FY 2013/2014 QC Category No. 1
STATEWIDE INSPECTION GUIDELIST
Clearing and Grubbing

1. Clearing and Grubbing limits are established according to contract documents. [Spec. 110-2]

2. Stumps and roots within roadway are removed and standard clearing and grubbing meets requirements shown in contract sections 110-2.1 through 110-2.4. Note, sections 110-2.1 to 110-2.4 are not shown in the 2000 Spec. Book as they were added after its publication. You must review your contract [Spec. 110-2]

3. Check location of selective clearing and grubbing areas designated in contract documents. Insure the Engineer's instructions for both removal areas and retention areas for brush and trees have been carried out in the selective clearing and grubbing areas. [Spec. 110-3]

4. Burning of debris must be in accordance with applicable laws, ordinances, permits and regulations. {Spec. 110-9.2]

5. Existing structures, including foundations are removed to accommodate new construction. [Spec. 110-6.1 to 110-6.4]

6. Ensure that, except as specified otherwise in the contract documents, the Contractor takes ownership of, and disposes of all removed materials.
[Spec. 110-9.1 to 110-9.5]

7. For miscellaneous operations such as plugging abandoned water wells, landscape areas, terrain leveling and mail box adjustment , ensure the Contractor meets the requirements specified. [Spec. 110-10]

8. Meet the requirements of Spec. 110-11 and 110-12 on method of measurement and basis of payment for clearing and grubbing. Monthly estimates should be made as stated in the Final Estimates Preparation and Documentation Manual (FEPDM). [FEPDM Chapter 3]

FY 2013/2014 QC Category No. 2
STATEWIDE INSPECTION GUIDELIST
Maintenance of Traffic (MOT)

1. The Contractor has submitted a letter stating whether the Contractor plans to use the Traffic Control Plan (TCP) provided in the contract or will submit an alternate TCP for approval. [CPAM 9.1.5]

2. If TCP provided in the contract is not being used, the Contractor provided an alternate TCP signed and sealed by a Professional Engineer and approved by the Department before being used. [Specs. 102-4, CPAM 9.1.5]

3. The Contractor has provided the name and telephone number(s) of the Worksite Traffic Supervisor (WTS) in writing. [Specs 5-8.3]

4. The WTS has provided a valid certificate of successfully completing an approved Advanced MOT training course. [Specs. 105-8.3]

5. The WTS is on site during all set up and take down, and performs a drive through inspection immediately after set up. (Specs. 102-3.2)

6. The WTS does an initial inspection and evaluation of the work zone for each phase of construction and conducts daily daytime and weekly nighttime inspections within the limits of the project for projects with predominant daytime work activities and daily nighttime and weekly daytime inspections for projects with predominant nighttime work. The WTS notes any deficiencies in the MOT Review Report Form and provides a weekly report to the Project Administrator using form number 700-010-08. [Specs. 102-3, CPAM 9.1]

7. The Project Administrator has reviewed the Contractor's weekly MOT Review Report for reasonableness and accuracy by conducting a field project inspection of the work zone. [CPAM 9.1]

8. The WTS immediately corrects all safety deficiencies and does not allow minor deficiencies that are not immediate safety hazards to remain uncorrected for more than 24 hours. [Specs. 102-3, CPAM 9.1]

9. The Project Administrator has completed the Engineer's Maintenance of Traffic Evaluation at Crash Site, Form No. 700-010-64, for crashes occurring within the project limits. [CPAM 9.3]

10. The Contractor has provided access to all residences and businesses whenever construction interferes with the existing means of access, and material has been placed, as needed, for driveways and sidewalks to residences and businesses to continuously provide safe, stable and reasonable access for vehicles and pedestrians. [Specs. 102-1, 102-5.5, 102-8, and Index 660]

11. For sidewalk closures, the Contractor has provided an alternate accessible path utilizing pedestrian longitudinal channelizing devices (LCDs) for pedestrian detours around the work area. Be sure this is noted by the WTS in the weekly MOT Review Report Forms. [Specs. 102-1, 102-3 and, Index 660]

12. The Contractor is controlling dust during construction operations. [Specs. 102-5.2]

13. The Contractor has removed all existing pavement markings in conflict with the adjusted vehicle paths without damaging the surface texture and without the use of black paint. Cost for removing conflicting pavement markings is included in Maintenance of Traffic, Lump Sum. [Specs. 102-5.8, 2003 MUTCD 6F.71 and 2009 MUTCD 6F.77]

14. The Project Administrator has verified that the Contractor's certified initial retroreflectivity readings meet the minimum requirements of 300 mcd/lx·m^2 and 250 mcd/lx·m^2 for white and yellow paint, respectively, and maintains 150 mcd/lx·m^2 throughout the work zone. Refer to other sections of the specifications for different pavement marking products. [Specs. 102-10, 709-4, 709-7, 710-4, 711-4, 711-7, 713-4, 713-7, 971]

15. The Contractor has maintained Type A, C, and D warning lights so as to be capable of being visible on a clear night from a distance of 3000 feet, and Type B warning lights so as to be capable of being visible on a sunny day when viewed without the sun directly on or behind the device from a distance of 1000 feet. [2003 MUTCD Section 6F.78 and 2009 MUTCD Section 6F.83]

16. The Contractor has provided temporary traffic control devices that have been permanently marked with a valid QPL or APL number. [Specs. 102-9.1]

17. The Contractor has maintained temporary traffic control devices in accordance with ATSSA's Quality Guidelines for Temporary Traffic Control Devices and Features. [Specs. 102-9.1]

18. The Contractor has correctly installed work zone sign supports (post-mounted and portable) that have been permanently marked with a valid QPL number. [Specs. 102-9.1,102-9.2, 700-2.5, 990-8, Index 600 Sheets 6 and 7]

19. The Contractor has placed business access signs as required by the contract. [Specs. 102-9.3, Index 600 Sheet 11]

20. The Project Administrator has verified that the crash cushions are installed in accordance with the plans, Design Standards, and QPL vendor drawings. [Specs. 102-9.6]

21. The Project Administrator has checked the contract before making payment, if any, for crash cushion repairs. [Specs. 102-13.12]

22. The Project Administrator has verified that the contractor is using a Traffic Control Officer when using Design Standard 619 on freeway facilities (interstates, toll roads, and expressways) at nighttime. [Specs. 102-7]

23. The Project Administrator has verified that the temporary lane separator has been installed properly. [Specs. 102-9.17, Index 600]

24. Temporary signs on barrier or traffic railing are installed in accordance with Index 11871. [Index 11871]

FY 2013/2014 QC Category No. 3
STATEWIDE GUIDE LIST
Environmental Compliance

1. **As soon as possible after getting a project assigned the CEI staff should review or have the district's environmental specialist review the Contractor's erosion control plan, to ensure it meets the requirements of NPDES, when an NPDES permit is required. [CPAM 8.2, Spec. 104-5]

2. **No construction activities can begin until the erosion control plan has been approved by the engineer and governing regulatory agency, if needed. Where an NPDES permit is required, under no circumstances can any earth be disturbed until the prime Contractor(s) and any Subcontractor(s) that will install, maintain or monitor erosion control devices to implement the Storm Water Pollution Prevention Plan (SWPPP) sign the certification statement (Form No. 650-040-07).
[CPAM 8.2, Spec. 104-5]

3. Confirm the Contractor has posted and is maintaining a copy of the notice of intent in a prominent location on the construction site for public viewing. [CPAM 8.2.7]

4. Limit the area in which Clearing and Grubbing, and Excavation and Filling operations, are being performed so that the capacity to prevent stormwater pollution is not exceeded. Do not expose more than 750,000 ft^2 (70,000 m^2) without specific approval. [Spec. 104-6]

5. The Project Administrator will monitor permit expiration dates for projects under construction. The responsible Engineer will advise the District Permits Coordinator at least six months prior to an applicable permits expiration date if the permit will expire before the permitted activity is complete. [CPAM 8.2.6]

6. A copy of the Stormwater Pollution Prevention Plan (SWPPP) must be kept on the construction site for the life of the project. [CPAM 8.2]

7. When an NPDES permit is required, make routine inspections every seven days or within 24 hours of a 0.50 inch or greater rainfall, of all erosion prevention and sediment control devices installed on the project and document all deficiencies in the Daily Work Reports. Conduct inspections using qualified personnel who have successfully completed the Florida Department of Environmental Protection's Florida Stromwater erosion and Sediment Control Inspector training. [CPAM 8.2.7, Spec. 7-2]

8. If deficiencies are noted in the Daily Work Report, make sure the Contractor begins to correct them immediately. [CPAM 8.2.7, Spec. 104-6, 104-7]

9. If the Contractor fails to comply with any federal and state environmental regulations, including permit conditions, and does not promptly (within 24 hours) identify and correct all deficiencies on the project site, document all environmental noncompliance in the Contractor Past Performance Rating System.

10. Conduct construction operations in a manner that prevents soil erosion runoff or siltation in any off site location. [Spec. 104-3]

11. The Contractor shall survey surface water management systems, bridge clearances, and authorized work as directed by the permit conditions and contract documents and include the information on the as-built plans. [CPAM 8.2, Spec. 7-2]

12. **CEI staff must notify the District Environmental Administrator and District Permits Coordinator when the project is significantly complete. [CPAM 8.2]

****These items only need to be verified once during the life of the project**.

FY 2013/2014 QC Category No. 4
STATEWIDE INSPECTION GUIDELIST
Earthwork

EXCAVATION / EMBANKMENT

1. If borrow pit is used, the location must be approved. [Spec. 120-6]

2. No work can be performed at an off-site construction activity area prior to obtaining clearance from the Division of Archives and complying with the Federal Endangered Species Act specified in Section 7-1.4. [Spec. 120-6]

3. Material used for embankment shall not contain muck, Stumps, roots, brush, vegetable matter, rubbish or other Material that does not compact into a suitable and enduring Roadbed. [Spec. 120-7]

4. Maximum particle size cannot exceed the specified limits. [Spec.120-7].

5. Without thick lift approval, lift thickness for embankment soils that are not A-3 or A-2-4 with up to 15% fines must be 6 in. (150 mm) or less, compacted thickness, for the full embankment width. [Spec. 120-8]

6. Where thick lifts are demonstrated and approved, maximum lift thickness may not exceed 12 inches (300mm) compacted thickness. [Spec. 120-8]

7. Uniformly compact each layer, using equipment that will achieve the required density. [Spec. 120-9]

8. Initial equipment comparison and valid calibrations for all equipment used on this project? 120-10.1.1

9. Is the CEI ensuring that all sampling and testing requirements are met and enforcing the requirement that all samples and test are taken randomly? Does the field test verify this? [Spec 120-10]

10. Does the CEI have an appropriate process to ensure that the correct proctor is used when density tests results are evaluated for material acceptance? Are the appropriate materials used in each portion of the roadway? [Spec 120-10, 120-7]

11. Has the CEI enforced the requirement that all required density test results are documented on current forms provided by the department in an understandable format? [Spec 120-10]

12. While construction is in progress, adequate drainage for the roadbed must be maintained at all times. [Spec120-11]

13. Maintenance and protection of earthwork construction must be in accordance with Specs. [Spec. 104, 120-11]

14. Construction tolerances for embankment must be adhered to during final shaping of the earthwork. [Spec. 120-12]

15. Grassing of shoulder areas must be completed prior to placing the final wearing course. [Spec. 120-12]

16. The manipulation of embankment material on a pavement surface is not permitted. [Spec. 120-12]

17. Separate samples are used for Limerock Bearing Ratio (LBR) and Proctor by the CEI. [Spec 160-4.3.2.1]

STABILIZING:

13. The stabilizing materials meet spec. requirements. [Spec. 914, 160-3.2.1]

14. Prior to beginning stabilizing operations, the roadbed grading must conform to the lines, grades and cross-sections shown in the plans. [Spec. 160-3]

15. When additive stabilizing materials are required, spread material uniformly over the area to be stabilized. [Spec. 160-3]

16. Rotary tillers and/or approved equals must be used when thoroughly mixing the stabilized areas to full depth and width. [Spec. 160-3]

17. Where the subgrade is rock, a waiver may be given for the stabilizing requirements and payment is adjusted accordingly. [Spec 160-4]

18. At the completion of the mixing the material must meet the specified gradation, plasticity index and liquid limit. [Spec. 160-3]

19. The completed stabilized subgrade must conform with the finished lines, grades and cross-sections indicated in the plans. [Spec. 160-3]

20. The subgrade must be firm and substantially unyielding upon completing the stabilizing and compacting operations. [Spec. 160-3]

21. Maintenance and protection of stabilized subgrade until the placement of base and subbase in place, must be in accordance with specification. [Spec. 160-3]

22. For any area where the bearing value obtained after mixing is deficient, the reprocessing efforts must be as specified. [Spec 160-4]

23. Densities must comply with specifications. [Spec. 160-4]

FY 2013/2014 QC Category No. 5
STATEWIDE INSPECTION GUIDELIST
Drainage

GENERAL

1. All precast structures are stamped with approved Quality Control Manager Stamp.

2. Trench is de-watered as necessary. [Spec. 125-8]

3. For 15” or larger OD pipe, insure pipe trench backfill materials and compaction according to the 4 zones specified [Spec. 125-8]

4. Trench is wide and deep enough for compactors. [Spec. 125-4]

5. Material not classified as suitable backfill material is removed to a depth of 4 inches. [Spec. 125-4]

6. Proper bedding is provided. [Spec. 125-8]

7. Trench box or shore protection is used when excavation is in excess of 5 ft. or more. [Spec. 125-1]

8. Sediment basins are constructed in accordance with Index. [Index 101]

9. Heavy construction equipment is not permitted to cross over culverts or pipes until the backfill material has been placed and compacted to an elevation 4 ft above the crown pipe or culvert. [Spec. 125-8]

10. The Contractor backfills using granular material in accordance with the specifications and after approval by the Engineer. [Spec 125-8.3.4]

BOX CULVERTS

11. For box culverts over which pavement are to be constructed, compact around the structure to an elevation not less than 12" above the top of the structure. Compact to a density not less than 100% of the maximum density as determined by AASHTO T99, Method C. [Spec 125-8.2 and 125-9.2]

12. Cut back is achieved for tie in length on culvert extensions. [Index 289]

13. Form removal performed per Contract documents. [Spec. 400-14]

14. Do not begin backfilling against any masonry until permission is given by the Engineer or concrete has been in place 7 days. [Spec. 125-8]

15. Reinforcing Steel is tied and supported correctly. [Spec. 415-5]

16. Insure proper curing on all concrete surfaces. [Spec**.** 400-16]

17. Cast bottom slab and set prior to forming walls. [Spec. 400-7]

BOX CULVERTS… continued

18. With walls of at least 6 ft. high, let concrete set at least 12 hrs. prior to casting the top. [Spec. 400-7]

19. Any construction joints in the wing-walls to be horizontal and below ground level. [Spec. 400-7]

20. For box culverts over 5 ft high, have weep holes been installed [Spec. 400-6]

PIPE CULVERTS AND STORM SEWERS

21. Excavate to bottom of pipe, allow sufficient width for working room. [Spec. 125-4]

22. Pipe is set to proper Line and Grade before backfilling [Spec. 430-4]

23. Obtain a minimum Quality Control Density. [Spec. 125-9]

24. Lots don't exceed 500 ft. [Spec. 125-8]

25. Run QC and Verification Proctor tests with a minimum frequency of one test per soil type [Spec. 125-9]

26. If Density tests fail, retest within a 5' radius. [Spec. 125-10]

27. Cover height is in accordance with the minimum and maximum. [Index 205]

28. Concrete pipe joints meet the allowable gap requirements and gaskets are checked and lubricated. [Spec. 430-7.2]

29. Pipe joints are wrapped with a filter fabric jacket as required. Ensure that if the joint is less than 4.6 feet below the water table and is leaking, the joint is not soil tight. [Spec. 430-4 and Index 280]

30. Inspect bituminous coating on metal pipe to ensure proper coating. [Spec. 430-4]

31. Plastic and metal pipe larger than 36 in. in diameter are tested to verify that the nominal pipe deflection does not exceed 5% of diameter. [Spec. 430-4]

32. Side-drain Mitered End Section (M.E.S.) aprons are constructed per Index 273 and cross drain M.E.S. aprons are checked for steel in toe wall per Index 272.
[Index 272 and 273]

33. When pipe is placed above the original ground line elevation, embankment is placed and compacted to at least 2 ft. above the top of proposed pipe and to a width of at least four pipe diameters prior to excavation of the trench. [Spec. 125-4]

PIPE CULVERTS AND STORM SEWERS… continued

34. Undercutting the trench is completed when required. [Spec. 125-8]

35. Suitable material is used to backfill to a point 12 in. above the bottom of the pipe in undercut sections. [Spec. 125-8]

36. A minimum of two pieces of gasket material for each joint. [Spec. 942-2]

37. The contact surfaces of the pipe joints are free from air holes, chips and spalled concrete. [Spec. 449-5.4]

38. There is a passing test on the first dry lift of the pipe, one on each side of the pipe. (Earthwork Records System Procedure 2.3)

39. The Contractor compact pipes separately from the structure. Lift numbers are identified correctly. [Earthwork Records System Procedure]

40. For pipe 48 inches or less, provide the Engineer a video DVD and report. A high video must be provided. This requirement may be waived by the Project administrator only for side drains and cross drains which are short enough to fully inspect from each end of the pipe. [Spec. 430-4.8]

INLETS, MANHOLES, END WALLS

41. Inverts are properly constructed. [Index 201]

42. Hand built manholes are built round, using approved bricks and cemented properly. [Spec. 949 and Index 201]

43. Pipes entering the structure are properly sealed. [Spec. 430-4]

UNDERDRAINS

44. Install underdrains per plan and/or Index 500. [Spec. 440 and Index 286].

45. Construct underdrain inspection boxes in accord with plans and design standards [Spec. 440-4, Index 245]

46. The pipe is perforated with no open joints in the pipe system. [Spec. 440-1]

47. The filter material is placed and compacted around the pipe for the full width of the trench in layers not exceeding 6 in. [Spec. 440-5]

48. Install French drains in accord with spec. & design standards. [Spec. 443, Index 285]

49. Coarse aggregates used meet specified gradation requirements [Spec. 901-1.4]

FY 2013/2014 QC Category No. 6
STATEWIDE INSPECTION GUIDELIST
Base
GENERAL-LIMEROCK

1. Contractor provides material from Department approved sources and obtains the engineer's approval of the source of supply. [Spec. 200-2]

2. Equipment, transporting, and construction requirements are generally per Section 200 – Limerock Base [Spec. 200]

3. Limerock is spread uniformly. [Spec. 200-5]

4. Areas where the base has segregated are replaced. [Spec. 200-5]

5. Limerock is transported to the point where it is used. [Spec. 200-4]

6. Hauling is not permitted over the subgrade without the approval of the Engineer. [Spec. 200-4]

7. Base course is constructed meeting the required number and thickness of courses. [Spec. 200-5]

8. Subgrade is not disturbed by base construction operation. [Spec. 200-5]

9. Limerock base for the shoulder is placed prior to the placing of the final course of pavement on the roadway. [Spec. 200-5]

10. Limerock for shoulder base is not dumped on the roadway pavement, if so, it must be swept off immediately. [Spec. 200-5]

11. The first course is bladed to a cross section parallel to the finished base.
[Spec. 200-6]

12. Density tests for the lower course are taken and pass prior to spreading material for the top course. [Spec. 200-6]

13. The top course is finished to grade and cross section after compaction and is free of scabs and laminations. [Spec. 200-6]

14. When wetting or drying is required, the entire depth and width of the course involved is manipulated. [Spec. 200-6]

15. Base contaminated by the subgrade, is removed and replaced. [Spec. 200-6]

16. Base widening strips are compacted in lifts prior to spreading the overlying course. [Spec. 200-6]

GENERAL-LIMEROCK… continued

17. Conduct QC and Verification Sampling and Testing at the minimum frequency required. [Spec. 200-7]

18. Irregularities greater than 1/4 inch (6 mm), using a 15 foot (4.572m) straightedge, are corrected by scarifying, removing or adding rock. [Spec. 200-7, 285-7]

19. At the time of priming, base is firm and unyielding, meets the specified density requirement and the moisture content in the top half is not over 90% of the optimum moisture of the base material. [Spec. 200-8]

20. Thickness of the base is measured at a frequency of 3 per Lot or 3 per 1000 feet. [Spec. 200-7, 285-6]

21. Base deficient areas of more than 1/2 inch (13 mm) are corrected by scarifying and adding rock. [Spec. 200-7, 285-6]

22. If cracks or checks appeared in the base, either before or after priming, which, in the opinion of the engineer, impaired the structural efficiency of the base, the cracks or checks are removed by rescarifying, reshaping, adding base material where necessary, and recompacting. [Spec. 200-6]

FY 2013/2014 QC Category No. 7A
STATEWIDE INSPECTION GUIDELIST
Asphalt Plant / Lab

General

1. Design Mixes have been verified and approved. When using a PG 76-22 Asphalt binder, limit the amount of RAP to a maximum of 20%. [Spec. 334-2 and 334-3].

