

Documentation for SiteManager® / LIMS Project Materials to Final Materials – 19

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 Certification Checklist (Form 473 SMM) located on the CDOT Forms website, will be signed electronically 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 and to avoid legal and contractual conflicts.

2. GENERAL REQUIREMENTS

The procedures referenced are to be followed as indicated for CDOT projects' 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 documentation of the material 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 designee.

3.1 BEFORE CONSTRUCTION

Existing users of SiteManager® Materials/LIMS. The Finals Administrator can grant contract authority at any time. If the consultant is a New User to SiteManager® Materials/LIMS. Contract authority cannot be given until the consultant has been granted access from OIT to eVPN, SMM/LIMS, and the CDOT SAP NetWeaver Portal (CAR). Allow a minimum of 20 business days for access. Once notified that access has been granted the Project Engineer must contact the Region Finals Administrator requesting project personnel be given Contract Authority for the project.

Access to the CDOT Applications

All Users requiring access to CDOT applications must be completed in the CDOT Portal by the CDOT hiring manager. This is typically the Resident Engineer or the CDOT Project Engineer. All Users must complete the forms and submit to the hiring manager. The hiring manager will input the information into the CDOT Portal and attach the forms.

Consultant new users shall use their companies' Non-Project Specific (NPS) contract number and end date when requesting access.

NEW User - are all users who do not have a SiteManager or VPN USER ID. New users will complete the Statement of Compliance - VPN Request Access Request form and the SiteManager Access agreement form. These forms require the consultant's signature (electronic) and other information. Submit the forms to the CDOT hiring manager for their signature and the Resident Engineer's signature.

Existing User that has an expired VPN account – If a user's VPN account has been closed, the user must complete both forms and submit them to the CDOT hiring manager.

Existing User – Users that have a USER ID and have access to the CDOT applications. If the user has access to the VPN and the end date for the access is approaching, the user will complete the SiteManager Access agreement form and use the companies' new NPS contract number and end date to update the user's access.

1. Review the Project Plans, Project Special Provisions (PSP), and Standard Special Provisions (SSP) to become familiar with any modified materials and testing procedures.
2. Review the CAR report – **Project Materials Item Report**. An item that has a red code of **No Testing Assigned** is a flag for the project tester. The project tester shall investigate the item in the PSP, SSP, plans, and FMM, to determine what materials and tests will be required to complete the item. This information must be conveyed to the Central Lab Pavement Design Program or the Region Lab Manager. The materials codes, tests, and frequencies shall be added to meet the testing specifications.

3. 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 Program at North Holly to have corrections made. Example #1: Item 411 Emulsion - the contractor is using SS-1H, the Certification Checklist under Item 411 has CSS-1H material code. The material code will need to be changed to reflect the correct product being used. Example #2: Item 304 ABC Class 6 Special, the Owner Acceptance checklist lists the material code (703.03.08.00) for aggregate ABC, the Project Special Provision (PSP) for this item states that recycled concrete, recycled asphalt or a blend of recycled asphalt/aggregate can be used if it meets the gradation specification listed in the PSP. The contractor states they will be using 2 stockpiles of material. One is recycled concrete (703.03.10.00) and the other is RAP/aggregate blend (703.03.15.00). Both material codes for these stockpiles will need to be added under the item, and the aggregate ABC material code will need to be removed as that product will not be incorporated into the project. Tests required for each material shall reflect the requirements of the PSP. The Project Engineer shall be aware of the types of tests required and the frequencies of each test that the project Owner Acceptance tester will be performing
4. The Region Materials Engineer or 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 perform. It is the Project Engineer's or designee's responsibility to notify the Region Material Engineer's Independent Assurance technician of upcoming materials that will require Independent Assurance sampling and testing.
5. Project Tester shall set up the Project Materials Electronic Folder to store the documentation for the project. **See the example of electronic folders for documentation on page 36 of this chapter (Addendum 3).** Follow the format in Organizational Guide for Project Material documentation in Section 8.0. **Binders and hard copy documents are not required.**
6. All documentation pertaining to each sample record shall be uploaded into the attachment icon. This must be completed before the sample record is Authorized and Complete in the LIMS window – Review Sample. All documentation must have the Sample ID clearly recorded on each form/worksheet. This includes all CDOT forms and worksheets either completed electronically or handwritten. Hard copies are not required to be retained.
7. Samples submitted to the Central Laboratory do not require a hard copy of the CDOT Forms 157, 82, 83, 84, 411, and 1304 to be submitted with the sample if an email is shown on the form for the lab unit receiving the sample. Email the **completed** form to the appropriate lab's email address. Sample IDs are required to be clearly documented in each form.
8. All forms and worksheets that are not available as electronically fillable, that are handwritten shall be scanned and uploaded into the attachment icon for each record or may be kept as a hard copy until the project is accepted by the Project Engineer, at which time the hard copy can be discarded. To upload as an attachment in SiteManager®, the action must be performed before the sample is completed.

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 Verification (AV) Letter and the CDOT Form 595 representing the material. 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. Create an Excel spreadsheet to track the COC/CTR's required, received, and accepted or rejected. This spreadsheet can be used to notify the contractor and Project Engineer of the status of submittals. **See the example on page 35 in this chapter (Addendum 3).**
10. Attend pre-construction, pre-pave, pre-pour, scheduling, and Owner Acceptance (OA)/Process Control (PC) meetings.
11. 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 CDOT's Approved Products List (APL) or Qualified Manufacturers 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>
12. Materials supplied to the project that is not required to be selected from the CDOT's APL or QML – must meet the requirements for documentation of Section 106.12 and 106.13. The Project tester shall 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 with that P/S under Producer/Supplier Materials. For any P/S and associated material codes that are not in SM, use the form "Add Producer/Supplier/Material Code" found at the following link, under the tab "Hints, Guides, and Links", and submit the completed form to the Region Materials Lab Manager or the Pavement Design Program at Central Lab - North Holly. Contact information can be found in "Contacts" at the link below. Open the link in Chrome or Edge. Do not use Internet Explorer. Download documents from this site to your computer. Open your Download folder and save the documents to your computer.
<https://sites.google.com/a/state.co.us/sitemanager-materials/>
13. Develop Random Sample Schedules as per CP 75 for each item requiring random sampling. Random sampling schedules are required for all materials. Excel spreadsheets can be used to generate random schedules. Schedules must be created for the entire item quantity before construction begins. Random Sampling Schedules can be accessed from the SMM site listed in #12, on the home page. Creation of daily random schedules is not acceptable. Do not share the random schedules with the contractor or PC tester.

14. Obtain from the contractor, any proposed concrete mix designs to be used on the project. Submit all required documentation electronically 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>. **A concrete mix shall not be allowed to be placed on the project until the Concrete Unit has reviewed and approved the mix for the project and the CDOT Form 1373 has been issued.** A CDOT Form 1373 must be issued for mixes from the CDOT Pre-Approved Concrete Mix Designs list and all new concrete mix designs. The CDOT Form 1373 shall be given to the contractor/supplier for the concrete batch tickets to reflect the correct CDOT concrete mix ID.
15. Determine the requirement of aggregate samples 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. It is recommended that enough samples be taken for Central Lab and any labs that will be performing correction or correlation testing for asphalt content. This includes the PC testing firm. Samples shall be combined and split to minimize variations. For information to submit aggregate samples per CP 52, see the instructions CP 52 Submittal Guide. (In the Hints, Guide, and Links tab.) This document can be found at <https://sites.google.com/a/state.co.us/sitemanager-materials/>
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 can be found on the CDOT Forms website. Access to the previously serialized forms is under the menu "CDOT Resources" – Forms Serialized. 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 number. The project materials personnel 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 established for each item estimating the needed amount based on quantities. Numbers 0001 to 0099 are **NOT** to be used by the field testers. These are reserved for the Region Labs. Instructions for the serialized form protocol is available in the chapter Materials Forms - Instructions & Examples.

3.2 DURING CONSTRUCTION

1. Samples obtained for preliminary testing, approval for use, and meeting the requirements of 1 per project / 1 per source ARE NOT to be counted toward meeting the sampling and testing requirements for OA tests for Gradation, Atterberg Limits, and Soil Classification.
2. 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.
3. Communicate daily with Project Engineer and inspectors about placed quantities, activities, planned production, and material deliveries to ensure inspection and testing frequencies are met.

4. Project Engineer shall communicate with all project personnel the field-adjusted quantities from Contract Modification Order (CMO) and Minor Contract Revisions (MCRs). When CMO or MCRs involve materials that will need to be tested, the Project Engineer must update the items as soon as possible for the tester to access the necessary information to begin the testing.
5. 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. Verify the materials, material codes, tests and testing frequencies for these added items are correct. Notify the Region Lab Manager with any concerns.
6. Alert the Region Material Engineer's IA technician of CMO or MCR's that include changes for revised quantities and/or added materials to assist them in verifying the changes appear on the CAR Report - Independent Assurance Sampling & Testing Checklist (Form 379).
7. Complete and file in the appropriate folder/subfolders 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.

8. Complete documentation daily in SiteManager® Materials for sample record entries.
9. In LIMS, enter test results as soon as they become available.
10. Test results entered into LIMS **must be reviewed thoroughly** in the LIMS windows – **Review Test** and **Review Sample**. It is unacceptable for test results to be passed through these windows without a detailed review. The project tester will complete the review in these windows to verify data entry and accuracy of results.
11. Field Testers shall **not** Authorize and Complete or Void any sample records that are not in the Statewide Field when in the LIMS window "Review Samples". To eliminate this issue, field testers shall set their filter to "Lab Unit" and "FieldLab". **FieldLab** must be input exactly as shown, click the "Apply" button. It is the responsibility of all the other lab managers to review and authorize samples in their labs. This setting will allow the field tester access to samples that are in the statewide field lab and no other samples. This filter will not change after logging in and out.
12. For HMA, SMA and concrete paving sample records, it is advisable to **NOT** Authorize and Complete in LIMS – Review Sample window, the last 2-3 samples for each mix design and **all** longitudinal joint cores. These records shall be reviewed thoroughly for correct test result entries in the Review Test window. Leaving the sample records in the Review Sample window allows the tester to access the records to edit the quantities to reflect the final quantities paid by the Project Engineer.

13. Ensure all Form 43 Job Mix Formula sheets are signed for HMA and SMA. For all paving, including concrete paving review the CAR reports – Asphalt Quality Level Report for accuracy of Acceptance Method, Total Cost/ton, HMA Cost/ton, AC Cost/ton (for binder paid separately), Mix ID, test results, quantities, and processes. For Concrete Quality Level Report, confirm the Acceptance Type, Bid Item Unit Price, Mix ID, thickness, test results, quantities, and processes are correct. These reports must be sent to the Project Engineer and contractor daily. Asphalt 03 and Voids 03 are longer acceptable programs. **The CAR - Asphalt Quality Level report is required to be used for all projects advertised on or after January 1, 2018.**
14. Complete CDOT Form 626 daily for each item's test results and obtain contractor's electronic signature verifying that the contractor has been notified of all test results. Complete the form and sign electronically, email to the contractor for their electronic signature and have the contractor return it. Send a copy to the Project Engineer and place the signed form in the Project Materials electronic folder in the corresponding item tab. CAR reports, Asphalt Quality Level and Concrete Quality Level reports can be substituted for Form 626. The CAR reports for HMA, SMA, and concrete paving should be sent to the Project Engineer and contractor daily. These emailed reports may serve as notification to the contractor of tests results. The CDOT Form 626 may not be required for these items.
15. 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. Contact the CDOT North Holly Pavement Design Program, to schedule obtaining the tags and labels. All other forms are available on the CDOT website as electronically fillable. 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, do not submit a hard copy with the sample. Form 157's are not required to be completed and submitted for the sample when CDOT Form 633 (Sample Tag) with a revision date of **5/17** is used, no form required. When Form 633 with a revision date of 4/14 is used, the CDOT Form 157 is required to be completed and emailed to the lab(s) that were shown on the test tab window. See lab emails below.
16. CDOT Forms 411 and 1304 are required to be completed and submitted for all samples. The CDOT Form 157 is not required with new tags.
17. The Central Laboratory E-mails:
- cdot_bit.lab@state.co.us
 - cdot_chem.lab@state.co.us
 - cdot_conc.lab@state.co.us
 - cdot_euro.lab@state.co.us
 - cdot_flex.lab@state.co.us
 - cdot_phpr.lab@state.co.us
 - cdot_soils.lab@state.co.us
- 17a. The Pavement Design Unit E-mail: cdot_pavement.design@state.co.us
- 17b. The Concrete Mix Design Submittal E-Mail: dot_concretemixdesigns@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®.

