QUALITY ASSURANCE REVIEW CHECKLIST

COR 501 CEMENT CONCRETE PAVEMENT

0.00 ECMTS -- POM & PUB 10X APPENDIX T -- Environmental commitments and mitigation activities ensured to be completed and the Environmental Commitments and Mitigation Tracking System (ECMTS) Construction Tracking Signature Sheet current, properly completed, and on file.

A. Project personnel have a thorough understanding of the project's environmental commitment responsibilities and clearly know their role in fulfilling those responsibilities. (POM B/4/8-1)
B. Changes to contract work that involve previously undisturbed areas, are outside of the original project area, may potentially affect an environmental resource (i.e., wetlands, parks, historic resources, etc.) have been submitted to the District Environmental Unit for review before the contractor is authorized to begin work. POM B/3/1-29
C. Inspection staff notified the contractor if mitigation measures are not being completed in the required sequence. (Pub 10X - Appendix T-9)
D. Inspection staff verified the contractor completed mitigation activities by maintaining the ECMTS Construction Tracking Signature Sheet. (Pub 10X - Appendix T-11)

1.00 CERTIFICATIONS -- SECTION 106.03(b)3 & POM B/6/3 -- All certifications for materials incorporated in this operation properly completed and on file.

A. Certifications completed on CS-4171 and / or CS-4171F as applicable for dowels, load transfer units, reinforcement, bond breaker, anchor material, subbase, bond breaker lubricant, joint material and / or curing materials. [Sections 106.03(b)3, 705.3(e), and others]
B. Certifications for other materials on CS-4171. [Sect. 106.03(b)3]
C. Materials received from an approved Bulletin 14, 15 or 42 supplier, or approved by LTS.

2.00 PROJECT OFFICE DOCUMENTATION -- POM, PTM & SECTIONS 106, 501 & 704 -- Documentation applicable to this operation current, properly completed, and on file.

A. Mix design signed by a District representative. (POM B/7/9-1)
B. Source documents properly completed. (POM B/1/4-1)
C. Source of supply approved by the District. [Sect. 106.02(a)]
D. No material has been paid for without proper certification. [Sect. 106.03(b)3]
E. Comprehensive Concrete Paving Operation Quality Control Plan reviewed and on file. [Sect. 501.3(a)1]
F. Quality Control Plan for neoprene seal installation on file. [Sect. 501.3(n)2]

3.00 TEST DOCUMENTATION/FREQUENCY -- POM, PTM & SECTION 704 -- All testing properly documented and performed at the proper frequency.

A. Concrete Inspector's Daily Record Book (CS-472) or MC-CID Application complete and current. [Sect. 704.1(d)6]
B. Trucks selected for Acceptance Testing according to PTM 1, at the proper frequency with recorded results, including re-tests and failures. [Sect. 704.1(d)5]
C. Control test frequency according to Quality Control Plan. [Sect. 501.3(a)1]
D. At the discretion of the ACE, straight-line diagrams (TR-4254) for slump, air content, water/cement ratio and compressive strength current (minimum of 10 tests per class of concrete) and includes AT, FV/VT, QA, and IA results. (POM B/1/13-1 & POM B/6/5-2 to 12)
E. Disposition of rejected material documented. (POM B/6/2-1 and 5)
F. Batcher-mixer slip & concrete delivery tickets correct. [Sect. 704.2(c) & AASHTO M 157]
G. Action points defined in Quality Control Plan are identified and being followed. [Sect. 501.3(a)1]
H. Air meter calibrated within 2 weeks of use and calibration date(s) recorded in the Concrete Inspectors Daily Record Book (CS-472) or MC-CID Application. [POM B/6/5-10 and 11 & Sect. 704.1(d)3]
I. Compressive strength forms (CS-458A) or MC-CID Application complete and current. (POM B/6/5-10 and B/6/10-1)
J. An accurate daily record of ambient air and curing temperatures during cold or cool weather in the Concrete Inspectors Daily Record Book (CS-472) or MC-CID Application. (POM C/10/10-2 and 10-6)
K. If the forecasted air temperature falls below 40 F during the curing period, temperatures recorded from high-low thermometers placed on the concrete surface. [Sect. 501.3(l)2]

L. Lots and sublots computed properly. [Sect. 704.1(d)5]
M. Longitudinal tie bar testing documented. [Sect. 501.3(j)]
N. Neoprene seal joint testing documented. [POM C/5/7-1 to 7-2 & Section 501.3(n)2]
O. Verification Testing performed at the proper frequency for each concrete type as per Table B. [Sect. 704.1(d)6]

4.00 STAFFING -- SECTIONS 105.01 & 105.05 -- Project adequately staffed. Inspectors and contractor supervisory personnel are knowledgeable of specification requirements.

