NDOR SiteManager
Materials Management

Standard Operating Procedures and Instructions

Multi-Layer Epoxy Polymer Overlay

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Modification Tracking Summary

Summary of Changes	Date	Author
Standard Operating Procedures and Instructions document created	6/25/2013	Andi Clark

1. Introduction and Purpose

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

The NDOR Standard Specifications for Highway Construction, Section 700 – Bridges, Culverts, and related Construction, details the requirements for Multi-Layer Epoxy Polymer Overlay (EPO).

1.1 Purpose:

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

- Pre-construction
- Construction
- Post Construction

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

Aggregate Laboratory Manager: Jim Beason, 402.479.4749, James.Beason@nebraska.gov

Bridge Management Engineer: Mike Vigil, 402.479.3769, Mike.Vigil@nebraska.gov

Construction Division: Jason Volz, 402.479.4452, Jason.Volz@nebraska.gov

Geotechnical Engineer: Mark Lindemann: 402.479.4752, Mark.Lindemann@nebraska.gov

Highway Chemical Tests Manager: Jasmine Dondlinger, 402.479.4874, Jasmine.Dondlinger@nebraska.gov

Portland Cement Concrete Engineer: Wally Heyen, 402.479.4677, Wally.Heyen@nebraska.gov

1.3 Authentication:

ASTM C 1583, Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)

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

NDOR Final Review Process Manual, S:\Final Review Manual.

NDOR Material Management Guidance, http://www.dor.state.ne.us/mat-n-tests/matmanguidance.htm

NDOR Materials Sampling Guide, http://www.dor.state.ne.us/mat-n-tests/sampguide.htm

NDOR Standard Test Methods Manual, http://www.roads.nebraska.gov/mat-n-tests/NDR%20Standard%20Test%20Methods/index.pdf

SMGR Active Materials List, http://www.dor.state.ne.us/mat-n-tests/pdfs-docs/matlist.pdf

Sample Identification Numbering Scheme: http://www.dor.state.ne.us/mat-n-tests/MMG/Sitemanager/SampleIDNumberingScheme.pdf

1.4 Abbreviations:

EPO: Epoxy Polymer Overlay

IAW: In Accordance With
ID: Identification Number
M&R: NDOR Materials & Research
NDOR: Nebraska Department of Roads
SMGR: SiteManager

2. Pre-Construction:

2.1 Inspection Team Responsibilities:

The inspection team is responsible for these activities:

2.1.1 Review Specification Requirements:

Review the NDOR Standard Specifications for Highway Construction, Informational Proposals/Special Provisions, project plans, Materials Sampling Guide, and Required Document List (RDL) for Multi-Layer Epoxy Polymer Overlay.

2.1.2 Material Requirements:

Review all material requirements for a given contract to determine the documentation procedures.

The complete list of SiteManager (SMGR) active materials is maintained online. For more information, refer to SMGR Active Material List.

2.1.2.1 Multi-Layer Epoxy Polymer Overlay:

Multi-Layer EPO materials are designated as 700EPO, Multi-Layer Epoxy Polymer Overlay and are accepted based on verification sampling and testing performed by NDOR.

SMGR Product Names have been established for:

- Multi-Layer Epoxy Polymer Overlay System
- EPO Aggregate
- Pull Off Test

3. Construction:

3.1 Specification Requirements

Review and verify plans, specifications, special provisions, and MSG for project requirements. For more information, refer to NDOR Materials Sampling Guide.

3.2 Material Requirements – Aggregates:

3.2.1 Field Sampling:

3.2.1.1 Sample Collection:

Sampling of material shall be conducted by field personnel from the project. For more information, refer to the MSG.

3.2.1.2 Sample Submission:

Sample submission is documented in SMGR. Samples are recorded in SMGR by their unique Sample Identification Number. For more information, refer to Sample Identification Numbering Scheme.

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

Submit the verification sample to the NDOR M&R Central Laboratory using a Sample Identification tag.


