

Documentation for SiteManager / LIMS – Project Materials to Final Materials – 18

Notice of Future Action: A CDOT Materials Bulletin will be issued with the approved text and placement location of changes to this FMM Materials Documentation chapter. Digital forms and signatures created in accordance with Procedural Directive 21.1 will be accepted on all forms to be stored with CDOT electronic project files. All project forms for retention in the electronic project files shall incorporate the file location attributes in accordance with Procedural Directive 21.1.

1. SCOPE

The intent of this chapter is to provide the Region personnel guidance on materials documentation from the beginning of a project to the closure of the project files when using SiteManager® Materials and the Laboratory Information Management System (SMM/LIMS). The materials documentation on a project needs to be accurate, complete, and processed within the official established timeframe after the issuance of the project's Final Acceptance Letter per Section 105.21(b). The Department has stipulated that the Final Material Documentation and Checklist Report (Form 473) located on the CDOT Forms website, will be signed by the Region Independent Assurance representative, Region Materials Engineer, Project Engineer, Project Tester, and the Resident Engineer within 30 calendar days of the project's acceptance to ensure that the quality of the project is maintained to avoid legal and contractual conflicts.

2. GENERAL REQUIREMENTS

The procedures referenced are to be followed as indicated for CDOT projects that use electronic documentation. The materials documentation procedure begins at the Materials and Geotechnical Branch in the Documentation Unit with the creation of the Materials Documentation Records, CAR (CDOT

Application for Reporting) Reports. These reports are as follows:

- CODE – Project Material Items Report
- Checklist – Owner Acceptance Sampling & Testing Checklist
- Checklist – Certification Checklist Report

The Region Materials Laboratory will review and edit the:

- Independent Assurance Sampling & Testing Checklist (Form 379)

Materials Documentation records are to be prepared and reviewed as found in this chapter. Details on documentation procedures for project items are contained in the applicable sections of this manual, and they cover most situations encountered, but exceptions may require special attention.

3. CDOT PROJECTS – RESPONSIBILITIES & PROCEDURES

The Project Engineer, as the representative of the Chief Engineer, is responsible for the materials documentation on a project. The Project Engineer shall take measures to ensure that the documentation procedures of the Department and the Region are followed. All referenced documentation activities within Sections 3.1, 3.2, and 3.3 of this chapter, are the responsibility of the Project Engineer or their designee.

3.1 BEFORE CONSTRUCTION

NOTE: Verify that the project materials tester assigned to the project has attended the CDOT SiteManager® Materials/LIMS Training class.

Access Request Form (ARF):

Consultants shall use the Non-Project Specific (NPS) contract and end date when submitting the (ARF).

Determining if an ARF is necessary. Verify the end date that was documented on the previous ARF submitted by the consultant. If the end date of the previously submitted ARF will expire before the end date of this project Task Order, a new ARF must be submitted. However, if this project Task Order will expire before the end date on the previously submitted ARF, it is not necessary to submit a new ARF for this project. Access to CDOT's applications is based on the end date in the system for the consultant, not on a per project basis. Consultants shall use the NPS Contract for their company when submitting the ARF. If a new ARF is not necessary, obtain contract authority from the Finals Administrator for the consultant. If a new ARF is submitted, and the consultant is an existing Site Manager user, Contract authority can be granted at any time by the Finals Administrator. If the consultant is a new user to Site Manager, contract authority cannot be given until the consultant has been granted access from OIT. Allow a minimum of 20 business days for access to be granted. Once notice has been received that access has been granted the Project Engineer must contact the Region Finals Administrator requesting project personnel be given Contract Authority for the project.

1. Review the Project Plans, Project Special Provisions, and Standard Special Provisions to become familiar with any modified materials and testing procedures.
2. Review the Owner Acceptance Sampling & Testing Checklist and Certification Checklist Reports to ensure that sampling frequencies, material codes, and tests represented by each item match the Project Special Provisions and the Field Materials Manual. Any deficiencies or errors must be documented and reported by e-mail to the Pavement Design Unit at North Holly to have corrections made. The Project Engineer shall be aware of the types of tests required and the frequencies of each test that the project Owner Acceptance testers will be performing.
3. The Region Materials Engineer or their designee will notify the Project Engineer that the Independent Assurance Sampling & Testing Checklist (Form 379) has been reviewed and is available in CAR. The Project Engineer shall be

aware of the type of tests and frequencies of these tests that the Independent Assurance (IA) tester is required to performed. It is the Project Engineer's or their designee's responsibility to notify the Region Material Engineer's Independent Assurance technician of upcoming materials that will require Independent Assurance sampling and testing.

4. Project Tester shall setup the Project Material documentation for the project. Follow the format in Organizational Guide for Project Material documentation in Section 8.0.
5. Materials books can be electronic under the following conditions.
6. All project documentation pertinent to each sample record shall be uploaded into the attachment icon for the record. Copies shall be kept on file until the project has been accepted by CDOT as complete and final. These documents shall be stored on the project computer and a backup on a flash drive that will be submitted with the final documentation package. Hard copies are not necessary.
7. All forms that are available on the CDOT website forms library as fillable electronically are not required to be printed and place in a material book, but shall be uploaded into the record's attachment icon. Samples submitted to the Central Laboratory do not require a hard copy of the form to be submitted with the sample if an email is shown on the form for the lab unit the sample is submitted to. Email the completed form to the appropriate lab's email.
8. Any forms not available as electronically fillable that are hand written shall be scanned and uploaded into the attachment icon for each record.
9. Review the chapter in the Field Materials Manual - Special Notice to Contractors. Alert the contractor to the requirements of this chapter and the materials that will require the submittal of a Contractor's APL-QML Verification. Ensure the contractor is aware of the items that will require submittals for Certificate of Compliance (COC) or Certified Test