18. Verify the documents submitted and file in the electronic folder for the Certification Checklist, all Certificates of Compliance (COCs) or Certified Test Reports (CTRs) received for materials. These documents are required before installation or payment for the materials is completed. 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 and are 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 (AQV) documents submitted electronically or hard copy by the contractor must have the required stamps and signatures according to Section 106.12 and 106.13.

CDOT Form 157s are not required to be completed for COC/CTRs documentation.

19. 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.
20. Monitor the Owner Acceptance Sampling & Testing Checklist Report to ensure the testing frequencies are being met as the material placement progresses.
21. Monitor the CAR Report Summary of Samples – COC and CTR report to track material quantities paid are matching quantities of documentation received from the contractor. The SM sample record quantity cell shall be updated to reflect the amount of material shown on the COC/CTR's. Upload recently received COC/CTR's in the sample record Attachment Icon.
22. Compare the OA and CERT Checklists with the monthly estimate for discrepancies in items or quantities appearing on the CAR reports. Access the project estimate here: <https://www.codot.gov/content/payestimates/> Use Control key & "F" to use the "Find" feature, type in the contract ID without the "C". Locate the latest estimate to complete the review. A hard copy of the estimate is not needed for this check. If discrepancies are noted, contact the Region Lab Manager or Pavement Design Program at Central Lab for assistance.
23. 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 estimate.
24. As exceptions to the Specifications occur, document each occurrence to facilitate the completion of CDOT Form 474 Explanation of Exceptions at the closure of the project.
25. 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 appears on the report. For instructions to complete the sample records correctly, utilize Addendum 1 on page 23-27 of this chapter. These CAR reports replace Asphalt03 and Voids03 programs and they are no longer to be used on projects advertised after January 1, 2018. When creating concrete paving sample records for Item 412, utilize **Addendum 2 on page 28-33 of this chapter**. The CAR report Concrete Quality Level report replaces Concrete03.

26. Review PC data and tests result daily for compliance. Use CP12A, CP12B, and CP12C as applicable.
27. Review data entries 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.
28. Use CAR Reports - Summary of Samples – COC and Summary of Samples – CTR to track COC and CTR samples created, quantities of materials delivered, attachments, and sample status. These reports will update when data is changed and saved in SiteManager. COC and CTR records can be left in the LIMS windows of Review Tests or Review Sample allowing the record to be available to upload more documents of shipments that are delivered to the project. Keep the quantity cell updated in SiteManager® Materials – Basic Sample Data tab with the total quantities verified on the attached COC/CTR's.
29. Use CAR reports, Summary of Samples - All to track samples that are incomplete.
30. Resident and Project Engineers can use the CAR Reports – Summary of Samples – COC and CTR to verify quantities and documentation have been received for materials that will be paid on the monthly estimate.
31. 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 documentation of the material 100% by completing each of the following steps, 3.3 - 3.3.2

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 correctly can facilitate the order. Use the CDOT Field Sheet number and/or test number or lot number for identification of each form contained in the folder.
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. Project estimates can be accessed at this link. (Use Control – F, input the Contract ID without the “C”, in the find box. This will highlight the project, look for the latest estimate. Open the estimate, use Control – F, and input the item number in the find box to search by item.) <https://www.codot.gov/content/payestimates/>
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 the 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 the Date** column. Use the CAR report – Summary of Samples – ALL to find sample records that are not

complete. After reconciling the columns, the Owner Acceptance Sampling & Testing Checklist Report shall be placed in the electronic documentation folder - Final Documentation. Deficiencies are required to be explained on the CDOT Form 474 Final Materials Certification - Explanation of Exceptions.

5. Review the CAR Report – Asphalt Quality Level (AQL) (Final). A Final report showing errors shall not be accepted and errors must be corrected
6. Review the AQL report to verify the number of tests shown on the report equals the Completed Tests to Date for each test method shown on the Owner Acceptance Sampling & Testing Checklist Report. Asphalt content element may be the total tests completed for CP 85 and CP-L 5120 to meet the requirements. Mat Density element may be the total tests completed for CP 82, CP 44, and CP 81 to meet the requirements.
7. Verify the quantity for each element in the report matches the quantity for the item on the Owner Acceptance Sampling & Testing Checklist Report. The quantities for each element must be equal or the report will state an error on the first page of the report.
8. Verify with the Project Engineer the dollar amount shown on the AQL report is correct on the estimate.
Notify Staff Materials Pavement Design OA/PC Program Manager at cdot_pavement.design@state.co.us and the Region Materials Engineer that the Quality Level reports for the project are complete. Record the Contract ID and Final AQL in the subject line. Export the Final report and include in the email.
9. Export the Final QL report and save to the project electronic files - Final Documentation folder.
10. Check all inputs to Concrete03 and the F-test and t-test documents for accuracy if Concrete03 is used on the project. Concrete03 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 QL reports must be the “Final Report”. This ensures that all element quantities reconcile.
11. When the CAR Report - Concrete Quality Level Report (CQL) for concrete paving is used by the project, check the final report according to Sections 3.3.5, 3.3.6, 3.3.7, and 3.3.8.
12. Notify the OA/PC manager at cdot_pavement.design@state.co.us that the report is complete. Record the Contract ID and Final CQL in the subject line. Export the report and include in the email.
13. Place the Final QL reports in the project electronic files - Final Documentation Folder. **See the example on page 34 of this chapter (Addendum 3).**
14. Place electronic copies of the notification emails sent an acknowledgment from the OA/PC manager in the Final Documentation Folder. This is a requirement for the Final Documentation Materials Coordinator to verify the OA/PC manager has received the information that the project Quality Level reports are complete.

15. 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 Summary of Samples report equals or exceeds the quantity paid, if not an explanation of missing COC/CTR's shall be in the Explanation of Exceptions. Items with a zero quantity, no explanation required. Items deleted by CDOT Form 105 completed by the Project Engineer can be deleted from the project CAR Reports. Send the completed Form 105 to the Central to request the items to be removed. Record in the subject line the **Contract ID: Items to Remove from CAR Reports by Form 105.**

Lab Pavement Design Unit E-mail: cdot_pavement.design@state.co.us

16. Review CAR reports –Summary of Samples – (ALL) to verify all samples created for the project have a status of "COMP" It is a requirement that all sample records created for a project are in the "Complete" (COMP) status before the documentation of the material is accepted. Sample status of LOGD, RECV, TEST, PREA, must be either completed or voided.
17. Sample records created in SMM that may have been started, but has not had tests assigned will be in the Pending status. These samples may have been forgotten about or made by mistake. The samples must be VOIDED. These types of samples in the Pending status will not be on the Summary of Samples reports. The Sample Backlog report must be reviewed to ensure no samples are in SM incomplete. Projects cannot be closed until all samples are either in the Complete or Void status. (See instructions on the SMM website.)
<https://sites.google.com/a/state.co.us/sitemanager-materials/>
18. Export and save the CAR Report - Summary of Samples – COC, CTR, QA, and ALL to the project electronic materials folder – Summary of Samples subfolder for availability to the checker for the final documentation review.
19. Pre-inspected items shall have CDOT Form 193, if applicable. This document shall be in the attachment icon on the SMM record for the item.
20. Check all Price Reductions and the supporting documents.
21. Ensure the contractor's PC documentation has been received electronically for HMA, SMA, PCCP, and Excavation & Embankment per the requirements of CP 12A, CP 12B, CP 12C respectively. Save the PC documentation into the Project Electronic Folder.

3.3.1 CDOT FORM 474, - Final Materials Certification - Explanation of Exception for CAR report: Owner Acceptance Sampling & Testing Checklist Report.

1. Document on the CDOT Form 474, the date the project was accepted and the date 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 verification of date of project acceptance. **See example on page 17-19 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 dollars applied per the Quality Level reports. Explain process changes, compaction test sections, and any unusual change in the Quality Level reports. **See the example on page 18 -19 of this chapter.**
5. For items that show a Zero Total Quantity Installed, no explanation is required as this indicates no material was installed on the project.
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 a 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 474 Final Materials Certification - 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 report. COC/CTR documentation that was not received from the contractor, do NOT make sample records. Document these deficiencies on the CDOT Form 474.
2. Verify the required stamps are applied to the COC/CTR and/or Contractor's APL-QML Verification (See FMM chapter - Special Notice to Contractors, for more information) and that the required information is complete on each stamp.

3. For COC/CTRs received, sample records in SiteManager® must have the documents uploaded through the attachment icon. Verify the attachment by checking the Summary of Sample – COC or CTR Report. An asterisk will be shown under the column “Attachment” for each sample record with an attachment.
 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 CDOT Form 105 – Deleted Items - for documentation to the CDOT Form 474.
- 4. INDEPENDENT ASSURANCE Sampling & Testing Checklist and CDOT Form 473 – Final Materials Certification Checklist**
1. The Region’s Independent Assurance (IA) representative shall initiate the Final Materials Certification Checklist - Form 473, by completing the top portion, electronically signing the form, and obtaining the Region Materials Engineer’s electronic signature. This form is available on the CDOT website under the Forms catalog.
 2. The Region’s IA representative is responsible for documenting any deficiencies shown on the CAR Independent Assurance Sampling & Testing Checklist Report on Form 474, Explanation of Exceptions.
 3. The Region’s IA representative shall ensure that differences between Independent Assurance tests results and Owner Acceptance test results if any, are explained.
 4. The Region’s IA representative will send the completed documents for Independent Assurance testing to the project personnel. Submit the Final Materials Certification Checklist (Form 473, top portion completed) and CAR Report - Independent Assurance Sampling & Testing Checklist, Form 474, Explanation of Exceptions, and supporting documentation. Form 473 and 474 shall be electronically completed and signed and emailed to the Project Engineer. The Project Engineer shall verify the project tester completes and signs the required section. The Independent Assurance Sampling & Testing Checklist, supporting documentation, shall be part of the final documentation submittal.
 5. Project personnel and the Resident Engineer’s signature is required on the CDOT Form 473. The completed form must be part of the final documentation with the CDOT Form 474 Final Materials Certification – **Explanation of Exceptions** for the project.
 6. For projects tested by a consultant firm, the CDOT Form 1324 must be completed by the CDOT Representative responsible for the oversight of project materials for evaluating the performance of the consultant firm.
 7. Transfer all files from the electronic project materials folder to ProjectWise. Follow the path: **ContractID/Construction/Materials**. Do not use the **Final Documentation/Form 325 folder** in ProjectWise to store these documents. The Region Final Materials Documentation Coordinator or the Finals Administrator is responsible to transfer the required documents from the Materials file to ProjectWise Final Documentation/Form 325 Packet.

5. INDEPENDENT REVIEW Requirements for Final Materials Documentation Completion

The Resident Engineer or his designee will notify the Region Finals Administrator or the Region Final Materials Documentation Coordinator when the materials files have been deposited into ProjectWise and are ready for review. 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.
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 474 Final Materials Certification - Explanation of Exceptions.
4. Project Testers are required to upload COC/CTRs containing the contractor's stamp (and other required documentation per the FMM chapter - Special Notice to Contractors and the Standards Specification Sections 106.12 and 106.13), into the attachment icon in SiteManager® for each sample record. Using the CAR report - Summary of Samples – COC and CTR, perform random checks in SiteManager® ensuring the documents are in compliance and in the attachment icon. Ensure an asterisk is shown for every sample record for COC and CTR on the CAR 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 474.
6. Differences between the IA and OA test results must be explained on CDOT Form 474 if applicable.
7. Verify the CDOT Form 473, - Final Materials Certification 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, the material with price reductions, and material removed and replaced.

Note: Reference to P is addressed in Standard Specifications, Section 105.03.

10. Verify the CAR Reports – Quality Level for applicable items (Asphalt or Concrete Paving) have no errors on the Final Report. Final reports showing errors are not acceptable. The first page of the Final Report will show any errors the program has found.
11. 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 CAR Report Quality Level for asphalt and concrete paving items, if applicable.
12. Verify the quantity for each element in the CAR Quality Level report matches the quantity for the item on the Owner Acceptance Sampling & Testing Checklist Report and the estimate. Check all items that apply to the element for the total quantity paid. This includes asphalt and concrete paving items.
13. Verify the Quality Level payment is correct on the last progress estimate.
14. Verify that the documents for Quality Level reports have been submitted to the Region Materials Engineer and Staff Materials Pavement Design Program OA/PC Manager by e-mail receipt on file.
15. CDOT Form 1324 must be completed and distributed to the Region Materials Engineer and placed in ProjectWise – Form 325 packet.
16. 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 or Finals Documentation Coordinator, Resident Engineer, and Project Engineer to resolve the issues.