A. Department inspection.
B. Consultant inspection.
C. Contractor supervision.

5.00 SAFETY -- SECTION 107.08 -- Operation conducted in a safe manner.

A. All personnel acting in a safe manner.
B. All personnel are wearing proper safety attire.
C. Working conditions are safe.
D. Equipment operated in a safe manner.
E. Contractor Safety Plan on file.
F. Material Safety Data Sheets on file.

6.00 STAKEOUT -- SECTION 501.3 -- Stakeout adequate to control pavement grade and alignment.

A. Forms set accurately to line-and-grade for entire length and width. [Sect. 501.3(d)]
B. Conduct slip-forming as per Sect. 501.3(g).

7.00 AMBIENT AIR TEMPERATURE -- SECTION 501.3(b) -- Concrete placement operations within appropriate ambient air temperature limits.

A. Concrete placement operations discontinued when the descending air temperature, away from artificial heat, falls to 40 F (45 F for accelerated strength concrete). [Sect. 501.3(b)1]
B. When the ambient air temperature rises to 85 F, plastic concrete temperatures recorded every 1/2-hour.
C. Concrete placement operations discontinued when plastic concrete temperature exceeds 90 F. [Sect. 501.3(b)2]

8.00 BASE COURSE -- SECTIONS 501.3(d), 501.3(e) & 501.3(f) -- Base course properly prepared and conditioned.

A. Do not damage the prepared surface. [Sect. 501.3(e) & (f)]
B. Any damaged areas repaired or replaced to the satisfaction of the Engineer at no additional cost to the Department. [Sect. 501.3(e) & (f)]
C. Not frozen, lumpy or crusted. [Sect. 501.3(b)1]
D. Water-conditioned to ensure moist condition in advance of paving operation. [Sect. 501.3(e)]
E. CTPBC and ATPBC properly prepared and in good condition prior to paving. [Sections 303 and 360]
F. No paving on permeable base when surface temperature exceeds 115 F. [Sect. 501.3(e)]
G. Pavements constructed on aggregate subbase that was low were built-up in 1/2-inch compacted lifts. [Sect. 501.3(d)]
H. Pavements constructed on aggregate subbases that was high were cut to required grade and recompacted. [Sect. 501.3(d)]
I. High areas cut and trimmed on CTPBC and ATPBC to required grade. [Sect. 501.3(d)]

9.00 FORMS -- SECTIONS 501.3(d) & 501.3(m) -- Pavement forms of the proper size and type, properly aligned, pinned, and removed.

A. Forms at least 10' in length with a base and depth equal to pavement depth but with a minimum form base of 6 inches. [Sect. 501.3(d)]
B. Forms clean and oiled. [Sect. 501.3(d)]

C. Forms set to proper line and grade. [Sect. 501.3(d)]
D. Forms that are shimmed no greater than 1 inch and provide a vertical face in shimmed-area. [Sect. 501.3(d)]
E. Forms not removed too soon to prevent pavement damage. [Sect. 501.3(m)]
F. Forms built-up no more than 1/2-inch to meet the required pavement thickness. [Sect. 501.3(d)]
G. Built-up form sections are continuous equal to the width of the steel and secured to prevent movement during concrete placement. [Sect. 501.3(d)]
H. Forms shimmed where the base course was low along the forms as per Section 501.3(d).

10.00 EQUIPMENT -- SECTION 501.3(k) -- Equipment capable of providing acceptable pavement.

A. Equipment clean and operating properly. [Sect. 501.3(k)1.a]
B. Rubber-tired wheel used to support spreader and finishing machine on adjoining concrete pavement surface and located approximately 12" from pavement edge. [Sect. 501.3(k)1.a]
C. Slip-form paver meets requirements of Section 501.3(g).
D. Equipment as detailed in the Quality Control Plan. [Sect. 501.3(a)1]

11.00 REINFORCEMENT -- SECTIONS 501.3 & 705.2 -- Reinforcing steel, welded wire fabric, load transfer units/dowel bars and tiebars/tiebolts of proper type, clean, and properly placed.