- Report (CTR). Do not use the CDOT Form 211 for this request.
10. Contractor shall submit at the Preconstruction meeting a list of proposed materials and the manufacturer of each material. Project personnel must evaluate that the proposed materials are on the CDOT's Approved Products List (APL) or Qualified Manufacturer List (QML) for applicable items, Per CP 11. CDOT's Approved Products List can be found at the site below.
<https://www.codot.gov/business/apl>
 11. Materials supplied to the project that are not required to be selected from the CDOT's APL or QML, the Project tester will need to confirm that the Producer/Supplier (P/S) of the materials are in SiteManager® (SM) within the Producer/Supplier list. The material codes for the materials they produce must be associated to that P/S. For any P/S and associated material codes that are not in SM, use the form "Add Producer/Supplier/Material Code" found at the link below, under the tab "Hints, Guides, and Links", and submit the completed form to the Region Materials Lab Manager or the Pavement Design Group at Central Lab-North Holly. Contact information can be found in "Contacts" at the link below. Downloading documents from this site to your computer is recommended.
<https://sites.google.com/a/state.co.us/sitemanager-materials/>
 12. Develop Random Sample Schedules as per CP 75 for each item requiring random sampling.
 13. Obtain from the contractor, any proposed concrete mix designs to be used on the project. Submit all required documentation for mix design approval with a completed CDOT Form 1188 to the Concrete Unit at North Holly. Obtain the most recent CDOT Form 1188 at:
<https://www.codot.gov/library/forms>.
Electronic submittal of documents is recommended.
 14. Determine the requirement of aggregate samples needing to be submitted for Asphalt Job Mix Formula approval per CP 52. Contact the Region Materials Engineer to determine if sampling is necessary or if the materials have been recently tested for another project. For information to submit aggregate samples per CP 52, see the instructions – CP 52 Submittal Guide. This document can be found at:
<https://sites.google.com/a/state.co.us/sitemanager-materials/>
in the Hints, Guides, and Links tab.
 15. Attend pre-construction, pre-pave, pre-pour, scheduling, and Owner Acceptance (OA)/Process Control (PC) meetings.
 16. Coordinate with the Project Engineer, contractor, and PC technician to schedule a pre-testing meeting. Follow CP 16, Pre-Testing Meeting Agenda (CDOT Form #1322) if applicable.
 17. Check the CDOT Forms website to download the most recent revision of any forms to be used on the project. Forms previously serialized with pre-printed sequential numbering can be found on the CDOT Forms website. These forms will require the project to establish field sheet numbers unique to the project. The process will be a 10 digit field that starts with the five digits of the contract ID, not using the "C", followed by a "dash" followed by a 4 digit sequential numbers. Project shall develop a list of 4 digit sequential numbers. Careful documentation must be done to strike out numbers that have been used. Groups of numbers may be used for each item estimating the needed amount based on quantities. Instructions for the serialized form protocol is available in Appendix O.

3.2 DURING CONSTRUCTION

1. Sample and Test according to the Random Sample Schedule (CP 75) for each applicable item. Be aware of the frequencies of tests on the Owner Acceptance Sampling & Testing Checklist Report.
2. Communicate daily with Project Engineer and inspectors about placed quantities, activities, planned production, and material deliveries to insure inspection and testing frequencies are met.

3. Project Engineer shall communicate with all project personnel the field-adjusted quantities from Contract Modification Order (CMOs) and Minor Contract Revisions (MCRs).
4. When a CMO or MCR is approved and the Project Engineer has updated the items or quantities in SiteManager®, the CAR reports will automatically reflect the changes.
5. Alert the Region Material Engineer's IA technician that the revised quantities are now available on the CAR Report-Independent Assurance Sampling & Testing Checklist (Form 379).
6. Complete and file in the appropriate tabbed section all daily worksheets or CDOT Forms in the Project Materials Electronic Folder. Document Sample ID's on each worksheet and/or CDOT Forms to identify the record.
NOTE: Summary forms such as CDOT Form #6, #58, #69, #156, #212, #323 are not required.
7. Complete documentation daily in SiteManager® Materials for sample records and LIMS test data entries.
8. Complete CDOT Form 626 daily for each item's test results and obtain contractor's signature verifying that the contractor has been notified of all test results. Project Tester shall sign and date the form with the contractor. Original copy of signed form shall be given to the contractor, a copy shall be given to the Project Engineer, and a signed copy placed in the Project Materials electronic folder in the corresponding item tab. Incentive/disincentive reports can be substituted for the Form 626. The incentive/disincentive reports for HMA, SMA, and concrete paving should be sent to the project personnel and contractor daily. These reports may also serve as notification to the contractor of test results if sent by email. Results sent as an e-mail attachment may also be used to verify contractor was notified of test results.
9. For materials submitted to Central Lab at North Holly, and all Region Labs for testing, Sample ID's are required on forms and/or CDOT sample tag 633 or sample label 634. Tags and labels are

available at Central Lab, North Holly location. Most forms are available on the CDOT website as electronically fillable. Forms that were only available from the CDOT Bid Plans are on the CDOT website and can be downloaded for use. Some CDOT Forms have an email address listed for the different units within Central Lab. Use these emails to submit completed forms to these Units, and do not submit a hard copy with the sample. Forms may not be required to be completed and submitted for the sample. If CDOT Form 633 (Sample Tag) with a revision date of 5/17 is used, no forms will be required. If a Form #633 with a revision date of 4/14 is used then forms are required with the submitted sample. The Central Lab Unit emails are:
bit.lab@state.co.us
chem.lab@state.co.us
conc.lab@state.co.us
euro.lab@state.co.us
flex.lab@state.co.us
phpr.lab@state.co.us

NOTE: Samples submitted without a Sample ID will not be accepted nor will testing be started until a sample record is completed in SiteManager®.

10. Verify and file in the appropriate electronic section of the Certification Checklist folder, all Certificates of Compliance (COCs) or Certified Test Reports (CTRs) received for materials delivered. These documents are required with the delivery of the materials. Electronic copies of COC/CTRs must be uploaded to each sample record using the attachment icon. Copies of the electronic COC/CTR's shall be stored electronically on a flash drive to be submitted with the final documents. Hard copies of the COC/CTR's are not required for documentation. Any COC/CTR's and Contractor's APL-QML Verification submitted electronically by the contractor must have the required stamps and signatures.
11. **CDOT Form 157s are not required to be completed for COC/CTRs documentation.**
12. Inform the Region Materials Engineer's IA representative of upcoming materials to be sampled and tested per the CAR

- Independent Assurance Sampling & Testing Checklist (Form 379) at least three days prior to material placement.
13. Monitor the Owner Acceptance Sampling & Testing Checklist Report to ensure the testing frequencies are being met as material placement progresses.
 14. Monitor the CAR Report Summary of Samples – COC and CTR reports to track material quantities paid are matching quantities of documentation received from the contractor.
 15. Perform price adjustment calculations monthly prior to the cutoff date for the estimate in accordance with Sections 105.03 and 105.07 of the Standard Specifications. Verify price adjustments are reflected in the contract reports.
 16. As exceptions to the Specifications occur, document each occurrence to facilitate the completion of CDOT Form 473 Explanation of Exceptions page 2 at the closure of the project.
 17. In LIMS, enter test results as soon as they become available.
 18. Review the CAR reports, Asphalt Quality Report & Concrete Quality Report, daily to ensure the reports accurately reflect the sample records created in SMM and that the results input into LIMS appear on the report. For instructions to complete the sample records correctly utilize Addendum 1 on pages 19-22 of this chapter. The CAR reports replace Asphalt 03, Voids 03, and Concrete 03. These programs are no longer available after June 30th of 2017 due to software upgrades. If at the time of this 2018 FMM the CAR report, Concrete Quality Report, is not available in CAR then utilize Addendum 2 on pages 23-24 of this chapter for instructions on how to download the program from the website.
 19. Complete review of results to ensure accuracy of test results, and sample review as soon as possible to keep the Owner Acceptance Sampling & Testing Checklist Report up to date. Use CAR “Summary of Samples Report” -COC, to track samples created, quantities, attachments, and sample status. Use CAR “Summary of Samples Report” -CTR to track samples created, quantities, attachments, and sample status. These

reports will update when data is changed and saved in Site Manager. Use CAR reports, Summary of Samples to track samples that are incomplete. The Summary of Samples – COC and CTR reports can be used to track quantities of materials delivered and documented by the OA tester. COC and CTR records can be left in the LIMS queue of Review Tests or Review Sample so as to keep the record available to upload more documents of shipments that are delivered to the project. Keep the quantity cell updated with the total quantities verified on the attached COC/CTR's.