The completion of Form 473 - Final Materials Certification Checklist and Form 474 Final Materials Certification - Explanation of Exceptions 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 electronically on Form 473 and Form 474. If after the project task order is ended, anyone who receives missing documentation and completes SMM/LIMS entries shall complete another Form 474 to update the changes made as missing item documentation is completed. CDOT Form 473 and Form 474 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 211's or e-mails to the Form 474 Final Materials Certification Explanation of Exceptions 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
Final Materials Certification Checklist with required documents	Form 473	Orig.	Notify	Notify	Notify	
Final Materials Certification - Explanation of Exceptions with supporting documentation (letters, CMOs, MCRs, etc.)	Form 474	Orig.	Notify	Notify	Notify	
CAR Report - Owner Acceptance Sampling & Testing Checklist	Form 250	Orig.	Notify		Notify	
CAR Report - Certification Checklist	-	Orig.	Notify		Notify	
CAR Report - Independent Assurance Sampling & Testing Checklist with supporting documentation	Form 379	Orig.	Notify	Notify	Notify	
Random Sampling Schedules	-	Orig.				
Price Reduction Documentation	-	Orig.				
CAR Quality Level Reports - Incentive/Disincentive documents	CAR Report QLR	Orig.	Notify			Notify
Buy America Certification letters and Monthly Summary reports		Orig.				
PC Data results in digital records		Orig.				
Evaluation of Materials Testing (Consultant tested)	Form 1324 (CP 16)	Orig.	Notify.		Notify	
<p>Note: Orig. = original with signature and placed into ProjectWise. Project Engineer will notify the Region Finals personnel when the documentation is available in ProjectWise. Notify = shall email a link to the Units under Distribution list that all documents are available in ProjectWise as Final. The link referred to is the exact location within ProjectWise for the Project's files.</p>						

Distribution

1. Resident/Project Engineer Electronic Files placed into ProjectWise under the path Contract ID/Construction/Materials
2. Region Materials Engineer/Region Finals administrator is responsible for verifying the documentation is complete and acceptable by placing all files into ProjectWise under the path Contract ID/Construction/Finals Documentation/Form 325 and email a link to notify #3, #4, and #5 that the final documents are available.
3. FHWA (Oversite Projects)
4. Staff Materials Pavement Design Program (Documentation Unit)
5. Staff Materials Pavement Design Unit OA/PC Manager

Email address for item 4 and item 5 is: cdot_pavement.design@state.co.us

For Final Documentation, in subject line record Contract ID - Final Materials Documents in Projectwise. The Region Final Materials Documentation Coordinator or the Region Finals Administrator is responsible for the items in Table 1 are uploaded into the following ProjectWise path: Contract ID/Construction/Finals/Form 325 Packet.

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. Follow the Item numbering sequential order on the report to develop the order of each sub-folder. See page #36 of this chapter. For the Certification Checklist Report, create one folder to house all the COC/CTR submittals, naming each document according to item number, date received, and/or shipment number. This will facilitate adding each document to the attachment icon much easier.

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 – All, COC, CTR, IAT, and QA reports, 1 copy of the final reports are to be placed within the project electronic folder.

Final Materials Electronic Folder:

- CDOT Form 473 - Final Materials Certification Checklist
- CDOT Form 474 – Final Materials Certification – Explanation of Exceptions with any supporting documentation
- 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- ALL, COC, CTR, IAT, and QA reports
- Random Sampling Schedules (copy - original to remain in item number folder)
- Price Reductions - if applicable
- Quality Control Notebooks (digital) for all required elements
- CAR Final Quality Level 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 folders in the order the items 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 Folder

Create the Certification Checklist electronic folder. Within this folder, COC/CTR documents shall be clearly named to identify the item, date received, and/or load number the document represents. It is recommended to **not create sub-folders** for each item as this creates extra steps to attach the document to the SiteManager® record.

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. Multiple COC/CTR's can be added to one sample record. As more attachments are added to the record, keep the quantity cell updated to reflect the total quantity cover by the attachments. Name and describe each attachment to identify it.

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 the APL or QML 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 (AQV) 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).

9.0 Suspension to CDOT's SiteManager®: Is not necessarily tied to a review process and may occur at any time for cause. The process for suspension starts with a written complaint to the Materials and Geotechnical Branch Manager (MGBM) or his designee. This document must, at a minimum contain the name of the technician involved, name of the technician's company, date of the incident, detailed accounting of the incident, name and contact information of individual submitting the request. The Department may start an investigation based on other information, such as:

- Failure to timely supply required information.
- Repeated failure of a tester to meet CDOT requirements.
- Failure to take immediate corrective action relative to deficiencies in the performance of the Quality Control Program.
- Certifying materials that are not produced under an approved Quality Control Program for use on Department projects. (This would include any situation where falsification of records was determined.)

Upon receipt of the complaint, the MGBM will contact the Region Materials Engineer (RME) and Resident Engineer (RE) associated with the technician involved in the written complaint. The MGBM, RME, and RE will review the complaint to determine its credibility.

If the complaint is deemed credible the Department will contact the individual(s) submitting the information. The MGBM will determine if the individual is willing to discuss the reported incident. Documentation submitted to the MGBM for review is otherwise confidential. The MGBM will review the documentation/information within 30 days to determine whether further investigation is required. If further investigation is required, the Department will assign the appropriate Regional Materials Engineer to perform the investigation. The MGBM will review the information obtained through the investigation and may conduct additional interviews. The technician, their supervisor, and/or consulting firm involved will be notified of the Department's findings.

The technician shall have 15 working days to respond, in writing. At any point in the process, the MGBM may determine, due to insufficient evidence, to discontinue the process. The MGBM will then determine whether the violation(s) fall under the definition of Negligence or Abuse.

Negligence is defined as unintentional deviations from approved procedures or the unintentional failure to follow the requirements of the CDOT Field Materials Manual.

Abuse is defined as intentional deviations from approved procedures or the intentional failure to follow the requirements of the CDOT Field Materials Manual.

The appropriate process will be followed upon determination of the category of the violation. If the process results in a period of suspension or revocation, the tester is prohibited from participating on all CDOT projects during that period.

Process for Negligence:

Negligence should be resolved in a positive fashion that promotes learning and increased understanding. The complaint process tracks technicians who have repeated incidents of negligence. This process will also allow a means of tracking common problems and issues.

A single incident of negligence may be resolved through intervention by the Tester's Supervisor.

After assurances in writing to the Department by the supervisor that the problem(s) are fully corrected, a thorough review of the Tester's materials documentation by the Region Independent Assurance Tester (IAT) and the supervisor will be made to ensure that a full correction of the problem(s) has occurred. Documentation of each incident shall be sent to the MGBM. The Department will maintain records of each incident. If only one report, of a minor nature, is received in a one-year period, no further action may be taken. However, if it is determined that the negligence is significant the requirements under "second incident" will be followed.

If the second incidence of negligence is reported within a one-year period, the Department will require that the technician and his/her employer develop a corrective action plan. The MGBM will notify all the Regional IATs. This notification is intended to make the IATs aware of the problems being encountered.

If a third incident of negligence is reported within a two-year period, the technician and his/her employer will receive a notice and a minimum one-year suspension will apply. The technician and his/her employer will be responsible for providing a plan to correct the deficiencies to ensure no further incidents occur.

Any further incidents of negligence will result in a permanent revocation. The Department can at any point re-classify repeated instances of negligence, as abuse. If this occurs, the issue would be dealt with through the process of abuse.

Regional Materials Engineers reserve the right to work with the tester and their supervisor to correct any aforementioned problems listed in the negligence section in lieu of a tester's suspension.

If a tester is suspended they shall complete an internal training program within their company that is outside certification and provide documentation showing such training has occurred. The documentation should include a specific description of the training performed, dates, location, procedures, who supervised the training, etc. The documentation will be submitted to the RME who will decide if the training is sufficient to reinstate the suspended tester.

Letters of Suspension and Revoking:

A letter stating a tester is being suspended and the reasoning behind the suspension will be sent to the tester, the tester's company, and the RME. The RME will maintain the letter in their records for future reference. If a tester is being revoked, the letter will be sent to the tester, the tester's company, the RME, and the Pavement Design and Documentation Manager. The RME and the Pavement Design and Documentation Manager will keep the letter on file for future reference.

Process for Abuse:

The Department will determine the severity of the abuse. The first finding of abuse will result in a minimum one-year suspension and may extend to permanent revocation of an individual to test on any CDOT project. Any subsequent finding of abuse shall result in permanent revocation of the tester to work on any CDOT project.

Notice of suspensions or revocations will be emailed to the individual and his/her employer along with the individual's right to appeal. A proposed revocation or suspension is effective upon receipt by the technician and will be affirmed, modified, or vacated following any appeal.

The Department should also be aware that both State and Federal laws may govern construction projects, including Title 18, United States Code, Section 1020, that in brief states that anyone making falsifications on Federal-aid projects: "Shall be fined not more than \$10,000 or imprisoned not more than five years, or both."

Notification of Revocation to Other Agencies

The Department may notify the other state agencies or certifying agencies of anyone having been revoked for testing on a CDOT project through CDOT's SiteManager program.

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 the chapter of the FMM Materials Forms – Instructions & Examples is not authorized.

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

Forms 473 and 474 Guidelines

Form 473 and Form 474 is an Adobe Acrobat DC form. The Forms must be downloaded to your computer before editing, open the document using Adobe Acrobat DC. Edit your document and save. The Form must remain in electronic format, do not scan the form or print the form when sending to final or next destination.

Step 1:

CDOT Form 473, 474



Trujillo - CDOT, Edward <edward.trujillo@state.co.us>

to Edward

Example

Edward A Trujillo

Product Evaluation Coordinator



PHONE: 303.655.6666 | CELL: 303.308.6514

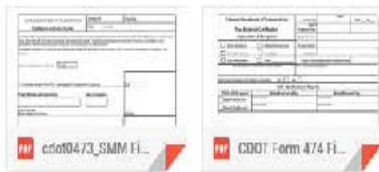
4670 Holly Street Unit A, Denver, CO 80216

edward.trujillo@state.co.us | www.codot.gov | www.cultrip.org

This message may contain confidential information and is intended only for individual(s) named. If you are not the intended recipient, you are not authorized to disseminate, distribute, or copy this email. Please notify the sender immediately if you have received this email by mistake and delete this email from your system. Thank you.

"Please consider the environment before printing this email."

