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 1102.4. 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. Check to make sure that these structures are not noted in the plans to remain in place [Spec. 110-6.1 to 110-6.4]

6. Insure 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, insure 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.

M.O.T

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. [ACPAM 4.6.2]

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. ACPAM 4.6.2]

3. The Project Administrator has obtained 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 Florida 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, ACPAM 4.6.3]

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. [ACPAM 4.6.4]

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, ACPAM 4.6.5]

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. [ACPAM 4.6.6 and 4.6.7]

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 for pedestrian MOT around the closed section of sidewalks. 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 retro-reflectivity readings meet the minimum requirements of 300 mcd/lx·m2 and 250 mcd/lx·m2 for white and yellow paint, respectively, and maintains 150 mcd/lx·m2 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. Ensure that all temporary asphalt placed has been straight-edged in accordance with Special Provision No. 11 Paragraph 4

21. Use the attached Lane Closure Checklist to document that proper set-up of the Contractor's temporary traffic control, has been verified.

ENVIRONMENTAL COMPLIANCE

1. As soon as possible after getting a project assigned the CEI staff should review the Contractor's erosion control plan, to ensure it meets any special requirements of NPDES, when an NPDES permit is required. [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). [Technical Specifications 104-3]

3. When an NPDES permit is required, verify the Contractor's inspection report and ensure that a report is provided every seven days or within 24 hours following a **0.25 inch** or greater rainfall, on the Authorities most current form, or an approved substitute. If the accuracy of the report is not acceptable, provide this information to the Contractor within two days of receipt of the original report with a date that all corrections must be completed by. Make all inspections with qualified personnel who have completed Florida Stormwater, Erosion and Sediment Control Training and Certification Program and who have passed the examination [Technical Specifications 104-2]

4. If deficiencies are noted during the inspections required by NPDES, make sure the Contractor begins to correct them immediately. Ensure that no deficiencies continue longer than 7 consecutive days from the date of the original report. [Best Management Practice]

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

6. CEI Staff shall survey permitted outfall structures and treatment area elevations and include the information on the as-built plans. [Spec. 7-2]

7. When well points are used verify that the Contractor has obtained a Produced Groundwater Permit through the appropriate permitting agency.

DRAINAGE

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

2. Trench is de-watered as necessary. [Spec. 125-7]

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. [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 the finished earthwork grade or 4 ft. above the 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 a box culvert over which pavement is 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]

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. If a VT Density tests fail, retest within a 5' radius in accordance with Resolution testing [Spec. 125-10]

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

26. Concrete pipe joints meet the allowable gap requirements and gaskets are checked and lubricated. [Spec. 430-7]

27. Pipe joints are wrapped with filter fabric 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]

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

29. 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]

30. 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]

31. 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]

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

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

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

35. The Contractor compact pipes separately from the structure. Lift numbers are identified correctly.

36. Upon Completion of paving operations the Contractor dewaters and video with high quality DVD's the interior of all pipes less than 48" in diameter and provide those DVD's to the CEI Staff to use in final pipe inspection . 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. 430-4.8.1]

Drainage Structures

38. Inverts are properly constructed. [Index 201]

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

40. Pipes entering the structure are properly sealed. [Spec. 425-6]

Underdrains

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

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

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

44. 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]

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

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

EARTHWORK

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

2. 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]

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

4. Without thick lift approval, lift thickness for embankment soils that are not A-3 or A-2-4 with less than 15% fines the maximum lift thickness shall not exceed 6 in., compacted thickness, for the full embankment width. [Spec. 120-8]

5. Where thick lifts are demonstrated and approved, or where the material being used is classified as A-3, or A-2-4 with less than 15% fines, the maximum lift thickness may not exceed 12 inches (300mm) compacted thickness. [Spec. 120-8]

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

7. While construction is in progress, adequate drainage for the roadbed must be maintained at all times. [Spec. 120-11]

8. Maintenance and protection of earthwork construction must be in accordance with Specs. [Spec. 104]

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

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

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

12. The stabilizing materials meet spec. requirements [Spec. 914, 160-2]

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

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

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

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

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

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

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

20. For any area where the bearing value obtained after mixing is deficient, the reprocessing efforts must be as specified or approved by the Engineer. [Spec 160-3]

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

LIMEROCK BASE

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 in the required number 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]

LIMEROCK BASE

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

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. 200-6]

19. At the time of priming, base is firm and unyielding, meets the specified density requirement and the moisture content in the top half does not exceed 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. 285-7]

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

Milling, Prime and Tack

1. The milled surface is swept with 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]

2. The milling surface has a uniform texture with no deviation in excess of ¼ inch. The depth of cut is measured periodically to ensure that the results are in compliance with the contract requirements. [Spec. 327-3, 327-4]

3. Limit the milling operations to that which can be re-paved during that same shift. No traffic will per permitted on a milled surface.

4. Perform the verification cross slope measurements during milling operations at a minimum frequency of once every 200LF throughout the milling operation for projects that do not require the use of the GPS guided milling machine. For the GPS milling operation perform the measurements at once per 50LF. The Contractor's Quality Control Manager shall be notified if this occurs and the Quality Control Plan may be suspended for multiple occurrences. Ensure that Contractor checks the cross slopes at a frequency of one measurement every 250 feet during milling operations. [Spec. 327-3][Technical Spec. 327]

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

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

7. Ensure that the Contractor is adhering to the spreadrates for tack and prime set forth in the project plans.

8. Perform the verification spread rates for the tack at a minimum frequency of once per day to ensure that the tack coat is applied uniformly. Verify that the Contractor is performing their spread rate measurements at least **twice** per day and that the tack has broken prior to the placement of asphalt. Document the results in the Asphalt Roadway-Verification Report. [Spec. 300-8]

General Asphalt Paving

1. A pre-paving conference is held before paving and milling operation and a written report is distributed. [ACPAM 4.8]

2. A qualified CTQP Asphalt Paving Level II technician shall be on the roadway at all times when placing HMA at the job site. [Spec. 105-5]

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. [ACPAM 4.8]

4. The paving machine is equipped with automatic longitudinal and transverse screed controls with a min. length of 25 feet that are being used during paving operation. [Spec. 320-5]

5. Establish the forward speed of the asphalt paver based on the rate of delivery of the mix to the roadway to maintain a constant supply of mix (head of material) at the augers in front of the screed. [Spec. 330-9]