2. Plant scales are certified every six months and the required monthly weight comparison checks have been conducted and documented properly. Weight measurements should be documented on the "Asphalt Plant Monthly Truck Scale Check Worksheet," Form 675-030-27. [Spec 320-3]

3. The haul trucks have asphalt tight beds coated with acceptable asphalt release agent (not petroleum-based products such as diesel oil). Truck bed shall have a tarpaulin that can cover the entire load and holes in the side of the bed for checking load temperatures. [Spec 320-6 and 320-7]

4. The stockpiles including RAP material are free from contamination, segregation and are separated and identified as shown on the mix design. [Spec 320-2]

5. When present at the plant, perform verification measurements of mix temperature to ensure that the temperature of the mix at the plant is checked and recorded in accordance with the procedures stated in the specifications. Reject a load or portion of the load of HMA, when a mix temperature exceeds the acceptance limits. [Spec. 320-6 and CPAM Sec. 5.10]

6. The maximum period that any mix may be kept in a hot storage or surge bin is 72 hours. For FC-5 the maximum storage time is one hour. [Spec. 320-6 and 337-7]

7. Do not transport asphalt mix from the plant to the roadway unless all weather conditions are suitable for the paving operations. [Spec. 330-3]

8. Perform verification test to ensure the Contractor's QC operations for asphalt rubber binder are conducted in accordance with the requirements of 336-5. [Spec. 336-5]

9. Ensure that mix is correctly sampled, split, boxed, identified (project number, lot and sublot, date, mix type, sample type), sealed with tape (and signed by VT when present), and properly stored in a secure location.

10. Maintain good communication between Plant personnel, Roadway personnel, Project Administrator, IA/IV personnel, and the District Bituminous Engineer (DBE). Obtain IV/IA samples when requested by the DBE.

11. Randomly (minimum once per project) check/verify the Contractor's QC process control operations using this Statewide Inspection Guidelist and CPAM Section 5.10.

12. Ensure a copy of the approved Asphalt Producer's Quality Control Plan is available at the Plant. [Good Practice].

13. The Asphalt Producer's Quality Control Plan has been approved and the technicians performing Quality Control, Verification, and Resolution tests are CTQP qualified. All documents are adequately filed. [Spec. 105-5 and 330-2]

14. Testing Laboratory must be qualified under the Department's Laboratory Qualification Program. [Spec. 105-6 and 320-2]

15. The area of laboratory is a minimum of 180 square feet with a layout, which will facilitate multiple tests being run simultaneously by two technicians. [Spec. 320-2]

16. The lighting, temperature control, ventilation, equipment and supplies, personal computer, communication system shall be equipped in accordance with the specification requirements. [Spec. 320-2]

17. Calibration of the laboratory testing equipment is performed in accordance with manufacturer's recommendations at frequencies established in the Asphalt Producer's Quality Control Plan and the records are documented in the lab file. [Spec 105]

18. The laboratory is furnished with the necessary sampling and testing equipment and supplies for performing quality control, acceptance and verification sampling and testing. [Spec. 320-2]

19. The gradations of incoming aggregate (including RAP and each size fraction for fractionated RAP), aggregate moisture content from stockpiles and / or combined cold feed aggregate shall be tested by the Contractor for process control at a minimum frequency specified in his QC Plan. The testing of RAP material shall include A/C content and gradation of extracted aggregate. [Spec. 320-2]

20. The A/C content, mix gradation and volumetric properties of HMA shall be determined by the Contractor for daily process control at a frequency in accordance with the Asphalt Producer's QC Plan. [Spec. 320-2]

21. All QC sampling and testing are completed and the Control Charts are updated daily in accordance with the Asphalt Producer's QC Plan and the results are shown in a conspicuous place in the asphalt lab. The QC results shall be documented on the Asphalt Plant Worksheet, Form 675-030-25 and entered into LIMS daily. [Spec. 105 and 320-2]

22. The Contractor shall not use more than three mix designs per nominal maximum aggregate size per traffic level per binder grade per contract year. Exceeding this limitation shall result in a maximum Composite Pay Factor of 1.00 for all designs used beyond this limit. [Spec. 334-3]

23. Run the split sample verification testing in accordance with the requirements specified in 334-5.5.1 and the same sample verification testing as specified in 334-5.5.2 in order to determine the validity of the Contractor's QC test results for the LOT acceptance. Document the results in the Asphalt Plant Worksheet, Form 675-030-25 [Spec. 334-5]

24. In the event that any of the verification and/or resolution samples that are in the custody of the Contractor are lost, damaged, destroyed, or are otherwise unavailable for testing, the minimum possible pay factor for each quality characteristic as described in 334-8 will be applied to the entire LOT in question. If the LOT in question has more than two sublots, the pay factor of each quality characteristic will be 0.55. If the LOT has two or less sublots, the pay factor for each will be 0.80. In either event, the material in question will also be evaluated in accordance with 334-5.9.5. [Spec. 334-5].

25. In the event that an individual QC test result of a sublot for air voids, or the average sublot density for coarse or fine graded mixes, do not meet the requirements of Table 334-5 (Master Production Range), the LOT shall be automatically terminated and the production of the mixture shall be stopped until the problem is adequately resolved to the satisfaction of the QC Manager(s) and/or the Asphalt Plant Level II Technician(s) responsible for the decision to resume production after a quality control failure. The material represented by the failing test result shall be evaluated in accordance with 334-5.9.5. [Spec. 334-5].

26. In the event that two consecutive QC tests for gradation (P-200 only) or A/C content do not meet the requirements of Table 334-5, or two individual core densities within a sublot are less than 91.00% of Gmm (for coarse mixes), the LOT will be automatically terminated and production of the mixture stopped until the problem is adequately resolved to the satisfaction of the QC Manager(s) and/or the Asphalt Plant Level II Technician(s) responsible for the decision to resume production after a quality control failure as identified in 105.8.6.4. In the event that it can be demonstrated that the problem can immediately be or already has been resolved, it will not be necessary to stop production. When a LOT is terminated, make all necessary changes to correct the problem. Do not resume the production until appropriate corrections have been made. Inform the Engineer of the problem and corrections made to correct the problem. After resuming production, sample and test the material to verify that changes have corrected the problem. Summarize this information and provide it to the Engineer prior to the end of the work shift when production resumes. In the event that a QC failure is not addressed as defined above, the Engineer's approval will be required prior to resuming production after any future QC failures. Address any material represented by a failing test result in accordance with 334-5.9.5. Any LOT terminated under this Sub-article will be limited to a maximum Pay Factor of 1.00 (as defined in 334-8.2) for each quality characteristic. [Spec. 334-5].

27. Double-check all the input data for the calculation of the Pay Factors and the correctness of the composite Pay Factor for each LOT in accordance with the Asphalt Plant – Pay Factor Worksheet, Form 675-030-25. Review and verify each LOT Submittal packet. [Spec. 334-8]

28. Take necessary actions for the materials with low Pay Factor or low Composite Pay Factor in accordance with the requirements of 334-5.9. The Contractor's evaluation of the defective material shall be performed in accordance with 334-5.9.5. [Spec. 334-5].

29. For FC-5 friction course, when an individual QC test result of a sublot for gradation (P-3/8, P-4, and P-8) does not meet the requirements of Table 337-2, steps shall be taken to correct the situation and actions taken shall be reported to the Engineer. In the event that two consecutive individual QC test results for gradation (P-3/8, P-4, and P-8) or an individual test result for A/C content do not meet the requirements of the Table 337-2, the LOT will be automatically terminated and production of the mixture shall be stopped. The material represented by the failing test result shall be evaluated in accordance with 334-5.9.5. [Spec. 337-6].

30. Ensure that QC personnel are recording raw test data on Department approved forms and that this data is transferred to the appropriate forms, database, and spreadsheet. Any corrections made to the raw data shall be made by striking through the incorrect data with a single line and writing the correct data above the struck through data. Erasing any data is prohibited.

31. When the total combined quantity of hot mix asphalt for the project, as indicated in the plans for Type SP and Type FC mixtures only, is less than 2,000 tons, the Engineer will accept the mix on the basis of visual inspection. [Spec. 334-5.1.2].

32. Use a liquid anti-strip additive at a rate of 0.5% by weight of the asphalt binder for mixtures containing limestone aggregate. Other rates of anti-strip additive may be used upon approval of the Engineer. [Spec 337-3.2.1.4].

33. For FC-5 mixtures containing granite, add lime at a dosage rate of 1.0% by weight of the total dry aggregate. [Spec. 337-3.2.1.3].

FY 2013/2014 QC Category No. 7B
STATEWIDE INSPECTION GUIDELIST
Asphalt Milling / Paving

GENERAL PAVING

1. A pre-paving conference is held before the milling and paving operation and a written report is distributed. [CPAM Sec. 3.1]

2. A qualified CTQP Asphalt Paving Level 2 technician shall be on the roadway at all times when placing HMA at the job site (except when placing miscellaneous or temporary asphalt). All testing shall be performed by a CTQP Asphalt Paving Level 1 technician with the exception that cross-slope, temperature, and spread rate can be performed by someone under the supervision of a CTQP Paving Level 2 technician at the roadway. [Spec. 105-8.6.2]

3. A copy of the approved Contractor's Quality Control Plan shall be present on the project and the Contractors Roadway QC Technician is required to have a copy of the mix design for the HMA being placed at paving site. [CPAM 3.2.7.4]

4. The paving machine is equipped with automatic longitudinal screed controls with a min. length of 25 feet are being used during paving operation. The paving machine is equipped with electronic cross slope controls. [330.5.2.2]

5. Establish the forward speed of the asphalt paver based on the rate of delivery of the mix to the roadway, but not faster than the optimum speed needed to adequately compact the pavement. [Spec. 330-6.1.4]

6. Do not place asphalt mixtures while rain is falling or when there is water on the surface to be paved. [Spec. 330-3.2.3]

7. Ensure trucks are not bumping the paver. After releasing the HMA material from the truck's body to the paver, the remaining material in the truck shall not be dumped on the tacked surface in front of the paver. [Spec. 330-4]

8. A string line is being used for an accurate, uniform alignment of the pavement edge in areas where there is no curb and gutter. The deviation along the unsupported pavement edge shall be not more than +/- 1.5 inches from the stringline. [Spec. 330-6.1.1]

9. Do not allow the mixture to adhere to the wheels or tires of any rollers and do not use fuel or other petroleum distillates to prevent adhesion. Scrapers, pads and moistening systems shall be function properly to avoid having HMA adhering to the wheels. [Spec. 330-5.3.3]

10. Pneumatic-tire rollers (traffic rollers) are using tires inflated 50 to 55 PSI or as specified by the manufacturer. [Spec. 330-5.3.2]

11. Pneumatic-tire roller (traffic roller) is used on first overbuild course and the traffic roller or vibratory roller is used on the first structural layer over an asphalt rubber membrane interlayer (ARMI) layer. [Spec. 330-7.6]

12. When using an extendable screed device to extend the screed's width on the full width lane or shoulder by 24 inches or greater, an auger extension, paddle, or kicker device shall be equipped and used during paving unless the Contractor provides written documentation

from the manufacturer that these are not necessary. [Spec. 330-5.2.3]

GENERAL PAVING (continued)

13. Protect the last structural layer placed prior to the friction course and newly finished dense-graded friction course from traffic until the surface temperature of these layers has cooled below 160°F. [Spec. 330-10]

14. The lift thickness meets the specification requirements. [Spec. 334-1 or for FC-5 (Spec 337-8)]

15. When the design speed is 55 miles per hour or greater and intermediate layer or temporary pavement will be opened to the traffic, in any areas the Engineer identifies a surface irregularity to be objectionable, the smoothness of the pavement shall be checked by 15 foot rolling straightedge to ensure no smoothness deficiency is in excess of 3/8 inch. Address all deficiencies in excess of 3/8 of an inch within 72 hours of placement in accordance with 330-9.5. [Spec. 330-9.4.5.3, CPAM Section 11.2]

16. Document the roadway density random numbers in the Asphalt Plant-Random Number Worksheet, Form 675-030-25 and ensure 5 cores are cut from each sublot. Do not obtain cores any closer than 12 inches from an unsupported edge. After coring, core holes are patched properly within three days of coring. [334-5.4.3]

17. Produce a finished surface of uniform texture and compaction with no pulled, torn, crushed, raveled, or loosened portions and free of segregation, bleeding, flushing, sand steaks, sand spots, or ripples. Address any pavement not meeting the requirements of this specification in accordance with 330-9.5. [Spec. 330-9.2]

18. Monitor the 15 foot rolling straightedge operations and corrective actions in accordance with CPAM Sec. 11.2. [Spec. 330-9]

19. The transverse joint, longitudinal joint and pavement approaches to the bridge joints are constructed properly and checked by 15-foot manual straightedge to achieve smooth and compacted surfaces. If the Engineer identifies a surface irregularity to be objectionable, the 15-foot manual straightedge shall also be used to check the smoothness on crossovers, intersections, tapers, transitions at beginning and end of project, parking lots and similar areas. [Spec. 330-9, FM5-509]

20. For night paving, sufficient lighting shall be provided at the job site. [Spec. 8-4.1]

21. Keep sections of newly compacted asphalt concrete, which are to be covered by additional courses, clean until the successive course is laid. [Spec 330-10]

22. Do not dump embankment or base material directly on the pavement. Dress shoulders before placing the friction course on adjacent pavement. [Spec.120-12.2 and 330-10]

23. Equip blade graders operating adjacent to the pavement during shoulder construction with a 2 by 8 inch or larger board, or other attachment providing essentially the same results, attached to their blades in such manner it extends below the blade edge in order to protect the pavement surface from damage by the grader blade. [Spec 330-10]

24. Perform the verification measurements at a min. frequency of twice per day to ensure the temperature of the mix at the paving site is checked and recorded in accordance with the

procedures stated in the specifications. Reject a load or portion of a load of HMA, when a mix temperature exceeds the acceptance limits. Document the results in the Asphalt Roadway - Verification Report, Form 675-030-021. [Spec. 330-6.1.3, CPAM Sec. 5.10]

GENERAL PAVING (continued)

25. For process control, the Contractor shall monitor the pavement temperature with an infrared temperature device. The roadway density shall be monitored by either 6- inch diameter roadway cores, a nuclear density gauge, or other density measuring device at a min. frequency of once per 1,500 feet of pavement. [Spec. 330-2.1]

26. Perform the verification activities at a min. frequency of once per layer per day to ensure the spread rate (yield) is in compliance with the Contract requirements. Ensure the spread rate is within 5% of the target spread rate. When determining the spread rate, use, at a minimum, an average of five truckloads of mix. When the average spread rate is beyond plus or minus 5% of the target spread rate, monitor the thickness of the pavement layer closely and adjust the construction operations. If the Contractor fails to maintain an average spread rate within plus or minus 5% of the target spread rate for two consecutive days, the Engineer may elect to stop the construction operation at any time until the issue is resolved. The results shall be documented in the Asphalt Road-Verification Report, Form 675-030. [Spec 330-6.1.5.1, CPAM Sec 5.10].