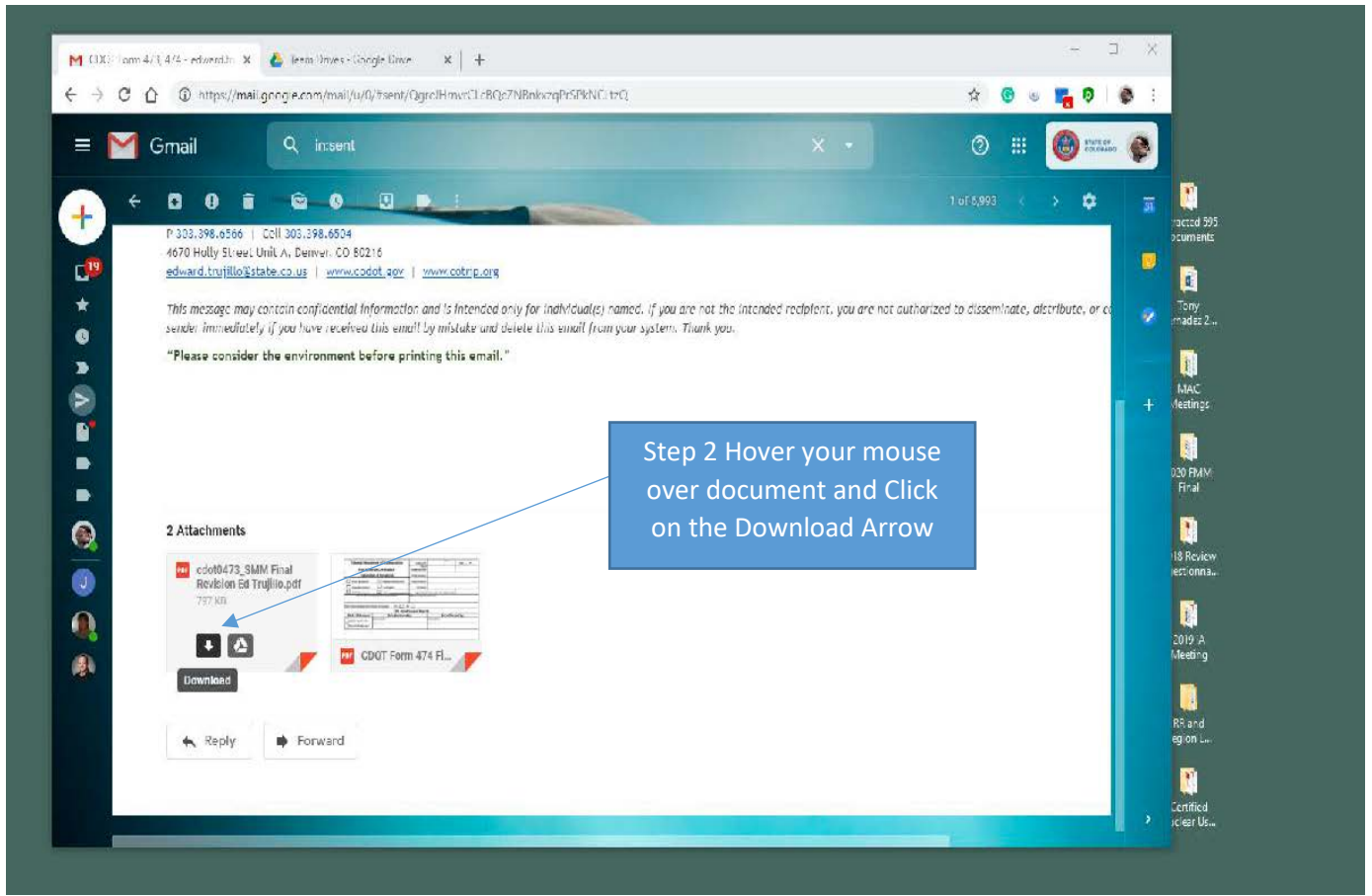
2 Attachments



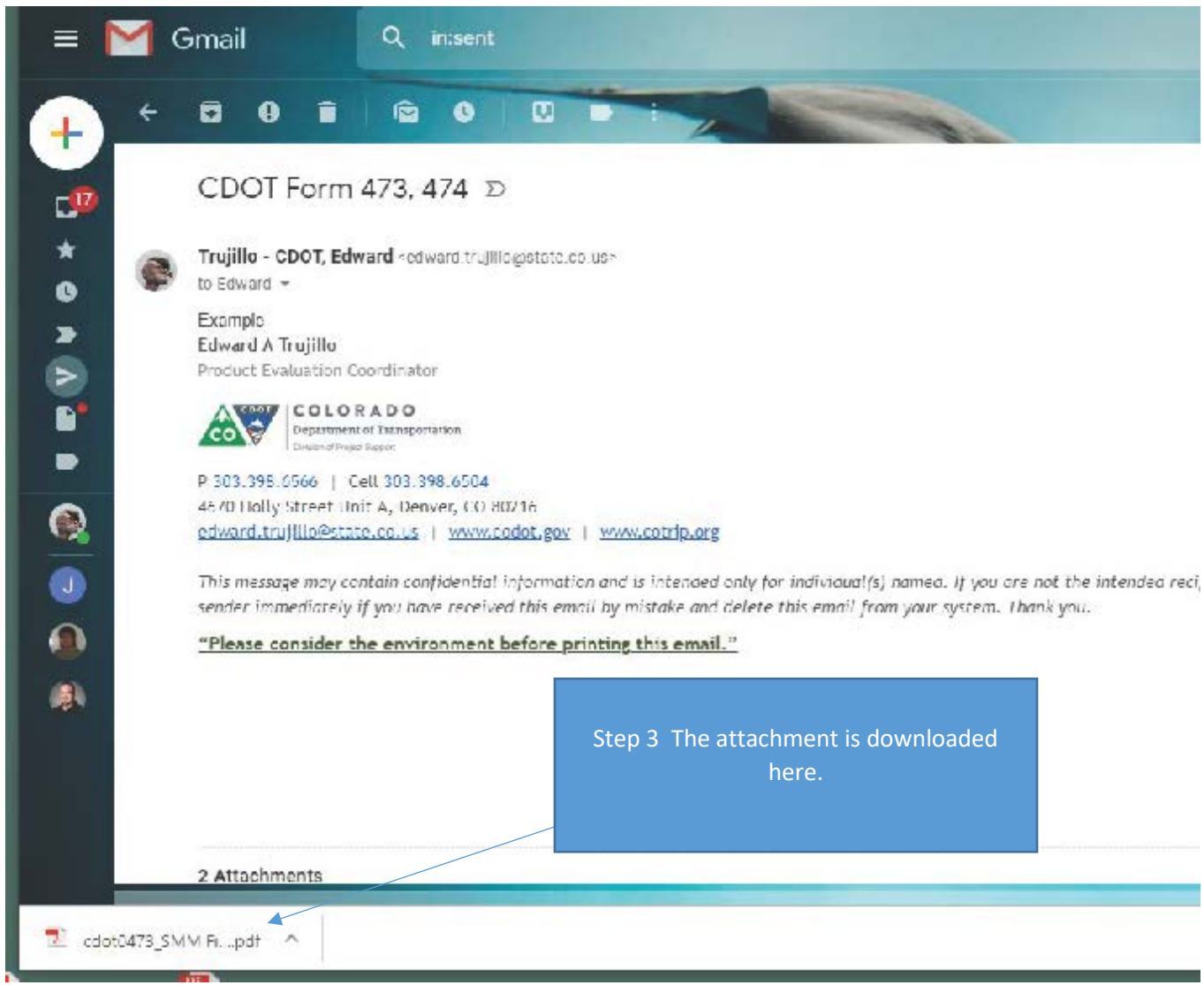
Step 1: Attachments are located at the bottom of your e-mail.



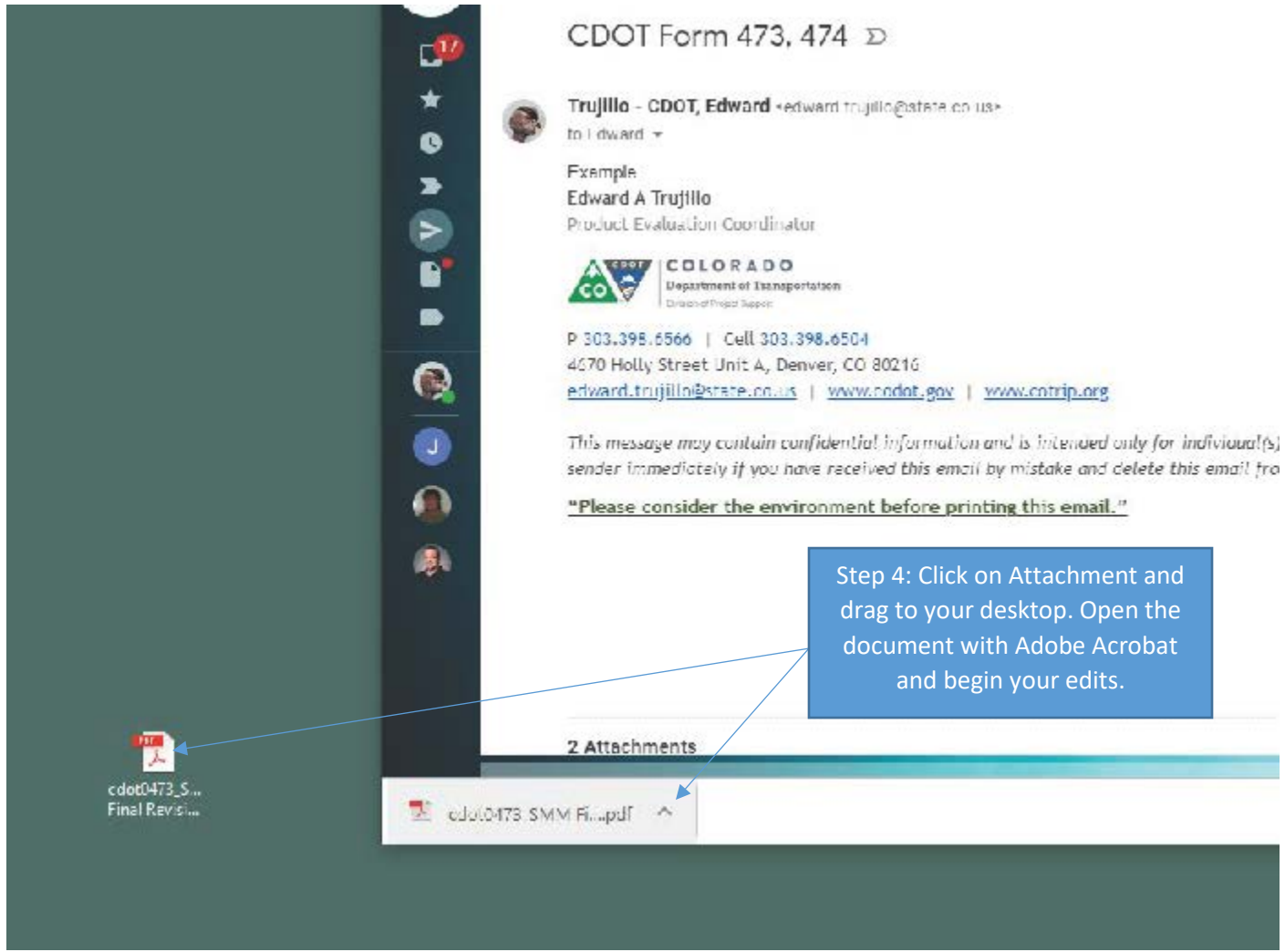
Step 2:



Step 3:



Step 4:



Form 473, Page 1

The intent of Form 473 is to ensure the project materials documentation has been completed per the Quality Assurance Procedures for Construction and Materials Sampling and Testing as stated in Section 19 of the Field Materials Manual and in the coordination of CDOT's stewardship agreement with the FHWA. The federal guidelines may be found in 23 CFR 637.205 and 23 CFR 637.2017. The stewardship agreement can be found on the CDOT internet site at the following address <https://www.codot.gov/business/designsupport/cdot-fhwa-stewardship-agreement>.

The form is laid out in logical order in which project construction and closure occurs from the top of the form ascending to the bottom. The following is a brief summary of the steps to complete the form:

Form 473

1. The IA initiates Form 473.
2. Lab inspection is performed prior to any project testing. The person performing the inspection and the date of the inspection are documented on Form 473.
3. IAT testing is completed prior to project testing.
4. Once all IA testing is completed, the Region Materials IA:
 - Signs Form 473
 - The Region Materials Engineer (RME) then signs the Form 473
 - The RME Forwards the form to the Project Tester
5. The Project Tester
 - Project Tester completes Items 2-8, the Project Engineer may complete Items 6-8 as necessary.
 - Project Tester signs Form 473 and ensure all required attachments are included and project testing has been completed.
6. The Project Engineer signs Form 473
7. Resident Engineer signs Form 473.
8. The Project Engineer and Resident Engineer's signatures verify the previous sections of the form have been completed and all applicable attachments are present.
9. The form and all attachments are placed in the ProjectWise folder Contract ID/Construction/Materials to be accessed by the Region Finals Materials Coordinator or Region Finals Administrator. The Region's finals personnel are required to have the completed form with attachments before final project closure.
10. The Region Finals Materials Documentation Coordinator or Region Finals Administrator signs the document.

Form 474

1. The Project Tester or the Project Engineer (rarely) initiates the Form.
2. The Project Tester fills out project information including the Contract ID, Region, Acceptance Date, Project Number, Project Location, Contractor and Project Final Documentation Completion Date.
3. The Project Tester selects the type of project and testing requirements for the project by checking the box for either Owner Acceptance, Independent Assurance, Innovative Contract, Local Agency, CDOT Maintenance, or Other
4. The Project Tester fills in the consulting company's name and if/whether sampling and testing are performed by a consultant.
5. The Project Tester checks the boxes for asphalt and/or concrete quality level. They also electronically sign the boxes to verify the concrete and asphalt data has been reviewed and checked. These boxes, reviewed by and checked by, are signed by different individuals.
6. Whoever reviews the project data (usually the Project Tester, Head Tester, Project Engineer, or a combination) fills out the bulk of the form which shall contain a detailed list with explanations of all exceptions or changes to a project, incentives and disincentives, failing tests, missing documents, etc.
7. The Project Tester or Project Engineer electronically signs the document, locking all their input from future alterations.

