



# GUIDE SCHEDULE OF SAMPLING AND TESTING

AUGUST 2010

## Using the Guide Schedule

Research of sampling and testing rates listed for project tests in the following Guide Schedule show that the Department's and the Contractor's risk of either rejecting "good" material or accepting "bad" material range from 20% to 40%.

To reduce this risk, we recommend that the sampling rate be increased during initial production. A four-fold increase in testing frequency will generally reduce risk to approximately 5%. The intent of increasing testing at the start of production is to insure that the Contractor's processes are in control and to establish acceptability requirements early.

There is a need to increase the frequency of testing for high-variability materials and when testing results do not meet specifications. The Engineer may require the Contractor to reimburse the Department for costs resulting from failing test results, in accordance with the specifications.

Materials incorporated in TxDOT projects are subjected to various quality assurance procedures such as testing (as outlined in this document), certification, quality monitoring, approved lists, etc. The Engineer and testing staff should familiarize themselves with materials to be used before work begins by reviewing the specifications, the "Materials Directory" and SiteManager's "Assistant," and this document. Discuss material testing requirements with the Contractor.

Other testing required by the specifications, but not shown in the Guide Schedule, should be performed at a frequency necessary to provide adequate confidence that materials meet specifications.

NOTE: For non-exempt federal-aid (Federal Letter of Authority [FLOA]) projects, use the ["Letter of Certification of Materials Used"](#) to document reasons for material acceptance when a test fails. For all other projects, document the justification and explanation for acceptance of materials that fail project tests in the project file.

Assuring the quality of the product and proper incorporation of materials into the project begins with proper sampling practices. Sampling, testing, and construction inspection must be performed collaboratively to assure the specific attributes of the finished product reflect quality workmanship. Sampling guidance for hot-mixed asphalt is contained in Tex-225-F, Random Selection of Bituminous Mixture Samples, and the respective specification for that material. All remaining materials are covered by method and materials specifications, to which the following applies.

Since the Department performs all project acceptance testing, Contractor test results are not used in the acceptance decision. As such, the Department is verifying the quality of the product as opposed to the quality of the Contractor's test result.

For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows:

- Soils/flexible base: Vary sampling between stockpiling operations, completed stockpile, windrow, and project site. Vary the time of day sampling is performed.
- Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.
- Concrete (structural and miscellaneous): Always sample as near as practicable to the point of placement. For strength testing, vary the time of day or the number of truck from which the concrete is sampled. Tests for slump, air, and temperature should be done often to ensure the consistent control of the concrete production (not applicable to miscellaneous concrete).

***This Guide Schedule, effective August 2010, is applicable to all contracts associated with the 2004 Standard Specifications.***

This is a guide for minimum sampling and testing.  
 Testing frequency may need to be increased for high material variability or when test results approach specification limits.

## GUIDE SCHEDULE OF SAMPLING AND TESTING (Per Contract)

**TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES**

TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES						
			PROJECT TESTS			
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	REMARKS	
EMBANKMENT (CUTS & FILLS)	Liquid Limit <b>(A)</b>	Tex-104-E	During stockpiling operations, from completed stockpile, or project site <b>(B)</b>	Materials with PI ≤ 15: 10,000 CY <b>(F)</b>	For type A embankment or when required by the plans. This test may be waived for embankment cuts as directed by the Engineer. Determine a new liquid limit and plasticity index for each different material or notable change in material.	
	Plasticity Index <b>(A)</b>	Tex-106-E		Materials with PI > 15: 5,000 CY <b>(F)</b>		
	Gradation	Tex-110-E	During stockpiling operations, from completed stockpile, or project site <b>(B)</b>	Each 10,000 CY <b>(F)</b>		When shown on plans. This test may be waived for embankment cuts, as directed by the Engineer.
	Moisture/Density	Tex-114-E	During stockpiling operations, from completed stockpile, or project site <b>(B)</b>			Not required for ordinary compaction. Determine a new optimum moisture and maximum density for each different material or notable change in material.
	In-place Density <b>(A)</b>	Tex-115-E	As designated by the Engineer	Fill: each 5,000 CY min. 1 per lift. <b>(F)</b>  Cut: each 6,000 LF <b>(F)</b>		Not required for ordinary compaction. Determine a new optimum moisture and maximum density for each different material or notable change in material. Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E, as necessary for control, for each different material or notable change in material and adjust the density accordingly. Materials such as RAP, gypsum, lime, cement, and iron ore tend to bias the counts for nuclear density gauges.
RETAINING WALL (NON-SELECT BACKFILL)	As shown above for Embankment (Cuts and Fills)		As shown above for Embankment (Cuts and Fills)	As shown above for Embankment (Cuts and Fills)		
RETAINING WALL (SELECT BACKFILL)	Gradation	Tex-110-E	During stockpiling operations, from completed stockpile, or project site <b>(B)</b>	Each 5,000 CY <b>(F)</b>		
	Resistivity <b>(A)</b>	Tex-129-E	During stockpiling operations, from completed stockpile, or project site <b>(B)</b>	Each 5,000 CY <b>(F)</b>	For material with resistivity between 1,500 and 3,000 ohm-cm, determine chloride and sulfate content, as specified in Item 423.	
	pH <b>(A)</b>	Tex-128-E	During stockpiling operations, from completed stockpile, or project site <b>(B)</b>	Each 5,000 CY <b>(F)</b>		

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**TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES**