27. Perform the verification activities by randomly taking a minimum of ten measurements of the cross slope per mile in tangent sections, control points in transition sections, and a minimum of three cross slope measurements on fully superelevated sections over a day's production to ensure the Contractor's measurements are within the acceptable tolerances listed in Table 330-4 Cross Slope Acceptable Tolerance. (Individual Deviations: +/- 0.4 % for tangent and superelevated sections, +/- 0.5 % for shoulders, Average Deviations: +/- 0.2 % for tangent and superelevated sections, +/- 0.5 % for shoulders). [Spec. 330-9, CPAM 5.10]

GENERAL MILLING

28. The milled surface is swept with a power broom or other approved equipment. A Street sweeper is used in urban and other sensitive areas. Any surface delamination or scaling pieces shall be removed. [Spec. 327-3, 327-4]

29. The milling surface has a uniform texture with no deviation in excess of ¼ inch. The depth of cut is checked periodically to ensure the results are in compliance with the contract requirements. [Spec. 327-4]

30. Repave all milled surfaces no later than the day after the surface was milled unless otherwise stated in the Plans. [Spec. 327-3.1]

31. Perform the cross slope verification measurements in accordance with 327-3 and CPAM Sec. 5.10 to ensure the Contractor checks the cross slopes at a frequency of one measurement every 100 feet during milling operations. [Spec. 327-3, CPAM Sec. 5.10]

PRIME AND TACK COAT

32. The asphalt distributor being used is in accordance with the specifications. [Spec. 300-3]

33. The roadway surface is cleaned prior to application of the tack coat. [Spec. 300-5]

34. Perform the verification measurements at a min. frequency of once per day to ensure the tack coat is applied uniformly with proper spread rate (per Table 300-1 of Spec 330-8) checked by the Contractor at least twice per day, and the tack has broken prior to the placement of asphalt. Document the results in the Asphalt Roadway-Verification Report. [Spec. 300-8, CPAM 5.10]

ASPHALT RUBBER MEMBRANE INTERLAYER (ARMI)

35. Use ARB-20 for the binder and size No. 6 stone, slag, or gravel for the cover material in ARMI. [Spec. 341-2]

36. Perform the verification measurements at a min. frequency of once per day to ensure the application rate of the asphalt rubber binder and the cover material meets the specification requirements. Document the results in the Asphalt Roadway-Verification Report. [Spec. 341-6, CPAM Sec. 5.10]

37. The rolling operation of the ARMI layer conforms to the contract documents. Ensure the entire width of the mat is covered immediately by traffic rollers. For the first coverage, provide a minimum of three traffic rollers in order to accomplish simultaneous rolling in echelon of the entire width of the spread. If necessary, ensure additional coverages with traffic rollers are applied, as directed by the Engineer. [Spec. 341-6.4]

38. The ARMI layer is covered with the first course of asphalt concrete prior to being opened to traffic. [Spec. 341-6.5]

FRICTION COURSE

39. During paving operations for friction course, the temperature of the mixture and the air temperature at lay down shall meet the specification requirements. [Spec. 337-7]

40. Perform verification activities at a min. frequency of once per day to ensure the spread rate of the friction course meets the specifications. Document the results in the Asphalt Roadway-Verification Report, Form 675-030-021. [Spec. 337-5, CPAM 5.10]

41. For FC-5, use two static, steel-wheeled rollers with an effective weight in the range of 135 to 200 PLI and with an appropriate rolling pattern for the pavement compaction in order to seat the mixture without crushing the aggregate. In the event the roller begins to crush the aggregate, reduce the number of coverages or the PLI of the rollers. [Spec. 337-7.4]

FY 2013/2014 QC Category No. 8A
STATEWIDE INSPECTION GUIDELIST
Concrete Pavement

1. A detailed sequence and schedule of concrete placement operations is provided in the Quality Control (QC) Plan and the QC Plan is approved prior to paving operations. [Spec. 350-1]

2. Ensure the method of placement for reinforcing steel, tie bars and dowel bars included in the QC Plan is being used. [Spec. 350-1]

3. Ensure the electronic delivery ticket is furnished for each batch of concrete from an agitating truck mixer. [Spec 346-6]

4. The pavement is constructed by a slip-form paver or fixed form. [Spec 350-1]

5. Ensure the procedure for the protection of the fresh concrete pavement from inclement weather included in the QC Plan is being used. [Spec. 350-1]

6. Ensure the defined provisions for lighting during night work included in the QC Plan are being used. [Spec. 350-1]

7. Ensure if any uncontrolled cracks appear during the life of the Contract, the cracked concrete is removed and replaced and effective solutions are implemented immediately to eliminate further cracks. [Spec. 350-1]

8. The slip-form paver is self-propelled and equipped to spread, strike-off, consolidate, screed, and float-finish the freshly placed concrete in one complete pass. [Spec. 350-3]

9. The slip-form paver uses automatic guidance and grade controls with the exceptions noted in the Spec. [Spec. 350-3]

10. The concrete is consolidated for the full width of the strip being placed with a correct surface pan type or internal type vibrator. [Spec. 350-3]

11. For surface vibrators, the frequency is at least 3500 impulses per minute. [Spec. 350-3.3]

12. If using internal type tube or spud vibrators, then for tube vibrators use a frequency of at least 5000 impulses per minute and for spud vibrators use a frequency of at least 7000 impulses per minute. [Spec. 350-3.3]

13. The device for application of membrane curing compound is self-propelled and capable of uniformly applying the curing compound at the specified rate. [Spec 350-3.4]

14. When using a hot-poured sealer, the heating kettle is of the indirect heating or double boiler type, using oil as a heat transfer medium. [Spec 350-12]

15. The subgrade is completed for a distance of at least 500 feet ahead of the paving operation. [Spec 350-4]

16. The subgrade is maintained in a smooth and compact condition and is within 2% of the optimum moisture content at the time concrete is placed. [Spec. 350-4]

17. The forms are set to line and grade and such that they rest firmly on grade, throughout their entire length. [Spec 350-5]

18. Forms are maintained 500 feet on each side of the roadway in advance of the concrete pavement being placed and are true to line and grade. [Spec. 350-5]

19. Forms are clean and a release agent is applied in accordance with the manufacturer's recommendations after each use and prior to placing concrete against them. [Spec. 350-5]

20. Where the Plans call for reinforced concrete pavement (RCP), ensure the re-bars are free from any material which can impair bonding of the steel with the concrete such as dirt, oil, paint, grease, mill scale, and any loose or thick rust. [Spec. 350-7]

21. Ensure all the re-bars of RCP are placed in accordance with the Plans and the bars are securely wired together at the transverse and longitudinal intersections. Lap splices are not less than 20 times the nominal diameter of the bar and only in the longitudinal members. [Spec. 350-7]

22. All paving operations cease when rain is imminent and have all available personnel cover the surface of the unhardened concrete with a protective covering, to protect the finish. [Spec 350-6]

23. The pavement is constructed to the full width of the lane or slab in a single construction operation. [Spec. 350-8]

24. Ensure workers do not walk in the freshly placed concrete with their boots or shoes coated with earth or other deleterious substances. [Spec. 350-8].

25. The concrete is thoroughly consolidated against and along the faces of all forms, and along the full length on both sides of all joint assemblies by means of hand-operated, spud-type vibrators. [Spec. 350-8]

26. The final finish is applied using a seamless length of damp burlap over the full width of the strip of constructed pavement as the water sheen disappears from the surface of the pavement and just before the concrete achieves its initial set. [Spec. 350-10]

27. Ensure all joints are checked with straightedge before concrete becomes non-plastic and make corrections if any smoothness deficiency is found. [Spec. 350-10]

28. Ensure the concrete is cured in accordance with the requirements of the Specifications. Do not leave the concrete exposed for a period in excess of 30 minutes between stages of curing or during the curing period. [Spec. 350-11]

29. Ensure the forms are not removed from freshly placed concrete for at least 12 hours after placement. After removing the forms, immediately apply curing compound to the sides of the slab. [Spec. 350-11.4]

30. Ensure the freshly placed concrete is continuously cured for a period of 72 hours, exclusive of any periods when the temperature of the surface of the concrete falls below 50 F. [Spec 350-11.1]

31. Ensure the longitudinal joints are constructed in accordance with the details shown in the Plans and the tie bars or tie bolt assemblies are placed correctly in depth, spacing, location and angles. [Spec. 350-12.2.3]

32. Transverse construction joints are placed at the end of all pours and other locations where paving operations are stopped for as long as 30 minutes. [Spec. 350-12.3.1]

33. Accomplish the transverse contraction joint sawing in two steps. Make the initial cut 1/8 inch wide by a depth at least 1/3 of the pavement thickness and as soon as possible in no case longer than 12 hours after placing the concrete, unless cutting the transverse joint would damage the surface by raveling or chipping. Should the contractor have to saw cut the concrete after the 12 hours allowed by specifications, obtain the Engineer's approval of the additional curing time prior to saw cutting. [Spec. 350-12.3.2]

34. Dowel load-transfer devices are placed in all transverse joints and the position of the devices shall be confirmed by suitable means acceptable to the Engineer. [Spec. 350-12.4]

35. For sawed joints that will receive sealant, ensure the joint is flushed with a jet of water to remove any remaining slurry. [Spec. 350-12.6.1.1]

36. Determine the thickness by one of the methods in Section 350-14.1 If the pavement is cored, the pavement removed by the borings shall be repaired properly. [Spec. 350-14]

37. After placement of the concrete, traffic is kept off the pavement for a minimum of 14 calendar days or for such period as otherwise provided in the contract documents. [Spec. 350-16]

38. Ensure the pavement surface is true to grade and uniform in appearance with a longitudinal line type texture by grinding operation and the smoothness is tested by the 10 foot rolling straightedge, a 10 foot long rolling straightedge, or a California Type Profilograph for acceptance. All deficiencies shall be corrected and retested to ensure conformity. [Spec. 352-4, 5, 6]

39. On concrete slab replacement projects, measure the thickness of each removed slab by taking one thickness measurement per side of the perimeter of the removed slab (4 total measurements for each replacement slab section). Calculate the average of the measured thicknesses for a slab to determine the “thickness of the removed slab”. Use the calculated “thickness of the removed slab” for payment purposes as defined in Specification 353.

FY 2013/2014 QC Category No. 9
STATEWIDE INSPECTION GUIDELIST
Structures Foundations

PILE PRE-DRIVING

1. When pre-forming pile holes, verify that the Contractor complies with hole sizes and depths covered in the contract documents. The void between pile and hole must be filled with approved sand or grout. [Spec. 455-5]

2. For concrete piles, verify that the proper number of lifting points is used. Piles must also be stored properly. [Spec. 455-7 & Standard Index 20600]

3. Prestressed concrete piles must be inspected for defects as soon as possible after upon delivery to the project site. Defects must be reported to the Project Administrator as soon as possible, but in any case, prior to use. [Good Practice, CPAM 10.2.5]

4. Verify jetting operations. Jetting requirements include: no jetting in completed embankments, jetting and driving with external jets requires 2 jets, specific jet nozzle placement, all piles in a group must be jetted prior to driving where practical; and pumps, supply lines and jet pipes per Pile Installation Plan (PIP). [Spec. 455-5]

5. Verify that Pre-drilling of holes through compacted fill or as starter holes complies with the specifications. [Spec. 455-5]

6. For proprietary mechanical pile splices - threaded rebars must penetrate into the splice plate at least the distance specified in the shop drawings - verify by measuring the distance from plate top to bar end. (Good practice). Verify that the splice is listed on the QPL. Verify Buy America provisions are met, if applicable.

PILE DRIVING

7. Comply with the pile driving criteria as established by Geotechnical Engineer. [Spec. 455-5], making sure of not exceeding the maximum strokes defined in the driving criteria letter. Do not drive under refusal conditions.

8. Verify that the Contractor maintains proper alignment of leads and pile within tolerances. [Spec. 455-5]

9. Fill out pile driving log, keeping special driving procedures and precautions in mind. For open-end diesel hammers, a device to determine ram stroke is required. [Spec. 455-5]

10. Detailed bearing and penetration requirements are covered in the specifications. [Spec. 455-5]

11. Detailed set check and redrive procedures are covered in the Specifications related to blow count interval, same pile cushion, and hammer warm up. [Spec. 455-5]

12. Splices and Buildups for concrete and steel piles must be performed properly. [Spec. 455-7 and 455-8]

PILE DRIVING … continued

13. Final pile top elevation and alignment must be within tolerance, (strands and reinforcement must be severed prior to breaking of piles that require cut off and pile must be visually checked for deficiencies after driving is complete). [Index 20601Spec. 455-5 (pile splices) & 455-7 (pile cut-offs)]

ALL DRILLED SHAFTS INCLUDING SHAFTS UNDER MISCELLANEOUS STRUCTURES

14. Drilled Shaft Installation Plan: Have an approved copy of the drilled shaft installation plan on site. [Spec. 455-15]

15. When drilled shaft concrete is placed in any wet shaft, the QC Manager shall provide slump loss test results before drilled shaft concrete operations begin. The tests shall demonstrate that the drilled shaft concrete maintains a slump of at least 5 inches throughout the concrete elapsed time. Inform the Engineer at least 48 hours before performing such tests in order to allow proper Verification of the results. The Contractor shall perform slump loss testing of the drilled shaft mix using a laboratory acceptable to the Engineer.

16. Drilled Shaft Test Hole (demonstration) and Production Shafts: document activities in the Drilled Shaft log forms and note problems in the Daily Report of Construction, test shafts must be removed to 2 ft. [0.6 m] below ground line. [Spec. 455-18]

17. Slurry properties: Verify Contractor performs properly slurry testing at both premix conditions and prior to placement concrete. Density, pH, viscosity and sand content must be within acceptable limits [Spec. 455-15.8].

18. Verify the Contractor uses proper sample tool to sample and test the slurry prior to placing concrete. Verify that samples are taken at the correct depths [Spec. 455-15.8.3]

18. Shaft inspection: when using a shaft inspection device, assist the Geotechnical Engineer as needed; when shaft inspection device is not used, the shaft bottom must be probed with a solid bar, if possible, or with a weighted line to check for sediments, unevenness and firmness. [Spec. 455-15]

19. Temporary casing in drilled shafts supporting miscellaneous structures must be provided with at least one foot above the ground surface to at least five feet below the ground surface [455-15]

20. Verify that the proper reinforcement cage is assembled according to the plans, indexes or specifications with the proper number and dimension of bars, with the proper number, type and size of spacers, and that the number, length, top and bottom of the CSL tubes are according to the specifications? [Spec. 455-16]. [Spec. 455-16, 415]

21. Drilled shaft concrete placement must conform to all applicable Specs, including 346, 400 and 455 including method of placement, pump line requirements, duration of placement, and slump. Concrete must be overpoured until good quality concrete is evident at the top of the shaft. [Spec. 455-17]

ALL DRILLED SHAFTS INCLUDING SHAFTS UNDER MISCELLANEOUS STRUCTURES … continued

22. Curing of the top surface of the shaft shall be as specified in Spec. 400-16 and shafts exposed to a body of water shall be protected from the action of the water by leaving the forms or casings in place for a minimum of 7 days unless the concrete has attained a compressive strength of 2500 psi or greater. [Spec. 455-17]

23. Reinforcement bars, dimensions, length, spacing and number, must be in accordance with the plans and standard indexes. Spacers, with the size, frequency and spacing meeting the specifications, must be installed in the cage. CSL access tubes must be installed in all shafts in required numbers and configuration. [Spec. 455-16]

24. Verify that the Contractor inserts simulated or mock probes in each cross-hole-sonic access tube prior to concreting to ensure the serviceability of the tube. Verify that the Contractor fills access tubes with clean potable water and recap prior to concreting. The Contractor must repair or replace any leaking, misaligned or unserviceable tube prior to concreting [Section 455-16.4].

25. CSL testing performed as required. [Spec 455-17]

26. If the time of excavation exceeds the limits specified in the specifications, overreaming must be performed. [Spec. 455-15.11.5]

AUGER CAST PILES

27. Auger Cast Pile Installation Plan (ACPIP): Have an approved copy of the ACPIP on site. [Spec. 455-47]. Verify the auger flights are of the proper diameter and length, continuous and without breaks and gaps.

28. Ensure the demonstration Pile is performed successfully prior to the start of production piles [Spec. 455-39]. Document demonstration pile and production pile activities in the Auger Cast-in-Place Pile Installation Record (Form 700-011-03) and note problems in the Daily Report of Construction.

29. Verify the flow cone test is performed in accordance with the specifications [455-42].

30. Verify cylinders as cast in accordance with the specifications [455-43]

31. Ensure the pump is properly calibrated [455-42] and an accurate calibration factor in units of volume/stroke is obtained. Pump calibration must be performed prior to the installation of the demonstration pile, immediately after any significant pump maintenance or repair is performed or at any time the inspector suspects the pump is operating differently from the last calibration.

32. Verify that the soft or unsuitable material is removed and replaced in accordance with the specifications [455-44, item 2]. If more than 5 ft of unsuitable material is encountered a pile redesign is required. A review and acceptance of the redesign will be required prior to continue with the pile construction.

33. Verify the auger is advanced in a continuous rate to the required depths [455-44, item 7].

34. Verify the bottom of the auger is plugged [455-44, item 9].

35. Ensure that at least 5 ft of head is established before withdrawing the auger [455-44, item 10].

36. Make sure the contractor complies with the minimum over pour percentage defined by the specifications [455-44, item 11].

37. Make sure Contractor re-drills and re-grouts in accordance with the specifications, when the return depth is less than 5 ft [455-44, item 11], when grouting is interrupted by any reason [455-44, item11], or when the minimum over pour requirements are not met [section 455-44, item 12] in any segment of the pile.

38. Verify the reinforcement is of the correct bar size and lengths. Ensure the reinforcement is without kinks, without unspecified bends clean [455-44, item 14].

39. Ensure centralizers are used to center the reinforcement in the hole.

40. Ensure the Contractor does not use mechanical equipment or tool to push or impact the cage to force the reinforcement cage into the grout.