Form 473, Page 2

Form 473, Page 2 has been replaced with Form 474. Older versions of Form 473 shall not be used, even if specified in the Field Materials Manual required for the project. Project personnel should replace any older versions of Form 473 (pages 1 and 2) with the newest versions of Forms 473 and 474 and document the change in the project.

Form 474

CDOT's directive to go paperless was the primary direction for creating Form 474, which is essentially the old and cumbersome Form 473, Page 2. Form 474 CDOT Final Materials Certification/Explanation of Exceptions was created for supplemental project documentation. Some of the items that must be included on Form 474 include shortages of tests, missing COC/CTR's, price reductions, and CAR quality level report. As the title suggests this form also requires signatures that were previously on Form 473, Page 2.

Signature Blocks

Both Forms 473 and 474 have a signature lock feature built into them. Each signature will lock the entire section that particular the signature block is responsible for completing. Thus, each signer must verify their section is correct before signing, as once a signature is applied no changes can be made to that section. A more detailed list of instructions for filling and signing these two forms are as follows.

Form 473 There are six required signatures for Form 473, the following illustrates the proper order in a step by step process for correctly filling out this form.

COLORADO DEPARTMENT OF TRANSPORTATION		Contract ID	Project No.
Final Materials Certification Checklist		Region	Location
<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 on CDOT Form 474 - Explanation of Exceptions, see attached.</p> <p>Method of Acceptance for Item 403: <input type="text" value="Project"/></p>			
<p>1) IA Summary Report (Form #379), attached with IA Explanation of Exceptions.....</p> <p>Project Materials Lab Inspected by: <input type="text"/></p> <p>Date of inspection: <input type="text"/></p> <p>Final IA Review Region Materials Engineer</p>		<p><input type="text" value="N/A"/></p> <p>IA Tester</p>	
<p>Project Tester - Document all shortages of tests, missing COC/CTR's and explain all quality level incentives/disincentives, price reductions and include supplemental documents as required on the CDOT Form 474 - Final Materials Certification Explanation of Exceptions.</p> <p>2) CDOT Form 474 - Final Materials Certification Explanation of Exceptions with supplemental documentation as required.....</p> <p>3) Completed O/A and Certification Checklists.....</p> <p>4) Completed Random Sampling Schedules (all required elements).....</p> <p>5) Quality Control Notebooks (digital) for all required items.....</p> <p>6) Evaluation of Materials testing, Form 1324.....</p> <p>7) Buy America monthly summary reports.....</p> <p>8) Project Engineer has verified Pavement Structural Design Data is complete.....</p> <p>Project Acceptance Date: <input type="text"/></p>			
<p>Project Engineer: Ensure O/A Sampling & Testing Checklist, Certification Checklist and IA Checklist have met the minimum required testing. Explanation of Exceptions, Buy America summaries, Pavement Structural Design Data is complete. All documentation has been reviewed and placed in ProjectWise in the path ContractID/Construction/Materials.</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>		<p>Project Tester:</p>	
<p>Project Engineer:</p>		<p>Resident Engineer:</p>	
<p><input type="checkbox"/> Region Finals Materials Documentation Coordinator or the Region Finals Administrator has verified items 1-8. O/A Sampling Checklist, Certification Checklist, IA Checklist and all documentation is complete. Check for COMP status on Summary of Samples (All) Report.</p> <p><input type="checkbox"/> All items have been properly documented and placed into ProjectWise under the path: ContractID/Construction/FinalsDocumentation/Form 325 Packet</p> <p>Region Finals Materials Documentation Coordinator or the Region Finals Administrator</p>			

CDOT Form #0473SMM 6/18

Step 1. The IA tester initiates Form 473 and is responsible for filling out all Items A1 thru A6.

- A1: The Contract ID, Project No., Region, and Location.
- A2: Selecting the Item Method of Acceptance for Item 403 using a pull-down menu
- A3: The IA tester states if the IA Summary Report (Form 379) exists using a pull-down menu
- A4: Who inspected the Project Materials Lab, Type in Name of Individual.
- A5: Date of the Project Materials Lab inspection
- A6: The IA Tester electronically signs the document which will lock Items A1 through A6 (circled in blue) from future alterations by another person.

The image shows a screenshot of the CDOT Form 473, titled "COLORADO DEPARTMENT OF TRANSPORTATION Final Materials Certification Checklist". The form is annotated with callouts A1 through A6, each pointing to a specific field or set of fields:

- A1:** Points to the header section containing "Contract ID", "Project No.", "Region", and "Location".
- A2:** Points to the "Method of Acceptance for Item 403" dropdown menu, which is currently set to "Project".
- A3:** Points to the "1) IA Summary Report (Form #379)" dropdown menu, which is currently set to "N/A".
- A4:** Points to the "Project Materials Lab Inspected by:" text input field.
- A5:** Points to the "Date of inspection:" text input field.
- A6:** Points to the "IA Tester" signature field, which is circled in blue.

Other visible fields on the form include "Final IA Review", "Project Tester", and a list of items (2-8) with corresponding "N/A" dropdown menus. At the bottom, there are signature lines for "Project Engineer" and "Resident Engineer", and a section for "Region Finals Materials Documentation Coordinator or the Region Finals Administrator".

CDOT Form #0473SMM 6/18

Step 2. The Final IA Review is performed, verified, and electronically signed by the Region Materials Engineer in Item B.

COLORADO DEPARTMENT OF TRANSPORTATION		Contract ID	Project No.
Final Materials Certification Checklist		Region	Location
<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 on CDOT Form 474 - Explanation of Exceptions, see attached.</p>			
Method of Acceptance for Item 403: <input type="text" value="Project"/>			
1) IA Summary Report (Form #379), attached with IA Explanation of Exceptions.....		<input type="text" value="N/A"/>	
Project Materials Lab Inspected by: <input type="text"/>		Date of inspection: <input type="text"/>	
Final IA Review Region Materials Engineer		IA Tester	
<input type="text"/>		<input type="text"/>	
<p>Project Tester - Document all shortages of tests, missing COC/CTR's and explain all quality level incentives/disincentives, price reductions and include supplemental documents as required on the CDOT Form 474 - Final Materials Certification Explanation of Exceptions.</p>			
2) CDOT Form 474 - Final Materials Certification Explanation of Exceptions with supplemental documentation as required.....		<input type="text" value="N/A"/>	
3) Completed O/A and Certification Checklists.....		<input type="text" value="N/A"/>	
4) Completed Random Sampling Schedules (all required elements).....		<input type="text" value="N/A"/>	
5) Quality Control Notebooks (digital) for all required items.....		<input type="text" value="N/A"/>	
6) Evaluation of Materials testing, Form 1324.....		<input type="text" value="N/A"/>	
7) Buy America monthly summary reports.....		<input type="text" value="N/A"/>	
8) Project Engineer has verified Pavement Structural Design Data is complete.....		<input type="text" value="N/A"/>	
Project Acceptance Date: <input type="text"/>		Project Tester: <input type="text"/>	
<p>Project Engineer: Ensure O/A Sampling & Testing Checklist, Certification Checklist and IA Checklist have met the minimum required testing. Explanation of Exceptions, Buy America summaries, Pavement Structural Design Data is complete. All documentation has been reviewed and placed in ProjectWise in the path ContractID/Construction/Materials.</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"/>	
<p><input type="checkbox"/> Region Finals Materials Documentation Coordinator or the Region Finals Administrator has verified items 1-8. O/A Sampling Checklist, Certification Checklist, IA Checklist and all documentation is complete. Check for COMP status on Summary of Samples (All) Report.</p> <p><input type="checkbox"/> All items have been properly documented and placed into ProjectWise under the path: ContractID/Construction/FinalsDocumentation/Form 325 Packet</p>			
Region Finals Materials Documentation Coordinator or the Region Finals Administrator			
<input type="text"/>			

B

Step 3. The Project Tester is responsible for a large amount of the required documentation which is listed as Items 2 through 8 in the section circled in blue.

- C1: The Project Tester will verify if the documentation is in the project files or not applicable using a drop-down menu. Items stated as missing with a "No" or not applicable "N/A" shall be listed on Form 474 with a detailed explanation.
- C2: The Project Acceptance Date shall be filled out by the Project Tester
- C3: The Project Tester shall electronically sign the document which will lock all items shown as Section C (Circled in Blue) from future alterations by another person.

COLORADO DEPARTMENT OF TRANSPORTATION		Contract ID	Project No.
Final Materials Certification Checklist		Region	Location
<small>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. Independent Assurance (IA) samples were tested with independent equipment unless noted on CDOT Form 474 - Explanation of Exceptions, see attached.</small>			
Method of Acceptance for Item 403: <input type="text" value="Project"/>			
1) IA Summary Report (Form #379), attached with IA Explanation of Exceptions.....		<input type="text" value="N/A"/>	
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 <input type="text"/>	
Project Tester - Document all shortages of tests, missing COC/CTR's and explain all quality level incentives/disincentives, price reductions and include supplemental documents as required on the CDOT Form 474 - Final Materials Certification Explanation of Exceptions.			
2) CDOT Form 474 - Final Materials Certification Explanation of Exceptions with supplemental documentation as required.....		<input type="text" value="N/A"/>	
3) Completed O/A and Certification Checklists.....		<input type="text" value="N/A"/>	
4) Completed Random Sampling Schedules (all required elements).....		<input type="text" value="N/A"/>	
5) Quality Control Notebooks (digital) for all required items.....		<input type="text" value="N/A"/>	
6) Evaluation of Materials testing, Form 1324.....		<input type="text" value="N/A"/>	
7) Buy America monthly summary reports.....		<input type="text" value="N/A"/>	
8) Project Engineer has verified Pavement Structural Design Data is complete.....		<input type="text" value="N/A"/>	
Project Acceptance Date: <input type="text"/>		Project Tester: <input type="text"/>	
<small>Project Engineer: Ensure O/A Sampling & Testing Checklist, Certification Checklist and IA Checklist have met the minimum required testing. Explanation of Exceptions, Buy America summaries, Pavement Structural Design Data is complete. All documentation has been reviewed and placed in ProjectWise in the path: ContractID/Construction/Materials. 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.</small>			
Project Engineer: <input type="text"/>		Resident Engineer: <input type="text"/>	
<input type="checkbox"/> Region Finals Materials Documentation Coordinator or the Region Finals Administrator has verified items 1-8. O/A Sampling Checklist, Certification Checklist, IA Checklist and all documentation is complete. Check for COMP status on Summary of Samples (All) Report. <input type="checkbox"/> All items have been properly documented and placed into ProjectWise under the path: ContractID/Construction/FinalsDocumentation/Form 325 Packet			
Region Finals Materials Documentation Coordinator or the Region Finals Administrator <input type="text"/>			

CDOT Form #0473SMM 6/18

C2

C1

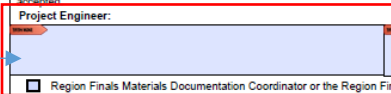
C3

Step 4. The Project Engineer signs the document Item (D) ensuring the:

- O/A Sampling and Testing Checklist, Certification Checklist, and IA Checklist have met the minimum required testing.
- Explanation of Exceptions is complete
- Buy America summaries are complete
- Pavement Structural Design Data is complete
- All documentation has been reviewed and placed in ProjectWise in the path Contract ID/Construction/Materials.
- Certifies the results of tests on acceptance samples indicate the material incorporated was in conformity with plans and specifications and compare favorably with results of IA sampling and testing.