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MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	REMARKS
RETAINING WALL (SELECT BACKFILL) (continued)	Soundness	Tex-411-A	During stockpiling operations, or from completed stockpile	As directed by the Engineer	Test when backfill sources appear to contain particles such as shale, caliche, or other soft, poor-durability particles.
	In-place Density <b>(A)</b>	Tex-115-E	As designated by the Engineer.	One per backfill lift, per wall	Not required for rock backfill. For walls greater than 500 ft. in length, perform one test per lift for every 500 ft. in length. <b>(F)</b> Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E for each different material or notable change in material and adjust the density accordingly.
UNTREATED BASE COURSES	Liquid Limit <b>(A)</b>	Tex-104-E	During stockpiling operations, from completed stockpile, or windrow <b>(B)</b>	Each 5,000 CY <b>(F)</b>	
	Plasticity Index <b>(A)</b>	Tex-106-E	During stockpiling operations, from completed stockpile, or windrow <b>(B)</b>	Each 5,000 CY <b>(F)</b>	
	Gradation <b>(A)</b>	Tex-110-E	During stockpiling operations, from completed stockpile, or windrow <b>(B)</b>	Each 5,000 CY <b>(F)</b>	
	Moisture/Density	Tex-113-E	From completed stockpile at the source <b>(E)</b>	Each 20,000 CY <b>(F)</b>	Not required for ordinary compaction.
	Wet Ball Mill <b>(A)</b>	Tex-116-E	From completed stockpile at the source <b>(E)</b>	Each 20,000 CY <b>(F)</b>	As required by the plans.
	Strength <b>(A)</b>	Tex-117-E	From completed stockpile at the source <b>(E)</b>	Each 20,000 CY <b>(F)</b>	As required by the plans. When base material is from a source where the District has a record of satisfactory triaxial results, the frequency of testing may be reduced to one per 30,000 CY. If any one test falls below the minimum value required, the frequency of testing will return to the original frequency of 20,000 CY.
	In-place Density <b>(A)</b>	Tex-115-E	As designated by the Engineer	Each 3,000 CY, min. 1 per lift <b>(F)</b>	Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E, as necessary for control, for each different material or notable change in material and adjust the density accordingly. Materials such as RAP, gypsum, lime, cement, and iron ore tend to bias the counts for nuclear density gauges.
	Thickness <b>(A)</b>	Tex-140-E	As designated by the Engineer	Each 3,000 CY <b>(F)</b>	Not required where survey grade control documents compliance.

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**TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES**

			PROJECT TESTS			
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	REMARKS	
TREATED SUBGRADE AND BASE COURSES	NEW BASE MATERIAL	Liquid Limit <b>(A)</b>	Tex-104-E	During stockpiling operations, from completed stockpile, or windrow <b>(B)</b>	Each 5,000 CY <b>(F)</b>	When central mix site or plant is used, windrow sampling may be waived.
		Plasticity Index <b>(A)</b>	Tex-106-E	During stockpiling operations, from completed stockpile, or windrow <b>(B)</b>	Each 5,000 CY <b>(F)</b>	
		Gradation <b>(A)</b>	Tex-110-E	During stockpiling operations, from completed stockpile, or windrow <b>(B)</b>	Each 5,000 CY <b>(F)</b>	
		Wet Ball Mill <b>(A)</b>	Tex-116-E	From completed stockpile at the source <b>(E)</b>	Each 20,000 CY <b>(F)</b>	As required by the plans.
		Strength <b>(A)</b>	Tex-117-E	From completed stockpile at the source <b>(E)</b>	Each 20,000 CY <b>(F)</b>	As required by the plans. When base material is from a source where the District has a record of satisfactory triaxial results, the frequency of testing may be reduced to one per 30,000 CY. If any one test falls below the minimum value required, the frequency of testing will return to the original frequency of 20,000 CY.
		In-place Density <b>(A)</b>	Tex-115-E	As designated by the Engineer	Each 3,000 CY, min. 1 per lift <b>(F)</b>	Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E for each different material or notable change in material and adjust the density accordingly. Materials such as RAP, gypsum and iron ore tend to bias the counts for nuclear density gauges.
	LIME	Compliance with DMS-6350		During delivery to project	Hydrated Lime: 1 Per Project Commercial Lime Slurry: each 200 tons of lime <b>(F)</b> Carbide Lime Slurry: each 100 tons of lime <b>(F)</b> Quick Lime: 1 Per Project	All lime sources must be on TxDOT's Lime Quality Monitoring Program as described in DMS-6330. Sample frequency for Carbide Lime Slurry may be increased as directed by the Engineer.
	CEMENT	Compliance with DMS-4600		Railroad car, truck, or cement bins	Each 2,000 bbls. for each type and brand <b>(F)</b>	Sampling and testing may be waived when the source is listed in the current Material Producer List for Cement. <b>(C)</b>
	FLY ASH MATERIAL	Compliance with DMS-4615		Project samples at location designated by the Engineer	1 per Project	Only materials from CSTM&P approved sources listed in the Material Producer List for Fly Ash will be accepted. <b>(C)</b>

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**TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES**

MATERIAL OR PRODUCT		TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
				LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	
TREATED SUBGRADE AND BASE COURSES (continued)	COMPLETE MIXTURE	Pulverization Gradation	Tex-101-E Part III	Roadway, after pulverization and mixing	As necessary for control	At the beginning of the project, one test must be made for each 4,500 CY or 6,000 tons until the Engineer is satisfied that acceptable pulverization results are being obtained.
		Moisture-Density	Tex-120/121-E (Part I), or Tex-127-E	Completed stockpile or roadway prior to placement (E)	Each 20,000 CY (F)	At the beginning of the project, determine the appropriate moisture/density curve for each different or notable change in material. If design is done prior to the project, test may be waived.
		Soil-Cement Testing Soil-Lime Testing	Tex-120-E (Part II) Tex-121-E (Part II)	From roadway windrow after treatment	As necessary for control	Perform Tex-120-E Part II on Cement, Fly Ash and Lime-Fly Ash treated materials, and Tex-121-E on Lime treated materials. Verifies Da value obtained at beginning of project. At the discretion of Engineer.
		In-place Density (A)	Tex-115-E	As designated by the Engineer	Each 3,000 CY, min 1 per lift (F)	Determine the appropriate moisture/density curve for each different material or notable change in material. Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E, as necessary for control, for each different material or notable change in material and adjust the density accordingly. Stabilizers and materials such as RAP, gypsum and iron ore tend to bias the counts for nuclear density gauges.
		Thickness (A)	Tex-140-E	As designated by the Engineer	Each 3,000 CY (F)	Not required where survey grade control documents are used for compliance

**TABLE I – FOOTNOTES**

<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b> - Engineer will select any of these locations or any combinations thereof with the provision that the initial sample will be obtained from the completed stockpile at the source and at least one out of ten consecutive samples will be taken at the project site (from the windrow for treated and untreated bases and embankments when possible).
<b>C</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b> - For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>• Soils/Flexible Base: For gradation, liquid limit, and plastic limit, vary sampling between stockpiling operations, completed stockpile, windrow, and project site. Vary the time of day sampling is performed.</li> <li>• Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> </ul>
<b>E</b> - The Engineer will sample from the completed stockpile at the source and test prior to placement.
<b>F</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