20. Participate in weekly material testing and scheduling meetings to be up to date on project materials incorporation and deliveries.

3.3 After Construction

NOTE: Project Owner Acceptance personnel are to review the materials documentation 100% at this time.

1. In each electronic item tab, arrange the completed and signed CDOT Form 626s first (if applicable), sort and arrange all documents within the item sequentially by date (beginning with the first test number, ending with the last test number). Naming forms by date can facilitate the order.
2. Verify with the Project Engineer that the last progress estimate has been completed and authorized for payment. This ensures the quantities shown on the Owner Acceptance Sampling & Testing Checklist Report are accurate.
3. Verify on the Owner Acceptance Sampling & Testing Checklist Report, that there are no incomplete tests by ensuring that the Sampled Tests to Date column is equal to the Completed Tests to Date column. Discrepancies must be reconciled by either completing the sample record or voiding it.
4. Verify that the minimum sampling and testing requirements have been met by checking the Completed Total Tests to Date column is equal to or greater than the Required Total Tests to Date column. After reconciling the columns the Owner Acceptance Sampling & Testing

- Checklist Report shall be printed for final documentation. This report must be signed and stamped by the consultant company's Professional Engineer if the project was consultant tested. When the project is tested by CDOT personnel the Project Engineer does not need to sign the report.
5. Deficiencies are required to be explained on the CDOT Form 473 Page 2- Explanation of Exceptions.
 6. Verify the Completed Tests to Date for each test method equals the number of tests shown on the incentive/disincentive report for asphalt paving items and concrete paving items, if applicable.
 7. Verify the quantity for each element in the incentive/disincentive report, matches the quantity for the item on the Owner Acceptance Sampling & Testing Checklist Report.
 8. Notify Staff Materials Pavement Design OA/PC Program Manager and the Region Materials Engineer that the incentive/disincentive for asphalt paving items for the project is complete and available in CAR. Print a copy of the Final QPM report from CAR for the Final Documentation Project Book and obtain required signatures.
 9. Check all inputs to Concrete 03 and the F-test and t-test documents for accuracy. If the CAR QPM for concrete paving is used by the project, check the report according to Section 3.3.6 and 3.3.7
 10. If CAR QPM for concrete paving is utilized by the project, notify the OA/PC manager that the report is complete and available in CAR. Concrete 03 and F-test and t-test documents must have the data files sent to Staff Materials Pavement Design OA/PC Program Manager and the Region Materials Engineer. All QPM's must be the "Final Report". This ensures that all element quantities reconcile. Print a copy of these reports for the Final Documentation Material Book, and obtain required signatures. Personnel Roster is available at: <https://sites.google.com/a/state.co.us/sit emanager-materials/> under the Contacts tab.
 11. Copies of the notification emails sent and acknowledgement from the recipient, OA/PC manager is required for the Final Documentation Material Book to verify the QPM data has been sent and received, or notification was received that the QPM CAR Report is complete.
 12. Verify COCs and CTRs have been received by ensuring Certs Received to Date column on the CAR Certification Checklist, has a 1 or greater value, for any item showing a quantity paid. Verify Summary of Sample – COC and CTR records have the required attachment noted by showing an asterisk for each sample record. Verify the quantity shown on the report reconciles with the quantity paid, if not an explanation of missing COC/CTR's shall be in the Letter of Exceptions. Items with a zero quantity, no explanation required. Missing COC/CTR's must be documented on page 2 of the Form 473.
 13. Export and save the CAR Report - Summary of Samples – COC and CTR, and QA reports to the project flash drive for availability to the checker for the final documentation review.
 14. Pre-inspected items shall have CDOT Form #193, if applicable. This document shall be in the attachment icon for the item.
 15. Check all Price Reductions and the supporting documents.
 16. Collect the contractor's PC notebook for HMA, SMA, PCCP, and Excavation & Embankment per the requirements of CP12A, 12B, 12C respectively.
 17. Check the CAR report – Summary of Samples – ALL, to verify that all samples show a status of "Complete". Any sample records that do not have a complete status must be dealt with by either voiding or completing.
 18. Transfer all files from the materials folder on the computer to the Project flash drive. This shall include COC/CTR's, all documents supporting the Owner Acceptance Sampling & Testing Checklist, all final documentation with supporting documents, CAR reports - Summary of Samples. These shall be identified by COC, CTR, IAT, and QA reports. This flash drive is the project material documentation.

19. Create a hard copy book for Final Documentation. This is the only hard copy materials required.

3.3.1 CDOT Form 473 page 2, Explanation of Exception for CAR report: Owner Acceptance Sampling & Testing Checklist Report.

1. Document the date on page 2 of the CDOT Form 473 that the final documentation is complete. This date shall be the same date that appears on the final copy of the Owner Acceptance Sampling & Testing Checklist. Obtain Project Acceptance letter from the Project Engineer for documentation on page 2 of the 473. See example on page 18 of this chapter.
2. Reference type of tests not used on the Owner Acceptance Sampling & Testing Checklist due to alternative methods completed.
3. Verify and document all shortages of required tests as indicated on the Owner Acceptance Sampling & Testing Checklist Report.
4. Explain quantities and incentive/disincentive dollars applied per the QPM reports.
5. For items that show a Zero Total Quantity Installed, no explanation is required as this indicates no material was installed on the project. Attach supporting documentation for items that have been deleted. If items deleted have been documented on a CDOT Form 105, this document can be submitted to the Pavement Design Unit to have these items deleted from the CAR reports. Attach the Form 105 to the Form 473 page 2 as supporting documentation for the deleted items.
6. Explain and attach supporting documents for material with Percent of reduction in contract price (P) less than 3.
7. Explain and attach supporting documents for material with price reduction (P) greater than or equal to 3.
8. Explain and document all material repaired or replaced for (P) greater than 25.

NOTE: Reference to (P) values are addressed in Standard Specifications, Section 105.03.

3.3.2 CDOT Form 473 page 2, Explanation of Exception for CAR report: Certification Checklist Report.

1. Verify and document all missing COCs and CTRs as indicated on the Certification Checklist and deficiencies in quantities that are shown on the CAR report Summary of Samples – COC and CTR reports.
2. Verify the required stamps are applied to the COC/CTRs and Contractor's APL-QML Verification (See FMM chapter - Contractor's, Special Notice for more information) and that the required information is complete on each stamp.
3. For COC/CTRs received, sample record in SiteManager® must have the documents uploaded through the attachment icon. Verify that the attachment was accepted by checking the Summary of Sample – COC or CTR Report. An asterisk will be shown if an attachment was saved.
4. For items that show a Zero Total Quantity Installed, no explanation is required as this indicates no material was installed on the project. Attach supporting documentation for items that have been deleted.

