I. **Specification Review** (depends on the specification version included in the project): [all changes are not included]

a. **January, 2016:** If the version of the Specification is January, 2016 or later, changes include:
   
i. Specifications now include several provisions allowing Windrow Paving. (Jan, 2016) (Sections 234, 334, 337)
   
   ii. Mandatory use of Vacuum Drying for Roadway Cores. (Jan, 2016) (FM 1-T 166)
   
   iii. Tack Coat rates have been increased by 0.01 gal/sq. yd. (Jan, 2016) (Section 300-8.4, table 300-2)
   
   iv. Density Master Production Range (Section 334-5.4.4, Table 334-5) and Segregation Density Criteria (Section 330-9.2) changed to 89.5% Gmm. (Jan, 2016)
   
   v. Increased maximum thickness of SP-19.0 mixes to 4 inch (Jan, 2016) (Section 334-1.4.2)
   
   vi. Change Between-Laboratory Precision Values for roadway core Gmb to 0.014. (Jan, 2016) (Section 334-5.5.1, Table 334-6)
   
   vii. Change upper Specification Limit for Density when static mode is required. (Jan, 2016) (Section 334-8.2.3.1, Table 334-8)
   
   viii. Asphalt Rubber Binder section has been removed from the specifications. (Jan, 2016) (Section 341 removed)
   
   ix. Asphalt Rubber Membrane Interlayer (ARMI) requires PG 76-22 (ARB) binder. (Jan, 2016) (Section 341-2.1)

b. **July, 2016:** If the version of the Specification is July, 2016 or later, changes include:
   
i. The same traffic level and binder type that is used for the mainline traffic lanes may be placed in the shoulder. (July, 2016 by supplemental spec; Jan, 2017 eBook) (Section 334-1.2)

  c. **January, 2017:** If the version of the Specification is January, 2017 or later, changes include:
   
i. TL-A must meet design criteria for TL-B and TL-D must meet design criteria for TL-E. (Jan, 2017) (Section 334-3.2.1)
      - Note: Table 334-3 continues to require 50 gyrations for TL-A and 65 for TL-B. Gyrations match for TL-D & TL-E.
   
   ii. Either binder, PG 76-22 (PMA) or PG 76-22 (ARB), can be used interchangeably at no cost to the department whenever the plans call for PG 76-22 (PMA), PG 76-22 (ARB) or PG 76-22. (Jan, 2017) (Section 916-2.1)

  d. **July, 2017:** If the version of the Specification is July, 2017 or later, changes include:
   
i. Updated and clarified requirements for EAR Scopes and EARs. (July, 2017) (Section 6-4)
   
   ii. Added a 30-day limit to obtain segregation cores once identified. (July, 2017) (Section 330-9.2)
   
   iii. Black Base may be any Traffic Level except TL-A. (July, 2017) (Section 234-1)
   
   iv. Type B-12.5 (Black Base) will be accepted based on Visual Inspection whenever the total plan quantity of B-12.5 (Black Base) is less than 2,000 tons. (July, 2017) (Section 234-5)
   
   v. RAP is not allowed in mixes with High Polymer binder. (July, 2017) (Section 334-2.3.1 and 337-3.2.2.1)
   
   vi. TL-C and TL-B can be substituted for a TL-A. TL-E and TL-D can be substituted for TL-C. (July, 2017) (Section 334-3.2.1)
   
   vii. PG 82-22 (PMA) has been replaced with High Polymer Binder (July, 2017) (Section 916-2.1)
   
   viii. Asphalt Rubber Membrane Interlayer (ARMI) becomes Asphalt Membrane Interlayer (AMI). The binder must be PG 76-22. (July, 2017) (Section 341)

  e. **January, 2018:** If the version of the Specification is January, 2018 or later, changes include:
   
i. Clarification that a mix will be considered a Warm Mix if the mixing temperature is 280°F or lower (305°F or lower for mixes with a PG 76-22 or High Polymer binder). (January, 2018) (Section 334-3.2.1)
   
   ii. The exception for Density Testing in the list of short, non-mainline areas has been reduced to 500 feet (this was 1,000 feet). (January, 2018) (Section 334-5.1.2)
   
   iii. Clarification: cores are not necessary for a sublot when the plant random sample is not obtained. (January, 2018) (Section 334-5.4.3)
   
   iv. Additional materials have been added as approved friction coarse aggregates (January, 2018) (Section 337-3.2)
f. **July, 2018**: If the version of the Specification is July, 2018 or later, changes include:
   i. No major changes to the asphalt related Specs

g. **January, 2019**: If the version of the Specification is January, 2019 or later, changes include:
   i. FC-5 storage time increased to 1.5 hours when using cellulose fibers. *(January 2019)* *(Section 320-6.2)*
   ii. Clarification: SP-19.0 not allowed in the top layer of shoulders. *(January 2019)* *(Section 334-1.4.1)*
   iii. Anti-strip agents required in all mixtures. *(January 2019)* *(Section 334-3.2.6)*
   iv. Clarification: 2000 tons for Visual Acceptance includes the asphalt base. *(January 2019)* *(Section 334-5.1.2)*