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TABLE IA – ASPHALT STABILIZED BASE (Plant Mix)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)	REMARKS
AGGREGATE	Gradation <b>(A)</b>	Tex-200-F Part I	During stockpiling operations, from completed stockpile, or prior to mixing	Each 5,000 CY <b>(E)</b>	
	Liquid Limit <b>(A)</b>	Tex-104-E	During stockpiling operations, from completed stockpile, or prior to mixing	Each 5,000 CY <b>(E)</b>	
	Plasticity Index <b>(A)</b>	Tex-106-E	During stockpiling operations, from completed stockpile, or prior to mixing	Each 5,000 CY <b>(E)</b>	
	Wet Ball Mill or L. A. Abrasion <b>(A)</b>	Tex-116-E or Tex-410-A	During stockpiling operations, from completed stockpile, or prior to mixing	Each 20,000 CY <b>(E)</b>	When L. A. Abrasion is specified, tests are not required when the published value of the source, as listed in the current Material Producer list for <b>CRSQC</b> , meets the project specifications. <b>(B)</b>
	Coarse Aggregate Angularity <b>(A)</b>	Tex-460-A Part I	During stockpiling operations, from completed stockpile, or prior to mixing	1 per project per source	Not required for crushed stone sources.
	Sand Equivalent	Tex-203-F	Hot aggregate bins, feeder belt, or stockpile	1 per project per source	When designated by the Engineer, test may be run on combined aggregates when multiple sources are used.
	Decantation	Tex-217-F Part II	During stockpiling operations, from completed stockpile, or prior to mixing	Each 10,000 CY <b>(E)</b>	Required only for RAP and recycled aggregate.
LIME	Compliance with DMS-6350		During delivery to project	Hydrated Lime: 1 Per Project. Commercial Lime Slurry: each 200 tons of lime <b>(E)</b> Carbide Lime Slurry: each 100 tons of lime <b>(E)</b> Quick Lime: 1 Per Project <b>(C)</b>	On projects requiring less than 50 tons, material from CSTM&P approved sources may be accepted on the basis of Producer's Certification without sampling.
ASPHALT BINDER	Compliance with Item 300 – Binder and Tack Coat		Sampled, tested and preapproved by CSTM&P. Take project samples when designated by the Engineer.	One each for binder and tack coat per project, per grade, per source.	Test at least one sample taken from the project. Sample tack coat at the distributor on the roadway. Sample binder at hot mix plant. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.

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TABLE IA – ASPHALT STABILIZED BASE (Plant Mix)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)	REMARKS
COMPLETE MIXTURE	Laboratory Density and/or Strength <b>(A)</b>	Tex-126-E	Plant or road <b>(D)</b>	20,000 CY (25,000 tons) <b>(E)</b>	
	Percent Asphalt <b>(A)</b>	Tex-236-F	Plant or road <b>(D)</b>	Each 1,500 CY (2,000 tons) or days production <b>(E)</b>	Determine correlation factors for ignition oven at a minimum of one per project.
	In-Place Density <b>(A)</b>	Tex-207-F	As designated by the Engineer <b>(D)</b>	Each 2,500 CY (3,000 tons) <b>(E)</b>	Not required for ordinary compaction or when air void requirements are waived.
	Moisture Susceptibility	Tex-530-C	As designated by the Engineer	1 per project, per design	This test may be waived, when shown on the plans.
	Thickness <b>(A)</b>	Tex-140-E	As designated by the Engineer	Each 3,000 CY <b>(E)</b>	May be waived for level-up courses over existing pavement surfaces

TABLE IA – FOOTNOTES
<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b> - Engineer will select any of these locations or any combinations thereof with the provision that at least one out of ten consecutive samples will be taken at the project site (from the windrow for treated and untreated bases and embankments when possible).
<b>C</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b> - For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>• Soils/flexible base: Vary sampling between stockpiling operations, completed stockpile, windrow, and project site. Vary the time of day sampling is performed.</li> <li>• Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> </ul>
<b>E</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

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TABLE II – SURFACE TREATMENTS					
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (C)	FREQUENCY OF SAMPLING (D)	
AGGREGATE	Gradation <b>(A)</b>	Tex-200-F, Part I	At source or at point of delivery	One each 1,000 CY <b>(D)</b>	Rate may be reduced to one each 2,000 CY if the Engineer approves a contractor quality control plan.
	L. A. Abrasion <b>(A)</b>	Tex-410-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. <b>(B)</b>
	Magnesium Soundness <b>(A)</b>	Tex-411-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. <b>(B)</b>
	Surface Aggregate Classification <b>(A)</b>	Tex-612-J Tex-411-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. <b>(B)</b>
	Pressure Slake <b>(A)</b>	Tex-431-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Same as above. Required only for lightweight aggregate.
	Freeze Thaw <b>(A)</b>	Tex-432-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Same as above. Required only for lightweight aggregate.
	Unit Weight	Tex-404-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Same as above. Required only for lightweight aggregate.
	24 hr Water Absorption <b>(A)</b>	Tex-433-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Same as above. Required only for lightweight aggregate.
	Coarse Aggregate Angularity	Tex-460-A	Stockpile	1 per 20,000 CY <b>(D)</b>	Only required for crushed gravel.
	Deleterious Material <b>(A)</b>	Tex-217-F Part I	Stockpile	1 per 10,000 CY <b>(D)</b>	
	Decantation <b>(A)</b>	Tex-406-A	Stockpile	1 per 10,000 CY <b>(D)</b>	
	Flakiness Index	Tex-224-F	Stockpile	Frequency as directed by the Engineer.	
	Micro Deval	Tex-461-A	Stockpile	1 per project	Test not used for acceptance. Compare result to published value listed in the current Material Producer List for <b>BRSQC</b> . Submit sample to CSTM&P for Soundness and LA Abrasion testing when results differ by more than 3% points.
	White Rock Count	Tex-220-F	Stockpile		Required only for Limestone Rock Asphalt. Not required when CSTM&P provides inspection at the plant.
Naturally Impregnated Bitumen Content	Tex-236-F	Stockpile		Required only for Limestone Rock Asphalt. Not required when CSTM&P provides inspection at the plant.	

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TABLE II – SURFACE TREATMENTS					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (C)	FREQUENCY OF SAMPLING (D)	REMARKS
PRECOATED AGGREGATE	Asphalt Content	Tex-236-F	Stockpile	Frequency as directed by the Engineer when a target value is specified.	
ASPHALT	Compliance with Item 300		Sampled, tested and preapproved by CSTM&P. Take project samples when designated by the Engineer from the distributor or transport.	1 per project, per grade, per source	Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.

