Asphalt Binder Inspection and Sampling Guidance

May 2024

Asphalt Binder Section, Materials and Tests Division

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SECTION 1 – INTRODUCTION

1.1 Check the Quality Monitoring (QM) lab number to make sure it's current (not expired), using SiteManager or LIMS Flyover.

Note 1—A QM lab number is an MTD lab number for certifying a certain material grade from a certain supplier for a specific period (one calendar month before 2022 and three calendar months since 2022). The lab number format is CXX37YYYY, where XX is the current calendar year and YYYY is the numerical number of the sample. The QM lab number SiteManager ID (SM ID) follows the following format QM301CXX37YYYY. Example: MTD lab number C20375555, SM ID will be QM301C20375555.

1.2 Take samples once per day or lot (Section 3.1). Select proper sample containers (Section 4.1) and label the containers with proper information. At least one sample, per grade per supplier per project, is sent to MTD while additional daily storage samples are stored.

1.2.1 The Department should always maintain the custody of the samples.

1.3 Log the samples, sent to MTD, in SiteManager and be sure to include all required information. Barcode and ship the samples to MTD.

1.4 Associate stored samples to the project and send in stored samples when needed.

1.5. Contact MTD Asphalt Binder Section for any questions regarding this guide or binder testing in general:

- **Section Director**: Pravat Karki, Ph.D., P.E (Pravat.Karki@txdot.gov, 512-506-5242)
- **Engineer**: Zahra Sotoodeh Nia, Ph.D., P.E. (Zahra.Sotoodehnia@txdot.gov, 512-506-5803)
- **Engineer**: Ali Arabzadeh, PhD, P.E. (Ali.Arabzadeh@txdot.gov, 512-506-5804)
- **Engineering Assistant**, Eloy Lopez Minjares (Eloy.LopezMinjares@txdot.gov, 512-506-5945)
- **Engineering Assistant**, Ismael Morales (Ismael.Morales@txdot.gov, 512671-0939)
- **Recordkeeper**, Jasmine Ryan (Jasmine.Ryan@txdot.gov, 512-302-2065)

1.5.1 Alternatively, you may also email the distribution group, MTD-Asphalt-Engineering@txdot.gov with any relevant questions.

SECTION 2 – CHECKING THE QM LAB NUMBER

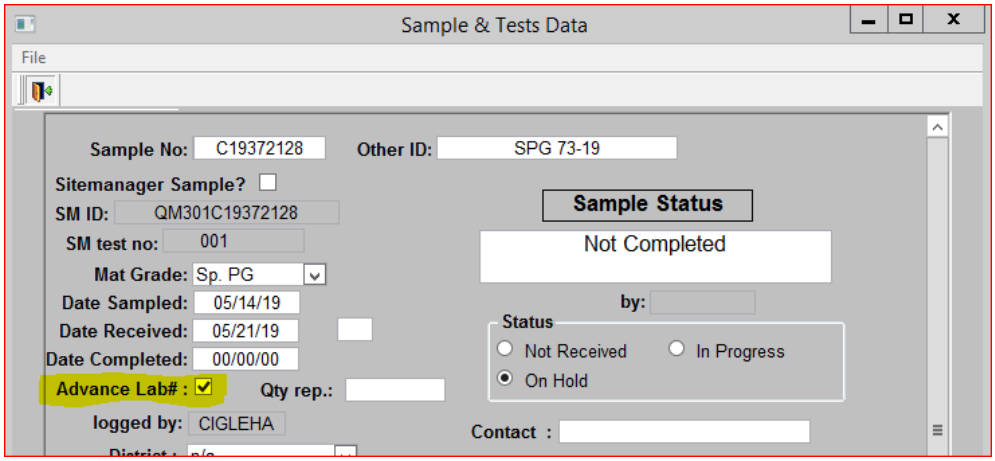
2.1. Verify the lab number, assigned by MTD on the ticket (or bill of lading i.e., BOL) from the transport, is current by comparing the lab number on the ticket with the lab number listed in SiteManager (Section 2.4) or LIMS Flyover (Section 2.5) or Asphalt Supplier Certifications dashboard (Section 2.6) or by contacting MTD Asphalt Binder Section personnel (Section 1.5).

2.2. If the lab number from MTD is not current (has expired), an advanced lab number has not been issued, or if the lab number does not match (e.g., producer or grade does not match the shipping ticket), reject the load.

2.2.1. On rare occasions, MTD may issue an "Advance" lab number, which is approval for the material given in advance of MTD's complete testing. In this case, the lab number on the shipping ticket may not yet be in SiteManager but will be in LIMS Flyover.

2.2.2. Once the lab number has been found in LIMS Flyover, double click on it.

2.2.3. On the screen showing the sample details, look for the "Advance Lab#" check box. A check here indicates that this is an advanced lab number.



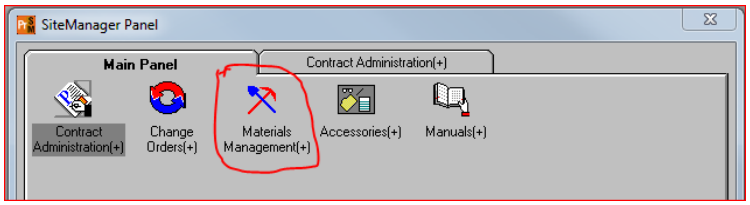
2.2.4. If necessary, contact MTD regarding the status and estimated completion time for the sample.

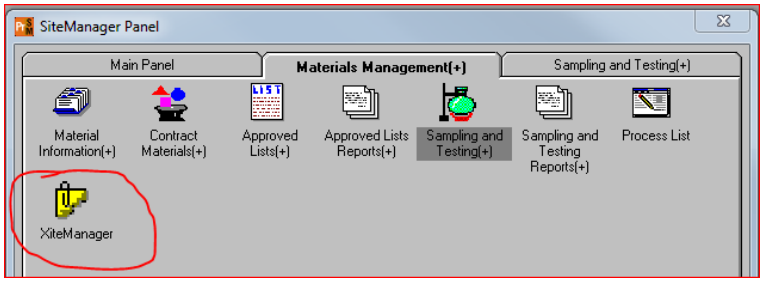
2.3. Record the lab number, producer, grade, and effective dates for future quick reference.

Note 2—The lab numbers are usually valid for a specific period (one calendar month before 2022 and three calendar months since 2022), so it will likely be used repeatedly on a given project. Having a list on hand of previously verified numbers makes it easy to verify more loads when they arrive with the same number.

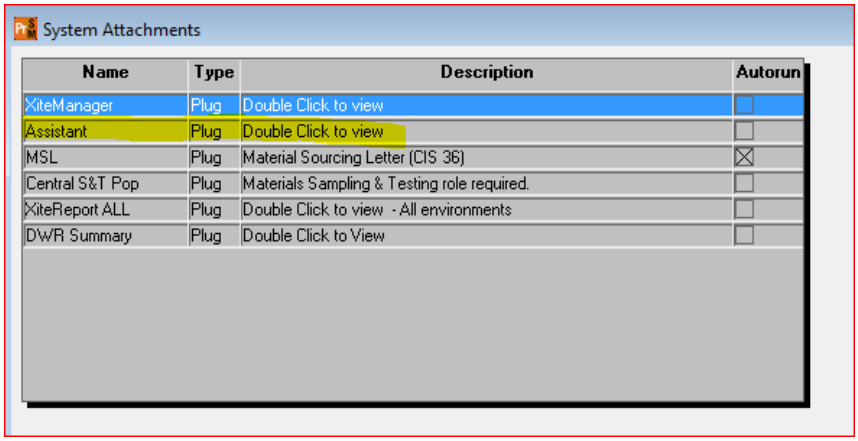
2.4. Verifying the lab number using **SiteManager**.

2.4.1. Log in to SiteManager and double click on “Materials Management,” then “XiteManager.”



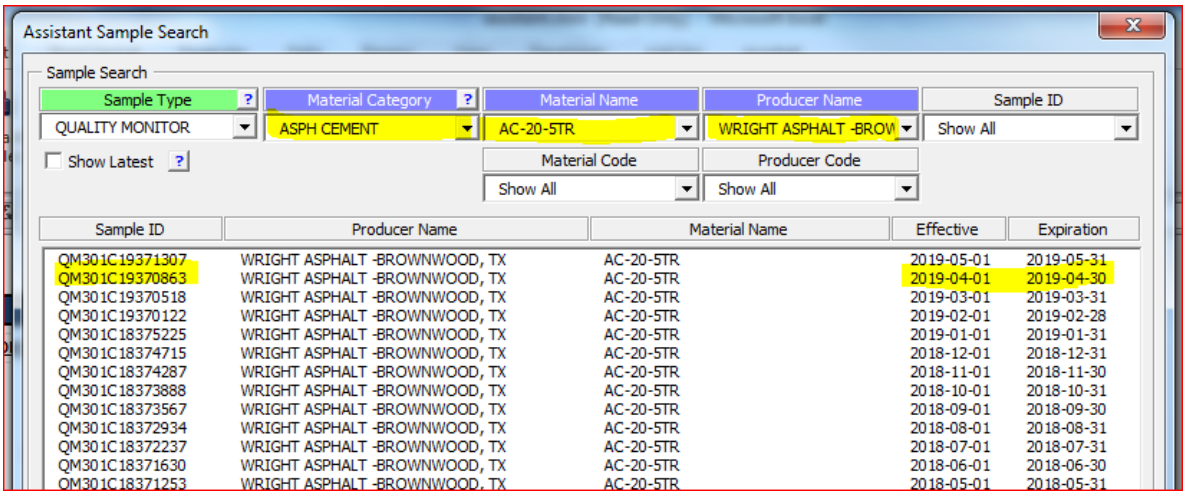


2.4.2. Double click on “Assistant.”

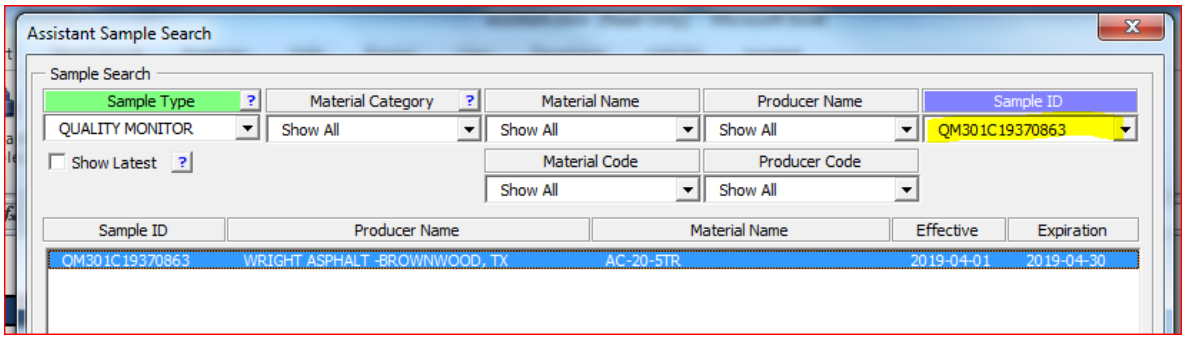


2.4.3. Select the following information:

- the type of asphalt used on the project (Example: “ASPH CEMENT”) under “Material Category,”
- the grade of asphalt (Example: “AC-20-5TR”) under “Material Name,” and
- the name of the producer (Example: “WRIGHT ASPHALT—BROWNWOOD, TX”) under “Producer Name.”



2.4.4. If you have trouble finding the lab number through this method, or you do not know some of the information, type in the SiteManager ID under “Sample ID.” The SiteManager ID will be “QM301” followed by the lab number from the shipping ticket. (Example: QM301C19370863)

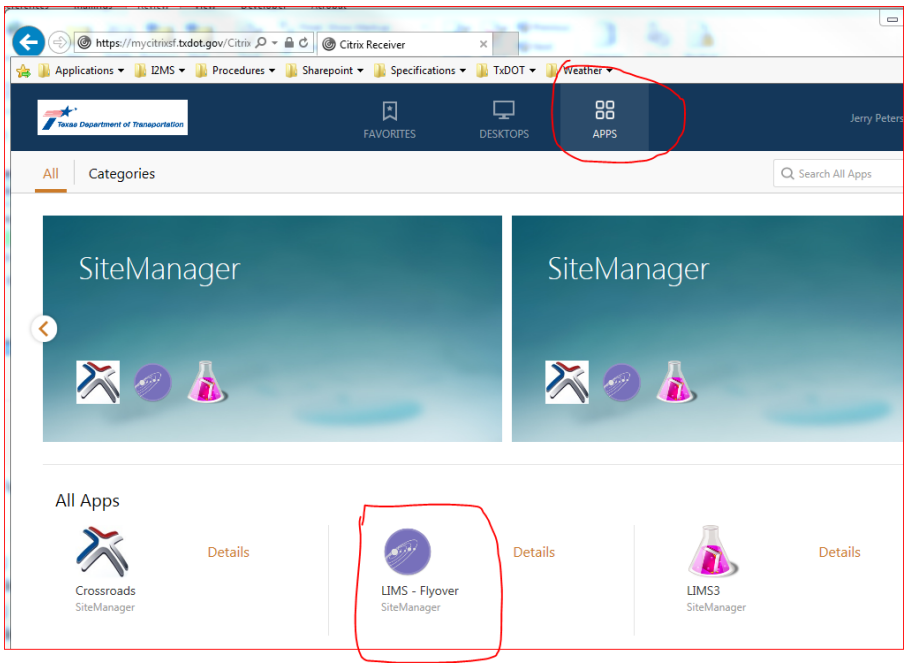


2.4.5. Find the SiteManager ID that matches the lab number from the shipping ticket (the SiteManager ID will start with “QM301” followed by the lab number) and check to make sure the date of the shipment is within the valid dates for the SiteManager ID. (Example: QM301C19370863 with valid dates from April 1, 2019, to April 30, 2019; QM301C23370837 with valid dates from April 1, 2023 to June 30, 2023, etc.)

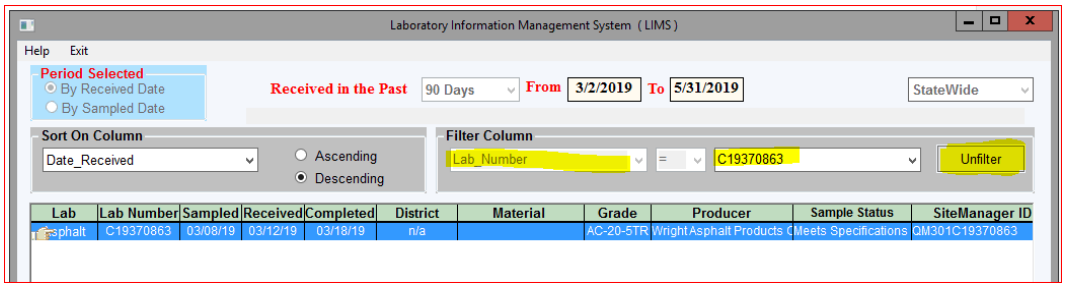
2.5. Verifying the QM lab number using **LIMS Flyover**.