6. Do not place asphalt mixtures while rain is falling or when there is water on the surface to be paved. [Spec. 330-9]

7. 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 cleaned and dumped on the tacked surface in front of the paver. [Good Practice]

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. 330-9]

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. 320-5]

10. Pneumatic-tire rollers are using tires inflated 50 to 55 PSI or as specified by the manufacturer. [Spec. 320-5]

General Asphalt Paving

11. 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. 320-5]

12. 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. 330-13]

13. The lift thickness meets the specification requirements. [Spec. 334-1]

14. When the intermediate layer will be opened to the traffic, the smoothness of the pavement shall be checked by 15 foot rolling straightedge, which is calibrated before each use and to ensure that no smoothness deficiency is in excess of 3/16 inch. [Special Provisions]

15. Document the roadway density random numbers in the worksheet and ensure that the 5 cores are cut from each sublot. Do not locate cores any closer than 12 inches from an unsupported edge. After coring, core holes are patched properly within three days of coring. [Spec. 334-5]

16. Produce a finished surface of uniform texture and compaction with no pulled, torn, crushed or loosened portions and free of segregation, sand steaks, fat spots or ripples. [Spec. 330-12]

17. 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. The 15-foot manual straightedge shall also be used to check the smoothness on crossovers, intersections, and tapers. [Spec. 330-12, ACPAM 4.8]

18. For night paving, sufficient lighting shall be provided and monitored at the job site. [Spec. 8-4 and 330-3]

19. The Contractor's daily spreadrate must be at or below 105% of the target spreadrate based on the design mix provided. Any tonnage placed over the 105% margin is to be deducted from the each day's production prior to the monthly cutoff. [Tech. Specification].

Asphalt Plant

1. Ensure that the Design Mixes have been approved. For projects with Traffic Levels D and E, do not permit the amount of RAP material used in the mix to exceed 30% by the weight of total aggregate. For Traffic Levels A, B and C do not permit the amount of RAP material to exceed 50%. When using a PG 76-22 Asphalt binder, limit the amount of RAP to a maximum of 15%. [Spec. 334-2 and 334-3].

2. Verify that viscosity samples have been obtained per 334-2.3.4. [Spec 334-2]

3. Plant scales are certified every six months and the required weekly weight comparison checks have been conducted and documented properly. [Spec 320-2]

4. 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 320-5, 330-6, and 330-7]

5. The stockpiles including rap material are free from contamination, segregation and are separated and identified as shown on the mix design. [Spec 330-5]

6. 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. Document the results in the Asphalt Plant-Verification Report. Reject a load or portion of the load of HMA, when a mix temperature exceeds the acceptance limits. [Spec. 330-6]

7. The maximum period that any mix may be kept in a hot storage or surge bin is 72 hours. [Spec. 330-6]

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

9. Perform verification test to ensure that Contractor's QC operations for asphalt rubber binder are conducted in accordance with the requirements of 336-5.4. [Spec. 336-5]

10. 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.

Asphalt Plant

11. Ensure the Mix Design Summary Spreadsheet is maintained up-to-date and monitor trends/variations of the critical material characteristics.

12. Maintain good communication between Plant personnel, Roadway personnel, Project Administrator, IA/IV personnel, and the Authorities CMC. Obtain. IA samples when requested by the CMC.

13. Randomly (minimum once per project) check/verify the Contractor's QC process control operations.

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

15. The asphalt 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. 105-4 and 330-2]

16. Testing Laboratory must be qualified under the Department's Laboratory Qualification Program. [Spec. 330-2]

17. The area of laboratory is a minimum of 180 square feet with a layout of which will facilitate multiple tests being run simultaneously by two technicians. [Spec. 330-2]

18. The lighting, temperature control, ventilation, equipment and supplies, personal computer, communication system shall be equipped in accordance with the specification requirements. [Spec. 330-2]

19. Calibration of the Superpave Gyratory Compactor is performed by the Contractor in accordance with his QC Plan or manufacturer's recommendation and the records are documented in the lab file. [Spec 330-2]

20. The laboratory is furnished with the necessary sampling and testing equipment and supplies for performing quality control, acceptance and verification sampling and testing. [Spec. 330-2]

Asphalt Plant

21. 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. 330-2]

22. 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 his QC Plan. [Spec. 330-2]

23. All QC sampling and testing are completed and the Control Charts are updated daily in accordance with the QC plan and the results are shown in a conspicuous place in the asphalt lab. The QC results shall be documented on the Authority's Forms. [Spec. 5-8 and 330-2]

24. 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]

25. The Initial Production LOT of all mix designs shall be established at 2000 tons unless waived by the Engineer. The acceptance of the Initial Production LOT shall be performed in accordance with the requirements specified in 334-5.1.3.4. [Spec. 334-5]

26. For an Initial Production LOT (2000 tons), when the density of a sublot is less than 93.00% of Gmm for coarse graded mixtures, or an individual core density is less than 91.00% of Gmm (for coarse graded mixes), the Contractor shall have the pavement's permeability evaluated on five additional roadway cores (locations determined by the Engineer) in accordance with FM 5-565 by an approved laboratory. [Spec. 334-5]

27. After the successful completion of the Initial Production LOT, Contractor's initiation of 4000 ton LOT size will be considered by the Engineer in accordance with the criteria specified in 334-5.1.2.1. [Spec 334-5]

28. Run the split sample verification testing in accordance with the requirements specified in 334-5.1.5.1 and the same sample verification testing as specified in 334-5.1.5.2 in order to determine the validity of the Contractor's QC test results for the LOT acceptance. Document the results in the Asphalt Plant-Verification Report. [Spec. 334-5]

29. 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 334-5.1.9.5. [Spec. 334-5].

30. In the event that an individual QC test result of a sublot for air voids, or the average sublot density for coarse 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 334-5.1.9.5. [Spec. 334-5].

31. In the event that two consecutive QC tests for gradation (P-200 only), A/C content, or the average sublot density (for two consecutive sublots) for fine graded mixes 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 334-5.1.9.5. 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].

32. Double-check all the input data for the calculation of the Pay Factors and the correctness of the composite Pay Factor for each LOT. For small quantities, the Pay Factors shall be determined in accordance with the requirements of Table 334-8. Review and verify each LOT Submittal packet. [Spec. 334-8]

33. Take necessary actions for the materials with low Pay Factor or low Composite Pay Factor in accordance with the requirements of 334-5.1.9. The Contractor's evaluation of the defective material shall be performed in accordance with 334-5.1.9.5. [Spec. 334-5].

