1) Purpose:

This procedure establishes methods and responsibilities for the control and maintenance of the Construction Quality Management Plan (CQMP).

2) Scope:

This procedure shall apply to the CQMP.

3) Definitions:

See Construction Quality Management Plan Section 3.0.

4) Responsibilities:

a) The IQM will work with the QCM and IQF Records Manager to keep an updated copy of the CQMP in ELVIS. Additionally, the IQF Records Manager will ensure that the OVF and SCDOT have a current copy that can be maintained in ProjectWise.

b) Document Owners (the IQM and QCM jointly are the Document Owners):
   i) Identify need for new CQMP documents or revisions to existing CQMP documents.
   ii) Review CQMP documents for continuing adequacy in accordance with the Review by date. Classify changes to documents as Major or Minor.

c) Records Manager
   i) Maintain the electronic document repository such that the current revisions of quality management plan documents are available to users, obsolete CQMP documents are prevented from unintended use, and native files are protected from modification.
   ii) Manage the Document Change Request (DCR) process in accordance with the procedure shown below in Section 5.
   iii) Maintain the Document Change Request Log, Form QA423-1.
   iv) Coordinate with OV personnel to ensure that the most current copy of the CQMP has been made available to OV

d) Approvers – CQMP document Approvers are responsible to review DCRs and either approve, approve as noted, or reject those changes in accordance with this procedure. The CQMP Approvers are the members of the OV/SCDOT team as assigned by the OV Project Engineer and SCDOT Construction Manager.

5) Document Change Request Process Description:

a) Documentation of revision
   i) Document Creation and Revision
      (1) New Documents
         (a) The Document Owner shall identify the need for a new document.

(b) The Document Owner shall retrieve the appropriate document template from the electronic document repository.
(c) Using the appropriate template, the Document Owner shall create the new document.

(2) Revision to existing Documents
(a) The Document Owner shall identify the need for a revision to an existing document. Note: this may come about through someone else making the Document Owner aware of the need.
(b) The Document Owner shall request the current document in its native format.
(c) The Document Owner shall make revisions to the document as necessary.

(3) Obsolescence of Documents
(a) The Document Owner shall identify the need to make an existing document obsolete. If this is the case, the Document Owner shall follow this procedure and complete a document change request (Form QA423-2) to obsolete the document. The obsolescence of a document requires the same review and approval as a revision.

ii) Document Submission, Review and Approval
(1) Once the Document Owner has created a new document or completed revisions to an existing document, the Document Owner shall generate a document change request using Form QA423-2. The Document Owner shall complete the following fields:
(a) Originator: Document Owner or name of person who identified need.
(b) Date:
(c) Document Type: Make appropriate selection.
(d) Action Requested: Make appropriate selection, for revisions, select Major or Minor in accordance with the following:
(i) Major Revision – classified as one that adds or changes responsibilities in addition to changes in process text or process steps. For forms this is equivalent to the addition or deletion of signature authority.
(ii) Minor Revision – classified as one that involves a change in process text or possibly the addition or deletion of process steps, but does not change responsibilities.
(e) Document Title:
(f) Document Number: (if this is a new document, insert “new’ and the Records Manager will assign the number.)
(g) Current Revision: Enter the current released revision.
(h) Description of Change: Enter “Original Issue” for new documents.

(i) Reason for Change: Describe why the change is needed.

(j) Under Review and Approval, enter your name as the Document Owner, Date and indicate "Approved". This approval is only noting that the Document Owner is satisfied with the current state of the document and that it is now ready to be reviewed and approved by the members of the OVF and SCDOT team as designated by the OV Project Engineer and SCDOT Construction Manager.

(2) Document Owner shall attach the new or revised document to the completed document change request along with any other supporting information and submit to the Records Manager, this may be done electronically.

(3) The Records Manager shall log the DCR into the DCR Log, Form QA423-1, and assign a DCR number.

(4) The Records Manager shall submit via ProjectWise Deliverables Management the new or revised document (.pdf file) and the DCR to the Approvers.

(5) Upon receipt, the Approvers shall review the new or revised document. At this point, the Approvers have 3 options:

(a) Approve the document as written. If this is the case, they shall enter their name into the Approver field, enter the date and indicate "Approved". Email the approved DCR and new or revised document to the Records Manager.

(b) Approve the document with edits. If this is the case, they shall enter their name into the Approver field, enter the date and indicate "Approved as Noted". Email the approved DCR and new or revised document to the Records Manager.

(c) Reject the new or revised document outright. If this is the case, they shall not enter their name or date into the DCR form and shall return it to the Records Manager via email with a copy to the Document Owner indicating the reason for rejection.

(6) If any of the Approvers make edits to the document during their review and indicate "Approved as Noted", then the Records Manager shall re-route the DCR and new or revised document with edits to the Document Owner and other Approver if applicable to confirm approval. If the Document Owner does not agree with the edits made by an Approver, he or she shall resolve these discrepancies and possibly revise and resubmit the DCR.

iii) Training

(1) If the DCR is for a new release or for a Major Revision, once the approvals have been obtained, the Records Manager shall notify the Document Owner to conduct training.

iv) Publishing and Archival of Obsolete Documents

(1) Once all the approvals have been obtained, the Records Manager shall make the remaining updates to the document header including revision date, release date, and

review by date. Review by date should be set approximately four years from effective date.

(2) Records Manager shall also update Revision History section of document to incorporate the current revision, describing the changes that have been made, or if Original Issue.

(3) The Records Manager shall then create a .pdf of the new or revised document and publish it to the current revision location within the electronic document repository. At this time, the Records Manager shall also apply an "OBSOLETE" watermark to the previous revision and move the previous revision to the obsolete revision location within the electronic document repository. The Records Manager shall publish a native file version of the current revision within the native files location within the electronic document repository.

b) CQMP Document Review for Adequacy

i) Documents shall be reviewed for adequacy by the Document Owner approximately every thirty-six to forty-eight months, in order to prevent all documents to be due for review at the same time. The Records Manager shall re-set the "Review by" date in the header forward each time a release of the document is made.

ii) The Document Owner shall review the document, and if any modifications are required, he or she shall request a copy of the document in native format to proceed with revision, and shall follow this procedure starting at Step 5. a. i. b.

c) Correction of typographical errors, grammar or punctuation in quality management plan documents

i) Anyone who notices a typographical, grammatical or punctuation error in a document shall notify the Records Manager who may make such changes without a DCR and publish the corrected version to the electronic document repository. Such changes shall be limited to these categories only and as such the Revision Level will not change on the corrected document. Any changes requested outside these parameters will require a full DCR in accordance with this procedure.

d) Documents of External Origin

i) Documents of external origin shall be controlled at the source by the original author. Meaning that as documents of external origin are required for the execution of services, our quality management plan documents shall list these documents as an external reference and shall link directly to the source. Users will be expected to follow these links to retrieve these documents directly from the source when they are required, thus ensuring use of current revisions.

e) Uncontrolled Documents

i) All copies not located within the electronic document repository are considered Uncontrolled Documents. Holders of Uncontrolled Documents may not necessarily receive pertinent updates of the document.

6) **Quality Forms/Records**:

Form/Record Number	Description	Storage Location
Form QA423-1	Document Change Request Log	ELVIS
Form QA423-2	Document Change Request Form	ELVIS

7) Revision History

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
The purpose of this procedure is to establish methods and responsibilities for verifying the competency (education, training, and qualifications) and certification for IQF personnel required by the Contract Documents.

2) **Scope:**
This procedure shall apply to IQF personnel on the Carolina Crossroads Phase 2 Project.

3) **Definitions:**
See Construction Quality Management Plan Section 3.0.

4) **Responsibilities:**
   a) Independent Quality Manager (IQM):
      i) Oversight of this procedure.
      ii) Communication of contractual competency requirements of IQF personnel to IQF supervisors (Materials Manager or Lab Supervisor).

   b) IQF Materials Engineer
      i) Review of Contract Document required personnel competency and SCDOT Inspector certification requirements.
      ii) Provide notification to the OVF of new personnel on site.
      iii) Review of current competency and SCDOT Inspector certifications of direct report IQF personnel.
      iv) Arrangement of necessary training or SCDOT Inspector certification of direct report IQF personnel.
      v) Assigning IQF work only to IQF personnel having the appropriate competency and SCDOT Inspector certifications, as shown in Section 6.
      vi) Coordinate with SCDOT, or their designee, initial and follow up SCDOT Inspector certifications, required by the Project's QAP and shown in Section 6, including participation of annual Independent Assurance (IA) proficiency samples.
      vii) Provide records, required by the Project's QAP for transmittal to SCDOT, to the IQF Records Manager.

   c) IQF Inspectors
      i) Responsible for providing IQF supervisor with evidence/records of competency and SCDOT Inspector certification(s).
      ii) Responsible for maintaining required certifications and for informing IQF supervisor if work is assigned for which the IQF personnel is not certified or competent. IQF personnel shall not

perform work for which certification is required, by the Contract, without possessing a current SCDOT Inspector certification or waiver from SCDOT.

d) IQF Records Manager
   i) Maintaining records of certification, training or other qualifications for direct report IQF personnel.
   ii) Make arrangements for necessary training, as requested by IQF supervisors.
   iii) Provide records, required by the Project's QAP for the Carolina Crossroads Phase 2 Project, to SCDOT with a copy to AUJV.

5) Process Description:

a) Competency and Qualifications
   i) Required minimum competency and certifications for all IQF positions, as required by the Contract Documents, shall be evaluated during the employee hiring process.
   ii) Required minimum competency and qualifications including required licenses, certifications or registrations for all subconsultant IQF positions, as required by the Contract Documents, shall be defined within applicable subconsultant agreements.
   iii) IQF Supervisors shall verify that IQF personnel possess current required competency and certification(s) prior to assigning those individuals to perform work for which such competencies or certification(s) are required.

b) New IQF Personnel
   i) Pre-Hire Activities
      (1) While making hiring decisions, or assignment of subconsultant employees, the IQF Supervisor shall review the resume, application and information gained during the interview, if applicable, to determine whether or not the potential IQF Personnel possesses the minimum required competency and certification(s), or the subconsultant agreement.

   ii) Orientation
      (1) The IQF Supervisor shall review minimum required competency or certification(s) with the IQF Personnel for the purpose of discussing any gaps and the need to provide training in order to bring the IQF Personnel up to the required competency or certification.

      (2) Construction Quality Management Plan
         (a) Within the first month of employment, the IQF Supervisor shall review the following CQMP components with the new employee:
            (i) Carolina Crossroads Phase 2 CQMP,

(ii) Location/How to access CQMP Documents,
(iii) Specific CQMP Procedures related to new employee's role.

c) Current IQF Personnel
   i) On-going Maintenance of required Certifications
      (1) Each quarter, the Materials Engineer shall review IQF Personnel's current certification and IA status to determine those employees who have contractually required certifications which will expire within the next six months. SCDOT will be notified of an upcoming IA status.
      (2) Based on these identified needs, the Materials Engineer shall schedule these IQF Personnel into the next training course in order to maintain currency of their SCDOT Inspector certifications.

d) Attending Outside Training
   i) After attending the training, IQF Personnel shall provide a copy of the certificate to the Materials Engineer and the IQF Records Manager.

e) On-going CQMP Training
   i) As new CQMP documents are released or undergo major revision, the IQF Personnel shall attend training.

f) Evaluation of the Effectiveness of Training
   i) In general, the effectiveness of all training is assessed through supervisory oversight of employee performance.
   ii) Any time the IQM makes a determination that training has not been effective as evidenced through employee performance not meeting required expectations then the supervisor shall address the gap through refresher training or other required means.
   iii) In addition to supervisory evaluation, the effectiveness of training provided by an outside organization shall be determined by the evidence of a current certificate issued to the IQF Personnel.

g) Storage of Records
   i) The IQF Records Manager shall assemble the records and ensure the information is readily available to IQF Supervisors (IQM, Materials Engineer and Lab Supervisor) and SCDOT via ELVIS.

h) Concerning the Independent Assurance Program
   i) Qualification of Testing Personnel

(1) All personnel supervising or performing acceptance sampling and testing activities must meet the qualification requirements in the SCDOT Technician Certification Policy and participate in annual IA proficiency testing.

ii) Qualification of Laboratories

(1) Laboratories providing QA testing on the Project will be AASHTO-accredited and will be approved by SCDOT prior to beginning the portion of Work for which the laboratory will be performing the testing.

6) Required SCDOT Certifications:

Quality Control and Quality Assurance Certification Requirements (Including but not limited to the below items of work)	
Item of Work	**SCDOT Inspector Certification**
Embankment (Borrow)	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Hot Mix Asphalt (HMA) Roadway	Asphalt Roadway Technician
Hot Mix Asphalt (HMA) Production	HMA Level 1 (Quality Control Technician) HMA Level 2 (Job Mix Technician) HMA Level 3 (Quality Control Manager)
Concrete Placement	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Bridge (Foundations-Piles, Shafts, Footings)	Foundations Technician Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Bridge (Columns, Caps, Decks, Parapet Walls)	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Storm Drain (Pipe)	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Median Walls/Parapet Walls	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
MSE Walls	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Erosion Control	Certified Erosion Prevention & Sediment Control Inspector (CEPSCI)
Traffic Control	Work Zone Traffic Control Certification
Structural Steel Coatings	NACE Coating Inspector Level I or SSPC Bridge Coating Inspector Level 1
Specialty Inspection (ITS, Lighting, Signals, etc.)	IMSA Traffic Signals Level II IMSA Fiber Optic Technician Level II

7) Experience and Duties for Inspection Staff:

POSITION	EXPERIENCE CLASSIFICATIONS
Chief Inspector*	The Chief Inspector is a more experienced inspector, has all certifications, has experience with both structural and/or roadway work and can manage other inspectors. Can perform inspections, knows all DOT policies and can make day to day decisions on behalf of IQF and prepare all paperwork.
Sr Inspector	The Senior Classification has all certifications, good at inspections but does not manage the job and requires minimal supervision.
Mid-Level Inspector	Mid Level has most of the certifications and requires some supervision
Jr. Inspector	Has some certifications but needs guidance and supervision
Electrical Inspector	Has all certifications required by the Contract and can inspect lighting, traffic signals and ITS with minimal supervision

Chief Inspector*	Experience	Has all certs and significant progressive experience on a broad range of complex highway and bridge construction projects.
	Duties	Can administer complex construction contracts from start to finish with minimal oversight. Manages and provides instruction to other inspectors. Coordinates inspection on assigned projects and performs field inspections as needed. Maybe assigned multiple projects concurrently and is proficient with project closeout tasks.
Sr Inspector	Experience	Has all cerifications and progressive experience in all phases of highway and bridge construction. Has some experience with construction contract administration.
	Duties	Requires minimal supervision and performs inspection of any complexity. Reads and interprets plans and specifications and directs other inspectors accordingly.Experience may be broad or focused on bridge or road inspection. Provides guidance to less experienced inspectors. Assists with project closeout tasks.
Mid-Level Inspector	Experience	Has worked on multiple state highway/bridge construction contracts. Is certified and proficient in several phases of highway and bridge construction.
	Duties	Performs construction inspection in conformance with certification training without supervision. Able to perform complex WZTC and CEPSCI inspections and works with contractor to ensure compliance. Reads and interprets plans and specifications and advises contractors accordingly.
Jr Inspector	Experience	Has worked on multiple state highway/bridge construction contracts. Is certified and proficient in one or more phases of highway or bridge construction. Experienced in basic WZTC or CEPSCI inspections.
	Duties	Performs construction inspection in conformance with certification training with minimal supervision. Able to perform basic WZTC or CEPSCI inspections. Performs dialy diaries and inspection reports required by certification training.
Electrical Inspector	Experience	Has worked on multiple state highway/bridge construction contracts. Experienced in all phases of lighting, traffic signals, and ITS
	Duties	Preforms construction inspection in conformance with certifaction training. Reads and interprets plans and specifications and advises advises contractors accordingly.

*NOTE: The Chief Inspector position may not be required for CCR Phase 1 Project. Some of the chief inspector's activities may be performed by the IQM, Materials Engineer, Field Engineer or Sr Inspector.

8) Quality Forms/Records:

Form/Record Number	Description	Storage Location
N/A	External Training/Certification Records	Elvis

9) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

CAROLINA CROSSROADS	QA735 Mix Design Review	
Document Owner: Lee Robertson	Revision – 0	Effective Date:
Approved By:	Released Date:	Review By: 10/15/2025
Approved By:	Revision Date:	Page

1) **Purpose:**
This procedure establishes methods and responsibilities for review, comment and comment resolution of Portland cement concrete, asphaltic concrete mix designs, soil-lime treatment, soil cement treatment and other various mix designs used on the Project (Mix Designs).

2) **Scope:**
This procedure shall apply to the review and approval of all Mix Designs for the Carolina Crossroads Phase 2 Project.

3) **Definitions:**
See Construction Quality Management Plan Section 3.0.

4) **Responsibilities:**
   a) IQF Materials Engineer:
      i) Assist the SCDOT OMR with the review as needed. Confirm that the submittal contains all necessary information needed to perform review. Notify AUJV when the submittal has missing information.
      ii) Coordinate with SCDOT OMR for the review and approval of Mix Designs for compliance with contractual, or referenced, requirements. SCDOT OMR officially approves all mix designs.
      iii) Along with SCDOT OMR, provide review comments to AUJV as needed.
      iv) Participate in comment resolution.
      v) Enter Mix Design data, or provide to the IQF Records Manager, for entry into ELVIS once approval is obtained.

   b) SCDOT OMR:
      i) Review and approve Portland cement concrete and asphaltic concrete mix designs.
      ii) Provide comments if the mixes are not approved.

   c) IQF Records Manager:
      i) Responsible for providing approved mix designs to OVF/SCDOT.
      ii) Attach Mix Design source document into the ELVIS Mix Design table once approval is obtained.

5) **Process Description:**
   a) The AUJV CM shall submit Mix Designs to the SCDOT OMR and IQF Materials Engineer concurrently for review and approval. Submittals for review and approval shall be sent at least five business days prior to use. Submittals for revisions for review shall be sent at least ten days prior to use.

b) Initial Review
   i) The IQF Materials Engineer shall work with SCDOT OMR and confirm the submittal contains all necessary information needed to perform thorough review. Notify the AUJV CM who sent the Mix Design when the submittal is missing information.

c) Review
   i) The SCDOT OMR and IQF Materials Engineer shall review the submittal for compliance with the Contract Documents or referenced requirements. SCDOT OMR officially will approve and IQF Materials Manager shall coordinate and assist in the process as needed.
      (1) Verify that component materials are from approved lists (e.g. SCDOT Qualified Products List)
      (2) Review Mix Design properties and verify that they are in conformance with applicable specifications(s) using approved design methods.
      (3) Verify that trial batch results meet the applicable specification limits.
      (4) Prepare and transmit comments to AUJV on the submittal, if additional information is needed.

d) Comment Resolution and Mix Design Approval
   i) The IQF Materials Engineer will participate in the resolution of comments, when requested by AUJV.
   ii) Once comments are resolved, the SCDOT OMR shall approve the Mix Design and notify the AUJV and IQF via ProjectWise Deliverables Management..

e) Data Entry of Mix Designs
   i) Enter the Mix Design information into ELVIS.
   ii) Attach the Mix Design source document into the ELVIS Mix Design table.
   iii) All approved mix designs will be submitted to OVF/SCDOT via ProjectWise.

