NDOR SiteManager
Materials Management

Standard Operating Procedures

Maturity Method Field Monitoring
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<td>Standard Operating Procedures document created</td>
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<td>Andi Clark</td>
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1. Introduction and Purpose:

This document is intended to be used in conjunction with the existing training materials provided by the Nebraska Department of Roads (NDOR), Materials & Research (M&R) Division.

1.1 Purpose:

The purpose of this document is to define the responsibilities of M&R personnel and construction field inspectors during:

- Pre-placement
- Placement
- Post Placement

1.2 Roles and Responsibilities:

As of the publication date of this document, roles and responsibilities are defined as follows:

- SiteManager Staff: 402.479.4760, DOR.SiteManagerMaterials@nebraska.gov
- Portland Cement Concrete Engineer: Wally Heyen, 402.479.4677, Wally.Heyen@nebraska.gov
- NDOR Portland Cement Concrete Material & Tests Manager: Tim Krason, 402.479.4709, Tim.Krason@nebraska.gov
- District 1, Quality Assurance Manager: Ron Vajgrt, 402.479.4543, Ron.Vajgrt@nebraska.gov
- District 2, Quality Assurance Manager: Gary Mangen, 402.595.2534, ext 286, Gary.Manger@nebraska.gov
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- District 4/7, Quality Assurance Manager: Cal Splattstoesser, 308.385.6271, ext 218, Cal.Splattstoesser@nebraska.gov
- District 5/6/7/8, Quality Assurance Manager: Rodney McNeel, 308.535.8111, ext 226, Rodney.Mcneel@nebraska.gov

1.3 Authentication:

Creating and Authorizing a SiteManager Sample Record: http://www.dor.state.ne.us/mat-n-tests/MMG/CreatingSMGRSampleRecord.pdf
1.4 Abbreviations:

M&R: NDOR Materials & Research
MSG: Materials Sampling Guide
NDOR: Nebraska Department of Roads
PR: Pavement Repair
SMGR: SiteManager
TTF: Time/Temperature/Factor
2. Pre-Placement:

2.1 Certification:

A sampler or tester shall be certified in accordance with the tester qualifications cited in the Materials Sampling Guide (MSG).

- NDOR Maturity Method Field Monitoring

For more information, refer to Quality Assurance Program for Construction. Section 28, Appendix A, NDOR Materials Sampling Guide.
3. Placement:

3.1 Maturity Curve Development and Monitoring Guidelines:

For more information, refer to Materials & Research Division Maturity Curve Method of Development – Certification and NDOR Maturity Curve Monitoring.

3.1.1 Maturity Curve Target Opening:

A certified consultant or NDOR will develop the maturity curve. It will provide the target required minimum TTF value that correlates with the required opening strength.

See Section 5, Appendix, Figure 8 for an illustrative example of Maturity Curve Target Opening.

3.1.2 Maturity Curve Target Acceptance:

A certified consultant or NDOR will develop the maturity curve. It will provide the target required minimum TTF value that correlates with the required acceptance.

See Section 5, Appendix, Figure 9 for an illustrative example of Maturity Curve Target Opening.

3.2 Documentation:

Sampling information will be stored in SMGR consistent with accepted SMGR practices.

The process to submit a sample is detailed further in previously published training materials. For more information, refer to Creating and Authorizing SiteManager Samples.

Consideration should be given to these data elements when documenting concrete pavement repair.

3.2.1 Contract Tab:

Enter those contract line items that pertain to this sample record on the Contract tab.

Figure 1, Sample Record, Contracts Tab
3.2.2 Tests Tab:

The available test methods for concrete pavement repair, mainline pavement, and structures will be detailed on the Tests tab. They include PCF002001, Mainline Pavement – Structure Maturity Report, PCF003001, Pavement Repair (Maturity Tests) – Field; and PCX002001, Proportioning Report.

![Figure 2, Sample Record, Tests Tab](image)

These test methods are detailed in the following sections.

3.2.2.1 Pavement Repair – Maturity Summary Report:

The maturity summary report captures time and temperature information. Use this test method for pavement repair concrete acceptance.
Opening and Acceptance values are recorded on this test template. Additional temperature information, which is helpful and informative, may be stored in the comments fields provided on the bottom of test template.

3.2.2.2 Pavement Repair – Proportioning Report:

The proportioning report is provided to capture the mix design proportioned materials used to batch concrete, representative of the day’s placement.
3.2.2.3 Mainline Pavement – Structure Maturity Report:

The maturity summary report captures time and temperature information. Use this test method to determine the opening strength requirement for paving concrete and structures. This test does not determine final acceptance.

Use of this test method is closely monitored by the NDOR Portland Cement Concrete Division. Please contact the NDOR Portland Cement Concrete Engineer, Portland Cement Concrete Material & Tests Manager, or the District Quality Assurance Manager prior to selecting this test method.

![Mainline Pavement/Structure Maturity Report](image)

3.2.3 Basic Sample Date Tab:

When all of the sample information has been entered into the sample record, mark the sample record status as Complete.

Sample records created for the purpose of documenting pavement repair using the maturity method will be authorized by project personnel.

Sample records created for the purpose of documenting pavement repair using compressive strength testing will be authorized by laboratory personnel.
Figure 7, Sample Record, Basic Sample Data Tab
4. Post-Placement:

4.1 Final Review Process:

5. Appendices:

5.1 Maturity Curve for Pavement Repair Concrete – Target Opening:

Referenced in section 4.6.1., this is an example of Maturity Curve for Pavement Repair Concrete – Target Opening.

Figure 8, Maturity Curve for Pavement Repair Concrete – Target Opening – 3000 psi
5.2 Maturity Curve for Pavement Repair Concrete – Target Acceptance:

Referenced in section 4.6.2., this is an example of Maturity Curve for Pavement Repair Concrete – Target Acceptance.

Figure 9, Maturity Curve for Pavement Repair Concrete – Target Acceptance – 3500 psi