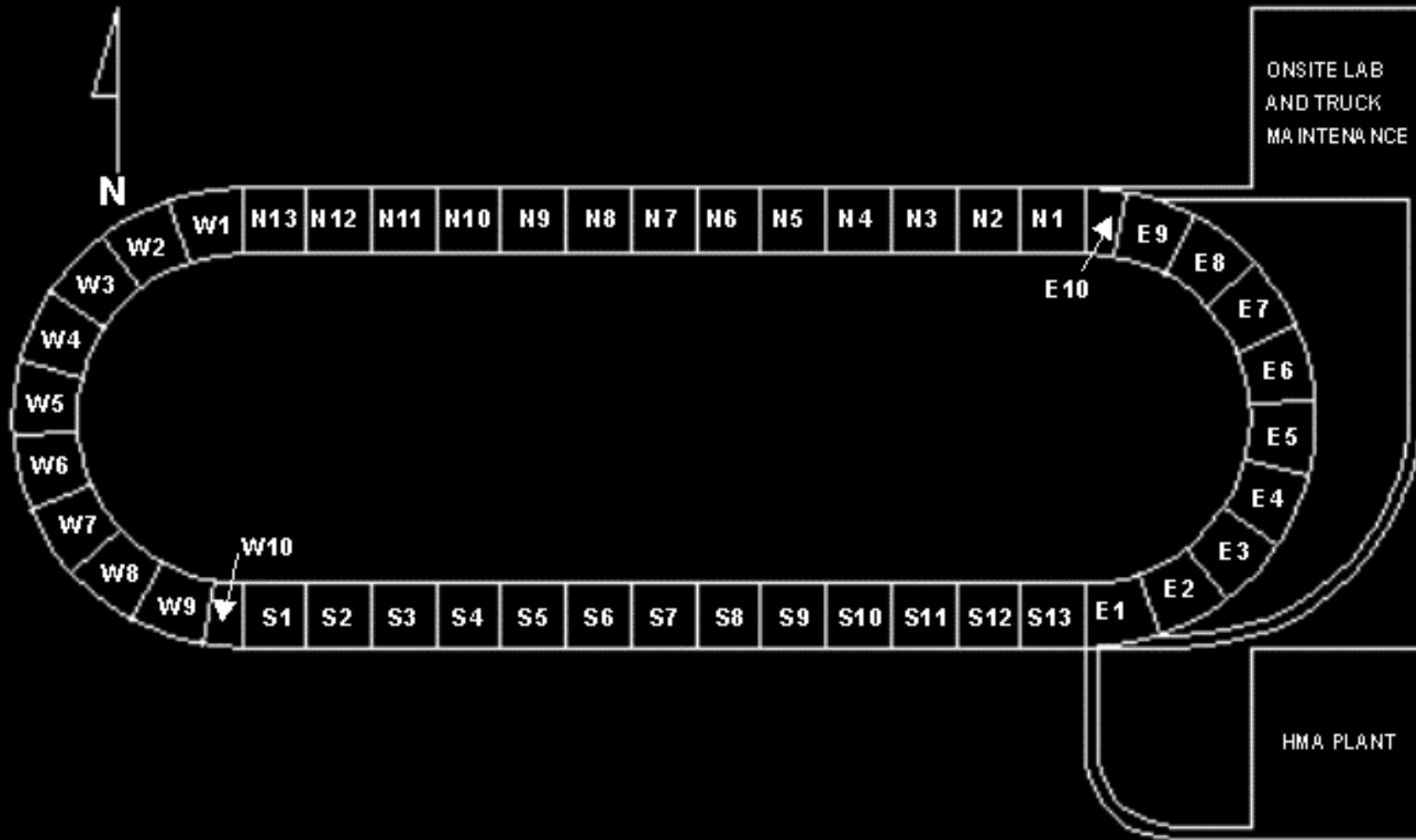


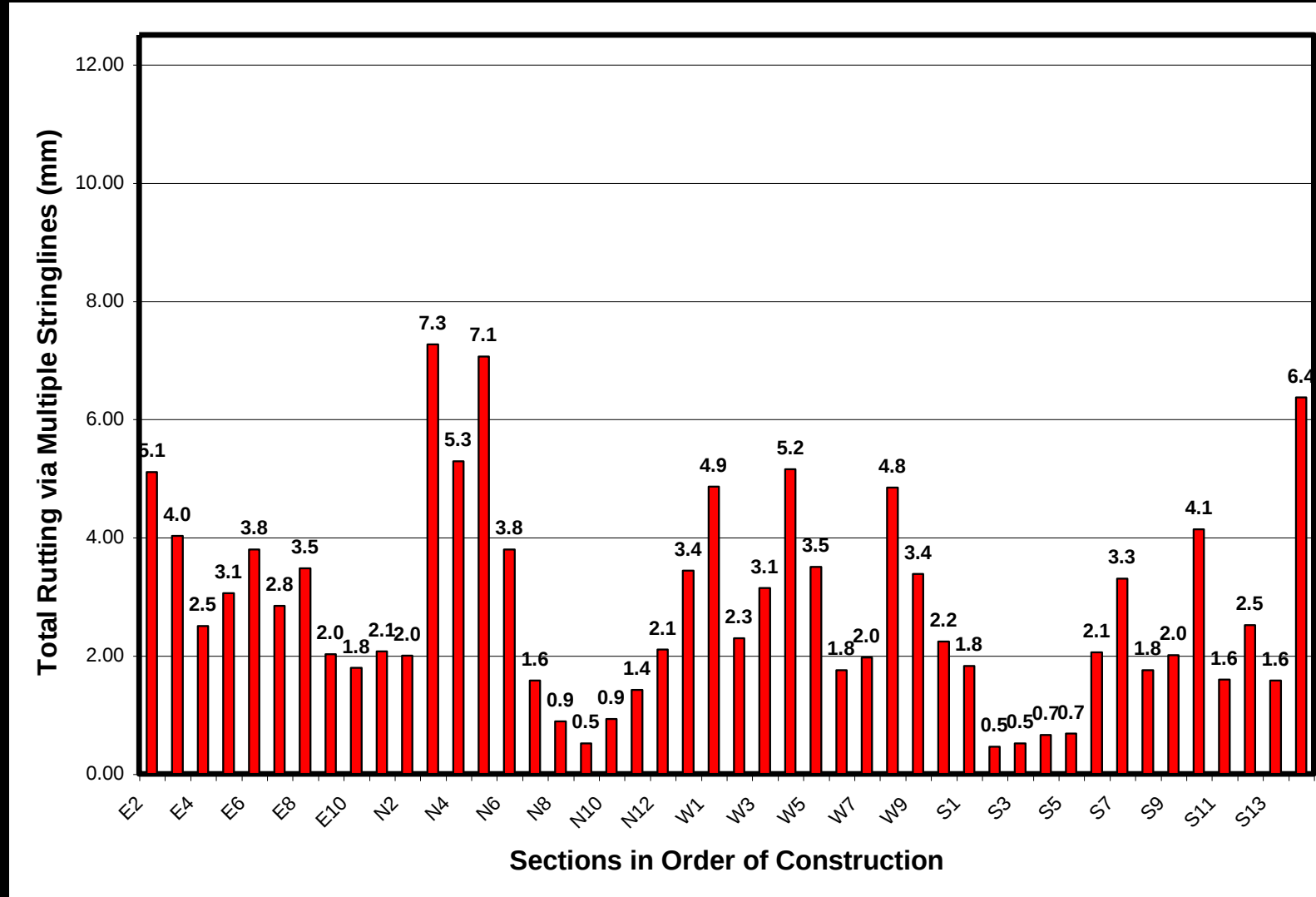
An aerial photograph of the NCAT Pavement Test Track. The track is a long, winding asphalt road that curves through a dense forest. The road is light-colored, contrasting with the dark green trees. In the upper left, there are some buildings and a parking area. The track ends in a loop on the right side. The overall scene is a mix of natural forest and man-made infrastructure.