h. **July, 2019**: If the version of the Specification is July, 2019 or later, changes include:
   i. Composite Pay Factor (CPF) changed to: 40% Density, 25% Air Voids, 20% AC Content, 10% Passing No. 200, and 5% Passing No. 8. Density up 5%, AC Content down 5%. *(July, 2019)* *(Section 334-8.3)*
   ii. Specification Density limits adjusted to 93.00 + 3.00 (used to be + 2.00) for vibratory and 92.00 + 4.00 (used to be + 3.00) for static mode. Small quantity pay table also adjusted similarly. *(July, 2019)* *(Section 334-8.2.3.1)*
   iii. For FC-5 mixtures, the Department will have three weeks to design the mix. *(July, 2019)* *(Section 337-4.1)*
   iv. Increased FC-5 Gradation design range for -200 to 2% to 5%. Used to be 2% to 4%. *(July, 2019)* *(Section 337-3.3.1)*
   v. Warranty repairs not required for FC-5 raveling at turn lanes, turn outs or median cross over that was caused by turning movements and not a materials or construction issue. *(July, 2019)* *(Section 338-5.5)*
II. Asphalt Related Specification Change Orders:
   a. The Turnpike Asphalt Team works under the specifications that are documented on the original plans, provisions, supplemental specifications and standard specifications
   b. When Specs are changed by change order, the Turnpike Asphalt Team won’t know of the changes.
   c. Due to the fact that a change to asphalt specs may change the manner in which the materials team will handle acceptance and verification, it is very important that a copy of the executed change order related to the asphalt be sent to the Turnpike Asphalt Team (TPKASPHALT@dot.state.fl.us).
   d. Prior to receiving a copy of the executed change order, the Turnpike Asphalt Team will act according to the specs documented on the original spec package and plans
      i. Word of mouth acknowledgment of a pending change is not sufficient to change our methods

III. Contact Information for Email to Turnpike Asphalt Team Members:
   a. Please place TPKASPHALT@dot.state.fl.us in the cc for all asphalt related emails to the Turnpike Office. This includes emails related to the Asphalt Plant, the Asphalt Mix, the Asphalt Placement, and the in-place Condition of the Asphalt mat.
   b. In the subject of emails, please include the FIN (financial identification number), the lot and sublot number (if applicable) and the material location (if applicable).
   c. Please provide the Turnpike Asphalt Team with an email copy of the Road Report.

IV. Plant Verification Information:
   a. Projects under 2,000 tons (visual acceptance)
      i. Similar to projects over 2,000 tons, the CEI will submit a test request using the Turnpike Materials Test Request System at least 24 hours prior to production of permanent asphalt.
      ii. A Plant VT will not be present at the plant for production
         • There will be no Plant Verification Testing
      iii. The contractor must have a Plant Level 2 inspector at the plant and a Road Level 2 inspector in the field
         • Plant QC Testing will not occur; however, Plant Process Control is required
         • The contractor is responsible for reporting (QC Road Report), including miscellaneous asphalt
      iv. Independent Verification (IV) testing will likely occur
   b. Projects over 2,000 tons
      i. The plant Verification Technician (VT) is scheduled by the CEI using the Turnpike Materials Test Request System. This system can be accessed from Project Solve SP system or the following link: https://fdot.pbid.com/sites/turnpike/Materials/SitePages/Home.aspx
      ii. In the Test Request, include a very brief description of the location and work being performed
         • Such as shoulder, mainline, straightedge correction, approx. station, etc.
      iii. The CEI must submit a test request at least 24 hours prior to production of any permanent asphalt.
         • For Sunday Night, Monday Day, or Monday Night shifts, please submit prior to 5:00 PM Friday.
         • Please do not submit a request for dates beyond the following week
      iv. The Plant VT will be collecting truck tickets from the plant
         • On Ticketless Projects, tickets will be electronic so VT will not collect Tickets.
         • For Misc. Asphalt, the VT will not collect tickets on a regular basis since the Plant VT is not always present.
v. The Turnpike Asphalt Team will review reports and notify the Contractor and CEI of any discrepancies.

vi. After all reports appear acceptable, and all data is entered in MAC, the LOT will be verified.

vii. Turnpike Verification Process in MAC:
   - The Plant VT will finalize all QC and VT Mix Samples and Create the Comparison Package.
   - If resolution is required, the Plant VT will log the R Sample in MAC and deliver the sample to the Lab.
   - Once resolution is complete, the TAM will update the comparison in MAC.

viii. The Turnpike Asphalt Team will notify the CEI that the Comparison Package (with CPF) is complete in MAC. The TAM will deliver the physical LOT package to the CEI.
   - Although the package will be reviewed for obvious tonnage discrepancies, TPK Materials is unable to verify items such as placement location, correct pay item used, etc.

c. QC Density Cores (for acceptance)
   i. At the beginning of each Lot, the Plant VT will send a sealed envelope (with VT Signature across the seal) containing the Random Numbers for the cores as well as a copy of the mix design.
   ii. The Road VT will use the Random Numbers to determine the location for each core. The Road VT should utilize the FDOT Core Layout Template to mark the pavement for cores.
   iii. The Road VT should verify that the cores are cut at the correct location and are labeled correctly and that at least part of the paint from the FDOT Core Layout Template is on the core.
   iv. The producer/contractor will take possession of these cores and take them to the lab for testing.

