LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

INTRADEPARTMENTAL CORRESPONDENCE

REFERRED TO

____ REFERRED FOR ACTION
____ ANSWER FOR MY SIGNATURE
____ FOR FILE
____ FOR YOUR INFORMATION
____ FOR SIGNATURE
____ RETURN TO ME
____ PLEASE SEE ME
____ PLEASE TELEPHONE ME
____ FOR APPROVAL
____ PLEASE ADVISE ME

BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____

MEMORANDUM

TO: **Christopher P. Knotts, P. E.**
CHIEF ENGINEER

FROM: **Luanna Cambas, P.E.**
Materials and Testing Section

DATE: **May 14, 2021**

SUBJECT: REVISION REQUESTED FOR EDSM III.5.1.2

I am requesting approval for a revision to EDSM **III.5.1.2**: **SAMPLING PLAN, MATERIAL QUALITY ASSURANCE DOCUMENTATION, and AUDIT OF TESTING & MATERIALS (ATM)** (was "2059").

This EDSM was reorganized, clarified, and updated to reflect current practice which has evolved primarily due to advances in automation. The term "2059" was changed to Audit of Testing and Materials, "ATM". The EDSM includes examples of required Quality Assurance documentation and examples of dispositions of failing materials. The time for District Lab Engineer review is changed from 5 days for all projects to 10 days for projects less than $2,000,000 and 20 days for larger projects. The Distribution Section has been further clarified.

Requested changes have also been verified by the sections affected by this EDSM. These Section Heads have signed below.

If you have any questions or concerns; please feel free to contact me accordingly.

Attachments:
EDSM current version
EDSM with track-changes proposed
EDSM with proposed changes incorporated

RECOMMENDED FOR APPROVAL — DATE 5/18/21

RECOMMENDED FOR APPROVAL — DATE

RECOMMENDED FOR APPROVAL — DATE

APPROVED — DATE 5/26/2021

ENGINEERING DIRECTIVES AND STANDARDS

Volume	Chapter	Section	Directive Number	Effective Date
III	5	1	2	5/26/2021

SUBJECT: SAMPLING PLAN, MATERIAL QUALITY ASSURANCE DOCUMENTATION, and AUDIT OF TESTING & MATERIALS (ATM) (was "2059")

1. PURPOSE: The purpose of this directive is to describe the minimum requirements for documentation of material quality on DOTD construction projects. This documentation will provide confidence that the materials used in each project conform with the requirements of the contract, and that the project has met Quality Assurance (QA) objectives.

2. SCOPE: This directive describes a procedure for creating a Sampling Plan, for recording Quality Assurance Documents (samples, tests, certificates, etc...), and for producing the Audit of Testing & Materials (ATM)(was "2059"). The ATM contains the end-of-project summary, a disposition (or resolution) for any failing or non-conforming materials, and an explanation for any errors and omissions.

3. PROCEDURE: Project personnel and district laboratory personnel are to comply with the following:

A. **SAMPLING PLAN**: The Sampling Plan, based on the Materials Sampling Manual, lists the minimum number of samples and documents that are required for a project for each material used, in order to ensure that the quality of materials incorporated into the project is adequate.

Prior to the preconstruction conference, the Project Engineer (PE) and the District Laboratory Engineer (DLE), will prepare and authorize the Sampling Plan for the project. It is developed by identifying the contract item, the contract item quantity, each material used for that item, and the frequency for samples or certificates required. Using the frequency schedules in the Materials Sampling Manual (MSM), along with specifications and plans, the minimum number of samples and documents is determined. This can be accomplished with DOTD approved software.

One hard copy will be retained by project personnel, another copy by the district laboratory, and a third copy will be given to the contractor.

For some contract items the exact material is not known at the beginning of the project. In such cases, the material category may be utilized. For some contract items, the final quantity is not known, such as for LS items. In such cases, show the minimum frequency of sampling and the minimum sample count of one.

For example, 701-01-01001 Cross Drain Pipe (24" RCP) requires backfill, but the exact material is not yet known. It could be stone, RPCC, RAP, select soils, or flowable fill. The category of "Backfill" may be used. Also the quantity of backfill is not readily known. Since all backfill materials (except flowable fill) require 1/1000 CY for gradation testing, the frequency of "1/ 1000 CY" and the minimum number of samples required of "1" may be used.

701- 01-01001 Cross Drain Pipe (24" RCP)
Backfill Gradation Frequency = 1/1000 CY
Minimum # of Samples = 1

B. **QUALITY ASSURANCE DOCUMENTS:** During the project, project personnel are to obtain samples and certificates in accordance with the Sampling Plan.

Creating Samples — The person submitting the sample will fill out the Sample ID form on SiteManager Materials (SMM), or other approved DOTD software. For detailed SMM instructions see: http://trnsportapps/SiteManagerMaterials/SMMDocumentation/SMMDocumentation.aspx

All samples submitted to any department laboratory for testing will be accompanied by a QR Code containing sample identification.

QA Supporting Documentation — The Project Engineer establishes files for QA documents, with at least one file folder for each contract item in the Sampling Plan, plus one for failing reports. (Failing Reports folder, Section 203 folder, etc...) These may be virtual files in accordance with DOTD approved software.