TABLE II – FOOTNOTES
<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>C</b> - For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>• Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> </ul>
<b>D</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

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TABLE III – HYDRAULIC CEMENT CONCRETE – STRUCTURAL (Classes: C, F, H, S, DC, CO, K, LMC, or SS)						
			PROJECT TESTS			
MATERIAL OR PRODUCT		TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)	REMARKS
MINERAL AGGREGATE	COARSE AGGREGATE	Decantation <b>(B)</b>	Tex-406-A	From stockpile at concrete plant	Each 20,000 CY of concrete (each source) <b>(E)</b>	
		Sieve Analysis <b>(A) (B)</b>	Tex-401-A		Each 1,000 CY of concrete (each source) <b>(E)</b>	Test combined aggregate when used. At the beginning of the project, one test will be made for each 500 CY of concrete until three consecutive passing tests are obtained. The first test must be performed at the beginning of project production. Then frequency of testing can be reduced to one test per 1,000 CY of concrete.
		Deleterious Materials <b>(B)</b>	Tex-413-A		1 per project or as necessary for control	
		Los Angeles Abrasion <b>(A) (B)</b>	Tex-410-A		Two, each source	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>CRSQC</b> , meets the project specifications. <b>(C)</b>
		5-cycle Magnesium Sulfate Soundness <b>(A) (B)</b>	Tex-411-A		Two, each source	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>CRSQC</b> , meets the project specifications. <b>(C)</b>
	FINE AGGREGATE	Sand Equivalent <b>(B)</b>	Tex-203-F	From stockpile at concrete plant	1 per project or as necessary for control	Test combined aggregate when used.
		Organic Impurities <b>(B)</b>	Tex-408-A		1 per project, per source	
		Sieve Analysis <b>(A) (B)</b>	Tex-401-A		Each 1,000 CY of concrete (each source) <b>(E)</b>	At the beginning of the project, one test will be made for each 500 CY of concrete until three consecutive passing tests are obtained. The first test must be performed at the beginning of project production. Then frequency of testing can be reduced to one test per 1,000 CY of concrete.
		Fineness Modulus <b>(B)</b>	Tex-402-A		1 per project or as necessary for control	For Fineness Modulus, test combined aggregate when used. Test to confirm material variability when strength values are in question.
		Deleterious Material <b>(B)</b>	Tex-413-A		1 per project or as necessary for control	Test to confirm material variability when strength values are in question.
		Acid Insoluble Residue <b>(A) (B)</b>	Tex-612-J		Two, each source	Only for concrete subject to direct traffic. Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>CRSQC</b> , meets the project specifications. <b>(C)</b>
	MINERAL FILLER	Sieve Analysis <b>(A)</b>	Tex-401-A	From stockpile or silo at concrete plant	Two, each source	
	SILICA FUME	Compliance with DMS-4630 <b>(A)</b>		Railroad car, truck, bags or silos	Each 1,000 bbls. (For each type and brand) <b>(E)</b>	

This is a guide for **minimum** sampling and testing.  
 Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE III – HYDRAULIC CEMENT CONCRETE – STRUCTURAL (Classes: C, F, H, S, DC, CO, K, LMC, or SS)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)	REMARKS
METAKAOLIN	Compliance with DMS-4635 <b>(A)</b>		Railroad car, truck or silos	Each 1,000 bbls. (For each type and brand) <b>(E)</b>	
MIX DESIGN	Compliance with Standard Specification Item 421.4.A		At source (if not approved)	Min. 1 design per class, per source	Verify if cement, fly ash, ground granulated blast furnace slag, and admixture sources are listed in the Material Producer List. If not, sample and submit to CSTM&P for testing. Water testing is contracted by the concrete supplier (commercial lab report to be reviewed by TxDOT).
JOINT MATERIAL	Compliance with DMS-6300		Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	1 per batch or shipment	Sampling may be waived when the source is listed in the Material Producer List for <b>Joint Sealers. (C)</b>
CURING COMPOUND	Compliance with DMS-4650		Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	1 per batch or shipment	Sampling may be waived when the source is listed in the Material Producer List for <b>Concrete Curing Compounds. (C)</b>
	% Solids	ASTM D 2369	Sampled at jobsite	1 per project	Sample from spray nozzle or from storage container. Ensure container has been agitated and mixed prior to sampling.
EVAPORATION RETARDANTS	Compliance with DMS-4650		Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	1 per batch or shipment	Sampling may be waived when the source is listed in the Material Producer list for <b>Evaporation Retardants. (C)</b>
REINFORCING STEEL	Compliance with the Std. Specifications & Spec. Provisions	As Specified	Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.		Only materials from CSTM&P approved sources listed in the Material Producer List for <b>Reinforcing Steel Mills</b> and <b>Seven Wire Steel Strand</b> will be accepted. <b>(C)</b>
MECHANICAL COUPLERS	Compliance with DMS-4510	Tex-743-I	Sampled at jobsite; Tested by CSTM&P	3 couplers per lot (500 couplers) for each type, model, bar size and grade	Only materials from CSTM&P approved sources listed in the Material Producer List for <b>Mechanical Couplers</b> will be accepted. <b>(C)</b>
LATEX	Compliance with DMS-4640 for concrete chemical admixtures		Sampled at jobsite.	Min. of 1 test per project	
WATERSTOP	Compliance with DMS-6160, unless otherwise shown on plans				This material is approved at the job site by the Engineer on a basis of certification. No testing is required.
EPOXY	Compliance with DMS-6100, unless otherwise specified		Sampled at jobsite if not pre-approved by CSTM&P.	1 per batch or shipment	Sampling may be waived when the source is listed in the Material Producer List for <b>Epoxies and Adhesives. (C)</b>

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TABLE III – HYDRAULIC CEMENT CONCRETE – STRUCTURAL (Classes: C, F, H, S, DC, CO, K, LMC, or SS)					
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)	
CONCRETE	Compressive Strength <b>(A)</b>	Tex-418-A	At point of concrete placement	4 cylinders for each 60 CY per class, per day (For bridge railing and traffic railing, testing may be reduced to 4 cylinders per 180 CY per class regardless of days) <b>(E)</b>	Sampling must be in accordance with Tex-407-A. Two cylinders shall be tested at 7 days and if the average value is below the target value as defined in 421.4.B, the remaining 2 cylinders shall be tested at 28 days. If the average value of the 2 cylinders tested at 7 days meets or exceeds the target value, but is below the minimum design strength listed in Item 421 Table 5, every third sampling frequency shall be tested at 28 days. If the average value of the 2 cylinders tested at 7 days meets the minimum design strength listed in Item 421 Table 5, the two remaining cylinders are not required to be tested. However, testing and recording the 28 day strengths would be helpful when adjusting the required strength overdesign.
	Slump	Tex-415-A		1 test per 4 strength specimens	Sampling must be in accordance with Tex-407-A. For Class S, F and H ready mix concrete for bridge slab only, air, slump, and temperature must be checked as necessary to obtain a desired consistency with a minimum of the first three loads being tested. Thereafter, test each third load for both slump and air content. Perform slump and air content tests on the same load from which strength test specimens are made. Check temperature of every load for bridge slabs and mass concrete placements. When air-entrainment requirements have been waived by the plans but the concrete mix still includes an air-entrainment agent, continue to test for air at the listed frequency.
	Entrained Air <b>(A)</b>	Tex-416-A or Tex-414-A			
	Temperature of Concrete <b>(A)</b>	Tex-422-A			
	Slab Thickness and Depth of Reinforcement	Tex-423-A Part II	During dry run and during concrete placement (Bridge decks and direct traffic culverts)	1 per span	Min. 6 – Max. 18 per span, as per test method. Record locations and dimensions and place in project records.

