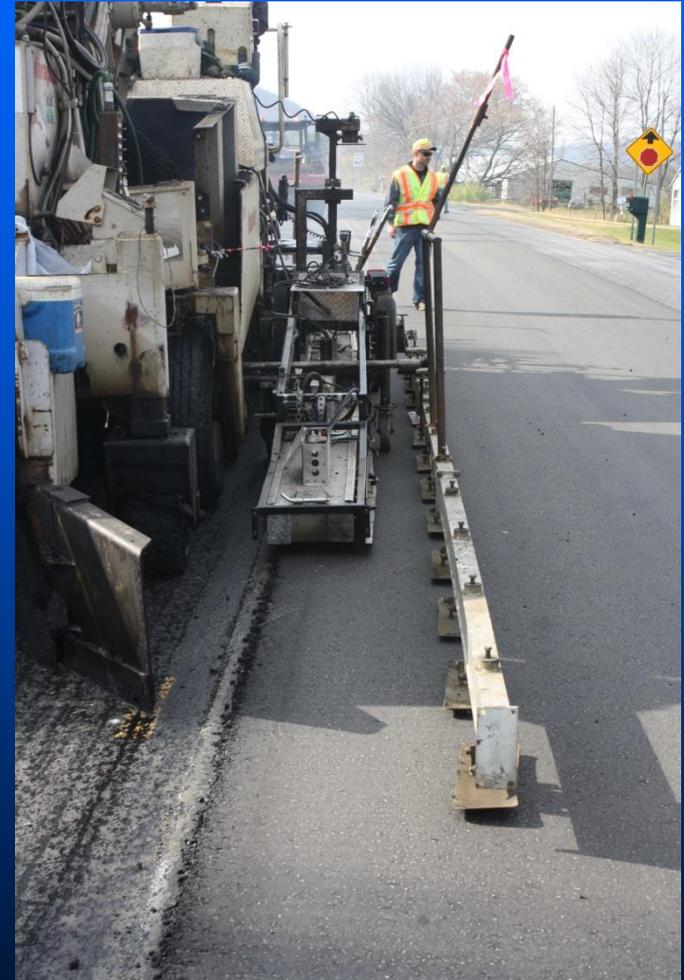
Test	Time for Delivery (Field to Lab)	Laboratory Turnaround Time
Verification Samples	1 working day	2-3 working days
Density Cores	1 working day	2 working days

Longitudinal Joint Enhancement

- Joint Bond
- Fog Seal
- Joint Adhesive
- Joint Heater



Joint Heater

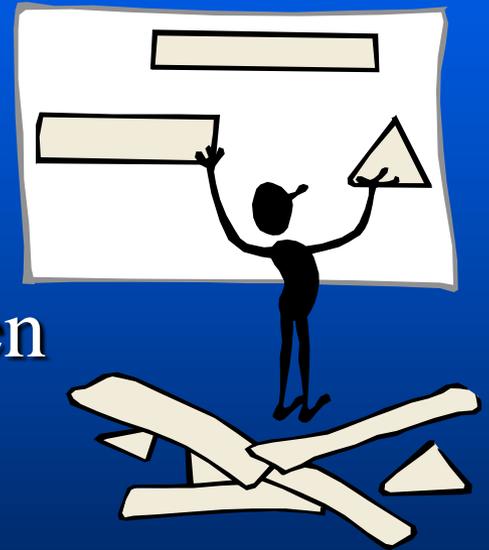


Joint Heater



Additional Things for 2012

- Have Plant Monitor review RAP piles for contamination.
 - Joint Sealant
 - Pinecones, etc.
- Consider testing QA samples when unusual trends are noticed in data.
- Warm Mix (including foaming)
 - Identify them and Track them
 - Do at least 1 TSR (develop data base)





Questions?