6) **Quality Records/Forms:** N/A

7) Revision History:

Revision	Originator	Revision Date	DCR Number	Description of Change
0				Original issue.

CAROLINA CROSSROADS	QA744 IQF Buy America Verification	
Document Owner: Lee Robertson	Revision – 0	Effective Date:
Approved By:	Released Date:	Review By: 10/15/2025
Approved By:	Revision Date:	Page

1) Purpose

This procedure describes the methods and responsibilities for Quality Acceptance (QA) verification that all steel permanently incorporated into the Work meets all Buy America requirements of 23 CFR 635.410.

2) Scope:

This procedure shall apply to the evaluation of all steel permanently incorporated into the Work and the verification performed by IQF personnel that all Buy America requirements of 23 CFR 635.410 are met.

3) Definitions:

See Construction Quality Management Plan Section 3.0.

4) Responsibilities:

a) IQF Field Engineer / IQF Inspector

i) Obtain and review certifications and all paperwork that accompanies each shipment of steel that arrives on the project. Verify the information included meets the Buy America requirements of 23 CFR 635.410. Immediately alert IQM, IQF Materials Manager and QCM if any information appears incorrect or missing.

ii) Be especially alert of any steel hardware (nuts, bolts and washers) that are delivered to the project. Alert IQM and QCM if paperwork is not delivered with the hardware. Advise what has been delivered, the approximate quantity of each item and where the hardware is being utilized in the Work. This information is needed in case the hardware needs to be removed from the project.

b) IQF Materials Engineer

i) As certifications and associated paperwork are received for each shipment of steel used in the Work, review certifications and associated paperwork to verify all required information per the Buy America Act is provided. Alert the IQM and QCM if an issue is suspected. The IQM and QCM will investigate and decide if production on that item of Work needs to be halted until the issue is resolved.

ii) Maintain Form QA744-1 showing information for each shipment of steel and whether the steel met all Buy America requirements of 23 CFR 635.410.

c) IQM

i) Submit Form QA744-1 to OVF each month via ProjectWise Deliverables Management as part of the IQF Monthly Certification process.

ii) With cooperation from the QCM, investigate any potential issues of any steel that does not meet the requirements based on the paperwork provided with the steel shipment. Alert the SCDOT Construction Manager if any steel that does not meet the requirements was permanently incorporated into the Work. Create a NCR per Procedure QA830 to track the issue and resolution.

5) Process Description:

a) Review and documentation of the steel certifications

i) The IQF Inspector / Field Engineer / Materials Manager will review certifications and associated other paperwork for all steel that is permanently incorporated into the Work. They will pay special attention to any small deliveries or hardware that is delivered or used on the project.

ii) The IQF Materials Engineer will maintain Form QA744-1 showing proof that all paperwork for all deliveries of steel have been reviewed and verified that the Buy America requirements of 23 CFR 635.410 have been met.

iii) If any potential issues arise, the IQM and QCM will investigate further. Outcomes may be:

(1) If the paperwork is missing, they will alert the supplier or contractor/subcontractor that the paperwork is required;

(2) If the paperwork needs to be corrected, they will alert the steel supplier of the required correction;

(3) If the steel indeed does not meet the requirements, they will alert the subcontractor / contractor not to use the steel. If the steel has been incorporated into the Work, they will alert the SCDOT Construction Manager and create a NCR per QA830 to document the resolution of the issue.

(4) The IQM will send Form QA744-1 with current information to OVF each month via ProjectWise Deliverables Management as part of the Monthly IQF Certification process.

6) Quality Forms/Records:

Form/Record Number	Description	Storage Location
QA744-1	Buy America IQF Verification Spreadsheet	ELVIS

7) Revision History:

Revision	Originator	Revision Date	DCR Number	Description of Change
0	Lee Robertson			Original issue.

1) Purpose:

This procedure establishes the methods and responsibilities for determining the Independent Quality Firm (IQF) inspection needs, assignment of inspection staff, assessment of the Work conformity with the Contract Documents and Released For Construction (RFC) documents, and recording observed construction activity information including sample/test follow up related to the activity. This procedure includes Daily Inspection Report (DIR) review and approval, information data entry, and transmission of the DIR.

2) Scope:

This procedure shall apply to IQF inspection and reporting for the Carolina Crossroads Phase 2 Project.

3) Definitions:

See Construction Quality Management Plan Section 3.0.

4) Responsibilities:

a) Independent Quality Manager
   i) Receive and review AUJV progress schedules and assign IQF inspection staff.
   ii) Attend, or assign a designee to attend, daily meetings with the AUJV construction personnel to attain daily needs for inspections/observations of the daily production schedule.
   iii) Assign IQF Inspectors to perform inspections/observations of the Work.
   iv) Exercise Engineering Judgment as delegated by SCDOT, and record within Engineering Judgment Log in ELVIS. See Supplement H of the CQMP for additional information.
   v) Develop activity specific checklists to be used in conjunction with Hold Point inspections. Note: Upon development, activity checklists will be provided to OVF / SCDOT two weeks prior to the applicable Pre-Activity Meeting for review and comment during the weekly Quality Meetings.

b) Independent Quality Firm (IQF) Inspectors:
   i) No Responsibility/Authority:
      (1) In the production of the Work, performing action(s) as a foreman, or reporting to production except to communicate the status of inspection and/or test results.
      (2) Or authority to revoke, alter, enlarge, or release any requirement of the RFC Documents or to approve, or accept, any portion of the Work that is contrary to the RFC Documents without an approved change.

   ii) Attain, and maintain, required SCDOT certifications shown in Section 6.
   iii) Review requirements of the RFC Documents, including shop drawings, working drawings, plans, specifications, general notes, etc. prior to performing inspections/observations.

iv) Perform inspection(s)/observation(s) of the Work for compliance with Contract Documents, as applicable, either in-process of production, as necessary, or at defined hold points and communicate inspection results to AUJV construction supervisors. Note(s): Inspections will be continuous where workmanship is essential to confirm quality, such as at concrete pours. The frequency of inspections may become continuous during Work such as embankment and may be random on Work that can be confirmed at hold points, such as forming or reinforcement placement.

v) Review and prepare for the implementation and conformance of SCDOT Standard Specifications and Standard Drawings.

vi) Perform hold point inspections using the activity specific check lists.

vii) Review and prepare for the proper implementation of the requirements of the CQMP.

viii) Perform sampling and testing when assigned and appropriately qualified or certified in accordance with procedure QA824, Sampling, Testing, Review and Approval.

ix) Follow-up on samples submitted for testing. Alert the project team members of the disposition of the test so construction is not delayed.

x) Confirm IQF attainment of receipts for supplier received materials and confirm compliance with specified requirements at the time of incorporation into the Work.

xi) Complete the DIR (Form QA752-1 Daily Inspection Report), and specific IQF Inspection forms and material testing reports as applicable in ELVIS electronically using iPad or other tablets.

c) IQF Materials Engineer

i) Perform a review and approval of draft DIR and specific IQF inspection records as applicable.

ii) Ensure that proper controlled vocabulary language (CVL), stationing, specification reference, etc. was utilized to fill out the DIR.

iii) Send DIR back to the Inspector for correction when errors are encountered.

d) Records Manager

i) Maintenance of electronic workflow of all inspections within ELVIS.

ii) Transmittal of all IQF inspection reports to AUJV and SCDOT.

iii) Update and maintain CVL for data fields within the ELVIS system. Note that the current CVL tables being used by IQF will be viewable to SCDOT within the ELVIS system.

5) Process Description:

a) Independent Quality Manager Inspection Assignment

i) The IQM (or designee) assigns IQF inspectors to perform inspection/observations and testing of the Work based on the production schedule received and/or communicated from AUJV.

b) IQF Inspection/Observation
   i) IQF Inspectors shall:
      (1) Review the requirements of the CQMP and RFC Documents, SCDOT Standard Specifications, Standard Drawings, shop drawings, and working drawings prior to the performance of inspection/observations.
      (2) Discuss the Work to be inspected with the AUJV construction supervisors in charge of the Work to learn:
         (a) Planned methods, procedures, and equipment.
         (b) Proposed time schedule for needed inspections and tests.
         (c) Attainment of Certifications of Compliance, as required, before materials are incorporated into the Work.

      (3) Perform inspections/observations, sampling and testing as assigned and communicate results to the AUJV construction supervisors.
         (a) Inspections shall include a review of the work for compliance with applicable Contract Documents.
         (b) Complete and attach forms shown in Supplement F as applicable.

c) Draft DIR completion
   i) The IQF Inspector shall complete the electronic draft DIR using iPad or other applicable tablet using QA752 - Attachment A to this procedure as a guide to information required in the DIR. The DIR Form contains fields to record the results of inspections relative to the Contract Documents. In addition, if inspectors are inspecting a specific element of work for which an additional IQF Inspection form is required (such as an activity specific hold point form, then the inspectors shall record the results of that inspection on the applicable form, electronically or manually).
      (1) During the work shift, follow-up on samples/tests taken in the field of items associated with inspections performed to remain cognizant of the quality of materials used in the construction and performance of tests to meet the location and frequency requirements of the Contract Documents.
      (2) IQF Inspectors shall complete draft DIR, Form QA752-1 Daily Inspection Report, electronically for each inspection/observation during the inspection/observation and prior to moving to a subsequent inspection/observation. For hold point inspections, the corresponding hold point checklist should be filled out (QA752-##). Note: Record appropriate information throughout each day relevant to each inspection while the events occur in order to avoid neglecting relevant information concerning the inspected work.

d) Draft DIR Transmittal for Review and Approval
   i) The IQF Inspector shall forward/provide the draft DIR, and any specific IQF inspection forms to the Field Engineer, for review and approval upon the completion of the inspector's work shift.
      (1) When the draft DIR is completed electronically, within ELVIS, follow the electronic process to forward to the IQM, or designee.

e) Review of draft DIR
   i) The Field Engineer, shall perform a review of the draft DIR, and other IQF inspection forms, content.
      (1) Clarify/correct unclear information or obtain additional information, as deemed necessary, from the IQF Inspector.

   ii) If an inspection indicates a nonconforming condition, notify the designated quality control representative of AUJV and SCDOT.
      (1) If inspection results indicate reasonable conformance with the specification requirement, but did not meet the minimum requirement, the IQM, or designee (Materials Engineer), may exercise Engineering Judgment, as delegated by SCDOT, and provide the basis for acceptance within the remarks field of the form, as well as record within the Engineering Judgment Log in ELVIS, reference QA810.
      (2) If results do not indicate reasonable conformance, or fall outside Engineering Judgment as delegated by SCDOT, then a Deficiency Notice shall be generated in accordance with QA 831, Construction Deficiency Notice or QA830 Control of Construction Non Conformance.

f) Approval of draft DIR
   i) Electronically completed draft DIR
      (1) The Field Engineer shall provide approval of draft DIR within ELVIS as the final DIR.

   ii) Specific IQF Inspection Forms shall be approved and attached to the DIR.

g) DIR Result Transmittal
   i) The Records Manager shall transmit via ProjectWise Deliverables Management all inspections and final DIR results within 48 hours after the workshift is completed to SCDOT and cc AUJV, unless otherwise directed by each entity.

6) SCDOT Certifications Required to Inspect a Given Operation:

Quality Control and Quality Assurance Certification Requirements (Including but not limited to the below items of work)	
Item of Work	**SCDOT Inspector Certification**
Embankment (Borrow)	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Hot Mix Asphalt (HMA) Roadway	Asphalt Roadway Technician
Hot Mix Asphalt (HMA) Production	HMA Level 1 (Quality Control Technician) HMA Level 2 (Job Mix Technician) HMA Level 3 (Quality Control Manager)
Concrete Placement	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Bridge (Foundations-Piles, Shafts, Footings)	Foundations Technician Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Bridge (Columns, Caps, Decks, Parapet Walls)	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Storm Drain (Pipe)	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Median Walls/Parapet Walls	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
MSE Walls	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Erosion Control	Certified Erosion Prevention & Sediment Control Inspector (CEPSCI)
Traffic Control	Work Zone Traffic Control Certification
Structural Steel Coatings	NACE Coating Inspector Level I or SSPC Bridge Coating Inspector Level 1
Specialty Inspection (ITS, Lighting, Signals, etc.)	IMSA Traffic Signals Level II IMSA Fiber Optic Technician Level II

7) Quality Records/Forms:

Form/Record Number	Description	Storage Location
Form QA752-1	Daily Inspection Report	ELVIS
N/A	Engineering Judgment Log	ELVIS

8) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

Note: All spaces within Form QA752 shall be filled in. If an entry is not appropriate, N/A (for Not Applicable) shall be entered in the space.

Report #: The Report # has the following four (4) fields:

XXXXX	5-digit Inspector identification number, or 0 followed by 4-digit employee ID for personnel.
YY	year of inspection
MM	month of inspection
DD	date of inspection

Work Hours: This field indicates the beginning and ending time of the shift in which the work was performed.

INSPECTIONS CONDUCTED:

Entry #: Entry # on the Daily Inspection Report (DIR). Enter the number sequentially, 1, 2, 3, 4, etc., in the field for each inspection performed throughout the work shift. Note: If completing a DIR manually, use as many forms as necessary for the # of inspections performed using the same Report #.

Segment: List the Segment work is being performed in.

Section: SCDOT or Project Specification Section Number – The Division section number from the RFC project Specification or 2007 SCDOT Standard Specifications for Road and Bridge Construction.

Roadway: The roadway work is being performed on as indicated on the RFC plans.

Direction: Roadway direction work is being performed on as indicated on the RFC plans.

Structure/Item#: The structure or item number work is being performed on as indicated on the RFC plans. Only one (1) structure/item number per entry is allowable and entries are governed by Controlled Vocabulary Language (CVL).

For bridges enter the bridge number (i.e. 158SB, 4NB, etc.)

Retaining wall designation – based on the designations within the RFC plans.

Enter the storm sewer systems line name, for instance Line 5B. If placement involves more than one line, make another entry on the inspection report. Write the node identification numbers within the “From” & “To” fields under Limits, when so designated on the RFC plans. Culvert identification numbers should be entered in this field also. When manholes or inlets are placed enter the appropriate node identification number here.

For illumination runs enter the circuit # of the Run (i.e. A, B, C, etc.).

For cantilever and overhead sign structures enter the location ID of the structure.

Utility Assembly packages (if applicable) – based on plans, approved in Utility Assembly Packages

For plant production observations, and stockpile and plant equipment inspections, enter the appropriate plant name.

FID = Feature Identification: Field used to further identify elements of an item of work such as abutment numbers, column numbers, bent numbers, girders, lifts of fill, lane numbers, etc.

Discipline	FID
Bridge elements (substructure)	Use A through Z to identify the piling or column numbers, unless otherwise designated on the RFC plans. If multiple piles or columns are observed, separate each by a comma. Note: The piling and column letters are bent specific. For this reason, if pilings are observed on the same bridge, but different bent numbers then multiple Report numbers are required.
Roadway Structure Courses, Embankment, HMA	Enter Lift #s here i.e. “13”, or “1, 2, 3” for work within the same station limits.

Lane Designation Codes should be entered here for all lanes or shoulders placed for hot mix or concrete pavement as well as reports covering Ride Quality For Pavement Surfaces. If the limits of the stations for each lane differ, then differentiate each lane with station limits here and put the entire limits within the “Limits” fields.

Feature: Some Section descriptions provide a good basic description of the work performed such as Section 400 Hot Mix Asphalt Pavement. However, specific features of that work may need to be further defined. Only one (1) Feature per entry is allowable and entries are governed by Controlled Vocabulary Language (CVL).

Examples:

Section Description	Feature
Concrete Structures	Footing, Column, Cap, Backwall, Wingwalls
Concrete Catch Basins	Bottom, Walls, Top, Grate

Limits: From To = From where to where – Enter the limits of the work.

For most work items use stationing shown in the RFC plans and provided on survey staking.

For bridge substructure use 1 through 99 to identify the columns and drilled shaft numbers in the “from” field. Bridge superstructure limits should use 1 through 99 to identify the span numbers entered in the “from” field.

When storm sewer or illumination systems are placed enter the node identification numbers within these fields.

For Freeway Traffic Management Duct Bank enter the "Run No." within these fields. If continuous, (i.e. work took place on Run No. 3, Run No. 4, & Run No. 5), then enter Run No. 3 in the "From" field and Run No. 5 in the "To" field. If the work was not continuous from one run to the other, enter the runs in both fields till you are done entering.

Inspection Type: Type of Inspection – Indicate whether the inspection is:

I – In-Process (during the progress of the Work and prior to the call for inspection at a Hold Point),

H – Hold Point inspection, or

Result: Mark:

P for pass,

F for fail relevant to the inspector's assessment, to the requirements, of the Work performed.

Section Description: This field auto-populates based on the Specification selected.

Contractor: Enter the contractor, or subcontractor, performing the work being inspected.

Crew Foreman: Enter the appropriate foreman's full name performing the Work.

Quantity Placed: Quantities will be gathered to monitor testing frequencies and to aid in tracking of material certifications. Enter the quantity of material placed during the work period covered by the entry #. Enter the unit of measure (e.g. CY, ton, LF) adjacent to the quantity.

Previous Failing Report #: When an entry has previously been recorded as a fail on a previous DIR, enter that report # and entry # from that DIR.

List any previous DN & NCR #s related to this work: The numbers associated with the pertinent NCR and/or DN for the work identified in the entry should be entered (e.g. DN A-035, NCR B-014n, etc.).

Have they all been resolved? Answer the question, yes or no, on whether they have been resolved prior to the work being performed or through the accomplishment of the work.

L.I.N.s associated with this work: Enter Lab Identification Numbers (LINs) for the field tests and/or laboratory samples associated with the work inspected. LINs are 13 digits long following the same formatting as the report number (XXXXXYYMMDD) followed by a 2-digit sequential number starting at 01. Multiple LINs can be referenced in this field and should be separated by a comma. (e.g. XXXXXYYMMDD01, XXXXXYYMMDD03, XXXXXYYMMDD03)

Are there any deficiencies with the work in this entry?: Check No, if no deficiencies are found. If during the performance of the work or the inspection of the work, you found a deficiency that impacted acceptable quality consistent with the requirements of the RFC documents, select DN for Deficiency Notice (see procedure QA831 Construction Deficiency Notice) or NCR for Nonconformance Report (see procedure QA830 Control of Construction Nonconformance);

Inspectors should describe any deficiency observed during the time of inspection or term of the work shift associated with the work and record in this space. (e.g., reinforcing steel lap length was only 4'-2" and plans require 4'-10") If corrected during the performance of the inspection/observation, also state that it was corrected.

Comments on Quality/Specification Compliance/Observations of work performed: Inspectors should record observations on the quality and specification compliance of the work performed. Include comments on the relation of weather affecting the quality of the work, if an impact is made by weather. (e.g. At 0800 rain fell on the concrete. Production crews worked rapidly to cover the concrete. Following the end of rain, production removed excess water.)

Conversation Log (Who, What, When, Where, Outcome): All meetings and conversations with production personnel or other parties, which affect the work, should be recorded. The recording should include <u>who</u> was involved, their title, and who they represent, <u>what</u> was discussed, <u>when</u>/time of the meeting, <u>where</u> the meeting took place, and the <u>outcome</u>, if any decisions, actions, etc. were made or taken. Note conditions brought to their attention concerning potentially unsafe conditions or activities. If during the conversations, personnel indicate corrections will be made at, or by, a certain time, follow-up at that time, whether the same day or subsequent day, and document the completion of the corrective action. Place any factual comments, <u>not opinions</u>, which are not otherwise previously recorded in this area. Be brief, but do not omit anything of any significance that occurred.