TABLE III – FOOTNOTES
<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b> - These Project Tests may be used for one or more projects being furnished concrete from the same plant during the same period.
<b>C</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b> - For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>• Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> <li>• Concrete (structural): Always sample as near as practicable to the point of placement. For strength testing, vary the time of day or the number of truck from which the concrete is sampled. Tests for slump, air, and temperature should be done often to ensure the consistent control of the concrete production.</li> </ul>
<b>E</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE IV – HYDRAULIC CEMENT CONCRETE – NON-STRUCTURAL CONCRETE (Classes: A, B, D, or E)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (C)	FREQUENCY OF SAMPLING (D)	REMARKS
CONCRETE	Compressive Strength <b>(A)</b>	Tex-418-A	At point of concrete placement	2 cylinders per 180 CY, per class <b>(D)</b>	Sampling must be in accordance with Tex-407-A. Strength will be determined by 7-day specimens.
	Entrained Air <b>(A)</b>	Tex-416-A or Tex-414-A		1 test per 2 strength specimens	When required by specifications or plans. Sampling must be in accordance with Tex-407-A.
MIX DESIGN	Compliance with the Standard Specification		At source if not approved.	Min. 1 design per class, per source	Verify if cement, fly ash, ground granulated blast furnace slag, and admixture sources are listed in the Material Producer List. If not, sample and submit to CSTM&P for testing. Water testing is contracted by the concrete supplier (commercial lab report to be reviewed by TxDOT).
SILICA FUME	Compliance with DMS-4630		Railroad car, truck, bags or silos	1 test per project, per class (for each type and brand)	
METAKAOLIN	Compliance with DMS-4635		Railroad car, truck or silos	1 test per project, per class (for each type and brand)	

TABLE IV – FOOTNOTES
<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>C</b> - For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>• Concrete (miscellaneous): Always sample as near as practicable to the point of placement. For strength testing, vary the time of day or the number of truck from which the concrete is sampled.</li> </ul>
<b>D</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
 Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE V – HYDRAULIC CEMENT CONCRETE PAVEMENT (Classes: P, DC, CO, LMC, K, or HES)							
			PROJECT TESTS				
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING	FREQUENCY OF SAMPLING (D)	REMARKS		
MINERAL AGGREGATE	COARSE AGGREGATE	Decantation	Tex-406-A	From stockpile at concrete plant	Each 20,000 CY of concrete (each source) <b>(D)</b>	Test combined aggregate when used.	
		Sieve Analysis <b>(A)</b>	Tex-401-A		As necessary for control		
		Deleterious Materials	Tex-413-A		Each 20,000 CY of concrete (each source) <b>(D)</b>		
		L.A Abrasion <b>(A)</b>	Tex-410-A		Two, each source		Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>CRSQC</b> , meets the project specifications. <b>(C)</b>
		5-Cycle Magnesium Sulfate Soundness <b>(A)</b>	Tex-411-A				
	FINE AGGREGATE	Sand Equivalent	Tex-203-F	From stockpile at concrete plant	Each 3,000 CY of concrete (Each source or combination of sources) <b>(D)</b>	Test combined aggregate when used. No less than one per week's production	
		Organic Impurities	Tex-408-A		1 per project, per source	Test combined aggregate when used.	
		Sieve Analysis <b>(A)</b>	Tex-401-A		As necessary for control		
		Fineness Modulus <b>(B)</b>	Tex-402-A		Each 20,000 CY of concrete (each source) <b>(D)</b>		
		Deleterious Material <b>(B)</b>	Tex-413-A		1 per project, per source	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>CRSQC</b> , meets the project specifications. <b>(C)</b>	
	Acid Insoluble <b>(A)</b>	Tex-612-J					
	MINERAL FILLER	Sieve Analysis	Tex-401-A	From storage at concrete plant	3,000 CY of concrete <b>(D)</b>	At the beginning of the project one test will be made for each 1,500 CY of concrete until three consecutive passing tests are obtained. Then frequency of testing can be reduced to each 3,000 CY of concrete. <b>(D)</b>	
	MIX DESIGN	Compliance with the Standard Specifications Item 421.4.A		At source, if not approved	Min. 1 design, per class, per source	Verify if cement, fly ash, ground granulated blast furnace slag, and admixture sources are listed in the Material Producer List. If not, sample and submit to CSTM&P for testing. Water testing is contracted by the concrete supplier (commercial lab report to be reviewed by TxDOT).	

This is a guide for **minimum** sampling and testing.  
 Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE V – HYDRAULIC CEMENT CONCRETE PAVEMENT (Classes: P, DC, CO, LMC, K, or HES)**

			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING	FREQUENCY OF SAMPLING (D)	REMARKS
SILICA FUME	Compliance with DMS-4630		Railroad car, truck, bags or silos	Each 1,000 bbls. (For each type and brand) <b>(D)</b>	
METAKAOLIN	Compliance with DMS-4635		Railroad car, truck or silos	Each 1,000 bbls. (For each type and brand) <b>(D)</b>	
JOINT MATERIAL	Compliance with DMS-6310		Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	1 per batch or shipment	Sampling may be waived when the source is listed in the Material Producer List for <b>Joint Sealers. (C)</b>
CURING COMPOUND	Compliance with DMS-4650		Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	1 per batch or shipment	Sampling may be waived when the source is listed in the Material Producer List for <b>Concrete Curing Compounds. (C)</b>
	% Solids	ASTM D 2369	At point of concrete placement – spray nozzle	2 per project	Sample from spray nozzle or from storage container. Ensure container has been agitated and mixed prior to sampling.
EVAPORATION RETARDANTS	Compliance with DMS-4650		Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	1 per batch or shipment	Sampling may be waived when the source is listed in the Material Producer list for <b>Evaporation Retardants. (C)</b>
REINFORCING STEEL	Compliance with the Std. Specifications & Spec. Provisions	As Specified	Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.		Only materials from CSTM&P approved sources listed in the Material Producer List for <b>Reinforcing Steel Mills</b> and <b>Seven Wire Steel Strand</b> will be accepted. <b>(C)</b>
MULTIPLE PIECE TIE BARS			Sampled at jobsite if not pre-approved by CSTM&P. See remarks.	Refer to Tex-711-I for sampling rates if not CSTM&P approved.	Sampling may be waived when the source is listed in the Material Producer List for <b>Multiple Piece Tie Bar Producers. (C)</b>
EPOXY	Compliance with DMS-6100		Sampled at jobsite if not pre-approved by CSTM&P. See remarks.	One batch per shipment	Sampling may be waived when the source is listed in the Material Producer List for <b>Epoxies and Adhesives. (C)</b>