A. Free of rust, dirt, oil, grease or foreign substances other than light powdery rust. [Sect. 501.3(h)]
B. Placed in proper sequence and depth. [Sect. 501.3(g)4 & (h), RC-20 & RC-21]
C. Longitudinal tie-bolts / tie-bars placed at specified depth and spacing as per RC-20 and RC-21.
D. Proper size, type and grade as per RC-20 & RC-21. [Sect. 705.2 & .3]
E. A minimum of eight anchor stakes (4 per side) provided for each lane Load Transfer Unit (12'-0"). (RC-20, Sheet 3, Note 2)
F. Anchor stakes (#4 deformed rebars or 1/2" smooth rods) of sufficient length such that 8 inches was embedded if the top course is OGS, ATPBC, CTPBC or 2A. (RC-20, Sheet 3, Note 3)
G. Deformed bent tie-bars are #16 (#5) epoxy coated bars. [RC-20 & Sect. 705.2(a)2]
H. Epoxy coated bars repaired as per manufacturer's recommended procedures. [Sect. 1002.3(f)]

12.00 CONCRETE PLACEMENT/CONSOLIDATION -- SECTION 501.3(f) -- Concrete properly placed and consolidated.

A. Pre-molded expansion-joint material not less than 1/2 inch in total thickness placed full-depth around sides of manholes, inlets, valve boxes and similar appurtenances. [Sect. 501.3(f)]
B. Operation performed during daylight hours unless acceptable lighting system used. [Sect. 501.3(k)]
C. Concrete may be deposited directly on the subgrade or prepared surface in front of the paver when implanting dowel bars by mechanical means. [Sect. 501.3(f)]
D. Cement concrete properly consolidated without segregation. [Sect. 501.3(f)]
E. Vibrators not in contact with joint assemblies or used to flow concrete. [Sect. 501.3(f)]
F. Placed without interruptions greater than 30 minutes. [Sect. 501.3(i)1]
G. Transverse bulkhead material for construction-joints available. [Sect. 501.3(i)1]
H. Any bottom layer of concrete not covered within 30 minutes is removed and replaced. [Sect. 501.3(h)]
I. All slab lengths are 10 feet or greater, otherwise removed. [Sect. 501.3(i)1]
J. Vibrating and tamping-elements immediately disengaged when paver's forward movement stopped, or in one place longer than 5 seconds. [Sect. 501.3(f)]
K. Slip-form paver operated in a continuous forward movement. [Sect. 501.3(g)3]
L. Adequate equipment, hauling units, and trained personnel performing operation to maintain continuity of placement. [Sect. 501.3(f)]

13.00 TRANSVERSE JOINTS -- SECTION 501.3(i), RC-20, RC-21 & RC-27 -- Transverse joints properly located and constructed.

A. Joints marked accurately for center. [Sect. 501.3(i)2]
B. Dowel bars with damaged coating were removed and replaced. [Sect.501.3(i)}
C. LTU assemblies were properly placed and anchored to prevent misalignments not exceeding the limits specified in Section 501.3(i).

D. Sawed with proper equipment. [Sect. 501.3(i)2]
E. Curing cover not removed longer than 30 minutes. [Sect. 501.3(i)2]
F. Full width of pavement sawed when concrete has hardened sufficiently to prevent damage. [Sect. 501.3(i)2]
G. Slabs with any cracks or spalls at any location repaired in accordance with Table A. [Sect. 501.3(i)2]
H. Sawing for sealant reservoir done a minimum of 72 hours after placement. [Sect. 501.3(i)2]
I. All joints cleaned with either pressurized water, or water and air mixture, immediately after sawing. [Sect. 501.3(i)2]
J. Joints protected until sealed. [Sect. 501.3(i)2]
K. All adjacent joints and cracks in previously-placed lanes are covered to prevent intrusion of mortar. [Sect. 501.3(i)]
L. Sawing extended into adjacent joints to remove any mortar intrusion. [Sect. 501.3(i)]
M. Joints constructed according to details in RC-20, RC-21 & RC-27.
N. Typical joint-spacing on all pavements is 15 feet, unless otherwise indicated. (RC-27 Note 6)
O. Oversized backer rod (width plus 50%) placed in top of joint to maintain cure. [Sect. 501.3(i)2]
P. Pavements placed from October 1 to April 1 have the dominant joints marked in the previously placed lane. [Sect. 501.3(i)2]
Q. Dominant joints were saw cut first to encourage dominant joint development at the same location in the recently placed pavement. [Sect. 501.3(i)2]