d. Independent Verification (IV) Information
   i. The Plant VT will obtain an IV sample from the plant for each mix approximately once every 4,000 tons.
   ii. Additionally, an IV sample will be collected after production resumes following a failure.
   iii. IV testing is likely on projects under 2,000 tons (with IV cores from critical areas).
   iv. Non-Density areas can be cored for IV testing if the material was placed in a critical area.
      - Mainline Travel Lanes, Ramps, Toll Plazas, Intersections, Truck Parking Lots, etc. are critical areas.
   v. The Plant VT will contact the Road VT to request cores:
      - The Road VT will randomly lay out five core locations spread throughout the mix placed during that shift.
      - If the size of the area is such that it is impractical to obtain 5 cores, then the Road VT will reduce to 3 cores.
      - The Road VT needs to use the FDOT Core Layout Template to paint the location of the cores.
      - The Road VT needs to monitor the coring to verify that the cores were cut from the correct location and that the core includes at least part of the paint from the FDOT Core Layout Template.
      - The Road VT needs to record the lane, lift number, station, and transverse offset of each core and turn this information over with the cores.
      - IV Cores should never be placed in the custody of the contractor or the producer.
         - The Road VT and Plant VT will coordinate the transfer of the cores and core information from CEI to Plant VT.
         - The Road VT needs to keep the cores if the Plant VT is unable to meet with the Road VT during that shift.

e. Miscellaneous / Temporary Asphalt Production and Placement
   i. If the production for a shift will ONLY include Miscellaneous and Temporary Asphalt and no Permanent structure, friction, or base asphalt will be placed, a Plant VT is NOT needed.
   ii. If the CEI submits a Test Request, please indicate all material is Miscellaneous and/or Temporary.
   iii. The Contractor is required to report Miscellaneous Asphalt on the QC Road Report.
      - A Roadway Level 2 Inspector is required to be on site. However, the Roadway level 2 inspector is not required to be on site if a Roadway Level 1 inspector is on site that is under the level 2 inspector’s supervision.
   iv. Temporary Asphalt does not need to be reported and does not require a QC Inspector.
      - The contractor may use the QC Road Report to record temporary asphalt, if desired.
V. Tracking Tonnage

a. How to Report Temporary and Miscellaneous Tonnage in the QC Road Report
   i. If a Mix Design is produced in a Shift and **ALL** the mix is used for Temporary and/or Miscellaneous:
      - Since there is no Permanent Mix for this production; therefore, there isn’t a Lot Number to add the mix to
      - Place the Temporary Mix into the “Temp Asphalt” Tab on the Road Report (Not into a Lot).
         - Temporary mix is NOT required to be reported in the Road Report; the contractor can choose to report it
         - Waste should also be reported in the “Temp Asphalt” Tab on the Road Report
         - The total daily tonnage in the “Temp Asphalt” Tab for that shift will match the tonnage for the set of tickets
      - Place the Miscellaneous Mix into the “Misc. Asphalt” tab on the Road Report (Not into a Lot).
         - The Contractor is required to report Miscellaneous Asphalt
         - Waste must also be reported in the “Misc. Asphalt” tab on the Road Report
         - The total daily tonnage in the “Misc. Asphalt” Tab for that shift will match the tonnage for the set of tickets.
   ii. If a Mix Design is Produced and the mix includes Permanent Asphalt that must be placed in a lot:
      - Place **ALL** of that mix for the day’s production (permanent, temp, misc., & waste) into the Numbered lot
      - On the line in the Road Report with the Temp or Misc. tonnage, leave the “Density” Column blank
         - So the Temp or Misc. tonnage will NOT be included in the Lot total
      - Do not add the mix to the “Temp Asphalt” or the “Misc. Asphalt” tab on the Road Report
         - The Temp or Misc. tonnage will show up on the Temp or Misc. Tab automatically
      - The total tons produced for the shift in the Lot on the Road Report will match the tons on the ticket book

b. Excessive mix in lot that shouldn’t have been in the lot
   i. Turnpike Specific Process
      ii. Prior to shipping, if loads ARE identified as mix that does not go into the current Lot (such as Misc., Temp, Rejected mix, static only (for vibratory lots), or vibratory (for static only lots) then the Plant VT will not count the tonnage in those trucks toward the random number for the next QC test for that Lot
         - Loads that are not counted in the lot because they were identified as Misc., Temp, or rejected mix CANNOT be used as permanent mix (the mix isn’t considered tested)
   iii. If entire loads AREN’T identified as mix that does not go into the current lot prior to the mix leaving the plant, then the Plant VT will initially count all the tonnage toward the next random number for that lot:
         - This applies to Waste Mix, Miscellaneous Mix, Temporary Mix, Static Only Mix placed into a vibratory lot, and vibratory mix placed into a Static Only Lot
         - As necessary, the tonnage will be removed from the lot; however, the Plant VT will have already counted the mix toward the next random number; therefore, the Plant VT will not reduce the Plant VT’s tonnage for the lot until the Plant VT reaches 2,000 tons or 4,000 tons (or the lot is closed for another reason)
         - This may result in a lot size of less than 2,000 or 4,000 tons but will ensure all permanent asphalt has an equal random probability of being tested