34. Ensure that QC personnel are recording raw test data on Authority approved forms and that this data is transferred to the appropriate forms and spreadsheets. 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.

35. 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 2000 tons, the Engineer will accept the mix on the basis of visual inspection.

Asphalt Friction Course - Roadway

1. Throughout the paving operations for friction course, the temperature of the mixture and the air temperature at lay down must be monitored and shall meet the specification requirements. If the Contractor places asphalt below the minimum temperatures, as specified, the areas must be identified and documented in the Verification Daily Report of Construction. The QC Manager and Project Administrator shall be made aware of the issue immediately. [Spec. 337-7]

2. Perform the verification spread rate at a minimum frequency of once per day to ensure that the spread rate of the friction course meets the specifications. Document the results in the Asphalt Roadway-Verification report. [ACPAM 4.8]

3. For FC-5, the Contractor shall 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 that the roller begins to crush the aggregate, notify the Contractor's Quality Control technician immediately so that they can reduce the number of coverages or the PLI of the rollers in accordance with the specifications. [Spec. 337-7]

4. For FC-5, in the event that an individual QC test result of a sublot for A/C content or two consecutive test results for gradation on any of the sieve sizes do 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. 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 spec. [Spec. 337-6 & 334-5.1.9.].

5. The Contractor's daily spreadrate must be at or below 105% of the target spreadrate based on the design mix provided. Any tonnage placed over the 105% margin is to be deducted from the each day's production prior to the monthly cutoff. [Tech. Specification]

Asphalt Plant Friction Course

In addition to the plant requirements listed for Superpave asphalt, adhere to the following guidelines for friction course asphalt.

1. 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 334-5.1.9.5. [Spec. 334-5].

2. The maximum period that FC-5 may be kept in a hot storage or surge bin is one hour. [Spec.337-7]

3. Verify that friction course asphalt loads are covered prior to leaving the plant. [Spec. 337-7]

4. Twice per shift randomly verify that the Fiber supply system is accurately dispensing fiber into the FC-5 mixture. Record these checks on the VT Daily Inspection Report. Also record the total bales of fiber used and the total tons produced to ensure that the correct amount of fiber has been incorporated into the mix. [Spec. 337-9.1] See Attached Fiber Supply Rates for target values.

5. Twice per shift randomly verify that the Hydrated Lime Supply System is functioning as required, and that the electronic display in the plant control system is indicating the correct amount of lime being supplied into the mixture. Record the actual percentage being utilized and the times that Verification observed the display on the VT Daily Inspection Report. [Spec. 337-9.2]

Fiber Use Rates

Bale Wt = 650 lbs

Plant TPH		Fiber usage
120 TPH	=	1.5 bales per hour
130 TPH	=	1.6 bales per hour
140 TPH	=	1.7 bales per hour
150 TPH	=	1.8 bales per hour
160 TPH	=	2.0 bales per hour
170 TPH	=	2.1 bales per hour
180 TPH	=	2.2 bales per hour
190 TPH	=	2.3 bales per hour

100 tons	FC5 =	1.2	bales of Fiber
200 tons	FC5 =	2.5	bales of Fiber
300 tons	FC5 =	3.7	bales of Fiber
400 tons	FC5 =	4.9	bales of Fiber
500 tons	FC5 =	6.2	bales of Fiber
600 tons	FC5 =	7.4	bales of Fiber
700 tons	FC5 =	8.6	bales of Fiber
800 tons	FC5 =	9.8	bales of Fiber
900 tons	FC5 =	11.1	bales of Fiber
1000 tons	FC5 =	12.3	bales of Fiber
1100 tons	FC5 =	13.5	bales of Fiber
1200 tons	FC5 =	14.8	bales of Fiber
1300 tons	FC5 =	16.0	bales of Fiber
1400 tons	FC5 =	17.2	bales of Fiber
1500 tons	FC5 =	18.5	bales of Fiber
1600 tons	FC5 =	19.7	bales of Fiber
1700 tons	FC5 =	20.9	bales of Fiber
1800 tons	FC5 =	22.2	bales of Fiber
1900 tons	FC5 =	23.4	bales of Fiber
2000 tons	FC5 =	24.6	bales of Fiber

PERFORMANCE TURF

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 within 48 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].

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

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].

6. This item is a field measure item pursuant to the Technical Specifications.

CONCRETE MATERIALS

1. Cold weather placements: mixing permitted if air temperature is 40 °F and rising and not permitted if below 45°F and falling. [Spec. 346-7]

2. Hot weather placements: approved hot weather mix required if concrete temperature is above 85°F but if over 100°F, concrete rejected. [Spec. 346-7]

3. Transit time: reject concrete that exceeds 60 minutes (non-retarded) and 90 minutes (retarded) prior to discharge. [Spec. 346-7]

4. When concrete placement stops for 90 min. or more, perform initial plastic properties tests prior to resuming placement. [346-8]

5. Structural and Non-Structural concrete delivery tickets are to be completely and accurately filled out with the appropriate field information with the required signatures/TIN information prior to the start of concrete placements. [Spec. 346-6, 347-5]

6. Batch weights are within 1% (2% if load is 3 yd^3 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, the CMC and the Contractor shall be notified so corrective action can be taken [FDOT Materials Manual 9.2 Volume II]

7. Mixer ID card must be in ready mix truck. If the card is not present and in the correct order, the load will be rejected and the truck will be out of service on the project until a correct ID card is restored. [FDOT Materials Manual 9.2 Volume II, 346-8]

8. Drum revolution counter must be operating properly, if not, note on ID card. [FDOT Materials Manual 9.2 Volume II]

9. Water measuring device on truck must operate properly and calibration information must be in truck. If the water measuring device is not operating properly, notify the Contractor immediately to correct the issue. [F 9.2 Volume II]

10. A delivered concrete load must be tested for slump before determining if the addition of water is allowed. Water must not be added to a delivered load of concrete if the slump is within the target range. Water may be added to a delivered load of concrete if the slump is outside of the target range but is within the tolerance range. Any load of delivered concrete that has water added must be slump tested after the addition of water to determine that it is within the target range. [Spec. 346-7]