2.5.1. Use Citrix or SiteManager Terminal Server to access:

- Log in to Terminal Server and select “Additional Apps” from the Launch pad. Then double click “LIMS Flyover Database,” or
- Log in to MyCitrix (mycitrix.txdot.gov) and select “Apps” at the top of the screen. Then double click “LIMS Flyover.”



2.5.2. In the Flyover Application, select “Lab Number” as the filter column and type in the lab number. (No “QM301” for this application; just the “C” number). Make sure that the upper right drop-down menu is set to State-wide not your District.



2.6. Verifying the QM lab number using the **Asphalt Supplier Certification** dashboard.

2.6.1 Access the Asphalt Supplier Certification dashboard using the link: https://www.txdot.gov/business/resources/materials/asphalt-supplier-certifications.html.

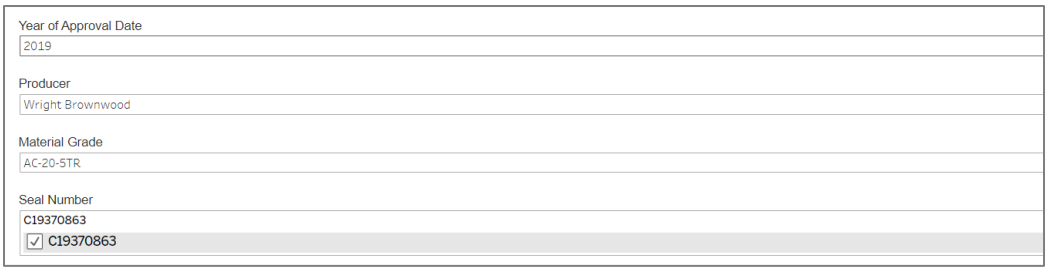
2.6.2 Filter by the *Year of Approval Date* to select ALL years (starting from 2012), the current calendar year or multiple calendar years.

2.6.3: Filter by the *Producer* to select ALL suppliers, a specific supplier, or multiple suppliers.

2.6.4: Filter by *Material Grade* to select ALL material grades, a specific material grade, or multiple material grades.

2.6.5: Filter by *Seal Number* (which is another name for QM lab number in SiteManager).

2.6.6: Once appropriate filters are applied, you can view the *Seal Number(s*) for the selected Material Grade(s) and selected *Producer*(s) with various approval periods within selected calendar *Year(s)*.



Available Filers

Seal Number	Producer	Material Grade	Approval Effective Date	Approval Expiration Date
C19370863	Wright Brownwood	AC-20-5TR	04/01/2019	04/30/2019

Example View

SECTION 3 – SAMPLING FREQUENCIES

3.1. Collect, or witness the collection of, one sample per day or per lot from the project, in accordance with Tex-500-C. Some specification may not require daily sampling. Please review the corresponding specification, FAQ section of this document, DBB Guide Schedule, and/or reach out to MTD Asphalt Lab. Additional instructions for sampling and labelling are in the next section.

3.2. Submit at least one sample of each grade and source, per project to MTD for testing, in accordance with the DBB Guide Schedule. Instructions for creating the sample in SiteManager and preparing it for shipping are in Section 5.

3.3. Log and label the rest of the samples for storage. Instructions for this process are in Section 6.

Note 3—Samples should be collected after the first shot through the distributor to obtain a representative sample.

SECTION 4 – SAMPLING PROCESS

4.1. Use a new, clean unlined 1-quart can for hot applied asphalt and cutbacks, or a wide mouth plastic jar for emulsions. The Department will furnish all sampling containers, unless otherwise specified in the Contract.

Left: Screw top metal can (preferred for cutbacks)
Right: Friction lid metal can (preferred for AC and PG)
Center: Wide mouth plastic jar (preferred for emulsions)

4.1.1 In case of asphalt-rubber (A-R) binders, a sample consists of **two** 1-quart cans, i.e., **two** 1-quart cans of A-R binder should be sent to MTD for testing and **two** 1-quart cans of A-R binder need to be stored, for each storage sample, in District. This is to ensure Asphalt Lab has enough material to run all required tests on these A-R binders.

4.2. Collect samples at the frequency in accordance with the Specification and as outlined in Tex-500-C with witness by the Engineer.

4.3. Mark the samples with the producer, producer facility location, grade, District, date sampled, and project information including highway and CSJ.

Far Left: Properly labeled.
Center: Improperly labeled. Many asphalt companies have multiple facilities, so in this case "Martin Asphalt" is not enough information.
Far Right: Improperly labeled; not legible.
Front: Can lids can be easily mixed up. Please label the sides of the can, not the lid.

4.4. Allow sample to cool before placing lid on the sample. After cooling, seal the container with the lid.

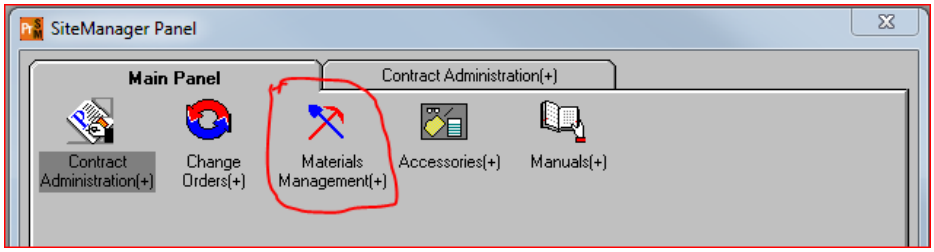
4.5. If sample is to be sent in to MTD for testing, proceed to Section 5.

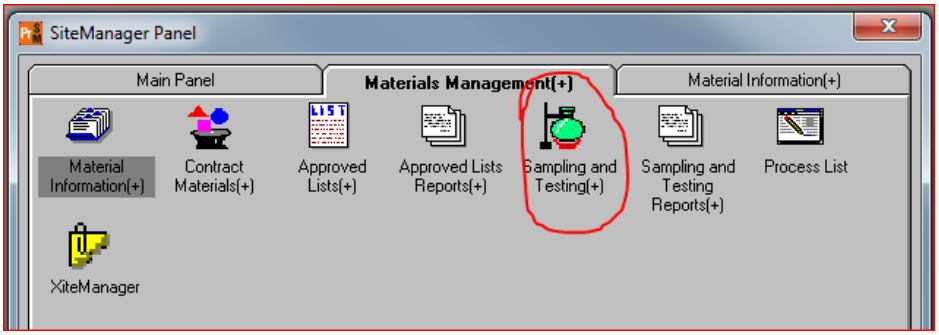
4.6. If sample is not being sent to MTD, proceed to Section 6.

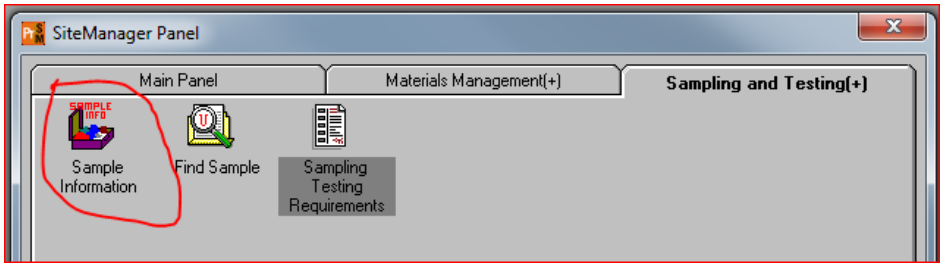
SECTION 5 – LOGGING AND LABELING SAMPLES FOR SUBMISSION TO MTD

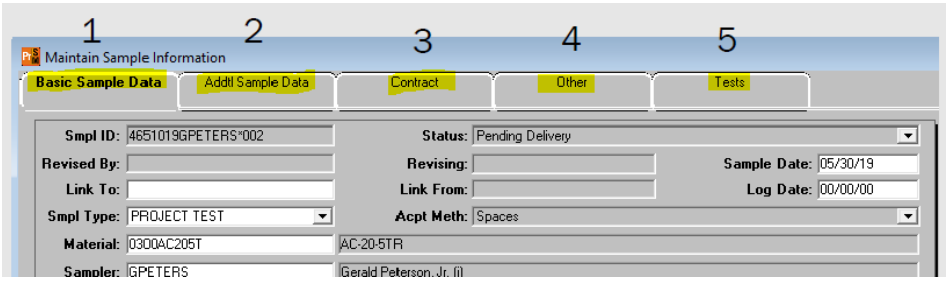
5.1. Log in to SiteManager and double click on “Materials Management,” then “Sampling and Testing,” and finally “Sample Information.”, which has five different tabs:

- “Basic Sample Data” tab,
- “Addtl Sample Data” tab,
- “Contract” tab,
- “Other” tab, and
- “Tests” tab.



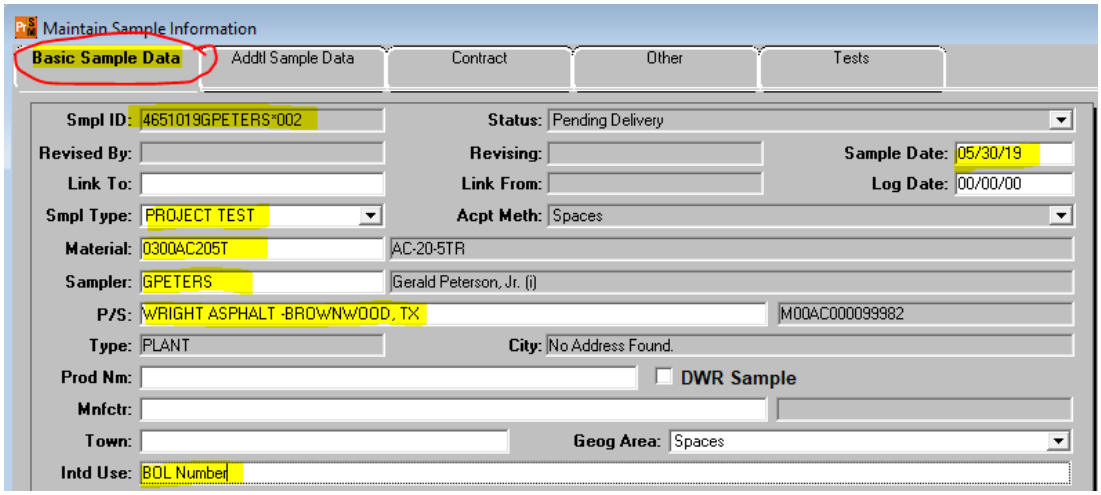






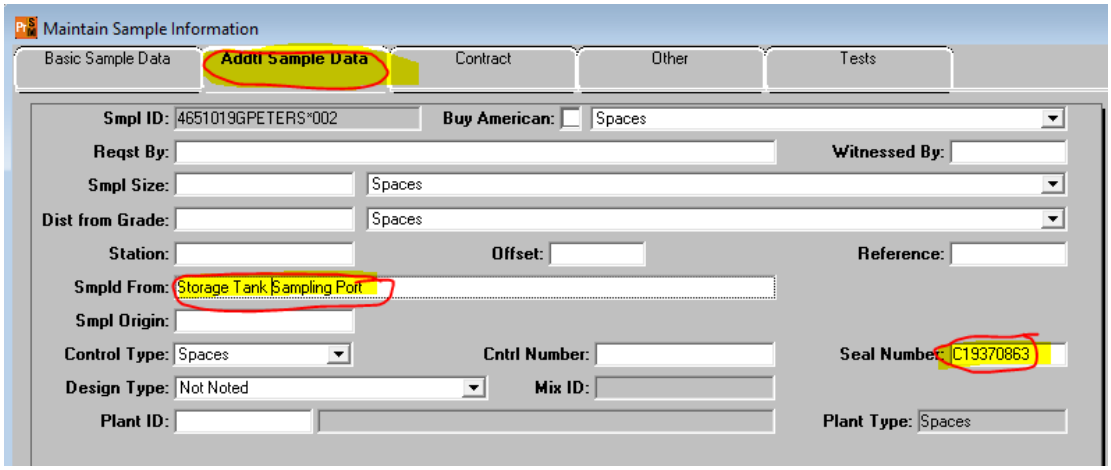
5.2. Enter the following required information, as a minimum, on the "***Basic Sample Data***" tab:

- Smpl ID: this should be automatically populated,
- sample type: should be "Project Test" for project samples,
- material code,
- sampler,
- P/S: producer or supplier,
- BOL number in the "Intd Use" field, and
- sample date.



Then save the sample and proceed to the "***Addtl Sample Data***" tab.

5.3. Enter the QM sample number (the nine-character long "C" number from the asphalt lab: must start with letter "C" followed by eight numeric values without any spaces in the front or in the middle, e.g., C19370863) into the "Seal Number" field. QM sample number that does not follow this format will trigger related deficiency. Enter the location of sampling into the "Sampled From" field (Transport Sampling Port, Storage Tank Sampling Port, Distributor Sampling Port, Plant Load Rack, etc.).