COLORADO DEPARTMENT OF TRANSPORTATION		Contract ID	Project No.
Final Materials Certification Checklist		Region	Location
<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 on CDOT Form 474 - Explanation of Exceptions, see attached.</p> <p>Method of Acceptance for Item 403: <input type="text" value="Project"/></p>			
<p>1) IA Summary Report (Form #379), attached with IA Explanation of Exceptions.....</p>		<input type="text" value="N/A"/>	
<p>Project Materials Lab Inspected by: <input type="text"/></p> <p>Date of inspection: <input type="text"/></p>		<p>IA Tester</p> <input type="text"/>	
<p>Final IA Review Region Materials Engineer</p> <input type="text"/>		<input type="text"/>	
<p>Project Tester - Document all shortages of tests, missing COC/ICTR's and explain all quality level incentives/disincentives, price reductions and include supplemental documents as required on the CDOT Form 474 - Final Materials Certification Explanation of Exceptions.</p>			
<p>2) CDOT Form 474 - Final Materials Certification Explanation of Exceptions with supplemental documentation as required.....</p>		<input type="text" value="N/A"/>	
<p>3) Completed O/A and Certification Checklists.....</p>		<input type="text" value="N/A"/>	
<p>4) Completed Random Sampling Schedules (all required elements).....</p>		<input type="text" value="N/A"/>	
<p>5) Quality Control Notebooks (digital) for all required items.....</p>		<input type="text" value="N/A"/>	
<p>6) Evaluation of Materials testing, Form 1324.....</p>		<input type="text" value="N/A"/>	
<p>7) Buy America monthly summary reports.....</p>		<input type="text" value="N/A"/>	
<p>8) Project Engineer has verified Pavement Structural Design Data is complete.....</p>		<input type="text" value="N/A"/>	
<p>Project Acceptance Date: <input type="text"/></p>		<p>Project Tester:</p> <input type="text"/>	
<p>Project Engineer: Ensure O/A Sampling & Testing Checklist, Certification Checklist and IA Checklist have met the minimum required testing. Explanation of Exceptions, Buy America summaries, Pavement Structural Design Data is complete. All documentation has been reviewed and placed in ProjectWise in the path: ContractID/Construction/Materials. 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>			
<p>Project Engineer:</p> <input type="text"/>		<p>Resident Engineer:</p> <input type="text"/>	
<p><input type="checkbox"/> Region Finals Materials Documentation Coordinator or the Region Finals Administrator has verified items 1-8. O/A Sampling Checklist, Certification Checklist, IA Checklist and all documentation is complete. Check for COMP status on Summary of Samples (All) Report.</p> <p><input type="checkbox"/> All items have been properly documented and placed into ProjectWise under the path: ContractID/Construction/FinalsDocumentation/Form 325 Packet</p>			
<p>Region Finals Materials Documentation Coordinator or the Region Finals Administrator</p> <input type="text"/>			

D



Step 5. The Resident Engineer signs the document Item (E) ensuring the:

- O/A Sampling and Testing Checklist, Certification Checklist, and IA Checklist have met the minimum required testing.
- Explanation of Exceptions is complete.
- Buy America summaries are complete.
- Pavement Structural Design Data is complete.
- All documentation has been reviewed and placed in ProjectWise in the path Contract ID/Construction/Materials.
- Certifies the results of tests on acceptance samples indicate the material incorporated was in conformity with plans and specifications and compare favorably with results of IA sampling and testing.

COLORADO DEPARTMENT OF TRANSPORTATION		Contract ID	Project No.
Final Materials Certification Checklist		Region	Location
<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 on CDOT Form 474 - Explanation of Exceptions, see attached.</p>			
Method of Acceptance for Item 403: <input type="text" value="Project"/>			
1) IA Summary Report (Form #379), attached with IA Explanation of Exceptions.....		<input type="text" value="N/A"/>	
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 <input type="text"/>	
<p>Project Tester - Document all shortages of tests, missing COC/CTR's and explain all quality level incentives/disincentives, price reductions and include supplemental documents as required on the CDOT Form 474 - Final Materials Certification Explanation of Exceptions.</p>			
2) CDOT Form 474 - Final Materials Certification Explanation of Exceptions with supplemental documentation as required.....		<input type="text" value="N/A"/>	
3) Completed OIA and Certification Checklists.....		<input type="text" value="N/A"/>	
4) Completed Random Sampling Schedules (all required elements).....		<input type="text" value="N/A"/>	
5) Quality Control Notebooks (digital) for all required items.....		<input type="text" value="N/A"/>	
6) Evaluation of Materials testing, Form 1324.....		<input type="text" value="N/A"/>	
7) Buy America monthly summary reports.....		<input type="text" value="N/A"/>	
8) Project Engineer has verified Pavement Structural Design Data is complete.....		<input type="text" value="N/A"/>	
Project Acceptance Date: <input type="text"/>		Project Tester: <input type="text"/>	
<p>Project Engineer: Ensure OIA Sampling & Testing Checklist, Certification Checklist and IA Checklist have met the minimum required testing. Explanation of Exceptions, Buy America summaries, Pavement Structural Design Data is complete. All documentation has been reviewed and placed in ProjectWise in the path ContractID/Construction/Materials.</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"/>	
<p><input type="checkbox"/> Region Finals Materials Documentation Coordinator or the Region Finals Administrator has verified items 1-8. OIA Sampling Checklist, Certification Checklist, IA Checklist and all documentation is complete. Check for COMP status on Summary of Samples (All) Report.</p> <p><input type="checkbox"/> All items have been properly documented and placed into ProjectWise under the path: ContractID/Construction/FinalsDocumentation/Form 325 Packet</p>			
Region Finals Materials Documentation Coordinator or the Region Finals Administrator <input type="text"/>			

E

Step 6. The Region Finals Materials Documentation Coordinator or the Region Finals Administrator signs the document Item (F). They must also check the following:

- The box stating they have verified Items 1-8 on this form.
- All items have been properly documented and placed in ProjectWise.

COLORADO DEPARTMENT OF TRANSPORTATION		Contract ID	Project No.
Final Materials Certification Checklist		Region	Location
<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 on CDOT Form 474 - Explanation of Exceptions, see attached.</p> <p>Method of Acceptance for Item 403: <input type="text" value="Project"/></p>			
1) IA Summary Report (Form #379), attached with IA Explanation of Exceptions.....		<input type="text" value="N/A"/>	
Project Materials Lab Inspected by: <input type="text"/>		Date of inspection: <input type="text"/>	
Final IA Review Region Materials Engineer		IA Tester	
<input type="text"/>		<input type="text"/>	
<p>Project Tester - Document all shortages of tests, missing COC/CTR's and explain all quality level incentives/disincentives, price reductions and include supplemental documents as required on the CDOT Form 474 - Final Materials Certification Explanation of Exceptions.</p>			
2) CDOT Form 474 - Final Materials Certification Explanation of Exceptions with supplemental documentation as required.....		<input type="text" value="N/A"/>	
3) Completed OIA and Certification Checklists.....		<input type="text" value="N/A"/>	
4) Completed Random Sampling Schedules (all required elements).....		<input type="text" value="N/A"/>	
5) Quality Control Notebooks (digital) for all required items.....		<input type="text" value="N/A"/>	
6) Evaluation of Materials testing, Form 1324.....		<input type="text" value="N/A"/>	
7) Buy America monthly summary reports.....		<input type="text" value="N/A"/>	
8) Project Engineer has verified Pavement Structural Design Data is complete.....		<input type="text" value="N/A"/>	
Project Acceptance Date: <input type="text"/>		Project Tester: <input type="text"/>	
<p>Project Engineer: Ensure OIA Sampling & Testing Checklist, Certification Checklist and IA Checklist have met the minimum required testing. Explanation of Exceptions, Buy America summaries, Pavement Structural Design Data is complete. All documentation has been reviewed and placed in ProjectWise in the path ContractID/Construction/Materials.</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"/>	
<p><input type="checkbox"/> Region Finals Materials Documentation Coordinator or the Region Finals Administrator has verified items 1-8. OIA Sampling Checklist, Certification Checklist, IA Checklist and all documentation is complete. Check for COMP status on Summary of Samples (All) Report.</p> <p><input type="checkbox"/> All items have been properly documented and placed into ProjectWise under the path: ContractID/Construction/FinalsDocumentation/Form 325 Packet</p>			
Region Finals Materials Documentation Coordinator or the Region Finals Administrator		<input type="text"/>	
<input type="text"/>			

F

CDOT Form #0473SMM 6/18

Form 474 is essentially the old Form 473 Page 2, but with a couple of upgrades. Similar to the new Form 473, electronic signatures will lock in the various areas the signee is responsible. The following illustrates the proper step by step process for correctly filling out this form.

Step 1: The Project Tester or (in rare cases) the Project Engineer fill out the following:

- Item A1: Contract Id, Region, Acceptance Date, Project Number, Project Location, Contractor and Project Final Documentation Completion Date.
- Item A2: Select the type of project and testing requirements for the project by check the box for either owner acceptance, independent assurance, innovative contract, Local Agency, CDOT Maintenance, or Other
 - If other is selected then a description must be typed in this box.
- Item A3: Type CDOT or the consulting company's name in the box adjacent to the signature.
- Item A4: Select 'Yes' or 'No' if the CDOT Project sampling and testing are performed by a consultant.
- Item A5: The Project Tester or Project Engineer check the box(s) for asphalt and/or concrete quality Level. They also electronically sign the boxes to verify the concrete and asphalt data has been reviewed and checked. These boxes, reviewed by and checked by, are signed by different individuals.
- Item A6: whoever reviews the project data fills this block out. Usually, it is the Project Tester, Head Tester, Project Engineer, or a combination depending on who has reviewed the project data. This box should contain a detailed list with explanations of all exceptions or changes to a project, incentives, and disincentives, failing tests, missing documents, etc.
- Item A7: The Project Tester or Project Engineer electronically signs the document, locking all their input (outlined in blue) from future alterations.

Step 2: Item B: Signed by the Consultant Firm's PE, if a consultant tester was used. If no consultant tester was used, then this block will remain blank.

Step 3: Item B1: This block is for comments made by the Consultant Firm's PE if a consultant tester was used. If no consultant tester was used, then this block will remain blank.

Colorado Department of Transportation		Contract ID: _____	Region: _____	Page _____ of _____
Final Materials Certification		Project: _____	Acceptance Date: _____	
Explanation of Exceptions		Project Number: _____	Project Location: _____	
<input type="checkbox"/> Owner Acceptance	<input type="checkbox"/> Independent Assurance	Contractor: _____	Project Final Documentation Completion Date: _____	
<input type="checkbox"/> Innovative Contract	<input type="checkbox"/> Local Agency	CDOT or Consultant Company Name: _____		
<input type="checkbox"/> CDOT Maintenance	<input type="checkbox"/> Other	Electronic signature of Project Tester or Project Engineer: _____		
CDOT Project Sampling and Testing by Consultant: YES <input type="checkbox"/> NO <input type="checkbox"/>				
CAR - Quality Level Reports				
FINAL CAR report	Data Reviewed by:		Data Checked by:	
<input type="checkbox"/> Asphalt Quality Level	Electronic Signature: _____	Electronic Signature: _____	Electronic Signature: _____	
<input type="checkbox"/> Concrete Quality Level	Electronic Signature: _____	Electronic Signature: _____	Electronic Signature: _____	
Consultant Firm PE Comments (for this page only, more pages may follow).				
Instructions: Signature of Project Tester or Project Engineer shall be signed after explanations are complete. Hand signed document is not acceptable, only electronic signatures. Header information will populate to all pages from Page 1. Document has 6 pages available. Explain all shortages of tests, missing COC/CTR's, and price reductions. Explain CAR - Quality Level Reports for processes, Pay Factor of 1, quantity discrepancies and total incentive/disincentive payments if QLRs apply to the contract. Final package shall include all supporting documentation for price reductions, CMO/MCR's, and CDOT Form 105 detailing deleted items by the PE. See FMM Documentation chapters - After Construction - for more information All CAR - Quality Level Reports must be Final Report with no errors.			Consultant Firm PE Electronic Signature: _____	
			Consultant Firm PE Electronic Stamp or Wet Stamp: _____	

The following is an example of what goes into the Explanation of Exceptions CDOT Form 474 Final Materials Certification (A6) block.

CAR Report Owner Acceptance Sampling & Testing Checklist:

Item 203-00060: Embankment Material (Complete in Place): Contractor placed 4,115.00 CY of Embankment Material 2 inches thick. Material too thin to perform CP80aa Den/Moist Content of soil by nuclear gauge. Project specials required PI of 5-15, a test result of 13. Project Engineer accepted the material.

The embankment, Rock not encountered on the project.

Item 304-06007 Aggregate Base Course (Class6)

CP23aa not needed to be based on T180D performed which includes the plus 4 material.