Inspection Times: (Time) enter the scheduled times for inspection, time the work being inspected was started, time when the work being inspection was completed, and total time (hours) of inspection in the spaces provided. The time should be entered in military time, and the inspector should record the amount of time involved with the performance of this inspection including travel time, review of plans, FDCs, DNs, NCRs and specifications, and completing reports.

Signatures: The responsible inspector shall sign, and print, their name for each DIR they create. The supervisor shall sign, and print, their name for every DIR as reviewed and correct before data entry, if entered from a paper form.

Revision	Originator	Revision Date	DCR Number	Description of Change
0	Lee Robertson			Original issue.

	QA753 Pre-Construction and Pre-Activity Meetings	
Document Owner: Lee Robertson	Revision – 0	Effective Date:
Approved By: Newel White	Release Date:	Review By: 10/15/2025
Approved By:	Revision Date:	Page 1 of 1

1) Purpose:

This procedure establishes the methods and responsibilities for Pre-Construction and Pre-Activity Coordination Meetings for Feature(s) of Work. Note: Refer to QC752 for additional information. This procedure is written to show what roles IQF specifically plays.

2) Scope:

This procedure shall apply to the Pre-Construction and Pre-Activity Coordination Meetings for any Feature of Work before the start of Work to assure that quality, technical, safety and environmental features are discussed and understood by the respective supervisor of the Feature of Work for the Carolina Crossroads Phase 2 Project. Note: Subsequent preparatory meetings will be held as needed (e.g. significant lapses of time, changes in construction procedures, or a significant design change to the Feature of Work).

3) Definitions:

See Construction Quality Management Plan Section 3.0.

4) Responsibilities:

a) IQM and Materials Manager
   i) Verify all necessary information, certifications, approvals, ect. are completed ahead of starting work.
   ii) Verify updated RFC plans, shop drawings, etc. have been received and all parties have most recent versions.
   iii) Track the status of any outstanding items prior to starting work.
   iv) Discuss their anticipated inspection and testing requirements.
   v) Discuss any Hold Point inspections required per Supplement D of the CQMP.
   vi) Verify updated RFC plans, shop drawings, ect. have been received and all parties have the most recent versions.
   vii) IQM develops the checklist to be finalized at Pre-Activity Meeting

5) Revision History:

Revision	Originator	Revision Date	DCR Number	Description of Change
0	Lee Robertson			Original issue.

CAROLINA CROSSROADS	QA754 Construction Document Submittals	
Document Owner: Lee Robertson	Revision – 0	Effective Date:
Approved By: Newel White	Release Date:	Review By:10/15/2025
Approved By:	Revision Date:	Page 1 of 1

1) Purpose:

This procedure establishes the methods and responsibilities for reviewing and approval of Construction Document Submittals by AUJV, subcontractors, and/or vendors. Note: Refer to Procedure QC754 Construction Document Submittals for information regarding the roles and responsibilities of QC personnel.

2) Scope:

This procedure shall apply to construction materials purchased for incorporation into the Work and processes/procedures required.

3) Definitions:

See Construction Quality Management Plan Section 3.0.

4) Process Description:

a) Approval of Submittals

i) Upon receipt of a Construction Submittal and Form QC754-1 Submittal Cover Sheet from the QCM to the IQM, the IQM will review the submittal for compliance with the Released for Construction Documents.

ii) If the IQM approves the submittal, the IQM will also send a copy of the approved Form QA754-1 to the IQF Records Manager who will log the approved submittal into ELVIS. The IQF Records Manager will send copies of the approved submittal to OVF and SCDOT (via ProjectWise), AUJV and QCM.

iii) If rejected, the IQM shall document rejection (including reasons) on Form QC754-1 and transmit to the QCM, or designee.

5) Quality Forms/Records:

Form/Record Number	Description	Storage Location

6) Revision History:

Revision	Originator	Revision Date	DCR Number	Description of Change
0	Lee Robertson			Original issue.

1) **Purpose and Scope:**
This procedure is to describe the QA responsibilities and process to administer and document established Hold Points (HP) as part of the CQMP process. Note: See Procedure QC756 for additional information regarding the QC responsibilities and process.

2) **Reference Documents:**
   a) QAP for Carolina Crossroads Phase 2 project, which is found in Supplement A of the CQMP.

3) **Definitions:**
See Construction Quality Management Plan Section 3.0.

4) **Responsibilities:**
   a) The coordination of all HP inspections with IQF, OVF and SCDOT is the responsibility of the QCM or designee
      i) IQF (and OVF in some instances) is responsible to sign off on each HP. Refer to Supplement D of the CQMP for a list of Hold Points.

5) **Procedure:**
   a) During work activity when a HP is identified and ready for inspection, the QCM or designee shall notify IQF, OVF and SCDOT via an email notification at least twenty-four (24) hours in advance for their participation in the inspections, and examinations of specific work operations or tests, before proceeding to the next phase of construction.
   b) Upon notification by the QCM that a HP has been scheduled, IQF shall review testing and Inspection efforts, certifications and related submittals conducted/received to-date for the specific work area from within the ELVIS database using Segment, Station and offset. IQF shall review the NCR and DN logs to confirm there are no outstanding NCR's or DN's. The Hold Point will not be released until any outstanding DNs or NCRs are resolved. Any modification or conditions on a Hold Point are to be signed off by OVF or SCDOT.
   c) Once the HP Inspection is conducted and receives an agreement by the IQF (and OVF if applicable), the IQF inspector will fill out the hold point information in the Hold Point modules in ELVIS and attach their Daily Inspection Report to it. The OVF representative (if required) will fill out their forms separately. These documents will document the specific activities, HP item, time and date of inspection, location reference, specific segment, Contractor, and any applicable rework.
   d) DNs that are open at the time of the Hold Point inspection will be converted to NCRs if they are not resolved at the hold point.
   e) IQF will complete the Hold Point and link their Daily Inspection Report to it in ELVIS, which will be submitted via ProjectWise Deliverables Management to OVF and SCDOT within 48 hours excluding weekends and holidays.

f) The IQF inspector will be responsible to document each HP on his Daily Inspection Report.

g) A current list of required HPs is found in Supplement D of the CQMP. IQF, AUJV and SCDOT will meet to determine if any project specific modifications are needed and use a Technical Bulletin approved by SCDOT to document any changes. The HP list may be updated as the project progresses. SCDOT may elect to restore the HP list to the original items listed in Appendix A of the project QAP shown in Supplement A of the CQMP.

Additional HP's may be identified by IQF, OVF, SCDOT or AUJV at any time throughout the project. The CQMP will be revised to include any additional HP's identified and necessitated by AUJV's specific design and construction approaches.

6) Quality Forms/Records:

Form/Record Number	Description	Storage Location

7) Revision History

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
This procedure establishes the methods and responsibilities for maintaining, controlling, calibrating, verifying, and adjusting tools, gauges, instruments, and other measuring and testing devices (equipment) used in activities affecting quality of Quality Acceptance (QA) inspection and testing.

2) **Scope:**
This procedure shall apply to IQF calibration of tools, gauges, instruments, and devices for the Carolina Crossroads Phase 2 Project.

3) **Definitions:**
See Construction Quality Management Plan Section 3.0.

4) **Responsibilities:**
   a) IQF Materials Engineer, or his designee
      i) Establish a schedule for maintenance, calibration/verification and adjustment of equipment. Calibration intervals shall be based upon manufacturer recommendations or as indicated by industry standards.
      ii) Oversee implementation of established schedule.
      iii) Maintain records of equipment maintenance, calibration, verification, adjustment, and NIST traceability.
      iv) Check delivered equipment for calibration records and obtain calibration records from suppliers when not included with delivery.

   b) IQF Materials Engineer, or his designee
      i) Check delivered equipment for calibration records.
      ii) Identify new equipment with a unique equipment number.
      iii) Perform verification of calibration, or calibration activities in accordance with the established schedule.
      iv) Document results of calibration, or verification on calibration record, provide record to IQF Materials Engineer.
      v) Apply calibration sticker to calibrated/verified equipment.
      vi) Verify calibration status of equipment prior to use.
      vii) Remove from service any equipment that has exceeded its calibration interval or is apparently damaged.

5) **Process Description:**
   a) Maintenance and Calibration Schedule
      i) The Materials Engineer shall establish a schedule for maintenance, calibration, verification, and adjustment of equipment according to recommendations from the manufacturer or,

where not applicable, industry standards and/or requirements of AASHTO. The schedule shall also identify the method by which the calibration shall be completed. All equipment subject to calibration/verification shall be incorporated into the schedule, identified by a unique identifier.

b) New Equipment Receipt
   i) The IQF Materials Engineer, or his designee, or his designee (QC) shall check equipment delivery records for calibration records, and maintain them in accordance with this procedure.
      (1) If calibration records are not received, contact the supplier of the equipment to obtain calibration records.
      (2) For equipment calibrated in house, assign qualified QA or QC personnel to perform calibration/verification in accordance with this procedure.

c) Calibration/Verification of Equipment
   i) The Materials Engineer or IQF Lab Supervisor shall arrange for the calibration/verification of IQF equipment in accordance with the established schedule.
   ii) The IQF Materials Engineer or Lab Supervisor shall perform calibration or verification of equipment in accordance with the appropriate calibration method, in accordance with the schedule.
      (1) Calibration/Verification shall be performed with a NIST traceable standard.
      (2) A calibration record shall be generated including, at a minimum, the following information.
         (a) IQF Equipment ID.
         (b) Calibration/Verification Method.
         (c) NIST Standards used and their calibration due dates.
         (d) Calibration/Verification Date.
         (e) IQF Technician performing the calibration.
         (f) As found condition, and a statement as to whether the equipment was found in or out of tolerance.
         (g) As left condition.
         (h) Next Calibration/Verification Due Date.

   iii) The IQF Lab Supervisor shall apply a sticker or other marking to the equipment indicating the calibration date and next due date.
   iv) If the equipment is damaged or unable to be adjusted within tolerance, the IQF Lab Supervisor shall remove the equipment from service and contact the Materials Engineer.
   v) Upon discovery of an Out of Tolerance condition, the Materials Engineer, or his designee shall:

(1) Investigate potential questionable test results using the out-of-tolerance equipment.
(2) Examine results further if any test results are confirmed as questionable.
(3) In the case of repetitive Out of Tolerance conditions, the Materials Engineer or IQF Technician shall give consideration to increasing the frequency of calibration/verification intervals.

d) Prior to the performance of inspection or testing using calibrated equipment, IQF Inspectors, IQF Technicians shall verify calibration status of the equipment and shall not use any equipment that is outside its calibration interval.

6) Quality Forms/Records:

Form/Record Number	Description	Storage Location
N/A	Calibration Records	Equipment calibration file

7) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
This procedure establishes the methods and responsibilities for IQF inspection and testing of asphalt mixtures used on the Carolina Crossroads Phase 2 Project.

2) **Scope:**
This procedure shall apply to all asphalt mixtures used on the Carolina Crossroads Phase 2 project.

3) **Responsibilities:**
   a) IQF Inspector
      i) Must be a SCDOT Certified Asphalt Roadway Technician
      ii) Checks ambient temperature and roadway conditions
      iii) Verifies rate that tack coat is applied (also samples tack coat and other materials per sample frequency guide – See Procedure QA855 Attachment A)
      iv) Verify the right asphalt mix is being used
      v) After the contractor begins paving, checks temperature of the mix, mat and ambient temperature throughout the paving operation.
      vi) Observes roller pattern
      vii) Determines the location of in-place densities and cores using SCT-101. Notify contractor of these locations after compaction operations are completed in the area per SC-M-400.
      viii) Is present when the cores are cut from the mat by the contractor. Receives a duplicate tag from the core from the contractor.
      ix) Complete Form 400.04.
      x) Provide completed Form 400.04 and duplicate tags to IQM.

   b) IQM
      i) Delivers tags to SCDOT District Asphalt Manager (DAM).
      ii) Receives completed workbook via email from DAM.
      iii) Completes AS-1 sheets. Submit completed AS-1 sheets monthly to OVF and SCDOT as part of the Monthly IQF Certification procedure.

4) **Process Description:**
   a) See QA762 Attachment A - Asphalt Mixtures QA flowchart.

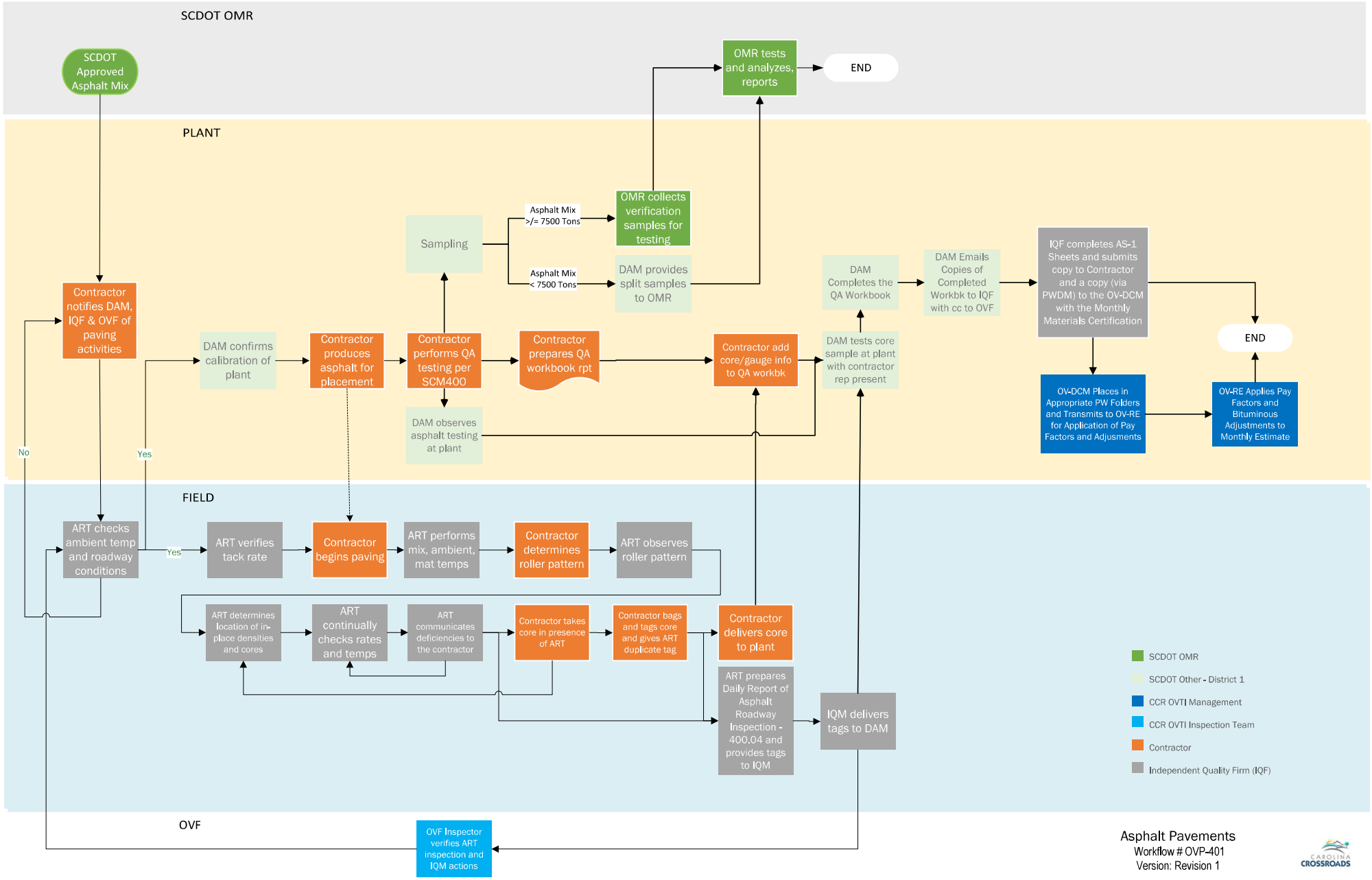
5) Quality Forms/Records:

Form/Record Number	Description	Storage Location
400.04	Daily Report of Asphalt Roadway Inspection	ELVIS
Form QA762-1	AS-1 Sheet, HMA Mix Types	ELVIS
Form QA762-2	AS-1 Sheet, Full Depth Patching	ELVIS

6) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

Form QA762 Attachment A



Asphalt Pavements
Workflow # OVP-401
Version: Revision 1

1) Purpose:

This procedure establishes the methods and responsibilities for approval and inspection of traffic control setups used on the Carolina Crossroads Phase 2 Project.

2) Scope:

This procedure shall apply to all traffic control setups used on the Carolina Crossroads Phase 2 project.

3) Responsibilities and Process Description:

a) Independent Quality Manager (IQM), or designee
   i) Receive, review and approve proposed Traffic Control Plans submitted by AUJV
   ii) Coordinate with SCDOT and OV personnel as needed during Traffic Control Plan (TCP) review
   iii) Participate in the Pre-Activity Meeting that will be held for the TCP, if required based on the TCP's complexity

b) IQF Field Engineer or Certified Traffic Control Inspector
   i) Participate and approve the Hold Point Inspection to be held prior to the installation of all traffic control devices, lane closures, shoulder closures and traffic shifts
   ii) Complete Hold Point inspection and submit as part of the Daily Inspection Report for that day
   iii) For new Traffic Control set ups, monitor the installation of the Traffic Control devices periodically as it is being installed to ensure compliance with the approved TCP.
   iv) If the Traffic Control setup is not fully compliant to the approved TCP, notify AUJV Traffic Control Supervisor so that the required changes can be implemented. See QC768 Procedure.
   v) Complete Form 600.02 for the weekly daytime inspection and the monthly nighttime inspection. Monitor any deficiencies to ensure timely correction. Attach these forms to Daily Inspection Report submitted for that day.
   vi) Maintain required Work Zone Traffic Control Certifications

4) Quality Forms/Records:

Form/Record Number	Description	Storage Location
Form 600.02	Weekly Inspection Report	ELVIS

5) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
This procedure establishes the methods of the implementation of environmental management and compliance with project environmental permits on the Carolina Crossroads Phase 2 Project.

2) **Scope:**
This procedure shall apply to all Work that is associated with the environmental permits and regulations commitments on the Carolina Crossroads Phase 2 project.