**PERFORMANCE OF MODIFIED
ASPHALTS USED ON THE
NCAT PAVEMENT TEST TRACK**

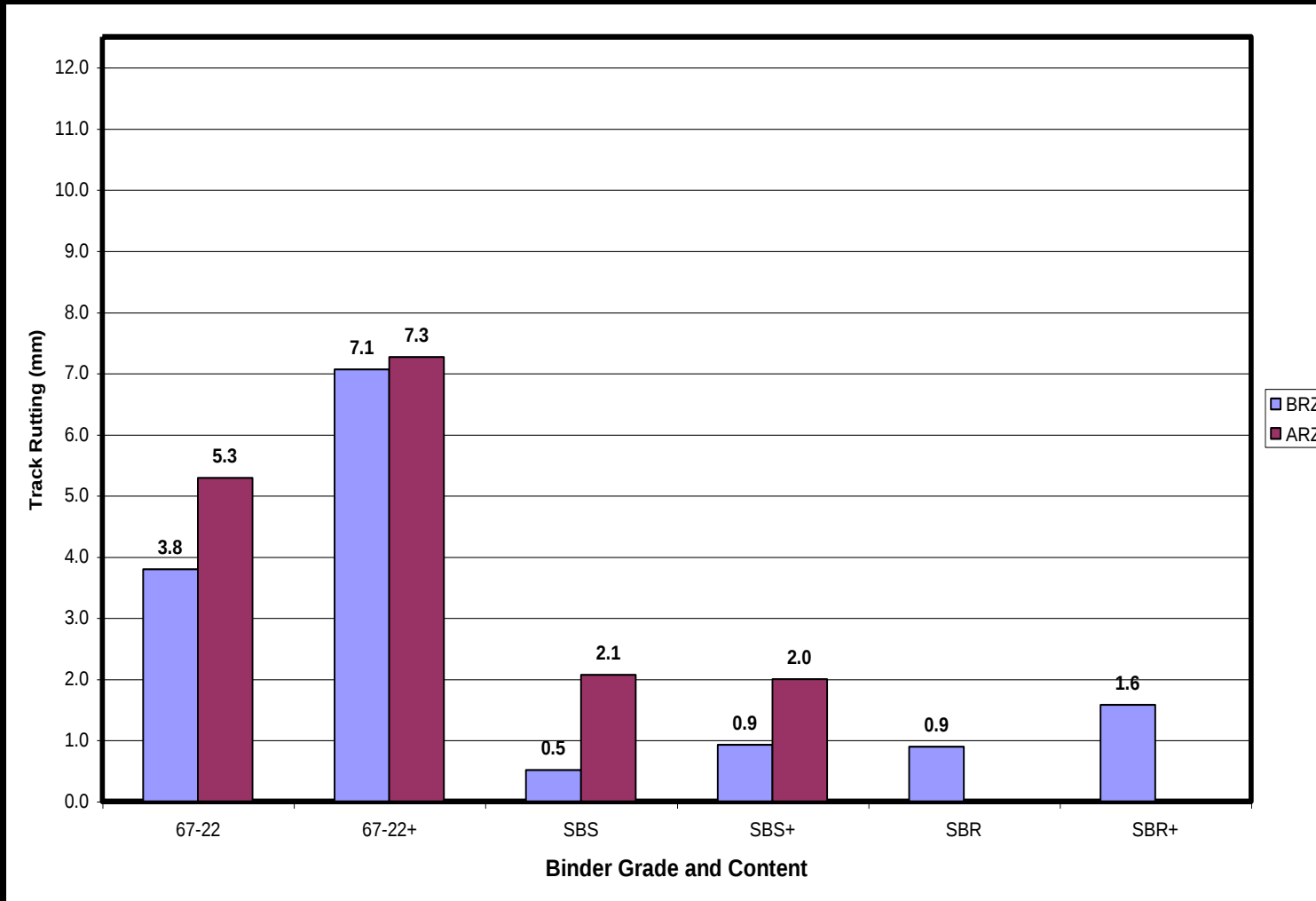
ORIGINAL 2000 EXPERIMENT



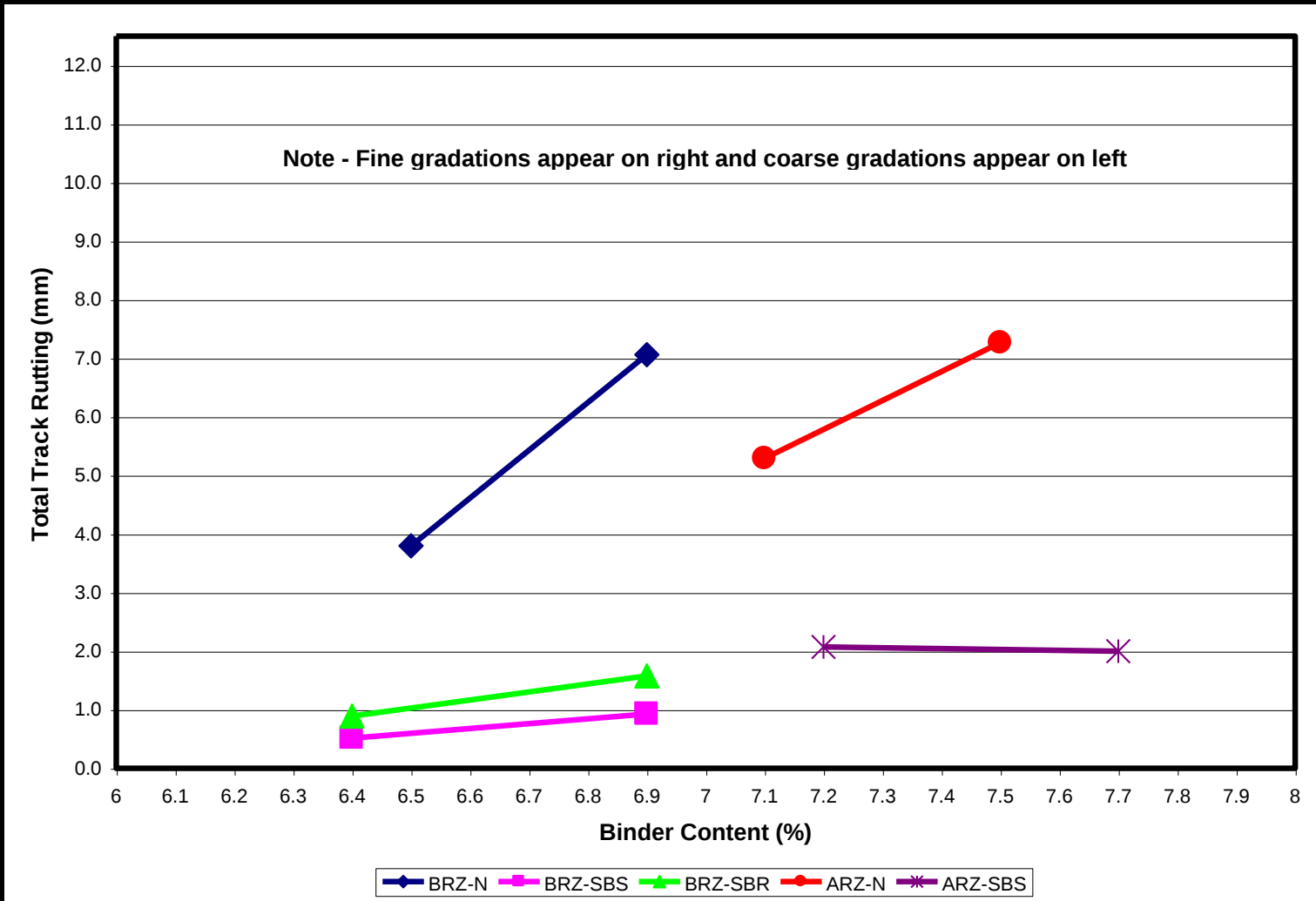
2000 RUTTING PERFORMANCE



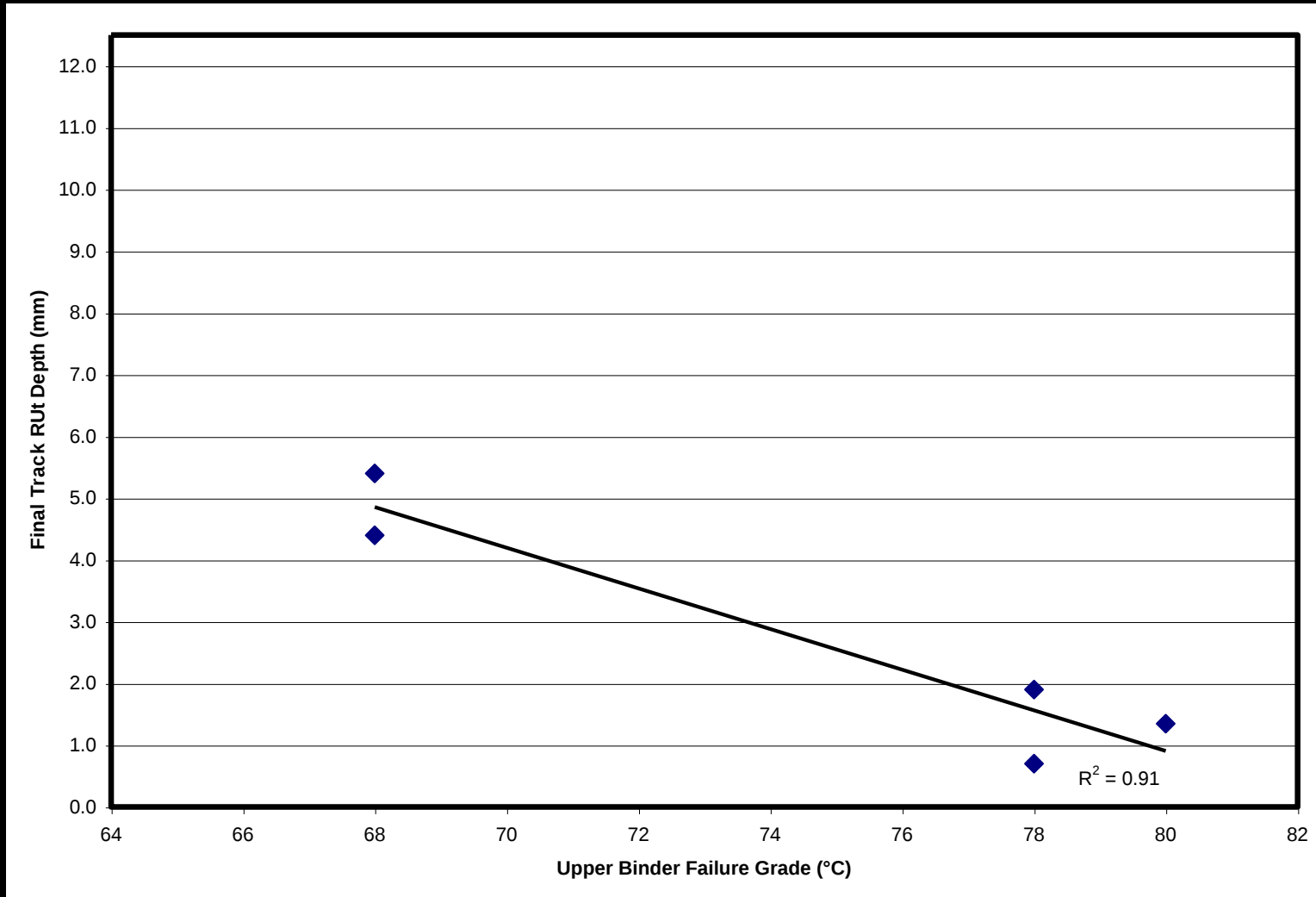
NORTH TANGENT RUTTING



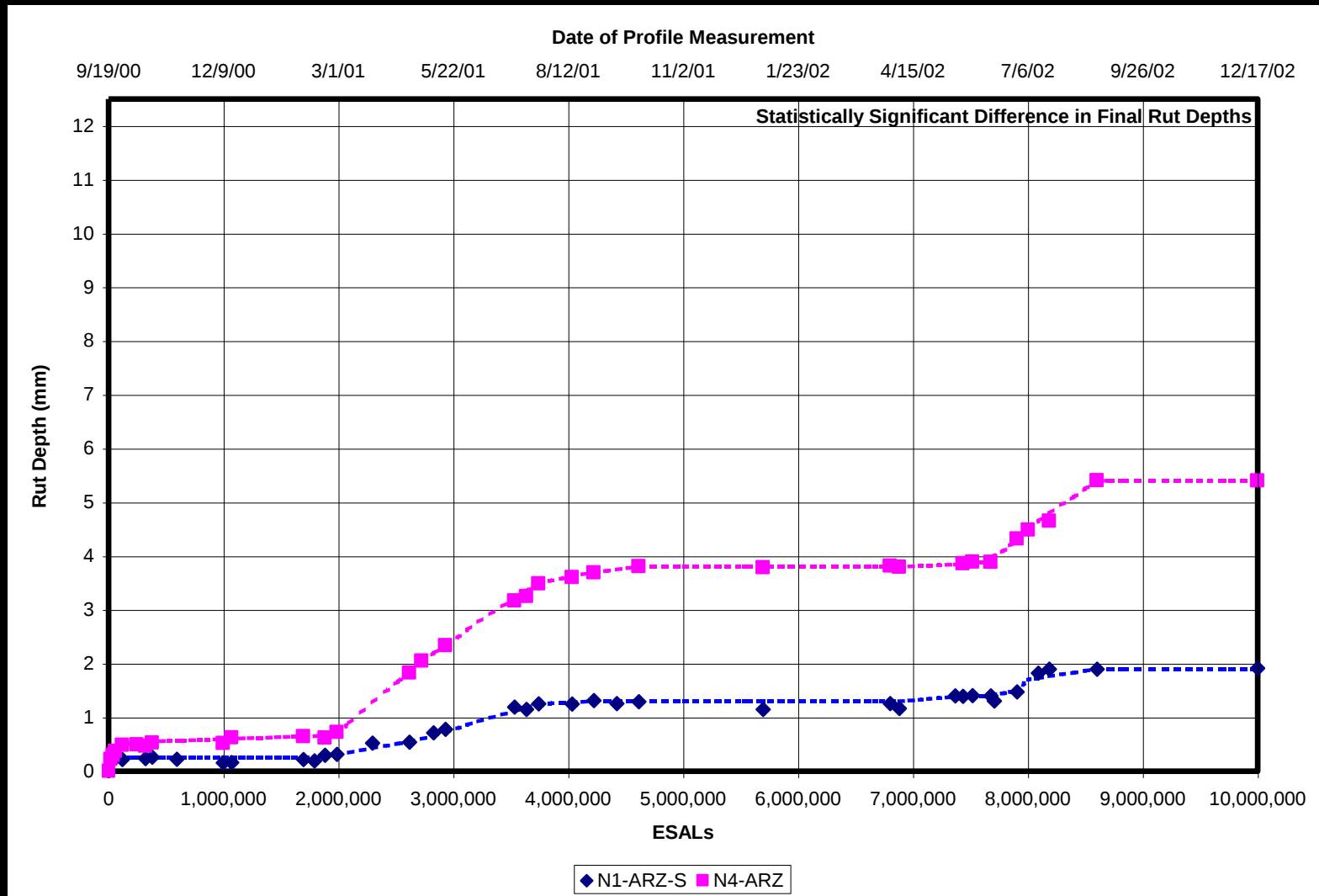
ASPHALT CONTENT



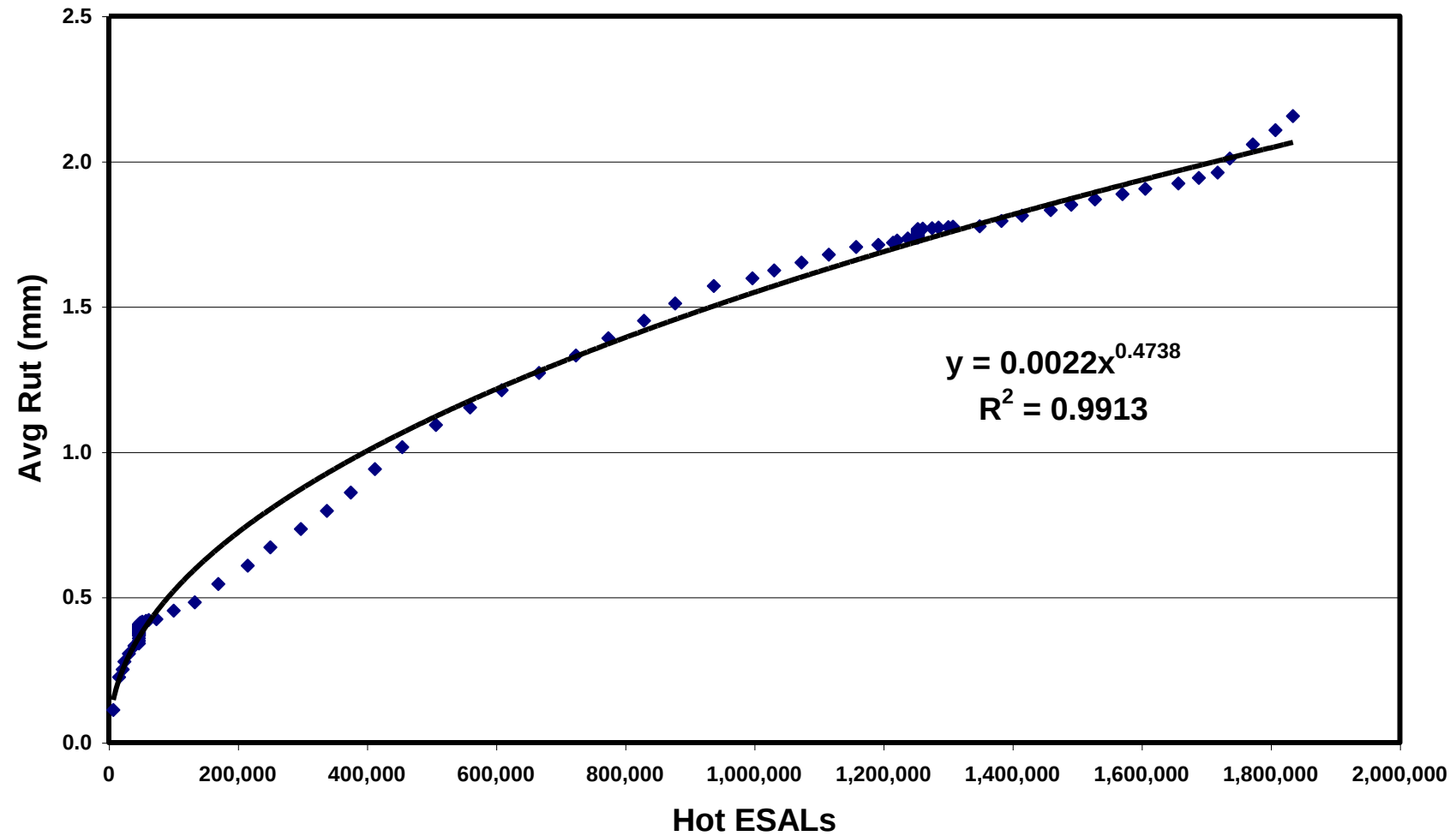
BINDER FAILURE GRADE



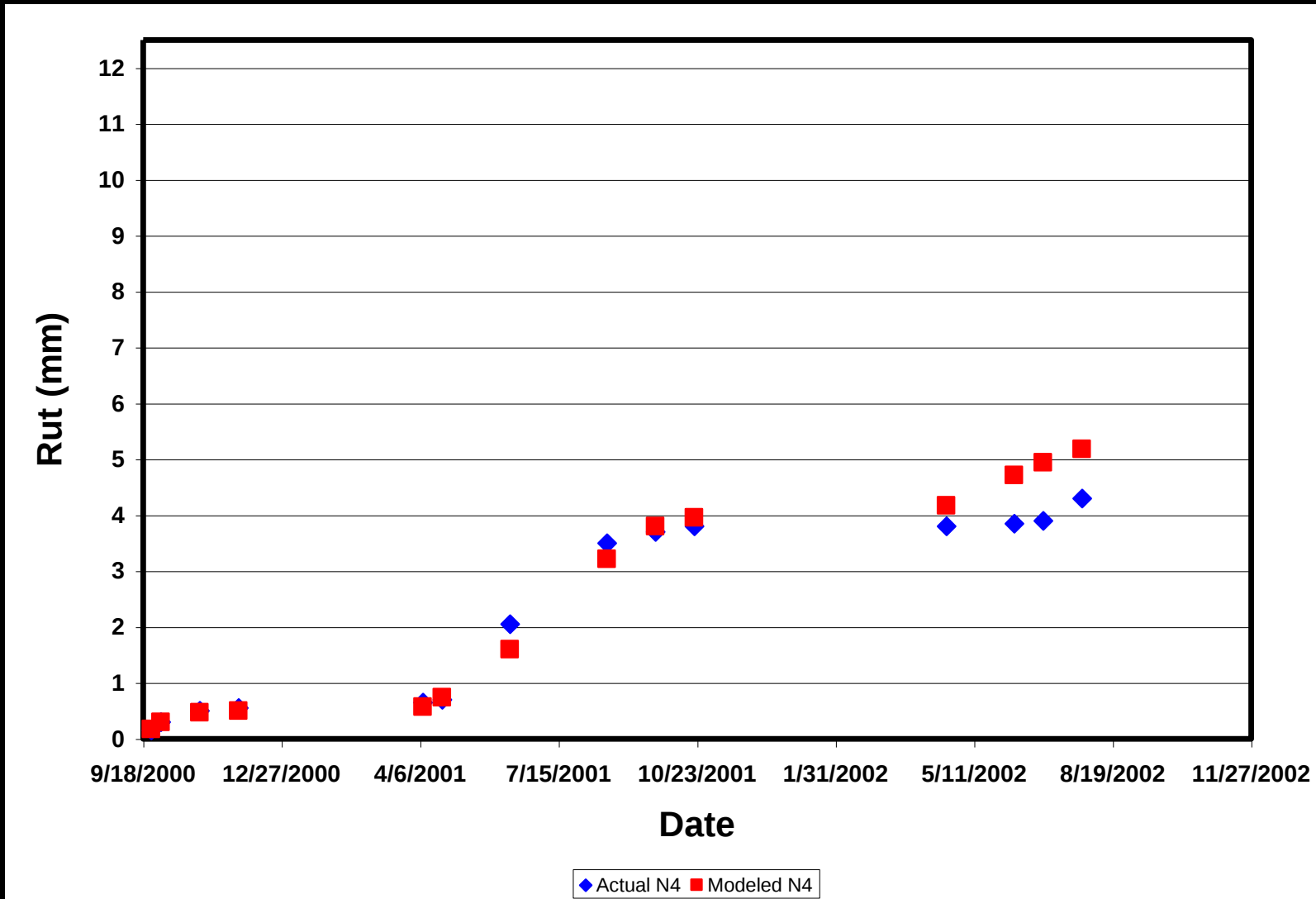