CONCRETE MATERIALS

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 160. [Spec. 346-7]

12. If slump is within tolerance, the load can be placed but if slump is outside tolerance, reject the load. While plastic properties tests are in progress, concrete placement must not proceed until test results are known. [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. Samples must be taken at the point of final placement: end of buckets, conveyor belts, and pump hoses or chutes except that when discharged directly from mixer into bucket within 25% of total allowable transit time, samples may be taken directly from mixer. Samples must be the composite of two portions. [Spec. 346-7]

15. 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]

16. Sampling and testing equipment in proper condition and calibration: thermometers, slump cones, pressure meters/roll-a-meters and cylinder molds. [ASTM C-1064, 143, 231, 173, 470, Spec 346-5]

17. Concrete temperature must be measured correctly. [ASTM C-1064, Spec 346-5]

18. W/C ratio must be computed correctly, prior to the material being placed. Ensure that the mix does not exceed the limits provided in the specifications. [FM 5-501, Spec 346-5]

19. Percent air test must be performed correctly. [ASTM C-173 (RM), C-231(PM), Spec 346-5]

20. Slump test must be performed correctly. [ASTM C-143, Spec 346-5]

21. Concrete sample cylinders must be prepared properly at the site, curing boxes and tanks at the site must be maintained according to specifications. All cylinder samples will be clearly identified with the correct project information, sample number, date of placement and any other pertinent information. Provide heating and/or cooling of the curing box to maintain the required temperature during curing. Also provide a calibrated high/low thermometer to determine the temperature and record temperature extremes to ensure that the temperatures have not exceeded the allowable tolerance. [ASTM C-31, Spec. 346-9]

22. 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]

23. Provide Sample Transmittal Card (C-22) properly filled out. [Form 675-050-04]

MASS CONCRETE

1. The Contract must use a Specialty Engineer competent in the design and temperature control of concrete in mass elements. The Specialty Engineer shall follow the procedure outlined in the Section 207 of the ACI Manual of Concrete Practice. The Contractor must submit both the mass concrete mix design and the proposed mass concrete plan to monitor and control the temperature differential to the CEI's Resident Engineer for acceptance. [Spec. 346-3]

2. Mass concrete Specialty Engineer or his/her designated employee must be at the jobsite and in charge for the installation and monitoring process for at least the first placement. [Spec. 346-3]

3. If 35°F differential or the maximum 180ºF core limit is exceeded, adjustments must be made immediately as recommended by the Specialty Engineer. Subsequent placements must not proceed until the CEI's Project Engineer approves the revised plan. The CMC shall be notified if the temperature differential or the maximum temperature falls outside the specification limits. [Spec. 346-3]

4. 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 and data must be transmitted to the Engineer in a timely manner. [Spec. 346-3]

5. A structural integrity and durability analysis must be performed to evaluate the component condition if the 35° (20ºC) differential is exceeded. [Spec. 346-3]

STRUCTURES FOUNDATIONS

Pile Driving

1. Preformed pile holes must comply with hole sizes and depths covered in the specifications and or contract documents. The void between pile and hole must be filled with approved sand or grout. [Spec. 455-5]

2. For concrete piles, the proper number of lifting points must be used. [Spec. 455-7]

3. Pre-stressed concrete piles must be inspected for defects as soon as possible after upon delivery to the project site. Defects must be reported to the QC Manager/Project Superintendent and to the Project Administrator immediately, but in any case prior to use. [Good Practice]

4. 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; and pumps, supply lines and jet pipes per Pile Installation Plan (PIP). [Spec. 455-5]

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

6. For Sure-Lock pile splices, threaded rebar 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 to ensure that the distance meets the requirements of the shop drawings. (Good practice)

7. Comply with the pile driving criteria as established by Geotechnical Engineer. [Spec. 455-5]

8. Maintain 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 Saximeter is required. [Spec. 455-5]

10. Detailed set check and re-drive procedures shall be performed in accordance with the Specifications related to blow count interval, pile cushion and hammer warm up. [Spec. 455-5]

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

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

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). [Spec. 455-8]

Drilled Shafts

14. Have an approved copy of the Drilled Shaft Installation Plan (DSIP) on site. Inspectors involved with the installation of a drill shaft must also have a copy of the DSIP at all times during the installation.[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" throughout the concrete elapsed time. Inform the CEI at least 48 hours before performing such tests in order to allow proper verification of the results. Perform slump loss testing of the drilled shaft mix using a laboratory acceptable to the CEI. Perform all procedures required by specification. Do not perform slump loss test for dry excavation. [Spec. 346-3.2]

16. Drilled shaft test holes shall be shall documented activities and have any problems noted in the Daily Report of Construction. Any test shafts that are not to be incorporated into the project must be removed to 2' below ground line. [Spec. 455-18]

17. Detailed shaft excavation procedures are required by the Specifications including alignment, logging of excavated material, over-reaming and shaft cleanliness [Spec. 455-15]

18. The Contractor must perform proper slurry density slurry viscosity testing, pH and sand content testing. Test results must be with the range of the Specifications before any placement of concrete begins. Testing must be performed by a CTQP certified inspector/technician. [Spec. 455-15]

19. The Geotechnical Engineer shall assist with the use of a shaft inspection device. If a shaft inspection device is not used, the shaft bottom must be probed with a solid bar or with a weighted line to check for unevenness and firmness. [Spec. 455-15]

20. Temporary casing in drilled shafts supporting miscellaneous structures provided at least one foot above the ground surface to at least 5' below the ground surface (455-15)

STRUCTURES FOUNDATIONS

21. Detailed rebar placement procedures are covered in the Specifications. Include time of placement, bar extensions, clearance tolerances, and spacer requirements. Use of the approved inspection report is required. [Spec. 455-16, 415]

22. Drilled shaft concrete placement must conform to all applicable Specifications including method of placement, pump line requirements, duration of placement and slump. [Spec. 455-17]

23. Quality Control must perform slump testing on each load of concrete provided to drilled shaft applications. [Spec. 346-3.2]

24. Curing of the top surface of the shaft shall be in accordance with the Specifications. 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]

25. CSL access tubes are installed in all shafts in required numbers and configuration (Spec. 455-16)

26. Within 24 hours of the completion of the drilled shaft report, provide an electronic copy of this report to the CMC for secondary review.