SiteManager
Sample Identification
Sample ID No.: (Fill all spaces)
Year SiteManager User # Dist. Sample #
Project No.: _____
Contract No.: _____
Project Mgr.: _____
Number of Items _____ of _____
Comments: _____
_____
_____
_____
Contact Materials & Research Division's SiteManager staff for replacement cards.

Figure 1, SiteManager Sample Identification Tag

3.2.2 Field Documentation:

3.2.2.1 Field Acceptance:

Field gradations will be submitted by means of the Multi-Layer Epoxy Polymer Overlay – Aggregate test method, AGF025001.

The findings of the field technician will be documented on the test template.

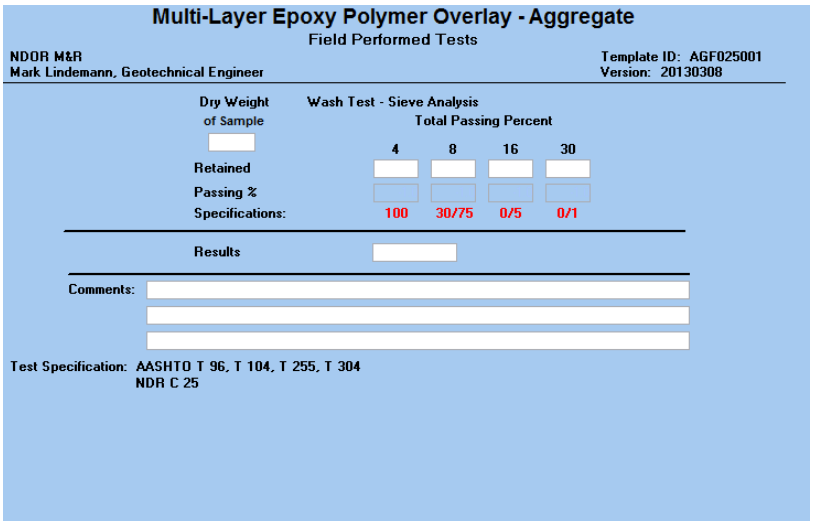


Figure 2, Multi-Layer Epoxy Polymer Overlay – Aggregate, AGF025001

3.2.3 Central Laboratory Testing:

3.2.3.1 Quality Sample:

The sample shall be delivered to the NDOR M&R central laboratory by the construction technician in a canvas bag or clean five-gallon bucket. Material samples, accompanied by the proper SMGR Sample ID Cards, may be left on the NDOR M&R loading dock or delivered directly to the aggregate laboratory.

For more information, refer to NDOR Materials Sampling Guide.

3.2.3.2 Frequency:

Verify sampling and testing frequency as required by the MSG.

Field personnel will provide one sample.

3.2.3.3 Sample Submission:

Sampling of material shall be conducted by field personnel prior to use.

The sample submission will be recorded in SMGR by field personnel.

3.2.3.4 Quality Testing:

Quality testing shall be conducted by NDOR M&R central laboratory personnel.

3.2.4 Central Laboratory Documentation:

NDOR M&R central laboratory personnel are required to test the sample in accordance with accepted testing practices and document the findings in SMGR on the Multi-Layer Epoxy Polymer Overlay – Aggregate test method, AGL025001 template.

