CS-704 (12-19)

pennsylvania
DEPARTMENT OF TRANSPORTATION
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# MINIMUM QUALITY CONTROL PLAN FOR FIELD PLACEMENT CONCRETE OPERATIONS

(Attach additional sheets as necessary)

State Route (SR) _____ Section _____ County _____ ECMS# _____

Prime/Sub Contractor _____

## Part 1. ORGANIZATIONAL CHART

| Personnel | Full Name | Responsibilities |
|---|---|---|
| A. Superintendent | _____ | Oversees concrete operations. |
| B. Concrete Foreperson | _____ | Oversees placement of material and related operations. |
| C. Certified Field Technician | _____ | Performs field tests and sampling and acts as contact person to PennDOT. |
| PennDOT Certification No.: | _____ | Expiration Date: _____ |
| D. Technician in Training | _____ | Performs field tests and sampling and acts as contact person to PennDOT under the direct supervision of a certified technician. |

Note: Problems related to concrete material, placement operations, and testing shall be directed to the appropriate personnel listed above.

## Part 2. MIXING AND DELIVERY

Concrete shall be supplied from a current PennDOT approved concrete plant listed in Bulletin 42.

A. Two-way communications shall be maintained between the concrete plant and the work site.

B. A plant delivery slip signed by the plant technician and containing the information specified in Publication 408 shall be supplied for each truck.

## Part 3. MATERIAL CONTROL

Material control is considered established when all tests results of concrete temperature, air, and slump of three consecutive trucks are determined to be within the established action points. **If a test exceeds the upper or lower action points the testing frequency shall be increased to every truck until material control is reestablished and the plant technician shall be notified.**

A. List designs and Slump Requirements ( Attach additional sheets as necessary)

| Concrete Supplier Code | JMF Number and Year | Structural Element Being Placed | Class of Concrete and Slump Upper Limit (Pub 408) | Selected Target Slump Value | Target Range [+/- 1 ½" max. from the selected target slump value] | Action Points [May not be < 1/2" from target range values] |
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Note: Target range not to exceed upper slump limit. More stringent action points may be specified if desired.

**B. Testing Requirements**

1. Temperature (ASTM C1064) Shall be performed every time air and slump tests are performed. If the action points shown below are reached, the plant shall be contacted so corrective action can be taken. Additional tests shall be performed as specified in Publication 408. Concrete that does not meet the temperature specification requirements shall not be incorporated.

| | |
|---|---|
| Concrete Temperature Spec. Limits | _____ and _____ |
| Concrete Temperature Spec. Limits (Concrete Deck Placement) | _____ and _____ |
| Concrete Temperature Action Points | _____ and _____ |
| Concrete Temperature Action Points (Concrete Deck Placement) | _____ and _____ |

2. Slump tests (AASHTO T119) Shall be performed on the first three consecutive trucks and until material control is established. Additional tests shall be performed as specified in Publication 408. If the slump upper limit is exceeded, the contractors' technician SHALL reject the truck.

   If the District permits the addition of water to adjust for low slump concrete, specify the controls and procedure for adding the water: (No water may be added to AAAP. Attach a comprehensive plan if water reducer is to be added on site.)

   Slump specification limits and actions points are indicated in Section A shown above.

3. Air test (AASHTO T152 or T196) Shall be performed on the first three consecutive trucks and until Material control is established. Additional tests shall be performed as specified in Publication 408.

| | |
|---|---|
| Concrete Air Content Spec. Limits | _____ % and _____ % |
| Concrete Air Content Spec. Limits (AAAP and Paving) | _____ % and _____ % |
| Concrete Air content Action Points | _____ % and _____ % |
| Concrete Air Content Action Points (AAAP and Paving) | _____ % and _____% |

   - Low air content material may be remixed at mixing speed and retested. (1 time only, not to exceed the maximum allowed time or 300 revolutions)
   - High air content material may be allowed to mix at agitating revolutions for a period of time and re-tested. (1 time only, not to exceed the maximum allowed time or 300 revolutions)
   - Trucks with high air content material may be pulled aside with the barrel stopped, not to exceed 45 minutes, as specified in Pub. 408, Section 704.2(c). Prior to retest, the concrete is agitated for at least 20 revolutions. (1 time only, not to exceed the maximum allowed time or 300 revolutions)
   - Consult with ready-mix supplier before any of the above field adjustments are attempted. Field adjustments by adding water are not permitted to adjust plastic air content.(AASHTO M 157)

4. List Concrete Testing Equipment (Attach additional sheets as necessary)

   - All air meters will be calibrated prior to use and at least once every 2 weeks thereafter in the presence of the Inspector.

## Part 4. CONCRETE CYLINDERS

A. Number of Concrete Cylinders

The following number of concrete cylinders shall be molded and cured according to PTM No. 611 for testing purposes. Cylinders shall be identified on the outside of the mold using indelible ink and shall be capped with domed lids:

_____ 3-Day Quality Control compressive strength

_____ 7-Day Quality Control compressive strength

_____ 14-Day Quality Control compressive strength (AAAP)

_____ Cylinders for form removal strength ( Specify: _____ )

_____ Cylinders for loading strength ( Specify: _____ )

_____ 28-Day Quality Control compressive strength

_____ 28-Day Acceptance compressive strength

_____ 56-Day Quality Control compressive strength (AAAP and Prevention Level Z mixes)

_____ 56-Day Acceptance compressive strength (AAAP and Prevention Level Z mixes)

The number of Verification cylinders and Quality Assurance cylinders molded shall be as specified in Publication 408 and molded and cured according to PTM No. 611.

B. Curing Concrete Cylinders (Attach additional sheets as necessary)

Curing and care of the concrete cylinders shall be the responsibility of the contractor.

<u>First 24 hours of curing:</u>

- Cylinders shall be moved within 15 minutes of molding to the curing location.
- Maintain initial curing temperature for all normal strength concrete cylinders 60°F and 80°F.
- Describe method of curing for first 24-hours for each type of cylinder:

<u>After 24 hours of curing:</u>

- Cylinders shall be stripped from the molds and the original identification shall be transferred from the cylinder mold onto the cylinder using indelible ink.
- Acceptance cylinders will be cured in a lime bath with a temperature of 73 +/- 3 °F.
- Describe method of curing after 24 hours for each type of cylinder: (Attach addendum for Cool and Cold Weather Curing as necessary):

Cylinder Transportation and Handling

- Describe the method of transportation and handling.

- Specify the location of the concrete break machine.

**Part 5. FIELD PLACEMENT WORKFORCE AND EQUIPMENT**

List workforce, equipment, and method of placement (bucket, pump etc.) for each structural element. (Attach additional sheets as necessary)

**Submitted By:** _____ **Date:** _____

**Supplier Reviewed By:** _____ **Date:** _____

**Department Reviewed By:** _____ **Date:** _____