Full Depth Reclamation
ALDOT FDR Requirements

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110⁺ MILES

ALDOT FDR TOTALS

JANUARY 2014 - PRESENT
FULL DEPTH RECLAMATION WITH PORTLAND CEMENT

SECTION 302

Job Special Provision – Project Specific
CONTRACTOR REQUIREMENTS

• Pulverizing, Mixing, Compaction
• Roadbed Sampling
• Job Mix Design
• Quality Control Plan
• Other Construction Requirements
PULVERIZING, MIXING, AND COMPACTING

• Length of pulverization limits
  • 100% by weight passes a 3 inch sieve
    • A minimum of 95% passes a 2 inch sieve and
    • A minimum of 50% passes a Number 4 Sieve
• Portland cement shall not vary more than 5% of approved mix design
• Dust Control
  • Addition of water and mixing to be completed in a continuous pass
  • The moisture content shall be within ± 2% of the theoretical optimum moisture
• The pulverizing, mixing, and compacting shall be a continuous operation
• Compaction shall be to 96% of Theoretical maximum density
CONTRACTOR REQUIREMENTS CONT.

- Pulverizing
- Mixing
- Compaction
- Roadbed Sampling
- Job Mix Design
- Quality Control Plan
- Other Construction Requirements
SAMPLING EXISTING ROAD

• Sample existing roadbed Materials at least every 1,000 feet along roadbed
• Submit 75 pounds of composite roadbed material to M&T Soils Laboratory
• Submit 5 pounds of cement for each proposed job mix design to M&T Soils laboratory
CONTRACTOR REQUIREMENTS

CONT.

• Pulverizing
• Mixing
• Compaction
• Roadbed Sampling
• Job Mix Design
• Quality Control Plan
• Other Construction Requirements
JOB MIX DESIGN

• Design as per ALDOT-416, “Laboratory Design of Soil-Cement and Full-Depth Reclamation Mixes

• Approved materials only (cement, water)

• If not shown in the plans, Contractor is responsible for the design and approval request of the job mix design

• More than one job mix design may be required

• Changes on the approved job mix design would require a new mix design submittal

• Five copies no less than 21 calendar days prior to beginning the FDR
CONTRACTOR REQUIREMENTS
CONT.

• Pulverizing
• Mixing
• Compaction
• Roadbed Sampling
• Job Mix Design
• Quality Control Plan
• Other Construction Requirements
QUALITY CONTROL PLAN

• Provide a “Quality Control Plan” to include
  • Procedure, equipment, and frequency for monitoring
    • Cement placement
    • Amount of water utilized
    • Reclaimed material moisture requirements
    • Density and moisture content of in-place FDR
    • Materials characteristics of reclaimed materials

• Provide six copies of plan

• Provide weekly documentation showing
  that work is performed according to the plan

• Quality Control Plan will be review
  by ALDOT for completeness
CONTRACTOR REQUIREMENTS CONT.

• Pulverizing
• Mixing
• Compaction
• Roadbed Sampling
• Job Mix Design
• Quality Control Plan
• Other Construction Requirements
OTHER CONSTRUCTION REQUIREMENTS

- Description of all equipment that will be used during the construction of FDR

- Daily check of spread rate of cement
  - At beginning of production
  - Each 2,000 linear feet

- Surface finish
  - Responsible for roadbed grade controls
  - \( \frac{1}{4} \) of an inch from a 16 foot straightedge
  - Cross slope shall not vary more than 50%

- Curing: Finished surface shall be covered with a Type A bituminous treatment until a pavement layer or additional surface treatment is applied.

- Quality Control During Production
  - Moisture requirements
  - Density requirements
  - Compressive Strength
  - Thickness
ALDOT REQUIREMENTS

• ALDOT = OWNER or OWNER’s REPRESENTATIVE
• Laboratory Responsibilities
• Field Responsibilities
ALDOT LABORATORY RESPONSIBILITIES

- Mix design verification or design of FDR mixes for inclusion in contract plans
  - Determination of Moisture-Density relationship
  - Compressive strength
- Review of Contractor’s Quality Control Plan for completeness
- Approve final mix design
ALDOT REQUIREMENTS

• ALDOT = OWNER or OWNER's REPRESENTATIVE
• Laboratory Responsibilities
• Field Responsibilities
ALDOT FIELD RESPONSIBILITIES

• Verify that field theoretical optimum moisture is maintained within ± 2%

• Check gradation at least once for each 2,000 linear feet of FDR placed

• Verify that the cement spread rate does not vary more than 5% by weigh from approved mix

• Determine the in-place density using AASHTO T 310 at least once for each 1,000 linear feet of FDR placed

• Verify that the work performed is in compliance with the QC Plan
ALDOT FIELD RESPONSIBILITIES CONT.

- Check the surface finish at intervals of 100 feet
  - Verify that cross slope does not vary by more than 0.50% from required slope
  - Verify that finished surface does not vary more than ¼ of an inch from a 16 foot straightedge placed parallel to the centerline of roadbed
- Check the thickness of the FDR at least once per 200 linear feet of roadbed
Special Thanks to Sergio Rodriguez

QUESTIONS