

APPROVED:

Division Administrator

By: _____
FEDERAL HIGHWAY ADMINISTRATION

Supplemental Technical Specification for PCC Pavement Process Control Plan

SCDOT Designation: SC-M-505 (01/25)

1. SCOPE

- 1.1. This supplemental technical specification describes the requirements of the Process Control Plan for PCC Pavement.
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2. REFERENCED DOCUMENTS

- 2.1. SCDOT Standard Specifications Divisions 500 and 700
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3. SUBMITTALS

- 3.1. At least 30 days prior to beginning of the placement of PCC in the roadway, submit the Process Control Plan as outlined below to the Resident Construction Engineer (RCE) and the State Pavement Design Engineer (SPDE) at the Office of Materials and Research for review.

- 3.2. Process Control Plan: The process control plan should include but not be limited to addressing the following items: Sections 3.2.1 and 3.2.2 are general in nature and should be tailored to each project regarding the applicable specification and mixture design. Sections 3.2.3 through 3.2.6 as outlined below should provide detailed information for every step of the concrete mixture production and concrete paving process.

3.2.1. Quality Control (QC) Organization and Qualifications

- A. Narrative describing the organizations approach to QC
- B. Organization Chart showing responsibility and authority
- C. Project Specific Information
 - a. Contact Information for QC Staff
 - b. Plant locations and contacts
- D. Subcontractor roles and responsibilities
- E. Communication protocols
 - a. Submittals procedures
 - b. Reporting QC data
 - c. Record keeping protocols
- F. Summary of Staff experience and certifications
- G. Listing of all QC resources
 - a. Laboratories – location, qualifications and accreditations
 - b. Lab equipment – complete listing with serial numbers and latest calibrations and/or certifications
- H. Listing of all concrete paving equipment
 - a. Plant
 - b. Paving

3.2.2. Applicable Specifications and Standards

- A. Concrete Material Specifications
 - a. Cementitious materials
 - b. Aggregates
 - c. Admixtures

- d. Mixing Water
 - e. Other
 - B. Concrete paving specifications
 - C. Specified acceptance criteria
 - D. Testing standards – AASHTO, ASTM, SCT, etc.
 - E. Approved mixture design with supporting test data
- 3.2.3. Pre-Paving Activities
 - A. Subgrade and Subbases
 - a. Subgrade
 - Support conditions
 - Fine grading
 - b. Subbase(s)
 - Support conditions
 - Fine grading
- 3.2.4. Mixture Production
 - A. Material sources
 - B. QC plans from suppliers
 - C. Aggregate stockpile management
 - a. Stabilized foundation
 - b. Segregation
 - c. Moisture variability
 - D. Plant calibration
 - E. Mixture designs by phase and/or season
 - F. Batching sequence
 - G. Mixing time
 - H. Verification of mixture proportions used by the batching control system
 - I. Moisture compensation for free water in aggregates
 - J. Transporting concrete
 - a. Haul route maintenance
 - b. Clean out of hauling units
 - Washout station provisions (if required)
- 3.2.5. Concrete Paving
 - A. Paving schedule
 - B. QC plans for subcontractors
 - C. Fixed form placement
 - a. Form alignment and elevation
 - b. Steel placement
 - c. Spreading concrete
 - d. Consolidation
 - e. Strike-off
 - f. Finishing
 - g. Texturing
 - h. Curing
 - i. Form removal
 - j. Sawing joints
 - Timing
 - k. Sealing joints
 - l. Backfilling pavement edges
 - m. Opening to construction traffic
 - n. Opening to public traffic
 - D. Slipform placement
 - a. Steel placement

- Pre-placed dowel baskets and tiebars
- Location
 - Spacing
 - Anchoring
 - Alignment
- Pre-placed continuous reinforcement
 - Spacing
 - Anchoring
 - Laps
- b. Spreading concrete
- c. Strike-off consolidation
 - Machine control method
 - Stringline
 - 3-D
 - Controlling the head of concrete in grout box
 - Tamper bar if used
 - Vibrators
 - Size
 - Rating
 - Spacing
 - Height and orientation
 - Real-time monitoring
 - Inserted Steel
 - Contraction joint tiebars
 - Construction joint tiebars
 - Load transfer dowels
- d. Finishing Concrete
 - Burlap or turf drag
 - Machine finishing
 - Hand finishing
- e. Texturing
 - Drag texture
 - Tined texture
- f. Curing
 - Timing
 - Application rate
- g. Sawing joints
 - Timing
- h. Smoothness measurements
 - Timing
 - Feedback loop to the paving crew
- i. Sealing joints
- j. Backfilling pavement edges
- k. Opening to construction traffic
- l. Opening to public traffic

3.2.6. Weather adjustments – fully describe all precautions and adjustments that will be made for daily and seasonal changes in weather

- A. Hot weather concreting
 - B. Cold weather concreting
 - C. Imminent rain
 - D. Evaporation rates above 0.2 lb/yd²/hr
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