Examples of right format:

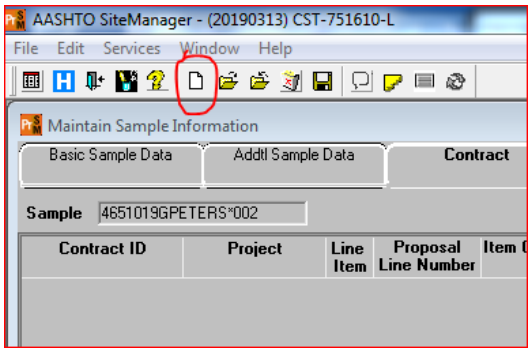
- C19370863

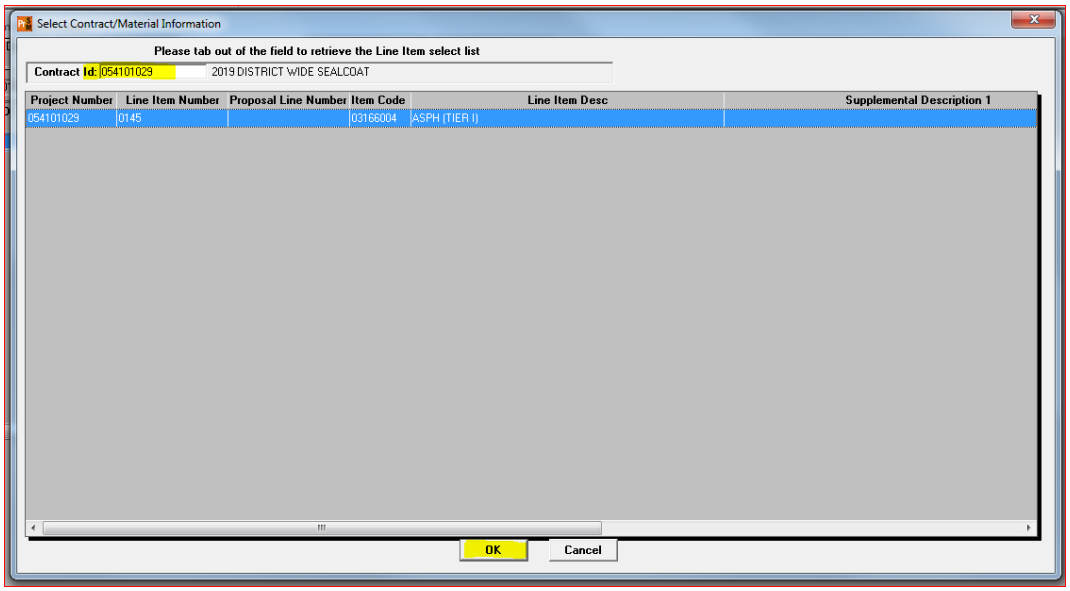
Examples of wrong entry

- No entry
- 19370863
- C1937_863
- C1937____
- C____0863

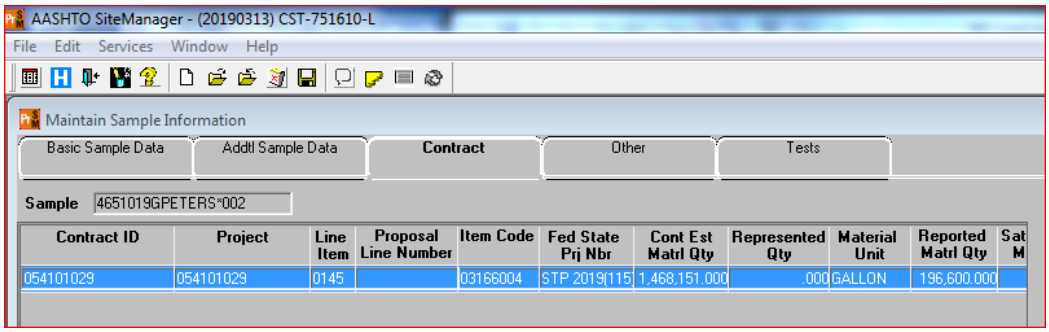
Then, save the data and go to the "***Contract***" tab.

5.4. Click on the "New" icon in the button bar and then type in the CCSJ to find the Contract information. Select OK.





5.5. The Contract information should now be shown in the “Contract” tab.



Save and proceed to the “***Other***” tab if the sample is diluted, otherwise proceed to “Tests” tab, and skip Section 5.6.

5.6. If the sample is DILUTED,

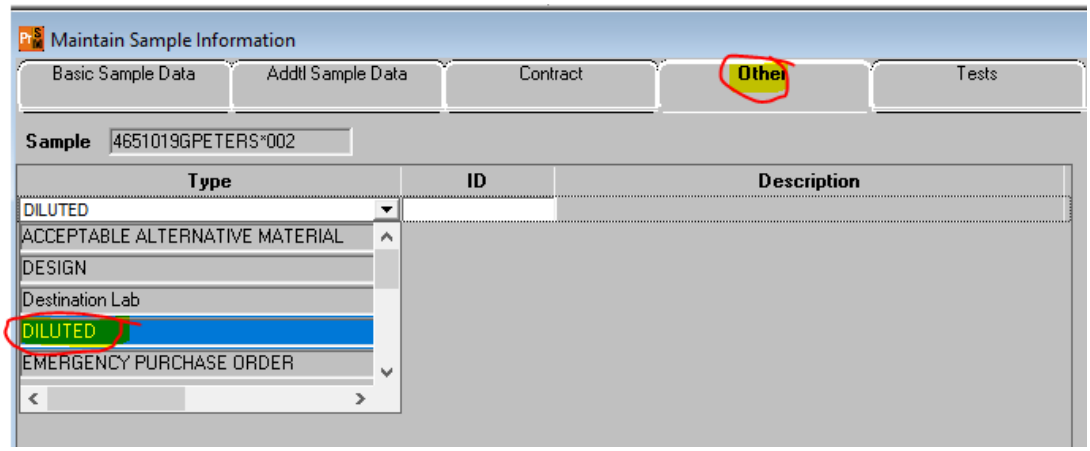
5.6.1 By the supplier, the BOL must reflect the DILUTED emulsion grade (i.e., CSS-1H 50/50, CSS-1H 40/60, CSS-1H 30/70, AE-P 50/50, AE-P 40/60, or AE-P 30/70) and the corresponding QM lab number.

- Districts do not need to select ‘DILUTED” from the “Type” dropdown menu of the “Other” tab since the material grade already recognizes the dilution rate.
- MTD Asphalt Lab will evaluate such samples based on corresponding DILUTED emulsion specifications (LIMS report will reflect the minimum and maximum limits as they are in the specifications).

5.6.2 By the contractor, the BOL must reflect the UNDILUTED emulsion grade (i.e., CSS-1H or AE-P) and the corresponding QM lab number.

- Districts need to select “DILUTED” from the “Type” dropdown menu of the “Other” tab and mention “Diluted 50/50, 40/60 or 30/70” in “INTD Use” field of the “Basic Sample Data” tab since the material grade (CSS-1H and AE-P) selected based on the BOL does not recognize the dilution rate.
- MTD Asphalt Lab will evaluate these samples using:
  - DILUTED emulsion specifications if the dilution rate mentioned in INTD use field matches with one of the Item 300-specified dilution rates.
  - UNDILUTED emulsion specifications if the dilution rate is missing in INTD use or the rate is mentioned but does not match with one of the Item 300-specified dilution rate (such as CSS-1H; Diluted 20/80) or grade (such as SS-1H; Diluted 50/50).

When the use of diluted emulsion is allowed by the corresponding specification and needed in the project, MTD Asphalt Lab recommends using the certified diluted grades and rates as listed in Item 300.

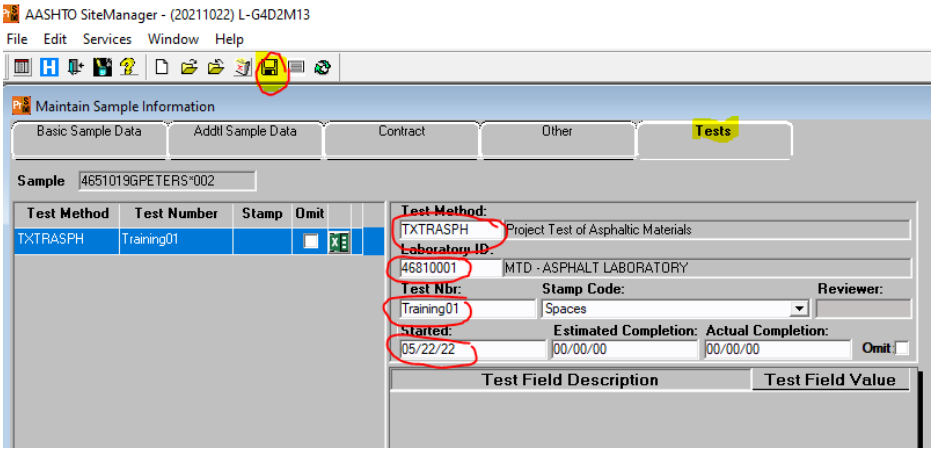


Save and proceed to the "***Tests***" tab.

5.7. Enter the following information:

- "TXTRASPH" as the test method, (**DO NOT** add "TXTRAS" for project sample in this step)
- "46810001" as the Lab ID,
- any short descriptor or a number in the "Test Nbr" field, and
- the sample date in the "Started" field.

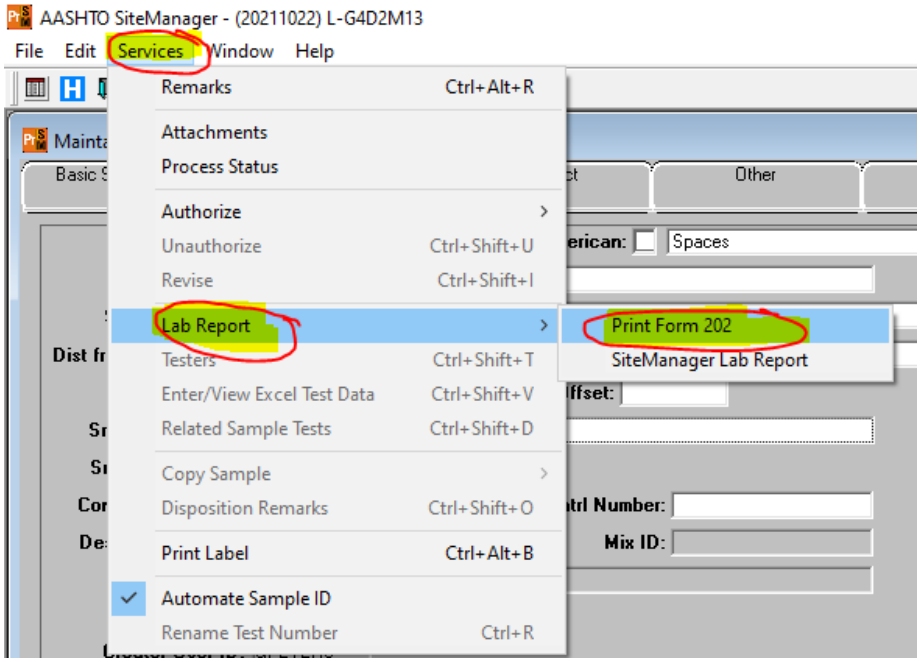
Then save.



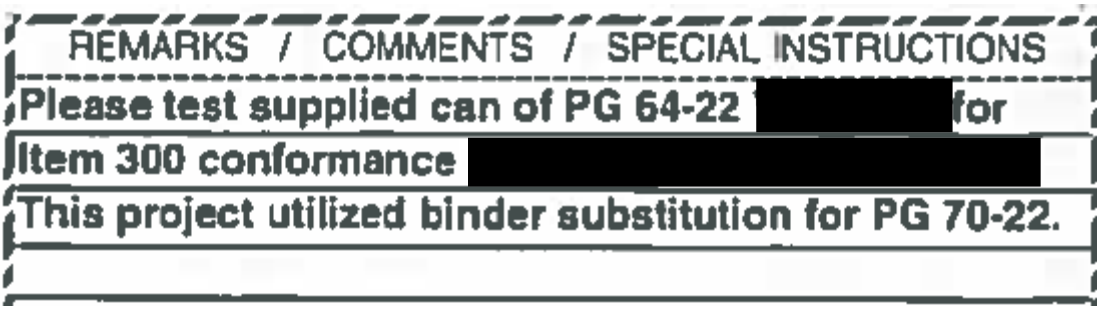
Note 4—The information entered in steps 5.2-5.7 should not be changed after the material is shipped to MTD. Asphalt LIMS will capture SM fields when the sample is entered into LIMS and will not automatically update afterward.

Note 5—The date in the "Started" field cannot precede the sample date in the "Basic Sample Data" tab. Furthermore, the sample date should match the date on the BOL which will allow for picking the supplier for the material grade based on available QM lab number. If the date the sample was taken is different from the BOL date, please mention the date sample was pulled in the Remarks section for your reference. SiteManager only allow one date currently.

5.8. Generate and print out Form 202 by selecting "Services" ⇒ "Lab Report" ⇒ "Print Form 202" from the menu. Print a hard copy of the Form 202.



Note 6—If a grade dump was utilized for a PG sample, the Form 202 must clearly identify the grade dump/substitution. For example, if PG64-22 was used in lieu of PG70-22, the sample must be logged as PG 64-22 and a comment in the REMARKS/COMEMNTS/SPECIAL INSTRUCTIONS section of the Form 202 should be added as shown below. MTD Asphalt Lab will test this binder as PG 64-22 but also verify whether it will also meet substitution binder specifications [i.e., *1.0 ≤ G*/Sin δ (DSR Original) ≤ 2.0 kPa and 2.2 kPa ≤ G*/Sin δ (DSR RTFO) ≤ 5.0 kPa* as described in Item 300].



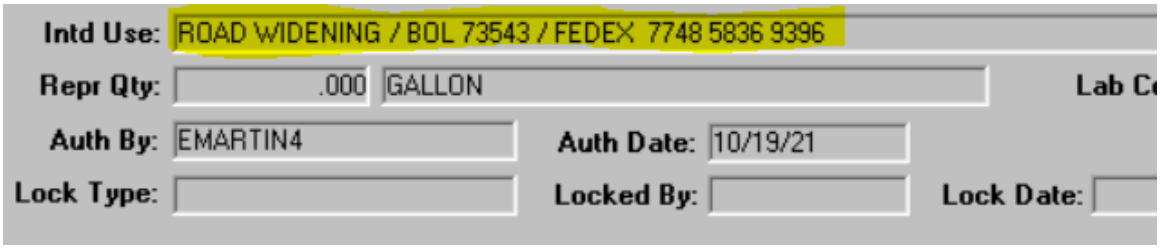
5.9. Print out 4 barcode labels for each sample. Affix 2 of them to the sample containers and 1 to the printed Form 202. Instructions for generating and printing the barcodes are in Section 7.

5.10. Place the samples in the shipping box along with a copy of the Form 202. Attach the remaining 1 barcode label for each sample to the outside of the box.

Note 7—Do not include any other materials (e.g., aggregates, HMA, etc.) in the same box used for shipping asphalt samples.

Note 8—Use crumpled newspaper as packing material in the box. Avoid packing materials such as packing peanuts, shredded paper, etc.

5.11. If the district chooses to document the shipping tracking number in SiteManager, obtain the FedEx, or other shipping tracking number, and add it to the "Intd Use" field. Do not delete the BOL number. If the District uses the "*Intd Use*" field for other project related information, and there is not enough space to add the tracking number, the tracking number can be typed in the Remarks "bubble".



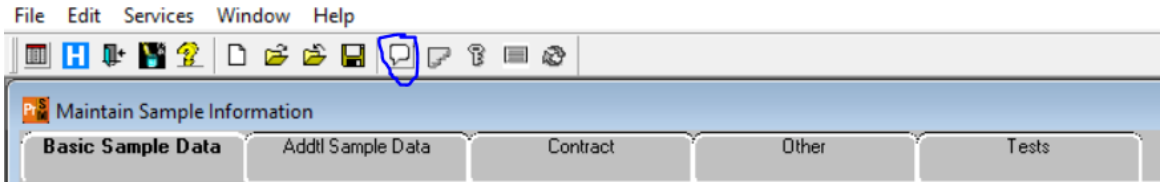
NOTE 9 — Information listed in the "Intd Use" field is transferred to LIMS and becomes part of the test report generated by MTD and shared with the Districts and Suppliers as appropriate. **Including the BOL number in this field is *required* for all project samples**.

