Comments: (11-8-21 Internal)
For color testing we are recommending to update method to ASTM E1349. Method ASTM E1349 uses spectrophotometer and E1347 uses colorimeter. NTPEP TTCD workplan will be updated to specify E1349. The State Materials Office use spectrophotometer (E1349) as well.

**Durable Tubular Markers**

**Current language:**
991-1.3.1 White: The yellowness index shall not exceed 12, tested in accordance with ASTM E313. The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 70, tested in accordance with ASTM E1347 or ASTM E1164.
991-1.3.2 Yellow: The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 60, tested in accordance with ASTM E1347 or ASTM E1164.

**Proposed language:**
991-1.3.1 White: The yellowness index shall not exceed 12, tested in accordance with ASTM E313. The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 70, tested in accordance with ASTM E1349.
991-1.3.2 Yellow: The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 60, tested in accordance with ASTM E1349.

**Standard Tubular Markers**

**Current language:**
991-2.3.1 White: The yellowness index shall not exceed 12, tested in accordance with ASTM E313. The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 70, tested in accordance with ASTM E1347 or ASTM E1164.
991-2.3.2 Yellow: The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 60, tested in accordance with ASTM E1347 or ASTM E1164.

**Proposed language:**
991-2.3.1 White: The yellowness index shall not exceed 12, tested in accordance with ASTM E313. The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 70, tested in accordance with ASTM E1349.
991-2.3.2 Yellow: The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 60, tested in accordance with ASTM E1349.

Response:
Agree. Changes made.