27. CSL testing performed as required (Spec 455-17)

BRIDGE STRUCTURES

Forming

1. The ground below 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 Approved forms, including Stay-In-Place (SIP), prior to concrete placement must be used. Check for coating defects on all surfaces of polymer coated SIP form elements prior to their installation. [Spec. 400-5]

3. The proper use of traffic barrier wall removable forms for alignment is particularly critical for public visibility. [Spec. 400-5]

4. : The use of guide string alignment, slip forming machine capable for the operation, concrete vibrators, and cover adjustments for rebar made just before the slip former passes will be in accordance with the Specifications and project documents. [Spec. 521-4 and Good Practice]

5. Inspection that the Contractor is using the approved falsework must be completed prior to any concrete placements. [Spec. 5-1, 400-4, and Good Practice]

Placing and Tying of Reinforcing Steel

6. Storing, placing, and tying rebar must be in accordance with the Specifications. [Spec. 415-3 thru 5]

7. Rebar placing, tying and support concerns: Inspection of reinforcing steel such as placement tolerances, securing and lapping of splices, mortar block composition and fastening must be completed before any concrete placements. Use of metal chairs or bolster in contact with forms in not permitted within ½" of the boundary surface of the concrete to be cast. . [Spec. 415-5]

8. Double strand single tie at all perimeter intersections and at alternating interior intersections. [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 reinforcing steel 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. The correct use of bolsters and chairs must be used for bottom and top mats of reinforcing steel. Ensure that bar supports that are to be in contact with ground, wall surfaces, etc. are of the right type for the application. [Spec. 415-5]

12. Proper spacing and positioning of bolsters and chairs will be per Specifications. Tying shall be double strand single ties at all intersections for beams and caps. [Spec. 415-5]

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

Placing of Concrete

14. Monitor surface moisture evaporation rate during placement and do not exceed 0.1 $lb/ft^2/hr$. If so, immediate action must be taken to address the situation.[400-16]

15. Ensure that the Contractor is following the 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 for monitoring mass concrete temperature gradient. [Spec. 346-3, 346-7,400-7]

16. Concrete shall not be placed until foundations, forms, falsework and reinforcing steel have been inspected and approved. [Spec. 400-7]

17. During Concrete placement observe the following: final position of the material , placement in equal layers, that the vibrator is utilized properly and is not dragged through the concrete,, that the reinforcing steel is not displaced, aggregate is not segregating or separating, monitor the vibrations from adjacent equipment and ensure that the operation is being controlled by the Contractor. [Spec. 400-7]

18. Belt conveyors for concrete placement must be approved before placement of concrete. [Spec. 400-7]

19. Concrete placement by the use of a pump must meet the requirements of the Specifications. [Spec. 400-7]

20. Placement of concrete in successive layers will be per Specifications. [Spec. 400-7]

21. Number, type and size of vibrators must be approved. The vibrators 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. These areas have a high probability of forming voids or honeycomb. [Spec. 400-7]

22. Columns shall be placed in one continuous operation unless construction joints are shown in the plans. [Spec. 400-7]

23. A screeding system must be demonstrated and approved prior to placement of concrete for bridge decks and slabs. Concrete placement 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]

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

Curing

25. No further curing is required if forms are kept in place, without loosening, for a least 3 days but if before 3 days, an approved curing method must be used. [Spec. 400-16]

26. Proper application of an approved membrane curing compound at 1 gallon/150 ft^2 of surface area. [Spec. 400-16]

27. Covers for continuous moisture curing shall be kept continuously wet for at least 72 hours for other than decks: 7 days for decks. [Spec. 400-16]

28. Curing compound for slip formed barrier walls must be applied at the proper spread rate within 30 minutes and must remain in place for at least 7 days [Spec. 400-16]

29. Construction joints have special curing. [Spec. 400-16]

30. Time of removal of forms shall be per plans, determined from compressive strength tests, developed from a time versus strength curve or as per specs. [Spec. 400-14]

31. 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 Finishing

32. 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]

33. Class V Coating (textured paint) must be on the QPL and meet material specifications and must have surfaces prepared and coatings applied in accordance with manufacturer's specifications 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]

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 determine the repair of nonstructural cracks. [Spec. 400-21]

Bearing, Beams and Concrete

36. Proper elevation must be checked for beam seats and pedestals. Inspection of concrete bearing surface planeness, levelness, surfaces free of irregularities and proper placement of bearings relative to survey marks. [Spec. 400-11 & Good Practice]

37. Installation of anchor bolts will be inspected for tolerances, correct use of bearing plates, bolt material use per specifications, adjustments of expansion plates for temperature, proper setting method and that bolt holes do not go through reinforcing steel. [Spec. 460-7]

38. Neoprene pads shall meet material Specifications. Tolerances and pot/disc bearings shall be manufacturer certified and conform to Specifications. Protect the pads from the elements prior to placement. A manufacturer's representative

must be on site during installation. Installation will follow the manufacturer's recommendations and shop drawings. [Spec. 932-2 & 461]

39. . Beams delivered to the site shall be inspected for kinks, warps, bends, cracks, plate plumbness and squareness, proper pick point locations, producer QC stamping, identification numbering. Cap concrete will be a minimum 10 days past placement before beams are placed. [Spec. 460-4, 450 & Good Practice]

40. Store concrete beams in an upright position on proper dunnage. Supports shall be placed at the proper locations under the beam and report excess camber or sweep. Pre-stressed 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]

41. Concrete beams shall be lifted and handled carefully using pick-up loops or cables only. [Spec. 450-16]

42. 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 personally inspect the initially erected structure in the field. Daily Contactor inspections of erected members are required until deck completion. For all steel, the Contractor's erection plan must be reviewed by the Engineer prior to the start of erection. [Spec. 460-7, 5-1, Good Practice]

43. The surface of steel beams 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]

44. 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]

45. During steel beam erection and 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 shall be in place at major connections prior to release. 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 CEI before implementation. [Spec. 460-7, Good Practice]

46. 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]

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

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

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

50. 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]

51. 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]

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

53. Before bolting begins, connection plate surfaces must be in the proper condition, 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]

54. 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]

55. 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. [Spec. 460-5]