14.00 LONGITUDINAL JOINTS -- SECTION 501.3(j) & RC-20 -- Longitudinal joints properly located and sawed.

A. Located accurately for center. [Sect. 501.3(j)]
B. Tie bars are not installed within 24 inches of a doweled joint. [Sect. 501.3(j)]
C. Sawed with proper equipment. [Sect. 501.3(j)]
D. Tied longitudinal contraction-joints sawed timely to prevent random cracking. [Sect. 501.3(j)]
E. All joints cleaned with either pressurized water, or water and air mixture, immediately after sawing. [Sect. 501.3(j)]
F. Joints protected until sealed. [Sect. 501.3(j)]
G. Panels containing longitudinal cracks removed and replaced. [Sect. 501.3(j)]
H. 15 Tie-bars selected from the first day's concrete placement tested for Pull-out Resistance testing. [Sect. 501.3(j)]
I. Pull-out resistance of tie-bars in compliance with Table B in Section 501.3(j).
J. One tie bar removed from each slab adjacent to dominant joints for pavements placed from October 1 to April 1. [Sect. 501.3(j) & RC-20 Sheet 13 Note 2]

15.00 FINISHING -- SECTION 501.3(k) -- Concrete pavement properly struck off and finished.

A. Uniform roll of concrete maintained ahead, and across entire length, of finishing machine. Overlap any previously screeded concrete. [Sect. 501.3(k)1.a]
B. No water or monomolecular film added to surface to aid finishing. [Sect. 501.3(k)1.a]
C. No manual strike-off except at breakdowns, bulkheads, patches less than 10 feet in length and small turnouts. [Sect. 501.3(k)1.b]
D. Open-textured areas filled in, smoothed and floated as necessary. [Sect. 501.3(k)2]
E. 12-foot straightedge used by Engineer to test deficient or irregular areas. [Sect. 501.3(k)3]
F. Fresno or steel floats not used to finish concrete. [Sect. 501.3(k)2]

16.00 TEXTURING -- SECTION 501.3(k)4 -- Concrete pavement properly textured.

A. Initial texture with a turf drag or broom device applied after floating. [Sect. 501.3(k)4]
B. Longitudinal texture turf drags, brooms and tine devices on self propelled equipment with external alignment control. [Sect. 501.3(k)4.a}
C. Longitudinal texture for small or irregular areas, or equipment break downs applied by hand methods. [Sect. 501.3(k)4.a]
D. Final longitudinal texture performed with a spring steel tine device producing grooves parallel to centerline and within 3 to 5 inches of the pavement edge. [Sect. 501.3(k)4.a]

E. Longitudinal textured finish has grooves 1/8 inch (± 1/32 inch) wide, 1/8 to 3/16 inch deep, and 1/2 to 3/4 inch nominal center to center tine spacing. [Sect. 501.3(k)4.a]
F. Transverse texture applied for shoulders, gore areas, traffic separators, sidewalks, or other small width applications. [Sect. 501.3(k)4.b]
G. Transverse textured finish has grooves rectangular in shape 3/32 to 3/16 inch wide and 1/8 to 3/16 inch in depth. [Sect. 501.3(k)4.b]
H. 10-foot rake used with center-to-center random transverse texture tine spacing as specified in Table C. [Sect. 501.3(k)4.b]
I. Transverse texture performed in a single pass producing a uniform finish. [Sect. 501.3(k)4.b]
J. Transverse texturing device free of hardened concrete particles. [Sect. 501.3(k)4.b]
K. Macrotexture applied to pavements exposed to traffic with a radii less than 50 feet. [Sect. 501.3(k)4.c]
L. Macrotexture final surface finish is a minimum Mean Texture Depth of 0.040 inches, unless otherwise directed or indicated. [Sect. 501.3(k)4.c]
M. Macrotexture testing performed in accordance with Section 501.3(k)4.c.