4. Independent Assurance Sampling & Testing Checklist

1. The Region's Independent Assurance (IA) representative shall initiate the, Final Material Documentation Checklist (Form 473) page 1, by completing the top portion, signing the form, and obtaining the Region Materials Engineer signature. This form is available on the CDOT website under the Forms catalog.
2. The Region's IA representative will send the completed packet for Independent Assurance testing to the project personnel. This packet will contain the Final Materials Documentation (Form 473) page 1 and CAR report Independent Assurance Sampling & Testing Checklist. The form 473 shall be electronically completed and signed, and emailed to the Project Engineer for completion. The Independent Assurance Sampling & Testing Checklist, supporting

documentation, and page 2 of the Form 473, Explanation of Exceptions, if applicable for IA testing shall be part of the submittal.

3. The Region's IA representative is responsible for documenting any deficiencies with the CAR Independent Assurance Sampling & Testing Checklist Report on the Form 473, page 2.
4. Ensure that differences between Independent Assurance tests results and Owner Acceptance test results if any, are explained.
5. Project personnel and the Resident Engineer's signature is required to complete CAR 473. Instructions for completing the form can be found at: <https://sites.google.com/a/state.co.us/site/manager-materials/>, under the Hints, Guides, and Links tab. The completed form must be part of the final documentation for the project.

5. Independent Review Requirements for Final Materials Documentation Completion

The Region Finals Materials Documentation Coordinator in cooperation with each Resident Engineer will distribute the Materials Documentation to the Region Finals Administrator for review upon receiving the last Progress Estimate. This review provides a greater degree of independence and critical evaluation. The Finals Administrator or their designee will check the following items.

1. Verify on the Owner Acceptance Sampling & Testing Checklist that the number of tests shown under Required Total Tests to Date column has been met or exceeded in Completed Total Tests to Date.
2. Verify Sampled Total Test to Date column and Completed Total Test to Date column, match on the entire document. If any discrepancies are found between these two columns, the tester must be notified to reconcile the columns and the final should not be considered complete until the issue is resolved. Verify that all samples records created for the project have a status of Complete by reviewing the CAR report Summary of Samples – All report. This can be done in CAR or viewing the document of

by checking the reports on the flash drive submitted for project documentation.

3. Verify that all required Certificates of Compliance (COCs) or Certified Test Reports (CTRs) have been received by reviewing the Certification Checklist Report. Certs Received to Date column must show a minimum of one for any item that has an amount shown in Total Installed Quantity for the item. Deficiencies must be explained on CDOT Form 473 page 2.
4. Project Testers are required to upload COC/CTRs containing the contractors stamp (and other required documentation per the FMM chapter - Contractors, Special Notice and the Standards Specification Sections 106.12 and 106.13), into the attachment icon in SiteManager®. Using the CAR report - Summary of Samples – COC and CTR, perform random checks in SiteManager® ensuring the documents are viewable in the attachment icon and that an asterisk is shown for every sample record for COC and CTR on the CAR report Summary of Samples – COC and CTR reports.
5. Verify on the Independent Assurance Sampling Checklist - Completed Tests to Date column, the required number of tests are completed. Ensure any deficiencies of tests are documented on the CDOT Form 473 page 2.
6. Differences between the IA and OA test results must be explained on CDOT Form 473 page 2 if applicable.
7. Verify the CDOT Form 473, - Final Material Documentation and Checklist has been completed and all required signatures are present.
8. Verify pre-inspected items have a CDOT Form #193, when applicable.
9. Check explanations and calculations for material accepted at full price, material with price reductions, and material removed and replaced.
NOTE: Reference to P is addressed in Standard Specifications, Section 105.03.
10. Verify the number of each test type completed on the Owner Acceptance Sampling & Testing Checklist, Completed Test to Date column, matches the number of tests shown on the incentive/disincentive report for asphalt and concrete paving items, if applicable.

11. Verify the quantity for each element in the incentive/disincentive report matches the quantity for the item on the Owner Acceptance Sampling & Testing Checklist Report. Check all items that apply to the element for total quantity paid. This includes asphalt and concrete paving items.
12. Verify the incentive/disincentive payment is correct on the last progress estimate.
13. Verify that the documents for incentive/disincentive have been submitted to the Region Materials Engineer and Staff Materials Pavement Design Program OA/PC Manager by e-mail receipt on file.
14. CDOT Form #1324 must be completed and on file with Region Materials Engineer signature as per CP16, if applicable. A copy must be in the Final Documentation packet.
15. As part of the final Progress Estimate, the Project Engineer has included all the documentary evidence needed to show that the contractor has complied with the requirements of the Contract Plans and Specifications for all materials used in accordance with the CDOT Field Materials Manual - Quality Assurance Procedures for Construction and Materials Sampling and Testing chapter (Owner Acceptance Frequency Guide Schedule for Minimum Materials Sampling, Testing, and Inspection). The Region Finals Administrator is responsible for the development and signature of CDOT Form #325, Final Estimate Data, page 1 and 2, and the distribution per Table 1, and shall be included in this process.

If the existence of discrepancies or unresolved differences remains, a meeting will be scheduled

with the Finals Administrator, Resident Engineer, and Project Engineer to resolve the issues.

The completion of the Final Materials Documentation and Checklist (Form 473) page 1 and 2, is required within 30 calendar days after the final acceptance of the project in order to achieve a timely closure. All signatures must be completed on page 1, Form 473. Page 2, shall be the final version with updates made as missing item documentation is completed. Page 1 and 2 of the 473 is a requirement for the closure of each project.

6.0 CDOT Form #211-Completion Instructions (Materials Documentation Request)

The Final Materials Documentation Project Closeout and the Final Materials Documentation Review or Audit activities will discover that occasionally required documents will be missing. Individuals performing the closeout, review, or audit should use this form or comparable e-mails to allow for a paper trail in the effort to obtain the missing documents. The original project personnel may have misplaced or lost a field materials worksheet or report. The contractor may have not forwarded required COCs and CTRs. Time is critical, indicate a due date and follow through immediately if that date has passed. If e-mail queries are being used, write in the "Subject", CDOT Materials Documentation Request or CDOT Form #211. Attach the resolution Form #211s or e-mails to the Final Materials Documentation and Checklist Report.

7.0 Distribution of Materials Documentation

Table 1. Documentation Distribution

CDOT SiteManager® Project Final Materials Documentation Packet

Documentation Order	Form / Report	Distribution					
		#1	#2	#3	#4	#5	#6
Final Materials Documentation and Checklist	Form 473 page 1	Orig.	Copy	Copy	Copy		Copy
Explanation of Exceptions with supporting documentation (letters, CMOs, MCRs, Buy America, etc.)	Form 473 page 2	Orig.	Copy	Copy	Copy		Copy
CAR Report- Owner Acceptance Sampling & Testing Checklist	Form 250	Orig.	Email		Email		Copy
CAR Report- Certification Checklist	-	Orig.	Email		Email		Copy
CAR Report- Independent Assurance Sampling & Testing Checklist with supporting documentation	Form 379	Orig.	Email	Copy	Email		Copy
Random Sampling Schedules	-	Orig.					
Price Reduction Documentation	-	Orig.					
CAR QPM Incentive/Disincentive documents	CAR Report if available	Orig.	Copy			Email	
PC Data and/or test results notebook		Binder*					
Evaluation of Materials Testing (Consultant tested)	Form 1324 (CP 16)	Orig.	Copy.		Copy		
Note: Orig. = original with signature Copy = copy with signature Copy* obtain copy of binder from QC company Email = notify by email CAR Reports are Complete							

Distribution

- #1 Resident/Project Engineer Files
- #2 Region Materials Engineer/Region Finals administrator
- #3 FHWA (Oversite Projects)
- #4 Staff Materials Pavement Design Unit (Documentation)
- #5 Staff Materials Pavement Design Unit OA/PC Manager
- #6 Records Center

8.0 ORGANIZATIONAL GUIDE FOR PROJECT MATERIALS Electronic Folder

SCOPE

The Field Materials Manual includes the “OA Frequency Guide Schedule for Minimum Sampling, Testing, and Inspection”. This is the essential document to use when determining which CDOT Forms, worksheets, COCs, CTRs, and miscellaneous documents are required.