FY 2013/2014 QC Category No. 10A
STATEWIDE INSPECTION GUIDELIST
Bridge Structures - General Concrete

FORMING

1. The ground on which concrete or formwork will be supported for pile and drilled shaft footings must be prepared and compacted properly, prior to form setting. [Spec. 455-1]

2. Form material must be approved and must have the proper dimensions, chamfers, positioning, bracing, friction collars, release agent, and be free of dirt or any other debris. Engineer must approve forms, including Stay-In-Place (SIP), prior to concrete placement. Check for coating defects on all surfaces of polymer coated SIP form elements prior to their installation. [Spec. 400-5]

3. Traffic railing removable form alignment is particularly critical since public visibility of railings is very high. [Spec. 521-4]

4. Slip formed traffic railing concerns: guide string alignment, adequate slip forming machine operation and vibrators, clean deck surface, and rebar cover adjustments made just before the slip former passes. [Spec. 521-4 and Good Practice]

5. Falsework should be reviewed by the Project Administrator prior to any concrete placement. Falsework and shoring requiring shop drawings must be inspected and certified by the Specialty Engineer prior to concrete placement. [Spec. 5-1, 400-4, and Good Practice]

PLACING AND TYING REBARS

6. Storing, bending, splicing, and cutting rebar must be done properly. [Spec. 415-3 thru 4]

7. Rebar placing, tying and support concerns: placement tolerances, securing and lapping of splices, mortar block composition and fastening. If form bottom is 12 feet or less above mean high water and environment is extremely aggressive, use of metal chairs or bolsters in contact with forms is not permitted. [Spec. 415-5]

8. Footing rebars: use double strand single tie at all perimeter intersections and at every other interior intersection. [Spec. 415-5]

9. Column hoops shall be tied to the vertical bars at every intersection by a cross or figure 8 ties. [Spec. 415-5]

10. Wall rebars shall be tied with a cross or figure 8 tie at all perimeter intersections and at a minimum, every third interior intersection. [Spec. 415-5]

11. Beam and cap rebars: Heavy beam bolsters must be used for bottom and top mats of rebars and spacing and positioning is critical. Tying shall be double strand single ties at all intersections. [Spec. 415-5]

12. Traffic railing rebars must be free of hardened concrete, curing compound and other foreign matter; utility conduits and embedments separated from rebar, and utility conduit slip joints and junction boxes properly installed. [Spec. 415-3 and Good Practice]

PLACING CONCRETE

13. Monitor surface moisture evaporation rate during placement and prevent the rate from exceeding 0.1 lb/ft^2/hr unless countermeasures such as application of evaporation retarder or fogging are employed. [Spec. 400-16]

14. Temperature restrictions for mixing and placing concrete when very hot or very cold, requirements for keeping concrete warm when cold and for retarding when hot, and specifications for monitoring mass concrete temperature gradient and core temperature. Do not remove the temperature control mechanisms until the core temperature is within 50 degrees F of the ambient temperature for mass concrete. [Spec. 346-3, 346-7, 400-7]

15. Concrete shall not be placed until foundations, forms, falsework and rebars have been inspected and approved and forms and rebars are sprayed with cool water. [Spec. 400-7]

16. Placement concerns: placement in the final position and in level layers, no movement with a vibrator, no displacement of rebars, no aggregate segregation or separation, not dropped freely over 5' and vibrations from adjacent equipment or operations must be controlled.
    [Spec. 346-6, 400-7]

17. Belt conveyors for concrete placement must be approved. [Spec. 400-7]

18. If concrete is pumped, minimum hose diameter is 4" and all other spec. requirements must be met. [Spec. 400-7]

19. Special requirements for placement in successive layers. Ensure vibrator penetration into underlying layer and lifts that do not exceed 12" where possible. [Spec. 400-7]

20. Number, type and size of vibrators must be approved and they shall be inserted and withdrawn as near to plumb as possible in a slow and steady manner. Circles of vibrator influence shall overlap to ensure that the entire placement is adequately vibrated. Proper vibration is particularly critical in areas where concrete flow is restricted by dense reinforcement or where concrete will not readily flow since these areas have a high probability of forming voids or honeycomb. [Spec. 400-7]

21. Place columns in one continuous operation unless construction joints are shown in the plans. [Spec. 400-7]

22. Deck slabs: screeding system must be demonstrated and approved prior to placement and concrete must be placed in continuous strips (transverse or longitudinal) with no

time for initial set between strips except at planned joints. [Spec. 400-7 and Good Practice]

23. Unhardened concrete must be completely protected from rain and runoff by a system that does not come in contact with the concrete. Do not place concrete during rain. [Spec. 400-7]

CURING

24. No further curing is required if forms are kept in place, without loosening, for a least 72 hours but if before 72 hours, an approved curing method must be used. [Spec. 400-16]

25. Properly apply an approved membrane curing compound at a rate of 1 gallon/150 square feet of surface area. [Spec. 400-16]

26. Covers for continuous moisture curing shall be kept continuously wet for at least 72 hours for other than decks: 7 days for decks. Burlap-polyethylene sheeting is required to have a minimum weight of 9 ounces/square yard. Provide a tight seal when using curing blankets for tops of components with side forms. [Spec. 925-3, 400-16]

27. Curing compound for slip formed traffic railings must be applied at the proper spread rate within 30 minutes or before loss of water sheen and must remain in place for at least 7 days. Contractor must submit spread rate calculations to the Engineer. Remove compound completely before application of Class 5. [Spec. 400-16]

28. Construction joints must be cured using either the continuous moisture or curing blanket method. [Spec. 400-16]

FORM REMOVAL

29. Time of removal of forms shall be per plans, when minimum time or compressive strength is reached per table in the specs., or by using an approved strength versus time (S/T) curve. [Spec. 400-14]

30. Concrete in cofferdams must not be exposed to the action of water prior to final set and must not be exposed to salt or brackish water for 7 days after placement. [Spec. 400-7]

FINAL FINSHING

31. Remove form tie ends and irregular projections and patch void, honeycomb and form tie voids with mortar material and use methods that comply with specs. [Spec. 400-15]

32. Class 5 Coating (textured paint) must be on the QPL and meet material specs. and must have surfaces prepared and coatings applied in accordance with manufacturer's specs. at a spread rate of 50 ± 10 ft^2/gal. Coating thickness shall be checked if the spread rate is uncertain. [Spec. 400-15, Good Practice]

PROTECTION OF CONCRETE

33. Caps of piers and bents: do not place the weight of the superstructure or of beams on the caps until they have reached the age of 10 days unless proof of cap concrete strength is provided by testing per specification. [400-17]

CRACK INSPECTION

34. Inspect concrete surfaces as soon as surfaces are fully visible after casting, between 7 and 31 days after the component has been burdened with full dead load, and a minimum of 7 days after the bridge has been opened to full unrestricted traffic. [Spec. 400-21]

35. Measure the width, length, depth (coring may be needed), termination points and precise location of all cracks and display, to scale, the results on a drawing referred to as a crack map. After initial inspection determine the cause of the cracks, monitor the cracks and document the growth of individual cracks. Use a pocket microscope to measure crack widths of 25 mils or less. Determine if cracks are structural or nonstructural and evaluate nonstructural cracks in accordance with CPAM 10.3.5. [Spec. 400-21]

36. Inspect underwater components in accordance with CPAM 10.6. [CPAM 10.6]

FY 2013/2014 QC Category No. 10B
STATEWIDE INSPECTION GUIDELIST
Bridge Structures - Bearings / Beams / Bolts

BEARINGS

1. Beam seat / pedestal concerns: proper elevation, concrete bearing surface planeness and levelness, surface free of irregularities, proper placement of bearings relative to survey marks and seats/pedestals within elevation tolerances for beam superstructures. [Spec. 400-11 & Good Practice]

2. Anchor bolt and bearing plate concerns: location, tolerances and installation of anchor bolts and bearing plates, bolt material per spec., expansion plate adjustments for temperature, proper setting method, bolt holes not through rebars. [Spec. 460-7]

3. Elastomeric pads shall meet material specs. including tolerances and have deformations that do not exceed 50% of pad thickness. Pot/disc bearings shall be manufacturer certified and conform to specs. and be protected from the elements prior to placement, manufacturer's representative with a knowledge and experience certification on site during installation, installation in conformance with manufacturer's recommendations and the shop drawings. [Spec. 932-2 & 461-5]

BEAMS

4. Concerns for all beams: damage or flaws such as kinks, warps, bends, cracks, plates out of plumbness or squareness; pickup points in proper location; Producer on list of Producers with accepted quality control programs; Producer acceptance stamp, certification and beam identification; proper storage; correct beam lengths prior to shipment; erect beams at fixed bearings first; and do not place the weight of the superstructure or of beams on a cap until the cap concrete is at least ten days old. [Spec. 400-17, 460, 450 & Good Practice]

5. Store concrete beams in an upright position on proper dunnage, support at the proper locations under the beam and report excess camber or sweep. Prestressed beams and slabs must be inspected for defects upon delivery to the project site and defects must be reported to the Project Administrator immediately. [Spec. 450-16]

6. Concrete beams shall be handled carefully and lifted only at pickup points identified in the Contract Documents. [Spec. 450-16]

7. Concrete and steel beams should be erected according to the framing plan and the centerline of beam bearing point must coincide with the centerline of the bearing area, longitudinally and transversely. For construction affecting public safety, beam stability calculations must be submitted for Engineer review as well as an erection plan by a Specialty Engineer who must inspect the initially erected structure in the field. Daily Contactor inspections of erected members are required until diaphragms and cross frames or decks are in place. For all steel, the Contractor’s erection plan must be reviewed by the Engineer prior to the start of erection. [Spec. 5-1, 460-7, Good Practice]

8. Store steel beams according to item 4 above, and surfaces should be kept free of dirt, oil or any other foreign matter. Shear studs must be installed in the field only and results of shear stud bend tests must be recorded. [Spec. 460-4, 502-5, CPAM 10.9]

9. Field assembly of steel beam component parts shall be done by the use of methods and devices unlikely to produce damage by twisting, bending or otherwise deforming the metal and if weathering steel, meet special requirements. For all beams, assembly and disassembly of falsework that temporarily supports any permanent structural component must be in compliance with the Contractor's erection plan and approved shop drawings. Immediately report violations of the erection plan or falsework systems that seem to be inadequate, to the Project Administrator. [Spec. 460-7 & Good Practice]

10. During steel beam erection, before bolting, beams shall be adjusted to correct grade and alignment and field connections shall be securely drift-pinned before bolting - at least 50% of bolts should be in place at major connections prior to release. Verify that web plumbness is per spec. once full dead load is applied. Conduct a substructure survey prior to erection and report discrepancies to the Project Administrator for resolution. Correction of significant beam misalignments must be approved by the Engineer before implementation. [Spec. 460-7, Good Practice]

BOLTS

11. Fastener assemblies shall comply with all materials specs. including all required certifications, bolt material test reports, rotational-capacity test reports done by the manufacturer or distributor and be sampled and tested properly. [Spec. 460-4 & 5]

12. A bolt LOT tracking and enforcement system shall be maintained during every operation until complete. [Spec. 460-4]

13. Approved bolt lubricants shall be used and proper procedures shall be used for lubricating the required fastener components. [Spec. 460-4 & 5]

14. Fastener assembly components shall be packaged, handled and stored properly [Spec. 460-4]

15. A bolt rotational-capacity (RC) test [Florida Method FM5-581 (for long bolts) or FM5-582 (for short bolts)] shall be performed at the project site on a minimum of two units of each combination of high strength fastener assemblies prior to their installation. [Spec. 460-5]

16. For general bolt installation, each fastener assembly shall be tightened to at least the tension shown in the spec. and there are strict procedures for performing tightening. [Spec. 460-5]

17. Detailed testing procedures must be followed to establish the correct snug tight torque. [Spec. 460-5]

18. Before bolting begins, connection plate surfaces must be in the proper condition and, unless otherwise shown in the contract plans, the bolt holes must meet the bolt hole geometry specified in the specification. The plate and hole alignment methods must be done properly. [Spec. 460-4]

19. For snugging bolts in the connection, if an impact wrench is used, the wrench must be

set at or above the daily snug tight torque - the inspector should witness the snugging of each bolt. The order in which bolts should be tightened is critical as are the spec. requirements for snugging: refer to FDOT Structures Inspection Training Manual, Part Two, for a detailed example of exactly how this is done. [Spec. 460-5 and Good Practice]

20. For final tightening of the connection, the Turn-Of-Nut or DTI (twist-off bolts are not permitted) method requires very detailed procedures. An inspector must witness the turning of every nut and a washer must be under the element that is turned. Bolts shall not be tensioned to more than 115% of the required minimum bolt tension. [Spec. 460-5 & Good Practice]

21. Detailed procedures must be followed for mating and final tightening of bolts for highway sign, traffic signal and lighting structures. [Spec. 700-2]

22. Detailed procedures must be followed for setting, mating and final tightening of nuts on anchor bolts for beam bearings, steel poles, steel mast arms, monotube assemblies and highway sign structures. [Spec. 460-7, 649-5 & 700-2]

BUY AMERICA

23. Except for steel with a cost of less than 0.1% of total contract amount or $2,500.00, whichever is greater, steel and iron must be produced in the U.S. for all projects. [Spec. 6-5]

FY 2013/2014 QC Category No. 10C
STATEWIDE INSPECTION GUIDELIST
Bridge Structures - Concrete Decks

FORMING

1. Removable form concerns: form material and dimensions, accurate positioning, and adequate capacity to support the load of plastic concrete. Welding of form hardware (removable or SIP) to structural steel is not permitted. [Spec. 400-5]

2. Stay-in-place (SIP) metal form systems have numerous spec. requirements. Check for coating defects on all surfaces of polymer coated SIP form elements prior to their installation. [Spec. 400-5]

3. For prestressed concrete beam superstructures, check beam cambers and adjust forms for deviations in camber from those shown in the original plans. Discuss this issue at the preconstruction conference. [Spec. 400-5, 450-16, Good Practice]

4. Expansion joints may be placed before or after deck planing but must be within strict tolerances in either case. [Spec. 400-10]

PLACING AND TYING REBAR

5. Rebars shall be stored properly and be free of foreign matter. Hot bending, welding or flame cutting are not allowed. [Spec. 415-3 and 415-4]

6. Each rebar shall be tied within 1" of plan position and the tolerance for concrete cover is minus 1/4 inch or plus 1/2 inch from the plan dimensions and splices shall be securely clamped or tied. [Spec. 415-5]

7. Tying for each mat: a double strand single tie used at every intersection on the periphery and for all other intersections, every third location. [Spec. 415-5]

8. Mortar block and bolster materials and placement have numerous spec. requirements. If SIP form bottom is 12 feet or less above mean high water and environment is extremely aggressive, use of metal chairs or bolsters in contact with forms is not permitted. In only slightly aggressive environments, coated continuous rails of steel bolsters are permitted to be in direct contact with removable forms. Molded plastic bolster rails may not be in contact with removable forms. On removable forms, continuous high chairs of plastic, or of steel with coated leg tips, are allowed in moderately aggressive environments but only plastic can be used in extremely aggressive environments. [Spec. 415-5]

SCREED DRY RUN

9. Performed after rebars have been placed and screed rails and headers are set.

Thickness and clearances should be checked in every bay at longitudinal intervals not greater than 10 ft. [Spec. 400-7 & Good Practice]

10. Deck thickness and rebar clearance measurements should be taken from the bottom of the screed rollers and the screed rollers should be directly over the point where the measurement is to be taken. No deck concrete placement shall be allowed if the deck thickness measurement during the dry run is less than the required plan thickness. [CPAM 10.3 and Good Practice]

PLACING DECK CONCRETE

11. Do not place bridge deck concrete if during placement the average wind velocity forecast exceeds 15 mph as reported by the National Weather Service. [Spec. 400-7]

12. Monitor surface moisture evaporation rates during placement and do not exceed 0.1 $lb/ft^2/hr$ unless countermeasures for retaining moisture such as application of evaporation retarder or fogging are employed. Do not apply water to the concrete to aid finishing operations unless authorized by the Engineer. [Spec. 400-16]

13. Approvals required for screed or strike off device and concrete placed in continuous strips (transverse or longitudinal) with no time for initial set between strips except at planned joints. [Spec. 400-7 and Good Practice]

14. Continuous beam decks must be placed according to the pouring sequence in the plans. For continuous slabs placed in accordance with a pouring sequence, locate transverse construction joints at the bottom of a stay-in-place form flute. [Good Practice]

15. Minimum concrete placement rate 20 yd^3/hr for placements 50 yd^3 or less and 30 yd^3/hr for greater than 50 yd^3. All deck concrete between construction joints must be in place before initial set of any of the concrete begins. [Spec. 400-7]

16. Temporary erection supports must be released for steel beams before deck placement. Intermediate diaphragms must be poured at least 48 hours before deck placement. [Spec. 400-7]

17. Unhardened concrete must be completely protected from rain and runoff by a system that does not make contact with the concrete. Do not place concrete during rain. [Spec. 400-7]

18. Forms and rebar shall be sprayed with cool fresh water just prior to placement of concrete for decks in hot weather. If re-spraying of forms and rebars is required after concrete placement starts, never spray onto the fresh concrete unless specifically authorized by the Engineer. [Spec. 400-7]

SCREEDING AND FINISHING

19. Prior to all concrete placements, all bulkheads and rails must be set to proper grade and the screed must adjust for all variances. [Spec. 400-7]

20. Intermediate screed rails are not permitted and the screed must comply with the specification. [Spec. 400-7]

21. For short and miscellaneous bridges, the deck must be longitudinally straight edged with a 10 ft straightedge, half lapped, 5 ft transversely. [Spec. 400-15]

22. For long bridges, the deck must be planed to a minimum of 1/4 inch depth and also meet or exceed the profilograph smoothness criteria.
    [Spec. 400-15]

23. For short and miscellaneous bridges after water sheen and before initial set, the deck surface must be finished with burlap drag, fine broom or float. No blemishes, marks, or scratches are allowed greater than 1/16" in depth. [Spec. 400-15]

24. For concrete surfaces to be planed, correct all flaws such as cavities, blemishes, marks, or scratches that will not be removed by 1/4" planing. [Spec. 400-15]

25. Required crack control must be installed by tooled “V” groove prior to initial set or by early entry dry cut saw. [Spec. 400-9]

CURING

26. For Bridge decks, application of Type 2 (white) curing compound to the deck surface must be complete within 2 hours from the initial placement of concrete and when the surface is damp with a minimum spread rate of 0.06 gal/yd^2 or 1 gal/150 square feet. The spread rate must be reported to the Engineer. [Spec. 400-16]

27. Curing compound for barrier walls must be applied at the proper spread rate within 30 minutes or before loss of water sheen and must remain in place for at least 7 days [Spec. 400-16]

28. Saturated, properly sealed curing blankets must be placed as soon as possible without affecting surface texture for a minimum of 7 days, blanket materials must meet specifications and burlap-polyethylene sheeting is required to have a minimum weight of 9 ounces/square yard. [Spec. 925-3, 400-16]

29. Heavy loads must not be applied for 14 days after concrete placement unless approved by the Engineer, based on beam or cylinder breaks. [Spec. 400-17]

FORM REMOVAL

30. Time of removal for forms shall be determined from minimum time requirement, compressive strength tests, developed from a time versus strength curve, per specification, or as directed. Detailed specifications for cylinder testing and strength determination are required in order to remove forms. Apply membrane curing compound to all surfaces stripped of forms within one hour of loosening. [Spec. 400-14 and 400-16]

GROOVING

31. Grooving shall take place only after the concrete has cured properly, after planing and before opening to traffic. [Spec. 400-15]

32. Prior to grooving, a detailed smoothness evaluation must be performed and the bridge requires at least ¼ inch depth of longitudinal planing unless it is a short bridge in order to achieve acceptable ride quality. [Spec. 400-15]

33. Grooves must be continuous from gutter to gutter, within 18" of gutter; and must be per specifications at joints, for skews, and for spacing and depth. [Spec. 400-15]

FY 2013/2014 QC Category No. 10D
STATEWIDE INSPECTION GUIDELIST
Bridge Structures - Post-tensioning (PT)

GENERAL

1. The PT foreman (Level II) and PT crew members (Level I) must successfully complete a Post-Tensioning Institute (PTI) course and be qualified by CTQP. The PT crew must have at least two CTQP qualified members one of which may be the foreman. The grouting foreman must successfully complete an American Segmental Bridge Institute (ASBI) course and be qualified by CTQP as Level II and grouting crew members must successfully complete an ASBI or PTI course and be qualified by CTQP as Level I. The grouting crew must have at least two CTQP qualified members one of which may be the foreman. Conduct all stressing and grouting operations in the presence of the Engineer. [Spec. 105-8 & 462-4]

2. The vacuum grouting foreman must have experience and training in the use of vacuum grouting equipment and procedures. [Spec. 105-8 & 462-4]

MATERIALS

3. All materials must be stored in weatherproof buildings, sheds or containers. [Spec. 462-6]

4. The following material specs. must be met: 926-Epoxy Grout, 930-Magnesium Ammonium Phosphate Concrete, 938-Grout, 960-Post-Tensioning components, 975–Elastomeric Coating Systems. [Spec. 462-2]

5. Prestressing materials that must be approved, be in compliance and be undamaged are: prestressing steel including strands and bars, and PT systems including anchorage assemblies, bearing plates, couplers, grout caps, vent tubes, valves, inlets/outlets, ducts, wedge plates & wedges. [Spec. 462-2, 933]