MODIFIED vs UNMODIFIED



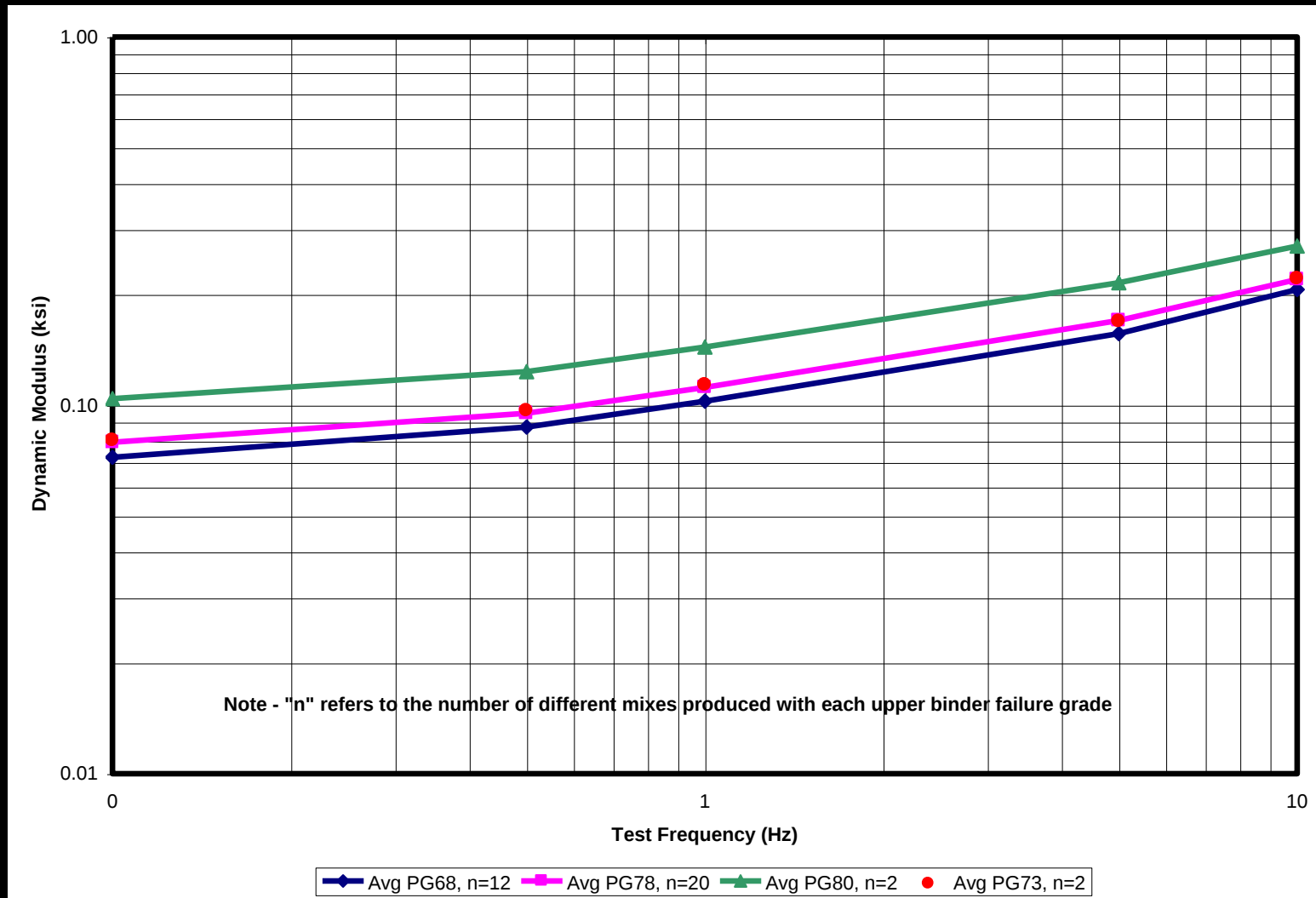
EFFECT OF AGE ON RUTTING



MODELED vs ACTUAL RUTTING



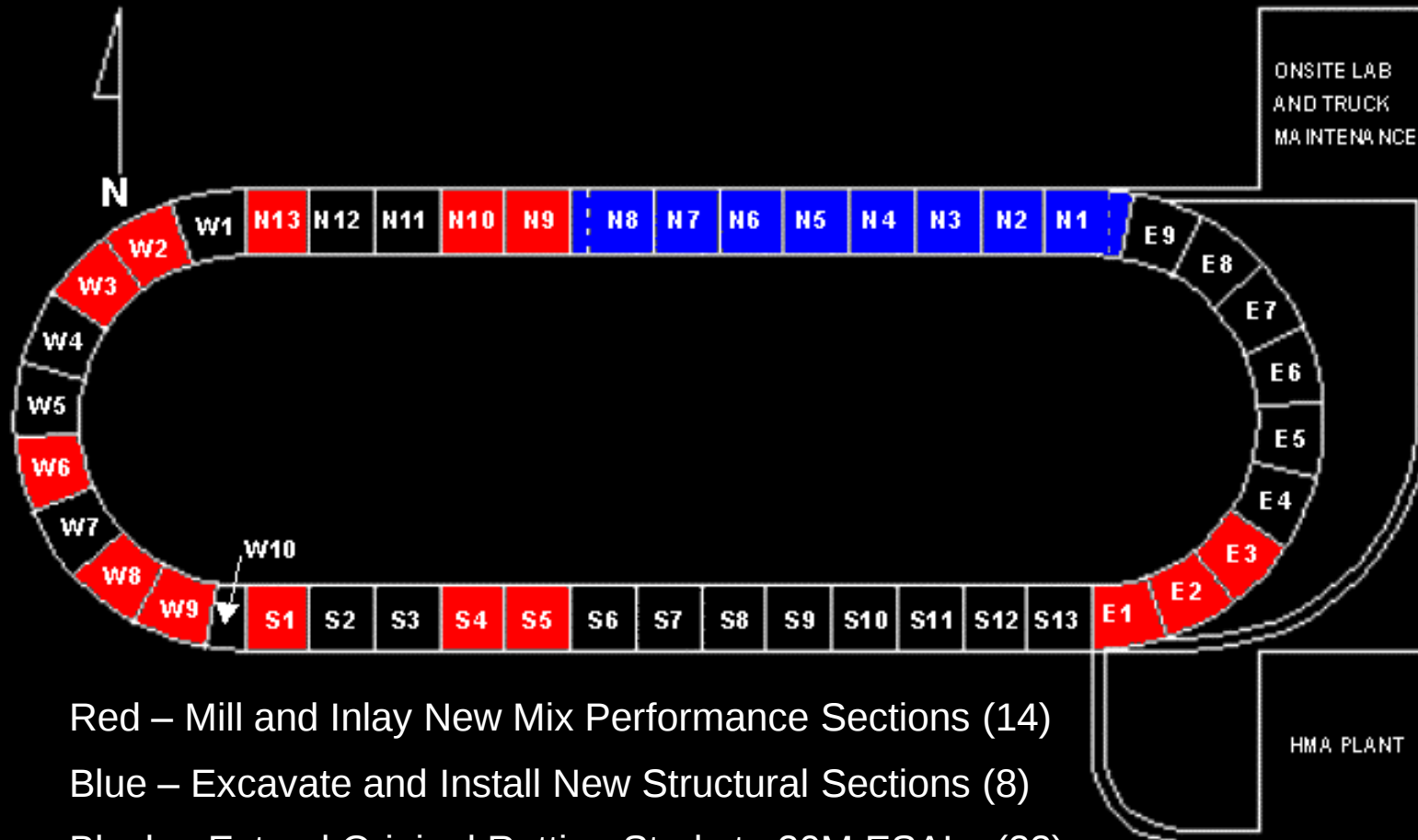
LABORATORY RESULTS



2000 TRACK FINDINGS

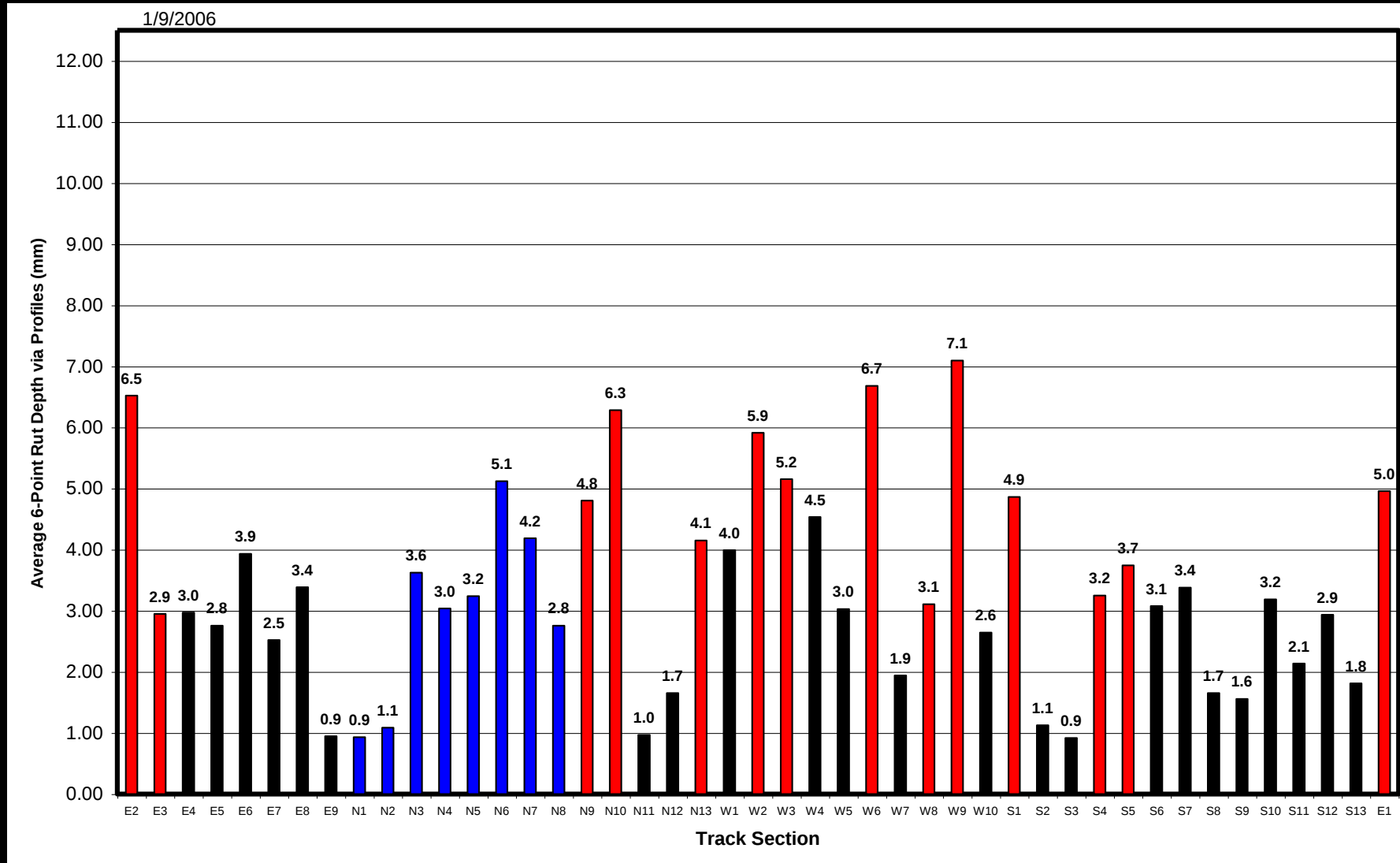
- Fine Graded Mix Performance Comparable to Coarse
- Change to Modified Asphalt Cut Rutting in Half
- Bumping Modified AC ½ % Doesn't Increase Rutting