c. Reporting Straightedge Correction, Surface Deficiency Correction, Segregation Failure or Other No Pay Tonnage (CPAM 11.5)
   i. If the deficiency is repaired by remove and replace, then remarks on the Road Report for the new material should indicate the material is being used to repair a straightedge or surface deficiency
   ii. Material used in correcting Straightedge deficiencies or material otherwise considered No Pay permanent asphalt tonnage is included in the Lot Tonnage.
      - There is no tonnage reduction in the LOT package due to this replacement
      - Random QC tests, Verification, and Independent Verification tests will be conducted. To ensure quality, a CPF will be calculated even if all material in the lot is no pay tonnage.
      - Mark the intended use on the Road Report as “Straightedge Correction” or “No Pay” tonnage
      - In the Density Column of the Road Report, place a “y” or “n” according to the type of placement
• Tonnage is included in the Lot; however, all “Straightedge Correction” or “No Pay” tonnage mix is not included in the 234, 334, 337, etc. pay item number; therefore, it will not get paid twice.

d. Reporting Removal and Replacement due to Mix Failure or Low CPF (CPAM 11.4)

i. Reporting Removal on QC Road Report – Must add a line in current lot and another in lot with material being removed:

• On the Road Report in the current lot, record the new placement and add a comment to the line(s) noting that this material replaces failing material and include the original LOT # and original date that mix was placed in the comment.

• On the Road Report in the lot the mix was originally placed, the technician will add a new line just under the line with the mix that was replaced. Fill that line out, matching the original information except use the stations from the new replacement operation and enter a negative value for the tonnage equal to the value placed in the replacement operation.

ii. The new asphalt will be tested according to the specification in the new LOT and new asphalt will be paid according to the new LOT CPF (the new material is NOT treated as waste at any time).

iii. The LOT Submittal Package for the defective material will need a note added in the “Remarks” area showing the amount of asphalt with no pay due to removal. Also in those remarks, a reference will be added to indicate the new LOT that replaced the defective material (see CPAM for details).
VI. **Material Acceptance Review (MAR) in MAC (previously DDM):**

a. Composite Pay Factor (CPF) below 0.90 & equal to or above 0.80:
   i. A MAR is **NOT** required
   ii. No evaluation required if all the material properties for QC & IV tests are inside the MPR

b. CPF below 0.80 and equal to or above 0.75:
   i. A MAR is required
   ii. The entire lot is considered Defective Material (remove and replace OR evaluation)
   iii. Follow the MAR process

c. CPF below 0.75:
   i. A MAR is required.
   ii. The entire LOT is considered Defective Material (spec requires removal – no evaluation allowed)
   iii. The CEI should note the MAR as “Remove and Replace Material”
   iv. The CEI will verify that all the material is removed and replaced
   v. MAR Process is complete; no other approvals are required.

d. Individual Characteristic Pay Factor (PF) less than 90:
   i. A MAR is **NOT** required and no evaluation is required

e. Lost or Missing Sample or No Verification Sample Entered:
   i. A MAR entry will be created if the verification sample is not entered. The entry must be promoted to a MAR if the verification and/or resolution sample is Lost or Missing.
      • NOTE: If the Verification Sample is not missing, then the MAR entry will go away once the verification is completed. No MAR is required.
   ii. The extent of Defective Material is from available test to available test and includes the entire Lot if all Sublot samples are missing
   iii. A Pay Reduction is required (unless otherwise approved) and an EAR is required
   iv. Follow the MAR Process

f. Non-Comparison
   i. A MAR is not required for a non-comparison unless the following occurs:
      • QC and VT do not compare; QC and R do not compare; R includes a failing result on non-comparing characteristic. Follows the same process as if the Quality Control Sample failed.

g. Quality Control Sample or Independent Verification Sample or Segregation Cores with results outside the Master Production Range:
   i. A MAR is required
   ii. The extent of the Defective Material is from Good Test to Good Test and all evaluations must include all material between Good Tests.
   iii. NOTE: if Segregation Cores are taken and all cores pass the 90% density requirement, no MAR is needed
   iv. Follow the MAR Process
VII. **Material Acceptance Review (MAR) – Additional Information:**

b. General
   i. Information in this handout includes items specific to Asphalt.
   ii. The Turnpike Asphalt Manager is the direct contact for assistance with the MAR Process for asphalt failures.
      - There are points in the process that the MAR will be pending reviews by others; the Turnpike Asphalt Manager will continue to be the primary contact for assistance with the MAR process for asphalt mix samples
   iii. Section 6 of the Specifications identifies time limits for Submittals:
      - Scopes for EAR or Delineation must be submitted within 30 calendar days of failure
      - The EAR or delineation results must be submitted within 45 calendar days of scope approval (longer with Engineer approval).