6. Ducts must be protected from a variety of damaging elements at all times, be sealed at ends with caps/plugs, and be stored properly. [Spec. 462-6]

7. Inlets/outlets must have mechanical shut offs, be the correct diameter, extend sufficiently, and be properly bonded to the duct. [Spec. 462-7]

8. Grouts must be on the QPL and be mixed with the specified water; fluidity must be maintained per manufacturer's limits; wick induced bleed tests must be performed; and on-site grout must be properly stored for not more than one month. Grouts that are more than 6 months old must be retested and certified or removed from the project. [Spec. 462-6, 923, 938]

9. PT Systems must be approved by the State Structures Design Office and required test reports must come from a certified independent lab. [Spec. 462-2, 960]

10. Certain materials must be sampled and tested, others must be certified, and some require LOT number identification at all times. [Spec. 462-6]

11. These tests may be required: Tendon Modulus of Elasticity Test (optional), In Place Friction Test (required for tendons longer then 100'). [Spec. 462-8]

PROTECTION OF PT STEEL

12. PT steel must be clean, bright, uniformly colored; have no corrosion pitting; and be rejected if damaged or deteriorated. [Spec. 462-6]

13. PT strands must be low relaxation (stabilized) per the requirements of ASTM A 416 and be in shipping containers with special corrosion inhibitor and in packaging that must be marked with specified information. [Spec. 462-6]

14. All PT superstructure steel must be stressed and grouted within 14 calendar days after placement in its final position. Substructure PT bars must be stressed and grouted within 21 days of placement. [Spec. 462-7]

15. If chloride contamination requires remediation, duct flushing may be performed using water with slack lime or quicklime. [Spec. 462-7]

FABRICATION

16. Duct splices must be minimized. [Spec. 462-7]

17. Internal ducts must be secured at not more than 30" intervals for steel pipes, 24" intervals for round plastic ducts, and 12" intervals for flat plastic ducts. Ducts, joints, tendons, rebar and anchorages must be within specified position tolerances.
[Spec. 462-7]

18. External tendon duct must be straight between connections to internal locations. [Spec. 462-7]

19. Ducts, anchorage connections, splices, inlets and outlets must be sealed at all times before grouting except that low point outlets must be left open. [Spec. 462-7]

20. Duct tape is not permitted for repairing or sealing splices, joints, couplings or connections. [Spec. 462-7]

21. Grout inlets and outlets must be located per plans, shop drawings, specifications, or per Engineer if conflicting with reinforcement. [Spec. 462-7]

22. When required by the engineer, the duct system must be pressure tested before placement of concrete at 1.5 psi for 1 minute and have pressure loss of not more than 0.15 psi. [Spec. 462-8]

23. After concrete is placed and cured, a torpedo, ¼ inch smaller all around than the duct, must be passed through all ducts to detect blockages without excessive effort or mechanical assistance. Correction of blockages requires approval of the Engineer. Flat, 4-strand transverse tendon ducts in segmental box girders may be proved by moving the tendons freely by hand within the duct. [Spec. 462-8]

POST-TENSIONING OPERATIONS

24. Tendons must be pulled or pushed through ducts without snagging and during the insertion of a post-tensioning strand into a duct; the strand shall not be intentionally rotated to facilitate insertion by any mechanical device. [Spec. 462-7]

25. PT forces must not be applied until concrete has minimum strength required by Contract Documents. [Spec. 462-7]

26. Initial, permanent and maximum tendon stresses must be within specified limits and single or double end stressing must be per plans or shop drawings or Engineer. [Spec. 462-7]

27. Stressing equipment must be provided by the PT system supplier and stressing jacks must be calibrated, and a master gauge may be used. [Spec. 462-7]

28. Tendon elongations must be measured to the nearest 1/16-inch and observed elongation shall be within 7% of theoretical. Tendons must not be over stressed to achieve the required elongation. [Spec. 462-7]

29. A tendon force diagram reflecting the PT system actually used must be submitted and if friction is too high a lubricant may be used per spec. [Spec. 462-7]

30. Tendon wires may break or slip as allowed by the spec. but failed wires must never exceed 5% of the tendon cross sectional area. [Spec. 462-7]

31. Cut PT steel by an abrasive saw or plasma torch not less than 3/4 to 1-1/2 inches from the anchoring device. Flame cutting of PT steel is not allowed. Do not cut tendon to final length prior to acceptance. [Spec. 462-7]

32. Records of the tendon stressing operation are required and must contain 17 items required by the specification as well as any other relevant information. [Spec. 462-7]

33. For internal and external ducts, after stressing and prior to grouting, the system must be pressure tested at 50 psi for 1 minute with pressure loss of not more than 25 psi for tendons equal to or less than 150 ft. and a pressure loss not more than 15 psi for tendons longer than 150 ft. and corrections must be made with approval of the Engineer. [Spec. 462-8]

34. Within 4 hours after stressing, grout and anchorage caps must be installed and all other tendon openings must be sealed. If tendon contamination occurs, the tendon is to be removed and replaced. [Spec. 462-7]

GROUTING OPERATIONS

35. A Grouting Plan must be submitted and approved 6 weeks before the start of grouting operations. Grouting must be performed according to the approved Grouting Plan and modifications to the Plan must be approved before they are used. [Spec. 462-7]

36. A pre-grouting meeting must be conducted with Contractor, Subcontractor, and Engineer and should include all individuals involved in managing, performing and inspecting the grouting operation. [Spec. 462-7]

37. Grouting equipment must be per spec. and shall include a colloidal mixer, storage hopper, water meter, positive displacement pump, pump pressure gage, vacuum grouting equipment, and standby equipment. [Spec. 462-7]

38. Maximum grout temperature must not exceed 90°F and grouting operations are prohibited when the ambient temperature is below 40°F or is expected to fall below 40°F within one day after grouting. [Spec. 462-7]

39. Efflux or Wet Density testing must be performed on the pumped grout initially and at the anchorage outlet when discharge begins and a bleed test is required at the start of each days grouting. A failing test requires adjustments to the grout mix before the resumption of grouting. [Spec. 462-7, 938]

40. Normal pumping pressure must range from 10 psi to 50 psi measured at the grout inlet. The maximum pumping pressure of 145 psi for round ducts and 75 psi for flat ducts at the grout inlet must not be exceeded. [Spec. 462-7]

41. The discharge from outlets must follow the order in the Grouting Plan and once the anchorage outlet is closed, discharge a minimum of 2 gallons of grout from the anchorage cap outlet into a clean receptacle to ensure that free air and water are completely expelled.
[Spec. 462-7]

42. After initial grouting is complete and the system is sealed, the pressure must be increased to the equivalent realized grout pumping pressure for 2 minutes to check for leaks. If no leaks, reduce pressure to 5 psi for a minimum of 10 min. then bleed each outlet and leave 30 psi residual pressure. [Spec. 462-7]

43. If grouting pressure exceeds the maximum allowed, move pumping to the next outlet and resume as per spec. If grouting cannot be completed, resume after 48 hours. [Spec. 462-7]

44. Grouting of vertical tendons requires the use of a standpipe that keeps the grout level above the anchorage at all times. [Spec. 462-7]

45. Grout inlets and outlets shall not be opened for at least 24 hours after grouting. [Spec. 462-8]

46. After grout is cured, all high points along the tendons as well as the inlets and outlets located at the anchorages must be drilled and inspected with an endoscope or probe per spec. and within 4 hours of drilling, seal the drilled void. Any significant deficiency voids that are found must be filled using the vacuum grouting method within 48 hours. [Spec. 462-8]

47. When grouting is incomplete, an endoscope must be used to establish the limits of sound grout. Probing is not allowed. The remaining unfilled duct must be vacuum grouted per specification. [Spec. 462-8]

48. A grouting report is required within 5 days of grouting completion. [Spec. 462-7]

FINAL FINISHING AND PROTECTION

49. Lifting and access holes must be patched with Magnesium Ammonium Phosphate Concrete or Type Q Epoxy and before patching. Surfaces must be cleaned with grit or water blasting methods at 10,000 psi pressure. [Spec. 462-7, 930, 926]

50. After deck grooving, patched areas must be coated with Methyl Methacrylate extending 6" beyond the perimeter of the patched area; however, Methacrylate is not required if Type Q Epoxy is used to patch. [Spec. 462-7]

51. Grout inlets/outlets must be sealed with a plastic cap and be patched with epoxy grout. [Spec. 462-7, 926]

52. Anchorages must be protected within 7 days of grouting completion and epoxy grout pourbacks must be placed in properly prepared forms using specified placement methods. Surfaces in contact with pourback material must be cleaned with grit or water at 10,000 psi. [Spec. 462-7, 926]

53. Pour backs or anchorage caps must be coated with elastomeric material 30 to 45 mils thick over a properly cleaned surface and only after concrete to be coated is 28 days old and within 90 days of grouting. The coating material must be applied to a test block per spec. and appliers must have 3 yrs. of experience with similar materials. [Spec. 462-7, 975]

CRACK AND DUCT INSPECTION

54. Inspect all post-tensioned concrete box girder top slab, bottom slab and web wall interior and exterior surfaces for cracks immediately after all post-tensioning of a span is complete. If the segmental cantilever erection method is used, inspect all surfaces of web walls of all previously placed segments after each new segment is placed. Since these cracks can be very narrow and hard to see, use of a magnifying device, high intensity white light and spraying with water to increase their visibility may be beneficial during inspection. The width, length, depth, termination points, and precise location of any cracks must be properly documented to scale (crack map). Report all cracks to the Project Administrator so that their status can be addressed immediately. [Spec. 400-21, CPAM 10.7]

55. Monitor and document growth of individual cracks to determine if cracks are active or dormant. [Spec. 400-21, CPAM 10.7]

56. Inspect external tendon ducts and couplers for grout voids, fractured grout, delamination, as well as duct and coupler material punctures, splits or other damage by sounding them and by visual inspection of all visible duct and coupler surfaces. Sound each duct and coupler a minimum of seven days after grouting is complete by tapping the surface using a 16 ounce hammer with a steel head. Use a tapping force that will not cause the duct or coupler material to split, dent, crush or incur any other damage and that will not cause fracturing, chipping or damage to the grout within the duct or coupler. Sound each duct and coupler at 12 inch

intervals along their length and at each interval, as a minimum, tap them on the top sides and bottom. [CPAM 10.7]

57. Mark the limits of any defect on the surface of the duct or coupler with a high visibility permanent marker and when it can be determined for sounding or observation alone, label the defect type as one or more of the following: void, fracture, delamination, split, other. [CPAM 10.7]

FY 2013/2014 QC Category No. 11
STATEWIDE INSPECTION GUIDELIST
Mechanically Stabilized Earth (MSE) Walls

1. Review Mechanically Stabilized Earth (MSE) Wall Inspector's Handbook. [Good Practice]

2. Materials – Confirm receipt of Certificate of Compliance for all materials including fill, panels, soil reinforcement, filter fabric etc. Ensure all components (panels, reinforcement) are handled, stored and shipped in a manner that prevents, chipping, cracks, fractures, excessive bending stresses. Ensure geosynthetics are covered and protected from sunlight prior to placement and is properly stored to prevent damage. [Specs. 548-2, 548-5,]

3. Ensure all piles in the reinforced fill are wrapped with two independent layers of 6 mil plastic with lubricating oil between the layers. [Spec 459, Index 6020, Note 11]

4. Backfill - Select backfill certification has been submitted and fill material has been tested and approved prior to placement. Signed and sealed certification for MSE wall select backfill must be submitted prior to placement [Spec. 548-2] Inspect the fill for proper placement and test the compaction of the fill in accordance with plans and specifications [Spec. 548-9]. Check that water used for soil compaction is in compliance with section 923 (No salt or brackish water). [Spec. 548-8] Do not allow thick lift compaction as lifts thicker than 6" (150 mm) require more energy to compact and may move the panels out of alignment. [Spec. 548-8] DO NOT allow excavations in close proximity in front of the wall once the wall construction has started without the designer's approval. Also, excavations in front of the wall should not be allowed without protection to the wall (i.e. sheet piles, etc.). Good Practice]

5. Foundation - Confirm foundation has been prepared and compacted properly and that a leveling pad is provided per Contract Documents. [Spec. 548-8]

6. Panels - Inspect precast panels for acceptance [Spec. 548-4]. Make sure that no panels with bent connector tabs are used. Review the installation of the panels including tolerances in accord with contract documents. [Spec. 548-6] Corner panels shall be used at all corners. If corner panels are not indicated on the plans, contact the Wall Design Engineer immediately. Measure the batter of the panels often. The vertical alignment of the panels below the panels being installed may be affected by the compaction of the soil behind the panels being installed. Measure the overall batter regularly. [Spec. 548-8] Wooden wedges should be removed as soon as the panel above the wedged panel is completely erected and backfilled. [Spec. 548-8].

7. Soil Reinforcement - Inspect soil reinforcement for compliance with design drawings and shop drawings i.e. size, length, type of material. [Spec. 548-2] Inspect the proper placement of soil reinforcement. [Spec. 548-8] Soil reinforcement should not be skewed more than 15 degrees from normal. If reinforcement needs to be skewed more than 15 degrees, notify the Wall Design Engineer. [Indexes 6020-6130] Soil reinforcement near the top of the wall shall be parallel to the lifts of fill, unless a slight bending (within 15 degrees) is indicated in the shop drawings to accommodate a structure. Soil reinforcement shall not extend into subgrade that may require mechanical mixing. [Indexes 6020-6130] Soil reinforcement shall

not be cut unless shown in the contract documents or approved by the Engineer. [Index 6020]

8. Joints - Review that the filter fabric and the joint materials are acceptable. When attaching filter fabric to the back of the panels, the adhesive shall be applied to the panel not the filter fabric. [Spec. 548-2]

9. Coping - If precast coping is used, ensure top panels have dowels that will extend into the cast-in-place Buildup concrete. [Indexes 6100 to 6130]. Ensure the placement of one-half inch minimum preformed expansion material between wall panels and cast-in-place concrete. [Spec. 548-2, Indexes 6100-6200].

10. Flowable Fill - Make sure any metallic components of the wall is not in partial contact with the flowable fill. Metallic components must be completely encapsulated by the flowable fill.

11. Use these guidelines above for both temporary and permanent walls.

12. At the end of each day's operation, the contractor shall shape the last level of backfill to permit runoff of rainwater away from the wall face or provide a positive means of controlling run off away from the wall such as temporary pipe, etc. [Spec. 548-6.5]

FY 2013/2014 QC Category No. 12A
STATEWIDE INSPECTION GUIDELIST
Signalization

GENERAL

1. Use the FDOT Minimum Specifications for Traffic Control Signals and Devices (MSTCSD), the FDOT's Submittal Data – Traffic Control Equipment form (750-010-02) and the approved shop drawings to confirm items installed are listed on the Approved Product List (APL), or when APL listing is not required to meet the MSTCSD and Specs. [Spec. 603]

2. A pre-installation meeting should be conducted with the signal Contractor, maintaining agency, etc. to discuss signalization issues. [CPAM 3.1]

MAST ARMS

3. Mast arm shop drawings submitted in accordance with approved schedule well in advance of installation due to long lead time (3-6 months). [Good Practice]

4. Confirm Drilled Shaft Installation Plan is submitted and approved. [Spec. 455-15]

5. Mast arm foundations constructed in accordance with the Plans, Special Provisions, and Specifications. [Spec. 455-15]

6. Upon delivery, verify mast arm dimensions match the shop drawings and plans. [Good Practice]

7. Wire the signal cable in the mast arms in accordance with the plans, specifications and/or the maintaining agency's color code. [Plans, Spec. 632]

ACCEPTANCE PROCEDURES (SECTION 611)

8. Witness completion of all field testing with the Contractor's representative and, with a representative from the maintaining Agency, if required. [Spec. 611-4]

9. Warranty Period: Meet with the signal Contractor and the maintaining agency to discuss method of handling warranty period. Record model and serial numbers of electronic equipment. Establish a method to track all trouble calls during the warranty period. Notify the Contractor of equipment malfunctions during the life of the contract and document the Contractor's response times. Record and track all equipment malfunctions and repairs during the life of the contract. Provide a letter to the maintaining agency and the Contractor documenting the beginning and anticipated end of the warranty period. [Spec. 611-5, Good Practice]

SIGNAL INSTALLATION GROUNDING (SECTION 620)

10. Installation of the required number and length of ground rods to be observed. [Spec. 620-3]

11. The resistance of each ground rod is to be measured and recorded (if required by contract Specifications) and the buried location of each ground rod is to be staked. [Spec. 620-3]

12. Ensure that all separately grounded elements at an intersection are bonded to form an intersection grounding network. [Spec. 620-3, Index 17736]

CONDUIT AND SIGNAL AND INTERCONNECT CABLE (SECTIONS 630 AND 632)

13. Conduit used is the proper type for the type of installation being performed. The conduit is installed at the proper depth. [Spec. 630, Index 17721]

14. The proper number of conduit stub-outs, including spares, is provided through the cabinet base. [Plans and Index 17841]

15. All conduit trenches are appropriately backfilled. [Index 17721, Spec. 630-3.].

16. Seal conduit ends in a controller base, pole, pull box, junction box, or pedestal with approved moisture resistant material approved by the Engineer. [Spec. 630-3.5, Index 17721]

17. Signal cable meets requirements. [Spec. 632]

18. The signal cable is to be installed in continuous lengths between controller cabinets, disconnect hangers (or signal heads for non-span wire installations), pedestrian signal heads, and pedestrian detectors. [Spec 632-3]

19. The communication cable is to be installed in continuous lengths to and between controller cabinets and junction boxes. [Spec. 633-3.2]

20. The signal cable is to be properly attached to the messenger wire. [Index 17727]

21. Pull wire or cord is installed per [Spec 630-3.1].

PULL and FIBER OPTIC BOXES

22. Verify that box is listed on Approved Product List (APL) and is marked with the APL certification number. [Spec. 635-2]

23. All pull and fiber optic boxes shall have a 1'-0" wide and 6" deep concrete aprons sloped away from box. [Index 17700]

24. For fiber optic pull boxes, install ground rods as required and shown in the plans. [Spec. 630-3.1; Index 17700]

25. Store a total of 200 feet of fiber optic cable in fiber optic splice boxes. [Index 17700]

26. Store 50 feet of spare fiber optic cable in fiber optic pull boxes [Index 17700]

27. Do not place the pull or fiber optic boxes in roadways, driveways, parking areas, ditches, or public sidewalk curb ramps [Spec. 635-3.2]

28. Ensure that all pull box covers include words describing the application for which it is to be used, such as "FDOT TRAFFIC SIGNAL" (signalized intersection applications), "FDOT FIBER OPTIC CABLE (fiber optic cable applications), FDOT ELECTRICAL (other electrical applications), FDOT LIGHTING (highway lighting applications), FDOT TRAFFIC MONITORING (traffic monitoring applications), or text as shown in the plans permanently cast into their top surface. [Spec. 635-2.2.2]

29. Never place expansion material around pull boxes in sidewalk. The pull box must bond to the sidewalk to avoid differential settlement. [Good Practice.]