- Experimental Mixes Field Proven (e.g., Gravel SMA)
- Aggregates Safely Evaluated (e.g., Polishing)
- Field Correlations Prove Laboratory Test Methods
- Findings Led to Sponsor Specification Changes

2003 MIXED EXPERIMENT

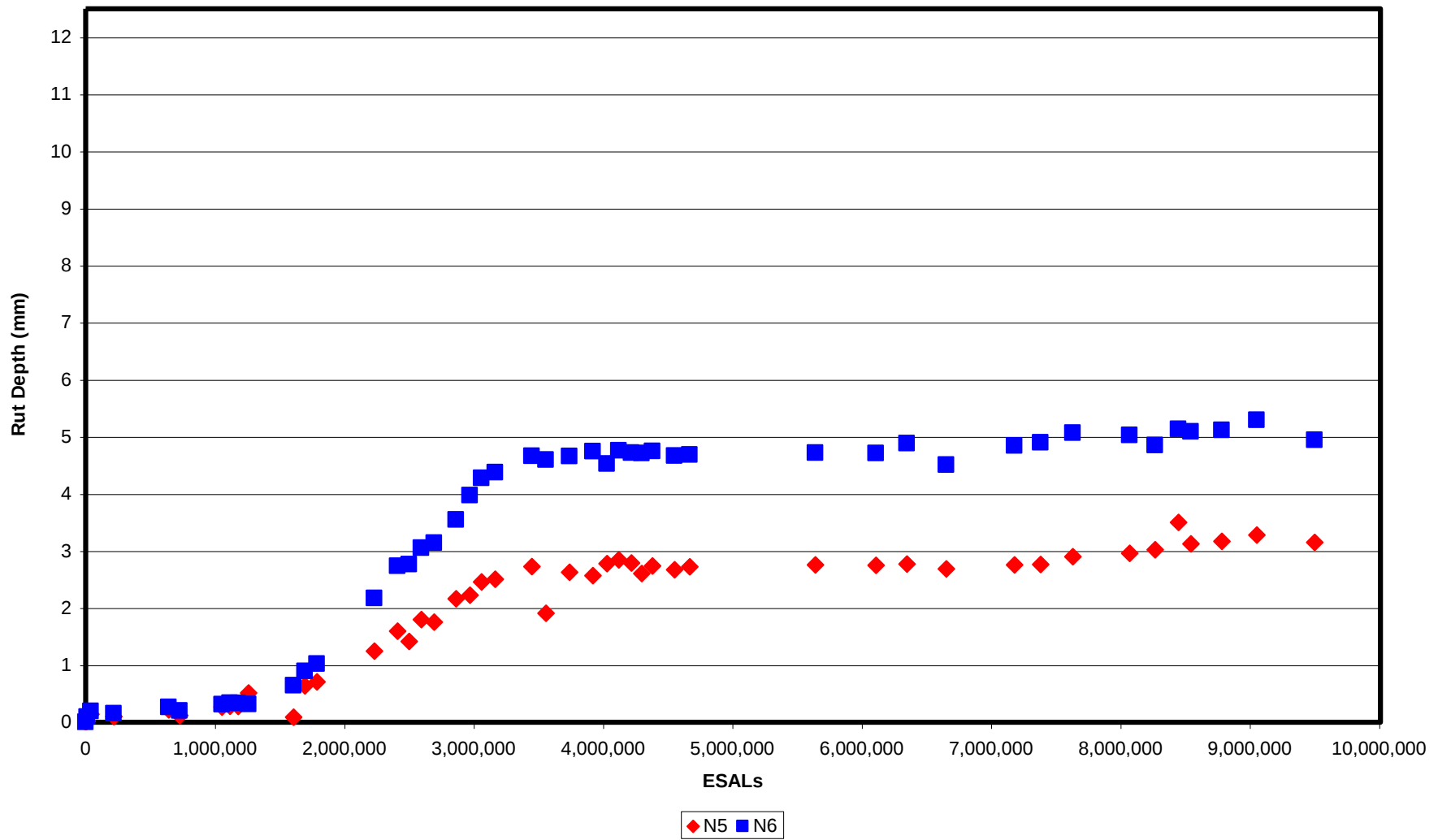


Red – Mill and Inlay New Mix Performance Sections (14)
Blue – Excavate and Install New Structural Sections (8)
Black – Extend Original Rutting Study to 20M ESALs (23)