17.00 CURING -- SECTION 501.3(l) -- Concrete pavement properly cured.

A. Curing placed within 30 minutes of dissipation of bleed water without marring surface. [Sect. 501.3(l)]
B. Entire surface and sides covered. Covers secured continuously over entire surface & sides. [Sect. 501.3(l)]
C. Covers of minimum length and width to provide 12" overlap and consistent with pavement joint-spacing. [Sect. 501.3(l)1.a]
D. White Poly-alpha-methylstyrene (PAMS) membrane curing compound permitted when air temperature is 40 F at the time of application and the forecasted air temperature will remain above 40 F for a period of 4 hours after application. [Sect. 501.3(l)1.c]
E. White Poly-alpha-methylstyrene (PAMS) membrane curing compound applied by proper self-propelled mechanical sprayer. Sides sprayed when exposed. [Sect. 501.3(l)1.c]
F. White Poly-alpha-methylstyrene (PAMS) membrane curing compound applied at a rate of 150 square feet per gallon, or as per manufacturer's recommendations. [Sect. 501.3(l)1.c]
G. Burlap placed in double thickness and kept saturated for full curing-period. [Sect. 501.3(l)1.d]
H. For temperatures below 40 F, pavement protected with insulating material that maintains minimum temperature of 40 F until the concrete achieves sufficent strength for opening to traffic as specified in Section 501.3(q). [Sect. 501.3(l)2]
I. Applications less than 6 inches in depth have adequate insulating blankets preventing heat loss for tempertures less than 45F. Insulation removed when air temperature exceeds 45F or when pavement achieved sufficent strength for opening to traffic as specified in Section 5013.(q). [Sect. 501.3(l)2]
J. Insulation or heating of accelerated strength concrete pavements provided during normal curing operations. [Sect. 501.3(l)1]
K. Insulation to protect concrete removed that rate to temperature change did not exceed 40F within a 1-hour period. Concrete considered defective that experienced a temperature change at a higher rate. [Sect. 501.3(l)2]
L. Curing materials in place and maintained for 96 hours for normal strength concrete, or 72 hours for HES concrete. [Sect. 501.3(l)1]
M. Cure removed for a maximum of 30 minutes for sawing operation. [Sect. 501.3(i)2]
N. Cure maintained at sawed joints. [Sect. 501.3(i)2]
O. When curing temperature falls between 40 F and 35 F, the cure-period extended by one day. [Sect. 501.3(l)2]
P. If temperature during curing-period falls below 35 F, the concrete is considered defective. [Sect. 501.3(l)2]

18.00 SEALING JOINTS AND CRACKS -- SECTION 501.3(n) -- Joints properly cleaned and sealed.

A. All joints widened with second stage sawcuts and sealed prior to opening-to-traffic, including construction equipment, and before winter season. [Sect. 501.3(n)]
B. Pavement opened to construction equipment has had second stage sawing performed and has backer rod installed and maintained near the surface, initial concrete strength attained, and curing requirements are met.

C. Joints not sealed unless thoroughly clean and dry. [Sect. 501.3(n)]
D. All joints and reservoirs cleaned of curing compound and other debris with wire brush, then waterblasted or sandblasted. [Sect. 501.3(n)]
E. Joints cleaned after sandblasting with clean compressed air, and prior to bond-breaker or joint seal material placement. [Sect. 501.3(n)]
F. Curing compound prevented from entering unsealed joints; unless joints are sandblasted prior to sealing. [Sect. 501.3(n)]
G. Tape bond-breaker, backer rod or joint-backing material installed in Joint. [Sect. 501.3(n)1]
H. Hot-poured joint sealant placed at air temperature above 40 F. [Sect. 501.3(n)1]
I. Do not maintain a single batch of material longer than 6 hours; Sealant reheated in accordance with the manufacturer's recommendations. [Sect. 501.3(n)1]
J. Neoprene seals properly installed by approved mechanical means. [Sect. 501.3(n)2]
K. Lubricant adhesive installed to faces of seal and joint as per manufacturer's recommendations. [Sect. 501.3(n)2]
L. Seal installed as one continuous piece to the depth indicated unless otherwise approved. [Sect. 501.3(n)2]
M. Neoprene Seals installed in accordance with contractor's Quality Control Plan. [Sect. 501.3(n)2]
N. Seals replaced if elongated more than 3% or compressed longitudinally more than 2%. [Sect. 501.3(n)2]
O. Initial and final saw-cuts are the proper depth and width. (RC-20)
P. When permitted by the Engineer, the Contractor may open pavement to construction equipment provided an approved temporary sealing material acceptable to the Engineer is in place and initial concrete strength and curing requirements are met. [Sect. 501.3(n)]
Q. QC Plan for sealing joints and cracks submitted to Engineer prior to the start of the project. [Sect. 501.3(n)2 & 106.03(a)2]
R. Prior to sealing joints, a minimum of 3 full-width pavement joints sealed according to the Test Section Schedule as specified in the submitted QC Plan. [Sect. 501.3(n)2]