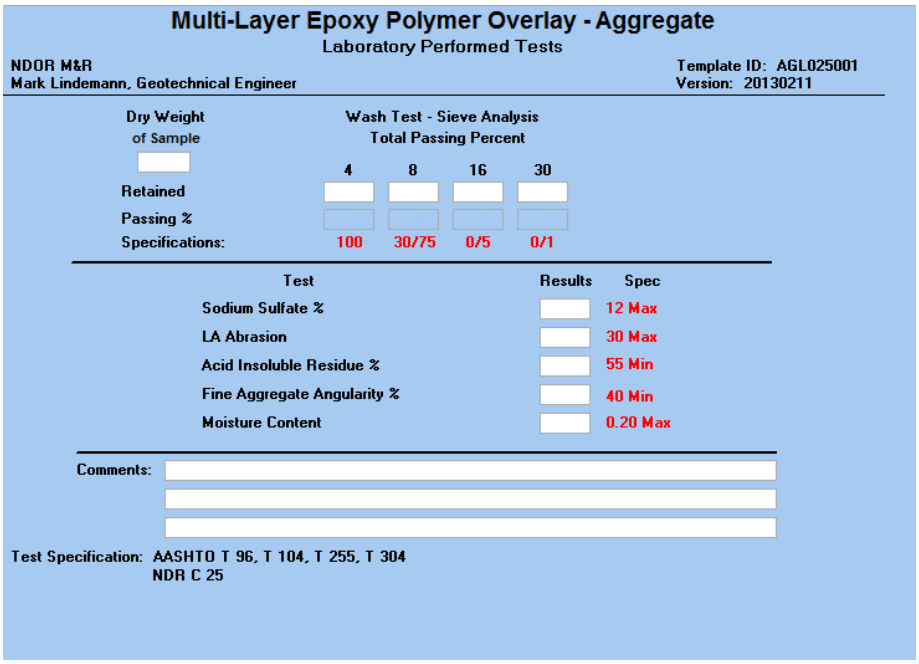


Figure 3, Multi-Layer Epoxy Polymer Overlay – Aggregate, AGL025001

3.3 Material Requirements – Certification:

3.3.1 Sampling Requirements – Certificate of Compliance:

NDOR M&R central laboratory personnel are required to document material compliance in accordance with accepted practices and record the findings in SMGR on the Certificate of Compliance test method, MSL004001.

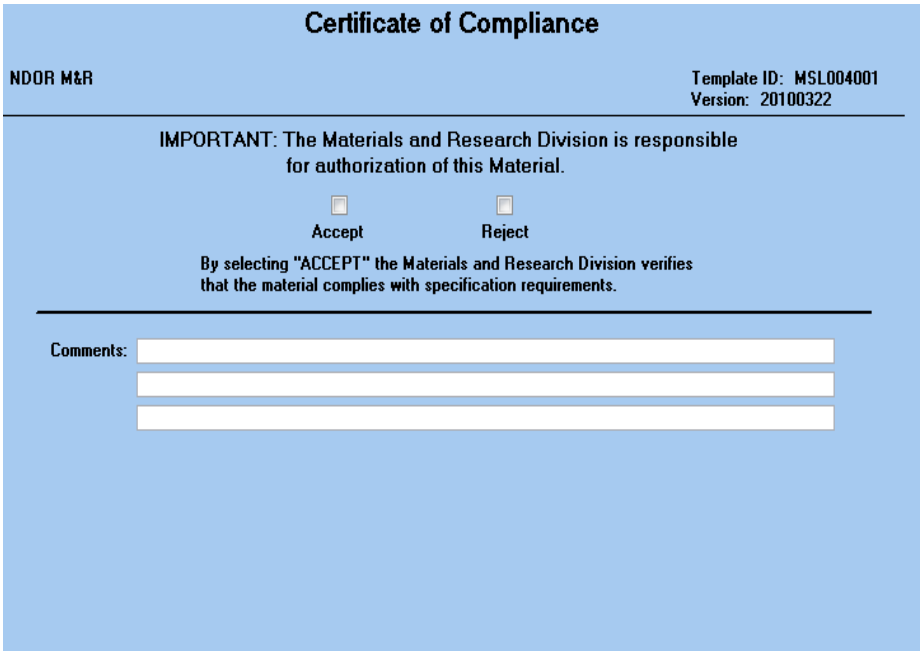


Figure 4, SiteManager Test Template, Certificate of Compliance, MSL004001

3.3.2 Sampling Requirements – Certificate of Test:

NDOR M&R central laboratory personnel are required to document material testing in accordance with accepted testing practices and record the findings in SMGR on the Certificate of Test test method, MSL005001.