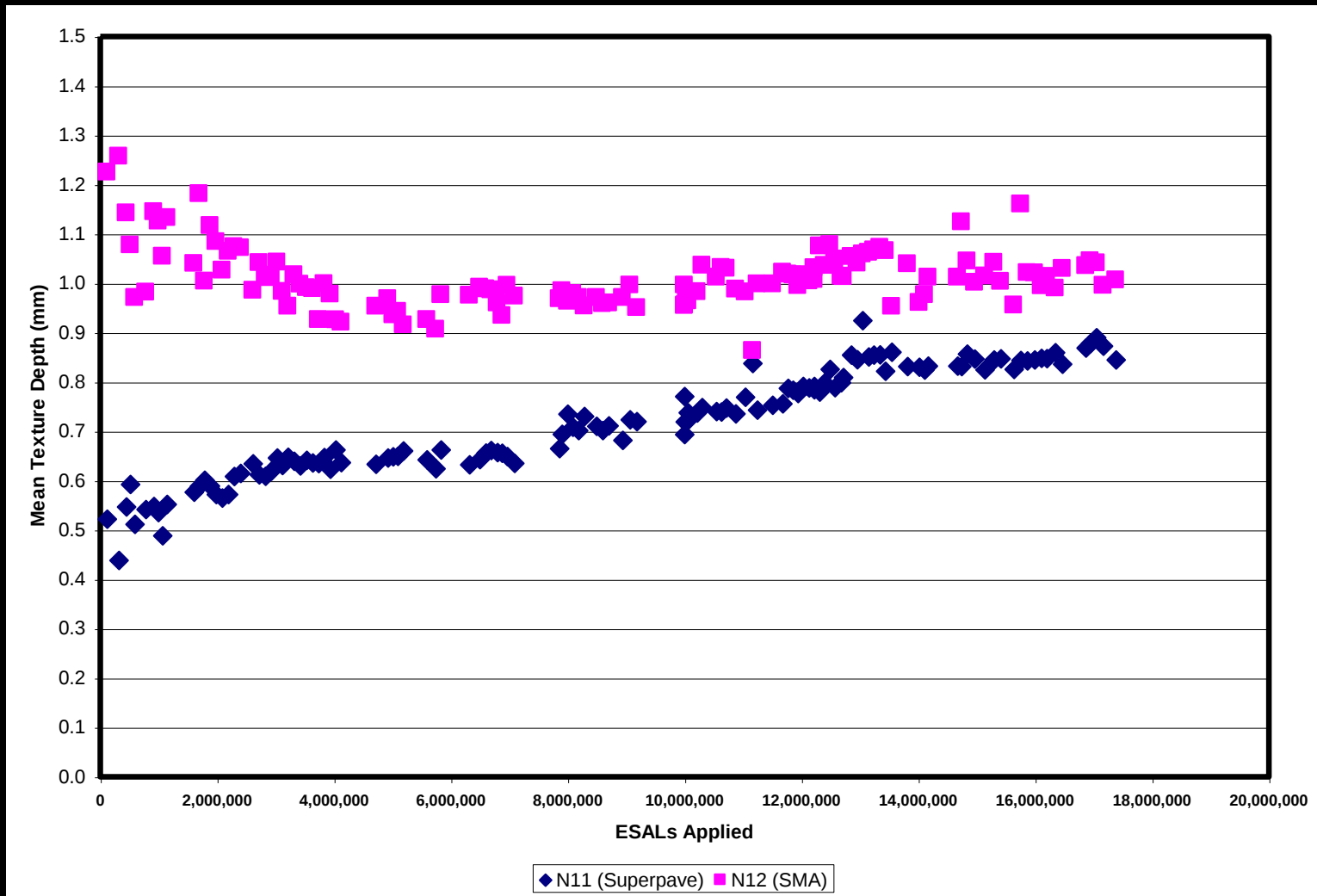
2003 RUTTING PERFORMANCE



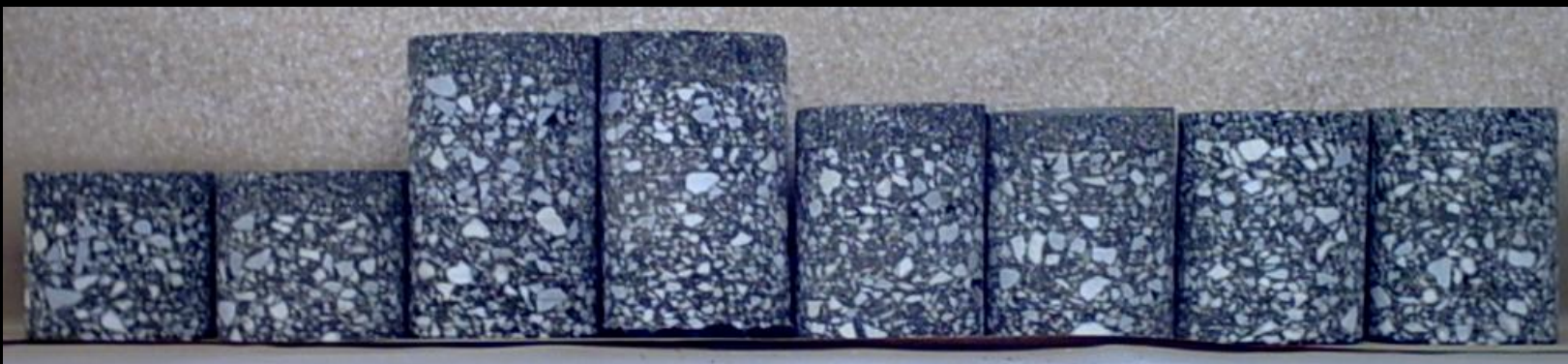
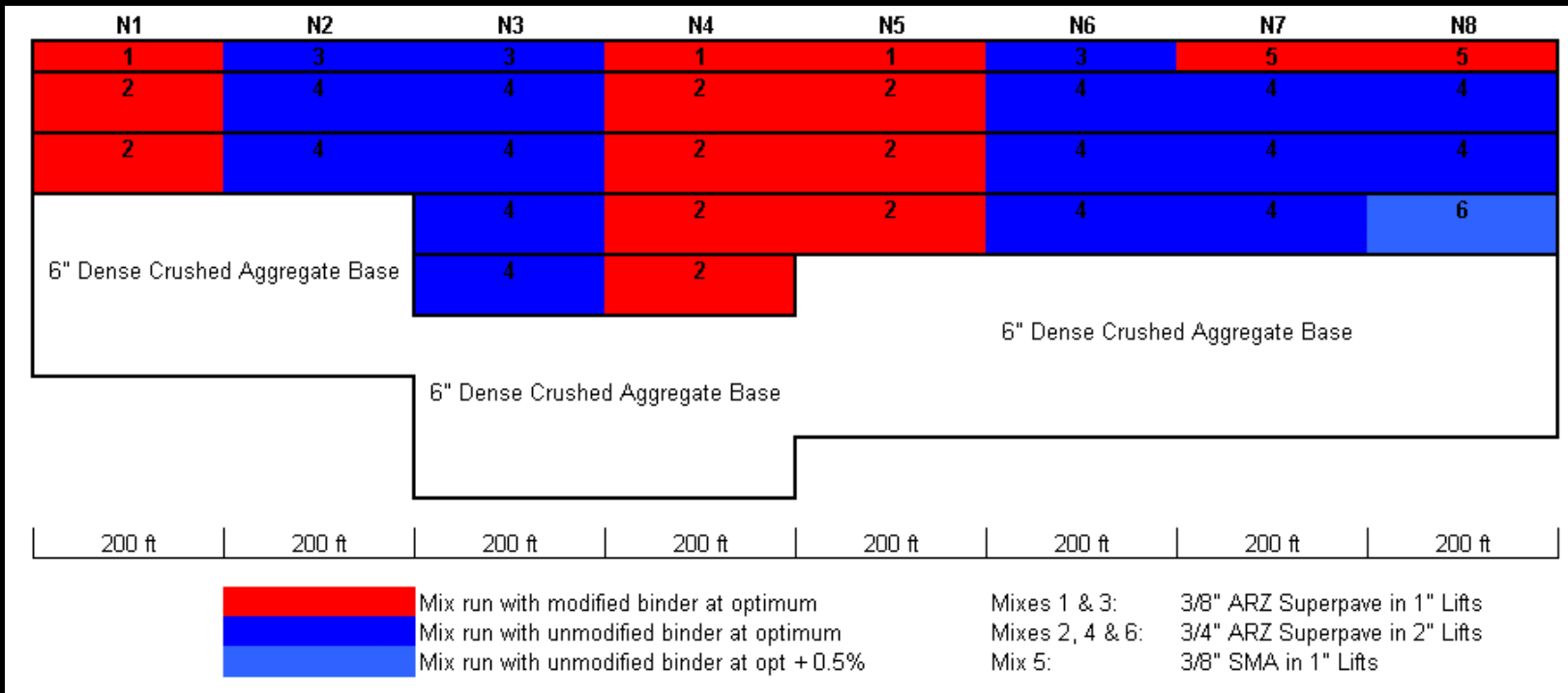
RUTTING EXPERIMENTS