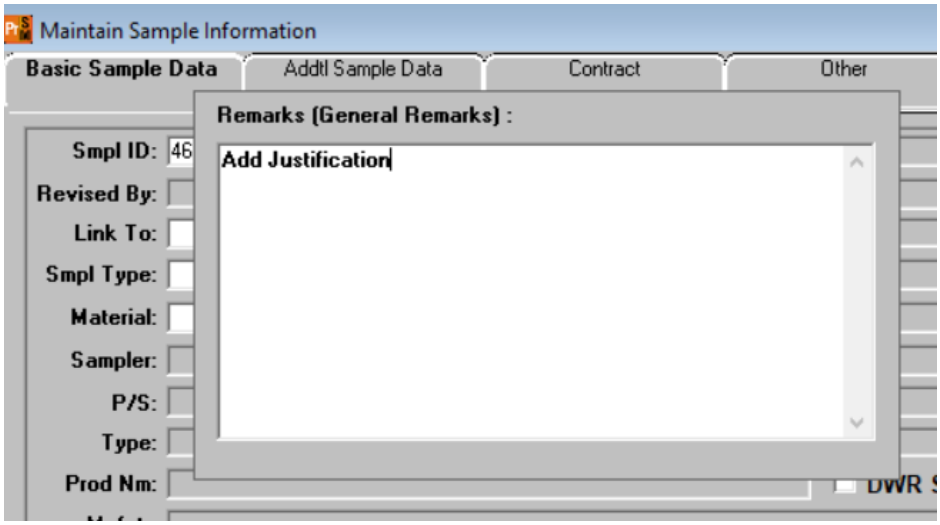
5.12. Ship the sample, within **three (3)** days of collection, to the following address:

Texas Department of Transportation
MTD Asphalt, Laboratory Bldg.
6230 E. Stassney Ln
Austin, TX 78744

5.13. MTD will email test reports to District, (contractors if requested by District) and the asphalt supplier. District should forward all test reports to the Contractor and material suppliers. Failing test reports should be shared with the Contractor and material suppliers immediately after becoming aware of the report.

5.14. A justification is required for acceptance of failing project samples and should be documented in SiteManager within 30 days of the binder being used on the project in accordance with the Material Inspection Guide (https://ftp.txdot.gov/pub/txdot/mtd/mig.pdf). The justification can be added by accessing the Remarks bubble in the “Basic Sample Data” tab (Section 5.2). If more time is needed to authorize the sample, District should add the justification for the additional time and an anticipated timeframe for authorizing the sample in the Remarks bubble of the “Basic Sample Data” tab.





SECTION 6 – LOGGING SAMPLES FOR STORAGE

6.1. Transport the samples to the designated storage area in the District laboratory, area office, or other Department location approved by the District laboratory.

6.2. In SiteManager, associate the sample with the QM sample and project and document the number of transports received for each day. Follow the instructions in Section 8 to associate the sample. In case of A-R binder:

- associate the sample to the base binder used to produce the A-R binder; and
- in the Remarks section, indicate this is an A-R binder.

6.3. Write the new SiteManager ID on the side of the sample.

6.4. Optional: Print out 2 barcodes of the new SiteManager ID, provided by the Assistant, for the sample. To do this, follow the instructions in Section 7.

6.5. Store the samples in a designated area as discussed in Section 6.1 for one year of hot-applied binders or for 2 months for emulsified asphalts. Organize the samples by sample date and project.

Note 10—MTD may request these samples for additional testing later (Section 9).

Note 11—Disposal and recycling options of asphalt samples:

Asphalt binder: solid at room temperature. *Based on industry and academic studies, asphaltic highway pavements do not leach hazardous materials into the environment at levels that would be of environmental concern; therefore, solid samples of asphalt binder may be disposed as non-hazardous municipal solid waste. Disposal of the samples in relatively small quantities at a time, along with other dumpster waste from the facility, would be appropriate. Alternately, if MTD or the District deems the material suitable, any opportunities for reuse of the samples as recycled asphalt should be considered.*

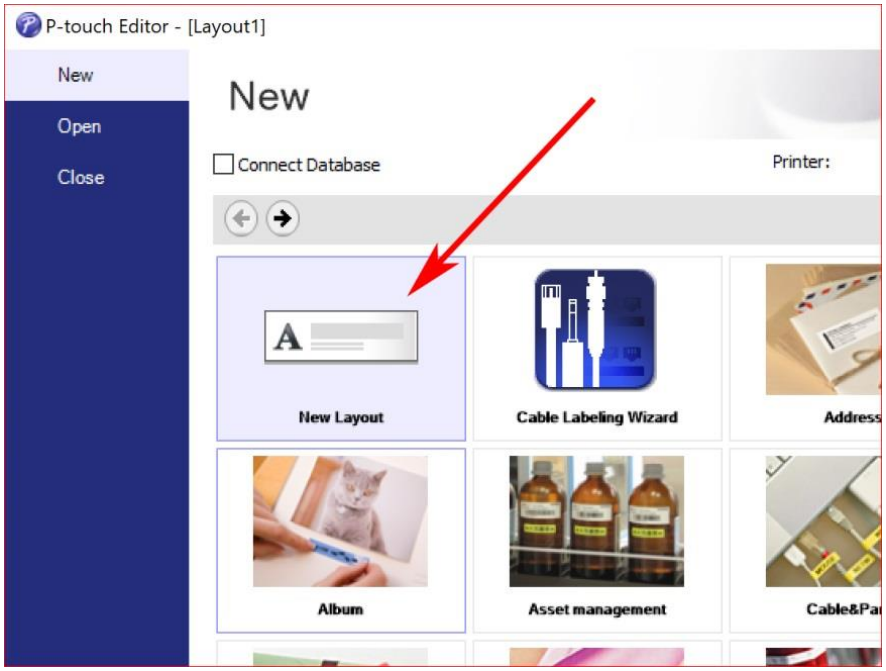
Emulsions: liquid. *While asphalt emulsions are generally considered a non-hazardous waste, many landfills are prohibited from receiving liquid wastes in any significant quantity; therefore, these wastes will need to be accumulated and disposed separately. The liquid waste should be characterized based on the Safety Data Sheet information or testing and disposed appropriately. A waste recycling or disposal company (such as Safety-Kleen or similar provider) should be able to collect the material under a recycling program. Contact ENV Division for assistance with waste characterization and disposal options, as needed.*

Emulsions: solid if the material "broke." *Disposal as non-hazardous municipal waste is appropriate for small quantities of solidified asphalt materials. See "Asphalt binder" above for disposal guidance.*

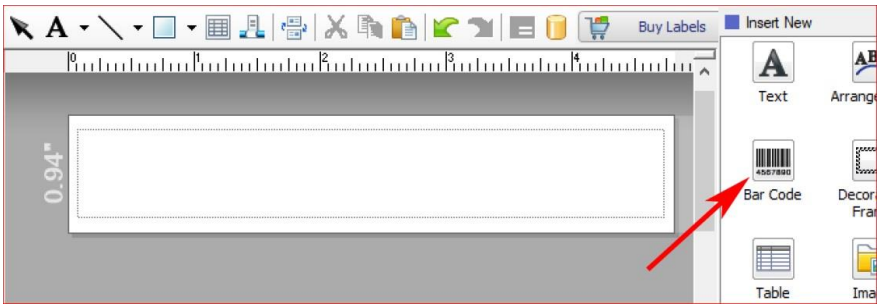
Cutbacks. *Contact MTD/OCC for disposal of cutbacks.*

SECTION 7 – LABELING THE CONTAINERS WITH BARCODES

7.1. Open the P-touch software and select “New Layout.”

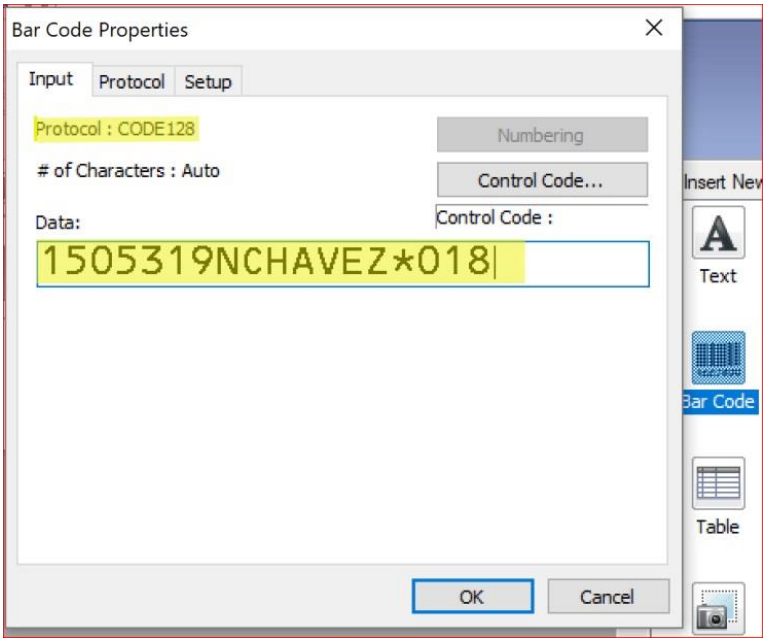


7.2. Select the “Barcode” Option.

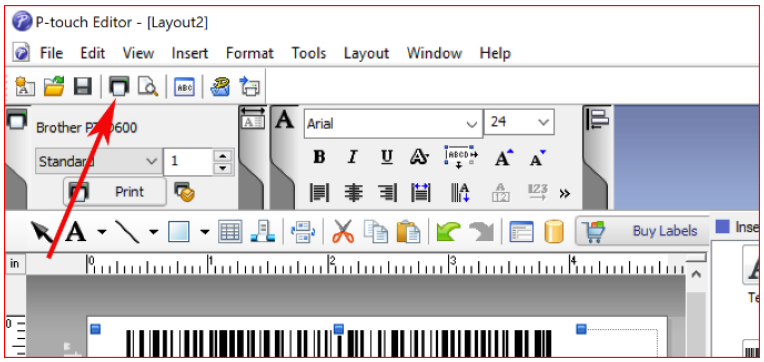


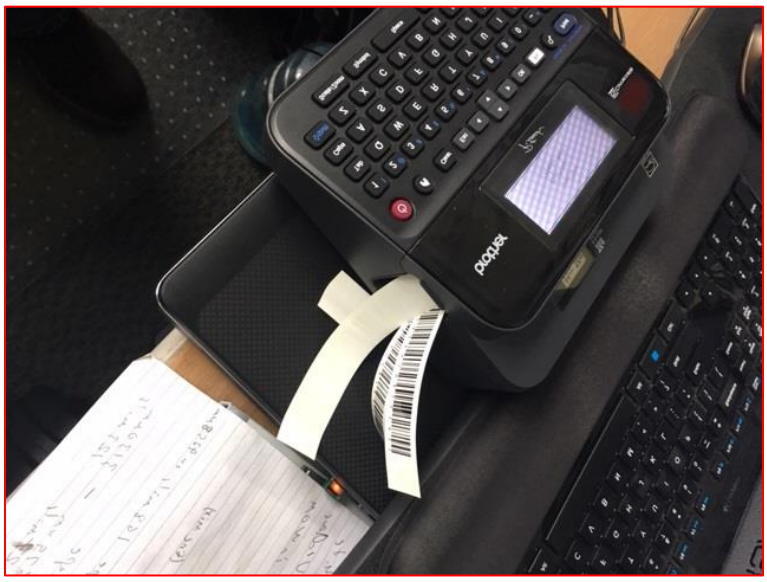
7.3. Copy and paste the SiteManager ID into the “Data” box and ensure barcode option “Code 128” is selected. (If “Code128” is not selected, click on the “Protocol” and select it.)

Note 12—It is possible to change the size of the barcode label by dragging the corners of the box where it’s shown. If any resizing is necessary, make sure the barcode itself is 3/4 in. to 1 in. high and 4 in. to 4-1/2 in. long.



7.4. Print 4 copies of the barcode labels.





7.5. Attach 2 barcode labels to the sides of the container in the vertical orientation.

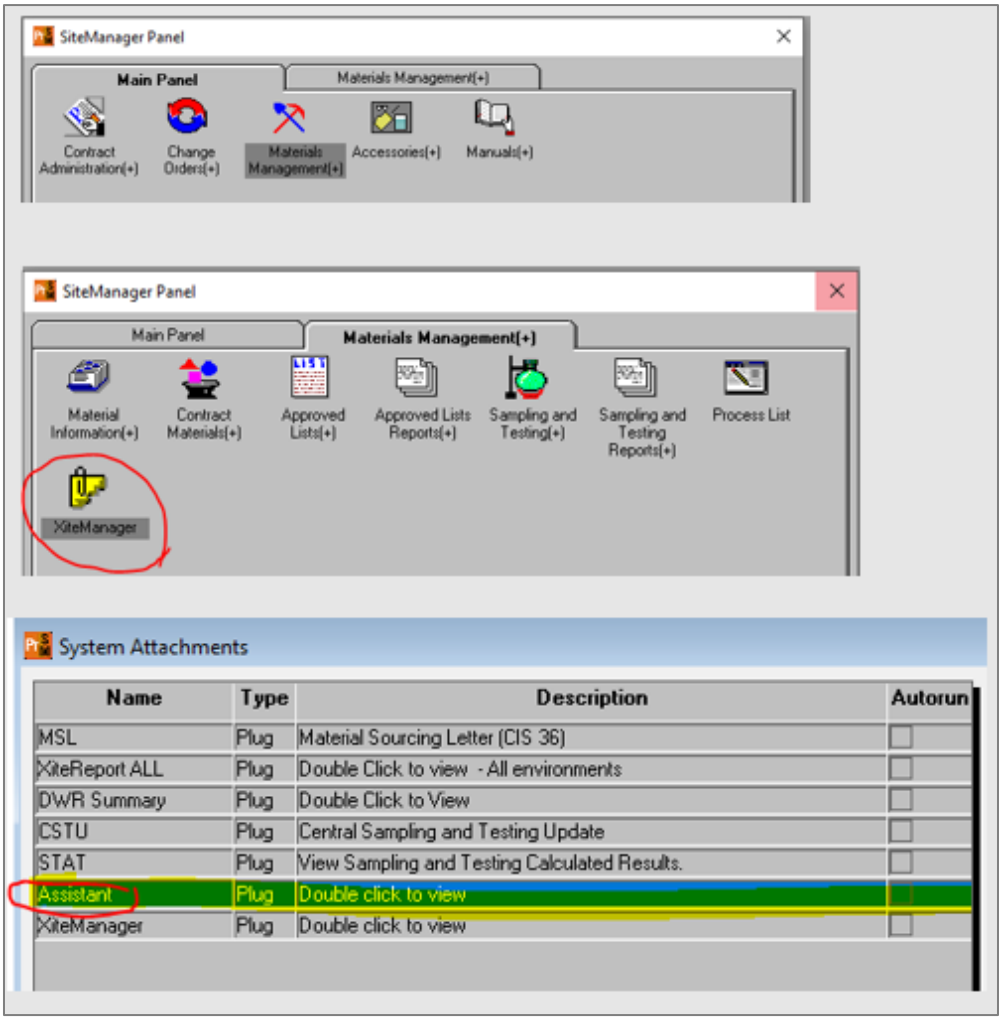
7.6. Attach 1 barcode label to the sample printed Form 202.