3) **Responsibilities:**
   a) IQM
      i) Participate in the weekly SWPPP inspections as much as possible.
      ii) Verify all SWPPP records are being maintained
      iii) Assist and support the IQF Erosion Control Inspector as needed.
      iv) Receive from AUJV the waste manifests, demolition permits, and refrigerant recovery certifications for all demolition and/or removal items that contain products that maybe harmful to humans and/or the environment.
      v) Forward documents above to the IQF Records Manager to be uploaded in ELVIS

   b) IQF Erosion Control Inspector
      i) Must be CEPSCI certified
      ii) Perform weekly SWPPP inspections once the NOI has been filed. Advise personnel from QC, AUJV, OVF and SCDOT of day and time of weekly inspection in case they want to participate in the SWPPP inspection.
      iii) Complete Form 800.02 Erosion Control Inspection Report based on the findings of the weekly SWPPP inspections.
      iv) Assign a time to cure (normally either immediately, 48 hours or 7 days, depending on the risk) for any SWPPP construction work that is needed (maintenance of existing SWPPP best management practices [BMP's] or adding new BMP's). Perform follow up inspections to verify the work was done within the required time to cure.
      v) Alert IQM, QCM and AUJV Construction Manager if evidence is found that the current SWPPP design needs to be modified due to the erosion experienced
      vi) Complete, maintain and keep current Forms 800.03 Rain Log and 800.05 Grading and Stabilization Log for the project.
      vii) Maintain a set of plans with the erosion control devices drawn in as they are installed. Note the day of installation and removal. Note also dates and areas where the ground was initially disturbed, temporary stabilization measures installed (temporary seeding for example) and when permanent stabilization measures were installed.

viii) For any demolition and/or removal items that contain environmentally harmful materials, receive waste manifests, demolition permits, and refrigerant recovery certifications from AUJV. Provide to IQF Records Manager to maintain in ELVIS.

c) IQF Records Manager
   i) Maintain Forms 800.02, 800.03 and 800.05 in ELVIS once the completed forms are provided by the IQF Erosion Control Inspector.
   ii) Maintain all waste manifests, demolition permits, and refrigerant recovery certifications for the Carolina Crossroads Phase 2 project in ELVIS.

4) Process Description:

a) SWPPP Inspections and Records
   i) After AUJV files the NOI, the IQF Erosion Control Inspector will begin the weekly SWPPP inspections. These will be done at the same day and time each week, if possible, to allow members of QC, AUJV, OVF and SCDOT to participate in the inspection if they wish.
   ii) Form 800.02 Erosion Control Inspection Report is completed by the IQF Erosion Control Inspector that same day showing the findings of the weekly inspection. The report is emailed to the QCM, AUJV Construction Manager and IQF Records Manager immediately after the report is completed. OVF and SCDOT personnel will be copied on the email if they request so.
   iii) The IQF Erosion Control Inspector assigns a time to cure (normally either immediately, 48 hours or 7 days, depending on the risk) for any SWPPP construction work that is needed (maintenance of existing SWPPP best management practices [BMP's] or adding new BMP's). The IQF Erosion Control Inspector will perform follow up inspections to verify the work was done within the required time to cure.
   iv) The IQM will alert the QCM if it appears that the current SWPPP needs modified due to the erosion the project has experienced.
   v) In addition to completing Form 800.02, the IQF Erosion Control Inspector will also complete and keep current Forms 800.03 Rain Log and 800.05 Grading and Stabilization Log until the NOT has been filed by AUJV and accepted by SCDHEC. These forms will be sent to the IQF Records Manager to be uploaded in ELVIS as they are completed. The IQF Records Manager will send these reports to OVF monthly as part of the monthly certification process.
   vi) The IQF Erosion Control Inspector will also keep and maintain a set of plans that are marked up showing the erosion control measures installed (location, date of installation and date of removal). This includes dates and areas of land disturbance, temporary stabilization practices and permanent stabilization methods.
   vii) The process above will be terminated once AUJV files the NOT for the Carolina Crossroads Phase 2 project.

b) Abatement of Harmful Materials
   i) The IQM will receive from AUJV the waste manifests, demolition permits, and refrigerant recovery certifications for all demolition and/or removal items that contain products that maybe harmful to humans and/or the environment.
   ii) The IQM will forward these documents to the IQF Records Manager to be uploaded in ELVIS.

5) Quality Forms/Records:

Form/Record Number	Description	Storage Location
Form 800.02	Erosion Control Inspection Reports	ELVIS
Form 800.03	Rain Log	ELVIS
Form 800.05	Grading and Stabilization Log	ELVIS
Plan Set (Hard Copy)	For daily mark ups as devices are installed and removed	Project Site

6) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
This procedure establishes the methods of the Materials Certification process at the project closeout stage for the Carolina Crossroads Phase 2 Project.

2) **Scope:**
This procedure shall apply to all Work on the Carolina Crossroads Phase 2 project.

3) **Responsibilities and Process Information:**
   a) Independent Quality Manager
      i) Write and sign the Materials Certification Memorandum (Memo) for the Carolina Crossroads Phase 2 project. In the Materials Certification Memo, the IQM will certify:
         (1) that he has reviewed the materials results for the Project
         (2) that the results of the tests used in the acceptance program indicate the materials incorporated in the construction work, and the construction operations controlled by sampling and testing, were in conformity with the approved plans and specifications
         (3) All material sampling and testing was performed in accordance with the Project's Materials Quality Assurance Program.
      ii) Include other supporting documentation to the Materials Certification Memo. At a minimum, these documents are:
         (1) Materials Sampling Checklist. This will show for a given construction item the quantity placed, the number of tests required per the testing frequency, and the tests performed by IQF.
         (2) The Material Certification Log. This will show the item of construction, date of certification, the supplier and additional useful information.
         (3) The NCR Log for Materials. This will reference and NCR's created for issues with materials and their resolution.
         (4) Engineering Judgment Log. This will reference any Engineering Judgments that were made on the project resulting from any materials issues. The log will show the date, item of work and location, the issue and the reasoning the PE gave for using Engineering Judgment.
   b) IQF Materials Engineer and Records Manager
      Assist the IQM with keeping the Materials Sampling Checklist, Materials Certification Log, NCR Log, and Engineering Judgment Log current in ELVIS.

4) **Materials to be accepted based on material certifications include:**
   a) Traffic Paint
   b) Thermoplastic
   c) Preformed Temporary Tape (Traffic Markings)
   d) Pavement Marking Adhesive
   e) Aluminum Sign Blanks

f) Reflective Sheeting
g) Temporary Construction Signs
h) Silt Fence (each lot, each manufacturer)
i) Sediment Tubes
j) Inlet structure Filters
k) Geotextile Under Rip-rap
l) Geotextile for embankment / subgrade separation
m) Earthquake Drain and Filter Fabric
n) Erosion Control Blanket
o) Turf Reinforcing Mat
p) HECP Stabilized Mulch Matrix
q) Floating Skimmer
r) Porous Baffles (coconut / excelsior material)
s) Slope Drain Pipe
t) Turbidity Curtain
u) Steel H piles, pile tips and pipe points
v) Structural Steel, structural steel bolts
w) Anchor bolts
x) Armor Plates
y) Elastomeric Bearing Pads / Plates
z) Construction Casings (drilled shafts)
aa) CSL tubes
bb) Seismic restrainer
cc) Bridge Paint and Sealants
dd) Aluminum Pipe (CAAP and SRAP)
ee) HDPE Pipe
ff) Pipe Joint Sealant
gg) MSE Wall Hardware and Fabric
hh) Curing Compound
ii) Grey Iron Casting
jj) Guardrail Hardware
kk) Catalog cuts for traffic signal systems
ll) Fence – chain link, woven wire, barbed wire
mm) Preformed Rubber Joint Filler

5) Quality Forms/Records:

Note: These documents are only being proposed. The information and the way the information is conveyed can be modified based on the wishes of OVF and SCDOT. The documents were used for the Materials Certification Closeout on a recent project in Arizona. Due to the size of the documents, some of the information was deleted when printing from a spreadsheet to pdf document.

Form/Record Number	Description	Storage Location
Form QA770-1	Example of Materials Memo	ELVIS
Form QA770-2	Example of Materials Sampling Checklist	ELVIS
Form QA770-3	Example of Material Certification Log	ELVIS
Form QA770-4	Example of Engineering Judgment Log for Material Items	ELVIS
Form QA770-5	Example of NCR Log	ELVIS

6) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
This procedure describes the procedure by which the IQF may apply engineering judgement to substantiate the use of material failing to meet the specification if the material still meets the intended purpose. The use of engineering judgement shall be in accordance with the Project's QAP.

2) **Scope:**
This procedure shall apply to failing material that still meets the intended purpose on the Carolina Crossroads Phase 1 Project. If IQF elects to apply engineering judgement to a failing material, the format and documentation described herein shall be used to support the decisions made. In each instance of the application of engineering judgement a unique identifying number will be used to track and document the decision. In no instance will engineering judgement be used to "promote" partnering nor to accept patterns of failure.

3) **Definitions:**
See Construction Quality Management Plan Section 3.0.

4) **References:**
Section 3.2 and Appendix F of Carolina Crossroads Phase 2 Project's QAP shown as Supplement B of the CQMP.

5) **Responsibilities:**
   a) Independent Quality Manager (IQM):
      i) Obtain permission for application of Engineering Judgement from SCDOT for specific materials and circumstances. See Supplement H of the CQMP for this information.
      ii) Oversee the application of Engineering Judgement for IQF.
      iii) Request approval from SCDOT to delegate engineering judgement authority. These individuals shall be the South Carolina licensed engineer in charge of a section of the project. See Supplement H of the CQMP for request that SCDOT delegate engineering judgment authority to IQF Materials Engineer.
      iv) Review the Engineering Judgement Log for patterns and trends and initiate corrective action when patterns/trends are encountered.
      v) Report to SCDOT and receive feedback on the use of Engineering Judgement.
      vi) Attach Engineering Judgement Log to the Monthly Certification Report.

   b) Materials Engineer:
      i) Assist the IQM in reviewing the Engineering Judgement Log for patterns and trends and initiate corrective action when patterns/trends are encountered.

6) Process Description:

a) Deficiency Identification

i) The IQF inspector identifies the deficient test or inspection result. The IQF inspector immediately calls the IQM or any other member of the IQF team that has engineering judgment authority for that specific issue. If the decision is made to allow the material to remain in place, the deficiency is noted in the IQF testing and inspection documentation. The Engineer that exercised engineering judgment will document the engineering judgment being used and any supporting data in the Engineering Judgment Log within 24 hours of reviewing the IQF test or inspection documentation in ELVIS.

b) Use of Engineering Judgement

i) The IQM or approved Engineer may choose to exercise Engineering Judgment, if in the opinion of the IQM, the test (as stated in the Project's QAP) and inspection (if delegated by SCDOT) results indicate reasonable conformance with the specification, or RFC Document, requirement, but did not meet the minimum requirement.

ii) The information within the specific Engineering Judgement shall include the required information shown in Appendix F of the QAP at a minimum.

iii) If the IQM, or approved Engineer, exercises Engineering Judgment, documentation shall be included within the appropriate Daily Inspection Report, in accordance with procedure QA752 IQF Inspection and Reporting, or test form, in accordance with QA824 Sampling, Testing, Review and Approval. In addition, the use of Engineering Judgment shall be documented within the Engineering Judgment Log in ELVIS.

(1) If the IQM, or designee, does not exercise Engineering Judgment, the NCR QA830 process or DN QA831 process is initiated if the material is not rejected on site.

c) Review and Reporting of Engineering Judgement Use

i) The IQM and Materials Engineer will regularly review the Engineering Judgement Log to identify any trends or patterns. If encountered, trends/patterns will be considered to be a breakdown in the existing process and the procedure for Corrective Action Report QC860 will be initiated.

ii) The use of Engineering Judgement by IQF will be reviewed with SCDOT at the weekly quality meeting to receive feedback/input.

iii) The Engineering Judgment Log will be submitted to OV / SCDOT by the IQM as part of the IQF Monthly Certification Process.

iv) An example of the Engineering Judgment Log (for benefit of the reviewer to provide the format, information provided, the Engineer's reasoning) is shown in QA810 Attachment A.

7) Quality Forms/Records:

Form/Record Number	Description	Storage Location
Form QA810-1	Example of Engineering Judgment Log from previous project	ELVIS

8) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
This procedure establishes the methods and responsibilities for sampling, testing; identification of those samples and tests; and review and approval of test records performed by the Independent Quality Firm (IQF) used for Quality Acceptance (QA). The consistency in recording IQF test results is essential in validating Owner Verification Tests (OVT). The validation satisfies requirements such as: requirements of the Project's QAP, 23 CFR 637(B) and FHWA's Technical Advisory T6120.3.

2) **Scope:**
This procedure shall apply to sampling, testing, and reporting performed by the IQF for the Carolina Crossroads Phase 2 Project.

3) **Definitions:**
See Construction Quality Management Plan Section 3.0.

4) **Responsibilities:**
   a) IQF Sampling and Testing Personnel
      i) Verify that their SCDOT certification is effective for the tests to be performed prior to performance and tell their supervisor, if it has expired. Also notify their supervisor if IA has not verified their equipment or themselves for that given test.
      ii) Use the proper material codes as described in QA855-Attachment A Minimum Sampling Guide Schedule.
      iii) Determine random location of samples and tests.
      iv) Perform sampling and testing in accordance with plan and specification governing test procedure requirements at the minimum frequency indicated in QA855-Attachment A Minimum Sampling Guide Schedule.
      v) Use of the appropriate IQF test forms to document samples and tests.
      vi) Notify AUJV production staff of test results (pass or fail). In the event of a test failure, a test shall be taken in the location of the original failure (fixed test) and the IQF testing personnel would then take another test at a random location within the same lot. A passing fixed and random test is needed to remedy the original failed random test.
      vii) Recording test information on the appropriate IQF test forms in accordance with QA824 - Attachment A.

   b) IQF Materials Engineer
      i) Assign SCDOT Certified personnel to perform sampling and testing, and data entry into ELVIS.
      ii) Review, for use of appropriate Controlled Vocabulary Language (CVL) and adequacy of data, and sign all completed testing forms.

iii) Review the data entered into ELVIS to verify the completeness and accuracy of entered test data and project information comparing it to the data entered in the form(s).
iv) Perform technical review of test data and results through the ELVIS workflow, including proper usage of material codes.
v) Distribute (CVL) updates to IQF staff.
vi) Maintain the laboratory log books for samples delivered by IQF personnel to the laboratory, with assistance from the IQF Lab Supervisor.
vii) Investigation and resolution of non-validation occurrences.
viii) Review materials tests records for accuracy including proper usage of material codes as described in QA855-Attachment A Minimum Sampling Guide Schedule.
ix) Along with the IQF Lab Supervisor, perform weekly review of IA verifications and SCDOT certification status of all technicians performing tests on the project. Notify SCDOT of any upcoming IA's that are required. Verify that all technicians performing tests have current SCDOT certifications and IA status.
x) Responsible for approving and authorizing test reports through the ELVIS workflow.
xi) Perform weekly review of IQF sampling and testing frequency compliance to QA855-Attachment A Minimum Sampling Guide Schedule and communicate needs for increase or decrease to supervisors of sampling and testing technicians/inspectors.
xii) Working collaboratively with SCDOT during dispute resolution and resolution of statistical non-validation between IQF and SCDOT test results, as detailed in the Project's QAP for the Carolina Crossroads Phase 2 Project.

c) Independent Quality Manager, or designee (IQF Materials Engineer)
i) Exercise Engineering Judgment as delegated by SCDOT, and record within Engineering Judgment Log in ELVIS.
ii) Communicate with the SCDOT Materials Engineer (or designee) on a regular basis (typically at the weekly planned project materials meeting) on materials issues. Discussion will include upcoming sampling/testing needs to ensure that SCDOT will be able to obtain adequate OVF samples as defined in the specifications.

d) Records Manager
i) Oversee transmittal of test results to SCDOT.

e) IQF Lab Supervisor
i) Along with the IQF Materials Engineer, perform weekly review of IA verifications and SCDOT certification status of all technicians performing tests on the project. Notify SCDOT of any upcoming IA's that are required. Verify that all technicians performing tests have current SCDOT certifications and IA status.

5) Process Description:

a) Personnel Assignment
   i) Supervisor(s) assign a certified technician/inspector to perform sampling and testing.

b) Sampling
   i) The inspector shall only take samples of materials that he has the applicable SCDOT Certifications for. See Section 7 for a list of required SCDOT certifications for a given item of work.
   ii) The inspector shall determine the test sample location using Procedure QA825 Random Sampling to determine the random sample or test location, unless the sample is designated to be a fixed sample. Note: Sampling and testing, including fixed sampling/testing, shall comply with the Project's QAP.
   iii) Sample Form Completion
      (1) If the sample is to be tested by the IQF Lab (including S&ME Lab), the Inspector shall complete Form QA824-1 Sample Identification Form as shown in Procedure QA824 – Attachment A.
      (2) If the sample is to be tested by the SCDOT OMR lab, the Inspector shall complete Form QA824-2 (SCDOT) Sample Identification Form as shown in Supplement G of the CQMP.
         (a) If using a paper copy of either of the forms, complete the form and provide to the IQF Lab Supervisor.
      (3) If completing electronically within ELVIS, enter the data into the form, sign and date, and forward to IQF Lab Supervisor.

   iv) Sample Entry into Sample Log Book
      (1) The Inspector shall complete entry information within the appropriate laboratory sample log book when arriving at the IQF laboratory. Note: The appropriate laboratory sample log book will be determined based on the required test method series.

c) Testing
   i) The technician/inspector shall only take tests on materials that he has the applicable SCDOT Certifications for. See Section 7 for a list of required SCDOT certifications for a given item of work.
   ii) The technician/inspector shall perform testing and complete the appropriate IQF testing form; review the accuracy of the test data, calculations, and results upon completion of the test; sign and date the form; and submit to the IQF Lab Supervisor or Materials Engineer.
      (1) When a Lab Identification Number (LIN) is required on the form, use the same 13 digit methodology as defined for Lab ID in Procedure QA824 – Attachment A.
   iii) See Sections 3.3 and 3.7 of Supplement A of the CQMP on how to address an IQF failure. The inspector should note that a failing IQF random independent test requires a passing

fixed-independent test at the original failing location and an additional passing random-independent test within the lot for acceptance.

d) IQF Lab Supervisor and/or Materials Engineer Review and Approval
   i) The IQF Lab Supervisor or Materials Engineer shall:
      (1) Review the completed form for completeness and accuracy of recorded data and CVL; compliance with material testing procedure; and comparison of the test results with the specification requirements. If errors are found, confer with the technician/inspector to determine correct data and have errors corrected on the form, if completed manually, or within ELVIS, if completed electronically.
      (2) Sign and date paper forms or approve forms electronically entered into ELVIS.

e) Data Entry
   i) Supervisor approved paper forms shall be entered into ELVIS by data entry personnel.

f) Data Entry ELVIS review
   i) If data entry errors are found, send the record with inaccurate or incomplete information through the ELVIS revision workflow with comments necessary to address the correction needs.
   ii) If no errors are found, send the record through the ELVIS workflow for technical review.

g) Technical Review
   i) The Field Engineer shall:
      (1) Perform technical review of sample and test data and results within the ELVIS workflow.
         (a) If technical errors are found, send records through the ELVIS correction workflow with necessary correction comments.
         (b) If no errors are found, send the record to the ELVIS Engineering Authorization workflow with a workflow comment indicating compliance with specification requirements.

h) ELVIS Test Report Authorization
   i) The Materials Engineer shall:
      (1) Follow the ELVIS workflow to perform an engineering review of test data and results.
         (a) If technical errors are found, send records to the ELVIS correction workflow with necessary correction comments.
         (b) If no errors are found, authorize the test report as pass or fail and close the ELVIS workflow.

      (2) If a test fails, notify the designated quality control representative of AUJV and SCDOT.

(a) If results indicate reasonable conformance with the specification requirement, but did not meet the minimum requirement, the IQM or designee (Materials Engineer) may exercise Engineering Judgment, as delegated by SCDOT, and provide the basis for acceptance within the remarks field of the form, as well as record within the Engineering Judgment Log in ELVIS.

(b) If results do not indicate reasonable conformance, or fall outside Engineering Judgment, then a DN or NCR shall be generated.