Utilize this Organizational Guide for Project Materials Electronic Folder to initially develop the folder and subfolders per the sections for the Owner Acceptance Sampling & Testing Checklist Report and Certification Checklist Report folder. Follow the Item numbering sequential order on each report to develop the order of each sub-folder.

The Project Materials Electronic Folder shall contain main folders that represent Item Numbers, with subfolders representing materials within the item. Documents shall be arranged in order of tests numbers or documents, oldest to newest (1, 2, 3, 4, etc.) or dates.

Summary of Samples – COC, CTR, IAT, and QA reports, 1 copy of the final reports is to be placed within the flash drive files.

Final Materials Binder:

- CDOT Form - Final Materials Documentation and Checklist, Page 1 and Page 2
- CAR Report – Owner Acceptance Sampling & Testing Checklist
- CAR Report - Certification Checklist
- CAR Report - Independent Assurance Sampling & Testing Checklist and supporting documentation
- CAR Report - Summary of Samples- COC, CTR, IAT and QA final reports
- Random Sampling Schedules (copy - original to remain in item number tab)
- Price Reductions - if applicable
- QPM Data reports (copy - original to remain in item number folder)
- CDOT Form #1324, Evaluation of Materials Testing (CP 16) if applicable

CAR Owner Acceptance Sampling & Testing Checklist

Create the Project Materials electronic folder in the order they appear on the Owner Acceptance Sampling & Testing Checklist.

Within each folder, place field worksheets in numerical order starting with test #1. Place CDOT Forms pertaining to the item, Mix Designs, QPM's, Price Reductions, Random Schedules, and supporting documentation as necessary to complete the item.

CAR Certification Checklist Book

Create the Certification Checklist electronic sub-folders in the order they appear on the CAR Report - Certification Checklist.

Behind each sub-folder, place the documentation received from the contractor for that item. CDOT Form 157s **are not** required to be completed for COC/CTR documentation. The documentation received from the contractor must meet the requirements of Section 106.12 and 106.13 of the Standard Specifications for Road and Bridge Construction. Determine required documentation from the Field Materials Manual, OA Frequency Guide Schedule for Minimum Materials Sampling, Testing and Inspection, and the "Special Notice to Contractors" chapters. Each COC or CTR received must be uploaded into the attachment icon on each sample record in SiteManager® for the quantity and material the COC/CTR covers.

For materials from the APL or the QML that the contractor is electing to use on the project, it is recommended that the SiteManager® record be developed as soon as possible, due to the fact materials may expire from these lists at any time. Creating the record when the documentation is received ensures the record reflects the material appears on the corresponding lists at the time of approval.

NOTE 1: "Special Notice to Contractors" chapter shall be used to determine the requirements of the Contractor's APL – QML Verification document to notify the project personnel of materials to be used on the project from the CDOT Approved Products Lists (APL) or the CDOT Qualified Manufacturers List (QML).

ATTENTION!

Referenced CDOT Materials Forms, except those indicated as "computer output", have been revised in 2017. All of these forms state: *Previous editions are obsolete and may not be used.* The use of Materials Forms older than what is indicated in Appendix O of the FMM is not authorized.

The examples of completed forms is ongoing as some will show examples and some will not.

COLORADO DEPARTMENT OF TRANSPORTATION MATERIALS DOCUMENTATION REQUEST	Project No. FBR 0404 050	Project Code (SA#) C18180
	Region 1	Date 03/17/2015
	Proj. location US 40 Over Sand Creek	

To: Scott Kraft Address: R1-Centennial S Engr
7328 South Revere Parkway
Centennial, CO 80112

Upon reviewing the above project for Materials Certification purposes, during the Finals Materials Documentation Checking Procedure, the following items were found to have shortages in materials documentation. Please review these shortages and reply by 08/01/2016.
 Please return the original Form #211, for tracking purposes, with the missing documentation by 08/15/2016.

Item	Description	Materials documentation needed	Date received
206	Structure Backfill Class 1)	Explain no testing completed for CP80aa Explain shortages to T89 and T90	
403	Hot Mix Asphalt (Grading S) (100) (PG 64-22)	Explain shortages to CP48aa, CPL5112, CPL5114, and CPL5115	
601	Concrete Class D (Bridge)	Explain shortages to C39-28	
403	Hot Mix Asphalt (Grading S) (100) (PG 64-22)	Missing COC's for PG64-22	
412	Concrete Pavement (6 Inch)	Missing COC for Epoxy Coating, Tie Bar, for Line Item 0325 and 0330	
602	Reinforcing Steel	Missing COC for Steel, Reinforcing	
608	Concrete Curb Ramp	Missing COC for ADA Truncated Dome	

Signed Denny Maurer	Title EPST III, Materials	Date 07/25/2016
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- Distribution:**
- Resident Engineer
 - Project Engineer
 - Project Tester
 - Materials Project Files

CDOT Form #211 3/04

COLORADO DEPARTMENT OF TRANSPORTATION		Contract No. IM0761-208	Region 6	Contract ID C18025
QUALITY ASSURANCE		Contract Location I-76 FROM FEDERAL TO I-25		
SAMPLING CHECKLIST		Contractor BRANNAN SAND AND GRAVEL, LLC	Award Date 04/19/2012	Field Materials Manual Year 2012

SM Report 250 Revision Date 08/04/2014 Production Page 1 of 22
 *r Refer to Frequency Guide Schedule for further instructions. Date Printed 5/6/2015