Far left: Improperly labeled; no barcode.
Far Right: Improperly labeled; barcodes in the horizontal orientation can't be read because they are not flat.
Center: properly labeled with two barcodes in the vertical orientation.

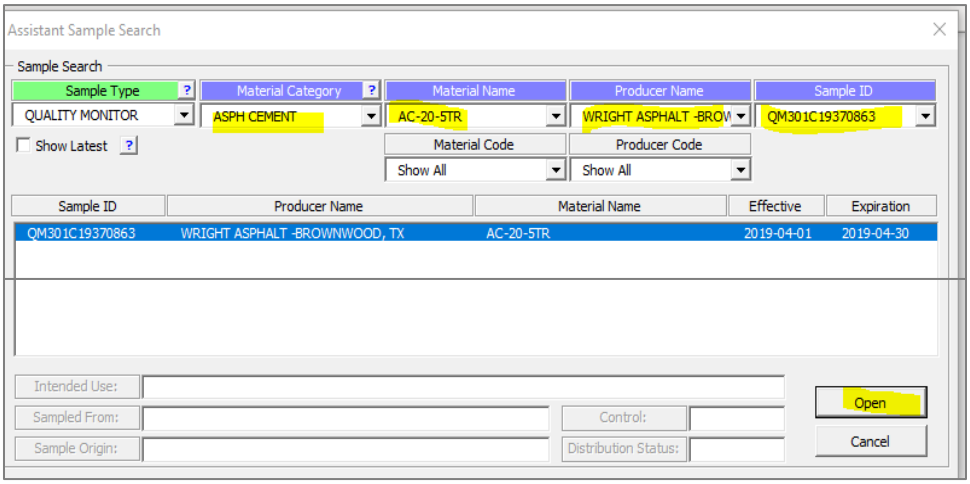
7.7. Attach the fourth or the last barcode label on the outside of the shipping container. Please do not use barcode labels to tape Form 202 or anything else to the cans or the shipping container.

SECTION 8 – ASSOCIATING SAMPLES TO PROJECTS

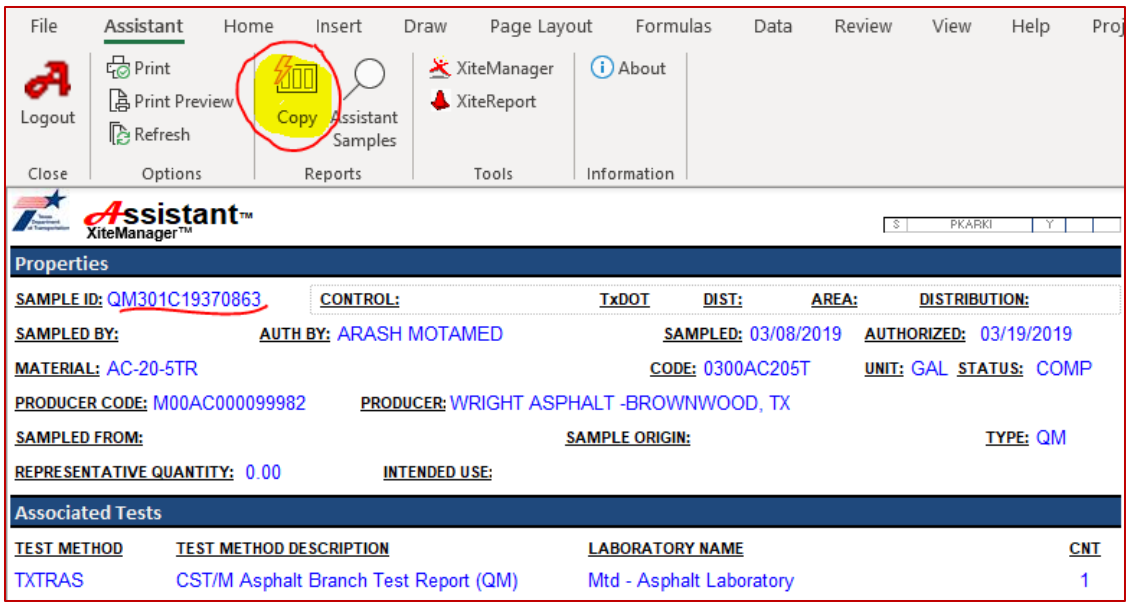
8.1. Follow the process described in Section 2.4 to find the QM sample using SiteManager.



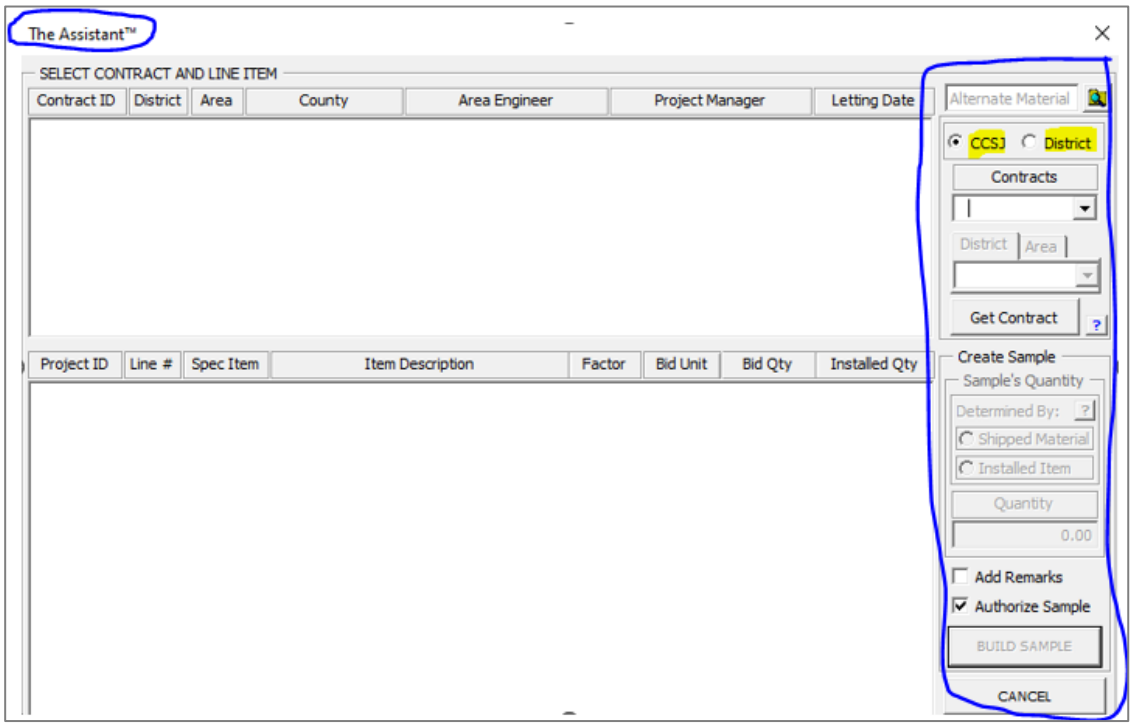
8.2. Double click on the QM sample to select it.



8.3. On the sample detail screen, click “Copy.”



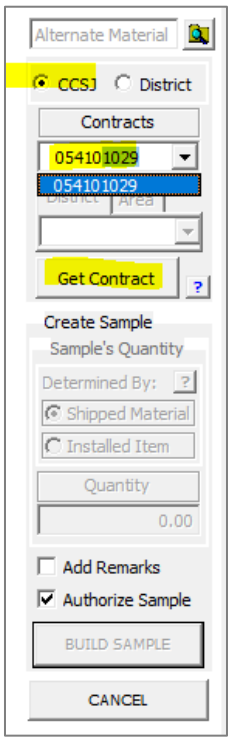
8.4. “The Assistant” new window that comes up.



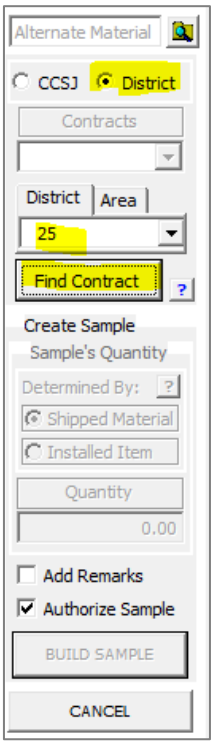
In “The Assistant window, do one of the following:

- Select the “CCSJ” button and type in the CCSJ number (the dropdown list may begin to populate once you get part of the CCSJ in) or
- Select the “District” button and pick your District or area from the dropdown.

Then click on “Get Contract” or “Find Contract.”



OR

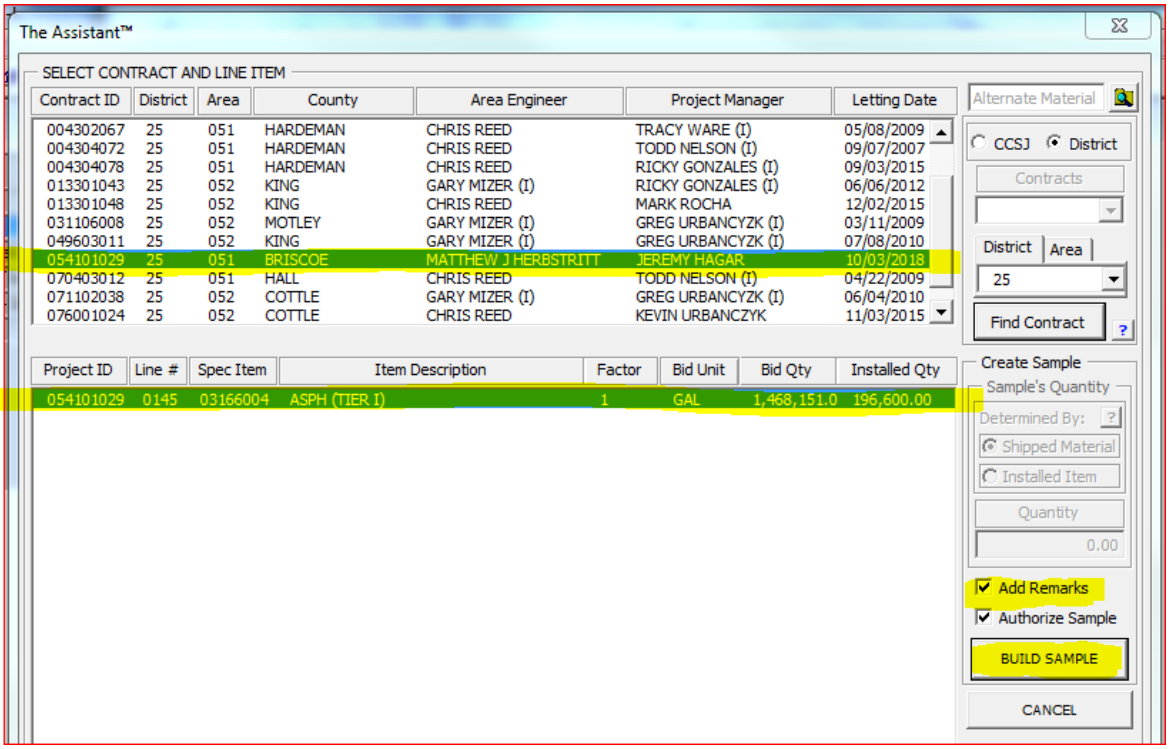


8.5. Select the correct project from the upper window, and the correct material line item from the lower window.

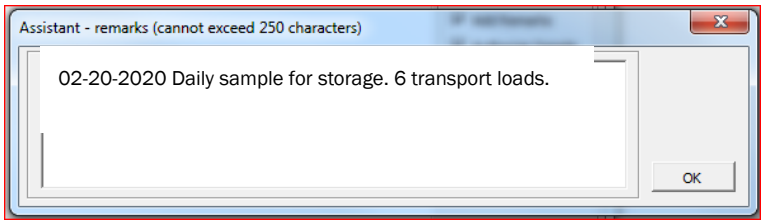
8.6. Check the “Add Remarks” box.

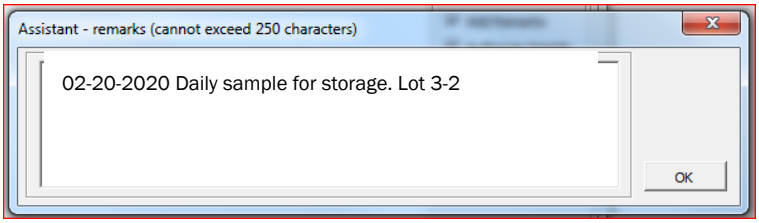
8.7 Check the “Authorize Sample” if not already selected. If this is not selected, stored sample cannot copy authorization of associated QM sample.

8.8. Click on “Build Sample.”

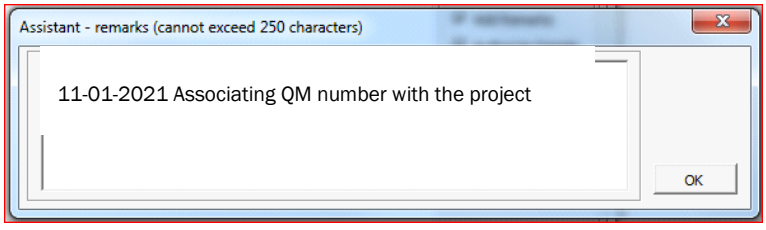


8.9. A box will pop up for you to enter remarks. For stored samples, enter the sample date in the following format MM-DD-YYYY, followed by “Daily Sample for Storage,” and a minimal description. Then click “OK.” For example:

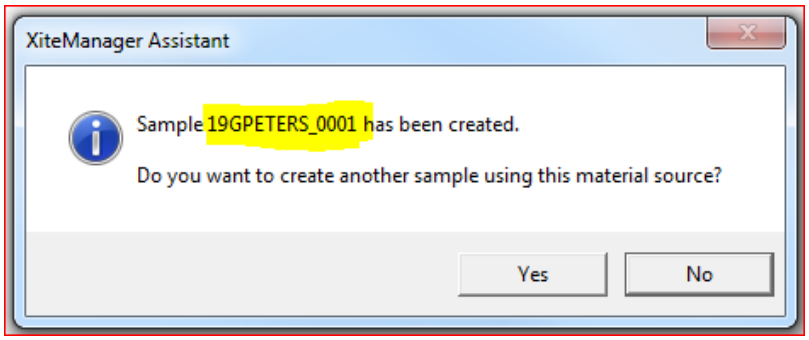




For associating QM number to a project, enter the sample date in the following format MM-DD-YYYY, followed by “Associating QM number with the project.” Then click “OK.” For example:



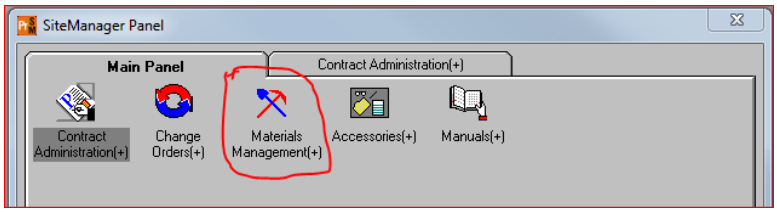
8.10. Write down the new SiteManager ID provided.