(3) Evaluate the occurrences of Engineering Judgment, for similar material results, to determine if there has been recurring Engineer Judgment provided for the same deviation. If the evaluation results in a recurring indication, refer to QC 860 Corrective Action Report for origination of root cause analysis and identification of corrective or preventive actions to prevent future occurrences.

i) Test Result Transmittal

i) The Records Manager shall oversee transmittal of IQF test results in STRATA to SCDOT on a daily basis. The information will be transmitted with information consistent with test identifiers as shown in Appendix E of Supplement A of the CQMP.

j) Dispute Resolution and Statistical Non-validation

i) The Materials Engineer and IQM shall work with SCDOT during dispute resolution and resolution of statistical non-validation between QA and OVF test results. The IQF or SCDOT may exercise Engineering Judgment to determine whether the material will perform its intended purpose. There are four possible combinations of passing and failing results between the OV and QA test results.

(1) Both the OV and QA test results are within specification limits.
If so, the material may be incorporated.

(2) OV tests results are within specification limits but QA test results are outside of specification limit.
Material may be incorporated if the IQF exercises Engineering Judgment to accept the material or if the material is accepted through the NCR process.

(3) Both the OV and QA test results are outside of the specification limits.
Material may be incorporated if the IQF exercises Engineering Judgment to accept the material or if the material is accepted through the NCR process. The acceptance of the material is subject to one of the two scenarios below:

(a) OV test results indicate reasonable conformance with specification requirement. IQF then performs a fixed test at the OV failed test location. Based on the results of

the previously completed OV and IQF tests, the additional OV and/or IQF fixed test results and the subsequent investigation discussions between SCDOT and IQF, SCDOT determines whether the material may be incorporated and SCDOT records the disposition.

(b) OV test results do not indicate reasonable conformance with specification requirement. IQF then performs a fixed test at the OV failed test location. Based on the results of the previously completed OV and IQF tests, the additional OV and/or IQF fixed test results and subsequent investigation discussions between SCDOT and IQF, SCDOT determines whether the material may be incorporated and SCDOT records the disposition.

If the material is reworked, the IQF must perform a fixed test at the OV failed location followed by random-independent tests by both the IQF and SCDOT. Random-independent test results representing material prior to rework should be excluded from new statistical analyses.

(4) OV test results are outside of specification limits but QA test results are within specification limits.
Material may be incorporated subject to SCDOT's response in the two scenarios below.

(a) OV test result indicates reasonable conformance with specification requirements. SCDOT exercises Engineering Judgment to concur with acceptance of material based on the IQF's Engineering Judgment or through the NCR process.

(b) OV test result do not indicate reasonable conformance with specification requirement. IQF then performs a fixed test at the OV failed test location. Based on the results of the previously completed OV and IQF tests, the additional OV and/or IQF fixed test results and the subsequent investigation discussions between SCDOT and IQF, SCDOT determines whether the material may be incorporated and SCDOT records the disposition.

If the material is reworked, the IQF must perform a fixed test at the OV failed location followed by random-independent tests by both the IQF and SCDOT. Random-independent test results representing material prior to rework should be excluded from new statistical analyses.

Another option to resolve disputes over specific QA and OV test results is the use of referee testing. Referee testing may be performed by either SCDOT OMR or an independent third-party testing laboratory as appointed by SCDOT OMR. The decision by SCDOT, or its designee, shall be final. Referee testing is solely an owner function. Therefore, if a third-party laboratory is utilized, SCDOT will pay for this testing.

6) Samples submitted to SCDOT OMR

a) IQF inspectors will obtain samples and submit the samples to SCDOT OMR as shown in QA855 Attachment A. Samples that are to be sent to SCDOT OMR for testing are highlighted in blue in Appendix B of the Project's QAP, which is shown in Supplement A of the CQMP.

b) IQF inspectors will complete the sample ticket information as shown in Supplement G of the CQMP.

c) IQF will maintain a log of all samples taken to SCDOT OMR. The log will contain the date the sample was submitted, what material the sample was, the date the test results were provided from the SCDOT OMR and the results of the test.

d) SCDOT OMR normally provides test results electronically on the SCDOT Intranet Web Site via MatLab. Since IQF will not have access to MatLab or the SCDOT Internet Web Site, a representative from SCDOT OMR will have to email the IQM the test results, unless other accommodations can be made. Another option would be to use ELVIS.

7) Required SCDOT Certifications for a Given Item of Work:

Quality Control and Quality Assurance Certification Requirements (Including but not limited to the below items of work)	
Item of Work	**SCDOT Inspector Certification**
Embankment (Borrow)	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Hot Mix Asphalt (HMA) Roadway	Asphalt Roadway Technician
Hot Mix Asphalt (HMA) Production	HMA Level 1 (Quality Control Technician) HMA Level 2 (Job Mix Technician) HMA Level 3 (Quality Control Manager)
Concrete Placement	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Bridge (Foundations-Piles, Shafts, Footings)	Foundations Technician Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Bridge (Columns, Caps, Decks, Parapet Walls)	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
Storm Drain (Pipe)	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Median Walls/Parapet Walls	Level 1 and 2 Concrete Field Technician ACI Concrete Field Testing Technician - Level 1
MSE Walls	Earthwork and Base Course Technician Nuclear Gauge Hazmat Certification
Erosion Control	Certified Erosion Prevention & Sediment Control Inspector (CEPSCI)
Traffic Control	Work Zone Traffic Control Certification
Structural Steel Coatings	NACE Coating Inspector Level I or SSPC Bridge Coating Inspector Level 1
Specialty Inspection (ITS, Lighting, Signals, etc.)	IMSA Traffic Signals Level II IMSA Fiber Optic Technician Level II

8) Quality Forms/Records:

Form/Record Number	Description	Storage Location
Form CQA824-XX	IQF Lab Forms	ELVIS
N/A	Sample Log Books	Laboratory

9) Revision History:

Revision	Originator	Revision Date	DCR Number	Description of Change
0				Original issue.

1. Sample ID – 13 digit number

   XXXXX - Unique inspector identification number
   YY - Year of sample obtained/test performed
   MM - Month of the sample/test
   DD - Day of sample/test
   SS - Sequential number of the sample/test for the day

2. Sample Date – date the sample was collected.
3. Sample Type – circle the appropriate choice on the form as:

   Random location selected by Technician/Inspector for IQF testing.
   - RI – Random Independent (no other sampling was performed on the material.)
   - RS – Random Split (sample was split for Owner Verification Testing (OVT))

   Fixed location selected with the independent judgment of the Technician/Inspector
   - FI – Fixed Independent (no other sampling was performed on the material.)
   - FS – Fixed Split (sample was split for OVT)

   Internal – Sample used by IQF for the purpose of internal review, training, calibration, proficiency testing, etc.

4. Split Sample ID – input the sample identification number used by the OVT laboratory, if the sample is a split sample.
5. Report Type – indicate as Original, Retest, or Correction (of operational or data entry error).
6. Segment – segment of the project that the sample is taken from, if applicable.
7. Sample/Inspected By – Input the name of the Inspector/Technician that performed the sampling/inspection of the material.
8. Material Code – Input the code taken from the CCR Sampling Guide Schedule.
9. Material Type – enter the Material Type taken from the CCR Sampling Guide Schedule.
10. Supplier/Producer – enter the name of the supplier or producer of the material sampled.
11. Structure Number – enter the structure number assigned, if applicable.
12. Material Description – enter a description of the material.
13. Sample Location – enter the location as: windrow, stockpile number, relative location of structure in pier number, column number, bent number, etc.
14. FID – enter the course or lift number of the material represented by the sample.
    Station – enter the station number of the sample location.
    Distance From CL – enter the distance from the centerline (CL)/profile grade line (PGL) with a notation of whether it is to the right or the left. (R or L)
15. Misc. – miscellaneous information that may be needed to clearly identify the origin of the sample.
16. Roadway – enter the roadway identifier

17. Feature – feature of work element where the sample is taken (e.g. mainlane, frontage road, toll plaza, culvert, ramp, etc.)
18. Direction – enter the direction of the roadway (e.g. northbound, southbound, etc.)
19. Lot Station Limits – define the lot limits in the longitudinal direction.
    Begin – beginning station of the lot represented by the sample.
    End – ending station of the lot represented by the sample.
20. Lot Width Limits – define the lot limits in the transverse direction (assuming the lot is rectangular in shape.)
    Offset (Lt) – offset distance of the left side of the lot from the CL/PGL
    Offset (Rt) – offset distance of the right side of the lot from the CL/PGL
21. Soils MD Curve Used for Density Test – to be used with fixed-independent sample for PI and MD curve verification.
22. Lift Thickness – thickness of the lift represented by the sample/test.
23. Quantity Sample – identify the size of the sample by the number of units.
24. Unit – identify the unit of the sample bag, bucket, piece, box, etc.
25. Lab Test Assignment(s) – identify the material testing requirement by test methods and note if the material is a resample of a previously failed sample.
26. Remarks – any additional information that is necessary to properly identify the material and testing requirements.

Revision	Originator	Revision Date	DCR Number	Description of Change
0	Lee Robertson			Original issue.

1) **Purpose:**
This procedure establishes the methods and responsibilities for determining a random unit, random quantity, or random location for Quality Acceptance (QA) samples and tests performed by the Independent Quality Firm (IQF) personnel. Use of this procedure is intended to (1) minimize any bias on the part of sampling and testing personnel taking the sample or test and (2) provide a process to allow Item(s) of Work an equal chance of being sampled and tested.

2) **Scope:**
This test method outlines the procedure for randomly sampling Hot Mix Asphalt (HMA) on the roadway. A table of random numbers is used to determine the location for in-place density on the roadway. This method may also be used in any situation requiring random selection procedures for sampling other highway construction materials.

3) **References:**
   a) SCDOT SC-T-101 Procedure.

4) **Responsibilities and Process Description:**
   a) Asphalt Roadway Technician
      i) Determining the core / nuclear gauge locations for density acceptance
         (1) Select the set of random numbers from Table 1, "Random Number Table," that is determined by a random mean (for example, place tabs of paper with numbers 1 – 50 in a container, and randomly pick a tab and use that number as your number set). The first column of the table is to be used to determine the longitudinal distance from each beginning sublot station number. (The use of random number generators such as calculators are prohibited).
         (2) Use the second column of random numbers in the same set to determine the transverse distance from the right edge of the roadway to the sample location.
         (3) For the first sample, multiply the first random number of the first column by the number of feet in the sublot (usually 1500-2000 ft.). Add this value to the beginning station number of that sublot. This will give the station number of the sample location. To determine the transverse distance from the right edge of the roadway to the sample location, multiply the width of the lane available (available = width of lane – 2 ft.) by the random number from the second set and add one foot.

Table 1 – Random Number

1		2		3		4		5		6		7		8		9		10	
0.117	0.573	0.391	0.198	0.764	0.821	0.414	0.377	0.710	0.177	0.086	0.461	0.748	0.352	0.966	0.344	0.750	0.304	0.689	0.951
0.724	0.362	0.105	0.349	0.943	0.283	0.653	0.880	0.910	0.615	0.344	0.519	0.807	0.014	0.595	0.380	0.188	0.118	0.371	0.262
0.013	0.511	0.440	0.710	0.252	0.136	0.515	0.928	0.955	0.350	0.776	0.836	0.752	0.859	0.114	0.649	0.948	0.035	0.906	0.305
0.717	0.376	0.066	0.252	0.389	0.363	0.368	0.090	0.113	0.152	0.816	0.968	0.600	0.247	0.024	0.985	0.971	0.238	0.435	0.680
0.723	0.886	0.182	0.543	0.853	0.739	0.141	0.397	0.582	0.582	0.896	0.238	0.206	0.907	0.933	0.827	0.172	0.377	0.186	0.506
0.875	0.412	0.970	0.908	0.497	0.162	0.080	0.295	0.442	0.686	0.998	0.530	0.718	0.161	0.381	0.960	0.167	0.939	0.618	0.964
0.493	0.210	0.552	0.293	0.592	0.949	0.680	0.759	0.449	0.248	0.676	0.469	0.013	0.310	0.739	0.537	0.340	0.867	0.553	0.456
0.866	0.886	0.488	0.527	0.931	0.061	0.997	0.699	0.394	0.057	0.481	0.562	0.157	0.796	0.833	0.905	0.112	0.126	0.360	0.637
0.768	0.022	0.261	0.710	0.994	0.782	0.324	0.822	0.383	0.528	0.542	0.551	0.590	0.152	0.481	0.122	0.915	0.608	0.617	0.258
0.093	0.933	0.123	0.534	0.827	0.288	0.936	0.154	0.458	0.815	0.312	0.757	0.413	0.905	0.138	0.184	0.724	0.730	0.478	0.484

11		12		13		14		15		16		17		18		19		20	
0.586	0.618	0.140	0.703	0.535	0.198	0.600	0.664	0.479	0.647	0.890	0.546	0.883	0.018	0.406	0.293	0.359	0.627	0.090	0.727
0.051	0.641	0.985	0.652	0.911	0.055	0.692	0.628	0.802	0.500	0.787	0.697	0.093	0.678	0.327	0.564	0.101	0.273	0.078	0.137
0.966	0.483	0.756	0.494	0.631	0.818	0.599	0.926	0.506	0.692	0.352	0.635	0.689	0.350	0.649	0.355	0.940	0.549	0.899	0.935
0.986	0.506	0.534	0.701	0.676	0.770	0.543	0.585	0.094	0.868	0.656	0.142	0.693	0.337	0.644	0.805	0.751	0.017	0.406	0.681
0.895	0.772	0.918	0.781	0.827	0.488	0.757	0.373	0.282	0.719	0.418	0.860	0.158	0.390	0.598	0.485	0.092	0.263	0.994	0.820
0.362	0.330	0.519	0.313	0.963	0.550	0.963	0.894	0.108	0.947	0.580	0.656	0.785	0.964	0.859	0.218	0.656	0.532	0.245	0.275
0.131	0.547	0.359	0.042	0.004	0.398	0.054	0.325	0.878	0.921	0.751	0.522	0.837	0.880	0.971	0.274	0.939	0.437	0.533	0.541
0.667	0.647	0.080	0.590	0.594	0.905	0.968	0.112	0.908	0.203	0.575	0.359	0.470	0.663	0.957	0.914	0.920	0.902	0.692	0.571
0.165	0.515	0.348	0.895	0.874	0.346	0.502	0.467	0.516	0.293	0.130	0.621	0.725	0.780	0.705	0.203	0.059	0.441	0.628	0.187
0.092	0.689	0.872	0.327	0.193	0.732	0.708	0.624	0.965	0.648	0.188	0.002	0.881	0.863	0.691	0.731	0.770	0.376	0.092	0.199

21		22		23		24		25		26		27		28		29		30	
0.853	0.611	0.143	0.877	0.278	0.237	0.858	0.758	0.672	0.710	0.785	0.935	0.407	0.538	0.708	0.252	0.599	0.710	0.165	0.944
0.489	0.547	0.243	0.957	0.503	0.340	0.714	0.621	0.280	0.416	0.523	0.327	0.918	0.207	0.139	0.604	0.573	0.785	0.951	0.983
0.800	0.371	0.530	0.596	0.102	0.209	0.293	0.473	0.557	0.160	0.944	0.299	0.621	0.802	0.707	0.042	0.362	0.476	0.314	0.105
0.643	0.850	0.697	0.239	0.818	0.852	0.520	0.436	0.860	0.961	0.639	0.537	0.229	0.599	0.563	0.379	0.784	0.826	0.138	0.630
0.498	0.147	0.372	0.029	0.015	0.348	0.185	0.715	0.173	0.357	0.673	0.619	0.767	0.223	0.528	0.050	0.354	0.835	0.511	0.860
0.853	0.633	0.749	0.818	0.489	0.230	0.923	0.246	0.227	0.553	0.452	0.059	0.587	0.186	0.630	0.074	0.664	0.712	0.942	0.667
0.804	0.769	0.524	0.410	0.277	0.616	0.664	0.389	0.759	0.589	0.945	0.928	0.040	0.719	0.602	0.842	0.986	0.547	0.389	0.287
0.863	0.599	0.106	0.097	0.924	0.101	0.649	0.953	0.149	0.895	0.560	0.183	0.225	0.760	0.773	0.612	0.099	0.540	0.932	0.684
0.556	0.859	0.274	0.624	0.481	0.024	0.424	0.532	0.692	0.080	0.834	0.632	0.208	0.200	0.889	0.661	0.079	0.836	0.218	0.194
0.239	0.052	0.608	0.957	0.557	0.171	0.612	0.047	0.412	0.510	0.077	0.392	0.203	0.327	0.734	0.418	0.440	0.819	0.354	0.593

31		32		33		34		35		36		37		38		39		40	
0.051	0.750	0.484	0.416	0.561	0.134	0.398	0.932	0.676	0.118	0.036	0.308	0.385	0.431	0.254	0.938	0.427	0.820	0.223	0.812
0.432	0.672	0.094	0.345	0.725	0.191	0.188	0.239	0.115	0.163	0.662	0.390	0.577	0.886	0.024	0.649	0.296	0.548	0.215	0.168
0.602	0.388	0.410	0.963	0.017	0.629	0.823	0.843	0.169	0.208	0.610	0.678	0.310	0.019	0.693	0.347	0.047	0.809	0.632	0.910
0.331	0.485	0.647	0.319	0.509	0.915	0.899	0.886	0.288	0.220	0.045	0.761	0.310	0.467	0.453	0.814	0.399	0.965	0.178	0.013
0.097	0.295	0.799	0.974	0.952	0.028	0.885	0.454	0.668	0.437	0.578	0.783	0.462	0.758	0.102	0.477	0.704	0.633	0.554	0.100
0.510	0.827	0.486	0.780	0.670	0.115	0.855	0.731	0.046	0.344	0.658	0.424	0.405	0.901	0.747	0.318	0.960	0.392	0.736	0.351
0.428	0.238	0.611	0.643	0.214	0.763	0.795	0.282	0.218	0.952	0.722	0.791	0.405	0.474	0.121	0.184	0.972	0.495	0.601	0.933
0.596	0.855	0.311	0.850	0.962	0.234	0.255	0.042	0.900	0.516	0.230	0.161	0.525	0.053	0.029	0.985	0.451	0.303	0.538	0.021
0.820	0.910	0.914	0.408	0.668	0.508	0.311	0.489	0.297	0.760	0.323	0.041	0.213	0.967	0.307	0.647	0.020	0.992	0.009	0.878
0.544	0.880	0.226	0.499	0.401	0.807	0.742	0.656	0.704	0.828	0.293	0.049	0.469	0.102	0.007	0.857	0.751	0.891	0.166	0.013

41		42		43		44		45		46		47		48		49		50	
0.496	0.980	0.099	0.608	0.589	0.517	0.287	0.191	0.527	0.889	0.756	0.582	0.192	0.707	0.615	0.887	0.891	0.601	0.583	0.345
0.068	0.986	0.241	0.255	0.729	0.807	0.870	0.116	0.963	0.869	0.608	0.589	0.794	0.130	0.523	0.544	0.997	0.473	0.170	0.999
0.318	0.441	0.634	0.760	0.243	0.593	0.163	0.342	0.190	0.671	0.854	0.216	0.132	0.324	0.568	0.816	0.261	0.682	0.009	0.764
0.067	0.133	0.768	0.266	0.284	0.722	0.590	0.975	0.338	0.528	0.709	0.655	0.770	0.058	0.574	0.233	0.297	0.190	0.281	0.459
0.325	0.692	0.521	0.359	0.147	0.307	0.209	0.983	0.169	0.427	0.156	0.951	0.021	0.808	0.297	0.252	0.813	0.940	0.673	0.832
0.924	0.796	0.736	0.431	0.080	0.316	0.753	0.574	0.073	0.657	0.880	0.689	0.674	0.764	0.656	0.275	0.614	0.892	0.796	0.335
0.780	0.156	0.507	0.272	0.894	0.767	0.178	0.161	0.321	0.303	0.837	0.990	0.839	0.931	0.144	0.046	0.200	0.935	0.226	0.364
0.565	0.182	0.353	0.925	0.876	0.261	0.540	0.766	0.888	0.657	0.317	0.989	0.738	0.310	0.407	0.627	0.485	0.569	0.114	0.703
0.183	0.392	0.308	0.275	0.137	0.853	0.695	0.443	0.125	0.169	0.369	0.481	0.166	0.876	0.884	0.291	0.275	0.405	0.455	0.127
0.187	0.760	0.475	0.311	0.902	0.161	0.415	0.649	0.892	0.458	0.899	0.149	0.280	0.459	0.739	0.530	0.860	0.438	0.770	0.622
0.492	0.911	0.346	0.235	0.362	0.417	0.098	0.355	0.239	0.267	0.796	0.216	0.011	0.497	0.312	0.948	0.052	0.179	0.557	0.971

ii) Determining the random sampling per Time Lot Basis (applicable only for reinforcing steel per the Minimum Sampling Guide Schedule)

(1) Determine the time required from which a random sample is required.