c. The Goal Turnaround time for the Turnpike Asphalt Team:
   iv. For Delineation & EAR Scope: 10 days turnaround
   v. For final DDM approval: 14 day turnaround

d. Determining the limit of the material in question:
   i. The limit of the defective material is from good test to good test. Passing QC, IV, and PC tests (complete tests run per spec) that have been entered into the department’s database can be used.
      - Material in question may include material from multiple day’s production
      - Material in question may include material from multiple sub lots or from multiple lots.
   ii. Removal, limits of an EAR, limits of a delineation scope, and the total material listed on the DDM should always include all the material in question.
   iii. If all material in question, as defined above, is being removed:
      - Then the CEI can mark the MAR as “remove and replace”.
      - If it’s determined that not all questionable material was removed, additional evaluation may be required.

e. Delineation Clarification:
   i. Delineation Scopes must have all data available for review and a copy of the road reports for the questionable material (may span more than one LOT) and must include a testing plan.
   ii. With a few exceptions, the locations for delineation samples should be located no more than 500 feet from each other (the closer the better).
   iii. Delineation is allowed only for materials failures where all air voids are within the master production range. If the air voids fall outside the master production range, then an EAR must be performed.
   iv. Delineation is the removal of any material that has characteristics outside of the master production range. The material must be removed from good sample to good sample.
   v. Permeability is not a delimiter. If delineation is performed on a density failure, then all areas that have density outside the MPR must be removed. An EAR is required to consider permeability results.

f. EAR Requirements:
   i. EAR Scopes must meet the requirements of the section 6-4 of the specification FDOT guidelines for performing an EAR (must have all data for questionable material available (may span more than one LOT), stations for all density cores, analysis approach, and testing plan.)
   ii. The Professional Engineer that will be signing and sealing the final EAR should create or review the EAR Scope prior to submitting the Scope to the CEI.
   iii. EAR’s are used when deficient air void material must be delineated for removal. EAR’s can also be used to determine if material can remain in place (if failure did not involve air voids; if failure occurred in an...
iv. Air Void Failures (especially below 2% and above 6%) almost always require some form of removal. EAR’s, if approved, are performed to determine the limits of that removal.

v. For air void failures, gradation and binder content at each location will be used to determine where the material characteristics are closest to the laboratory sample that failed air voids. In-place density can also be used in some cases to better indicate where the failed material is located. In place air voids or in place density is never used to justify leaving failed air void material in place.

vi. With a few exceptions, the locations for EAR samples should be located no more than 500 feet from each other (the closer the better).

vii. Final Signed & Sealed EAR must meet all requirements of the FDOT guidelines for performing an EAR.

viii. The EAR is reviewed by the District Materials Engineer and the District Construction Engineer.

   • The recommendation from the district offices of the Bituminous Engineer, Materials Engineer, and the Construction Engineer may be different than the recommendation presented in the EAR.
   • Likewise, the final Disposition of the material may be different than the recommendation in the EAR.

ix. EAR’s that deviate from these guidelines or the FDOT guidelines will almost always be rejected.

FC-5 Considerations: The Turnpike Materials generally recommends the following for FC-5 mixes:

i. If asphalt content is high and gradation is on target then the mix is commonly watched for bleeding.

ii. If asphalt content is low then the mix likely needs to be removed.

iii. If the gradation is too fine (slightly outside MPR but inside design criteria), then field permeability may be an option for an EAR. Otherwise, removal may be necessary and an EAR or Delineation may assist.

iv. If the gradation is too coarse, then removal may be necessary and an EAR or Delineation may assist.

v. Coring may be allowed for failures.

vi. An additional option for an EAR Scope with FC-5 failures with gradation and binder content concerns would be to perform a mix design using the failing gradation to determine if the gradation and asphalt content combination received in the field would be an acceptable FC-5 mix.
IX. Surface Smoothness and Cross Slope:

a. Incentive/Disincentive Smoothness Spec
   i. Included in all Limited Access projects let after July 2018 by Special Provision
   ii. No rolling straightedge requirements for Laser Areas.
      • Laser Areas within 25 feet of a joint must be straightedged (bridge, concrete pavement, toll plaza pavement, and project begin/end)
   iii. Rolling straightedge operations performed in any location where the operation is not required by specification and not required by the engineer:
      • Is for process control only and can be pulled anywhere in the lane
      • This operation does not require CEI verification
      • This operation is NOT entered into MAC; the CEI does NOT enter anything into MAC
   iv. International Roughness Index (IRI):
      • Standard international measurement in in/mi
      • Uses the quarter-car model
      • Lower IRI indicates and smoother surface
   v. Incentive/Disincentive:
      • Lot IRI <42 = Incentive
      • Lot IRI 43-55 = Full Pay
      • Lot IRI 56-95 = Disincentive
      • Lot IRI >95 = Corrective Action

b. Rolling Straightedge Requirements for Non-Laser Areas
   i. Required for all Final Structural Layers:
      • Must include the right wheel path plus any other location in the lane required by the engineer
      • Must be verified by the CEI
      • Contractor must enter results into MAC
      • CEI must enter a verification sample into MAC
   ii. Required for all Friction Layers:
      • Must include the right wheel path plus any other location in the lane required by the engineer
      • Must be verified by the CEI
      • Contractor must enter results into MAC; CEI must enter a verification sample into MAC
   iii. Required for any locations in an intermediate or temporary layer being open to traffic that the engineer has identified as having an objective ride:
      • Must include the right wheel path (left wheel path if width does not include the right wheel path) plus any other location in the lane required by the engineer
      • Must be verified by the CEI
      • Deficiencies greater than 3/8” must be repaired within 72 hours; other deficiencies may remain.