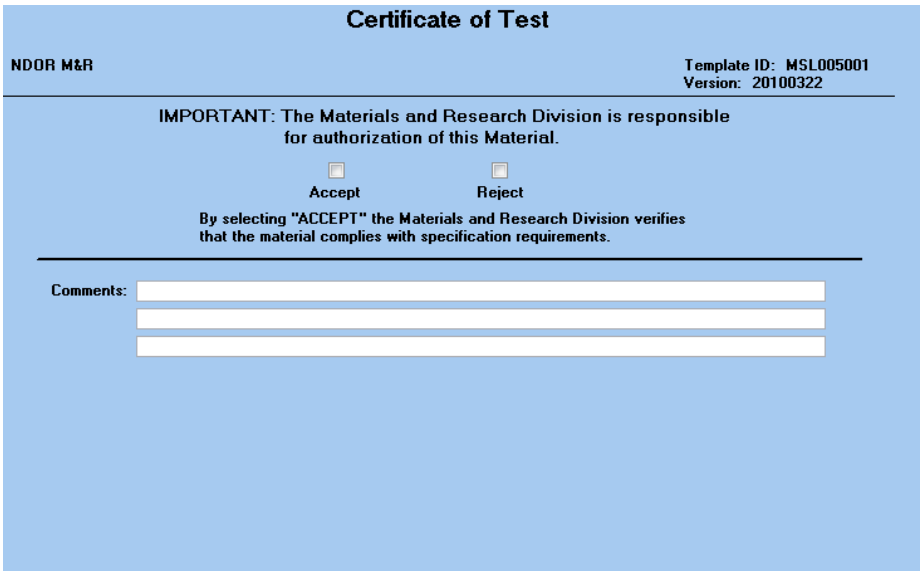


Figure 5, SiteManager Test Template, Certificate of Test, MSL005001

3.4 Material Requirements – Chemical:

3.4.1 Central Laboratory Testing:

3.4.1.1 Sample Submission:

Sampling of material shall be conducted by field personnel from the project. For more information, refer to the MSG.

Submit the sample to the NDOR M&R Central Laboratory using a Sample ID tag.

Figure 6, SiteManager Sample Identification Tag

3.4.1.2 Material Testing:

Verification material testing shall be conducted by NDOR M&R chemical laboratory personnel.

3.4.2 Central Laboratory Documentation:

NDOR M&R chemical laboratory personnel are required to test the sample in accordance with accepted testing practices and document the findings in SMGR on the Multi-Layer Epoxy Polymer Overlay – Chemical test method, CHL041001 template.

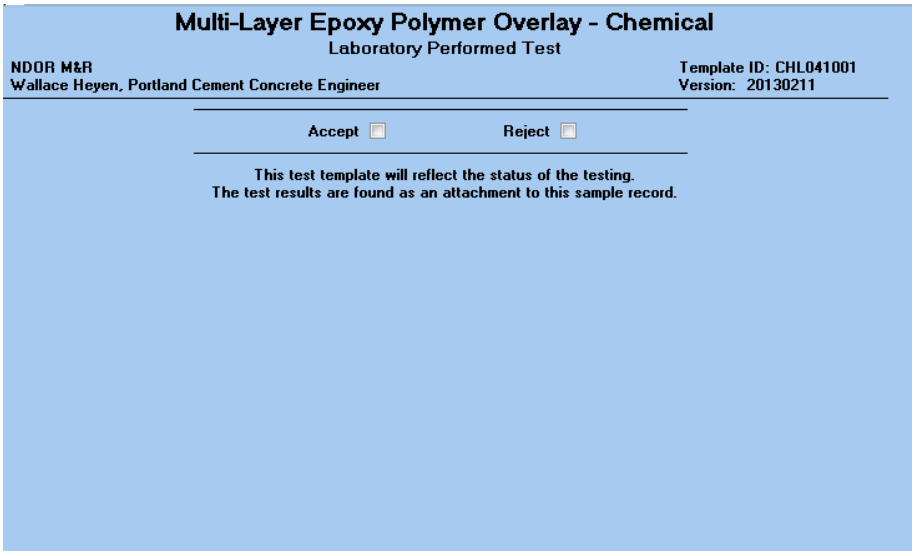


Figure 7, Multi-Layer Epoxy Polymer Overlay – Chemical, CHL041001

3.5 Testing Requirements – Pull Off Tests:

Review specifications and special provisions for project requirements.

