

QUALITY ASSURANCE REVIEW CHECKLIST

COR 350 SUBBASE

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 -- All certifications for materials incorporated in this operation properly completed and on file.

- A. Certification for No. 2A and for No. OGS on CS-4171 for each day's shipment.
- B. All materials received from an approved Bulletin 14 supplier or approved by LTS testing.

2.00 PROJECT OFFICE DOCUMENTATION -- POM & SECTION 350 -- Documentation applicable to this operation current, properly completed, and on file.

- A. Source of supply letter approved by the District. [Sect. 106.02(a)]
- B. No material has been paid for without certification. [Sect. 106.03(b)3]
- C. Source documents and I/E book properly completed. (POM B/1/7-3 & B/1/4-1)
- D. Subbase pay limits measured as per RC-13M. (RC-13M)
- E. No more than 75% payment made for subbase until base course or pavement is constructed. [Sect. 350.4 (a)1]
- F. Subbase Delivery Plan submitted & reviewed when quantities are greater than 1500 tons. [Sect. 350.3(b)]
- G. All nuclear radiation posters in place as required. (POM B/4/2-1)
- H. Nuclear gauge certified annually.
- I. Nuclear gauge operator license and training are documented. (POM B/4/2-1)

3.00 TEST DOCUMENTATION/FREQUENCY -- POM, PTM, SECTIONS 350 & 703 -- All testing properly documented and performed at the proper frequency.

- A. One test for depth and compaction for each 3,000 square yards or less of material placed. [Sect. 350.3(g) & POM B/6/5-3]
- B. Test locations determined using PTM No. 1.
- C. Compaction reports properly completed (nuclear, TR-4276A, and non-movement, TR-478A) and on file. (POM B/6/7-1)
- D. Moisture density test results meets requirements of PTM No. 106, Method B. [Sect. 350.3(e)]
- E. Straight line diagrams (TR-4254) are current (minimum of 25 tests) and include Q.A. results. (POM B/1/13-1 & B/6/5-3)
- F. Disposition of material failures documented on Form TR-455, Disposition of Failed Materials. (POM B/9/1-1)
- G. Acceptance testing of aggregates documented and on file.
- H. Project verification samples lifted at proper frequency. [Sect. 703.5(b)3, POM B/7/13]
- I. Nuclear gauge standard counts within operating limits. (AASHTO T310)

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4.00 STAFFING -- 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. [Sect. 107.08]
- B. All personnel wearing proper safety attire. [Sect. 107.08]
- C. Working conditions safe. [Sect. 107.08]
- D. Equipment operated in a safe manner. [Sect. 107.08]
- E. Contractor safety plan on file. [Sect. 107.08]
- F. Material safety data sheets on file. [Sect. 107.08]
- G. Multi-season contracts $\geq$ \$5,000,000.00 have safety scoreboard. [Sect. 107.08]
- H. Nuclear gauge source rod in proper position prior to moving. (POM B/4/3-1)
- I. Nuclear gauge operator was wearing badge. (POM B/4/1-1)

6.00 SUBGRADE CONDITION -- SECTION 350.3(b) -- Subgrade in satisfactory condition prior to subbase placement.

- A. Subbase not placed on soft, frozen, or muddy areas or in areas containing any other irregularities. [Sect. 350.3(b)]
- B. All irregularities or soft areas satisfactorily corrected prior to placing subbase. [Sect. 210.3(c)]

7.00 EQUIPMENT -- SECTION 350.3(a) -- Equipment used of the proper type, condition, and quantity.

- A. Compaction equipment is the proper type for the operation as specified in Sections 108.05(c)3.i or 4.
- B. Spreaders meet requirements of Section 320.3(a)3.
- C. The condition and quantity meets the qualifications for the proper execution of the work within the specified time limits. [Sect. 108.05(c)]

8.00 SUBBASE MATERIAL -- SECTION 350 -- Subbase material of the proper type and properly maintained.

- A. No. 2A and No. OGS, Type S or better, as specified in Section 703.2 and 703.5. [Sect 350.2(a)]
- B. Contains enough moisture to prevent segregation during stockpiling, hauling, placing, and compacting. [Sect. 350.3(c)]

9.00 PLACEMENT -- SECTION 350.3(d) -- Subbase material properly placed.

- A. Elevation and depth controlled in accordance with Section 210.3(c).
- B. Berms constructed to confine the material prior to placing subbase. [Sect. 350.3(d)]
- C. Class 4, Type A geotextile has been installed prior to placing subbase. [Sect. 350.3(d)]
- D. Placed on the prepared area using a spreader or other acceptable method where use of a spreader would be impractical, in a manner which does not cause segregation. [Sect. 350.3(d)]
- E. No. 2A placed to the required compacted depth. [Sect. 350.3(d)]
- F. No. OGS placed to the required compacted depth. [Sect. 350.3(d)]
- G. Subbase completed to limits shown as per RC-13M. [Sect. 350.3(d)]
- H. Subbase completed and maintained at least 1500 feet in advance of succeeding operations. [Sect. 350.3(d)]
- I. Except for granulated slag, courses not over 8 inches in compacted depth. [Sect. 350.3(d)]
- J. When permitted, granulated slag not more than 6 inches in compacted depth. If not permitted, not more than 4 inches in compacted depth. [Sect. 350.3(d)]
- K. Subbase operations not started until the Subbase Delivery Plan is reviewed by the Department Representative when the plan is required due to quantities being greater than 1500 tons. [Sect. 350.3(b)]

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10.00 COMPACTION AND DENSITY -- POM & PTM & SECTION 350.3(e) -- Determination of in place density and compaction procedures were satisfactory.

- A. Material compacted to a condition of non-movement under the compaction equipment as specified in Section 206.3(b). [Sect. 350.3(e), POM B/6/5-3 & POM B/6/7-1]
- B. Compaction proceeded gradually from sides to center with each succeeding pass uniformly overlapping the previous pass. [Sect. 350.3(e)]

11.00 SURFACE TOLERANCE -- SECTION 350.3(f) & 210.3(c) -- Surface tolerance properly controlled.

- A. Cross-section checked for irregularities at intervals of not more than 25 feet. [Sect. 210.3(c)]
- B. String line or acceptable method used to control the elevation. [Sect. 210.3(c)]
- C. Irregularities exceeding 1/2 inch corrected. [Sect. 210.3(c)]

12.00 DEPTH TESTS -- SECTION 350.3(g) -- Depth of completed subbase checked properly.

- A. Areas deficient in depth 1/2 inch or greater were scarified to a depth of 3 inches, blended with additional material, and re-compacted. [Sect. 350.3(g)]
- B. Test holes backfilled with acceptable material and compacted. [Sect. 350.3(g)]

13.00 SUBBASE MAINTENANCE -- SECTION 350.3(h) -- Completed subbase properly maintained until the placement of the surface course.

- A. Areas exposed to hauling or exposed to weather in excess of 60 calendar days retested for surface irregularities and depth. [Sect. 350.3(h)]
- B. All construction equipment and traffic kept off compacted No. OGS unless specifically authorized by the Engineer. [Sect. 350.3(h)]
- C. Subbase or subbase covered with treated permeable base course not left exposed during winter shutdown. [Section 350.3(h)]
- D. Subbase left in place without the protective layers proof-rolled as specified in Section 206.3(a)1 and corrected as required. [Sections 350.3(h) & 206.3(a)1]