c. Laser Profiler Information:
   i. Laser Profiler is run on mainline lanes only.
      • Ramps, side streets, aux lanes, etc. require a rolling straightedge operation
   ii. Laser Profiler is run on the entire project at one time (NB and SB.)
   iii. After the laser profiler is run on the project, there will be up to a one-week turnaround on the data analysis and reporting.
e. DEFICIENCIES found during straightedge operations, placement operations, and field reviews:

i. Decision to waive straightedge operations must only occur if the straightedge cannot be operated in the area.
   - Only example of an area that will be waived in the field is a geometry that prevents measuring straightedge deficiency. For example, if a curve’s super elevation combined with the curve’s radius results in the needle staying on one side throughout the curve, the area should be waived. Pull Straightedge in all areas to determine the limits of the waived segment.
   - Joints at bridges, concrete slabs, and at the project Begin/End must meet the 3/16” requirement and may NEVER be waived. If geometry prevents acceptable straightedge reading, District Materials, District Construction and State Construction must review and all must approve deficiency to remain at full pay.

ii. A straightedge deficiency occurs any time the needle exceeds 3/16”
   - The location is deficient even if the needle does not reach the 4/16” mark.
   - Joints with bridges, project begin and end, and any other joint must also meet the 3/16” requirement.

iii. A manual straightedge cannot be used to double-check or re-check a rolling straightedge deficiency.

iv. All straightedge deficiencies must be identified with paint on the pavement in the lane
   - Mark on the pavement at the point where the needle exceeds 3/16” (moves into the red) AND mark on the pavement the point where the needle comes back below 3/16” (moves out of the red).
   - Paint marks must able to be seen while driving the section.

v. Lows and Highs must be recorded as separate deficiencies (even if adjacent)

vi. Per specification, deficiencies left in place are the Exception.
   - The contractor should only propose ‘leave in place’ if there is a belief that the deficiency is “not a significant detriment to the pavement quality.”
   - Prior to proposing any locations to be left in place, the contractor must determine which locations should be removed and which locations the contractor feels could be left in place according to the exception.
   - The Turnpike Construction Office and Turnpike Bituminous Engineer should not be performing this CQC review. If the contractor has not considered if each deficiency is a “significant detriment to the pavement quality” and instead marked all as “leave in place,” then none are exceptions and all deficiencies will be required to be removed and replaced.

vii. Any request to leave friction course deficiencies in place at must be reviewed by the Turnpike Construction Office and the Turnpike Bituminous Engineer (or delegate).
   - The review will not occur until the Turnpike Construction Office and the Turnpike Bituminous Engineer have received the contractor’s record of all deficiencies on the proper form(s) with the contractor’s proposed disposition for each deficiency.
   - For partial or full pay requests, it must include an acceptable backup indicating why the deficiency is being proposed to be left in place at full or partial payment.
   - Backup may be a couple pictures and a few words as to why the contractor could not meet specification due to an existing condition from before the project started
     - Example – Joint at bridge where the approach slab slopes downward toward the asphalt:
       - For existing bridges, show a picture of the smart level (longitudinally) on the asphalt and then a picture of the smart level on the bridge approach so the difference in slopes can be seen.
       - If the bridge was widened and the existing condition carried over to the new lane, show a third picture with bridge width so that the existing and new condition can be seen.
       - Deficiencies will not be approved for payment if the bridge was built as part of the project.
     - Example – If the deficiency is caused because of rutting or a pavement distress in the old pavement at the joint with the new asphalt, include a picture of a straightedge across the rut/distress at the joint.
f. Previous Testing Operation Concerns (cross slope and straightedge)

i. Once a straightedge operation and cross slope measurement is complete and verified, the Turnpike does not allow re-testing those locations unless there is a legitimate concern that the operation was not performed correctly or the equipment failed to operate correctly.

ii. If there is a legitimate concern that the equipment was not operating properly or the operation was performed incorrectly, then the entire area (failing AND passing locations) in the questionable operation(s) must be re-checked with VT present.
   - For Cross Slope, re-check every 100 feet.
   - For Smoothness, re-check entire section with the rolling straightedge.
   - As applicable, the new operation will replace the previous operation in MAC.

iii. While preparing to operate the milling machine to correct a deficiency, if the contractor and the roadway VT are unable to locate a deficiency (only using rolling straightedge for a smoothness deficiency or using either a smart level or a standard level and ruler for cross slope), the location should not be repaired and the entry in MAC, if applicable, should be recorded as “deficiency no longer exists.”
   - In this event, consideration should be made as to why the deficiency no longer exists. It is possible the original test operation may need to be questioned.
   - If multiple deficiencies within the project are not found when attempting to repair those locations, then there is legitimate concern that the original equipment was not operating properly, the original operation was performed incorrectly, or there has been some unanticipated change in the surface. The entire area in the operation or operations where deficiencies no longer exist should be re-checked according to item iii above.