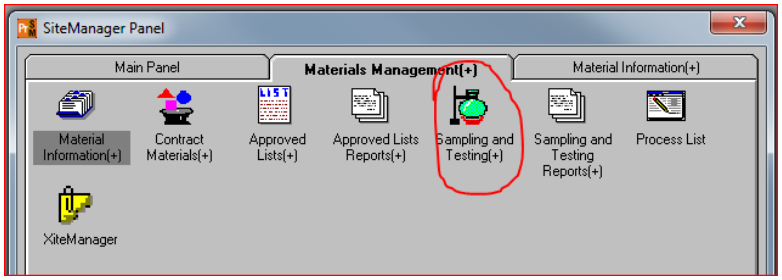


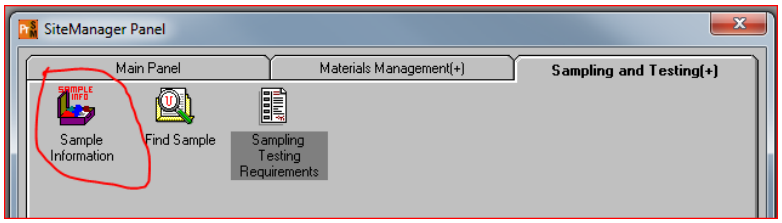
SECTION 9 – REACTIVATING STORED SAMPLES AND SUBMITTING TO MTD

9.1. Find the SiteManager ID of the sample to be submitted. This is easily done by reading it from the side of the sample.

9.2. Log in to SiteManager and double click on “Materials Management,” then “Sampling and Testing,” and finally “Sample Information.”







9.3. Enter the SiteManager ID in the “Smpl ID” field and press ENTER or TAB. This should bring up the sample information.

9.4. Select “Services” ⇒ “Copy Sample” ⇒ “Without Test Results” from the menu.

9.5. Copy or write down the new SiteManager ID.

9.6. Click on the “Tests” tab and follow the instructions for logging and shipping a sample, beginning with Section 5.7. through 5.12.

9.6.1. Make sure to affix the new barcodes on the cans such that they cover the old ones completely as the old ones are for storage only.

9.6.2. Mark out the old SiteManager ID and write the new one on the sample.

SECTION 10 – ADDRESSING FAILING PROJECT SAMPLES

10.1. The following resources are available for Districts to utilize if a project sample fails. Districts are encouraged to explore all available resources as necessary when deciding to accept or reject materials.

10.1.1 **Dashboard**: Asphalt Binder Test Results Summary dashboard (https://www.txdot.gov/inside-txdot/division/materials-and-tests/asphalt-binder.html) provides an overall summary of all samples tested organized by supplier, material grade, date sampled, date tested, batch, reference sample, and a pass/fail indicator. This dashboard is ideally used to look at a specific supplier performance of a material grade over a specific period for project and/or QM samples.

10.1.2 **LIMS Flyover**: Using the "Ref Sample" number from the asphalt binder results summary dashboard, Districts can access the testing results for other projects or QM samples to compare to failing sample results.

Mat Grade	Date Sampled	Date Tested	Batch	Ref Sample	
AC-20-5TR	September 25, 2020	October 16, 2020	Project	C20374852	Pass
				C20374853	Pass
	September 23, 2020	October 16, 2020	Project	C20374709	Fail
	August 21, 2020	September 3, 2020	Project	C20374112	Pass
		September 8, 2020	Project	C20374113	Fail
	August 18, 2020	September 3, 2020	Project	C20373964	Pass
	August 7, 2020	August 28, 2020	Project	C20373832	Pass
		September 8, 2020	Project	C20373833	Pass
	August 6, 2020	September 10, 2020	Project	C20374149	Pass
	August 5, 2020	October 16, 2020	Project	C20374855	Pass

10.1.3 **Storage Samples**: Districts can reactivate storage samples (Section 9) from same project or other projects in the district that used the same binder grade and supplier (Section 6) and send these samples to MTD for testing. This process can help the district identify if the issue is an isolated issue or if its spread across the project and the district. Sample reactivated from the same day and the same project will help verify the failure; samples reactivated from same project but from different days will help identify if the issue is spread across the same project; and, samples reactivated from the same day but from different projects will help identify if the issue is spread across the multiple projects. That is one of the reasons why storing samples from more than one day from a given project is helpful.

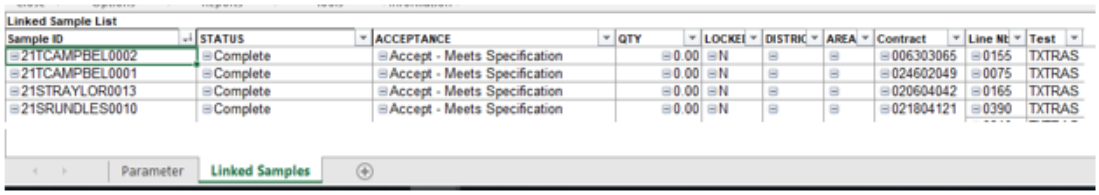
10.1.4 **QM Sample Number:** Following the steps for checking QM sample number (Section 2.4.1-5), locate the QM number associated with the failing sample. Double click on the QM number and navigate to the Linked Samples sheet. The tab will show all storage samples linked to the QM number from all TxDOT projects. Districts can request samples from other districts to be reactivated and shipped to MTD for testing.

10.1.5 **SM Query:** Finally, a detailed SM query is available to locate all samples with Item 300 Material Code (ASPHALT SAMPLES.XLSM). This query will list all MTD tested samples and District stored samples and includes several details such as District information, Area Office, SM ID, CCSJ,

Material Grade, Supplier, Seal Number, Stamp Code, among many others. The “Seal Number – Column T” can be filtered to find all tested samples associated with a specific QM lab number.

DISTRICT NUMBER	DISTRICT NAME	AREA OFFICE NUMBER	AREA OFFICE NAME	SEAL NUMBER
03	WICHITA FALLS	056	WICHITA FALLS AREA OFFICE	C21370168
				C21370168
07	SAN ANGELO	053	SAN ANGELO AREA OFFICE	C21370168
				C21370168
				C21370168
				C21370168
				C21370168
				C21370168
09	WACO	050	BELTON AREA OFFICE	C21370168
				C21370168
				C21370168
				C21370168
				C21370168
14	AUSTIN	053	N TRAVIS AREA OFFICE	C21370168
		055	GEORGETOWN AREA OFFICE	C21370168
				C21370168
				C21370168
				C21370168
				C21370168
				C21370168
				C21370168

Stored samples can be located by filtering “Intended Use – Column S” to “ASSISTANT COPIED QM SAMPLE” only, and filtering to a certain producer and material grade. The Remarks column can then be examined for the specific project dates.



REMARKS
03-23-2021 STORAGE LOT #2/ TY-C SAC-B CLARK ASPHALT
03-25-2021 STORAGE LOT #3/ TY-C SAC-B CLARK ASPHALT
03-25-2021 STORAGE LOT #3/ TY-C SAC-B CLARK ASPHALT
03-22-2021 STORAGE EXEMPT/ SP-D SAC-B CENTURY SOLMS
03-23-2021 STORAGE LOT #18/ SP-D SAC-B CENTURY SOLMS
03-25-2021 STORAGE LOT #19/ SP-D SAC-B CENTURY SOLMS
03-26-2021 STORAGE LOT #20/ SP-D SAC-B CENTURY SOLMS
03-25-2021 STORAGE LOT #28/ TY-B CENTURY SOLMS
03-26-2021 STORAGE LOT #29/ TY-B CENTURY SOLMS
03-22-2021 STORAGE EXEMPT/ DG-B SAC B CENTURY CEMEX NB
03-23-2021 STORAGE EXEMPT/ DG-B SAC B CENTURY CEMEX NB
03-24-2021 EXEMPT/ DG-B SAC B CENTURY CEMEX NB
03-29-2021 STORAGE LOT #21/ TY-D SP CENTURY SOLMS
03-031-2021 STORAGE LOT #22/ TY-D SP CENTURY SOLMS
03-29-2021 STORAGE LOT #30/ TY-B CENTURY SOLMS

10.2. Districts are encouraged to contact MTD Asphalt Binder Section personnel (Section 1.5) for any questions or support needed in utilizing any of the resources discussed in this section.

SECTION 11 – TRYING NEW MATERIALS IN PROJECTS

11.1. Trying new materials (i.e., materials that are not included in any Material Product List or under current specifications including but not limited to Item 300, “Asphalts, Oils, and Emulsions”) in any project should be coordinated with MTD. This coordination will include:

- sharing of specification and safety data sheet (SDS) of the new material proposed by the supplier to MTD by or through the District;
- review and revision of the specification by MTD; and
- approval of the use of the material in trial sections by the District.

11.2. Before the use of the new material in trial sections, a sample of the new material should be submitted to MTD, and the representative Certificate of Analysis (COA) provided by the supplier and the tests conducted by MTD must meet the requirements proposed by the producer.

11.3. Collect, or witness collection of, one sample, per day or per lot from the project, in accordance with Tex-500-C.

11.4. Since the SiteManager would not have a material code of such materials, District will manually fill out the Form 202, “Identification of Material Samples” and, as a minimum, include the following information:

- contact name and telephone number of the sampler;
- location and highway of the project;
- CSJ number for the project, if available;
- sample date;
- product name (i.e., the name proposed by the supplier and approved by MTD);
- the name of the supplier or producer including their location;
- the lab number, if provided by MTD,
- material type in the Remark section: indicate “Trial of New Product for Project;”
- BOL, if available, in the Remark section; and
- the FedEx, or other shipping tracking number in the Remarks section (optional).

11.5. Submit at least one sample of each grade and source, per project to MTD for testing, in accordance with the DBB Guide Schedule.

11.6. Prepare the sample for shipping according to Section 5.

11.7. MTD will test the material and stamp them as passing or failing based on test reports. MTD will email the test reports to the District and the material suppliers. The District should forward all test reports to the Contractor and material suppliers. Failing test reports should be shared with the Contractor and material suppliers immediately after becoming aware of the report.

11.8. Log and label the rest of the samples for storage. Instructions for this process are in Section 6.

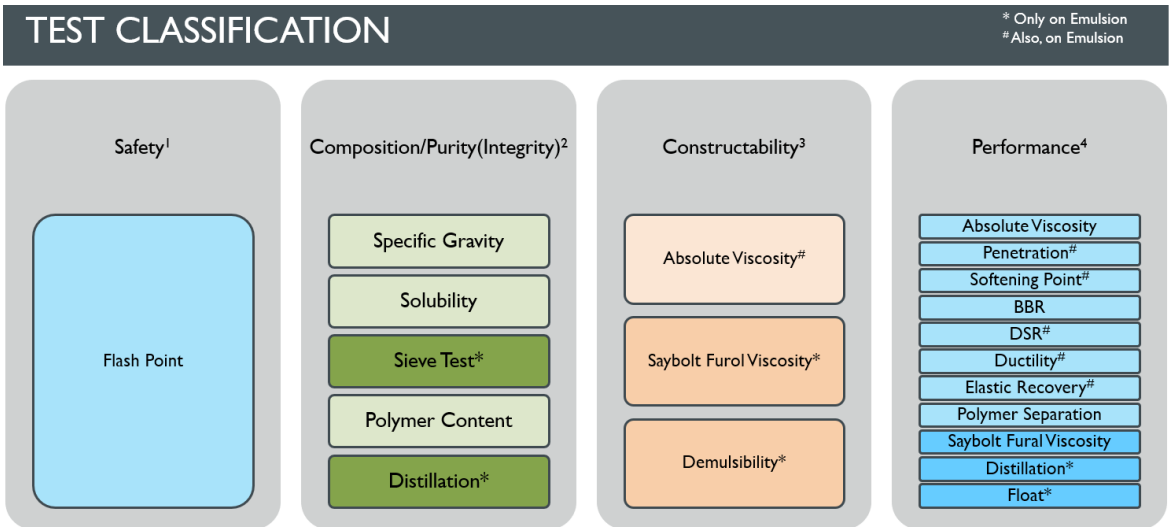
Note 13—Samples should be collected after the first load is shot through the distributor to obtain a representative sample.

11.9. District should provide MTD the information related to the construction and performance of the new material in a timely manner and as requested by MTD.

SECTION 12 – SEAL COAT BINDER PERFORMANCE GUIDE

12.1. This section provides brief general meaning of different type of parameters included on seal coat asphalt binder test report and how each is related to safety, composition/purity (integrity), constructability, or performance.

12.1.1 For clarify, each parameter described herein has a superscript that explains what that parameter is associated with. For example, 1 = Safety, 2 = Composition/Purity (Integrity), 3 = Constructionability, 4 = Performance (see below).



12.1.2 Some parameters such as viscosity, softening point, flash point, penetration and Original DSR when considered together can provide a more holistic evaluation of the quality/performance of a binder than each considered separately. For example, a contaminant could impact more than one parameter among these (e.g., high penetration and low softening point, etc.).

12.1.3 If a seal coat sample fails, districts are encouraged to explore all available resources as discussed in Section 10 of this document when deciding to accept or reject materials. Districts are also encouraged to monitor the sections and perform forensic testing linked to failing samples. Please do not hesitate to contact Asphalt Lab (see Section 1.5 for contact info) if there are questions on when and how to utilize those resources.

12.2 Asphalt Cement

12.2.1 Flash Point[1]: It is a safety parameter. Its failure can be used in forensic analysis to indicate contamination of a binder. Most commonly available contaminants will lower the flash point. Its failure also indicates unsafe condition for product heating process in the field via distributor fire tube.

12.2.2 Specific Gravity (Density)[2]: It is not a performance test but can be used in forensic analysis to indicate binder contamination. Most common contaminants have a lower specific gravity and will lower the specific gravity of the mixture of binder and contaminant.

12.2.3 Absolute Viscosity[3,4]: A binder that is less stiff (less viscous) than the specification limit at approximate high pavement temperatures may not be stiff enough to retain seal coat aggregates at high pavement temperatures. A binder that is too stiff (too viscous) may indicate the binder is too brittle and may indicate loss of rock at cooler temperatures, like the first winter. Even though this is not a lower temperature test, it might be an indication of stiffness properties.

12.2.4 Penetration[4]: If the penetration is too high (meaning the binder is too soft), the binder may not be stiff enough to retain rock, may even bleed and rock may be whipped off under traffic. If the penetration is too low, it could indicate a binder that is too hard and may not hold rock at intermediate to low temperatures.