56. Detailed procedures must be followed for mating and final tightening of bolts for highway sign, traffic signal and lighting structures. [Spec. 700-2]
57. 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]
58. Except for steel with a value of 0.1% of total contract amount or $2,500.00, whichever is greater, steel and iron must be produced in the U.S. for federally funded projects. [Spec. 6-5]

Concrete Deck

59. If removable forms are used, ensure that the forms are the correct material, correct dimensions, correct positions, and have the adequate capacity to support the concrete load. [Spec. 400-5]
60. 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]

61. For pre-stressed 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]

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

63. Concrete reinforcing steel shall be stored properly and be free of foreign matter; hot bending, welding or flame cutting is not acceptable.[Spec. 415-3 and 415-4]

64. Each reinforcing steel unit shall be tied within 1" of plan position and splices shall be securely clamped or tied. [Spec. 415-5]

65. For bridge deck mats, use double strand single ties for all periphery intersections and 33% of interior intersections.[Spec. 415-5]

66. Ensure that mortar block and bolster materials meet specification requirements. [Spec. 415-5]

67. Deck thickness and reinforcing steel clearance measurements should be taken from the bottom of the screed rollers. Screed rollers should be directly over the point where the measurement is to be taken. Concrete placement shall not be allowed if the deck thickness measurement during the dry run is less than the required plan thickness. [ACPAM 4.7.13 and Good Practice]

BRIDGE STRUCTURES

68. 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]
69. Monitor surface moisture evaporation rates during placement and do not exceed 0.1 $lb/ft^2/hr$ unless countermeasures for retaining moisture are employed. [Spec. 400-16]
70. 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]

71. 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]

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

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

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

75. Forms and reinforcing steel shall be sprayed with cool fresh water just prior to placement of concrete for decks in hot weather and if re-spraying of forms and reinforcing steel is required after concrete placement starts, never spray onto the fresh concrete. [Spec. 400-7]

76. 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]

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

78. For short bridges the deck must be longitudinally straight edged with 10 ft. bar, half lapped, 5’ transversely. [Spec. 400-15]

79. For long bridges the deck must be planed to a minimum of ¼” depth. [Spec. 400-15]

BRIDGE STRUCTURES

80. For short 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. For concrete surfaces to be planed, correct all flaws such as cavities, blemishes, marks, or scratches that will not be removed by 1/4 in planing. [Spec. 400-15]
81. Required crack control must be installed by tooled “V” groove prior to initial set or by early entry dry cut saw. [Spec. 400-9]

82. Apply Type 2 (white) curing compound to the deck surface not more than 2 hours after concrete placement for decks or 30 minutes for barriers or when the surface is damp with a minimum spread rate of 0.06 gal/yd2 or 1 gal/150 square feet. The spread rate must be reported to the Engineer. [Spec. 400-16]

83. 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. [Spec.400-16]

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

85. 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. [Spec. 400-14]

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

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

88. 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]

POST TENSIONING BRIDGE STRUCTURES

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. 105-5 & 462-1]

2. The vacuum grouting foreman must have experience and training in the use of vacuum grouting equipment and procedures. [Spec. 105-5 & 462-1]

3. All materials must be stored in weatherproof buildings, sheds or containers. [Spec. 462-1]

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

5. Pre-stressing materials that must be approved, be in compliance and be undamaged are: pre-stressing steel including strands and bars, and PT systems including anchorage assemblies, bearing plates, couplers, grout caps, inlets/outlets, ducts, wedge plates & wedges. [Spec. 462-4, 933, QPL]

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. 462-4]

7. Inlets/outlets must have mechanical shut offs, be the correct diameter, extend sufficiently, and be properly bonded to the duct. [Spec. 462-4]

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. [Spec. 462-4, 923, 938]

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

10. Certain materials must be sampled and tested, others must be certified, and some require LOT number identification at all times. [Spec. 462-4]

11. These tests may be required: Tendon Modulus of Elasticity Test (optional), In Place Friction Test (required for tendons longer than 100'). [Spec. 462-5]

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) and be in shipping containers with special corrosion inhibitor and in packaging that must be marked with specified information. [Spec. 462-6]

14. PT steel must be stressed and grouted within 7 calendar days after placement in its final position in the structure. [Spec. 462-6]

15. Water with slack lime or quicklime must be used for flushing ducts. [Spec. 462-6]

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. [Spec. 462-7]

22. 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. 462-7]

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. [Spec. 462-8]

24. Chloride contaminated ducts must be flushed with lime treated water. [Spec. 462-9]

25. 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. 462-9]

26. PT forces must not be applied until concrete has minimum required strength. [Spec. 462-10]

27. Initial, permanent and maximum tendon stresses must be within specified limits and single or double end stressing must be per plans, shop drawings or Engineer. [Spec. 462-10]

28. Stressing equipment must be provided by the PT system supplier and stressing jacks must be calibrated, and a master gage may be used. [Spec. 462-10]

29. Tendon elongations must be measured to the nearest 1/16" and observed elongation shall be within 7% of theoretical. Tendons must not be over stressed to achieve the required elongation. [Spec. 462-10]

30. 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. 462-10]

31. 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. 462-10]

32. Cut PT steel by an abrasive saw or plasma torch not less than ¾" to 1½" from the anchoring device. Flame cutting of PT steel is not allowed. [Spec. 462-10]

33. 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. 462-10]

34. 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. 462-10]

35. 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. 462-10]

36. 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. 462-11]

37. 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. 462-11]

38. 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. 462-11]

39. Maximum grout temperature must not exceed 90°F and grouting operations are prohibited when the ambient temperature is below 40°F or is 40°F and falling. [Spec. 462-11]

40. Efflux 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. 462-11, 938]

41. Grout must be pumped at a rate of between 16’ and 50’ of duct per minute. 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. 462-11]

42. 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. 462-11]

43. After initial grouting is complete and the system is sealed, the pressure must be increased to 75 psi 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. 462-11]

44. 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. 462-11]

45. Grouting of vertical tendons requires the use of a standpipe that keeps the grout level above the anchorage at all times and for vertical tendons greater than 100’, staged grouting is required as described in the specification. [Spec. 462-11]

46. For 4 hours after grouting is complete, eliminate vibrations and grout inlets and outlets shall not be opened for 24 to 48 hours after grouting. [Spec. 462-11]

47. 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. Tendons less than 150 ft. long may have reduced inspection frequency. [Spec. 462-11]