19.00 SURFACE TOLERANCE -- SECTION 501.3(o) -- Hardened pavement surfaces properly tested.

A. High-points in excess of 3/16 inch ground off (removed by approved method). [Sect. 501.3(o) & (o)1]
B. Longitudinal Joints tested with 12' straightedge for 1/4" tolerance in areas with no change in design cross slope, or with a 4' straightedge at areas where a change exists in the design cross slope. [Sect. 501.3(o)]
C. Straightedges and testing as per Section 501.3(k)3.

20.00 PAVEMENT PROTECTION -- SECTIONS 501.3(p), 501.3(q) & 501.3(r) -- Pavement protected until proper time restrictions and strength requirements have been met.

A. Sufficient materials provided on site at all times to properly protect the pavement-edges and surface against rain. [Sect. 501.3(r)]
B. Pavement protected from rain prior to the concrete's initial set. [Sect. 501.3(r)]
C. If rain is imminent, paving operation halted and pavement covered with protective material. [Sect. 501.3(r)]
D. Pavement protected from all traffic and construction equipment until pavement attained mimimum compressive strength according to Table D of Section 501.3(q).
E. When required to complete adjacent pavement, equipment not operated on pavement until the pavement has attained the minimum compressive strength according to Table D of Section 501.3(q).
F. Minimum strength of 1,200 psi met for accelerated strength concrete. [Sect. 501.3(q)]

21.00 TEST FOR DEPTH -- SECTION 501.3(s) -- Tests for depth obtained and measured properly.

A. Core measuring apparatus conforming to PTM 614. [Sect. 501.3(s)1]
B. Surface corrections or diamond grinding/grooving completed prior to core removal. [Sect. 501.3(s)]
C. Cores located as per PTM No. 1, drilled according to PTM 606, and in the presence of the Inspector. [Sect. 501.3(s)1]
D. Cores measured by Inspector for adequate depth in accordance with PTM 614. [Sect. 501.3(s)1]

E. Non-destructive depth testing device verified daily in the presence of the Inspector in accordance with PTM 605. [Sect. 501.3(e)]
F. Non-destructive depth testing target locations determined by the Inspector in accordance with PTM 605. [Sect. 501.3(e)]
G. Non-destructive depth testing targets placed at determined locations, not within 5 feet of a doweled joint nor within 4 feet of a tied joint in accordance with PTM 605. [Sect. 501.3(e)]
H. Non-destructive depth testing conducted in accordance with PTM 605. [Sect. 501.3(s)2]
I. If any average sublot thickness measurement is deficient by more than 1/4", a core was drilled to confirm the thickness measurement. [Sect. 501.3(s)2]
J. If any core depth was deficient by more than 1/4", additional cores drilled every 100 feet longitudinally in both directions of the same lane until core depth was within 1/4" of the required depth. [Sect. 501.3(s)1 & 2]
K. If any core depth was deficient by more than 1/2", then the pavement was considered defective. [Sect. 501.3(s)1]
L. For Independent Assurance of non-destructive depth testing, one core was drilled from a location within the initial Lot and one for each subsequent Lots thereafter to confirm depth measurements. [Sect. 501.3(s)2]

22.00 TEST FOR HARDENED AIR CONTENT -- SECTION 501.3(s) -- Cores submitted to LTS for testing.

A. Every fifth core has been submitted to LTS for entrained air content evaluation (PTM 623) and 28-day compressive strength (AASHTO T 24) and compared to project results. [Sect. 501.3(s)1]