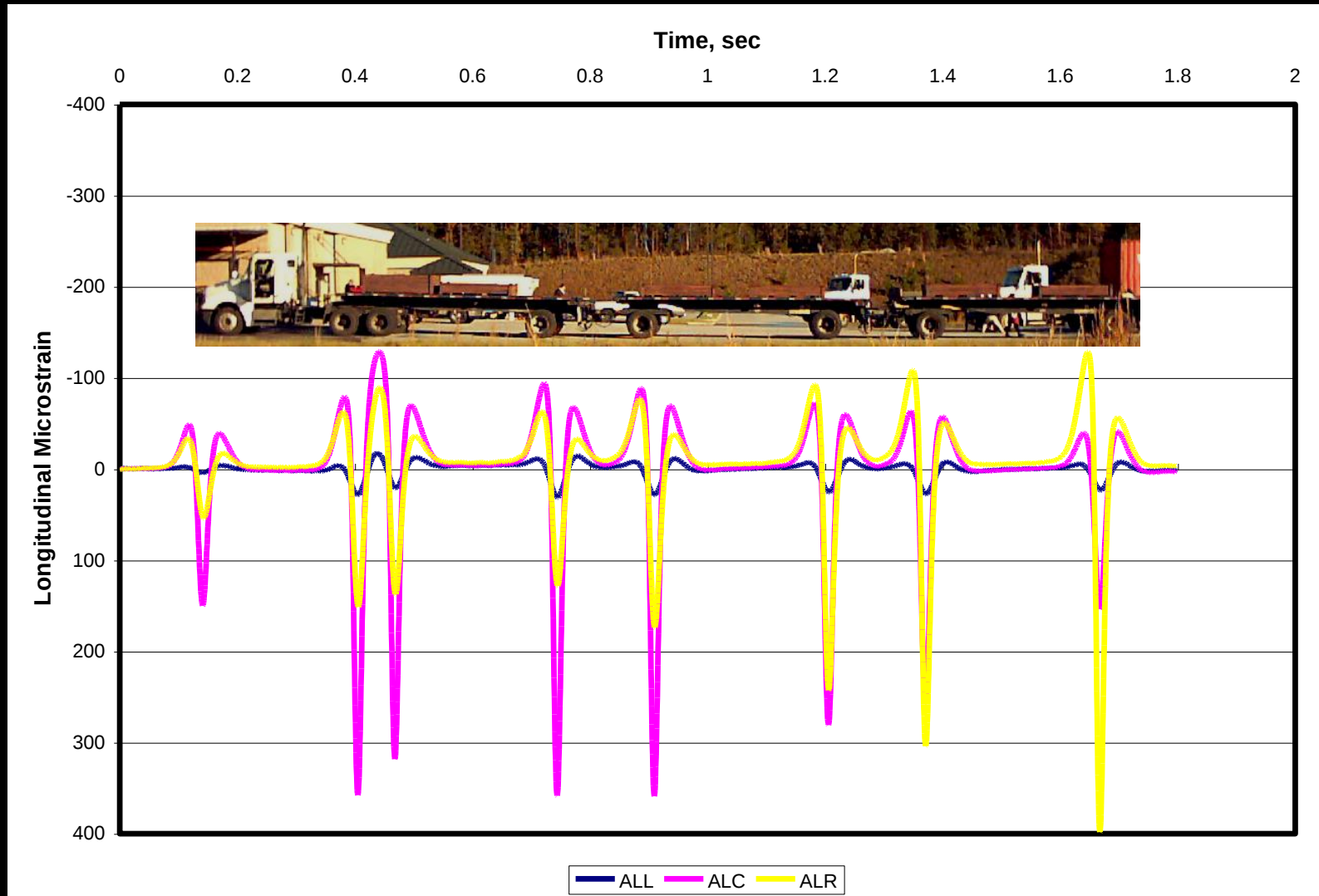
DURABILITY EXPERIMENTS



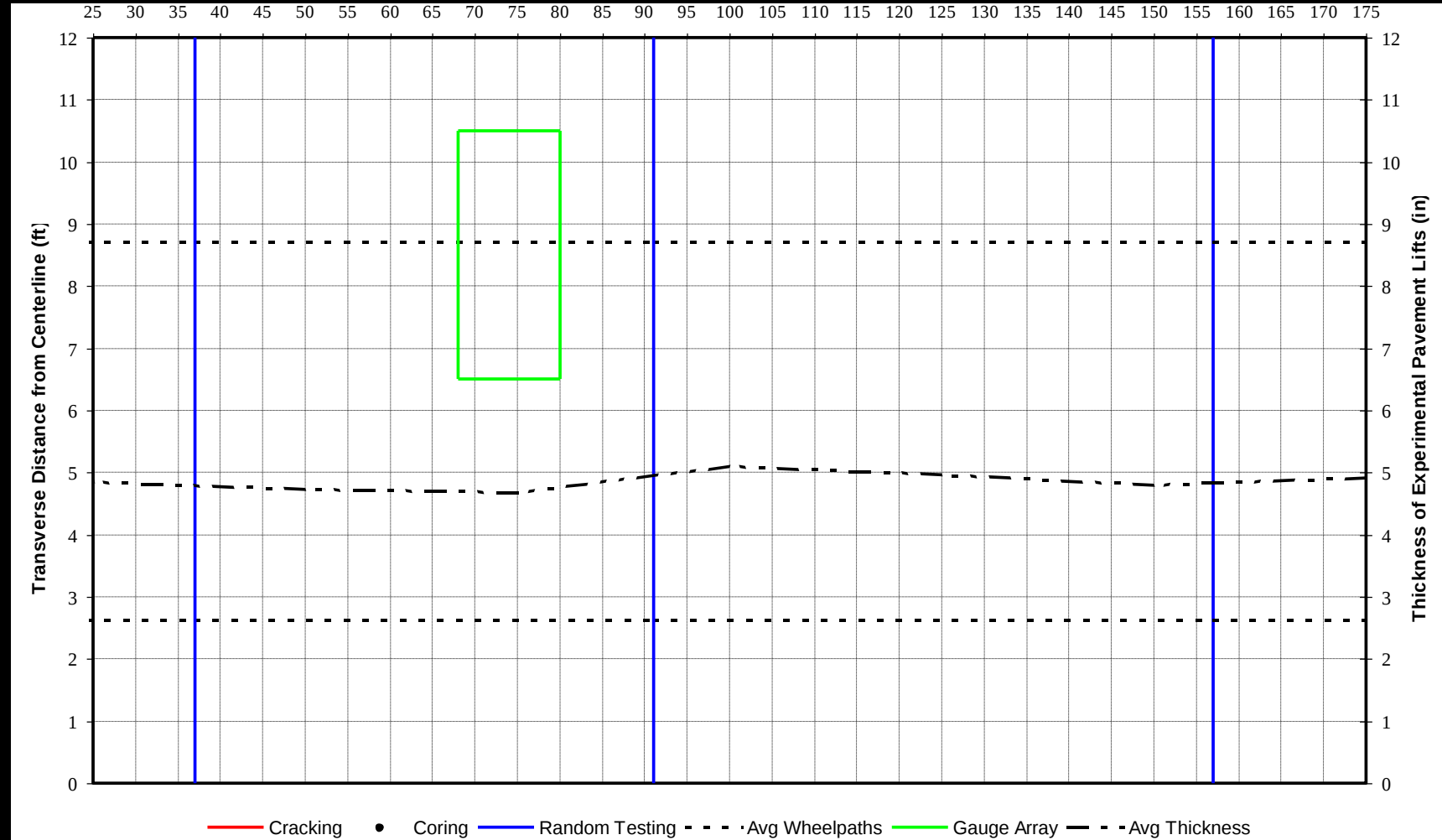
2003 STRUCTURAL STUDY



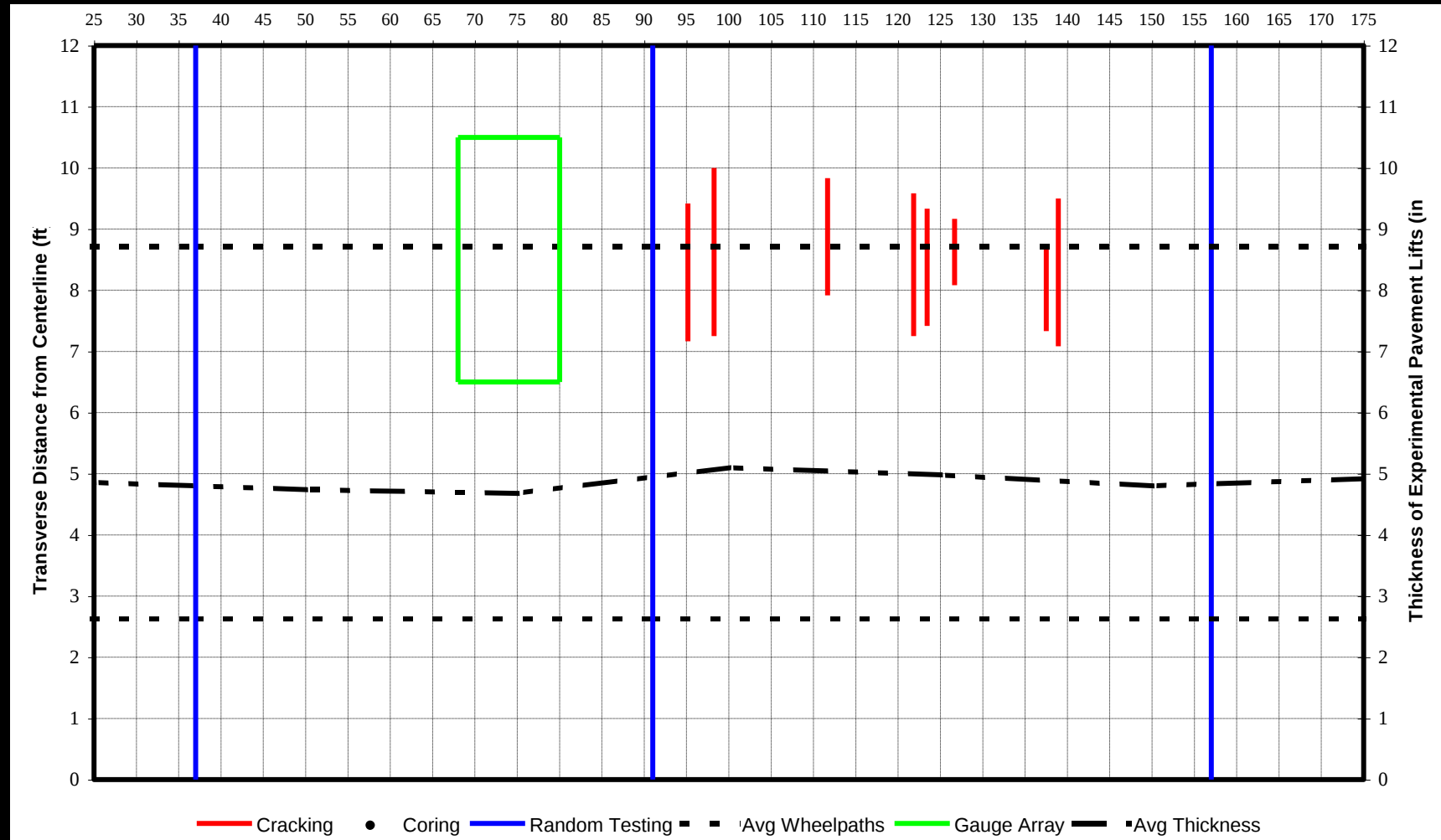
MEASURED PAVEMENT RESPONSE



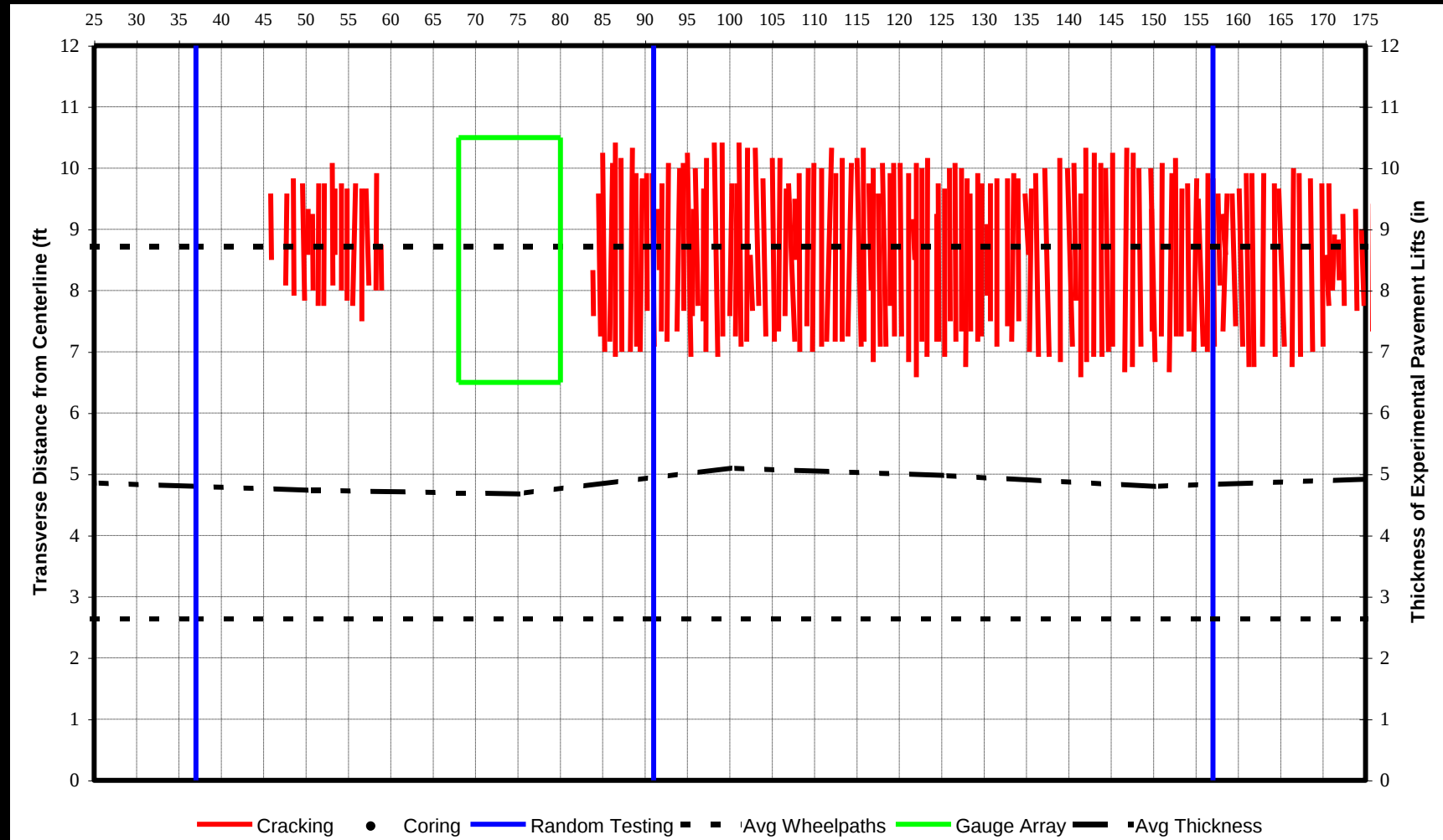
N2 CRACK MAP – 10/21/03 (0.0M)



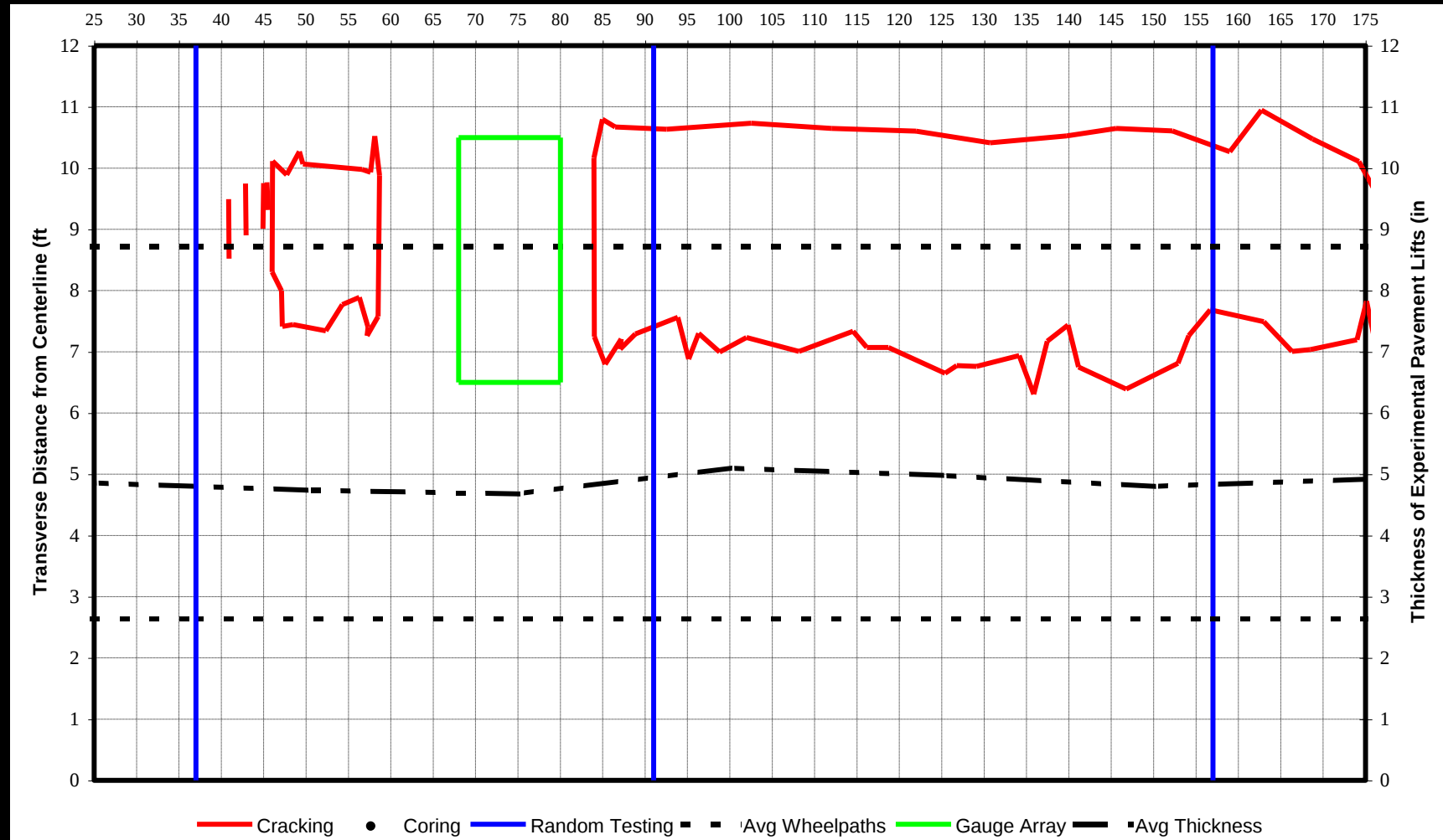
N2 CRACK MAP – 6/21/04 (2.6M)



N2 CRACK MAP – 6/28/04 (2.7M)



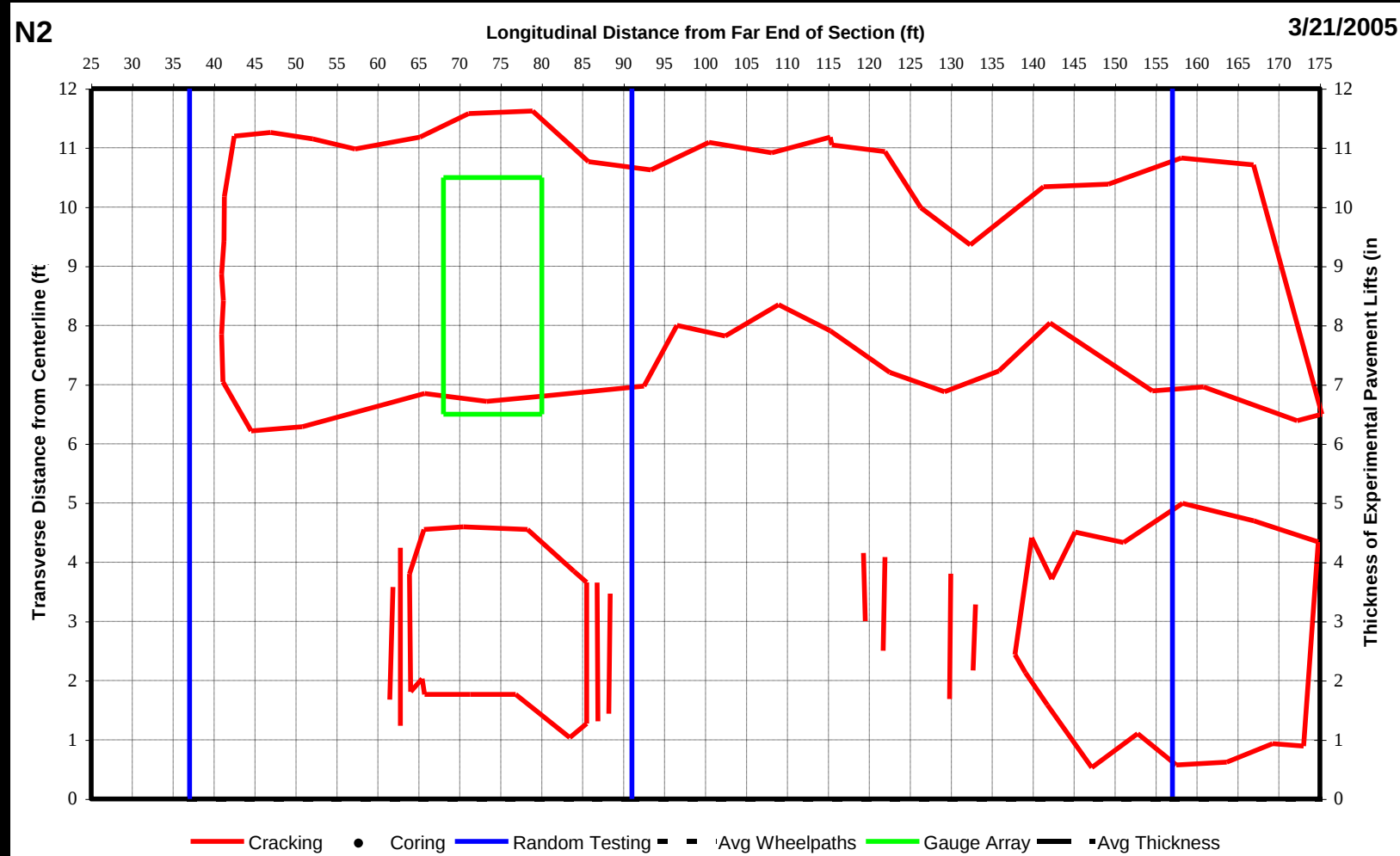
N2 CRACK MAP – 8/2/04 (3.2M)