Project	Item Code	Item Description	Material Unit	Conversion Factor	Item Unit	Quantity Reported to Date	Quantity Authorized to Date	Total Installed Quantity				
Matl Code	Material Description	Test Description	Sample Type	Rate / Frequency	Line Item No.	Plan + CO Qty	Estimated Required Tests	Required Tests to Date	Sampled Tests to Date	Estimated Tests Remaining	Completed Tests to Date	Tests (-) to Date
						Total Plan + CO Quantity	Estimated Total Tests	Required Total Tests to Date	Sampled Total Tests to Date	Estimated Total Tests Remaining	Completed Total Tests to Date	Tests (-) to Date
18025-BID	I-76 FEDERAL TO I-25	Number of tests on this row based on summed quantity:										
203-00060	Embankment Material (Complete In Place)		CY	1.0000								
203.03.01.01	Embankment, Soil		CY									
CP21	CP21 Mechanical Analysis of Soils		QA	yr	0540	250.00	1	1	0	1	0	-1
CP23	CP23 Max Dry Density & Opt Moisture of Soil-Rock Mixture		QA	yr	0540	250.00	1	1	0	1	0	-1
CP25	CP25 % Relative Compaction of Soils & Soil-Rock Mixtures		QA	yr	0540	250.00	1	1	1	0	1	0
CP80	In-Place Dens - Moisture of Soil - Soil-Agg; Nuclear Method		QA	1/2000	0540	250.00	1	1	0	1	0	-1
CPL3101	R-Value & Expansion Pressure of Soils or Agg.; Hvemr Stab.		QA	yr	0540	250.00	1	1	0	1	0	-1

COLORADO DEPARTMENT OF TRANSPORTATION		Contract No. IM0761-208	Region 6	Contract ID C18025
Certification Checklist		Contract Location I-76 FROM FEDERAL TO I-25	Award Date 04/19/2012	Ad Date 03/01/2012
		Contractor BRANNAN SAND AND GRAVEL, LLC		Field Materials Manual Year 2012

SM Report CERT Revision Date: 03/6/2015
 ** Refer to Frequency Guide Schedule for further instructions.
 18025-BID I-76 FEDERAL TO I-25

Project	Item Code	Item Description	Material Unit	Conversion Factor	Total Plan + CO Quantity	Quantity Reported to Date	Total Installed Quantity	Req'd Number of Certs	Certs Received to Date	Certs (+/-) to Date
18025-BID	207-00205	Topsoil	CY	1.0000	600.00	325.00	325.00			
	207.02.01.00	Topsoil	CERT							
18025-BID	208-00034	Gravel Bag	COC	1*	0035			1	0	1
	208.02.19.00	Erosion Control, Gravel Bag, Fabric	LF	1.0000	250.00	88.00	88.00			
18025-BID	208-00052	Storm Drain Inlet Protection (Type 2)	COC	1*	0040			1	0	1
	208.02.08.01	Erosion Control, Storm Drain Inlet Protection	EACH		100.00	0.00	0.00			
18025-BID	210-01130	Reset Guardrail Type 3	COC	1*	0050			1	0	1
	710.05.01.00	Guardrail, W Beam Rail, Galvanized	LF	1.0000	25.00	0.00	0.00			
18025-BID	212-00006	Seeding (Native)	COC	1*	0320			1	0	1
	212.06.01.00	Seed, Native	ACRE	1.0000	2.00	1.80	1.80			
18025-BID	212-00032	Soil Conditioning	COC	1*	0075			1	0	1
	212.02.02.00	Soil Conditioning	ACRE	1.0000	2.00	1.80	1.80			
18025-BID	216-00201	Soil Retention Blanket (Straw-Coconut) (Biodegradable Cl	COC	1*	0080			1	0	1
			SY		6833.00	6100.00	6100.00			

COLORADO DEPARTMENT OF TRANSPORTATION INDEPENDENT ASSURANCE SAMPLING CHECKLIST	Contract No. IM0761-208 Contract Location I-76 FROM FEDERAL TO I-25 Contractor BRANNAN SAND AND GRAVEL, LLC Award Date 04/19/2012 Ad Date 03/01/2012 Field Materials Manual Year 2012	Region 6 Contract ID C18025
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SM Report 379 Revision Date 08/04/2014 Production Date Printed 5/6/2015
 *F Refer to Frequency Guide Schedule for further instructions.

Project	Item Code	Item Description	Material Unit	Conversion Factor	Item Unit	Quantity Reported to Date	Quantity Authorized to Date	Total Installed Quantity
Mat Code	Material Description	Test Description	Sample Type	Rate / Frequency	Line Item No.	Required Tests to Date	Sampled Tests to Date	Completed Tests to Date
				Plan + CO Qty		Required Total Tests to Date	Sampled Total Tests to Date	Completed Total Tests to Date
				Total Plan + CO Quantity		Estimated Total Tests to Date	Estimated Total Tests Remaining	Estimated Total Tests Remaining
18025-BID	I-76:FEDERAL TO I-25	Number of tests on this row based on summed quantity:						
18025-BID	203-00060	Embankment Material (Complete In Place)	CY	1.0000		0.00	0.00	0.00
	203.03.01.01	Embankment, Soil						
	CP80	In-Place Dens - Moisture of Soil - Soil-Agg; Nuclear Method	IAT	1/100000	0540	1	0	0
				250.00		1	0	0
				250.00		1	0	0
				1.0000				
	203.03.01.02	Embankment, Rock	CY					
	CP80	In-Place Dens - Moisture of Soil - Soil-Agg; Nuclear Method	IAT	1/100000	0540	1	0	0
				250.00		1	0	0
				250.00		1	0	0
18025-BID	304-06007	Aggregate Base Course (Class 6)	TON			84.00	84.00	84.00
	703.03.06.00	Aggregate Base Course Class 6						
	CP31	CF31 Sieve Analysis of Aggregates	IAT	1/10000	0101	1	0	0
				110.00		1	0	0
				110.00		1	0	0

COLORADO DEPARTMENT OF TRANSPORTATION		Project No.	Contract ID
Final Materials Documentation and Checklist		Region	Location
<p>Tester - Ensure deficient tests on O/A Sampling & Testing Checklist and Certification Checklist are explained on the Form 43 page 2 (attached). Project Engineer - Ensure the following: O/A Sampling & Testing Checklist, Certification Checklist and IA Checklist have met the minimum required testing. Form 473 page 2, Buy American summaries, Pavement Structural Design Data is complete. Checker - Ensure the O/A Sampling Checklist, Certification Checklist, IA Checklist and all documentation is complete. Check for COMP status on Summary of Samples report. Verify Form 473 page 2 is complete and that deficiencies are explained.</p> <p>The Independent Assurance Sampling Schedule for this project has been substantially followed and the test results of the IA samples are in reasonably close agreement with the project acceptance (QA) sample test results. Exceptions to this statement have been previously commented on and documented when the test results were reported or are explained on an attached sheet.</p> <p>Independent Assurance (IA) samples were tested with independent equipment unless noted in Explanation of Exceptions, see attached.</p>			
Method of Acceptance for Item 403: <input type="text" value="System"/>			
1) IA Summary Report (Form #379), attached with IA Explanation of Exceptions		<input type="text" value="Yes"/>	
Project Materials Lab Inspected by: <input type="text"/>		Date of Inspection: <input type="text"/>	
Final IA Review Region Materials Engineer <input type="text"/>		IA tester signature <input type="text"/>	
2) Explanation of Exceptions letter attached with supplemental documents as required.		<input type="text" value="Yes"/>	
3) Completed O/A and Certification Checklists attached.		<input type="text" value="Yes"/>	
4) Completed Random Sampling Schedules attached (all required elements)		<input type="text" value="Yes"/>	
5) Quality Control Notebooks for all items received and in Project Materials Documentation		<input type="text" value="Yes"/>	
6) Evaluation of Materials Testing, Form 1324 attached		<input type="text" value="Yes"/>	
7) Buy American monthly summary report attached		<input type="text" value="Yes"/>	
8) Project Engineer has verified Pavement Structural Design Data is completed		<input type="text" value="Yes"/>	
Project Acceptance Date: <input type="text"/>		Tester Signature <input type="text"/>	
Cross Checker, Region Finals Materials Documentation Coordinator or the Region Finals Administrator has verified items 1-9 have been properly documented <input type="text"/>			
<p>Explanation of Exceptions: Document all shortages of tests, missing COC/CTR's and explain all quality level incentives/disincentives. Document all price reduction and include supplemental documents as required.</p> <p>This is to Certify that: The results of the tests on the acceptance samples indicate that the material incorporated in the construction work, and the construction operations controlled by sampling and testing, were in conformity with the approved plans and specifications; and such results compare favorably with results of the Independent Assurance sampling and testing. This form is complete, includes all attachments, and has been reviewed and accepted.</p>			
Project Engineer: <input type="text"/>		Resident Engineer: <input type="text"/>	