23.00 CEMENT CONCRETE -- SECTION 704 -- Concrete delivered and discharged properly.

A. Furnished the indicated class of concrete according to the requirements of revised Table A in Section 501.2(a).
B. Conduct concrete temperature tests according to ASTM C 1064. [Sect. 704.1(d)4.a]
C. Number of truck drum revolutions after discharge less than 300. [Sect. 704.2(c)]
D. Agitated for at least 20 revolutions immediately prior to placement. [Sect. 704.2(c)]
E. Concrete exceeding 45 minutes without agitation not used. [Sect. 704.2(c)]
F. Concrete was discharged within 1-1/2 hours when the concrete temperature was below 80 F. [Sect. 704.2(c)]
G. Concrete not containing a set-retarding admixture discharged within 1 hour when the concrete temperature was 80 F or above. [Sect. 704.2(c)]
H. Normal strength concrete temperature was between 50 F and 90 F. [Sect. 704.1(f)2]
I. Accelerated concrete temperature was between 50F and 100F. [Sect. 704.1(f)2]
J. Water / Cement ratio as per mix design. [Sect. 704.1(c)]

24.00 CONCRETE SAMPLING -- SECTION 704.1(d) AND PTM 601 -- Concrete sampling performed properly and at point-of-placement.

A. Samples obtained at the point-of-placement. [Sect. 704.1(d) and PTM 601]
B. Sampling performed as per current PTM 601. [Sect. 704.1(d)4.a]

25.00 CONCRETE SLUMP -- SECTION 704.1(d)4.a AND AASHTO T 119 -- Concrete slump tested properly and is within the specified range.

A. Testing performed as per AASHTO T 119. [Sect 704.1(d)4]
B. Slump within ranges indicated in the Quality Control Plan.
C. When the initial slump was outside the selected target range, and below the upper limit, a full set of cylinders were molded for both Control and Acceptance in addition to the cylinders originally made from PTM 1 if the air content and temperature were within the specified limits and the contractor incorporated the concrete. [Sect. 704.1(d)4.a]

26.00 CONCRETE AIR CONTENT -- SECTIONS 704.1(c)3, 704.1(d)4.a & AASHTO T 196 OR T 152 -- Concrete air content tested properly and is within the specified range.

A. Concrete tested for air content as per AASHTO T 152 for stone & gravel (Do not apply an Aggregate Correction Factor) and AASHTO T 196 for slag coarse aggregate. [Sect. 704.1(d)4.a]
B. Plastic air content within specified range (7.0% +/- 1.5%). [Sect. 501.2(a)(b)(c)]

27.00 COMPRESSIVE STRENGTH CYLINDERS -- PTM 611 & PTM 604 -- Concrete compressive strength cylinders molded and cured properly.

A. Compressive strength cylinders molded and cured as per PTM 611. [Sect. 704.1(d)]
B. Compressive strength evaluated as per PTM 604.
C. Acceptance, Control and Verification compressive strength testing performed at 28 days. [Sect. 704.1(d)]
D. QC Cylinders molded from same sample of concrete selected for Acceptance & Verification testing. [Sect. 704.1(d)4.b]
E. Cylinder diameters do not vary by more than 1/16 inch and no two diameters differ by more than 1/8 inch. (PTM 611)
F. Tight fitting caps used on all cylinder molds. [PTM 611 or 704.1(d)3]

28.00 TESTING FACILITIES, EQUIPMENT& PROCEDURES -- SECTION 704.1(d) -- Acceptance testing and quality control testing performed by proper personnel and with separate equipment.

A. Sufficient thermometers, air meters and slump cones provided for each separate project operation. [Sect. 704.1(d)3]
B. Verification tests performed by Department personnel with the initial Acceptance test and a minimum of one of every ten Acceptance tests thereafter. [Sect. 704.1(d)6]
C. Quality Control & Acceptance tests performed by contractor technician. [Sect. 704.1(d)2]
D. Cylinders tested for compressive strength in accordance with PTM 604. [Sect. 704.1(d)4, 5, 6 & 7]
E. Communication between paving operation and plant being effectively maintained.
F. Action points defined in Quality Control Plan are being followed. [Sect. 704.1(d)4.a]
G. Back-up equipment available to ensure that no tests are missed. [Sect. 704.1(d)3]
H. Verification testing (air content, temperature & compressive strength) was performed from the same sample of concrete using the same air meter as the Acceptance testing. [Sect. 704.1(d)6]
I. Field technician had PennDOT Certification and carries Certification Card during all placements. [Sect. 704.1(d)2]