SPAN WIRE ASSEMBLY (SECTION 634)

30. Span wire, fiberglass insulators, and associated hardware comply with spec. and installation requirements. [Spec. 634-2, 634-3, Index 17727, Plans]

31. Span wires to be of one continuous length with no splices except where an insulator is required. [Spec. 634-3.3]

32. Ensure the span wire assembly is installed with the correct amount of sag. [Spec. 634-3.3(e)]

PRESTRESSED CONCRETE POLES (SECTION 641)

33. The poles are set to the depth specified in the [plans.]

34. The oval eye bolts are located in accordance with the pole guide schedule [Plans, Shop Drawings]

35. FDOT approved material is used for the footing. [Spec. 641-4]

36. The area around the pole is properly backfilled and tamped. [Spec. 641-4]

37. The pole is installed out of plumb at the correct angle of rake. [Mfgr's Rec.]

SIGNAL HEAD ASSEMBLIES (SECTION 650)

38. Verify that the Light Emitting Diodes (LEDs) modules are listed on the APL.[Spec. 650-2]

39. Two each ¼" diameter weep holes are drilled in the bottoms of each signal head assembly. [Spec. 650-3.8, Index 17727]

40. Traffic signal heads are installed in the proper location, aimed properly, and set with the proper horizontal and vertical clearances. [Spec. 650-3]

41. For vertically mounted 5-section clusters, construct the signal assembly so that door hinges are located along the outside edges of the complete signal assembly and each section opens away from the horizontally adjacent section. [MSTCSD Section A650-1]

PEDESTRIAN SIGNALS (SECTIONS 653 AND 665)

42. Pedestrian signs match the type of visual signal on the pole, i.e., international visual signal with international type signs. [Index 17784]

43. Install Pedestrian detector controls with the center line of the push button 42" above finished walking surface immediately below the control, except where 2 push buttons installed on the same pole conflict. Then set the center line of one at 42" and the other as close as practical above it within the range of 42 to 48". [Spec. 665-3, Index 17784]

44. Use only an ADA (Americans With Disabilities Act) compliant pedestrian detector push button assemblies listed on the FDOT APL and marked according to spec. [Spec. 603-6, 665-2, MSTSCD Section A665-2]

INDUCTIVE LOOP DETECTORS (SECTION 660)

45. Use inductive loop detectors, preformed loop assemblies and loop sealant on the FDOT's Approved Products List. [Spec. 660-2]

46. Confirm that loop wire, lead-in cable, and splicing materials meet the standard requirements. [Spec. 660]

47. The required number and type of inductive loop assemblies is installed in accordance with the [plans and pay item numbers].

48. All loop assemblies are installed at the proper distance from the stop bars. [Plans, Index 17781]

49. All loop assemblies to be installed in accordance with [Index 17781, Spec. 660].

50. All loop wires are held down to the bottom of the saw cut with proper hold down material and then properly sealed. [Spec. 660-3, Index 17781]

51. All wires are megged out for correct resistance values. [Spec. 611-4, 660-3]

52. Loop wires are spliced as detailed in index and spec. [Spec. 660-2, 660-3, Index 17781]

CONTROLLER CABINETS (SECTION 676)

53. Controller cabinet is on the Approved Products List. [Spec. 676-2]

54. Controller cabinet is sealed at its contact to the concrete base and all field wiring is neatly bundled and labeled. [Spec. 676-3]

55. Make sure that the Contractor is connecting all fork or ring terminals to the cable conductor ends (signal cable, communication cable, loop wires) using a calibrated ratchet crimping tool. [Spec. 632-3, 660-3, 676-3]

ELECTRICAL POWER SERVICE (SECTION 639)

56. For the service disconnect (main circuit breaker) between the meter and the controller cabinet (usually located on the power service pole or the controller cabinet) use a manually re-settable circuit breaker which has a larger amperage rating than the amperage rating of the equipment circuit breaker to which electrical power is being provided. Note the minimum allowable size for this main circuit breaker is 40 amps where the rating of the equipment circuit breaker to which electrical power is being provided is less than 40 Amps. Use a surge lighting arrestor rated for a maximum permissible line to ground voltage of 175 VAC. [Spec. 639-3]

FY 2013/2014 QC Category No. 12B
STATEWIDE INSPECTION GUIDELIST
Lighting

1. All of the materials used comply with the approved shop drawings and plans. [Spec. 715-2]

2. The seven-day burn-in period is completed satisfactorily. [Spec. 715-14, 715-15]

3. Test all components of the installation in accordance with the plans, indexes, specifications, and manufacturer's recommendations. [Spec. 715-14]

4. A pre-installation meeting is conducted by the Project Administrator with contractor, maintaining agency, etc... to discuss highway lighting issues. [CPAM 3.1]

5. On Federal-Aid projects, obtain from the contractor a certification from the producer of steel or iron, or any product containing steel or iron as a component, stating that all steel or iron furnished or incorporated into the furnished product was manufactured in the United States in accordance with the requirements of this specification and the Buy America provisions of 23 CFR 635.410, as amended, for the appropriate items. [Spec. 6-5.2]

6. Conduit and/ or cable trenches are in straight lines at the proper depth and in accord with the layout shown in the plans. [Plans, Spec. 715-5, 715-7, Index 17721]

7. Installation of all lighting is done in accord with [Indexes 17500 to 17515].

8. Trench backfill is done per Spec. and Index. [Spec. 715-5, Index 17721]

9. Ground rods for poles installed per Spec & Index. [Spec. 715-11, Index 17502]

10. Provide an approved copy of all applicable shop drawings and 2 copies of the as-built plans to the maintaining agency before Final Acceptance.
[Index 17501, Note 8]

11. Ensure the surge protection devices used are approved and installed properly. [Index 17500, 17501]

12. Where the location of the electrical service pole requires an extension of the power company's lines, ensure the Contractor bears all line-extension cost for up to the first 2,000 feet of such extensions. [Spec. 715-4]

13. All wiring shall be color coded. [Spec. 992-5, Index 17501 Note 14]

14. Make all necessary splices or connections with solderless connectors or compression sleeves. Do not use twist-on connectors if any of the conductors involved are larger than No.10.All splices shall be made in a pull box or pole base with compressive sleeves or split bolt connectors properly taped and weatherproofed. [Spec. 715-8]

15. Ground rods and wires are connected properly. [Index 17500 Sheet 1, 17501, 17502 Sheet 6, 17504, 17505 Sheet 1]

16. When placing slabs around the pull boxes and light poles, make provisions to remove forms without injury to concrete surfaces. Also do not leave any portion of the forms in the concrete. [Spec 400-5.1, Index 17500 Sheets 2 & 3, Index 17700]

FY 2013/2014 QC Category No. 12C
STATEWIDE INSPECTION GUIDELIST
Intelligent Transportation Systems

CONDUIT

1. Conduit used is the proper type for the type of installation being performed. The conduit is installed at the proper depth. [Index 18202]

2. All conduit trenches are appropriately backfilled. [Index 18202, Spec. 630-3]

3. Seal conduit ends in a controller base, pole, pull box, junction box, or pedestal with approved moisture resistant material approved by the Engineer. [Spec. 630-3.5]

4. Pull wire or cord is installed per [Spec 630-3.1].

PULL and FIBER OPTIC BOXES

5. Verify that box is listed on Approved Product List (APL) and is permanently marked with the APL certification number. [Spec. 635-2]

6. All pull and fiber optic boxes shall have a 1'-0" wide and 6" deep concrete aprons sloped away from box. [Index 17700]

7. For fiber optic pull boxes, install ground rods and tone wire as required and shown in the plans. [Spec. 630-3.1; Index 17700]

8. Store a total of 200 feet of fiber optic cable in fiber optic splice boxes. [Spec. Index 17700]

9. Store 50 feet of spare fiber optic cable in fiber optic pull boxes [Index 17700]

10. Do not place the pull or fiber optic boxes in roadways, driveways, parking areas, ditches, or public sidewalk curb ramps [Spec. 635-3.2]

11. Ensure that all pull box covers include words describing the application for which it is to be used, such as "FDOT TRAFFIC SIGNAL" (signalized intersection applications), "FDOT FIBER OPTIC CABLE (fiber optic cable applications), FDOT ELECTRICAL (other electrical applications), FDOT LIGHTING (highway lighting applications), FDOT TRAFFIC MONITORING (traffic monitoring applications), or text as shown in the plans permanently cast into their top surface. [Spec. 635-2.2.2]

FIBER OPTIC CABLE

12. Ensure no point discontinuities greater than 0.1 decibel per reel. [Spec. 633-2.1.5.3]

13. Mark the jacket with the cable manufacturer's name, fiber type, fiber count, date of manufacture, the words "FDOT FIBER OPTIC CABLE," and the sequential cable lengths marked in feet. [Spec. 633-2.1.1.8]

14. Present the results of the OTDR testing (i.e., traces for each fiber) and a loss table showing details for each splice or termination tested to the Engineer in an approved electronic format. [Spec. 633-3.1.8.2]

15. Ensure that the splice loss for a SMF fusion splice does not exceed a maximum bidirectional average of 0.1 decibel per splice. [Spec. 633-3.1.8.3]

16. Ensure that the attenuation in the connector at each termination panel and its associated splice does not exceed 0.5 decibel. [Spec. 633-3.1.8.4]

LOCATE SYSTEM

17. Ensure that the locate system includes aboveground route markers, warning tape, tone wire, and electronics. [Spec. 630-2]

18. Install locate wire grounding units (WGUs) in pull boxes and splice boxes as shown in the plans or directed by the Engineer. [Spec. 630-2.3]

LABELING

19. Ensure all patch panel connectors are clearly and permanently labeled. [Spec. 633-3.1.7]

20. Ensure that the cable tags are permanent labels suitable for outside plant applications and are affixed to all fiber optic cables. [Spec. 633-3.1.1]

21. Ensure that each SRM is labeled and identified as an FDOT fiber optic cable marker as shown in the plans and approved by the Engineer. [Spec. 630-2.5]

DMS, RWIS, and HAR

22. Verify DMS and HAR are listed on the APL. [Spec. 781-1]

23. Pre-Installation Field Testing on all DMS is to be conducted at a contractor-provided facility. Notify the Engineer a minimum of 10 calendar days before the start of any tests. [Spec. 781-3.12.3]

24. After the DMS system installation and system testing are successfully completed, conduct one continuous 72-hour, full-operating test prior to conducting the 60-day test period. [Spec. 781-3.12.6]

25. Ensure that the DMS and HAR systems and equipment furnished have a manufacturer's warranty covering defects in assembly, fabrication, and materials for a minimum of five years from the date of final acceptance by the Engineer in accordance with 5-11 of all the work to be performed under the Contract. Ensure that RWIS have a minimum 3-year warranty. Ensure that warranties are transferred to the Department and documented.[Spec. 781-6]

CCTV

26. Verify CCTV camera is listed on the APL. [Spec. 782-1.2.1]

27. Ensure that the installed equipment provides unobstructed video images of the roadway, traffic, and other current conditions around a roadside CCTV field site; that it responds to camera control signals from the operator; and that the video images can be transmitted to remote locations for observation. [Spec. 782-1.1]

28. Develop and submit a test plan for field acceptance tests (FATs) to the Engineer for review and approval. [Spec. 782-1.4.1]

29. Ensure that CCTV cameras and video display equipment furnished, assembled, or installed have a manufacturer's warranty covering defects in assembly, fabrication, and materials for a minimum of three years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 782-3.1]

NETWORK HARDWARE-ETHERNET SWITCHES, TERMINAL SERVERS, ENCODERS, AND DECODERS

30. Verify switches, terminal servers, encoders, and decoders are listed on the APL. [Spec. 784-1.1]

31. Develop and submit a test plan for FATs to the Engineer for consideration and approval. [Spec. 784-1.4, 784-2.4, 784-3.4]

32. Perform local field operational tests at field sites according to test procedure requirements. [Spec. 784-1.4.2, 784-2.4.2, 784-3.4.2]

33. Perform local field operational tests at the device field site and end-to-end video streaming tests as required by the Engineer in order to demonstrate compliance with Department specifications. [Spec. 784-3.4.2]

34. Provide an MFES having a manufacturer's warranty for equipment and parts furnished to be free from defects in fabrication, assembly, and materials for five years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 784-4.2]

35. Provide a device server having a manufacturer's warranty for equipment and parts furnished to be free from defects in fabrication, assembly, and materials for five years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 784-4.3]

36. Provide a DVE or DVD having a manufacturer's warranty for equipment and parts furnished to be free from defects in fabrication, assembly, and materials for two years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 784-4.4]

GROUNDING AND SURGE PROTECTIVE DEVICES (SPDs)

37. Verify that SPDs are listed on the APL. [Spec. 785-2.2]

38. Verify that SPDs are installed on all power, data, video and any other conductive circuit. The goal of FDOT requirements is to provide protection at demarcation points where conductive cables enter or exit cabinets or other protected equipment locations. [Spec. 785-2.2]

39. A single point grounding system is required. Each ground rod must have a minimum length of 20 feet (rods can be constructed of minimum 8-foot sections). No. 2 AWG solid bare tinned copper wire and exothermic welds must be used when bonding multiple rods together. [Spec. 785-2.3.1]

40. The grounding system must be bonded to a main ground bar within the site equipment cabinet. [Spec. 785-2.3.1]

41. An ideal grounding system would have a resistance of 5 ohms or less. However, this resistance measurement may not be practically achievable depending upon site conditions (soil resistivity, etc.). If a resistance to ground measurement of 5 ohms or less cannot be achieved, then a grounding system consisting of four 20-foot rods (configured to create multiple arrays per the specifications and standards) is acceptable, regardless of the ground resistance measurement. Ground resistance measurements for the constructed system must be provided to the Engineer. [Spec. 785-2.3.1]

42. Require and verify that ground resistance measurements are performed correctly by qualified personnel using the Fall-of-Potential method. The Fall-of-Potential test method and testing procedures are commonly described in detail within the user manuals of the “earth ground electrode testers” that should be used to conduct such tests. [785-2.3.3]

VDS (MVDS, VVDS, MTDS, AVDS)

43. Verify that vehicle detection system is listed on the APL. [Spec. 660-1]

44. Ensure that the vehicle detection and data collection systems have a manufacturer’s warranty covering defects for a minimum of five years from the date of final acceptance by the Engineer in accordance with 5-11 and Section 608. [Spec. 660-4]

FY 2013/2014 QC Category No. 13
STATEWIDE INSPECTION GUIDELIST
Traffic Control Aids

CRASH CUSHIONS

1. The crash cushion is installed in accordance with the QPL. [Specs. 102 and 544]

PAVEMENT MARKINGS

2. Width and spacing of marking is per Indexes. [Indexes 17344, 17345, 17346, 17347]

3. The retroreflectivity is in accordance with Specs. [Specs. 102-10, 709-4, 709-7, 710-4, 711-4, 711-7, 713-4, 713-7, 971, FM 5-541]

4. Raised Pavement Markers (RPM's) are installed per Spec. and Indexes [Specs. 102-10, 706-4, Indexes 600 Sheet 13, 17345, 17352 and 17359]

5. Pavement markings which do not appear to meet the initial retroreflectivity are tested by the Department within 3 days of receipt of the contractor's certification. [Specs. 710-4]

DELINEATORS

6. Delineators are installed correctly. [Specs. 705-3, Indexes 17345, 17346, and 17359]

7. The color of delineators corresponds with the color of the traffic stripe. [Index 17345 Sheet 4, 17346 Sheet 6, MUTCD Section 3F]

GUARDRAIL

8. Guardrail is installed at the proper height of 1'-9" to the center of the beam, without rub rail, or 2' to the center of the beam with rub rail. [Index 400 Sheet 1 General Note 4, and Sheets 13, 15, 16, 18, 22, 23, 24, 25, and 26]

9. Galvanized nails are installed in offset blocks. [Index 400 Sheet 16]

10. End anchorages are properly installed. [Index 400, QPL Section 536]

11. Panels, end sections and special end shoes are lapped in the direction of adjacent traffic. [Index 400 Sheet 1 General Note 5]

12. Guardrail reflectors are in compliance and mounted at the correct spacing and location. Guardrail reflector color conforms to the near lane edge line. [Specs. 536-2.5 and 993-3, Index 400 Sheet 1 General Note 18, Sheet 15, 17, and MUTCD Section 3F]

13. Guardrail holes are enlarged by drilling and not by flame cut. All new edges have been galvanized. [Specs. 562 and 975, Index 400 Sheet 1 General Note 17]

14. The correct washers are used for guardrail. [Index 400, Sheet 19]

15. Guardrail blocks and posts are plumb. [Index 400, Sheet 21]

16. Certification for guardrail materials and Certificate of Compliance is provided. [Specs. 536-6.2, CPAM 5.8.3, Job Guide]

17. Offset blocks are in conformance with the specified materials and sizes. All timber blocks are dressed on all four sides. [Spec. 536-2, Index 400 Sheet 1 Note 11 and 16, Sheets 13, 16, 19, 20, 21, and 22]

18. The designer approves any field changes to guardrail lengths and locations. [CPAM 7.3 and 7.4]

19. The backup plate is installed at all non-splice post locations for Modified Thrie Beam Guardrail Systems. [Roadway Design Bulletin 05-07, Index 400 Sheet 1Note 15 and Sheet 13, 19, and 20]

20. Separate payment is made for rub rail and pipe rail. [Specs. 536-6.8]

SIGNING

21. Signs are installed at proper location, offset, height and angle. [Specs. 700, Index 17302]

22. Signs are mounted on breakaway posts or frangible sign supports. [Specs. 700-2, Index 11860]

23. All nuts and bolts on signs are installed and tightened to their appropriate torque. [Index 11200 and 11860 Sheet 5]

24. Sign bolt threads are burred to prevent nut loosening. [Index 11200 Sheet 2 & 11860 Sheet 5]

25. Signs conform to the approved shop drawing or standard index. [Shop Drawings]

26. Sign posts are mounted plumb and have the correct diameter. [Index 11200 Sheet 2 and 11860 Sheet 5]

27. Span wire signage is in compliance with Index 17356. [Index 17356]

28. Manufacturer’s certifications are on file. [Spec. 700]

29. Relocated signs are properly maintained and protected. [Specs. 7-11]

30. Color is in compliance with the Standard Highway Signs Manual.

31. Sign foundations are installed at the correct depth. [Index 11200 and 11860 Sheet 3]

FY 2013/2014 QC Category No. 14A
STATEWIDE INSPECTION GUIDELIST
Performance Turf

GENERAL

1. Assure that Contractor establishes a growing, healthy turf over all areas designated on plans. [Spec 570-1].

2. Assure that the sod used was cut within48 hours. [Spec 570-3.3].

3. Assure established turf's maintained by the Contractor until final acceptance per spec. including no bare spots greater than one square foot, or deformation caused by mowers or contractors equipment. [Spec. 570-4].