g. TPK Construction Office and Bituminous Engineer’s Standard Recommendations for Deficiencies:

i. The CEI will receive recommendations via MAC from each office that they can consider before contacting the contractor.

ii. The specification requires ALL deficiencies in the last lift of structural mix to be repaired.
   - Structural straightedge deficiencies that are LOW require full depth removal.
   - Structural straightedge deficiencies that are HIGH (not adjacent to a LOW) may be ‘planed’ or may be removed and replaced full depth.

iii. Friction Course Deficiencies greater than or equal to 7/16 of an inch will most likely require replacement. Friction Course Deficiencies less than 7/16 of an inch will be reviewed individually.

iv. Areas of raveling, crushed aggregate, pulled, torn, or bleeding material, and FC-5 areas with poor surface texture and/or segregation will be required to be replaced.

v. Low spread rate deficiencies and areas with deficient cross slope will likely require repair.

h. Material to repair Surface Deficiency is no pay but is counted in LOT. Mark intended use as Straightedge Correction on the Road Report and mark Density Column as Y or N.
X. Segregation  

a. **Results of End of Load Segregation:** Raveling, Cracking, Poor Ride, Pot holes, Reduced Life  

i. **Example:** This project had End of Load Segregation resulting in premature failures at each truck exchange.

![Every Picture shows a failing location in one project all in lane R1. These locations are consecutive failing locations. Each location is approximately 200 feet apart. Notice the area beyond each failure is in much better condition. Only the end of truck locations failed.](image-url)
b. **Prevention:**

i. **Truck Unloading:**
   - Mix should be unloaded as a mass
   - No “dribbling” material into paver

ii. **Paver Hopper**
   - Hopper should not become empty while paving
   - Keep hopper at least 25% of capacity
   - Do not fold hopper wings unless hopper is relatively full
     - Either fold wings after each truck or don’t fold wings during paving operation

iii. **Paver Augers**
   - Maintain proper head of material across auger chamber
   - Augers should run continuously at a slow speed

iv. **Paver Speed**
   - Paver should run as continuous as possible
   - Paver speed should be adjusted to balance plant production
     - Less trucks, slower speed

v. **Number of Trucks**
   - Keep enough trucks to keep mix in the paver and keep paver moving

vi. **Material Transfer Device**
   - Remix Capability
c. **End of Load Segregation Identification:**

   i. QC must monitor mat for segregation and identify segregation when it occurs. QC must take action when segregation is identified to prevent further segregation.

   ii. CEI Personnel (including VTs, PAs, etc.) should review the pavement surface for asphalt segregation
       - CEI staff should ride new pavements within days to ensure pavement is segregation free
       - Communication between CEI staff and contractor is very important

   iii. If Segregation is observed in Density Required area:
       - Please email TPKASPHALT@dot.state.fl.us to let Turnpike know segregation has been identified
           - Give begin & end station for each segregation area – this is different than the core stations
       - The CEI will mark pavement for three cores in each segregation area to be cut
           - Turnpike recommends placing a core in the worse location and attempting to get the other cores inside the segregation area, but place cores at least five feet apart. Cores do not have to be in a straight line.
       - The contractor will cut cores at each location
           - Label the cores with an identification for that location and include A, B, or C on the three cores
           - Must be clear the three cores are from that location
       - Cores should be delivered to the Independent Verification lab
           - The Turnpike’s Plant VT will assist delivering cores to the IV lab, if requested
           - Cores should never be turned over to the Contractor
           - For each set of three cores: Include core identification sheet that includes station, lane, and offset for each core
       - Density will be determined using the average of the three core Bulk Gravities \(G_{mb}\) and the Max Gravity \(G_{mm}\) from the QC Test from the sublot for the segregated mix
       - If the average Density of the three cores is < 89.5%, then the location must be addressed (remove & replace is most likely)
           - Length of removal: from 50’ before begin segregation to 50’ beyond end of segregation

   iv. If Segregation is observed in Non-Density Required area (small turn lanes, short ramps, FC-5, etc):
       - Visually identify segregated area and mark the beginning and end of each location
       - Please email TPKASPHALT@dot.state.fl.us to let Turnpike know segregation has been identified
           - Give begin & end station for each segregation area
           - Ask TPK if further assistance is needed to identify non-uniform texture areas
       - Segregation cores are not used in these areas

d. **Reporting material to repair segregation:**

   i. On the road report, if low density, segregated material is being removed, then follow the section for “Reporting Removal and Replacement due to Mix Failure, Low CPF, or Segregation Density Failure”.

   ii. On the road report, if segregated material is being removed due to visual inspection, then follow the section for “Reporting Straightedge Correction, Surface Deficiency Correction, or Other No Pay Tonnage”
X. **Surface Deficiency / Pay Reduction Documentation**

a. This section relates to all asphalt being left in place at reduced or no pay, including:
   
i. Deficiencies identified in section 330 of the specifications (Straightedge, Segregation, Texture, Cross Slope, Spread Rate, etc.)
   