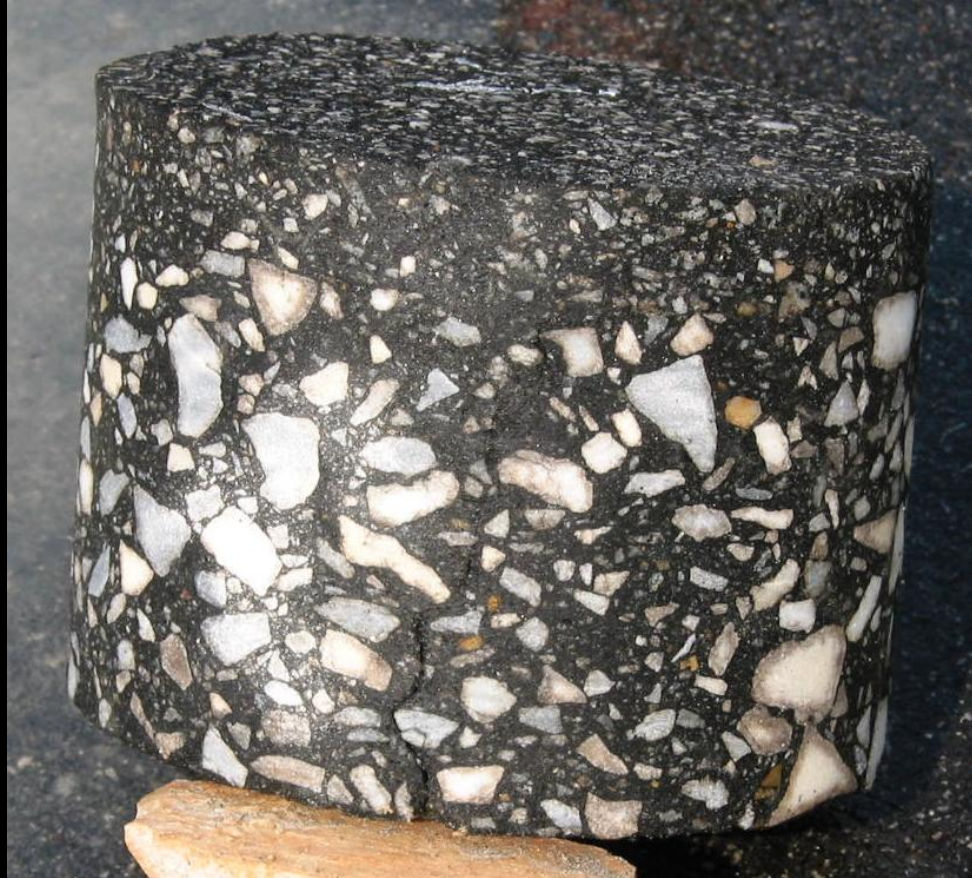
N2 FATIGUE CRACKING



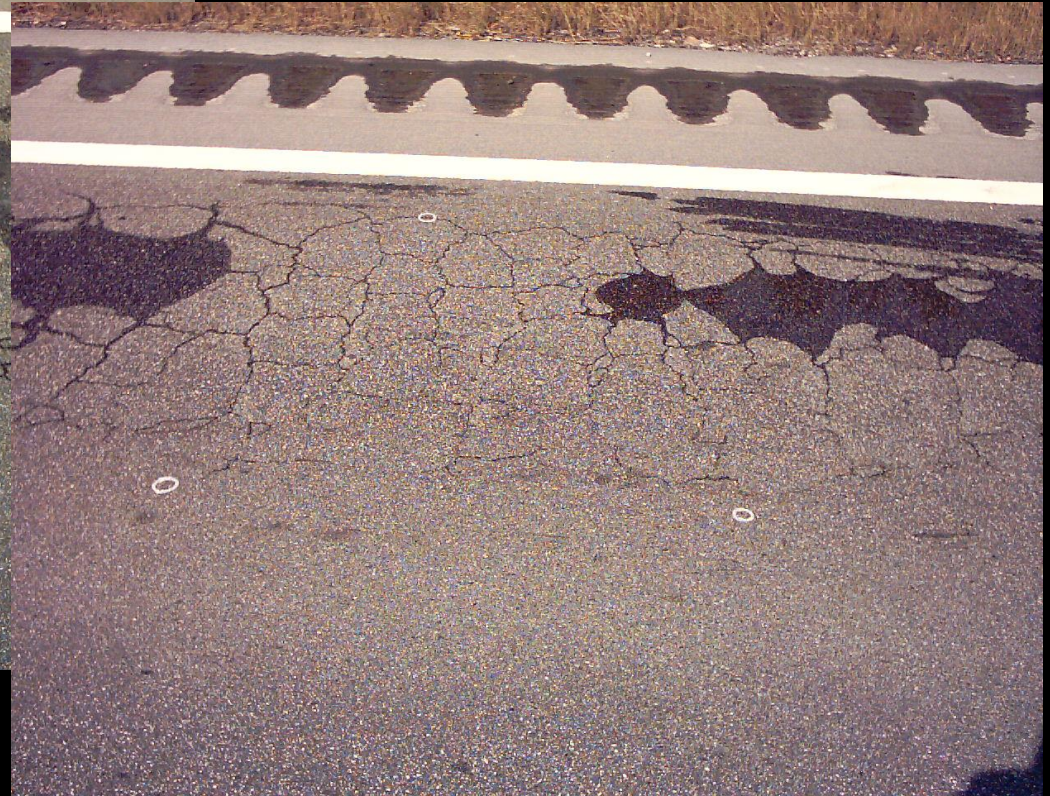
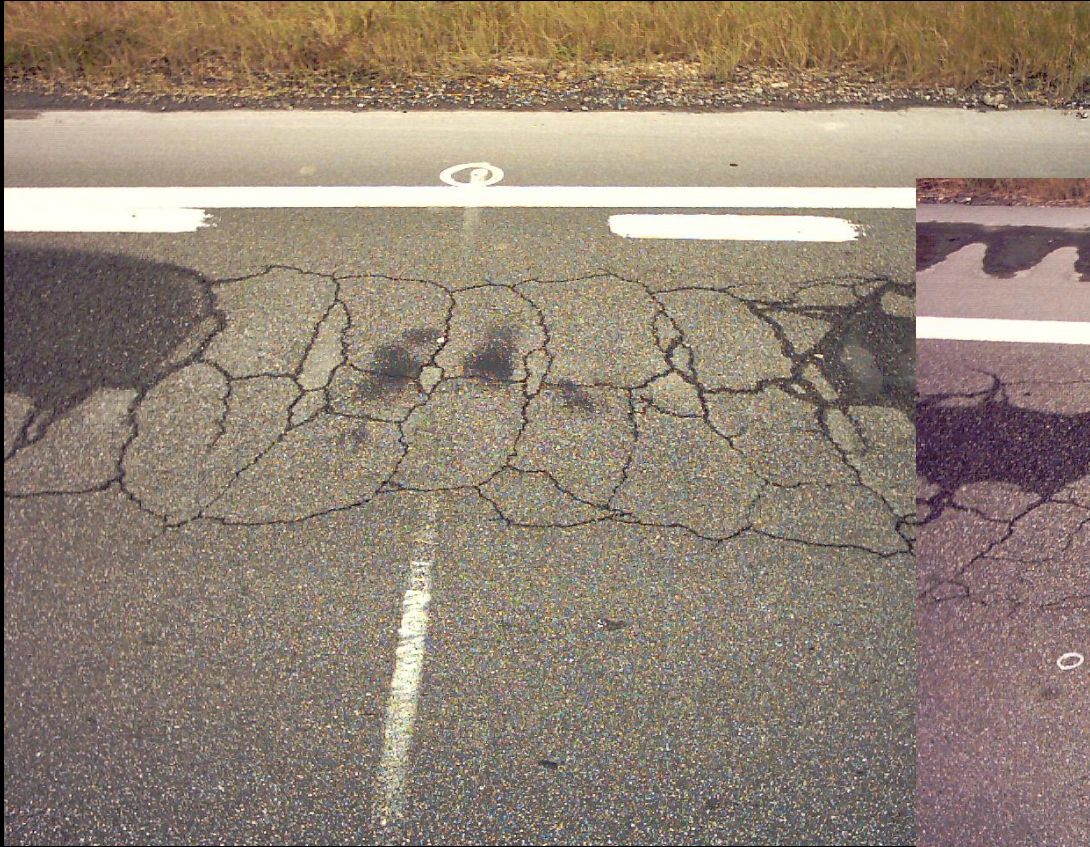
TERMINAL N2 CRACK MAP



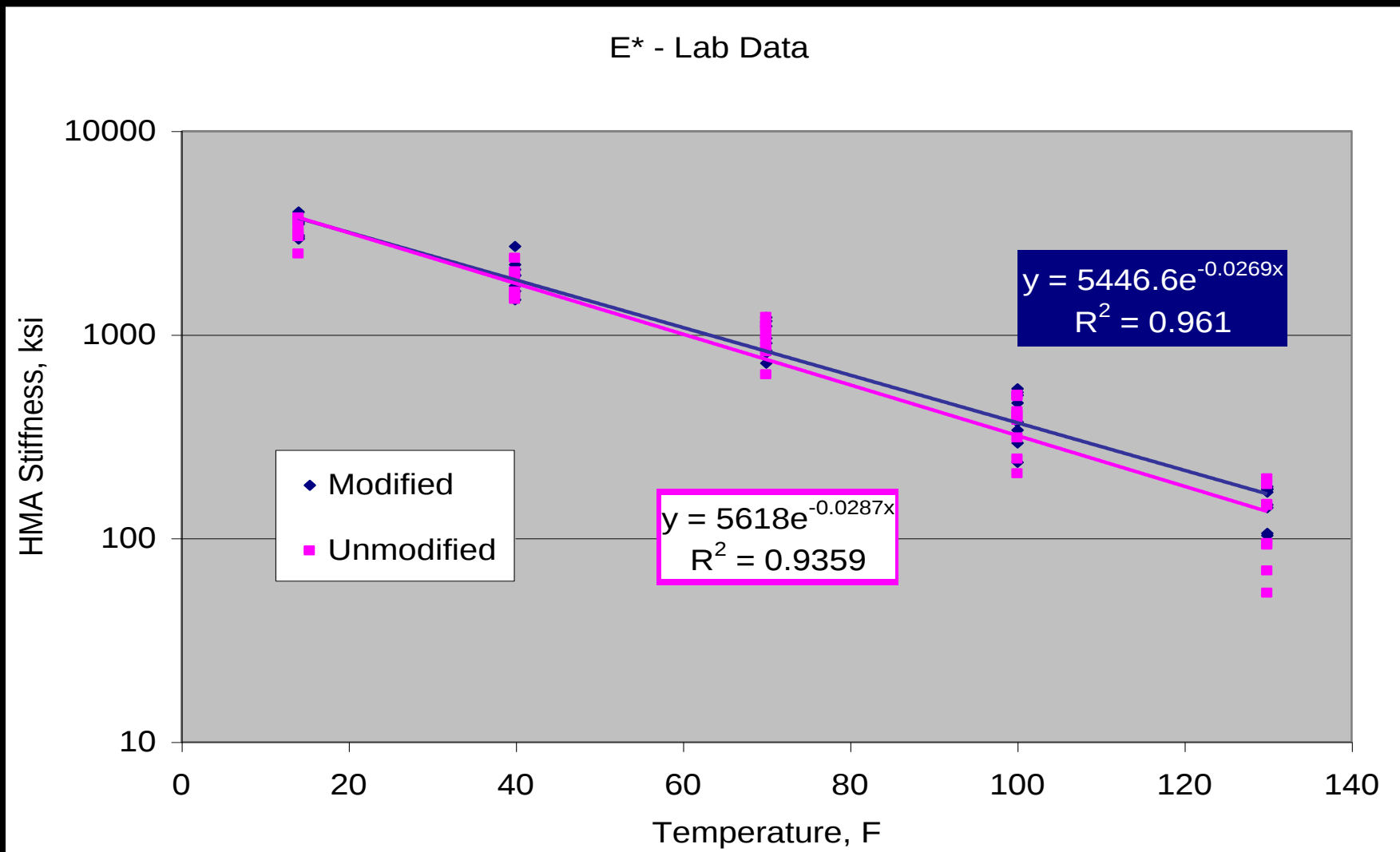
BOTTOM-UP CRACKING



N1 & N2 – 10/11/04 (4.1M ESALs)