48. When grouting is incomplete, an endoscope must be used to establish the limits of sound grout. The remaining unfilled duct must be vacuum grouted per specification. [Spec. 462-11]

49. A grouting report is required within 72 hrs. of grouting completion. [Spec. 462-11]

50. Lifting and access holes must be patched with Magnesium Ammonium Phosphate Concrete or Type Q Epoxy and before patching, the surfaces must be cleaned with grit or water blasting methods at 10,000 psi pressure. [Spec. 462-12, 930, 926]

51. 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. 462-12]

52. Grout inlets/outlets must be sealed with a plastic cap and be patched with epoxy grout. [Spec. 462-12, 926]

53. 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. 462-13, 926]

54. 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. 462-13, 975]

55. 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). Cracks must be monitored to determine if they are continuing to grow. Report

all cracks to the Project Administrator so that their status can be addressed immediately. [Spec. 400-21, Good Practice]

MSE WALL

1. 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 geo-synthetic fabric is covered and protected from sunlight prior to placement and is properly stored to prevent damage. [Specs. 548-2, 548-5, 548-8]

2. 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 53, Note 12]

3. Verify that the delivered wall panels are marked with a QC stamp indicating acceptance by the plant QC Manager.

4. Backfill - Select backfill certification has been submitted and fill material has been tested and approved prior to placement and that the certification are signed and sealed by a Professional Engineer registered in the state of FL. [Spec. 548-2]

5. Inspect the fill for proper placement and test the compaction of the fill in accordance with plans and specifications [Spec. 548-6].

6. Check that water used for soil compaction is in compliance with section 923 (No salt or brackish water). [Spec. 548-6]

7. 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. 548-6] DO NOT allow excavations in close proximity in front of the wall once the wall construction has started without the designer's approval.

8. Excavations in front of the wall should not be allowed without protection to the wall (i.e. sheet piles, etc.) [Good Practice]

9. Foundation - Confirm foundation has been prepared and compacted properly and that foundation pad is provided per Contract Documents. [Spec. 548-6]

10. Panels - Inspect precast panels for acceptance [Spec. 548-4] and 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 designer immediately [Indexes5300-5301]. 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. 548-6] Wooden wedges should be removed as soon as the panel above the wedged panel is completely erected and backfilled. [Spec. 548-6].

MSE WALL

11. Soil Reinforcement - Inspect soil reinforcement for compliance with design drawings and or shop drawings i.e. size, length, type of material. [Spec. 548-2] Inspect the proper placement of soil reinforcement. [Spec. 548-6] Soil reinforcement should not be skewed more than 15 degrees from normal. If reinforcement needs to be skewed more than 15 degrees, notify the designer. [Index5300] Soil reinforcement near the top of the wall shall be parallel to the lifts of fill. So reinforcement shall not extend into sub-base that may require mechanical mixing. [Indexes5300-5301] Soil reinforcement shall not be cut unless shown in the contract documents or approved by the Engineer. [Index 5300]

12. 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, Indexes5300-5301]

13. Coping - If precast coping is used, ensure top panels have dowels that will extend into the cast-in-place leveling fillet. [Indexes 5300 to 5301] Ensure the placement of one-half inch minimum preformed expansion material between wall panels and cast-in-place concrete. [Spec. 548-2, Indexes 5300-5301]

14. Use these guidelines above for both temporary and permanent walls. [Spec. 548-1, Indexes5300-5301]

SIGNALIZATION

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 (i.e., A620, A630, A632, A639, etc.) meet the MSTCSD and Specs. [Spec. 603-3, 603-7]

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

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]

8. Witness completion of all field testing with the Contractor's representative and, with a representative from the maintaining Agency. [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]

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]

SIGNALIZATION

13. Conduit used is the proper type for the type of installation being performed. The conduit is installed at the proper depth. [MSTCSD Section A630, 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 such as Appleton Duct Seal, Pergamum Duct Seal or GB Duct Seal. [Spec. 630-3.5, Index 17721]

17. Signal and interconnect cables meet standard requirements. [MSTCSD Section A632]

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 632-3.4 and 632-4]

19. The interconnect cable is to be installed in continuous lengths to and between controller cabinets and junction boxes. [Spec. 632-5]

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

21. Verify that box is listed on Approved Product List (APL) and is marked with the APL certification number. [Spec. 635-2, 783-3.1, MSTCSD A635-2.1]

22. All pull and fiber optic boxes shall have a 1’-0” wide and 6” deep concrete aprons sloped away from box. [Indexes 18204, 17700]

23. For fiber optic pull boxes, install ground rods and tone wire as required and shown in the plans. Tone wire is to be terminated at the first and last pull boxes in the conduit run or as shown in the plans. [Spec. 630-3.1.2, 783-3.3.2; Indexes 18204, 17700]

24. Store a total of 200 feet of fiber optic cable in fiber optic splice boxes, with 100 feet of cable on each side of the cable splice point or as shown in the plans. [Spec. 783-1.3.1.3, Indexes 18204, 17700]

25. Store 50 feet of spare fiber optic cable in fiber optic pull boxes [Spec. 783-1.3.1.3, Indexes 18204, 17700]

SIGNALIZATION

26. Do not place the pull or fiber optic boxes in roadways, driveways, parking areas, ditches, or public sidewalk curb ramps [Spec. 635-3, 783-3.3.1]

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

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

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

30. Ensure the span wire assembly is installed with the correct amount of sag. For single-point attachment span wire assemblies, 2% – 3% sag is recommended as directed by the Engineer. [Spec. 634-3.3]

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

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

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

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

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

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

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

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

39. 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]

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

SIGNALIZATION

41. 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]

42. 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]

43. Use inductive loop wire and loop sealant on the FDOT’s Approved Products List. [Spec. 660-2]

44. Confirm that loop wire, lead-in cable, and splicing materials meet the standard requirements. [MSTCSD Section A660]

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

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

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

48. 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]

49. All wires are megged out for correct resistance values. [Spec. 611-4, 660-6]

50. Loop wires are spliced as detailed in index and spec. [Spec. 660-3, 660-4, Index 17781]

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

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

53. Make sure that the Contractor is connecting all fork or ring terminals to the cable conductor ends (signal cable, interconnect cable, loop wires) using a calibrated ratchet crimping tool. [Spec. 632-3, 660-4, 676-3]

SIGNALIZATION

54. 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. [MSTCSD Section A639-2.6]