ii. Deficient asphalt being left in place at pay less than the CPF or left in place at no pay

b. Ensure the contractor has recorded surface deficiencies in MAC and the MAR has been resolved for each deficiency

c. If there are any areas where asphalt is being left in place with a pay reduction (reduced or no pay), the PA will need to complete the FDOT Asphalt Concrete Pay Item Reduction Sheet (700-050-71)
   
i. The Pay Item Reduction sheet is usually completed at the end of the project so that all asphalt pay reductions can be included at the same time.
   
ii. The PA will:
      - Sign the Pay Item Reduction Sheet(s)
      - Include the signed Surface Deficiency Form(s) and/or DDM Form(s) as backup
      - Send to the Bituminous Engineer with the backup (May scan and email the Form(s) and backup if time is short)
   
iii. The Bituminous Engineer will:
      - Review the Pay Item Reduction Sheets and Backup and sign
      - Send to the Construction Engineer with the backup (May scan and email the Form(s) and backup if time is short)
   
iv. The Construction Engineer will:
      - Review the Pay Item Reduction Sheets and Backup and sign
      - Return the Pay Item Reduction Sheet(s) to the PA (May scan and email the Form(s) and backup if time is short)

v. A copy of the Pay Item Reduction Sheet (signed by all) should accompany the CEI Materials Statement
XI. **MEMOS:**

The following is a list of current DCE Memos related to asphalt production.

A complete list of DCE Memos can be found at:


a. **DCE 08-13:** End of Load Segregation Concerns
   i. Call for an increase awareness of End of Load Segregation - Department reps will be vigilant on the issue

b. **DCE 24-13:** Conflict of Interest Clarification
   i. QC Consultants for a contractor cannot perform an EAR or Dispute Resolution on a failed sample.

c. **DCE 11-16:** Ground in Rumble Stripes – requires coordination with State Roadway Design Office
   i. In accordance with Roadway Design Bulletin 16-07

d. **DCE 12-16:** PG 76-22 (ARB) Supply Issues AND Guidance for Changing to PG 76-22 (PMA)
   i. Must have justifiable reason before requesting change from PG 76-22 (ARB) to PG 76-22 (PMA)

e. **DCE 19-18:** CTQP’s High Performance Re-Qualification Program
   i. Technicians can participate in this program if:
      - Performed minimum number of tests
      - Strikes cleared within 365 days of first strike
      - Evaluated a minimum of 3 out of 5 years
      - Must be IA’d by observation at least once

f. **DCE 06-19:** High Polymer Binder Mixture Usage and Binder Blending
   i. High polymer mixes may be used in lieu of other specified binders if same traffic level and mixture type
   ii. High Polymer binder may be substituted in a mixture when mix design contains a maximum of 20% RAP
   iii. High polymer binder may be blended to make a PG 76-22 binder if:
      - Notify State Materials Office (SMO) and local District Materials Office prior to blending
      - Follow the blending instructions of the high polymer binder supplier
      - Submit a sample of the blended binder to a SMO approved laboratory for testing
      - Use the newly blended binder only after approval from the SMO

g. **DCE 08-19:** Sampling Frequency of Asphalt Mixtures
   i. Frequency of recovery binder testing changed to same frequency as asphalt binder testing.
   ii. Obtain binder and mixture sample at same time. Mix should contain binder from same tank that was sampled for binder.

h. **DCE 11-19:** Straightedge Deficiencies Left in Place at Full Pay
   i. Escalation of deficiencies to State Construction Engineer no longer required
   ii. DCE shall provide final recommendation within MAC for deficiencies left in place at full pay

i. **DCE 13-19:** MAC & CTQP
   i. CTQP administration contract has been terminated, following process will be used temporarily:
      - Sample Data Entry for New Technicians: Enter sample as Bran Stark (TIN: F12345678), Sampler’s and Tester’s name entered in the comments.
      - IA Evaluations: IA Evaluators will create a manual evaluation for technicians who are active but not listed on the Active Technicians report
      - MC Review and PCML Letters: MC Reviewers will obtain documentation; MC Reviewers will exclude findings to generate PCML letter.
      - Materials Office Tracking: DAC, MC Reviewers and SMO MAC Admins will track technicians.

j. **DCE 16-19:** Binder Increase Compensation
   i. FC-5 binder content may be increased for durability purposes when mix expires and is redesigned.
   ii. Compensation will be provided if a mix’s binder content is raised after the project is bid.
   iii. Compensation will be for the material cost of the binder increase from the Original Mix Design’s Target Binder Content to the New Mix Design’s Target Binder Content (Formulas included in memo).

k. **DCE 18-19:** Open Book Written Exams for Asphalt Paving and Asphalt Plant
   i. Asphalt Plant Level I and Asphalt Paving Level I written exams are now open book.
   ii. Proficiency exams remain closed book. If a trainee fails their first attempt, they are permitted to review course material prior to making their second attempt.