This is a guide for minimum sampling and testing.  
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TABLE V – HYDRAULIC CEMENT CONCRETE PAVEMENT (Classes: P, DC, CO, LMC, K, or HES)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING	FREQUENCY OF SAMPLING (D)	REMARKS
CONCRETE	Strength <b>(A) (B)</b>	Tex-448-A or Tex-418-A	At point of concrete placement	2 cylinders for every 10 contractor job control tests	<p>Sampling shall be in accordance with Tex-407-A.</p> <p>When the contract requires the project testing to be by the Engineer, the frequency and job control testing will be in accordance with the item of work.</p> <p>Split sample verification testing used when contractor performs job control testing.</p> <p>When job control testing by the contractor is waived by the plans, the frequency of sampling shall be one test (2 specimens) for each 3,000 SY of concrete or fraction thereof or per day and split sample verification testing shall be waived.</p>
	Slump	Tex-415-A	At time and location strength specimens are made	1 test for every 10 contractor job control tests	<p>Slump is not required for slip-formed pavement.</p> <p>Sampling shall be in accordance with Tex-407-A.</p> <p>When the contract requires the project testing to be by the Engineer, the frequency and job control testing will be in accordance with the item of work.</p> <p>Split sample verification testing used when contractor performs job control testing.</p> <p>When air-entrainment requirements have been waived by the plans but the concrete mix still includes an air-entrainment agent, continue to test for air at the listed frequency.</p>
	Entrained Air <b>(A)</b>	Tex-416-A or Tex-414-A		1 test for every 10 contractor job control tests	
	Temperature	Tex-422-A			
	Thickness	Tex-423-A	Center of each lane	Every 500 feet <b>(D)</b>	Methods other than Tex-423-A may be shown on the plans.

TABLE V – FOOTNOTES
<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b> - When a project test does not meet the specified strength requirements and a reduced pay factor is assigned, the analysis shall be documented on the Letter of Certification of Materials Used.
<b>C</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
 Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE VI – ASPHALT CONCRETE PAVEMENT (Items 341, 342, 344, and 346)**

			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION (Per Design)	FREQUENCY OF SAMPLING	REMARKS
COARSE AGGREGATE	L. A. Abrasion (A)	Tex-410-A	Stockpile (B)	1 per project, per source	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. (C)
	Magnesium Sulfate Soundness (A)	Tex-411-A			
	Micro Deval	Tex 461-A		Approximately 1 per every 12 Sublots	Testing frequency may be reduced or eliminated based on a satisfactory test history.
	Gradation	Tex-200-F		As directed by the Engineer	Gradation used to determine that no more than 20% passes a #8 sieve.
	Deleterious Material & Decant	Tex-217-F			The Engineer may perform tests on independent or split samples to verify Contractor test results.
	Flat and Elongated Particles	Tex-280-F			1 per project, per source
	Coarse Aggregate Angularity	Tex-460-A Part I			
RAP	Decant	Tex-217-F Part II	Stockpile (B)	As directed by the Engineer	RAP not allowed in Item 342.
	Plasticity Index	Tex-106-E			Plasticity Index only required when the Decant exceeds 5%.
FINE AGGREGATE	Bar Linear Shrinkage	Tex-107-E	Stockpile (B)	As directed by the Engineer	Does not apply to Item 342.
	Organic Impurities	Tex-408-A			The Engineer may perform tests on independent or split samples to verify Contractor test results.
	Gradation	Tex-200-F			Gradation used to determine if the material meets gradation requirements of fine aggregates.
MINERAL FILLER	Bar Linear Shrinkage	Tex-107-E	Bin or Silo	As directed by the Engineer	The Engineer may perform tests on independent or split samples to verify Contractor test results.
	Gradation	Tex-200-F			
COMBINED AGGREGATE	Sand Equivalent	Tex-203-F	Stockpiles, hot bins or feeder belts	1 per project, per source, per design	Does not apply to Item 342. The timing of when the test is performed is at the discretion of the Engineer.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE VI – ASPHALT CONCRETE PAVEMENT (Items 341, 342, 344, and 346)**

			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION (Per Design)	FREQUENCY OF SAMPLING	REMARKS
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat <b>(A)</b>		Sampled, tested and pre-approved by CSTM&P. Project test sampled at the Plant for Binder & Road for Tack Coat	1 each for binder and tack coat per project, per grade, per source	Test a minimum of one sample taken from the project. Sample tack coat at the distributor on the roadway. Sample binder at hot mix plant. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.

			PROJECT TESTS		PROJECT INDEPENDENT ASSURANCE TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION	FREQUENCY (Per Design)	LOCATION	FREQUENCY	REMARKS
COMPLETE MIXTURE	Asphalt Content (%) <b>(A)</b>	Tex-236-F	Engineer Truck Sample <b>(D)</b>	Minimum 1 per Lot			Determine correlation factors for ignition oven use at a minimum of one per project.
	Voids in Mineral Aggregates (VMA)	Tex-207-F	Truck Sample Plant Produced <b>(D)</b>	1 per Sublot	Truck	1 per 10 Lots only if compactor is shared by Contractor and State	Does not apply to Item 342.
	Gradation <b>(A)</b>	Tex-236-F	Engineer Truck Sample <b>(D)</b>	Minimum 1 per 12 Sublots <b>(E)</b>			Determine correlation factors for ignition oven use at a minimum of one per project.
	Boil Test	Tex-530-C	Truck Sample	1 per project			Unless waived by the Engineer.
	Indirect Tensile – Dry	Tex-226-F					Unless waived by the Engineer. Does not apply to Item 342.
	Moisture Content	Tex-212-F Part II	Engineer Truck Sample				
	Lab Molded Density <b>(A)</b>	Tex-207-F	Truck Sample <b>(D)</b>	1 per Sublot 1 per Lot for Item 342	Truck	1 per 10 Lots only if compactor is shared by Contractor and State	
	Drain Down Test <b>(A)</b>	Tex-235-F	Engineer Truck Sample	1 per project 1 per Lot for Item 342			Not required for Item 341 and Item 344.
	Hamburg Wheel Tracker <b>(A)</b>	Tex-242-F	Engineer Truck Sample	1 per project			Sample during production. Does not apply to Item 342.