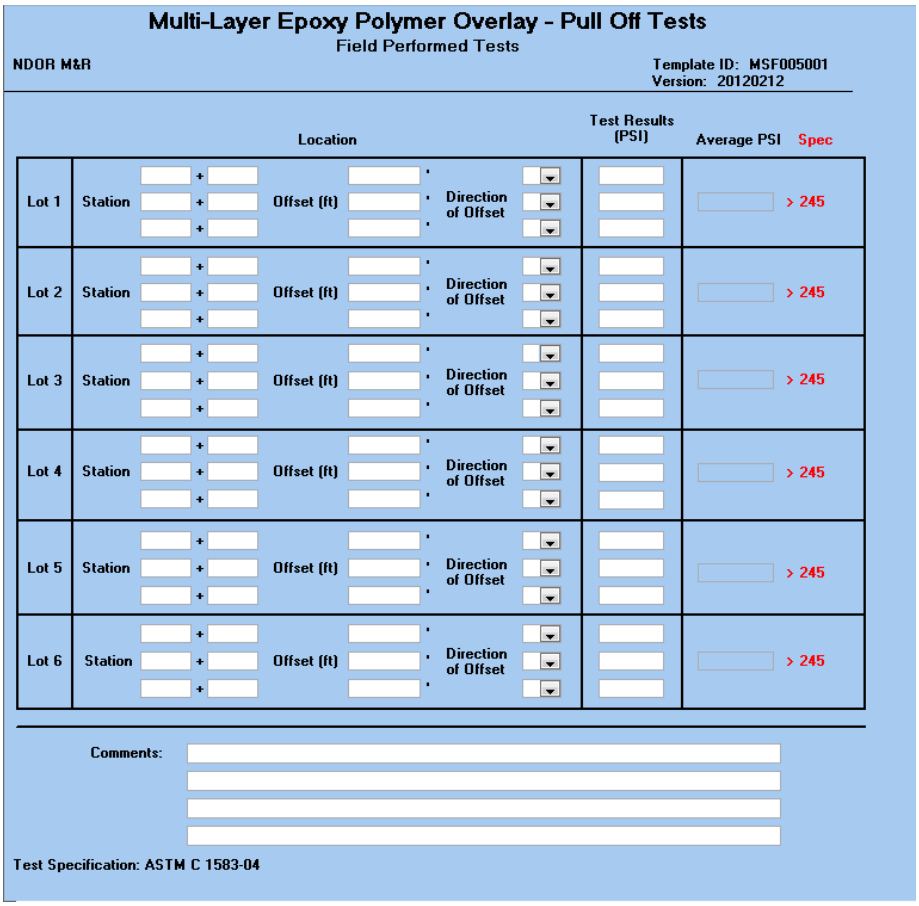
3.5.1 Testing:

The contractor shall perform the pull-off tests IAW ASTM C 15834, Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension.

The Pull-off Method will be witnessed by the project engineer.

3.5.2 Documentation:

NDOR field personnel are responsible for documenting the findings in SMGR on the Multi-Layer Epoxy Polymer Overlay – Pull-Off Tests test method, MSF005001.



Multi-Layer Epoxy Polymer Overlay - Pull Off Tests

Field Performed Tests

NDOR M&R

Template ID: MSF005001
Version: 20120212

	Location			Test Results (PSI)	Average PSI	Spec
Lot 1	Station + +	Offset (ft) '	Direction of Offset			> 245
Lot 2	Station + +	Offset (ft) '	Direction of Offset			> 245
Lot 3	Station + +	Offset (ft) '	Direction of Offset			> 245
Lot 4	Station + +	Offset (ft) '	Direction of Offset			> 245
Lot 5	Station + +	Offset (ft) '	Direction of Offset			> 245
Lot 6	Station + +	Offset (ft) '	Direction of Offset			> 245

Comments:

Test Specification: ASTM C 1583-04

Figure 8, Multi-Layer Epoxy Polymer Overlay – Pull-Off Tests, MSF005001

4. Post-Placement:

4.1 Final Review Process:

NDOR will follow operating procedures defined in the NDOR M&R Final Review Process Manual located at S:\NDOR M&R Final Review Manual.