12.2.5 Dynamic Shear Rheometer (DSR)[4]: If a binder fails this requirement (i.e., too low), it may not be stiff enough to retain aggregate at pavement temperatures.

12.2.6 Elastic Recovery[4]: Elastic Recovery indicates the strength of the polymer network within the asphalt binder, which directly impacts the ability to recover from traffic strain and wear. Binders that fail this test may not have enough polymer added or may have a weaker polymer network. Binders that fail this test may also not exhibit the aggregate retention at high and low temperatures that we expect and are paying for by using polymer-modified binders.

12.2.7 Softening point[4]: If a binder fails this requirement, it could indicate that the binder may not be stiff enough to retain rock at high pavement temperatures. Additionally, the binder could be low on polymer content or might have weaker polymer network and exhibit this same result.

12.5.8 Polymer Separation[4]: This test measures the compatibility of the polymer and the binder. Polymer-modified binders are transported and stored hot before use. This test guards against the polymer separating/dispersing and producing a non-uniform binder.

12.2.9 Bending Beam Rheometer (BBR)[4]: For binders that have this requirement, failing the S or m-value at -18C would indicate that the binder may be too brittle and lose aggregate at low pavement temperatures under traffic.

12.3 Emulsified Asphalt

12.3.1 Demulsibility[2]: Rapid setting (RS) emulsions are the emulsions of most interest in this test. RS emulsions require a high demulsibility. This is to ensure that the emulsion breaks and cures fast

so a seal coat can be opened to traffic faster. RS emulsions with a demulsibility lower than the specification minimum can exhibit slow break and curing times on the road.

12.3.2 Sieve Test[2]: Materials that fail the sieve test either have debris, globs of unemulsified asphalt, or partially broken emulsion. Particulates retained on the sieve will plug distributor nozzles and result in more non-uniform application of emulsion on the road surface.

12.3.3 Polymer Content[2]: For these emulsions we are requiring a minimum polymer content and if the sample fails, we are not getting the right amount of polymer in our material. Usually, if polymer content is low, other properties will also fail, as the polymer is providing the high-level properties we want from other tests.

12.3.4 Saybolt Furol Viscosity[3,4]: Emulsion viscosity is a constructability parameter that helps in delivering better spraying. If the emulsion viscosity is too high, it may not spread uniformly on the road resulting in a ridging effect. This will be seen in longitudinal lines of too much asphalt with areas of too little asphalt in between. If the emulsion viscosity is too low, it may run off the road or puddle in low spots or ruts. Running off the road is an obvious defect. Puddling places too much asphalt in those spots and will appear as flushing in the seal coat. Adjustments in application rate and temperature might be needed to ensure uniform spraying of emulsion and uniform thickness of residue after curing.

12.3.5 Distillation[2,4]: Emulsions can only fail the distillation test by not having enough residual asphalt in the emulsion. It can also affect the shot rate, as shot rate is determined based on a minimum asphalt content. Shooting a low residual asphalt content emulsion where the shot rate was determined based on the minimum asphalt content effectively makes us apply less residual asphalt. This could result in aggregate loss at both high and low temperatures because we did not shoot enough asphalt.

12.3.6 Solubility (residue)[2]: Solubility is not a performance test, but rather a purity test. Asphalts are almost completely soluble in some chemical such as trichloroethylene (TCE) or toluene. Any insoluble matter is likely a non-asphalt ingredient or may indicate severe overheating. We only want asphalt binder.

12.3.7 Penetration (residue)[4]: If the penetration is too high (meaning the binder is too soft), the binder may not be stiff enough to retain rock, may even bleed and the rock may be whipped off under traffic. If the penetration is too low, it could indicate a binder that is too hard and may not hold rock at intermediate to low temperatures. If the oil content on emulsion is higher than the spec. limit (i.e., if it fails), penetration may fail and indicate potential contamination of the sample or the load.

12.3.8 Float Test (residue)[4]: This is used for High-Float emulsions and shows the benefit of the gelling action of the high float characteristic. High float emulsions, described in the emulsion preamble, allow thicker films, and less drain off than other emulsions. If a high-float emulsion does not pass this test, it usually means the supplier did not use enough of the high-float emulsifying agent in manufacturing the emulsion. In the field, it may exhibit more flow before curing than desirable.

12..3.9 Ductility (residue)[4]: Binders that fail this test may exhibit loss of aggregate due to a cohesive failure of the binder and not the adhesion of the aggregate. Harder residue binders ("H" designation) have a lower extension requirement because the binder residue is stiffer. Very few binders fail this test.

12.3.10 Low Temperature Elastic Recovery (residue)[4]: Elastic Recovery indicates the strength of the polymer network within the asphalt binder, which directly impacts the ability to recover from traffic strain and wear. Emulsions that fail this test may not have enough polymer added (see polymer content) or may have a relatively weak polymer network. The test is confirmation that an elastomeric polymer was added. Binders that fail may also not exhibit the aggregate retention at high and low temperatures that we expect and are paying for by using polymer-modified binders.

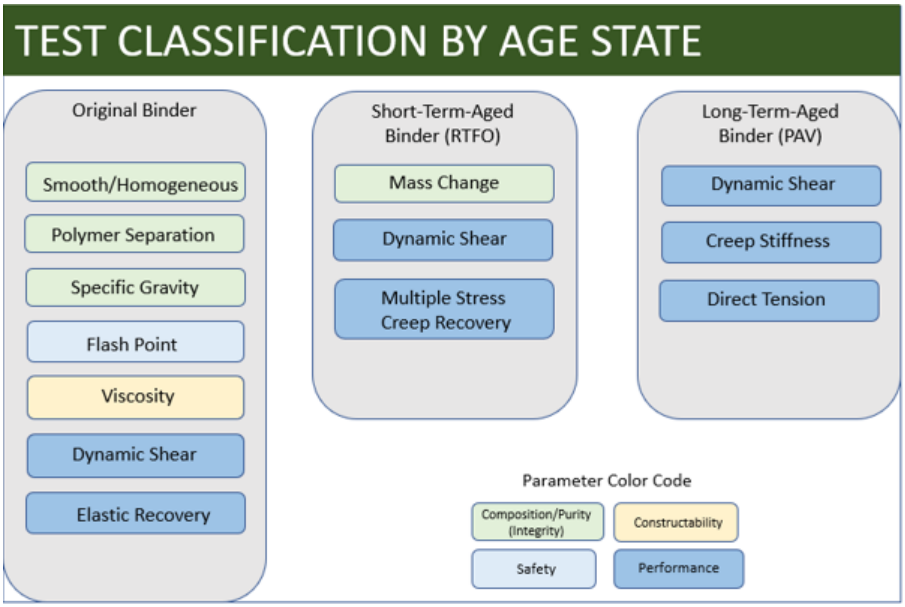
SECTION 13 – HOT MIX BINDER PERFORMANCE GUIDE

13.1 All hot mix uses asphalt binders meeting the Performance-Graded (PG) binder specification. This section provides a brief general description of the different parameter types included in the asphalt binder test reports for PG binders. Each test can be classified to address safety, composition/purity (integrity), constructability, or performance.

- Safety tests are performed to ensure the safety of personnel working with the PG binder. The specification includes a test for flash point or flammability.
- Composition/Purity (Integrity) tests are used to indicate composition/purity. These guard against foreign contaminants or incompatible materials.
- Constructability tests are used to ensure that binders can be reduced in viscosity/stiffness to be pumped and mixed in a hot mix plant.
- Performance tests indicate the binder's resistance to rutting and/or cracking and indicate the presence of polymers for mitigating these distresses.

The tests are grouped in the specification by the age state of the binder to address when tests indicate the characteristic or performance targeted. Aging states include: the original or unaged condition, short-term aged condition, and long-term aged condition.

The PG binder specification is based on addressing the binder's contribution to resist rutting, fatigue cracking, and thermal cracking. Rutting is a distress that usually happens early in the pavement's life. Cracking (fatigue and thermal) is a distress that usually happens later in the pavement's life. These age states must be accounted for and addressed by simulating the aged states of these two conditions. In addition, binders are evaluated in their original (unaged) state as a measure of original stiffness, as a benchmark to evaluate how a binder ages.



13.1.1 The various PG Binder specification tests address Safety, Composition/Purity (Integrity), Constructability, and Performance according to the Age State breakdown shown below.

13.1.2 Some parameters, when considered together, can provide a more holistic evaluation of the quality/performance of a binder than each considered separately. For example, a contaminant could impact more than one parameter (e.g., low viscosity, low flash point and low Original DSR). There are other examples of interdependency of parameters.

13.1.3 If a hot mix binder sample fails, districts are encouraged to explore all available resources as discussed in Section 10 of this document when deciding to accept or reject materials. Districts are also encouraged to monitor the sections and perform forensic testing linked to failing samples. Please do not hesitate to contact Asphalt Lab (see Section 1.5 for contact info) if there are questions on when and how to utilize those resources.

13.2 **PG Binder Tests:** This section addresses each test found in the specification as grouped by the parameters in Section 13.1 organized by age state.

13.2.1 **Original Binder**. Binders are tested in their original state to represent the binder as it is received at the hot mix plant.

13.2.1.1 Smooth/Homogeneous[1]: This is a Composition/Purity (Integrity) parameter and not a test but is based on observation. The preamble to the PG binder specification states that binders need to be smooth and homogeneous. A binder that is not smooth and not homogeneous likely has undigested modifiers, insoluble particles, has been likely damaged in manufacturing process or is not a representative sample. Incompatible components may also visually separate. Binders not meeting this visually subjective requirement do not meet the specification.

13.2.1.2 Polymer Separation[1]: This is a Composition/Purity (Integrity) parameter, and the test measures the compatibility of polymer additives in a binder. This guards against binders that contain polymer additives that separate on heated storage. Binders that fail this test may exhibit separation in a tank and result in non-uniform polymer dispersion. Use of the binder may result in large variations in the properties of the binder and the hot mix made from it. These binders do not meet the specification.

13.2.1.3 Specific Gravity (Density)[1]: This a Composition/Purity (Integrity) parameter and is not a specification test but is performed on all binders. It can be used to convert volume and weight in application, payment calculations, or in forensic analysis to indicate binder contamination. Most common contaminants have a lower specific gravity and will lower the specific gravity of the mixture of binder and contaminant.

13.2.1.4 Flash Point[2]: Flash Point is a Safety parameter. Under controlled conditions, it measures the temperature at which an asphalt may generate enough volatile gases to ignite when an ignition source is present. The minimum requirement is 230°C (446°F). This means it should not ignite at a temperature less than 230°C (446°F) when an ignition source is introduced. Most binders easily meet this requirement and do not "flash" before 315°C (600°F). Failure can indicate possible contamination of a binder. Most commonly available contaminants will lower the flash point.

13.2.1.5 Viscosity[3]: Viscosity is a Constructability test performed at 135°C (275°F) to demonstrate that the binder will be at a low enough viscosity/stiffness for use or can sufficiently flow for pumping and handling. The specification calls for a maximum viscosity at a certain temperature. Binder viscosity decreases with increasing temperature. This is usually not a problem for unmodified asphalts unlike the polymer modified binders. Some modified binders can be too viscous at these temperatures. Viscosity can be used (if evaluated at two different temperatures) to indicate mixing and compaction temperatures. Binder that meets the specification should pose no problems in constructability.

13.2.1.6 Dynamic Shear Rheometer (DSR)[3]: DSR test of unaged or original asphalt binder measures the stiffness and elastic properties of a binder at the high-performance grade temperature. This test is performed to ensure that the binder as received is not too soft. A binder that is too soft may age significantly or contain volatiles that may be lost on short-term aging.

The equipment, called a Dynamic Shear Rheometer (DSR), measures the complex shear modulus (G*) and phase angle (delta, δ) of an asphalt binder. G* is a measure of the total resistance to deformation, typically referred to as the "stiffness" of an asphalt binder. δ is a measure of the elastic component of an asphalt binder. The specification uses G*/sin(δ), emphasizing the elastic portion of the binder stiffness.

The DSR is used at other aged binder states to indicate rutting and cracking resistance as discussed in this section further.

13.2.1.7 Elastic Recovery[3]: Elastic Recovery is a performance test that indicates the delayed elastic response of asphalt binder due to the presence of polymer network, which directly correlates with the binder's ability to help a pavement resist both rutting and cracking. This property is an indicator that sufficient elastomeric polymer was used in its manufacture. Binders that fail this test may not have enough polymer added or may have a weaker polymer network.

13.2.2 **Short-Term Aged Binder**. Short-term aging is simulated using the Rolling Thin Film Oven (RTFO) Test. RTFO aging simulates the aging that takes place in the hot mix plant and through the hot mix laydown process. Even though hot mix plant temperatures can change, as in the case of warm mix asphalt production, the RTFO test temperature and procedure remains the

same for consistency. The test provides aged material for additional testing. This is the age state where a binder would be most prone to rutting.

13.2.2.1 Mass Change[1]: Mass Change is a Composition/Purity (Integrity) parameter. This test measures how much the binder changes in mass during the Rolling Thin Film Oven Test, simulating the short-term binder aging that happens in the hot mix plant. There is a maximum of 1% mass loss in the specification. If a binder fails this requirement, it can indicate a binder that loses too much volatile components, a binder that ages too fast or a binder that could be contaminated with a more volatile material. This test also indicates the loss of volatiles that may contribute to air pollution and may be a method of air pollutant control for environmental regulators. It may factor into the permits required for a hot mix plant. In Texas, this is the Texas Council on Environmental Quality (TCEQ).

13.2.2.2 Dynamic Shear Rheometer (DSR)[4]: DSR test performed on RTFO-aged asphalt binder measures the stiffness and elastic properties of a binder at the high-performance grade temperature after short-term aging. At this aging state, the specification requires a minimum stiffness value i.e., G*/sin(δ) to help the pavement resist rutting. This parameter seeks to maximize the elastic component of stiffness, effectively requiring a more elastic binder not prone to plastic flow at high pavement temperatures. If a binder fails this requirement (i.e., too low), the mix may not be stiff enough to resist rutting at pavement in-service temperatures.

13.2.2.3 Multiple Stress and Creep Recovery (MSCR)[4]: MSCR is a DSR-based performance test conducted to measure the recovery of a binder after repeated loadings at the high PG temperature. It is another measure (along with elastic recovery previously discussed) of binder delayed elasticity at the high PG temperature. It indicates the binder contains sufficient polymer network. The requirements increase with increasing Useful Temperature Interval (UTI), the grade temperature span between high and low PG grade temperatures. For example, a PG 64-28 would have a span of UTI of 64-(-28) = 92, a PG 76-28 would have a UTI of 76-(-28) = 104 which means PG 76-28 binder would need more polymer than PG 64-28 binder. Not all binders have a MSCR Recovery requirement. Only those binders with a UTI of 92 or greater have a requirement. These are the more high-performance binders. If a binder fails this requirement, it could indicate that the binder could be low on polymer content, was not modified properly, or might have weaker polymer network. It might be more prone to rutting. Weaker MSCR %Recovery may indicate lower resistance to traffic deformation and stress recovery, which makes pavements prone to rutting.