This is a guide for minimum sampling and testing.  
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**TABLE VI – ASPHALT CONCRETE PAVEMENT (Items 341, 342, 344, and 346)**

TABLE VI – ASPHALT CONCRETE PAVEMENT (Items 341, 342, 344, and 346)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION	FREQUENCY (Per Design)	REMARKS
ROADWAY	In-Place Air Voids <b>(A)</b>	Tex-207-F	Roadway <b>(D)</b>	2 cores per Sublot	Two cores taken per Sublot and averaged. Does not apply to Item 342.
	Segregation Profile <b>(A)</b>	Tex-207-F Part V	Roadway	1 per project	Does not apply to Item 342.
	Joint Density <b>(A)</b>	Tex-207-F Part VII			
	Tack Coat Adhesion	Tex-243-F			
	Thermal Profile	Tex-244-F	Immediately behind paver		
	Ride Quality Type A Type B <b>(A)</b>	Tex-1001-S	Travel Lanes	As per Specification	
	Permeability	Tex-246-F Part I	Roadway	1 per project	Only applies to Item 342.
FABRIC UNDERSEAL	Compliance with DMS-6220		Sampled, tested, and approved by CSTM&P		Collect invoices and manufacturer's certification for material delivered and ensure the material is on the approved Material Producer List. Verify approved test stamp.

**TABLE VI – FOOTNOTES**

<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field. This letter is required only for Asphalt Content and/or Gradation when production of complete mixture is suspended as required by QC/QA specifications.
<b>B</b> - Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project. These project tests may be used for one or more projects furnishing hot mix with the same aggregate source.
<b>C</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b> - Perform random sampling as specified in Tex-225-F, Random Selection of Bituminous Mixture Samples.
<b>E</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
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**TABLE VII – ASPHALT CONCRETE PAVEMENT (Items 334)**  
**(Refer to DMS-9210, Limestone Rock Asphalt (LRA) for testing requirements for Item 330.)**

			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION	FREQUENCY (Per Design) (F)	REMARKS
COARSE AGGREGATE	L. A. Abrasion <b>(A)</b>	Tex-410-A	Stockpile <b>(B)</b>	1 per project, per source	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. <b>(D)</b>
	Magnesium Sulfate Soundness <b>(A)</b>	Tex-411-A			
	Gradation	Tex-200-F			To determine that no more than 20% passes a #8 sieve. The timing of when the test is performed is at the discretion of the Engineer.
	Micro Deval	Tex-461-A			Testing frequency may be reduced or eliminated based on a satisfactory test history.
	Flat and Elongated Particles	Tex-280-F			The timing of when the test is performed is at the discretion of the Engineer.
	Coarse Aggregate Angularity	Tex-460-A Part I			Only applies to gravel. Unless otherwise shown on plans. The timing of when the test is performed is at the discretion of the Engineer.
	Deleterious Material and Decant	Tex-217-F			The timing of when the test is performed is at the discretion of the Engineer.
FINE AGGREGATE	Bar Linear Shrinkage	Tex-107-E	Stockpile <b>(B)</b>	1 per project, per source	The timing of when the test is performed is at the discretion of the Engineer.
	Organic Impurities	Tex-408-A			
	Gradation	Tex-200-F			Not required for Item 330. Used to determine if the material meets gradation requirements of fine aggregates.
MINERAL FILLER	Bar Linear Shrinkage	Tex-107-E	Bin or Silo	1 per project, per source	The timing of when the test is performed is at the discretion of the Engineer.
	Gradation	Tex-200-F			
COMBINED AGGREGATE	Sand Equivalent	Tex-203-F	Stockpiles, hot bins or feeder belts	1 per project, per source	
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat <b>(A) (C)</b>		Sampled, tested and pre-approved by CSTM&P. Project test sampled at the Plant for Binder & Road for Tack Coat	1 each for binder and tack coat per project, per grade, per source	Test a minimum of one sample from production. Sample tack coat at the distributor on the roadway. Sample binder at hot mix plant. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE VII – ASPHALT CONCRETE PAVEMENT (Items 334)**  
**(Refer to DMS-9210, Limestone Rock Asphalt (LRA) for testing requirements for Item 330.)**

			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION	FREQUENCY (Per Design) (F)	REMARKS
COMPLETE MIXTURE	Asphalt Content (%) <b>(A)</b>	Tex-236-F	Engineer Truck Sample <b>(E)</b>	Minimum of 1 per 5,000 tons <b>(F)</b>	Determine correlation factors for ignition oven use at a minimum of one per project.
	Voids in Mineral Aggregates (VMA)	Tex-207-F	Truck Sample Plant Produced <b>(E)</b>	1 per 5,000 tons <b>(F)</b>	
	Gradation <b>(A)</b>	Tex-236-F	Truck Sample	Minimum 1 per 5,000 tons <b>(F)</b>	Determine correlation factors for ignition oven use at a minimum of one per project.
	Boil Test	Tex-530-C		1 per project	The timing of when the test is performed is at the discretion of the Engineer.
	Moisture Content	Tex-212-F Part II	Truck Sample	1 per 5,000 tons <b>(F)</b>	Performed by CSTM&P at the point of production for payment calculations.
	Hydrocarbon-Volatile Content	Tex-213-F		1 per 5,000 tons <b>(F)</b>	The timing of when the test is performed is at the discretion of the Engineer.
	Lab Molded Density <b>(A)</b>	Tex-207-F		1 per 5,000 tons <b>(F)</b>	
	Hveem Stability <b>(A)</b>	Tex-208-F		1 per 5,000 tons <b>(F)</b>	The timing of when the test is performed is at the discretion of the Engineer.
ROADWAY	Tack Coat Adhesion	Tex-243-F	Roadway	1 per project	The timing of when the test is performed is at the discretion of the Engineer.
	Ride Quality Type A Type B <b>(A)</b>	Tex-1001-S	Travel Lanes	As per Specification	Engineer may verify Contractor's results.