CP25- Not performed due to a small quantity and no change in material observed.

Based on the quantity of 2,113 CY (2 -T89 and T90's) should have been completed. The second test would have covered the fraction of the 113 CY. Based on the results of test #1 -T89 (No Value) and the T90 (Non-Plastic), the 2nd test was not completed to cover the 113 CY.

Item 403-34741: Hot Mix Asphalt (Grading SX) (75) (PG 64-22)

Mix ID: 42017B1_20856_

Both Phase 1 and Phase 2 of the US 24 El Paso- Elbert county line projects were completed by Jones Contractors utilizing the same mix designs, the PC tester and the mobile voids trailer personnel were the same. For this reason, check testing and CPL5120C was not performed on phase 2 but was completed on phase 1.

The project was Voids Acceptance, 7,028 tons were placed on a thin lift leveling course (1.5 inches), Project Specials specified the leveling course to be a Pay Factor of 1 for the mat density and longitudinal joints, (CP 44, 15 tests completed). Joint cores were not taken, SMM sample (SMITHJP178G082717) used to document 7,028 tons for CP44L, Pay Factor of 1. Flood plain area required 947 tons to be placed. 2- CP44 test was completed in this area. 1,244 tons were placed with a 2-inch mat over a milled surface, 2- CP44's were taken due to the small area of placement. A total of 9,219 tons were placed and tested using CP44.

A total of 15,078 tons were placed and tested using CP81 and CP82.

The Asphalt Quality Level report for (42017B1_20856_) Mat Density, 1 compaction test section (CP82) representing 500 ton, 3 processes representing 23797 tons.

- Process 1: representing 947 tons, placed in the flood plain.
- Process 2: representing 15,822 tons placed, 2-inch middle mat.
- Process 3: Pay Factor of 1 representing 7,028 tons placed, 1-1/2 inch leveling course.

HMA (Grading SX) (75) (PG 64-22) total tons placed 24,297.

Asphalt content tested using CPL5120. CP85 and CP85C not used.

CPL5120C was completed on phase 1.

Item 403-34751 Hot Mix Asphalt (Grading SX) (75) (PG 64-28)**Mix ID: 42017T1_20856_**

The project was Voids Acceptance, 18,478 tons was placed for a 2 inch top mat. CP44, CP85, CP85C were not used do to alternative test methods used. CP81- 36 tests, CP82- 1 test, for a total 37 test completed.

Total tons placed 18,478 on top mat.

Total tons placed on project 42,775, with an incentive of \$134,599.11.

CP58- Contractor followed best paving practices. There was not any indication of temperature segregation seen in the mat densities. The mean mat density for the bottom mat was 93.3%. Top mat mean mat density was a 93.6%

Item 601-01000 Concrete Class B: Visual inspection due to a small quantity (1.3 CY), material placed in the headwall of pipe.

Item 603-10120 12 Inch Corrugated Steel pipe.

Pipe placed under sidewalk with small amount of structure backfill mostly for bedding of pipe. Testing could not be performed due to the small area of placement. Compaction effort was performed by the contractor and Project Engineer accepted visually. See attached picture.

Item 608 00010 Concrete Curb Ramp.

Visual inspection does to small quantities, 37 SY, material placed in curb ramp for the sidewalk.

CAR Report Certification Checklist:**Item 216-00101 Soil Retention Blanket**

After numerous requests to the contractor, no documentation was received. Material delivered was inspected and the label on the product was found to be on the CDOT APL, Western Excelsior- Excel C5-3 All Natural. Based on the material being an APL product, Project Engineer accepted the material. Sample record created in Site Manager to document the product, no attachment on sample record.

Item 601-01000 & 608-00010- Concrete

Cure

The small quantity used on both of these items, material visually accepted by Project Engineer.

Item 627-00008 and 627-30405 Pavement Marking Materials

Two records completed on each item to reflect white and yellow material.

COLORADO DEPARTMENT OF TRANSPORTATION Owner Acceptance Sampling & Testing Checklist	Contract No. STA0243-087	Region 4	Contract ID C20856
	Contract Location US 24 B Paso-Elbert CL Paving	Award Date 04/05/2017	Ad Date 02/23/2017
	Contractor SIMON CONTRACTORS	Field Materials Manual Year 2017	

SM Report 250 Revision Date 10/06/2017 Production Page 1 of 12
 Date Printed 5/7/2018

*# 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
Matl Code	Material Description	Test Description	Sample Type	Rate / Frequency	Line Item No.	Required to Date	Estimated Remaining	Completed to Date
				Plan + COQT		Required to Date	Estimated Remaining	Completed to Date
				Total Plan + CO Quantity		Required to Date	Estimated Remaining	Completed to Date
20856-BID	US24 ELPASO-ELBERT CLEAST PA							
20856-BID	203-00060	Embankment Material (Complete in Place)	CY	1.0000		4,115.00	4,115.00	4,115.00
	203.03.01.01	Embankment, Soil						
	T89	T89 Liquid Limit of Soils	QA %	2,992.00	0035	1	0	1
	T90	T90 Plastic Limit and Plasticity Index of Soils	QA %	2,992.00	0035	1	0	1
	203.03.01.02	Embankment, Rock	CY	2,992.00		1	0	1
	CP21	CP21 Mechanical Analysis of Soils	QA %	2,992.00	0035	1	0	1
	CPL2103	CPL2103 S04 Ion Content in H2O & Water Soluble of Soil	QA %	2,992.00	0035	1	0	1
	CPL2104	CPL2104 Det. Water-Soluble Chloride Ion Content in Soil	QA %	2,992.00	0035	1	0	1
	CPL3104	CPL3104 Durability of Shales for Use as Embankments	QA %	2,992.00	0035	1	0	1

COLORADO DEPARTMENT OF TRANSPORTATION		Contract No. STA0243-087	Region 4	Contract ID C20866
Certification Checklist		Contract Location US 24 B Paso-Elbert CL Paving	Award Date 04/05/2017	Field Materials Manual Year 2017
		Contractor SIMON CONTRACTORS	Ad Date 02/23/2017	

SMM Report CERT Revision Date: 02/13/2017
 *% Refer to Frequency Guide Schedule for further instructions.
 20866-BID US24 EL PASO-ELBERT CL EAST PA

Project	Item Code	Item Description	Material Unit	Conversion Factor	Item Unit	Total Plan + CO quantity	Special Instructions	Quantity Reported to Date	Total Installed Quantity	Line Item No.	Prod/Supplier Name	Req'd Number of Cert	Certs Received to Date
20866-BID	208-00002	Erosion Log Type 1 (12 Inch)	LF	1.0000	LF	500.00		546.00	546.00				
	208.02.10.00	Erosion Control, Erosion Log	LF	1.0000									
	CERT	CERT Material Certification											
20866-BID	212-00006	Seeding (Native)	ACRE	1.0000	ACRE	0.15		0.25	0.25				
	212.06.01.00	Seed, Native	ACRE	1.0000									
	CERT	CERT Material Certification											
20866-BID	212-00032	Soil Conditioning	ACRE	1.0000	ACRE	0.15		0.25	0.25				
	212.02.02.00	Soil Conditioning	ACRE	1.0000									
	CERT	CERT Material Certification											
20866-BID	216-00101	Soil Retention Blanket (Straw-Coconut) (Photo-degradable)	\$ Y	1.0000	\$ Y	730.00		1799.00	1799.00				
	216.02.02.00	Soil Retention Covering, Blanket	\$ Y	1.0000									
	CERT	CERT Material Certification											
20866-BID	403-34741	Hot Mix Asphalt (Grading SX) (75) (PG 64-22)	TON	1.0000	TON	23662.00		24297.43	24297.43				
	702.01.01.03	Asphalt Cement, Binder, PG64-22	TON	1.0000									
	CERT	CERT Material Certification											
712.03.01.00	712.03.01.00	Hydrated Lime	TON	1.0000	TON	0.095							
	CERT	CERT Material Certification											
			CTR	%		0.095							

COLORADO DEPARTMENT OF TRANSPORTATION Independent Assurance Sampling & Testing Checklist	Contract No. STA0243-087	Region 4	Contract ID C20856
	Contract Location US 24 B Paso-Elbert CL Paving	Award Date 04/05/2017	Ad Date 02/23/2017
	Contractor SIMON CONTRACTORS	Field Materials Manual Year 2017	

SM Report 379 Revision Date 10/06/2017 Production Page 1 of 3
 Date Printed 5/7/2018

*# 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	
Matl Code	Material Description	Test Description	Sample Type / Frequency	Plan + COCT / Total Plan + CO Quantity	Estimated Required Tests	Required Tests to Date	Estimated Tests Remaining	Completed Tests to Date	Tests (+/-) to Date
20856-BID	US24ELPASO-ELBERT CLEAST PA								
403-34741	Hot Mix Asphalt (Grading SX)(75) (PG 64-22)			TON	24,297.43	24,297.43	24,297.43	24,297.43	
403.02.01.11	Hot Mix Asphalt (SX)(75)(PG64-22)			TON	1.0000				
CP44	CP44 Bulk Sp G & Comp. of HMA Using SSD Specimens								
CP44L	CP44L Bulk Sp G & Comp. of HMA Using SSD Specimens - Long								
CP48aa	CP48aa-Voids in the Mineral Aggregate (MMA)								
CP51	CP51 Maximum Specific Gravity of HMA								
CPL5106	CPL5106 Res. to Deformation of Bitum. Mixture; Hveem								
CPL5115	CPL5115 Dens. of Bitum. Mix Specimens Compacted by the SGC								

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®

Maintain Sample Information			
Basic Sample Data	Addtl Sample Data	Contract	Other
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: RDOOR	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
- Reqst By:** PROJECT
- Witnessed By:** ROOTR
- Smpl Size:** 1 Can
- Dist from Grade:** Spaces
- Station:** 164+50
- Offset:** EB TL
- Reference:**
- Smpld 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:**
- DWR Date:** 00/00/00
- Last Modified User ID:** GOODSELM
- Last Modified Date:** 05/10/16
- 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 the 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 items 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 items 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 web-based form titled "ACCOST Document AC Cost per Ton of HMA". The form is part of a "Test Data" section within the "Enter Test Results" application. It contains the following elements:

- ACCOST Document AC Cost per Ton of HMA**: The main title of the form.
- Radio Buttons**: Three radio buttons are located on the right side of the form:
 - In Spec
 - Out of Spec
 - No Spec
- Print Button**: A button labeled "Print" is located below the radio buttons.
- Input Fields**:
 - Bid Item #:** A text input field containing the value "411-03354".
 - AC Cost:** A text input field containing the value "320.00".
 - Remarks:** A large, empty text area for entering additional information.

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 are an Interim or Final Report and a signature block for the tester and crosschecker. 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.

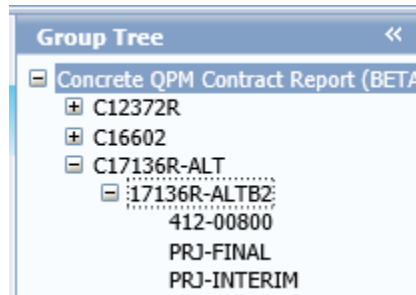
At the end of each item section there is a summary for each mix design and then a final summary at the end of the report for a comparison of the element totals and a list of the total incentive/disincentive by mix design.

Addendum 2

1.0 CONCRETE QUALITY LEVEL REPORT

INTRODUCTION:

Standard Specifications for Road and Bridge construction sections 105.06, 106.06 and 412 contain the specifications for concrete paving. The Concrete03 program is replaced by the Quality Level Report. The report will generate by choosing the contract and project in CAR. It will be possible to run different versions of the report by using the expand (+) and collapse (-) icons



- Item Code – shows the quality level, incentive or disincentive, for each concrete item on the project.
- Interim – shows a preliminary report without checking for element totals or sample completion to ensure the square yards for each element match.
- The final – final report 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 on the first page of the report to show what data is missing or incorrect. This may include a blank Control Type, Control Number 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 has 412 and 601 material codes. The following are critical fields used by the report that must be correctly populated in SiteManager:

BASIC SAMPLE DATA TAB:

Sample Date: Defaulted to sample creation date and can be changed to any time before the sample Log Date. Sample creation should be completed in the order they are obtained and tested so they appear in the correct order on the report.

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

Material: The material codes used for concrete paving will begin with either 412 (Thickness) or 601 (Strength) refer to the OA Sampling and Testing Checklist for the exact code.