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. [Good Practice]

5. 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]

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

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

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

9. 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]

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

11. 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]

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

13. 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]

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

LIGHTING

15. 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]

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

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 such as Permagum duct seal or GB Duct Seal. [Spec. 630-3]

4. Verify that box is listed on Approved Product List (APL) and is marked with the APL certification number. [Spec. 635-2, 783-3.1, MSTCSD A635-2.1]

5. All pull and fiber optic boxes shall have a 1'-0" wide and 6" deep concrete aprons sloped away from box. [Indexes 18204, 17700]

6. For fiber optic pull boxes, install ground rods and tone wire as required and shown in the plans. Tone wire is to be terminated at the first and last pull boxes in the conduit run or as shown in the plans. [Spec. 630-3.1.2, 783-3.3.2; Indexes 18204, 17700]

7. Store a total of 200 feet of fiber optic cable in fiber optic splice boxes, with 100 feet of cable on each side of the cable splice point or as shown in the plans. [Spec. 783-1.3.1.3, Indexes 18204, 17700]

8. Store 50 feet of spare fiber optic cable in fiber optic pull boxes [Spec. 783-1.3.1.3, Indexes 18204, 17700]

9. Do not place the pull or fiber optic boxes in roadways, driveways, parking areas, ditches, or public sidewalk curb ramps [Spec. 635-3, 783-3.3.1]

10. Ensure that all fiber optic pull box and splice box covers include the words "FDOT FIBER OPTIC CABLE" or text as shown in the plans permanently cast into their top surface. [Spec. 783-3.2.4]

11. Ensure that all electrical pull box covers include the words "FDOT ELECTRICAL" or text as shown in the plans permanently cast into their top surface. [MSTCSD A635-2.1]

12. Ensure no point discontinuities greater than 0.1 decibel per reel. [Spec. 783-1.2.5.3]

13. Mark the jacket with the cable manufacturer's name, fiber type, fiber count, and date of manufacture, the words "FDOT FIBER OPTIC CABLE," and the sequential cable lengths marked in feet. [Spec. 783-1.2.1.8]

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. 783-1.4.2.2]

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. 783-1.4.2.3]

16. Ensure that the attenuation in the connector at each termination panel and its associated splice does not exceed 0.5 decibel. [Spec. 783-1.4.2.4]

17. Ensure that the locate system includes aboveground route markers, warning tape, tone wire, and electronics. [Spec. 783-2.1]

18. Install locate wire grounding units (WGUs) in pull boxes and splice boxes as shown in the plans or directed by the Engineer. [Spec. 783-2.3.4]

19. Ensure all patch panel connectors are clearly and permanently labeled. [Spec. 783-1.3.4]

20. Ensure that the cable tags are permanent labels suitable for outside plant applications and are affixed to all fiber optic cables. [Spec. 783-1.3.1]

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. 783-2.2.1]

22. Verify DMS, RWIS, 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]

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 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]

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]

37. Verify that SPDs (Surge Protector Devices) 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]

43. Verify that vehicle detection system is listed on the APL. [Spec. 786-1]

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

44. Provide a vehicle detection system capable of meeting the minimum total roadway segment accuracy levels of 95% for volume, 90% for occupancy, and 90% for speed for all lanes, up to the maximum number of lanes that the device can monitor as specified by the manufacturer. [Spec. 786-3.1]

45. Ensure that the MVDS, including, but not limited to, the microwave detection sensor, the network interface devices, and all required cables, have a manufacturer's warranty covering defects in assembly, fabrication and materials of 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 Authority and documented. [Spec. 786-11]

46. Ensure that the VVDS, including, but not limited to, the camera, mounting equipment and MVP, have a manufacturer's warranty 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 warranties are transferred to the Authority and documented. [Spec. 786-11]

47. Ensure that the MTDS, including, but not limited to, the under pavement probes, carriers and detectors, have a manufacturer's warranty of 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 Authority and documented. [Spec. 786-11]

48. Ensure that the AVDS has 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 Authority and documented. [Spec. 786-11]

TRAFFIC CONTROL AIDS

1. The crash cushion is installed in accordance with the QPL. [Specs. 102 and 544, Index 430]

2. Check the specifications for any material certifications needed.

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

4. The retro-reflectivity 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]

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

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

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

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

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

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

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

12. Panels, end sections and special end shoes are lapped in the direction of adjacent traffic. [Index 400]

13. 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]

14. 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]

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

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

TRAFFIC CONTROL AIDS

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

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

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

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

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

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

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

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

26. Manufacturer's certifications for retro-reflectivity, aluminum, etc. are on file. [Spec. 700.]

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

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

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

UTILITIES

1. Utility relocation, installation, adjustment and protection must be discussed at the preconstruction conference. Additionally, weekly utility meetings shall be held when required by the contract documents. [Specs. 7-11.6.4]

2. All notice of utility claims shall be provided to the utility company in writing.

3. When installing buried utilities on the job site, the Authorities 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 cover. [Index 17721] (or the latest version of the Utility Accommodation Manual, if work is performed by the utility agency).

4. Project Staff shall oversee the work in accordance with the contract.

5. For Utility Work by Highway Contractor (UWHC), when required by contract documents, utility personnel shall inspect the specific utility work done by the Contractor.

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.

7. Utilities shall be removed, adjusted or protected-in-place in a timely manner to minimize delays to the Contractor's operations.

8. The Project Staff shall investigate potential conflicts between the proposed utility work and the physical roadway features of the project.

9. The Project Staff shall insure that utilities conform to the same standards required of the Contractor in the areas of MOT, excavation, backfill and compaction.

10. Utility operations shall conform to all Federal, State and Municipal laws, codes or ordinances that apply.

11. The Department’s Utility Accommodation Manual (UAM), Topic No. 710-020-001, latest edition is to be utilized as a standard by the Utility Agency/Owners (UAOs).

12. No utility work shall begin without an approved permit and the utility work shall conform to the Traffic Control Plan submitted with the permit application.

13. Administration of unanticipated utility conflicts will be in accordance with ACPAM.

14. All activities involved in the utility operation shall be recorded on a Daily Work Report under the remarks category for utilities.

UTILITIES

15. All utility conflicts with the Contractor's operation shall be recorded on the Daily Work Report.

16. All activities involved in the utility operation shall be recorded on a Daily Work Report under the remarks category.