Watering

4. Assure that Contractor waters as necessary to produce a healthy and vigorous stand of turf. [Spec. 570-3.6].

Fertilizing

5. Ensure that soil testing is performed and assure that Contractor uses proper rates are applied based on soil testing results. [Spec. 570-3.7].

FY 2013/2014 QC Category No. 14B
STATEWIDE INSPECTION GUIDELIST
Landscaping

1. Assure that plant material delivered is in accordance with contract requirements for grade, species, and condition and in accordance with spec. Note any discrepancies in the Daily Report of Construction (DRC) [580-2].

2. Assure no changes to the layout, materials or any variations of plant materials without the Engineer's written approval. Note any discrepancies in the DRC [Spec 580-3].

3. Assure that all plants have been installed and maintained per the spec. and comply with the Design Standards Index 544 and that the contractor provides the required monthly certification (Form No. 700-011-12). Note any discrepancies in the Daily Report of Construction (DRC). [Spec. 580-3.4].

4. Assure Contractor has identified Landscape Quality Control Representative who is a Registered Landscape Architect and that the representative is conducting quarterly inspections and certifying results to the Department by documenting on (Form No. 700-011-10) [Spec 580-3.6]

5. Assure that periodic, random verifications are performed by the Department to ensure the quality of the plants and correctness of the certified landscape inspection report and document any discrepancies on (Form No. 700-011-10) and the DRC. [Spec. 580-3.6].

6. Assure that Contractor performs maintenance in accordance with spec. Note any discrepancies in the DRC [Spec. 580-5].

7. Assure that a Warranty/Maintenance Bond has been provided prior to final acceptance [Spec. 580-5].

FY 2013/2014 QC Category No. 15
STATEWIDE INSPECTION GUIDELIST
Utilities

GENERAL

1. Utility relocation, installation, adjustment and protection were discussed at the preconstruction conference. Additionally, weekly utility meetings were scheduled as required by the contract documents. [CPAM 3.1 and 5.6, Specs. 7-11.6.4]

2. All notices of utility claims were provided to the utility company in writing. [CPAM 7.5]

3. When installing buried utilities on the job site, the FDOT's inspector will verify that the top of the utility is being buried at a depth below the final grade sufficient to provide the minimum required by the utility permit.

UTILITY WORK BY THE CONTRACTOR

4. Project Staff has overseen the work in accordance with the contract. [CPAM 5.6]

5. For Utility Work by Highway Contractor (UWHC), utility personnel were allowed to inspect the specific utility work done by the Contractor. [CPAM 5.6]

6. Any Work Orders or Supplemental Agreements shall be in accordance with the latest version of the Utility Work Agreements and Certification Process Topic No. 710-010-050. [CPAM 5.6]

UTILITY WORK BY OTHERS

7. The Project Staff has ensured that all utility work was in accordance with the Utility Accomodation Manual, Utiltity Agreements, Utility Permit and Utility Work Schedules.

8. The Project Staff has investigated potential conflicts between the proposed utility work and the physical roadway features of the project. [CPAM 5.6]

9. The Project Staff has ensured that utilities conform to the Utility Accomodation Manual, Utiltity Agreements, Utility Permit and Utility Work Schedules in the areas of MOT, excavation, backfill and compaction. [CPAM 5.6]

10. The Project Staff has ensured that Utility operations shall conform to Utility Accomodation Manual, Utiltity Agreements, Utility Permit and Utility Work Schedules. [CPAM 5.6]

11. No utility work began without an approved permit and the utility work shall conform to all permit conditions. [CPAM 5.6]

12. Administration of utility work not covered by a Utility Agreement and Utility Work Schedule will be in accordance with CPAM attachment 5-6-2 (flow chart for unanticipated utility conflicts). [CPAM 5.6]

NON-REIMBURSABLE UTILITY WORK

13. All activities involved in the utility operation shall be recorded on a Daily Work Report under the remarks category for utilities in SiteManager. [CPAM 5.6]

14. All utility conflicts with the Contractor's operation shall be recorded on the Daily Work Report. [CPAM 5.6, Attachment 5-6-2 Unanticipated Utility Conflict]

REIMBURSABLE UTILITY WORK

15. All activities involved in the utility operation were recorded on a Daily Work Report under the remarks category for utilities in SiteManager. [CPAM 5.6]

16. Reimbursable Utility work was be in accordance with the latest version of the Utility Work Agreements and Certification Process Topic No. 710-010-050. [CPAM 5.6]

17. Notification of beginning and ending of reimbursable utility work were made in accordance with the Utility Work Agreements. [CPAM 5.6]

18. Project Staff sent a written request to the utility or its Contractor performing the work requesting an invoice detailing all labor, equipment, materials and markups for review.

19. The Project Staff reviewed the invoice against the Daily Reports of Construction or Daily Work Reports for discrepancies and, after making any appropriate corrections required, submits the invoice to the District Utilities Office for further processing and payment. [CPAM 5.6]

FY 2013/2014 QC Category No. 16A
STATEWIDE INSPECTION GUIDELIST
Claims

FOR ALL CLAIMS

1. The Contractor must provide notification in writing to the Project Administrator, of the Contractor's intent to file a claim. [Spec. 5-12 and CPAM 7.5.4]

2. The Contractor's notice of intent must be given prior to work beginning on the item which the claim is based. [Spec. 5-12 and CPAM 7.5.4]

3. The notice of intent should contain a statement as to what changed, who directed or caused the change and how the change will impact the Contractor including the amount of damages if known. [Spec. 5-12 and CPAM 7.5.4]

4. If the claim involves a utility, the Project Administrator must immediately notify the utility owner by letter signed by the Resident Engineer. [CPAM 7.5.6.1]

5. Claim situations must be documented on the Daily Report of Construction, Daily Diary, (Form No. 700-010-13). [CPAM 7.5.7.1]

6. The following claim documentation is required as a minimum: Equipment type with identifying numbers; hours including idle time; the number of workers, their classification and hours worked; materials types and quantity of each material used. [CPAM 7.5.7.3]

7. The Project Administrator shall maintain a separate claim file of all documents related to the claim. [CPAM 7.5.7.4]

8. As soon as the Contractor's claim package is received, the Project Administrator shall review it for completeness, request further documentation if the package is incomplete and forward a copy to the utility owner if the claim involves a utility. [CPAM 7.5.9]

9. As soon as the Project Administrator determines the Contractor's claim package is complete, the Project Administrator shall compile all relevant documents and review the claim package. The Project Administrator shall then prepare an Entitlement Analysis and an Engineer's Estimate. [CPAM 7.5.9.2 and 7.5.9.3]

10. After reviewing the claim package the Project Administrator shall forward a copy including the Entitlement Analysis, the Engineer's Estimate and any relevant documents from the claim file to the Resident Engineer for review.

[CPAM 7.5.9]

FOR ALL CLAIMS… continued

11. The extent of compensation for labor, equipment and material costs shall be as specified in Section 4 of the applicable contract specifications. [CPAM 7.5.9.3]

12. Compensation for claims for extra work shall be as detailed in Specifications. [Specs. 4-3.2 and 5-12]

13. If the compensation includes markups, no additional compensation shall be allowed for profit and overhead. [Spec 4-3]

14. Profits and markups are not allowed on delay claims; the Contractor is only entitled to recoup delay costs in accord with Specifications 4.3 and 5.12. [CPAM 7.5.9.3]

15. Loss of anticipated profit should not be considered due to the difficulty in verifying whether or not such profits are under the realm of Contractor risk. [CPAM 7.5.9.3]

16. Compensation for interest shall not be added to the Contractor's claim except as provided in Section 9-9 of the specifications. [CPAM 7.5.9.3]

17. If a utility owner, having been given the appropriate notification, fails to reach an agreement with the Contractor by 60 days of receipt of the claim, the Resident Engineer shall schedule negotiations with the Contractor. [CPAM 7.5.10]

18. If the Department settles a utility claim, recovery should be pursued from the utility company. [CPAM 7.5.10]

19. FHWA participation shall be determined per normal procedures for all claim settlements less than $200,000.00 on FAP projects. [CPAM 7.5.11.1]

20. For claim settlements greater than $200,000.00 on FAP projects, the DCE shall prepare a formal request for participation. The request will be sent to the State Construction Office for concurrence. [CPAM 7.5.11.2]

21. The District Director of Operations' certification must be obtained for all claim settlements greater than $500,000.00. [CPAM 7.5.11.3]

22. Unilateral Payments may be used if the Contractor refuses to accept a settlement offer. [CPAM 7.3.5.2]

23. The Contractor may appeal a claim to a DRB if it is included in the contract. If not, the Contractor should be advised to address an appeal to the Regional DRB. [CPAM 7.5]

CLAIMS ON CONTRACTS LET JULY 2000 OR LATER

24. If the claim involves a delay, the notice must be given within 10 days of commencement of the delay. [Spec 5-12]

25. The claim must be submitted within 90 days of final acceptance on contracts of $3,000,000 or less and within 180 days on contracts greater than $3,000,000. [Spec 5-12]

26. Compensation for delays to non-controlling items of work is limited to the direct costs of idle labor and equipment only, and only if the Contractor could not reasonably mitigate the delay. [Spec 5-12]

27. The Contractor's claim package must include all of the information detailed in specification 5-12.3. [Spec 5-12]

28. Once a written claim package is received from the Contractor, it cannot be increased for any reason. [Spec 5-12]

29. The Engineer shall respond to all claims on contracts of $3,000,000 or less within 90 days of receipt of the certified claim package, and within 120 days on contracts greater than $3,000,000. [Spec 5-12]

30. Interest shall be included in claim settlements starting 60 days from receipt of the certified claim package and ending on the date of settlement. [Spec 5-12]

31. The Contractor shall be entitled to compensation for the actual direct costs of idle labor, equipment and materials in the event of a delay. [Spec 5-12]

32. The Contractor is only entitled to indirect costs for a delay if the total cumulative days granted for delays to controlling items of work exceeds 10 calendar days. [Spec 5-12]

33. Compensation for all indirect costs for a delay, including home office and job site overhead shall be calculated in accord with the formula provided in specifications [Spec 5-12]

34. In the event of a concurrent delay to two or more controlling items of work, one or more being caused by the Contractor and one or more being caused by the Department, the Contractor shall only be entitled to a time extension and direct costs of the delay. No compensation is allowed for any indirect costs. [Spec 5-12]

35. Both the Contractor and the Department must keep daily records of all labor, equipment and material costs for each operation affected by the extra work or delay claim and must make the records available to the other party on a weekly basis. [Spec 5-12]

CLAIMS ON CONTRACTS LET JULY 2000 OR LATER … continued

36. No compensation will be considered for constructive acceleration of the work, unless the Engineer orders the acceleration, the costs are agreed to prior to the work being accelerated and a Supplemental Agreement has been executed. [Spec 5-12]

37. All claims submitted by the Contractor must include a signed binding certification by the Contractor as to that claim's accuracy and completeness. [Spec 5-12]

38. Loss of profit, incentives and bonuses, any claim for other than extra work or delay, consequential damages, acceleration costs, attorney fees and claim preparation expenses are all non-recoverable items. [Spec 5-12]

39. All claims filed, by the Contractor, against the Department are subject to audit at any time following the filing of the claim. [Spec 5-12]

FY 2013/2014 QC Category No. 16B
STATEWIDE INSPECTION GUIDELIST
Supplemental Agreements, Unilateral Payment Documents and Work Orders

1. Use a Unilateral Payment (UP) when the cost of the work cannot be agreed to or the Contractor refuses to execute a Supplemental Agreement (SA). [CPAM 7.3]

2. SA documents, UP documents and Work Order (WO) documents must contain a detailed itemization of all items of work including quantities and unit prices. [CPAM 7.3 and 7.4.5]

3. When SA, UP or WO documents result in premium costs from a consultant designer's or CEI error or omission, Procedure 375-020-010 should be initiated for potential recovery. [CPAM 7.3.6]

4. Obtain concurrence from the District Construction Engineer, for any SA, UP or WO that extends the project limits to perform feathering (milling/resurfacing), friction course, guardrail, drainage, signing, and pavement marking. Obtain concurrence from the Director, Office of Construction, for any SA, UP or WO that extends the project limits for all other work elements. or modifies the existing contract specifications. [CPAM 7.3.6]

5. Obtain concurrence from the Director, Office of Construction, for any SA, UP or WO that modifies the existing contract specifications. [CPAM 7.3.6]

6. The Comptroller's Office must certify the availability of funds prior to authorizing the Contractor to begin work added by SA and UP.
[CPAM 7.3.6 and 7.3.10]

7. For contracts where the original contract amount is more than $5,000,000, funds must be encumbered for all quantity overruns experienced or anticipated before authorizing any contract payment which would cause the contract amount paid to date to exceed the current contract amount less the amount of any contingency funds encumbered for either Contingency Supplemental Agreement (CSA) documents or Contingency Pay Items (CPI).
[CPAM 7.3.4 and 7.3.6.4 and FS 337.11]

8. For contracts where the original contract amount is $5,000,000 or less, you may allow overruns up to a maximum amount calculated as follows. First, take the original contract amount and subtract any CPI amount which was included in that original contract amount. Then take 2.5% of the result. An encumbrance must be done before allowing overruns to exceed this 2.5% as had been the case in the past with overruns of up to 5%.
[CPAM 7.3.4 and 7.3.6.4 and FS 337.11]

Supplemental Agreements (SA's), Unilateral Payment Documents and Work Orders continued

9. Additional work shall be paid at contract unit prices unless the work constitutes a significant change as defined by the Specifications. [Spec. 4-3.1]

10. Payment for extra work with no unit price will be in accord with the formula in the specifications. [Spec. 4-3.2]

11. Time adjustments required for the items covered in SA, UP and WO documents should be addressed in those documents. Adjustment should only be made if controlling items of work are affected. [CPAM 7.3.8]

12. Federal Aid participation shall be requested for all contract modifications on Federal Aid projects. [CPAM 7.3.11]

13. UP documents must contain <u>final</u> measured quantities and payment must be processed only after the work has been done. [CPAM 7.3.14]

14. All SA, UP and WO documents must contain description codes with premium costs identified. [CPAM 7.3.17 and 7.4.9]

15. WO documents shall not be used for overruns or claims but may be used to pay for Regional DRB member's meeting fees. [CPAM 7.4.5]

16. Initial CPI cannot be overrun. An additional CSA must be prepared. [CPAM 7.4.7]

17. A WO cannot be processed until the CSA, which funds that WO is fully executed. The Contractor shall not begin the additional work until either the WO is fully executed or a Notice to Proceed has been issued to the Contractor by the Department. [CPAM 7.4.8.1, 7.4.9.7 and FS 337.11(8) (a)]

18. Signature by the Contractor's Surety is not required to fully execute a SA or a CSA unless the current contract dollar amount will exceed 125% of the original contract dollar amount as a result of the SA or CSA being processed. [CPAM 7.3.14 and FS 337.11(8) (a)]

19. WO documents shall contain complete backup for all negotiated costs within the documentation or attachments. [CPAM 7.4.9.3]

20. FHWA approval shall be obtained retroactively for all WO documents issued on Federal Oversight projects. FHWA shall make a determination of Federal-Aid participation of WO documents issued on Federal Oversight projects. The DCE shall make a determination of Federal-Aid participation of WO documents issued on Federal Delegated projects [CPAM 7.4.9.7]

FY 2013/2014 QC Category No. 16C
STATEWIDE INSPECTION GUIDELIST
Time Extensions

CONTRACT TIME EXTENSIONS FOR WEATHER, HOLIDAYS, AND SPECIAL EVENTS

1. Contract time extensions for weather and suspension of contractor operations for Holidays and/or Special Events may be granted only when 50% or more of the predetermined controlling work items are affected or when the Contractor must make major repairs to work items damaged by weather and those repairs impact 50% or more of the predetermined controlling work items. [Spec 8-6.4, Spec 8-7.3.2, CPAM 7.2.4 and CPAM 7.2.6]

2. Time extensions are granted on a contract day per day delayed basis. [CPAM 7.2.4]

3. Controlling items of work must be predetermined. [CPAM 7.2.4]

CONTRACT TIME EXTENSIONS FOR NON-WEATHER ISSUES

4. Preliminary notification must be received from the Contractor within 10 days of the commencement of a delay to a controlling item of work. [Spec. 8-7.3.2]

5. Within 30 days after elimination of the delay, the Contractor must submit his time extension request including documentation related to the delay, or he may forfeit his rights to an extension. [Spec 8-7.3.2]

6. The Resident Engineer shall acknowledge receipt of the time extension request in writing. [CPAM 7.2.5]

7. The Resident Engineer shall evaluate the request and send a letter to the Contractor either granting or denying the time extension for requests up to a cumulative maximum of thirty days or 5% of the original contract time, whichever is greater. [CPAM 7.2.5.(4) and CPAM 7.2.5(5)]

8. For time extension requests in excess of a cumulative maximum of thirty days or 5% of the original contract time, whichever is greater The Resident Engineer shall review the request and forward it along with a recommendation to the DCE. The DCE shall review those materials and send a letter to the Contractor either granting or denying the time extension. [CPAM 7.2.5.(5)]

CONTRACT TIME EXTENSIONS FOR NON-WEATHER ISSUES . . . continued

9. The Contract Change Tracking System and Site-Manager computer programs shall be updated to reflect time granted in a timely manner. [CPAM 7.2.9]

10. Time extensions shall be coded with appropriate description codes. [CPAM 7.2.9]

11. FHWA participation in time extensions must be determined on Federal Aid projects. [CPAM 7.2.8]

12. All time extension approval letters must contain the standard disclaimer. [CPAM 7.2.5(5)]

13. Contract time extensions shall be granted only for those items listed in the Spec. [Spec. 8-7.3, CPAM 7.2.5]

14. An updated or revised schedule should be requested from the Contractor when extensions of contract time have a significant impact on the schedule. [CPAM 7.3.15]

15. The Contractor shall have an accepted schedule, including any required updates, as a condition precedent to that Contractor having any right to the granting of an extension of contract time or any monetary compensation arising out of any delay. [Spec. 8-7.3.2]

FY 2013/2014 QC Category No. 16D
STATEWIDE INSPECTION GUIDELIST
Subcontracts

1. All subcontract work must be included in a certified copy of the Certification of Sublet Work (Form No. 700-010-36) accepted by the Department prior to the work being performed. [Spec. 8-1]

2. Sublet work cannot exceed the percentage of the total contract amount stated in the contract specifications. [Spec. 8-1]

3. Examine Certification of Sublet Work (Form No. 700-010-36**)** for each contract to determine;

   a. that the prime contractor's Certification of Sublet Work (Form No. 700-010-36**)** is complete and accurate;

   b. and that the prime contractor has not knowingly entered into any lower tier covered transactions with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in a covered transaction, unless authorized by the Department. . [Spec. 8-1 and CPAM 5.3.]