(2) Since one sample per size and shipment is required per month, estimate the amount of days that each size of the reinforcing steel for that shipment will be available before all of the steel has been used on the project. Only include the amount of working days. Divide the amount of days by 100 and round to the nearest whole number.

(3) Select a random number in accordance with 4.a.

(4) Multiply the random number by the amount of working days each size of reinforcing steel will be available to sample. The resulting number will be the working day that each size of reinforcing steel (per shipment) shall be sampled.

(5) Note to reader/reviewer: As this a Design/Build project and final quantities will not be established prior to construction, it is not possible to accurately determine a relationship between the production lot quantity and the time to produce such quantity in order for the IQF to determine the required number of samples per Section 3.3.3 of the Project's QAP. Another factor not allowing IQF to determine the amount of samples required is the randomness of each shipment of steel. Some shipments will have a large amount of steel with many different sizes, some shipments will have a relatively small amount of steel with only one or two different sizes. The only way to assure that all samples have been taken is for IQF and QC personnel to be very diligent in keeping their reinforcing steel records. IQF and QC personnel will compare the records and verify that a sample for each size and shipment was obtained.

5) Quality Forms/Records:

Form/Record Number	Description	Storage Location

6) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
This procedure establishes methods and responsibilities to identify, evaluate, segregate (prevent inadvertent use/installation), and dispose of nonconforming material or workmanship in construction, unless otherwise accepted by other approved procedures, which do not conform to requirements; and re-inspection/re-testing of those nonconforming items when corrective actions are taken.

2) **Scope:**
This Non-Conformance Report (NCR) procedure shall be initiated to address non-conforming materials and/or workmanship discovered during the construction of Carolina Crossroads Phase 2 project and which are considered complete and in-place. QA831 Construction Deficiency Notice (DN) process will be used to document and track deficient, in-progress work where the opportunity exists to re-work or repair the item of work (e.g. failed soil compaction test prior to subsequent lift). QA810 Engineering Judgment (EJ) will be used for acceptance of materials or work failing to meet specifications in cases that otherwise meet the intent of the design or that rejection of the material compromises quality of a more significant item or element. Recurring non-conformances or potential non-conformances to construction processes (e.g. procedures, quality management plans, ect.) will be addressed in accordance with QC860 Corrective Action Report (CAR) process. The IQF will initiate, manage and maintain all NCR's and an NCR Log in ELVIS. NCR's shall be submitted to SCDOT via ProjectWise Deliverable Management for review and approval prior to implementation of the disposition decision.

3) **Responsibilities:**
   a) Originator: Any AUJV, IQF, OVF, SCDOT or FHWA staff may notice a nonconformance and initiate a nonconformance report, and hence would serve as the Originator in this procedure. The Originator will:
      i) Identify a nonconformance and notify the IQM and/or QCM.
      ii) Fill out the Date, Originator, Location and Description of the Nonconformance sections of Form QA830-1 Nonconformance Report (NCR) and submit to the IQM.

   b) Independent Quality Manager (IQM):
      i) Oversee the reporting and tracking of NCR process.
      ii) Review of the NCR from the Originator, to assure adequate information is detailed describing the NCR and working with the Originator and the QCM to obtain more information, if necessary. An NCR may be reclassified as a Construction Deficiency Notice (DN) or as an Engineering Judgement when warranted.
      iii) Input the NCR into the ELVIS system which generates a number and places the NCR into the NCR log within ELVIS. An automated notification is sent to AUJV, the QCM, OVF and SCDOT.

iv) Review of NCRs to identify potential corrective action reports to address systemic issues in accordance with QC860 Corrective Action Report.
v) Verify independent objective evidence is obtained in order to close NCRs. The NCR is then sent (via ProjectWise Deliverables Management) to the OVF Project Engineer and SCDOT Construction Manager for further review and approval.
vi) Submit NCR Forms and NCR Log to OVF as part of IQF Monthly Certification Report.
vii) Report on NCR's at Management Review Meetings

c) Quality Control Manager (QCM):
   i) Review of the NCR from the Originator to assure adequate information is detailed describing the NCR and working with the Originator and the IQM to obtain more information, if necessary.
   ii) Perform root cause analysis of the NCR and assign a disposition of the NCR – i.e. Remove and Replace, Repair or Accept-As-Is.
   iii) Work with the CM, the AUJV Engineer of Record, OVF and SCDOT to ensure that proper approvals are obtained for final disposition.
   iv) Verify independent objective evidence is obtained for the closure of NCRs.
   v) Review of NCRs to identify potential Opportunities for Improvement to address systemic issues in accordance with QC860 Corrective Action Report.

d) AUJV Construction Manager (CM):
   i) Review NCR and recommend disposition, correction/rework plan or repair plan to address the nonconformance.
   ii) Obtain necessary approvals of Accept-As-Is or Repair prior to proceeding with work that would conceal or cover up the potential nonconformance.
   iii) Arrange for correction/rework, replacement, or repair of the product.
   iv) Arrange for independent verification, of corrected/reworked or replacement of the product confirming compliance with the original requirements or repair of the product confirming compliance with the repair plan and expectations.

e) IQF Sr. Construction Inspector
   i) Assign personnel to perform independent verification of corrective action or repair plans, upon notification from the AUJV Segment Engineer and assure documentation is entered on Daily Inspection Reports.

f) AUJV Engineer of Record
   i) Review requests for Accept-As-Is and Repair, and provide recommendations supported by objective evidence that the product will be adequate to form, fit and function, even though not completely complying with original requirements.

g) OVF Project Engineer
   i) Review of NCR's once the proposed corrective action has been recommended by IQF and submit to the SCDOT CM for review and final approval.

h) SCDOT Construction Manager
   i) Final approval authority on all NCR's
   ii) Receive copies of all closed NCRs.

4) Process Description:

a) Nonconformance Identification
   i) Originator shall immediately inform the IQM and/or QCM of the nonconformance.
   ii) The Originator shall submit the information required on Form QA830-1 Nonconformance Report (NCR) to the IQM including:
      (1) Date
      (2) Originator's Name
      (3) Description of the NCR including, where possible, the contractual requirement and the observed condition.

   iii) The IQM and QCM shall perform a joint review of the NCR for validity and for adequate information and work with the Originator to obtain additional information, as needed. Once completed the IQM will input the NCR into ELVIS and forward to the AUJV CM and QCM for response and disposition (Note that the Deficiency Notice QA831 or Engineering Judgement QA810 processes may be used in lieu of initiating the NCR). Upon initiating, a number will be assigned to the NCR and it will be placed in the NCR log. Automated notification of the NCR will be transmitted via email to the QCM, AUJV, OVF and SCDOT.
   iv) The QCM and AUJV CM shall jointly investigate and provide a recommendation for final disposition to the NCR. One of three dispositions may be recommended: 1) Remove and Replace, 2) Accept-As-Is, or 3) Repair

b) Nonconformance Containment
   i) The QCM will work with the AUJV CM to assure that steps are taken to properly identify and contain the nonconforming material or workmanship to prevent its further unintended use, concealment, or cover-up until disposition actions are taken. The QCM shall also describe containment actions on Form QA830-1.

c) Nonconformance Resolution
   i) Process for "Remove and Replace Corrective Action Plan:

(1) Upon determination by the AUJV CM that removal and replacement of the deficient material or workmanship is the appropriate course of action, the AUJV CM will notify the QCM and IQM of the Corrective Action Plan. The QCM shall record the "Remove and Replace" Corrective Action Plan on Form QA830-1 and submit to the IQM.

(2) When the "Remove and Replace" Corrective Action Plan is complete, the AUJV CM shall verify the Corrective Action Plan has been effective to bring the product to conformance; arrange for re-inspection/re-test of the product with the QCM and IQM to gain independent objective evidence (e.g., passing inspection report, test report, etc.) of conformance to the requirements, attach the objective evidence to the NCR and transmit to the QCM. Note: When objective evidence is documented within a passing inspection or test report, the QCM will document the Inspection or Test report number on the NCR Form.

(3) The QCM and the IQM shall verify completion of the NCR and the IQM will document the final disposition.

(4) The IQM shall forward the completed NCR via ProjectWise Deliverables Management system to OVF and SCDOT for further processing and closure.

ii) Process for "Accept-As-Is" or "Repair" Corrective Action Plan:

(1) Upon the determination by the AUJV CM that an accept-as-is or repair is the appropriate course of action, the AUJV CM will submit a plan and recommendation to the AUJV Engineer of Record for review and recommendation.

(a) If the AUJV Engineer of Record concurs with the recommendation, he or she shall provide objective evidence (e.g. design calculations or other basis for acceptance) to the AUJV CM.

(i) The AUJV CM shall update Form QA830-1 to include the acceptance or repair plan, to include the AUJV Engineer of Record's objective evidence and submit to the QCM for review and processing.

(ii) If the AUJV Engineer of Record does not concur with the "Accept-As-Is" or "Repair" recommendation, he/she will notify the AUJV CM that the plan is not acceptable and the AUJV CM shall consider alternative corrective actions to include removal and replacement or a revised repair plan.

(2) Upon receipt of an acceptable "Accept-As-Is" or "Repair" Corrective Action Plan from the AUJV CM, the QCM shall submit the Form QA830-1 with the AUJV Engineer of Record's objective evidence, to the IQM for review and processing in ELVIS.

(3) The IQM will review the "Accept-As-Is" or "Repair" Corrective Action Plan and if found acceptable, shall submit Form QA830-1 to the OVF and SCDOT via ProjectWise Deliverable Management for final review and approval.

(4) Once approval has been obtained, the NCR will be returned to the IQM and QCM who will notify the AUJV production staff of the approved resolution.
   (a) For repair actions, once all approvals have been obtained, the AUJV CM shall proceed with the repair plan.
   (b) Once the repair plan is complete, the AUJV CM shall verify the repair action has been effective and shall arrange, with the IQF and QCM, for verification, re-inspection, or re-testing of the product to gain independent objective evidence of conformance with the repair plan.

iii) The QCM and the IQM shall verify completion of the NCR.
iv) The IQM shall provide verification of the completed NCR and forward to OVF and SCDOT via ProjectWise Deliverables Management for further processing and closure of the NCR.

d) Nonconformance Record Maintenance
   i) The NCR Forms and Log shall be maintained within the ELVIS system
   ii) The NCR Forms and Logs will be sent to SCDOT each month as part of the IQF Monthly Materials Certification Report

e) Review of Nonconformances
   i) The QCM and IQM shall review each NCR and previous NCRs within the NCR Log, upon closure of each NCR, to determine if a Corrective Action Report should be issued to address a systemic issue in accordance with QC860.

f) Management review of Nonconformances.
   i) The IQM shall report NCR status during Management Review meetings.

5) Quality Forms/Records:

Form/Record Number	Description	Storage Location
Form QA830-1	Nonconformance Report	ELVIS
N/A	NCR Log	ELVIS

6) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) Purpose:

This procedure describes the QA responsibilities and the methods and documents used to collect information and data for completing a Construction Deficiency Notice (DN).

2) Scope:

This procedure applies to the recording and tracking of construction deficiencies that are identified during the inspection of the Construction/Installation activities of the Work. These items are amenable to correction prior to final inspection/acceptance.

3) Responsibilities:

a) IQF inspectors are responsible for:
   i) Identifying and documenting deficiencies in accordance with the process outlined in Section 4 below.
   ii) Verification of the implementation of DN dispositions

b) IQM (or designee) is responsible for:
   i) Documenting deficiencies (on Form QA831-1) noted by IQF inspectors on their daily summary inspection report.
   ii) Generation of Form QA831-1 Construction Deficiency Notice, when applicable.
   iii) Notifications and routing of DN as described in this procedure
   iv) Approval of DN Dispositions of Acceptance (Engineering Judgement)
   v) Verification and Closure of DN, including execution of Form QA831-1, when necessary.

4) Process Description:

a) Construction Deficiency Notice (DN) Initiation
   i) While performing IQF inspections, if deficiencies are noted that will not be corrected by the end of the shift, the IQF inspector shall document the deficiency on Form QA752-1 Daily Inspection Report.
   ii) The IQM shall note any DN generated that day on daily summary inspection reports.
   iii) The IQM shall generate the DN in the ELVIS system which automatically assign a DN number and enter the DN into the DN Log. Automated notification will be provided to SCDOT, OVF, QC ad AUJV staff via email when a DN is initiated.

b) DN Disposition
   i) The IQM shall provide notice of the DN to the Construction Supervisor responsible for that item of work in order that a disposition be determined. Possible dispositions are: Rework (meaning the work is brought back into compliance with RFC documents), Remove and Replace, or Acceptance (based on Engineering Judgment).

ii) Once the resolution is approved and implemented, the IQF inspector that created the DN will be notified of the final resolution or provided a copy of the DN Form, if applicable, to perform follow-up inspection activities and verify that the deficiency has been corrected.

iii) Once the IQF Inspector has verified the correction of the deficiency, he or she shall notify the QCM and IQM of completion.

(1) Deficient work shall not be used or built upon until the deficiency has been dispositioned and accepted by the QCM and IQM.

iv) Once verified, the IQM shall close the DN and the DN log will be updated.

5) Quality Forms/Records:

Form/Record Number	Description	Storage Location
Form CQA831-1	Construction Deficiency Notice	ELVIS
N/A	Construction Deficiency Notice Log	ELVIS

6) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose**
   This procedure establishes the methods and responsibilities for QA verification of the accuracy and adequacy of AUJV's survey crew on the Carolina Crossroads Phase 2 Project.

2) **Scope:**
   This procedure shall apply to IQF survey verification and reporting for the Carolina Crossroads Phase 2 Project.

3) **Responsibilities:**
   a) Independent Quality Manager
      i) Receive the 3 week look ahead construction schedule and any schedule information received from AUJV survey crews.
      ii) Assign IQF Surveyor to perform verifications of the Work.
      iii) Review results sent by IQF surveyor, input into Form QA850-1 and compare to plan information. Notify AUJV if any results are outside of the allowable tolerances shown in the RFC docuements. Notify IQF surveyor if required frequencies are not being met and additional data is needed.
      iv) Compare information provided by AUJV surveyor and verify the required frequencies are being met.
      v) Send Form QA850-1 monthly to OVF and SCDOT as part of the IQF Monthly Certification Process.

b) Independent Quality Firm (IQF) Surveyor

i) Coordinate with the appropriate AUJV survey personnel and IQM and, at a minimum, verify the following work items at the required frequency as shown in Figure 850.1:

BRIDGES			
Item	**Verification of**	**Shot Location**	**Frequency**
Footings	Elevation	Corners	Each Footing
Columns	Elevation	Top of Column	Each Column
Bent Caps	Elevation	Corners	Each Cap
Drilled Shafts	Elevation	Top of Shaft	Each Shaft
Piles	Elevation	Cut-off Elevation	One Pile per Bent
Bridge Beam Seats	Being Level	Corners and Mid-point	Each Seat
Armor Plates	Elevation	Crown and Face of Parapet	Each Plate
Bents	Distance Between	Bents	Each Span
ROADWAYS			
Item	**Verification of**	**Shot Location**	**Frequency**
Curb and Gutter	Line and Grade	Top of Curb	10% of hubs
Pipes / Culverts	Flow Line	Invert	Each Line of Pipe (excluding driveway pipe)
Catch Basins	Flow Line / Top of Box	Invert / Top of Box	10% of Boxes
Subgrade	Line, Grade and Cross-slope	Stagger Across Roadway (C/L, EOP, Lanes)	Every 500' on Station
Base	Line, Grade and Cross-slope	Stagger Across Roadway (C/L, EOP, Lanes)	Every 500' on Station
Surface Course	Line, Grade and Cross-slope	C/L, EOP. Lanes	Every 500' on Station
Retaining Walls	Line and Grade	Top of Wall	Every 100'
Barrier Walls	Line and Grade	Top of Wall	Every 250' on Station

Notes:

1. *Alignment and elevations should be checked more frequently at the beginning of the project to ensure that proper benchmarks, etc. are being used.*
2. *All survey checks should be kept in one central location.*

Figure 850.1 Minimum Frequency of Verifying Survey Control

ii) In addition to the minimum frequency shown in Figure 850.1, perform verification on various survey control, benchmarks, and construction stakes established by the AUJV surveyor as the project progresses.

iii) Summarize findings of each trip to the field and send this documentation that the above information has been verified via email to the IQM, IQF Records Manager, and QC Manager.

c) IQF Records Manager

i) With the coordination of the IQM, maintain Form QA850-1 in ELVIS.

4) Process
   a) IQM reviews the schedules sent from AUJV production and survey crews. Based on this information, the IQM alerts the IQF Surveyor of any items to be verified that week per the required frequencies in Figure 850.1.
   b) IQF Surveyor verifies the stationing, offsets and elevations of the assigned elements of Work.
   c) IQF Surveyor compiles the findings in spreadsheet form and sends to IQM, IQF Records Manager and QCM.
   d) IQM compares the survey data received from the IQF Surveyor to the stationing, offsets and elevations shown in the Plans.
      i) If the survey data is within allowable tolerances shown in the RFC documents, the IQM sends Form QA850-1 to IQF Records Manager for ELVIS upload.
      ii) If the survey data is not within allowable tolerances shown in the RFC documents, the IQM alerts AUJV of the issue. Process QA830 is enacted if the element of Work has been constructed. If the element of Work has not been constructed yet, the issue shall be fixed prior to construction.
   e) IQM will send Form QA850-1 to OVF and SCDOT each month as part of the IQF Monthly Certification.

5) Forms:

Form/Record Number	Description	Storage Location
Form QA850-1	IQF Survey Verification	ELVIS

6) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) **Purpose:**
To establish the IQF procedure for determining the minimum number of tests to be performed, by tracking and totaling delivered quantities of materials, and assure compliance with the frequency of testing contained in QA 855 Attachment A Carolina Crossroads Phase 2 Guide Schedule.