COLORADO DEPARTMENT OF TRANSPORTATION LETTER OF FINAL MATERIALS CERTIFICATION EXPLANATION OF EXCEPTIONS	Project No. FBR 0404-050	Page 2 of 2
	Project Code (SA#) C18180	Acceptance date 07/15/2015
	Proj. location US 40 Over Sand Creek	
	Contractor Hamon Contractors	

(Attach to Form #473 Page 1)

As of August 23, 2015 Final Documentation is complete.

QUALITY ASSURANCE CHECKLIST:

Item 203 Embankment: Material was excavation only and disposed of offsite, no testing required.

Item 403 HMA SX (75):

(1) CP82 (2) tests completed representing 500 tons each.

(2) CP 81, 51 tests completed, representing 26,758 tons.

(3) CP44, 1 test completed to represent 500 tons. Test #23 completed using CP81 was 2V out, contractor elected to perform CP44 as allowed per specification.

Total tons: 31,758.

Incentive of \$35,562.

(4) Test Methods not needed: CP85, CP85C, used CPL5120 and CPL5120C.

Item 304 ABC CL6: No quantity paid, no test required.

Item 604 Inlet Type D (10ft): Precast, no concrete testing required. Backfill was tested (Structural Backfill CL 1 & 2).

CERTIFICATION CHECKLIST:

Item 214 Deciduous Tree: None placed on project, no COC required.

Item 604 Inlet Type D (10ft): Precast, no curing compound needed, no COC required for cure.

Item 627 Preformed Plastic Pavement Marking (Inlaid): No quantity paid, no COC required.

Jimmy Doe

Materials Manager - Denver Residency

Addendum 1

1.0 Asphalt Quality Level Report

Introduction:

The Quality Level Report will be used to replace both the Voids03 and the Asphalt03 programs. The report will generate by choosing the contract in CAR by clicking the “+” in front of the Contract ID, then choose either the Item Code or the report type of Interim or Final. It will be possible to run versions of the report in three ways:

- Item Code – shows the quality level, incentive or disincentive, for each asphalt item on the project.
- Interim – shows a preliminary report without checking for element totals to ensure the tons for each element match and will have all asphalt items in the report.
- Final – shows the final report and will check the element totals to ensure they match.

Like other CAR reports the data is pulled from SiteManager once the report title is clicked in the Trns*port folder. Error checking is included in the report to help show what data is missing. This may include not having a Quantity, Control Type, Control Number, Design Type, Mix ID or having incomplete data in a test template, etc.

Maintain Sample Information Window:

The report pulls data for all Quality Acceptance Testing samples on a project that have a 403.02.xx.xx material code. The following are also critical fields used by the report that must be correctly populated in SiteManager:

Basic Sample Data		Addtl Sample Data	Contract	Other	Tests
Smpl ID:	GOODSELM1655125717	Status:	Complete		
Revised By:		Revising:		Sample Date:	05/04/16
Link To:		Link From:		Log Date:	05/05/16
Smpl Type:	Quality Acceptance Testing	Acpt Meth:	Sample and Test		
Material:	403.02.01.08		Hot Mix Asphalt (SX)(75)		
Sampler:	ROOTR		Richard Root, R3		
P/S:	United Companies Of Mesa County		GEN100042		
Type:	General		City:	Grand Junction	
Prod Nm:					
Mnfctr:	United Companies Of Mesa County		GEN100042		
Town:			Geog Area:	Spaces	
Intd Use:					
Repr Qty:	1.000.000 Ton		Lab Control Number:	CNGOODSELM1655125717	
Auth By:	GOODSELM	Auth Date:	05/11/16	Lab Reference Number:	AC1

Sample Date: This field will default to the date the sample was created; however, it can be changed to any time before the sample creation date. **All samples should be created in the order they were obtained and tested.**

Smpl Type: The Quality Level Report picks up samples with a sample type of Quality Acceptance Testing and an Acpt Meth of Sample and Test.

Repr Qty: This field is used to calculate the quantity represented by the sample being entered. When populated to the report these quantities will be used for each process / mix design to obtain a total quantity for the element.

Process Type: This field is used to record what type of paving is being performed. Whether it be a normal Process, a Process Test Section (CTS or DCS) or a Pay Factor of 1 for Mat Density. A process is a group of like samples that are grouped together, a detailed definition can be found in Section 105.05 of the CDOT Standard Specification for Road and Bridge Construction. There are three types of processes that the report uses:

- Process Test Section: Using the CP 82 template from SiteManager which can use either 3 cores (Demonstration Control Strip) or 7 cores (Compaction Test Section). The percent compaction will be obtained from the Core % Compaction fields on the template. Nuclear density tests may or may not be used for this type of process.
- Pay Factor of 1: This process is used when the pay factor for the element should be set to one. This option should be chosen with paving a leveling course, a bond breaker, roller pass study, or for the Furnish Asphalt item.
- Process: This process will be used for day to day paving operations.

Cntrl Number: This field will identify the number of the process. There may be several different processes on a project which will require different combinations of processes and control numbers. For example, you may have Process Type: Process with Cntrl Number: 1 for a 4" bottom lift and a Process Type: Process with a Cntrl Number: 2 for a 2" top lift. There may be several test sections on a project and each should have a unique Cntrl Number.

Design Type: This field will be SUPERPAVE for asphalt paving.

Mix ID: This field is populated with the mix design that represents the material being tested. The mix design must also be approved for your project and the proper association made in SiteManager by the Region Lab Manager.