Repr Qty: This is the quantity to be represented by the tests that will be assigned to the record. The total quantity for the element will be obtained by adding the Repr Qty's from each sample.

Maintain Sample Information				
Basic Sample Data	ADDtl Sample Data	Contract	Other	Tests
Smpl ID:	SEMUSD1586094653	Buy American:	<input type="checkbox"/>	Spaces
Reqst By:	PROJECT	Witnessed By:	SEMUSD	
Smpl Size:	1	Lot		
Dist from Grade:		Spaces		
Station:	277+50	Offset:		Reference:
Smpld From:	GRADE			
Smpl Origin:				
Control Type:	PROCESS	Cntrl Number:	1	Seal Number:
Design Type:	PCC	Mix ID:	2015081R	
Plant ID:		Plant Type:	Spaces	
Creator User ID:	SEMUSD	Include Standard Remarks:	<input type="checkbox"/>	Sample Created from DWR
Last Modified User ID:	MAYHEWT	Last Modified Date:	03/25/16	DWR Date:
				00/00/00
				DWR Inspector:

ADDTL SAMPLE DATA TAB:

Control Type: Process is the only entry allowed for concrete. See section 105.06 (a) for process changes

Cntrl Number: This field will identify the number of the process. Different combinations of processes and control numbers may be required on a project. For example:

- A Control Type of **Process** with Cntrl Number of 1 for 6-inch concrete pavement
- A Control Type of **Process** with a Cntrl Number of 2 for 8-inch concrete pavement. For the pavement thickness element, a new mix design is not a reason to create a new process as per 105.06 (a) of the Standard Specifications

Design Type: This field will be **PCC** for concrete paving.

Mix ID: Complete this cell with the mix design that represents the material tested. HQ Concrete Unit must approve the mix design for the project and the proper association between the mix design and project made in SiteManager®. **This is the mix design number shown on the CDOT Form 1373.**

Note: For the Thickness element, do not enter a mix design on the sample record, as the cores are associated with the 412 paving element and not the 601 concrete elements. Mix designs are only associated with 601 concrete elements.

Contract ID	Project	Line Item	Proposal Line Number	Item Code	Line Item Desc	Fed State Prj Nbr
C17136R-ALT	17136R-ALTB2	0220	0725	412-00800	*Concrete Pavement (8 Inch)	STA 0142-051

CONTRACT TAB:

On the Contract, Tab, choose the appropriate contract and line item that is associated with the sample. There can only be one.

Material Test Templates:

Automatic determination of the type of acceptance uses the presence or absence of the T 97-28 and T 97-QC templates.

Compressive Strength Acceptance:

Thickness	T148
Compressive Strength	C39-28 or T24-28

Flexural Strength Acceptance:

Thickness	T148
Flexural Strength QA	T97-28
Flexural Strength QC	T97-QCaa and C496

Note: Canceled tests and voided samples will not be included in the report.

CAR Quality Level Report:

The report will be accessible in CAR and there will be an interim and final report which can be viewed by expanding the group tree by clicking the (+). Reports can be exported to a PDF and saved or printed using the "Export this Report" icon.

The first page of the report will display any error messages that indicate missing or conflicting issues that are required to be corrected in SiteManager and 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:

- Thickness
- Compressive Strength
- F & t Test Comparison
- Flexural Strength

Elements are included in the report based on the presence of the C39-28 or the T97-28/T97-QC templates as well as the F & t Comparison made between the T97-28 and T97-QC

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

Thickness

The thickness section of the report will use the T148 data and will obtain both the thickness test result and the Plan thickness from this template. There will be a warning message at the bottom of the element to indicate if a result is lower than the lower tolerance limit. If a test result is more than 1 inch below the lower tolerance limit it will be but in a separate process. I/DP will not be calculated on that test as this is a, Remove and Replace situation.

Compressive Strength

The compressive strength section of the report will use the C39-28 or the T24-28 template. There will be a warning message on the report if a test value is less than the lower tolerance limit. There is not a specification for 2 x V out of tolerance or removal and replacement for concrete paving. If a test is below the lower tolerance limit and the contractor chooses to core the area, a T24-28 template will need to be added to the same sample ID that contained the C39-28 test.

Handling Failures or Low Test results**Thickness:**

- If a core is lower than the Plan Thickness by more than 0.4-inch but not more than 1 inch, obtain an additional core, if that core is greater than Lower Tolerance (TL) no action is necessary. Document additional core results in SMM as Information Only.

- If the additional core or any randomly selected core is less than Lower Tolerance Limit (TL) but greater than Plan Thickness (PT) minus 1-inch, the area represented by this core shall become a separate process and this core will not be used to compute an I/DP. The Quality Level Report will remove this test from the element automatically and create a separate process called LOW-X. Obtain four additional randomly selected cores within the area represented by this core. The four additional cores will be used to compute an I/DP in accordance with Section 105. Cores taken at locations not randomly determined, such as process control cores will not be used to compute I/DP.
 - Create **four additional QA samples** for the additional cores; assign the same, unique, process number to the samples, this process number is different from the original sample. The represented quantity on each Sample ID of the four additional cores taken should total the area represented.
 - Cancel/Void the original test/sample.
- When the measurement of any core is less than PT minus 1.0 inch, whether randomly located or not, the area represented by this core shall become a separate process and this core will not be used to compute an I/DP. This is a, Remove and Replace situation. The actual thickness of the pavement in this area will be determined by taking exploratory cores. Cores shall be taken at intervals of 15 feet or less, parallel to the centerline in each direction from the affected location until two consecutive cores are found in each direction which is not less than PT minus 1.0-inch.
 - Obtain exploratory cores to define the out of specification area, document additional core results in SMM as Information Only.
 - Once the removal and replacement are complete, create **four additional QA samples** for the four additional cores that represent that area. Assign the same unique process number to the samples, which is different from the original sample. The represented quantity of the four cores should total the area represented.

Compressive Strength:

- The higher value between the C39-28 and the T24-28 shall be used when compressive strength is less than TL (4500psi) and the contractor takes additional cores (T24).
- Add the T24-28 to the same sample ID that contains the original C39-28. This can be done using the Maintain Test Queue in LIMS.
- Both tests are left as valid tests and the report will choose the higher value for the I/DP calculations.

Flexural Strength:

- When flexural strength is less than 650 psi, the contractor may take cores for split tensile testing (C496). The higher value between the T97-QC and C496 shall be used. The C496 template includes a field for the correlated flexural strength as per CP65. This correlation will be figured outside of SMM/LIMS and manually entered into the template. Only the contractors QC results can be replaced with a C496 (Splitting Tensile).
- - Add the C496 test to the original sample that contains the low T97-QC. This can be done using the Maintain Test Queue in LIMS.

- Both tests are left as valid tests and the report will choose the higher value for the I/DP Calculations

A partial list of error or informational messages that appear on the first page of the report:

A sample ID with two of the same valid tests. (I.e. two T148 tests on the sample)
Specification Height on T148 template is null or zero
Average Core Inch Height cell is null or Zero on T148
Sample with zero (0) Rep. Qty.
Valid sample created with valid control type and null (blank) control number
Total quantities do not match among element totals (final only)
Not all samples are complete (final only)
Compressive and Flexural samples the Mix ID is blank
If there is more than one Item on the Contract tab

Messages included below the element:

C39-28 value is below Plan Value
T148 value below Plan Value by more than 1 inch
T148 value below Plan Value by more than .4" but not more than 1 inch
T148 value is more than 1 inch above plan value
Element message for a T148 Value below Plan Value but above TL
Test data that is > 1 inch above Plan Value

Addendum 3

Asphalt Quality Level Report
State of Colorado

Department of Transportation

Report Date: 5/7/2018

Contract ID: C20856

Project Number: 20856-BID

Region No: 4

Fed/State Project #: STA0243-087

Ad Date: 20170323

Acceptance Type: Void Acceptance

Location: US 24 El Paso-Elbert CL Paving

Item Code: 403-34741

Material Code: 403.02.01.11

Mix ID: 42017B1_20856_

Design Type: SX

P/S: Simon Contractors

Gyrations: 75

Total Cost/ton: \$72.00

HMA Cost/ton: \$72.00

AC Cost/ton: \$0.00

(* FINAL REPORT ***)**

Asphalt Content





















Upper Test Limit: 6.00
Lower Test Limit: 5.40

V Factor: 0.2
W Factor: 10

Design Sp Gr: 2.424

Test Date	Sample ID	Test Quantity	Total Quantity	Max Sp Gr	% AC	MQL
1 07/25/2017	ELLISB177P075534	1000	1000	2.439	5.42	
2 07/25/2017	ELLISB177P102740	1000	2000	2.426	5.69	
3 07/26/2017	ELLISB177Q092930	1000	3000	2.438	5.68	100
4 07/26/2017	GONSERS177V073643	1000	4000	2.446	5.51	94
5 07/28/2017	ELLISB177S112718	1000	5000	2.425	5.61	98
6 07/28/2017	ELLISB177S144315	1000	6000	2.420	5.68	100
7 07/31/2017	ELLISB177V104002	1000	7000	2.429	5.59	100
8 08/01/2017	ELLISB1781112006	1000	8000	2.430	5.53	100
9 08/01/2017	ELLISB1781184212	1000	9000	2.428	5.74	100
10 08/02/2017	ELLISB1782103724	1000	10000	2.424	5.73	100
11 08/02/2017	ELLISB1782121632	1000	11000	2.427	5.78	100
12 08/02/2017	ELLISB1782150453	1000	12000	2.430	5.65	100
13 08/04/2017	ELLISB1784122100	1000	13000	2.420	5.95	100
14 08/04/2017	ELLISB1784123036	1000	14000	2.427	5.87	100
15 08/04/2017	ELLISB1784161309	1000	15000	2.424	5.69	99
16 08/09/2017	ELLISB1789161743	1000	16000	2.433	5.70	100
17 08/11/2017	ELLISB178B084245	1000	17000	2.434	5.68	100
18 08/11/2017	ELLISB178B130304	1000	18000	2.427	5.61	100
19 08/11/2017	ELLISB178B163659	1000	19000	2.435	5.73	100
20 08/12/2017	ELLISB178C145905	1000	20000	2.441	5.43	100
21 08/12/2017	ELLISB178C172546	1000	21000	2.428	5.48	95
22 08/14/2017	ELLISB178E140506	1000	22000	2.442	5.47	88
23 08/14/2017	ELLISB178E154629	1000	23000	2.427	5.61	88
24 08/15/2017	ELLISB178F100503	1000	24000	2.434	5.43	87
25 08/15/2017	ELLISB178F115131	297	24297	2.435	5.60	95

Certification Checklist Requirements						
Dated submitted to PE & Contractor:			August 1, 2018			Page 1 of 3
ITEM Number	Type of Document Required COC or CTR	APL or QML Material Required	Requires Contractor APL/QML Verification YES/NO	Date COC/CTR Received	Accepted or Rejected	Notes
206-00360 Mech Reinforcement	COC	NY-APL for geotex	YES	08/17/18	Accepted	
207-00205 Top Soil	CTR	NO	NO	05/25/18	Rejected	Missing stamp and signature
208-00009 Erosion Logs Typ 2	COC	YES-APL	YES	04/05/18	Rejected	Missing stamp & signature
208-00020 Silt Fence	COC	NO	NO	06/05/18	Accepted	
208-00051 Strom Drain Inlet Protection	COC	YES-APL	YES			
210 Modify Manhole	COC	Precast-YES QML	YES			Poured in place-does not require verification letter
212-00006 Seeding	COC	NO	NO			
212-00032 Soil Conditioning	COC	NO	NO			
213-00003 Mulching Weed Free HAY	COC	NO	NO			
213-00012 Mulch Tackifier	COC	NO	NO			

-  COC-CTRs
-  Emails and misc. docs
-  Final Documents
-  Item 203 CIP
-  Item 206 CL 1 and 2
-  Item 206 Filter Material CL A and C
-  Item 304 ABC Class 6
-  Item 403 S(100) PG64-22
-  Item 411 Binder
-  Item 412 8.5 inch
-  Item 412 10 inch
-  Item 412 Mix Designs
-  Item 503 Caissons
-  Item 601 CL D Bridge
-  Item 601 CL D Wall
-  Item 601 Class D concrete
-  Item 603 RCP-all sizes
-  Item 608 Sidewalk
-  Item 609 Curb and Gutter all types
-  Item 624 Pipe all classes

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