4. Check that the work each of the various subcontractors is contracted to do on the project, is the same work shown on the Request for Certification of Sublet Work (Form No. 700-010-36). [Spec. 8-1 and CPAM 5.3.4]

5. Check that the CEI staff or Resident Compliance Officer has examined at least one subcontract per contract to determine;

   a. that each subcontract contains all required pertinent provisions of the prime contract;
   b. that the subcontract contains the required certification clause, without modification titled "Certification regarding debarment, suspension, ineligibility and voluntary exclusion – lower tier coverage transaction" [FHWA-1273 - XI -1., Spec 8-1, CPAM 5.3]

6. Certification of Sublet Work (Form No. 700-010-36) and the schedule submitted with it show the same pay items of work to be sublet. For lump sum projects, show a breakdown of work items to a level of detail that the sublet work can be clearly identified and describe the sublet work in lieu of stating that the sublet work is part of the lump sum pay. [CPAM 5.3.4]

7. Prime Contractors must maintain copies of the entire subcontract on file. [Spec.7-1 and Required Contract Provisions for Federal-Aid Construction Contracts, FHWA-1273-XI-1.]

8. Certification of Sublet Work forms must be kept on file by the District's Construction staff until the project has been final accepted. [CPAM 5.3.5]

FY 2013/2014 QC Category No. 17
STATEWIDE INSPECTION GUIDELIST
Public Information / Business Access

1. Notify abutting residences and businesses of the start and duration of the project. [Good Practice]

2. Put post-mounted business signs in place. [Spec. 102-1, CPAM 9.1, Index 600]

3. Provide residential and business properties safe, stable, and reasonable access. [Spec. 102-1, 102-2, CPAM 9.1.8.1]

4. For urban projects, where a Community Action Plan (CAP) is required, the CAP has been established before the start of construction.

FY 2013/2014 QC Category No. 19
STATEWIDE GUIDE LIST
Maintenance Customer Concerns

SIGNS

1. Round aluminum posts larger than 3½"diameter must be mounted on a slip base, in a concrete footing. [Index 11860, Sheet 1]

2. The horizontal slip joint on the slip base must be located 4 inches maximum above the finished ground elevation measured at the signpost centerline. [Index 11860 Sheet 5 Slip Base and Footing Detail, Index 11200 Sheet 2]

3. Where signs contain electric lines, an electrical fuse cut connection or quick disconnect plug must not be located above the mechanical breakaway connection. [Good Practice]

4. Sign mounting brackets use u-bolts and z-bars per index. [Indexes 11200, 11320, 11860 Sheet 4, and 13417]

5. Except for signs in narrow medians, where the median is too narrow to comply, sign faces are offset from the roadway with minimum skew and lateral clearance distances per index. [Index 17302]

6. Sign face is mounted at least at minimum elevation above the roadway per index. [Index 17302].

GUARDRAIL

7. Guardrail with no rub rail is installed 1'-9" from surface under face of rail to center of rail. Guardrail with rub rail is installed 2'-0" from surface under face of rail to center of rail. Minor exceptions per index. [Index 400, Sheet 1, General Note 4]

8. Galvanized 16d. nail is toe-nailed through top of timber offset block into timber post, per index, to stop rotation. [Index 400, Sheet 16]

9. Inspect end anchorages for proper installation. [QPL Section 536, Index 400]

10. Panels, end sections, and special end shoes are lapped in the direction of adjacent traffic. [Index 400 Sheet 1 General Note 5]

11. Guardrail holes are enlarged by drilling and not by flame cut. All new edges have been galvanized. [Specs. 562 and 975, Index 400 Sheet 1 General Note 17]

12. Use correct washers for each location per index. [Index 400, Sheet 19]

13. Guardrail blocks and posts are plumb. [Index 400, Sheet 21]

14. Certification for guardrail materials and Certificate of Compliance is provided. [Specs. 536-6.2, CPAM 5.8.3, Job Guide Schedule]

15. Offset blocks are in conformance with the specified materials and sizes. All timber blocks are dressed on all four sides. [Specs. 536-2, Index 400 Sheet 1 Note 11 and 16, Sheets 13, 16, 19, 20, 21, and 22]

16. Guardrail reflectors are mounted at the correct spacing and location with reflector color conforming to the near lane edge line and are in compliance with Spec. and Index. [Specs. 536-2.5 and 993-3, Index 400 Sheet 1 General Note 18, Sheet 15, 17, and MUTCD Section 3F]

17. The Designer approves any field changes to guardrail lengths and locations. [CPAM 7.3 and 7.4]

PAVEMENT MARKINGS

18. Width and spacing of marking is in compliance with the Design Standards. [Indexes 17344,17345, 17346, and 17347]

19. The retroreflectivity is in accordance with the contract documents. [Specs. 102-10, 709-4, 709-7, 710-4, 711-4, 711-7, 713-4, 713-7, 971, FM 5-541]

20. Raised Pavement Markers (RPM's) are installed as required by contract documents. [Indexes 600 Sheet 13, 17345, 17352, and 17359, Specs. 102-10 and 706-4]

TURF CONDITION

21. All seed, sod and mulch shall be free of noxious weeds and exotic pest plants, plant parts or seed listed in the current Category I "List of Invasive Species" from the Florida Exotic Pest Plant Council (FLEPPC, www.fleppc.org). [Specs. 981, 570-3, and 570-4]

22. Within the turf area, there are no bare spots larger than one square foot and provide an established turf as defined in Spec. [Spec. 570-4]

FRONT SLOPE

23. Front slopes provide a gradual transition from the edge of shoulder to the roadside ditch or toe of slope, as shown in the plans, with no ruts or washouts. Maintain the grade within a tolerance of 0.3 ft above or below the plan cross section. [Specs. 120-11 and 120-12]

OBJECT MARKERS AND DELINEATORS

24. Object markers and delineators are installed in accordance with the manufacturer's instructions. The top of the post should be 4' above the edge of pavement grade. [Index 17346 Sheet 2, MUTCD Section 3F]

25. Object markers and delineators are installed plumb. [Good Practice]

26. Post-mounted delineators on exit and entrance ramps are installed at a uniform height and uniform offset per plans and Index. [Index 17345 Sheet 4]

27. Post-mounted delineators at cross overs are installed at a uniform height and at offsets per Index. [Index 17346 Sheet 2]

FY 2013/2014 QC Category No. 20
STATEWIDE INSPECTION GUIDELIST
ADA – Accessibility Issues

SIDEWALKS

1. For sidewalk forms, verify that sidewalk width and profile meet requirements shown in contract documents and Design Standards. [Indexes 304 and 310]

2. For sidewalk forms, make sure the cross-slope of sidewalk is not more than 1:50 (2%). Out of tolerance forms must be adjusted prior to placing concrete. [Index 310 and 49 CFR 37, ADA Standards for Transportation Facilities - 403 and Guidelines for Accessible Public Rights of Way - R301]

3. Make sure that the width of sidewalk is always at least 48" unless the Engineer approves in writing a reduction to no less than 36"**.** [Index 310]

4. Make sure that no obstruction (utility pole, equipment, sign structure and/or panel, landscape materials, etc.) restricts access along sidewalk to a path less than 48" wide. Where this is a problem immediately contact the Project Administrator for approval in delaying the sidewalk panel pour until the obstruction owner can move the obstruction or moving the sidewalk around the obstruction, if feasible. Where neither solution is feasible, document to file. If feasibility can be obtained by reducing the width to 36", get the Engineer's approval. [Index 310 and 17302]

5. Make sure construction joints, expansion joints, valve boxes, manholes and junction/pull boxes for sidewalks are flush across the joints. [Specs. 635-3 and 522-7.2 and 49 CFR 37, ADA Standards for Transportation Facilities – 303, and Guidelines for Accessible Public Rights of Way - R302.7]

6. For sidewalks at inlet structures, make sure the sidewalk and inlet structure are flush across the joint. The sidewalk must match the profile of the utility structure. [Spec. 522-5 and 49 CFR 37, ADA Standards for Transportation Facilities – 303, and Guidelines for Accessible Public Rights of Way - R302.7]

7. For sidewalk closures, make sure that an accessible alternate path is provided for pedestrian MOT around the closed section of sidewalk. [Guidelines for Accessible Public Rights of Way – R205, Spec. 102-3 and Index 660]

8. Protect plastic concrete from damage (footprints, graffiti, heavy loads, etc.) [Spec. 7-14]

CURB RAMPS

9. For curb ramps and the sidewalk around them, make sure the form work complies with the geometry for the curb ramp case numbers shown in the plans and detailed in the Design Standards [Index 304]

10. Provide level landing at least 48” deep by the width of the ramp at the top of each curb ramp. A flush pull box or drainage structure top may be located within this landing area. [Guidelines for Accessible Public Rights of Way – R304 and Index 304 Sheet 2]

11. Make sure that no obstruction (utility poles, equipment, post base, wall, guardrail, etc.) restricts access to a path to less than 48” wide entering the landing at the top of each curb ramp unless approved by the Engineer.
[Guidelines for Accessible Public Rights of Way – R302, Indexes 310 and 17302 General Note 7]

12. For curb ramps slopes, make sure the formwork complies with the slope geometry limits shown in the Design Standards. At no point, shall the ramp slope be greater than 1:12 (8.33%); nor shall the ramp cross-slope be greater than 1:50 (2%). Adjust formwork prior to placing concrete. [49 CFR 37, ADA Standards for Transportation Facilities – 406, Guidelines for Accessible Public Rights of Way – R304 and Index 304, General Note 3]

13. Detectable warnings shall be truncated domes in a linear pattern, 24” deep measured from back of curb. Detectable warning shall contrast visually with surrounding materials. [Guidelines for Accessible Public Rights of Way – R305, Spec. 527 and Index 304]

14. Construction joints and expansion joints in the vicinity of curb ramps must be flush across the joints. [Spec. 522-5 and 49 CFR 37, ADA Standards for Transportation Facilities – 302, and Guidelines for Accessible Public Rights of Way - R301]

PEDESTRIAN DETECTOR CONTROLS

15. Install Pedestrian detector controls with the center of the push button 3’6” above finished walking surface immediately below the control. [Index 17784]

16. Each pedestrian detector control must have a level maneuvering space immediately in front. Each maneuvering space must be at least 30” wide x 48” deep. [49 CFR 37, ADA Standards for Transportation Facilities 309, and Guidelines for Accessible Public Rights of Way – R403, Index 17784 Note 5]

17. Assure that no obstruction restricts the access path to the maneuvering space for pedestrian detector control to a path width less than 48". [49 CFR 37, ADA Standards for Transportation Facilities - 308 and Guidelines for Accessible Public Rights of Way – R302]

DRIVEWAYS

18. For driveway aprons/turnouts, provide level sidewalk walk-around. Walk-around must be at least 48" wide unless the Engineer approves in writing a reduction to 36**"**. [Guidelines for Accessible Public Rights of Way – R302; Index 310]

PEDESTRIAN CROSSINGS

19. At curb ramp slopes, make sure that there are no profile grade break transitions greater than 13% between any 2 adjacent sections of the accessible route down the ramp slope and out into the roadway. If the profile grade break transition is greater than 13%, construct a 24" bottom level landing to reduce the transition to less than 13%. Also make sure that the transition between asphalt and curb & gutter materials are flush across the joint. [49 CFR 37, ADA Standards for Transportation Facilities - 308 and Guidelines for Accessible Public Rights of Way – R304.5.4; Index 304]

20. Make sure that drainage inlets will not encroach into crossings. Where this is a problem, immediately contact the Project Administrator for approval moving the crossing and curb ramp if feasible; if not feasible, document to file.
[49 CFR 37, ADA Standards for Transportation Facilities - 308 and Guidelines for Accessible Public Rights of Way – R302.7.3]

21. Make sure that curb ramps are wholly contained within the crossing. Where this is a problem immediately contact the Project Administrator for approval in altering the geometry of the marking shown in the plans to include the curb ramps. [Index 304 Sheet 1, 49 CFR 37, ADA Standards for Transportation Facilities - 308 and Guidelines for Accessible Public Rights of Way – R304]

FY 2013/2014 QC Category No. 21
STATEWIDE INSPECTION GUIDELIST

Noise and Vibration Abatement

GENERAL

1. Review any contract requirements relating to noise and/or vibration.

(Spec 455-1.1, CPAM 8.10.3 and 9.10.5)

2. Be aware of any local ordinances relating to noise and/or vibration

(Spec 7-1.1)

3. Review the project construction times and the nature of the activities generating noise and/or vibration, which may disturb residents or businesses in the area. Examples of Noise/Vibrations Sensitive businesses are Hospitals, Surgery Clinics etc. More details are given in "Construction Noise & Vibration Sensitive Sites" as referenced in Chap. 17 of the Part 2 of the "Project Development and Environment Manual", found at the following URL.

http://www.dot.state.fl.us/emo/pubs/pdeman/Pt2ch17_052411-current.pdf
.
(CPAM 8.10.5)

COMPLAINTS DURING CONSTRUCTION AND REMEDIAL ACTIONS

4. The Project Administrator should document any complaints received during construction. Documentation should include, as a minimum;

a. The nature of the complaint.
b. The name and address of the individual making the complaint.
c. The area affected by the problem.
d. The type of construction operation generating the noise and/or vibration. (CPAM 8.10.5)

5. The Project Administrator must report to and discuss with the Resident Engineer, any repeated noise or vibration complaints or any patterns of noise and vibration complaints including verbal complaints. (CPAM 8.10.6)

6. The Project Administrator should consider and discuss with the Resident Engineer the possible monitoring of noise and/or vibration during construction operations, at noise and/or vibration sensitive sites, or during specific operations for which complaints have been received. Particularly if the complaints are wide spread or if a change of construction method is being considered. (CPAM 8.10.6)

7. The Project Administrator should document any remedial action or modifications to the contractors' construction methods. (CPAM 8.10.6)

FY 2013/2014 QC Category No. 8B
STATEWIDE INSPECTION GUIDELIST
Concrete Materials

PRODUCTION LIMITS

1. Cold weather placements: mixing permitted if air temperature is 45°F or greater. [Spec. 346-7]

2. Hot weather placements: approved hot weather mix required if concrete temperature is above 85°F. Concrete rejected if over 100°F. [Spec. 346-7]

3. Transit time: reject concrete that exceeds 60 minutes (non-retarded) and 90 minutes (retarded) prior to discharge and all concrete must be in its final position a maximum of 15 minutes after discharge from the truck unless approved in advance by the Engineer. [Spec. 346-7]

4. When concrete placement stops for 90 min. or more, perform initial plastic properties tests on the next batch. [346-8]

MIXING AND DELIVERY OF CONCRETE

5. Concrete delivery ticket information is completely and accurately entered with required signatures that are legible prior to start of concrete placement and the ticket is in an electronically generated printed form. [Spec. 346-6]

6. Batch weights are within 1% (2% if load is 3 CY or less) of the design mix quantities and all cementitious materials are added together for the verification. Coarse and fine aggregate are verified separately. If any are out of tolerance, District Materials Office notified and Plant notified so corrective action can be taken. [MM 9.2 Volume II]

7. Mixer ID card must be in ready mix truck, if not, load rejected and truck out of service until ID card restored. [MM 9.2 Volume II, 346-8]

8. Drum revolution counter must be operating properly, if not, note on ID card. [MM9.2 Volume II]

9. Water measuring device on truck must operate properly and calibration information must be in truck. [MM 9.2 Volume II]

10. Water must not be added at the jobsite prior to slump testing and if the test is within the tolerance slump range, water may be added. [Spec. 346-7]

11. If jobsite water is added, mix concrete an additional 30 revolutions at mixing speed per spec.; however, this is not permitted if mixing revolutions have already exceeded 130. [Spec. 346-7]

12. If slump is within tolerance, the load can be placed but if slump is outside tolerance,

reject the load. Concrete placement may proceed for the QC truck and the load after the QC truck while plastic properties tests are in progress. [Spec. 346-7, 346-8]

13. Concrete should be mixed for a maximum of 160 revolutions at mixing speed and a maximum of 300 revolutions is allowed before all concrete is discharged. [Spec. 346-7]

14. For high slump or self-consolidating concrete, a grate must be placed over conveyance equipment to capture lumps and balls. [Spec 346-6]

SAMPLING AND TESTING

15. Samples must be taken at the point of final placement: end of buckets, conveyor belts, pump hoses or chutes except that when discharged directly from mixer into bucket and the bucket is discharged within 20 minutes, samples may be taken directly from mixer. [Spec. 346-7]

16. Maximum LOT size must be per spec. and acceptance samples must be randomly selected by load number then taken from center of load. [ASTM C-172, Spec 346-9]

17. Sampling and testing equipment in proper condition and calibration: thermometers, slump cones, pressure meters (PM)/rollameters (RM), cylinder molds. [ASTM C-1064, 143, 231, 173, 470, Spec 346-5, FM 5-501]

18. Concrete temperature must be measured correctly. [ASTM C-1064, Spec 346-5]

19. W/C ratio must be computed correctly. [FM 5-501, Spec 346-5]

20. Percent air test must be performed correctly. [ASTM C-173 (RM), C-231(PM), Spec 346-5]

21. Slump test must be performed correctly and the results must be per Spec 346-6. [ASTM C-143, Spec 346-5, 346-6]

22. Concrete sample cylinders must be prepared properly at the site, curing boxes and tanks at the site must be maintained according to specs and all cylinders will be clearly identified as outlined in the Sample/Lot Numbering System instructions located on the State Materials Office website. [ASTM C-31, Spec. 346-9]

23. Cylinder transported from field to lab in proper manner and must be at the lab within 48 hours of placement in molds. [Spec. 346-9, ASTM C 31]

24. Provide Sample Transmittal Card (C-22) properly filled out. [Form 675-050-04]

MASS CONCRETE

25. Temperature control plan or revised temperature control plan approved by State Materials Office (SMO). [Spec. 346-3]

26. Mass concrete Specialty Engineer or his/her designated employee must be at the

jobsite and personally inspect and approve monitoring devices for the 1st placement of each size and type of component. [Spec. 346-3]

27. If 35ºF differential or the maximum 180ºF core limit is exceeded, adjustments must be made immediately, as recommended by the Specialty Engineer, while heat is high, and subsequent mass placements must not proceed until SMO approves revised plan. [Spec. 346-3]

28. Temperature monitoring data must be recorded at intervals of 6 hours or less until there is certainty that the maximum temperature differential and maximum core temperature has peaked and is diminishing; however, do not remove the temperature control mechanisms until the core temperature is within 50°F of the ambient temperature. Data must be transmitted to the Engineer within 3 days. [Spec. 346-3]

29. A structural integrity and durability analysis must be performed to evaluate the component condition if the 35º differential is exceeded. [Spec. 346-3]