**TABLE VII – FOOTNOTES**

<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b> - Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project.
<b>C</b> - Or as called for in the Specifications.
<b>D</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>E</b> - Perform random sampling as specified in Tex-225-F, Random Selection of Bituminous Mixture Samples.
<b>F</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE VIII – ASPHALT CONCRETE PAVEMENT (Item 340)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION	FREQUENCY (E)	REMARKS
COARSE AGGREGATE	L. A. Abrasion <b>(A)</b>	Tex-410-A	Stockpile <b>(B)</b>	1 per project, per source	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. <b>(C)</b>
	Magnesium Sulfate Soundness <b>(A)</b>	Tex-411-A			
	Micro Deval	Tex 461-A		Approximately one every 5,000 tons of production <b>(E)</b>	Testing frequency may be reduced or eliminated based on a satisfactory test history.
	Gradation	Tex-200-F		As directed by the Engineer	Gradation to determine that no more than 20% passes a #8 sieve.
	Deleterious Material & Decant	Tex-217-F			The Engineer may perform tests on independent or split samples to verify Contractor test results.
	Flat and Elongated Particles	Tex 280-F			1 per project, per source
	Coarse Aggregate Angularity	Tex-460-A Part I			
RAP	Decant	Tex-217-F	Stockpile <b>(B)</b>	As directed by the Engineer	The Engineer may perform tests on independent or split samples to verify Contractor test results.
	Plasticity Index	Tex 106-E			Plasticity Index only required when the Decant exceeds 5%.
FINE AGGREGATE	Bar Linear Shrinkage	Tex-107-E	Stockpile <b>(B)</b>	As directed by the Engineer	The Engineer may perform tests on independent or split samples to verify Contractor test results.
	Organic Impurities	Tex-408-A			Gradation used to determine if the material meets gradation requirements of fine aggregates.
	Gradation	Tex-200-F			
MINERAL FILLER	Bar Linear Shrinkage	Tex-107-E	Bin or Silo	As directed by the Engineer	The Engineer may perform tests on independent or split samples to verify Contractor test results.
	Gradation	Tex-200-F			
COMBINED AGGREGATE	Sand Equivalent	Tex-203-F	Stockpiles, hot bins or feeder belts	1 per project, per source	The timing of when the test is performed is at the discretion of the Engineer.
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat <b>(A)</b>		Sampled, tested and pre-approved by CSTM&P. Plant for Binder & Road for Tack Coat	1 each for binder and tack coat per project, per grade, per source	Test a minimum of 1 sample taken from the project. Sample tack coat at the distributor on the roadway. Sample binder at hot mix asphalt. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE VIII – ASPHALT CONCRETE PAVEMENT (Item 340)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION	FREQUENCY (E)	REMARKS
COMPLETE MIXTURE	Asphalt Content (%)	Tex-236-F	Truck Sample (D)	Minimum of 1 per day	Determine correlation factors for ignition oven use at a minimum of one per project.
	Voids in Mineral Aggregates (VMA)	Tex-207-F	Truck Sample Plant Produced (D)	1 per day	
	Gradation (A)	Tex-236-F	Truck Sample	Minimum 1 per day	Determine correlation factors for ignition oven use at a minimum of one per project.
	Boil Test	Tex-530-C		1 per project	Unless waived by the Engineer.
	Indirect Tensile – Dry	Tex-226-F		1 per project, per design	Unless waived by the Engineer.
	Lab Molded Density (A)	Tex-207-F	Truck Sample	1 per day	
	Hamburg Wheel Tracker (A)	Tex-242-F		1 per project	Sample during production.
ROADWAY	Tack Coat Adhesion	Tex-243-F	Roadway	1 per project	The timing of when the test is performed is at the discretion of the Engineer.
	Air Voids (A)	Tex-207-F	Selected by the Engineer (D)	1 per day (2 Cores)	
	Ride Quality Type A Type B (A)	Tex 1001-S	Travel Lanes	As per Specification	Engineer may verify Contractor's results.
FABRIC UNDERSEAL	Compliance with DMS-6220		Sampled, tested, and approved by CSTM&P		Collect invoices and manufacturer's certification for material delivered and ensure the material is on the approved Material Producer List. Verify approved test stamp.

TABLE VIII – FOOTNOTES
<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field. This letter is required only for Asphalt Content and/or Gradation when production of complete mixture is suspended as required by QC/QA specifications.
<b>B</b> - Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project. These project tests may be used for one or more projects furnishing hot mix with the same aggregate source.
<b>C</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b> - Perform random sampling as specified in Tex-225-F, Random Selection of Bituminous Mixture Samples.
<b>E</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE IX – MICROSURFACING (Item 350)					
			PROJECT TESTS		
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OF SAMPLING (B)	FREQUENCY (Per Design)	REMARKS
AGGREGATE	5-Cycle Magnesium Sulfate Soundness <b>(A)</b>	Tex-411-A	Stockpile <b>(B)</b>	1 per project, per source	Sampling and testing are not required when the published value of the source, as listed in the current Material Producer list for BRSQC meets the project specifications. <b>(C)</b>
	Gradation	Tex-200-F Part II			
COMBINED BLEND	Sand Equivalent	Tex-203-F	Stockpile <b>(B)</b>	1 per project, per source	
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat <b>(A)</b>		Sampled, tested, and pre-approved by CSTM&P. Project test sampled at the Plant for Binder & Road for Tack Coat	1 each for binder and tack coat per project, per grade, per source	Test a minimum of one sample during production. Sample tack coat at the distributor on the roadway. Sample binder at microsurfacing machine. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.
CEMENT	Compliance with DMS-4600		Railroad car, truck or cement bins	Each 2,000 bbls. For each type and brand <b>(D)</b>	Sampling and testing may be waived when the material is listed in the Approved Producer List for Cement.
HYDRATED LIME	Compliance with DMS-6350		During delivery to project	1 per project, per source	All Lime sources must be on TxDOT's Lime Quality Monitoring Program as described in DMS-6330.
COMPLETE MIX	Asphalt Content	Tex-236-F	During production	1 per day	
	Gradation	Tex-200-F Part II Tex-236-F			Determine correlation factors for ignition oven use at a minimum of one per project.

TABLE IX – FOOTNOTES
<b>A</b> - When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field. This letter is required only for Asphalt Content and/or Gradation when production of complete mixture is suspended as required by QC/QA specifications.
<b>B</b> - Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project. These project tests may be used for one or more projects furnishing hot mix with the same aggregate source.
<b>C</b> - Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b> - Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.