Examples of file contents are:

1. Certificates
   i. CA = Certificate of Analysis (has actual test results from the supplier or manufacturer)
   ii. CC = Certificate of Compliance (states that the material complies with the required DOTD specifications)
   iii. CD = Certificate of Delivery (has DOTD Sample ID #, indicating that DOTD has already approved the testing for this batch of material)
2. Work Zone Letters
3. Concrete Mix Designs — cover sheet only
4. PCC Paving Report
5. Asphalt Job Mix Formulas — cover sheet only
6. Asphalt Roadway Report — authorized by Roadway Inspector and PE
7. Asphalt Pay Reports — authorized by PE and Lab Engineer
8. IRI Reports — authorized by PE
9. Reinforcing Steel Mill Reports (this is a CA)
10. Mandrel Test Report

Sampling Plan Updates — The Sampling Plan must be updated during construction when contract quantities change, new contract items are added, and samples are obtained and tested. All current DOTD

approved software tracks the installed contract quantities and produces reports showing the minimum samples required to date as the project progresses.

Only “passing” samples are counted as “sample taken” and credited toward the minimum number required. Results of the resamples (often two samples used to replace one failing sample) can be entered as additional tests runs within the original sample ID. Any resamples must be tied to the original failing sample for the set to potentially count as “passing”.

The minimum number of samples required at the end of construction is based on the final quantities at the end of construction.

Certificates required by the MSM can be scanned into DOTD approved software.

C. **DISPOSITION OF FAILING TESTS:** The Project Engineer is responsible for being continually aware of failing materials, for actively working to resolve the issues, and for ensuring that concise and relevant explanations are recorded in the Disposition of Failing Materials field of DOTD approved software. It is not appropriate to use the disposition, “PE waived”.

Examples of dispositions are'

- The material was not used on the project.
- Material was resampled. The 2 check samples passed.
- The stockpile was remixed and resampled with passing results. See SMM #2930...
- Material was accepted at 90% pay. See change order #6.
- Although the material failed, the PE considers it to be acceptable for the intended use. (Why?)

It is mandatory for PE's to provide dispositions to explain and justify that the project quality is not compromised by the failing material.

D. **AUDIT OF TESTING & MATERIALS (ATM) (was "2059"):** When the project is completed, the Project Engineer is to produce a summary of all tests taken for each material used for each contract item, using DOTD approved software. Actual test results are not required for passing samples. The list is to show each item number, material, the number of required samples, and the number of passing tests per row. http://trnsportapps/SiteManagerMaterials/MaterialsRptSelection/ContractMaterialsAudit .aspx

Disposition of Failing Tests — The PE is to check either "Disposition of Failing Tests Report Attached", or "No Failing Tests". For each failing test, an actual detailed test report is required, along with the PE's disposition or explanation of what happened to the failing material, and how the disparity was resolved.

Errors and Omissions Report (E&O) — The PE is to check either "Errors and Omissions Report Attached" or "Not Applicable". The E&0 Report is the PE's account of any material used on the project that has not been tested and/or documented according to the Sampling Plan. E&0 lists what is missing, rather than what is failing or did not meet specifications. Each listing should include the item number, the error or omission that occurred, why it occurred (accidental, engineering judgement, etc...), and the basis for acceptance of the material.

QA Supporting Documentation — The PE is to compile the QA Supporting Documentation from the project files or automated system.

Cover Sheet — The PE signs and dates the Cover Sheet.

ATM Package — The PE is to assemble:

1. Signed cover sheet
2. E&0 Report
3. Dispositions of Failing Results
4. End-of-project material summary
5. PE Copy of the original Sampling Plan
6. QA supporting documentation.

E. **Review and Approval of ATM** — Once assembled, the Project Engineer sends the ATM to the District Laboratory Engineer for review. This table denotes the ATM review and approval process, the responsibilities of the PE, the DLE and the Area Engineer (AE), and the maximum review time for each.

ATM REVIEW AND APPROVAL		
DISTRIBUTION	**DESCRIPTION OF WORK**	**MAXIMUM REVIEW TIME**
PE to DLE	DLE – provides detailed review and audit of ATM. Notifies PE of any deficiencies and of any corrections needed.	Projects < $2,000,000 10 working days
		Projects ≥ $2,000,000 20 Working Days
DLE to PE	PE – provides corrections or additional documentation.	5 Working Days
PE to DLE	DLE – confirms corrections, approves, signs.	Without Delay
PE to AE	AE – reviews the ATM, the disposition of failing results, and the errors and omission report. AE spot-checks the submittals. AE resolves any remaining discrepancies.	2 Working Days
AE to PE	PE – includes with the Final Estimate, which later goes to the Construction Audit Section	

INTERIM ATM REVIEW — For projects of long duration, the Project Engineer and/or District Laboratory Engineer may find it advantageous to have interim ATM reviews. A review of smaller parts, (when all sampling and testing is completed for a few contract items, or at 6 month intervals) will prevent the final submittal from being too cumbersome.

4. OTHER ISSUANCES AFFECTED: This directive supersedes EDSM No. III.5.1.2, dated July 1, 1992. All other directives, memoranda, or instructions issued heretofore in conflict with this directive are hereby rescinded.

5. EFFECTIVE DATE: This policy will become effective upon signature of the Chief Engineer.

Christopher P. Knotts, P.E.
Chief Engineer