13.2.3 **Long-Term Aged Binder**. Long-term aging is simulated using the Pressure Aging Vessel (PAV). The PAV aging not a test itself though. PAV aging simulates the long-term aging of an asphalt binder that takes place for years after hot mix placement, representing 5-10 years of aging depending upon the pavement thickness and in-place air voids. It is used to provide binder samples for further evaluating a binder for resistance to cracking. Since an asphalt binder in a

pavement was also short-term aged during the mixing and the construction process, all asphalt binders undergoing PAV aging are first RTFO-aged.

13.2.3.1 Dynamic Shear Rheometer (DSR)[4]: DSR test performed on the long-term aged asphalt binders measures the stiffness and elastic properties of asphalt binders at an intermediate temperature - a temperature between the high pavement temperature and low pavement temperature, usually around 25°C or 77°F.

Specification requires the $G^*.sin(\delta)$ value at intermediate pavement temperatures not to exceed 5,000 kPa. Since aged pavements are more susceptible to fatigue cracking, the parameter is tested on asphalt binders that have been both RTFO and PAV aged. This parameter seeks to optimize the stiffness of asphalt binder to help pavement resist fatigue cracking by making asphalt binder able to flow and dissipate energy while being loaded repeatedly. If a binder fails this requirement (i.e., too stiff), it may not have the flexibility at intermediate temperatures and long age to resist fatigue cracking.

When the $G^*.sin(\delta)$ value at intermediate pavement temperature is between 5,000 kPa and 6,000 kPa, the specification requires the phase angle, δ value at corresponding temperature to be 42 degrees or greater. Phase angles measured at intermediate temperatures after PAV aging are an indication of long-term, non-load, aging-related pavement cracking. Lower phase angles indicate a binder exhibits more elastic solid behaviour (i.e., brittleness) than viscous liquid behaviour, which reduces its ability for viscous flow and stress relaxation. Higher phase angles are more desirable in non-modified binders to reduce the risk of long-term age-hardening. If a binder is modified with polymers, it will naturally have an increased elastic component and lower phase angle.

13.2.3.4 Bending Beam Rheometer (BBR)[4]: BBR is a performance test conducted on PAV-aged samples to measure their Creep Stiffness (S) and relaxation rate (m-value) parameters – the temperature cracking resistance parameters of long-term aged binder. The test is conducted at the low PG temperature plus 10°C.

Specification requires a maximum value for stiffness. Binders that fail this requirement might be too brittle at low temperatures, and prone to thermal cracking.

Specification also requires a minimum value for m-value. Binders that fail this parameter could increase in stiffness two quickly as the temperature decreases, creating the risk of internal thermal stresses building up, leading to thermal cracking.

13.2.3.5 Direct Tension[4]: Direst Tension uses a semi dog-bone shaped specimen to determine how much an asphalt binder can stretch at low PG temperature plus 10°C. The test equipment for this test was not developed sufficiently for the accuracy and repeatability needed for specification

requirements and hence this test is not performed. Binders that pass the BBR m-value requirement but fail the BBR Stiffness value requirement may be still meet the Specifications if the binder sample can stretch at least 1.0% of its original length and the BBR Stiffness is also less than 600MPa.

13.3 **Interdependency of Tests.** As stated in section 13.1.2, there can be interdependencies of tests resulting in cascading test failures. Because of the PG specification being based on stiffness of binders in a temperature regime at several age states, some binders that fail one requirement may also fail additional requirements.

SECTION 14 – FREQUENTLY ASKED QUESTIONS

14.1. Q: Does a sample need to be taken and logged into Site Manager for Exempt mix?

A: If the mix is tested, then yes one sample per day, per source, per grade, per project will need to be collected. If less than 100 tons are produced, then a sample will not need to be taken since no testing is required.

14.2. Q: Does a sample need to be taken and logged into Site Manager for Item 340 (2014 Spec.)?

A: No, since Item 340 has been discontinued. However, testing is required for Items 341, 342, 344, 346, 347, and 348 and for SS3076, SS3077, SS3079, SS3080, SS3081 and SS3082. All seal coat projects as well.

14.3. Q: Do we need to take one sample per individual project if the same asphalt is coming from the same producer on the same day? For example, we may have 5 different projects (CSJs) that are using the same mix/oil from the same producer/manufacturer on a given day.

A: Yes, since its one sample per day, per source, per grade, and per project.

14.4. Q: What guidance can you provide us on where we are supposed to store and dispose of all these samples?

A: The room needs to be climate-controlled; all Department offices and labs are climate control and suitable for storage purposes. Refer to Section 6.5 for disposal options.

14.5. Q: Who is responsible for providing sample containers?

A: Unless it's part of the contract that the Contractor or CEI is responsible for providing sampling containers, the District will provide the required sample containers.

14.6. Q: Do I need to sample daily for 8000 series materials?

A: No, daily storage samples are not required for 8000 series. Additionally, project testing is also not required unless requested by the Engineer.

14.7. Q: Do I need to sample daily for tack coat?

A: No, daily storage samples are not required for tack coat. However, a minimum one sample for project testing is required.

14.8. Q: I feel that a barcode on the sample is good enough; do I still need to attach a Form 202 and label the can?

A: A barcode by itself is not enough. The sample should be labelled with all relevant details as discussed in this guidance document, in addition to being labelled with a barcode. Below is an example of a stick-on label that can be printed with a label marker. Email MTD-Asphalt-Engineering@txdot.gov for a copy of the editable PDF file.

Brownwood District - Asphalt Sample

Producer:_____

Producer Location:_____

Producer Cert. #:_____

CSJ:_____

Highway:_____

Station:_____

Asphalt Type:_____

Date Sampled:_____

Sampled by:_____

Sitemanager ID:_____

14.9. Q: Can a Department representative, CEI for example, collect and store the daily storage samples?

A: It is recommended that the Department always has direct oversight of the samples. This includes the District storing the samples at designated Department facilities or in field labs secured by the Department. However, the District could choose to use an external entity representing the Department to augment its operations. If a District decides to have a CEI firm store samples, it is the District's responsibility to ensure the scope of these services are well defined in terms of location, quality, security, environment, and documentation. The District should also have an established procedure to track these samples.

14.10. Q: Can I use a Contract to test project samples?

A: No, all project samples should be mailed to MTD for testing.

14.11. Q: What questions should I expect from asphalt binder suppliers regarding project samples?

A: The following is list of questions/information typically asked/requested by the suppliers:

1. Where was the sample pulled from?
2. Was the sampling witnessed by the Department?
3. Was the Department personnel witnessing the sample certified?
4. What was the chain of custody?
5. Where and how was the sample stored?
6. Contractor's name and location.
7. Shipment BOL information.
8. Was the correct sample container used?
9. For sealcoat: was the sample collected after the first load was completely shot?

14.12. Q: What should I expect when a diluted emulsion is called for in the Contract, or Nanotac is used in TRAIL applications?

A: Diluting an emulsion will impact Saybolt viscosity and the distillation residue. The Saybolt viscosity will typically be lower than the minimum limit, while the distillation residue will depend on the dilution rate. For example, current Nanotac manufacturer recommendation calls for diluting the emulsion 1:1, in this case the distillation residue should be half the specification distillation residue for the specific emulsion grade. A CSS-1H distillation residue specification is minimum 60%, when diluted at 1:1 ratio the distillation residue should be at least 30%. Diluting the emulsion should not impact testing on the distillation residue itself (e.g., penetration, absolute viscosity, etc.). Section 5.6 provides guidance on how District should log diluted samples and how MTD Asphalt Lab tests/stamps them. MTD Asphalt Lab does not test Nanotac itself.

14.13. Q: What is the certification requirement for sampling asphalt binder at the plant or on the roadway?

A: All inspectors witnessing the sampling of asphalt, emulsion, and cutback samples are required to be certified in Tex-500-C, “Sampling Bituminous Materials, Pre-Molded Joint Fillers, and Joint Sealers.” This certification is covered in TxAPA’s Level 1A and Level 1B certification program. If your employee or representative is not Level 1A/1B certified and witnesses the sampling of asphalt binders, please coordinate with your District laboratory supervisor for scheduling a certification exam and observation through the Department internal quality assurance certification program or contact MTD Asphalt Lab for assistance.

14.14. Q: Is the FedEx tracking number required to be documented in SiteManager?

A: No, although Districts may use the “Intd Use” or “Remarks” fields within the SiteManager sample to record the shipping tracking number.

14.15 Q: Do I need to sample daily for Item 310 Prime Coat, Item 314 Emulsified Asphalt Treatment and Item 315 Fog Seal materials?

A: No, Items 310, 314 and 315 do not require daily storage and project sample testing. However, districts can always choose to sample and test.

14.16 Q: What sampling and testing requirement are there in Item 316 for A-R binders, their base binders and crumb rubbers?

A: Item 316 requires the A-R binders to be sampled daily and tested at least once per project but has no such requirement for the base binders and crumb rubbers. However, Item 316 requires contractors to provide A-R design and use Item 300-complaint asphalt binders (i.e., base binders with valid lab numbers) to design and produce A-R binder. Therefore, the A-R binder design and project sample needs to be associated to the lab number of the base binder as explained in Section 6.2 in this document.

14.17 Q: What should I do if the contractor changed the source and/or grade of the base binder used to design A-R binder?

A: Item 316 requires contractor to resubmit A-R design if the source and/grade of the base binder changes. Contracts must provide the valid lab number of the new base binder used to design and produce the A-R binder each time such changes happen.

14.18 Q: Does SS3028 sample require project level sampling and testing? If yes, how to log them?

A: No, SS3028 does not require project level sampling and testing. However, districts can always choose to sample and ask MTD Asphalt Lab to test. When the District chooses to do so, please ship two x 1-quart. can samples to MTD Asphalt Lab by logging them with material code 03-FST-EM and seal no. C23374047.

14.19 Q: Where should I affix barcodes on Form 202?

A: There is no specific requirement except that the barcode should not block any information on the Form 202. Since top left part of Form 202 might be used to stich other documents such as BOL to Form 202, it is recommended to not affix the barcode at that location though.

14.20 Q: Is it okay to bring the sample in person?

A: Yes, it is okay to bring the samples in person but please ensure to bring cans and Form 202s with barcodes and deliver them together to the receiving end of the Stassney Lab building. Until MTD Asphalt Lab gets completed Form 202s, samples will not be tested to avoid losing materials.

14.21 Q: Where can I find BOL number?

A: Asphalt binder suppliers use different methods, formats, and names for BOLs. Some of the nomenclatures used for BOL based on those received by MTD Asphalt Lab over the years include Straight Bill of Lading, Bill of Lading, BOL, B/L, Ticket, Manifest Invoice BOL/Certificate, etc. Among them, Bill of Lading and BOL are the most used nomenclatures. In few instances, only the BOL number might be provided at one corner of the invoice/ticket/manifest without mentioning description of what they are. If you need help on identifying/verifying them, please reach out to MTD Asphalt Lab, the supplier, or the contractor.

14.22 Q: Where can I find lab number?

A: Asphalt binder suppliers must include a current valid lab number that must be entered into the seal number field of the "*Addl. Sample Data*" tab of SiteManager. Lab numbers can be found next to the labels, Lab #, Lab No., Lab Batch No., Seal No., Certificate No., Lab Certificate No., QM No., etc. If help is needed to identify/verify them, please reach out to MTD Asphalt Lab or supplier, if lab numbers are not included in BOLs or if the lab numbers have already expired. MTD Asphalt Lab will help identify/verify them and reach out to supplier for a corrected BOL or a response.

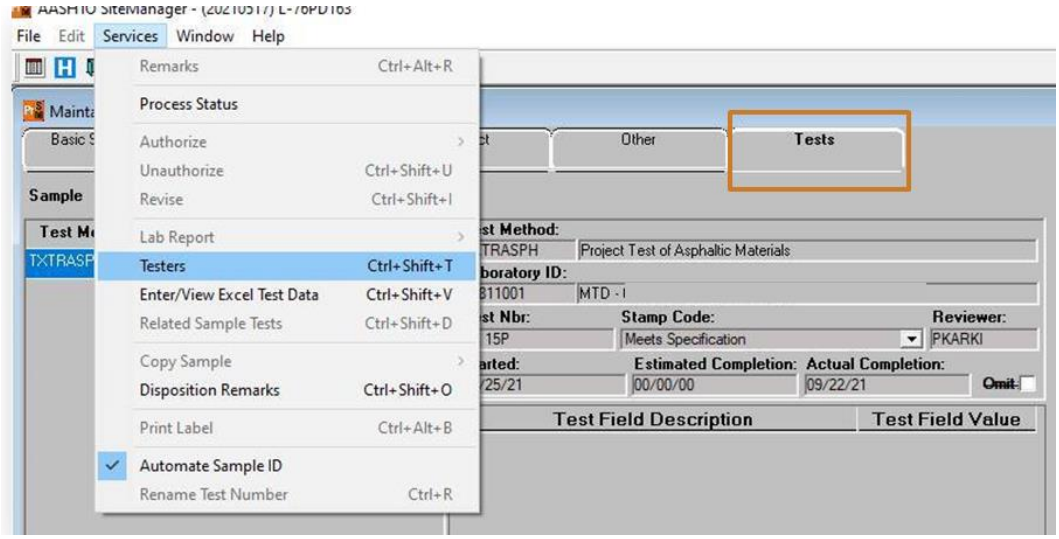
Please note suppliers may also include the effective period of the lab number, for example Q1, Quarter 1, Jan-March 2023, 01/01/23-03/31/23 or Expires 03/31/23, etc. To help is needed to verify this information, please reach out to MTD Asphalt Lab, or use the website, Asphalt Supplier Certifications (Section 2.6).

14.23 Q: Can I add multiple TXTRASPH test methods to the same SM ID?

A: Yes, you can do that if each sample belong to the same BOL date and have different "Test Nbr". If the multiple samples with same SM ID with same "Test Nbr" are logged by district and tested by MTD, LIMS will upload only one test report to SiteManager.

14.24 Q: I cannot authorize because there is stamp but no testers.

A: If the sample has stamp code, please go to "Tests" tab and select "Services" and then "Testers".



14.25 Q: What other resources are available about asphalt materials and uses?

A: TxDOT's website, https://www.txdot.gov/business/resources/materials.html, has several documents (such as "Asphalt Materials and Uses", "Asphalt Emulsion", "Superpave Binder Materials Selection Procedures", and this document itself, "Asphalt Binder Inspection and Sampling Guide") and several other links related to asphalt binders (Asphalt Binder Dashboard, Asphalt Supplier Certifications, Material Producer List>Asphalt Binders).