2) **Scope:**
This procedure shall apply to IQF sampling and testing conducted to fulfill material acceptance requirements for the Carolina Crossroads Phase 2 Project.

3) **Execution of Guide Schedule Compliance:**
IQF's sampling guide schedule will indicate the material type to be sampled, the controlling specification(s), the frequency of sampling, location where sampling will occur, the testing to be performed, and the acceptance criteria. Material test identification and labeling will be in accordance with QA824 Attachment A.

4) **Responsibilities:**
   a) Independent Quality Manager (IQM)
      i) Review and approve deviations from QA855 Attachment A Carolina Crossroads Phase 2 Guide Schedule

   b) Materials Engineer
      i) Review AUJV's weekly schedule and 3-week look-ahead for resource planning and sampling and testing need assessment.
      ii) Monitor IQF compliance with QA855 Attachment A CCR Guide Schedule
      iii) Propose deviations from QA855 Attachment A CCR Guide Schedule to the IQM
      iv) Be the lead point of contact to SCDOT for QA855 Attachment A CCR Guide Schedule compliance
      v) Investigate and implement corrective action when Guide Schedule deficiencies are encountered
      vi) Review and approve IQF field and laboratory tests
      vii) Provide weekly summary of Guide Schedule compliance information in ELVIS to SCDOT via excel file as part of the meeting minutes of the Weekly Materials Meeting.
      viii) Reconcile the accepted quantities (tested and have certifications) versus installed quantities each week and provide report each month as part of the monthly IQF Certification process.
      ix) Track and ensure compliance with the frequency of testing required to be performed on stockpiled aggregates.
      x) Track and ensure compliance with items sampled and delivered to SCDOT Central Laboratory for testing in accordance with Supplements E and G of the CQMP.

c) IQF Inspectors/Technicians
   i) Document on the testing worksheet or the quantity tracking forms the quantity of materials represented by the sample or test.
   ii) Obtain samples of constituent materials and finished products from production plants and point of placement for Portland cement concrete, hot mix asphalt, soils and base materials.
   iii) Assure receipt of material delivery tickets, identifying the location of material use, and tracking the frequency of testing.

5) Process Description:

a) Schedule Review
   i) The Materials Engineer shall:
      (1) AUJV's 3-week look-ahead and weekly schedules during project update/coordination meeting will be reviewed as well as anticipated approximate material quantities
      (2) IQF staffing resources will be reviewed to ensure that guide schedule sampling and testing compliance will be achieved

b) Sampling and Testing
   i) The Materials Engineer shall:
      (1) Assign certified sampling and testing technicians, or those technicians granted provisional status, to perform sampling and testing.
   ii) Inspectors shall:
      (a) Use the sample identification or appropriate testing form to document sample, test and quantity information for the "lot" represented by the sample or test;
      (b) Record the station and offset limits and material thickness for calculations of the total area or volume by ELVIS, for the material represented by the sample or test;
      (c) Record the quantity of the "lot" for items of material not tracked by dimensional calculation, i.e., cubic yard for each class of structural concrete;
      (d) Verify/reconcile at the end of each work shift the total quantity placed during the work shift with the quantities represented by the sublot samples and tests. Correct quantities represented by the lot or sublot sample form or test reports as needed.

c) Testing Frequency Verification
   i) The Materials Engineer shall:
      (1) Perform weekly review from ELVIS testing frequency verification tool;
      (2) Provide in ProjectWise Deliverables Management a weekly summary to SCDOT of guide schedule compliance.
      (3) Assess the overage or underage of testing frequency for contract compliance;
      (4) Identify root cause of testing frequency underage and develop and implement corrective actions;

6) Quality Forms/Records:

Form/Record Number	Description	Storage Location
QA855-1	Minimum Sampling Guide Schedule Report (Form to be included once ELVIS buildout is completed)	ELVIS
QA855 Attachment A	Testing Frequency Guide Schedule	ELVIS

7) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

CAROLINA CROSSROADS	QA855 Attachment A IQF Minimum Guide Schedule	
Document Owner: Lee Robertson	Revision – 0	Effective Date:
Approved By: Newel White	Release Date:	Review By: 10/15/2025
Approved By:	Revision Date:	Page 1 of 9

SCDOT Quality Acceptance Sampling & Testing Guide

Amendment to Figure 106B & 106C of the SCDOT Construction Manual (Rev. 3/1/2020)

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Aggregate, Coarse (non asphalt)	Aggregate, # 1 Stone	Agg1	(1) per 500 Tons*	(1) 40 Lbs.	SC-T-1	QPL 2	RCE	-	-	S: 501, 701, 802 Appendix: A-2, A-3, A-4, A-6 STS: SC-M-203-5 (7/17) SC-M-205-2 (7/17)	Sample requirement waived for: 1) Temporary applications used in CMRB Curing Methods B & C 2) Use in Non-structural Class 2500 concrete *Small Quantity Acceptance
	Aggregate, # 4 Stone	Agg4									
	Aggregate, # 5 Stone	Agg5									
	Aggregate, # 56 Stone	Agg56									
	Aggregate, # 57 Stone	Agg57									
	Aggregate, # 67 Stone	Agg67									
	Aggregate, # 6M Stone	Agg6M									
	Aggregate, # 7 Stone	Agg7									
	Aggregate, # 78 Stone	Agg78									
	Aggregate, # 789 Stone	Agg789									
	Aggregate, # 89M Stone	Agg89M									
	Aggregate, # 8M Stone	Agg8M									
	Aggregate, Light Weight Stone	AggLightWeight									
	Aggregate, CR-14 Stone Crusher Run	AggCR-14									
	Aggregate, Stone Column Backfill	AggStnColmnBack									
Aggregate, Fine (non asphalt)	Aggregate, FA-10	AggFA10	(1) per 500 Tons*	(1) 20 Lbs.	SC-T-2	QPL 1	RCE	-	-	S: 501, 701, 802 Appendix: A-2, A-3, A-5, A-6 SS: (5/1/06)	Sample requirement waived for: 2) Use in Non-structural Class 2500 concrete *Small Quantity Acceptance
	Aggregate, FA-10 / Manufactured Sand	AggFA10M-701									
	Aggregate, FA-12	AggFA12									
	Aggregate, FA-13	AggFA13									
	Aggregate, Fine Agg. Blended	AggFABlend-701									
	Aggregate, Natural Sand used in Asphalt	AggNatSand401									
	Aggregate, Regular Screenings	AggScr									
	Aggregate, Washed Screenings	AggWScr									
Asphalt Emulsions (used in Tack Coat Applications)	Asphalt, Emulsified RS-1 (Rapid Set)	AsphLiqRS1-406	Obtain sample only if field application issue exists	(1) 0.5 Gallon	SC-T-61	QPL 38	RCE	Roadway Placement: SC-T-86	(1) Each Application (Form 400.04)	S: 401.4.18	Submit to OMR within 7 days of sampling
	Asphalt, Emulsified HFMS-1	AspLiqHFMS1-406									
	Asphalt, Emulsified HFMS-1H	AspLiqHFMS1H406									
	Asphalt, Emulsified HFMS-2	AspLiqHFMS2-406									
	Asphalt, Emulsified SS-1 (Slow Set)	AsphLiqSS1-406									
	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406									
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407									
	Asphalt, Emulsified CMS-2	AsphLiqCMS2-406									
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H									
	Asphalt, Emulsified Non-Tracking Tack	AsphLiqNTT									
Asphalt Emulsions (used in Surface Treatment Applications)	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406	(1) per 25,000 Gallons	(1) 0.5 Gallon	SC-T-61	QPL 38	RCE	Roadway Placement: SC-T-86	(1) Each Application (Form 400.04)	S: 406, 407, 408 Appendix: A-2, A-3 SS: (3/1/16)	Sample requirement waived for: Temporary applications used in CMRB Curing Methods B & C Submit to OMR within 7 days of sampling *Small Quantity Acceptance
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407									
	Asphalt, Emulsified CRS-2L (Latex)	AsphLiqCRS2L406									
	Asphalt, Emulsified CRS-2P (Polymer)	AsphLiqCRS2P407									
	Asphalt, Emulsified CSS (FDR)	AsphLiqCSS(FDR)									
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H									
	Asphalt, Emulsified EAP Special	AsphLiqEAPS-407									
	Poly Mod Emulsified Asph Fog Seal - OGFC	AsphLiqFogSeal									
Asphalt, Micro-Surfacing	Asphalt, Emulsified CQS-Micro	AsphLiqCQSMicro	(1) per 25,000 Gallons	(1) 0.5 Gallon	SC-T-61	QPL 38	RCE	Compute the Daily Average of Residual Asphalt & Mix Rate: (Based on Contractors QC readings)	(1) per Days Production	SS: (1/1/19)	Observe test section construction for approval of Mix Design and System Performance
	Aggregate, Micro Surface Screenings	AggMicroScrn	(1) per 50,000 SY Installed	(1) 20 Lbs.	SC-T-2	QPL 1	RCE				

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Asphalt, PMTLS	Preventative Maintenance Thin Surf. WMA	Surf-PrevMa_WMA	(1) per 5,000 Tons	(1) 15-50 Lbs.	SC-T-62	-	SCDOT DAM	Ambient Temperature: SC-T-84 Mix/Mat Temperature: SC-T-84 Depth Check:	(1) Before paving starts, then (2) per LOT (Form 400.04) (4) per LOT (Form 400.04) (1) Each 200 ft.	SS: (11/1/13)	-
	Preventative Maintenance Thin Surface	Surf-PrevMaint									
Asphalt Binder	Asphalt, Liquid PG 64-22	AsphLiqPG64-401	(1) per 10,000 Tons of Mix Produced	(1) Quart	SC-T-61	QPL 37	SCDOT DAM	-	-	SS: 401 SS: (1/1/19)	*Small Quantity Acceptance*
	Asphalt, Liquid PG 76-22	AsphLiqPG76-401									
Asphalt, OGFC	Open Graded Friction Course	OGFC-403	(1) per 5,000 Tons	(1) 1500-1700 gram Sample	QAST Guide SC-T-110	-	SCDOT DAM	Ambient Temperature: SC-T-84 Mix/Mat Temperature: SC-T-84 Lay Down Rate: SC-T-85	(1)Before paving starts, then (2) per LOT (Form 400.04) (4) per LOT (Form 400.04) (1) per 200 Tons (Form 400.04)	S: 409 SS: (1/1/19) SS (Table): (4/1/16) SC-M-403 (4/16)	Establish and document the roller pattern required to seat the mix
	Maintenance Open Graded Friction Course	Surf-Maint-OGFC									
Asphalt, Surface	Asphalt SMA Surface 9.5mm	AsphSMASurf95	(1) per 5,000 Tons	(1) 35-50 Lbs.	SC-T-62	-	SCDOT DAM	Calculate & Mark Core Locations for SMA, STA & STB Mixes: SC-T-101 Ambient Temperature: SC-T-84 Mix/Mat Temperature: SC-T-84 Lay Down Rate: SC-T-85 Calculate&Mark Density Gauge for STC & STD Mixes: (SC-T-101)	(1) per 1,500ft paved (1) Before paving starts, then (2) per LOT (Form 400.04) (4) per LOT (Form 400.04) (1) per 200 Tons (Form 400.04) (1) per 500 ft. paved	Contract Special Provision S: 401, 403 STS: SC-M-400 (1/18) SC-M-403 (4/16)	Document Control Strip Density Test (Form 400.02) Observe and document the in-place density test procedures being performed: SC-T-87 SC-T-65 No in-place density performed on STE Mixes
	Asphalt SMA Surface 12.5mm	AsphSMASurf125									
	Surface Type A	Surf-T-A									
	Surface Type B	Surf-T-B									
	Surface Type B Warm Mix Asphalt	Surf-T-B_WMA									
	Surface Type C	Surf-T-C									
	Surface Type C Warm Mix Asphalt	Surf-T-C_WMA									
	Surface Type D	Surf-T-D									
	Surface Type D Warm Mix Asphalt	Surf-T-D_WMA									
	Surface Type E (Sand Seal)	Surf-T-E									
	Surface Type E Warm Mix Asphalt	Surf-T-E_WMA									

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Asphalt, Intermediate	Intermediate Type A	Inter-T-A	(1) per 5,000 Tons	(1) 35-50 Lbs.	SC-T-62	-	SCDOT DAM	Ambient Temperature: SC-T-84 Mix/Mat Temperature: SC-T-84 Lay Down Rate: SC-T-85 Calculate&Mark Core Locations for ITA, ITB, & *ITB-Special Mixes: SC-T-101 Calculate&Mark Density Guage Locations for ITC Mixes: SC-T-101	(1)Before paving starts, then (2) per LOT (Form 400.04) (4) per LOT (Form 400.04) (1) per 200 Tons (Form 400.04) (1) per 1500 ft. paved (1) per 500 ft. paved	S: 401, 403 STS: SC-M-400 (1/18)	Document Control Strip Density Test (Form 400.02) Observe and document the in-place density test procedures being performed: SC-T-87 *ITB-Special Acceptance, Placement rate: < = 300 #, Cores > 300 #, Gauge
	Intermediate Type B	Inter-T-B									
	Intermediate Type B Special	Inter-T-B(Spec)									
	Intermediate Type Warm Mix Asphalt	Inter-T-B_WMA									
	Intermediate Type C	Inter-T-C									
	Intermediate Type C Warm Mix Asphalt	Inter-T-C_WMA									
Asphalt, Base	Base Type A	Base-T-A	(1) per 5,000 Tons	(1) 25-50 Lbs.	SC-T-62	-	SCDOT DAM	Ambient Temperature: SC-T-84 Mix/Mat Temperature: SC-T-84 Lay Down Rate: SC-T-85 Calculate&Mark Density Guage Locations: SC-T-101	(1)Before paving starts, then (2) per LOT (Form 400.04) (4) per LOT (Form 400.04) (1) per 200 Tons (Form 400.04) (1) per 500 ft. paved	S: 401, 309, 310 STS: SC-M-400 (1/18)	Document Control Strip Density Test (Form 400.02) Observe and document the in-place density test procedures being performed: SC-T-65
	Base Type A Warm Mix Asphalt	Base-T-A_WMA									
	Base Type B	Base-T-B									
	Base Type B Warm Mix Asphalt	Base-T-B_WMA									
	Base Type C (Surface Sand Base)	Base-T-C									
	Base Type C Warm Mix Asphalt	Base-T-C_WMA									
	Base Type D (Surface Sand Base)	Base-T-D									
	Base Type D Warm Mix Asphalt	Base-T-D_WMA									
Asphalt, Shoulder Widening	HMA Shoulder Widening Course	Shoulder-HMA	(1) per 5,000 Tons	(1) 25-50 Lbs.	SC-T-62	-	SCDOT DAM	Ambient Temperature: SC-T-84 Mix/Mat Temperature: SC-T-84 Lay Down Rate: SC-T-85	(1) Before paving starts then (2) per LOT (Form 400.04) (4) per LOT (Form 400.04) (1) per 200 Tons (Form 400.04)	S: 401 SS: (4/3/09) STS: SC-M-400 (1/18)	-

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Backfill	Backfill Materials, MSEW	Backfill-713.08	(1) Initial Source Evaluation Sample (1) per 2,000 CY (Short Test) (1) per 15, 000 CY (Full Test)	Stone: (5) 70 Lb. bags Granular: (2) 70 Lb. bags Stone: (1) 70 Lb. bags Granular: (1) 20 Lb. bag Stone: (5) 70 Lb. bags Granular: (2) 70 Lb. bags	SC-T-1 SC-T-2	QPL 1 QPL2	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32 (Not required for stone)	(1) per every 2 Lifts for every: (Form 200.03) 25ft of wall for any portion of wall within 150ft of bridge 100ft of wall for any portion of the wall greater than 150ft away from bridge	S: 713 STS: SC-M-713 (5/1/14)	Specify what level of testing is required when submitting the sample (Initial Source, Short, Full) *Short Test : completed in-house* *Full Test : sent out for internal friction angle test*
	Reinforced Soil Slope	Backfill-RSS	(1) per 4,000 CY (Short Test) (1) per 20,000 CY (Full Test)	Soil: (1) 20 Lb. bag	SC-T-1 SC-T-2	QPL 1 QPL2	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	(1) per every lift for every: (Form 200.03) 25ft of wall for any portion of wall within 150ft ft of bridge 75ft of wall for any portion of the wall greater than 150ft away from bridge	STS: SC-M-206 (04/16)	Specify what level of testing is required when submitting the sample (Initial Source, Short, Full) *Short Test : completed in-house* *Full Test : sent out for internal friction angle test*
	Pipe, Culvert Backfill (bed for Pipe)	BackfillPipeCul	(1) Verification Sample at start of operations & (1) per 1000 LF of production	Fine: (1) 20 Lbs. Course: (1) 40 Lbs. Base: (1) 70 Lbs.	SC-T-1 SC-T-2	QPL 1 QPL2	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	See STS (08/09) (Form 200.07 & 200.08)	S: 714 STS: SC-M-714 (08/09)	Specify if Project has approved Pipe Backfill Material Waiver
Embankment	Unclassified Excavation used in Embankment	-	-	-	-	-	-	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	Below 18": (1) Each 2,000 CY min. of (1) per Lift Top 18": (1) Each 1,000 ft per 2 lanes	S: 205	-
	Borrow, Embankment	BorrEmb-203	(1) Each day of work from each source used		Obtain a representative sample from entire width of roadway	-	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	(1) Each 2,000 CY min. of (1) per Lift	S: 205	Specify if the sample is Below 5' of Finished Grade
	Borrow Embankment Subgrade Top 18 inches	BorrSubgrade203	(1) Each 1,000 ft per 2 lanes		Obtain a representative sample from entire width of roadway	-	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	(1) Each 1,000 ft per 2 lanes	S: 205	-

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Base	Base, Sand Clay	BaseSanClay-303	(1) Each 1,000 ft per 2 lanes	10 Lbs.	Obtain a representative sample from entire width of roadway	-	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32 Depth Check:	(1) Each 2,000 CY min. of (1) per Lift (1) Each 250ft per 2 lanes (Form 300.01)	S: 303	-
	Base, Coquina Shell Course	BaseCoq-304	(1) Initial Theoretical Density Sample (1) Each 1000 ft per 2 lanes each layer	(5) 70 Lb. bags 25 Lbs.	SC-T-1	QPL 4	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32	(1) Each 2,000 CY min. of (1) per Lift (Form 300.03) Each 250ft per 2 lanes (Form 300.01)	S: 304	-
Graded Aggregate Base	Base, Macadam Course	BaseMac-305	(1) Initial Theoretical Density Sample (1) Each 1000 ft per 2 lanes each layer	(5) 70 Lb. bags 70 Lbs.	SC-T-1 SC-T-100	QPL 2	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 Depth Check:	(1) Each 1,000ft per 2 lanes each layer (Form 300.03) Each 250ft per 2 lanes (Form 300.01)	S: 305 SS: (1/2/14) (5/1/09)	Submit these samples to OMR within 3 business days from the date of sampling
	Base, Marine Limestone	BaseMarLime-305									
	Base, Recycled PC Concrete	BaseRecyConc305									
Cement Treated Base	Earth Base, Cement Stabilized	-	(1) Initial Mix Design & Theoretical Density Sample	(2) 70 Lb. bags	Obtain a representative sample	-	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 Depth Check: Cement Application Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.03) Each 250ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	S: 306	Submit material for Mix Design to OMR 30 days prior to construction
	Recycled Base, Cement Modified	-	-	-	-	-	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 SC-T-33 Depth Check: Cement App Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.06) Each 500ft per 2 lanes (Form 300.01) (1) per Tanker Load	S: 306 STS: SC-M-306 (1/18)	Submit Contractor's Mix Design to OMR for approval 2 weeks prior to construction
	Aggregate Base, Cement Stabilized	-	Sample & submit aggregate samples according to GAB guidelines	-	If a Pugmill is used, sample the virgin aggregate from the stockpile (1) Each 1,000 Tons SC-T-1	-	RCE	Compaction: SC-T-33 Depth Check: Cement Application Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.03) Each 250ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	S: 308 STS: SC-M-308 (10/15)	Submit Contractor's Mix Design to OMR for approval 2 weeks prior to construction Observe & document QC compressive strength specimen sampling & testing
	Subbase, Cement Modified	SubCemMod-301	(1) Initial Mix Design & Theoretical Density Sample (1) per Day	(2) 70 Lb. bags (2) 4" diameter Cores	Obtain a representative sample Construction Manual 301.3.3.5	-	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 Depth Check: Cement App Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.06) Each 500ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	S: 301	Submit material for Mix Design to OMR 30 days prior to construction