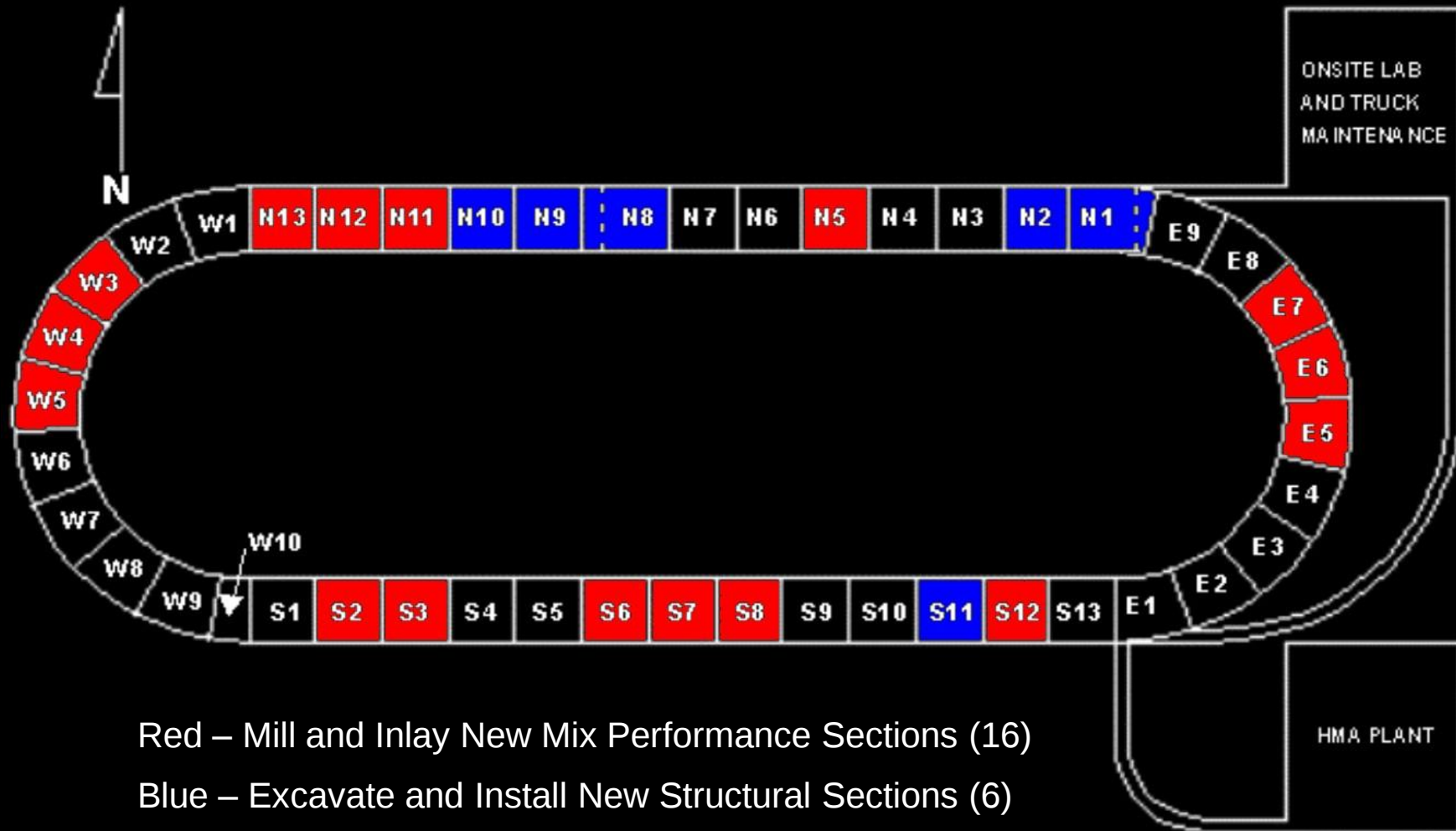
LABORATORY DATA



2003 STRUCTURAL FINDINGS

- Pavement Response **Measured** at Known Temperatures
 - Mechanistic Pavement Analysis Approach **Validated**
 - Pavement Response **Predicted** at All Temperatures
 - Damage (Strains) **Accumulated** with Each Axle Pass
 - Mechanistic-Empirical Pavement Design **Calibrated**
-
- Both 5" Sections Failed (Slightly Later than Expected)
 - Some Fatigue Cracking in 7" Sections (Much Later)
 - No Cracking Observed in Either 9" Section

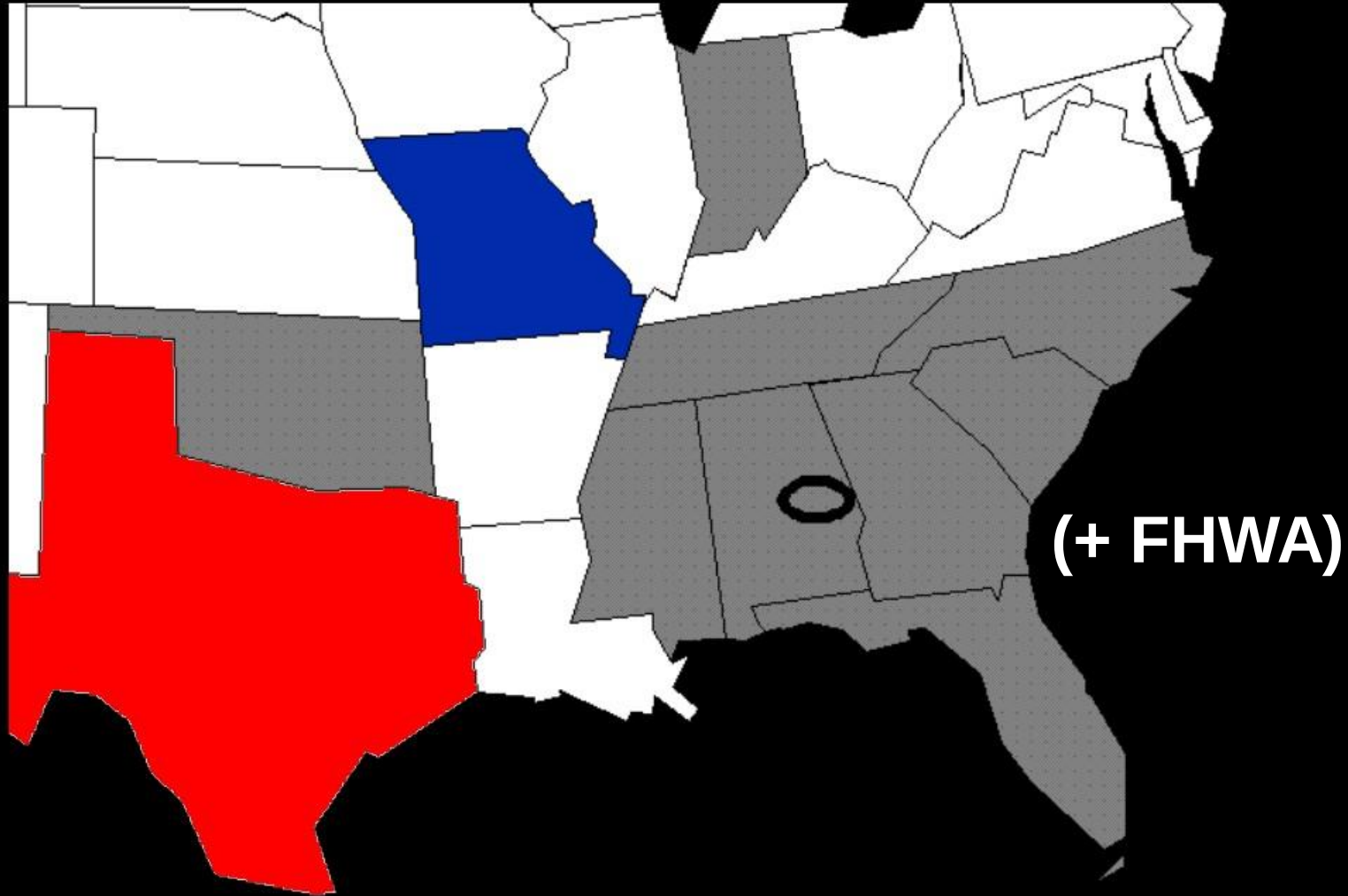
2006 RECONSTRUCTION



Red – Mill and Inlay New Mix Performance Sections (16)

Blue – Excavate and Install New Structural Sections (6)

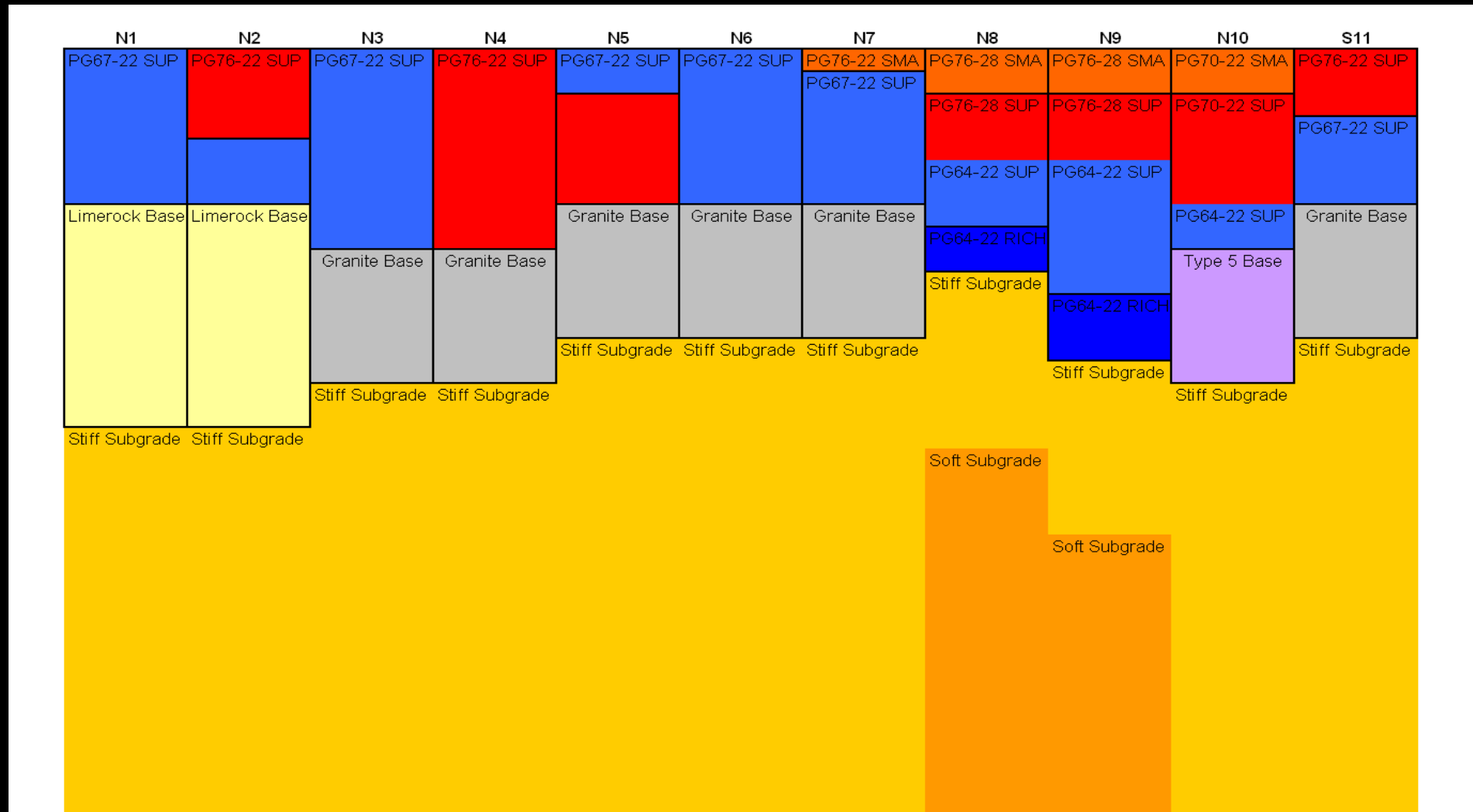
2006 TRACK SPONSORS



2006 TRACK OBJECTIVES

- Continuation/Expansion of Structural Experiment
 - Top-Down Cracking
 - Perpetual Pavement Designs
 - Weak Subgrades
- Flat and Elongated Coarse Aggregate Effects in OGFC
- Twin Layer Placement of Dual Drainage Layers
- RAP Percentage and Binder Grade
- Gravel Open Graded Friction Coarse
- Effect of Varying Air Voids on Performance
- Pavement Preservation Techniques in Texas (+Infrared)

11-SECTION STRUCTURAL EXPERIMENT



PAVING EXPERIMENTAL MIXES



TWIN LAYER PAVING



DRAINABLE SURFACES



QUIET PAVEMENTS (INSIDE LANE)



WARM MIX SECTIONS



TRUCKING OPERATIONS



PAVEMENT ROUGHNESS