The screenshot shows a software window titled "Maintain Sample Information" with several tabs: "Basic Sample Data", "Addtl Sample Data", "Contract", "Other", and "Tests". The "Addtl Sample Data" tab is active. The form contains the following fields and values:

- Smpl ID:** GOODSELM1655125717
- Buy American:** Spaces
- Reqt By:** PROJECT
- Witnessed By:** ROOTR
- Smpl Size:** 1 Can
- Dist from Grade:** Spaces
- Station:** 164+50
- Offset:** EB TL
- Reference:**
- Smpl From:** ROADWAY TK.540690
- Smpl Origin:**
- Control Type:** PROCESS
- Cntrl Number:** 1
- Seal Number:**
- Design Type:** SUPERPAVE
- Mix ID:** 32016B20514-1A
- Plant ID:**
- Plant Type:** Spaces
- Creator User ID:** GOODSELM
- Include Standard Remarks:**
- Sample Created from DWR:**
- Last Modified User ID:** GOODSELM
- Last Modified Date:** 05/10/16
- DWR Date:** 00/00/00
- DWR Inspector:**

Material Test Templates:

The type of acceptance is determined automatically from the mix design in SiteManager and it can be voids acceptance or gradation acceptance. The material test templates used by the report are summarized in the tables below.

Voids Acceptance:

Compaction Test Section	CP82
Joint Density	CP44L
AC Content	CPL5120 or CP85
Voids	CPL5115
VMA	CP48
Mat Density	CP44 or CP81

Gradation Acceptance:

Mat Density	CP44 or CP81
Joint Density	CP44L
AC Content	CPL5120 or CP85
Gradation	CP31HMA
Compaction Test Section / Demonstration Control Strip	CP82

Binder Paid Separately:

When binder is paid for separately from HMA the **ACCOST template will need to be completed for each Item Code/Mix ID combination** that is used on the project. There are two fields on the ACCOST template; The Bid Item # should indicate the 411 Item Code for the binder that is used in the asphalt mix and also listed on the CAR report Owner Acceptance Sampling Checklist. The price per ton of the 411 item will also be entered into the ACCOST template in the AC Cost field. These two pieces of data are used to connect the 403 HMA item to the 411 item which the report will use to calculate the Total Cost/ton of HMA. The ACCOST template shall be completed before any other tests for each HMA item.

The screenshot shows a software window titled "Enter Test Results" with a sub-tab "Test Data". The main content area is titled "ACCOST" and "Document AC Cost per Ton of HMA". On the right side, there are three radio buttons: "In Spec", "Out of Spec", and "No Spec" (which is selected). Below these is a "Print" button. On the left side, there are two input fields: "Bid Item #:" with the value "411-03354" and "AC Cost:" with the value "320.00". Below these is a "Remarks:" label followed by a large empty text area.

CAR Quality Level Report:

The first page of the report will display any error messages that indicate errors that need to be fixed in SiteManager. The report can be generated at any point during the project to get an indication of the moving quality level. The report is broken into the various elements that are used to make up the incentive / disincentive for each Item Code/Mix Design with a summary for each process at the bottom of the element.

The elements that make up the report are:

- Asphalt Content
- Compaction Test Section
- Mat Density
- Gradation
- Air Voids
- Voids in Mineral Aggregate (VMA)
- Joint Density

Elements included in the report are based on whether the mix design is determined to be voids or gradation. There is an Interim or Final Report and a signature block for the tester and cross checker. Each element has a header which includes Item Code, Material Code, Mix Id, HMA Cost/ton, etc. There is also a secondary header to indicate spec limits and W and V factors. After each element there is an indication of the processes that are included and an element summary.

At the end of each item section there is a summary for each mix design and then a final summary at the end of the report for comparison of the element totals and a list of the total incentive / disincentive by mix design.

Addendum 2

OA Software

INTRODUCTION

The following contains information on the Quality Control / Quality Assurance (QC/QA) computer programs used by CDOT to calculate the Incentive/Disincentive Payments (I/DP) on paving projects. The calculations are based on Standard Specifications 105.05 and 105.06 and Standard Special Provisions Revisions to Sections 105 and 106 Conformity to the Contract of Hot Mix Asphalt (Voids Acceptance). Quality Levels are calculated according to CP 71.

PROGRAMS

The current version of the programs will always be available at the download sites. Notices of new or revised programs will be distributed via CDOT's Public Announcements. The current versions of the programs at the time of this writing are as follows:

Hot Mix Asphalt (HMA):

Asphalt03 version 4.0.1 – Version 4.0.1 of Asphalt03 is CDOT's latest computer program used for the calculation of I/DPs on projects containing Hot Mix Asphalt (HMA) which utilize gradation acceptance as the testing criteria.

Voids03 version 4.0.1 – Version 4.0.1 of Voids03 is CDOT's latest computer program used for the calculation of I/DPs on projects containing Hot Mix Asphalt (HMA) which utilize voids acceptance as the testing criteria and contain the paving specification, Revision to Sections 105 & 106, Conformity to the Contract of Hot Mix Asphalt (Voids Acceptance).

Portland Cement Concrete Pavement (PCCP):

Concrete03 version 4.0.1 – Version 4.0.1 of Concrete03 is CDOT's latest computer program used for the calculation of I/DPs on projects that contain Portland Cement Concrete Pavement.

DOWNLOADING AND INSTALLING THE PROGRAM

NOTE 1: All of the computer programs are now Windows XP and Windows 7 compatible. Contact CDOT's Help Desk at 303-239-4357 for assistance.

Installation, CDOT Computer:

Click the **Windows** button

Click **Control Panel**

Click **Get Programs**

Locate and click on the program.

Click the **Install** button towards the top of the window.

Follow the instructions that appear to complete the installation.

If you have problems with the install contact the Help Desk at 303-239-4357.

Non-CDOT Computer:

The QC/QA programs can be downloaded from CDOT's external web site. The direct address is: <http://www.codot.gov/business/engineeringapplications/assets/downloads>

Select the program from the list and download the install file.

Follow the instructions that appear to complete the installation.

If you have problems with the install contact CDOT's Help Desk at 303-239-4357.

TRANSFERRING A PROJECT'S FINAL DATA TO THE PAVEMENT DESIGN PROGRAM

The Pavement Design Program (PDP) of the Materials & Geotechnical Branch is to receive an electronic copy of the data for all reviewed and Finalized projects, see the Documentation Chapter of this Manual for details. All of the data is entered into a data base which is used to evaluate the specifications and generate yearly reports.

Transferring the Data File:

All of the 03 programs automatically create a data file for the project whenever a Final report is generated. The data file will be saved in the program's Export directory.

For example, if using Asphalt03 the data files will be saved in the following directory: C:\Program Files\Asphalt03\Export. The naming convention used by the program is: Project Code (Subaccount)_Final.QA1. After the project has been reviewed and accepted submit the data file to the Pavement Design Program (PDP) of the Materials & Geotechnical Branch. E-mail the data file to Kyle.Brooks@state.co.us ; however, if this is not possible then copy it to a CD and mail it to the CDOT's Pavement Design Program c/o Kyle Brooks.

USER'S GUIDES

User's Guides are available for each of the QC/QA programs. Revisions and updates to the guides will be maintained on CDOT's web site. Each of the 03 programs also contains a link to the website from within the program. To view the guide, go to "User's Guide" under "Help" on the menu bar in the program. The User's Guides are also available from CDOT's External web site at: www.codot.gov/business/ then find Engineering Applications, and then Documentation. Check the User's Guide revision date periodically for any updates.

CONTACT

If you have any questions about these programs:
Contact Kyle Brooks at (303) 398-6528
E-Mail: Kyle.Brooks@state.co.us