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Cement	Portland Cement Type I	CementTypeI	(1) Each 100 Tons for Concrete use	(1) Gallon	SC-T-47	QPL 6	RCE	-	-	S: 701 SS: (5/5/14)	Sample requirement waived for use in non-structural Class 2500 concrete Mill Test Report is required. Submit to OMR along with sample.
	Portland Cement Type II	CementTypeII	(1) Each 400 Tons for Base use								
	Portland Cement Type III	CementTypeIII									
	Cement Type I (Slag Modified)	CementTypeI	(1) Each 100 Tons			QPL 18				SS: (5/5/14)	
	Fly Ash, PC Concrete	FlyAshPCC-701	(1) Each 50 Tons			QPL 3				S: 701.4.9 SS: (5/5/14)	
	Slag, Granulated	SlagPCC-701	(1) Each 50 Tons			QPL 6				S: 701.4.9 SS: (5/5/14)	
Masonry	Clay Brick	ClayBrick	(1) Each 50, 000 Bricks	(6) Bricks	-	-	RCE	-	-	S: 718	-
	Concrete Block	ConBlock-718	(1) Each Source	(6) Blocks							
	Concrete Brick	ConcBrick	(1) Each 50,000 Bricks	(6) Bricks							
	Grout	Grout	(1) per 10 CY	(1) Set of 3 Cubes (2")	ASTM C109					S: 704 SS: (1/2/13)	
Concrete	Concrete Cylinder, Class 2500	ConcCyl. 2500	Non-structural Class 2500: (1) per 50 CY Structural: (1) per 50 CY on small pours & min. of 1/structure if <50 CY or (1) per 100 CY on large pours* *exceeds 100 CY Pavement: (1) per 1500 CY & a min. of 1 per production day	Non-structural Class 2500: (1) Set of 3 Cylinders (4" x 8") Structural: (1) Set of 3 Cylinders (4" x 8") Pavement: (1) Set of 6 Cylinders (6" x 12") 3 Cylinders will be tested at 72 hrs 3 Cylinders will be tested at 28 days	ASTM C172 ASTM C31	QPL 28	RCE	Slump: (AASHTO T-119, ASTM C143) Air Content: (AASHTO T-196, ASTM C231 or ASTM C173) Temperature: (ASTM C1064) Thickness Verification:	Structural: (1) each time test specimens are made Pavement: (4) each days production, and (1) each time test specimens are made Pavement: See STS SC-M-503 (03/08)	*Structural:* S: 701, 702, 704 SS: (2/1/2015) (8/1/2014) (5/5/2014) (8/2/2013) *Pavement:* S: 501 SS: (8/2/2013) STS: SC-M-501 (03/08)	Report field test results on Ready Mix Concrete Report (Form 700.04) Not Required for Non-structural Class 2500 concrete *Small Quantity Acceptance* Air Content & Temperature field testing is waived for High Early Stength Mix
	Concrete Cylinder, Class 3000	ConcCyl. 3000									
	Concrete Cylinder, Class 4000	ConcCyl. 4000									
	Concrete Cylinder, Class 4500	ConcCyl. 4500									
	Concrete Cylinder, Class 5000	ConcCyl. 5000									
	Concrete Cylinder, Class 5500	ConcCyl. 5500									
	Concrete Cylinder, Class 6000	ConcCyl. 6000									
	Concrete Cylinder, Class 6500	ConcCyl. 6500									
	Concrete Cylinder, Class 7000	ConcCyl.7000									
	Concrete Cylinder, Class 7500	ConcCyl. 7500									
	Concrete Cylinder, Class 8000	ConcCyl. 8000									
	Concrete Cylinder, Class 8500	ConcCyl. 8500									
	Concrete Cylinder, Class 9000	ConcCyl. 9000									
	Concrete Cylinder, Class 9500	ConcCyl 9500									
	Concrete Cylinder, Class 10,000	ConcCyl.									
	Water	Water-701	(1) Each Source	(1) Gallon	Obtain a representative sample	-	RCE	-	-	-	S: 701.2.11
Roller Compacted Concrete	Roller Compacted Portland Cement	CementTypeI	*According to Cement Guidelines*			-	RCE	Compaction: SC-T-33 Paver Compaction Verification: SC-T-33	(1) Each 1,000 ft per 2 lanes (Form 300.03) (1) per Project, & as determined necessary	Contract Special Provision	Observe & document QC compressive strength specimen sampling & testing
	Roller Compacted Concrete Aggregate	AggCompConcPvmt	(1) per 500 Tons Agg	(1) 40 Lbs.	SC-T-1	QPL 2					
High Friction Surface Treatment	High Friction Surface Treatment Binder	HFST-PolyRes	(1)per 2,000 SY of Treatment & (1) Each Batch	(1) 1/2 - 1 Gallon, Each component	Obtain each component of the binder in a separate tightly sealed container.	QPL 87	RCE	Depth Check:	(1) per 100 SY	SS: (9/1/15)	Compare manual depth checks to equipment output readings to verify calibration
	High Friction Surface Treatment Agg.	AggHighFriction	(1) per 2,000 SY of Treatment &	(1) 10 Lbs.	SC-T-2	-	RCE	-	-	SS: (9/1/15)	Verify adequate rate/coverage

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Bridge Lift	Stone Bridge Lift Material	StoneBridgeLift	(1) per 500 Tons	(1) 100 Lbs.	SC-T-1	QPL 2	RCE	-	-	SS: (3/8/16)	-
	Granular Bridge Lift Material	GranBridgeLift	(1) Each day of work from each source used	Base: (1) 70 Lbs. Granular: (1) 20 Lbs.	SC-T-1 SC-T-2	-	RCE	-	-	SS: (3/8/16)	-
	Borrow Bridge Lift Material	BorrBridgeLift	(1) Each day of work from each source used	10 Lbs.	Obtain a representative sample	-	RCE	-	-	SS: (3/8/16)	-
Reinforcing Steel	Reinforcing Steel # 3 Bar / 10mm	SteelReinf-#3	(1) per month, each size, each shipment Exemption shown in Section 703.2.1.3 of SS: (7/1/19)	(1) 30"	Encompass the entire mill marking in the sampled section	QPL 60	RCE	-	-	S: 703 SS: (7/1/19)	Mill Test Report is required. Submit to OMR along with sample. No reinforcing steel samples are required for Catch Basins. RCE should obtain mill test report for file.
	Reinforcing Steel # 4 Bar / 13mm	SteelReinf-#4									
	Reinforcing Steel # 5 Bar / 16mm	SteelReinf-#5									
	Reinforcing Steel # 6 Bar / 19mm	SteelReinf-#6									
	Reinforcing Steel # 7 Bar / 22mm	SteelReinf-#7									
	Reinforcing Steel # 8 Bar / 25mm	SteelReinf-#8									
	Reinforcing Steel # 9 Bar / 29mm	SteelReinf-#9									
	Reinforcing Steel # 10 Bar / 32mm	SteelReinf-#10									
	Reinforcing Steel # 11 Bar / 36mm	SteelReinf-#11									
	Reinforcing Steel # 14 Bar / 43mm	SteelReinf-#14									
	Reinforcing Steel # 18 Bar / 57.3mm	SteelReinf-#18									
	Steel Reinforcing Wire, Spiral	SteelWireSpiral	(1) Each Size Each Shipment	(1) 40"	-	-	RCE			S: 703	-
	Seven-Wire Strand Reinforcing Cable	Cable704	(1) Each 5 reels per heat number	(1) 30" & (1) 12"	Sample at Prestressed YD	-	OMR			S: 703	-
	Steel, Butt-Welded Splice, Welded Hoop	SteelButtWeld	(1) Each Size Each Shipment	(1) Spliced sample, 30"	Splice located at mid-point of assembled sample	-	RCE			S: 704	-
	Mechanical Couplers for Reinf. Steel	SteelCoupler	(1) Each Lot, Each Size	(1) Assembled sample, 30" (2) Assembled Check Samples: 12" of rebar from each end of coupler		QPL 73	RCE	-	-	S: 703 SS: (7/1/19)	Mill Test Report is required. Submit to OMR along with sample. 30" rebar control bar from heat used in coupler assembly required with check samples. Submit to OMR along with sample.
	Structural Steel Fasteners High Strength	StlStrucFast709	(1) Each possible combo. of bolt lot, nut lot, washer lot, & DTI lot	(3) Assemblies of Bolt, Nut, Washer, & DTI	-	-	RCE	-	-	S: 709	Certification is required. Submit to OMR along with sample. *No sample required for bolt assemblies through prestressed girders attaching steel diaphragms.*

Summary Of Revisions	
Revision Date:	*Summary:*
3/1/2020	Updated CMRB reference and curing methods to comply with SC-M-306 (1/2018)
3/1/2020	Added new SM material code for Stone Column Backfill
1/1/2020	Removed sample requirements for Reinforcing Steel (Wire Mesh 4x4, 6x6, & Deformed Wire)
1/1/2020	Revised sample requirements for Concrete Brick- decreased sample size to 6 bricks
1/1/2020	Revised sample requirements for Concrete Block - increased sample size to 6 blocks
6/25/2019	Revised Structural Steel Fasteners to include DTI lot & Remark for bolt assemblies req.
6/19/2019	Revised sampling frequency for Structural Concrete to include small & large pours
6/19/2019	Added Spec Ref SCM 403 to Asphalt OGFC & Surface
6/19/2019	Added Asphalt SMA Surface 9.5mm & 12.5mm
4/1/2019	Added Roller Compacted Concrete sampling of Portland Cement (for clarifiaction)
4/1/2019	Removed sample requirement for Preformed Joint Filler for Concrete (cert only)
4/1/2019	Removed sample requirement for PipePVC (Perf & Solid - Underdrain, Slope Drain)
1/1/2019	Editorial updates to some form numbers and notes
11/1/2018	Revised sample requirements for Reinforcing Steel per updated SS (7/1/18)
11/1/2018	Added note in Reinforcing Steel eliminating the sample requirements for steel in catch basins - material code SteelReinf - CB (mill test report required for RCE file)
11/1/2018	Added sample requirements and new SM material code for Reinforced Soil Slopes
11/1/2018	Removed sample requirements for fence materials
2/7/2018	Revised Micro Surfacing screenings minimum sampling frequency
1/23/2018	Added new Asphalt and CMRB specifications, clarified cement sampling frequencies based on use
10/27/2017	Added Slag, Granulated
9/18/2017	Added Unclassified Excavation used in Embankment to clarify field testing requirements

* Small Quantity Acceptance		
RCE must submit Form 100.25 to report acceptance of small quantity materials to OMR		
Material	**Criteria**	**Maximum Small Quantity**
Aggregates	Other than in critical concrete work or asphalt mixes	500 Tons each type
Asphalt PG Binder	-	2500 Tons of Asphalt Mix produced
Asphalt Emulsions	-	5000 Gallons
Portland Cement Concrete	Including component materials for use in structural non-critical items such as sidewalks, curb & gutter, catch basins, signs, fence posts, & guardrail anchoring	50 Cubic Yards

F = Sampling Frequencies may be modified on large projects, as approved by the Materials & Research Engineer.

This guide serves an amendment to Figure 106B & 106C of the SCDOT Construction Manual. It should be used in conjunction with the Materials Certification Requirements List, Qualified Products Policies & Listings, Pretested Materials Policies & Listings, and all other applicable guidance for quality acceptance of materials to be incorporated into the work of SCDOT projects.

Specification Reference Abbreviations:

S = SCDOT 2007 Standard Specifications for Highway Construction

SS = Supplemental Specification
STS = Supplemental Technical Specification

Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.

1) Purpose:

This procedure establishes methods and responsibilities for conducting internal audits of services delivered to assess compliance with the contractual and approved Construction Quality Management Plan documents.

2) Scope:

This procedure shall apply to independent audits performed quarterly for Construction Quality Acceptance performed Carolina Crossroads Phase 2 Project.

3) Definitions:

See Section 3 of the CQMP.

4) Responsibilities:

a) IQF Lead Auditor / Auditor
   i) Selection of trained and independent auditors to fulfill the audit schedule.
   ii) Preparation of annual audit schedule, Form QA865-5.
   iii) Approval of the annual audit schedule.
   iv) Assuring audit schedule is fulfilled.
   v) Review and approval of the Final Audit Report.

b) IQF Records Manager
   i) Receive audit records from the auditor/lead auditor and archive same.

c) IQM
   i) Participate in the development of the annual audit schedule and approve final audit schedule

d) IQF Auditor
   i) Review of applicable contractual and approved quality management plan documentation to prepare for audits.
   ii) Development of an audit checklist.
   iii) Identification of auditee(s).
   iv) Issuing an Audit Plan, Form QA865-2, to auditee(s) via email invitation to attend Pre-Audit Conference.
   v) Conducting a Pre-Audit Conference and document attendance on Form QA865-3.
   vi) Conducting the audit.
   vii) Conducting a Post-Audit Conference and document attendance on Form QA865-3.
   viii) Preparation and distribution of the Audit Final Report, Form QA865-4.

ix) Issuing corresponding Opportunities For Improvement (OFI)s. (Note: OFI is a term used in the IQF-owned specific documents and should not be confused with CAR).
x) Providing records of the audit to the IQF Records Manager.

e) Auditee(s)
i) Attend Pre- and Post-Audit Conferences.
ii) Participate in audit activities and provide objective evidence as requested.
iii) Respond to any issued OFIs and implement identified action plans.

5) Process Description:

a) Audit Schedule
i) Annually, the Lead Auditor/Auditor in coordination with the Records Manager shall prepare an audit schedule, Audit Schedule Form QA865-5. This schedule shall be composed of internal audits of processes defined within the CQMP documents.
ii) The audit schedule shall take into consideration current conditions, relative importance of the function, risks, and previous CAR activity.

b) Audit Preparation
i) Auditors shall review contractual and/or approved construction quality management plan documentation applicable to the audit scope to familiarize themselves with the specified requirements.
ii) Auditors shall also review the previous audit report of similar scope to determine areas of follow up, including any resulting OFIs.
iii) Auditors shall prepare an audit checklist using Form QA865-1 Audit Summary.
The auditor shall identify pertinent questions based on the scope of the audit and the documented requirements.
iv) Auditee(s) shall be identified based upon the scope of the audit. This includes affected IQF project management and responsible parties identified in the applicable procedures.
v) Auditor(s) shall notify identified auditee(s) of an upcoming audit prior to the audit by issuing Form QA865-2 Audit Plan with an invitation to a Pre-Audit Conference via email to all identified auditee(s). This invitation typically occurs two weeks in advance of the audit and shall contain the following minimum information:
(1) Date and time of Pre-Audit Conference.
(2) Planned duration of audit.
(3) Scope of audit.
(4) Function or Project to be audited.
(5) Listing of CQMP documents to be audited.
(6) Auditee(s) to participate in audit.

c) Pre-Audit Conference

i) The audit shall commence with a Pre-Audit Conference in which it is expected that all identified auditee(s) attend or send a qualified delegate. Attendance at the Pre-Audit Conference shall be recorded on Form QA865-3 Pre-Post Audit Conference Attendance. The auditor or lead auditor shall conduct the Pre-Audit Conference to establish:

(1) Scope and duration of the audit;
(2) Identification of auditee points of contact and availability for the audit, as necessary;
(3) Needs for any PPE or previous safety training;
(4) Process for handling any identified OFIs;
(5) Approximate date for the Post-Audit Conference, if there are audit findings and
(6) Estimated final audit report date.

d) Conducting the Audit

i) Internal audits shall be conducted in a professional and courteous manner. As it is the object of the audit program to identify improvement opportunities and proactively mitigate risk, the professional manner in which the audit is conducted serves to communicate this intent and to facilitate an environment of continual improvement.

(1) Auditors shall conduct audits utilizing prepared checklists, Form QA865-1 Audit Summary, but shall not be limited to those questions on the checklists. Auditors shall be free to follow the audit trail to accurately and thoroughly assess compliance to documented requirements.
(2) Auditors shall maintain this checklist and any supporting objective evidence, provided during the audit, to support audit conclusions.
(3) Auditee(s) shall make themselves available to participate in the audit, answer questions and provide objective evidence as requested by the auditors to demonstrate conformance with documented requirements.
(4) At the conclusion of the audit, auditors shall review all potential OFIs with auditee(s) to ensure audit findings/comments are understood and reflect actual observed conditions. Auditee(s) shall be afforded 24 hours to provide auditors with additional objective evidence that may preclude an audit finding.

e) Post-Audit Conference (optional if there are no audit findings)

i) Auditors shall conduct a Post-Audit Conference with the auditee(s) and anyone else identified during the audit who will be responsible for addressing an OFI. Attendance at the Post-Audit Conference shall be recorded on Form QA865-3 Pre-and Post-Audit Conference Attendance. The auditor or lead auditor shall conduct the Post-Audit Conference to communicate:

(1) Review of the scope of the audit;
(2) Areas of commendable efforts and/or contributions exceeding expectations

(good points);

(3) Review of audit findings and comments;
(4) Identification of owners for any OFIs;
(5) Review of the process for handling OFIs; and
(6) Expected date and distribution of the final audit report.

f) Final Audit Report

i) The auditor or lead auditor shall prepare the final audit report and submit it to the Lead Auditor for review prior to distribution. The final audit report shall be formatted using Form QA865-4 Final Audit Report and contain the following minimum information:

(1) Audit number,
(2) Audit date,
(3) Audit Scope,
(4) Identified Auditee(s),
(5) Executive Summary,
(6) Commendable Efforts/Contributions (good points), and
(7) Description of OFIs including OFI number and Responsible Manager

ii) The auditor shall distribute the final audit report to the auditee(s) with a copy to the OVF and SCDOT within five business days after the completion of the audit.

g) Archival of Audit Records

i) The auditor shall submit to the Records Manager or archive the records in accordance with Section 6.0.

6) Quality Forms/Records:

Form/Record Number	Description	Storage Location
Form QA865-1	Audit Summary	ELVIS
Form QA865-2	Audit Plan	ELVIS
Form QA865-3	Pre and Post Audit Conference Attendance	ELVIS
Form QA865-4	Final Audit Report	ELVIS
Form QA865-5	Audit Schedule	ELVIS

7) Revision History:

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.