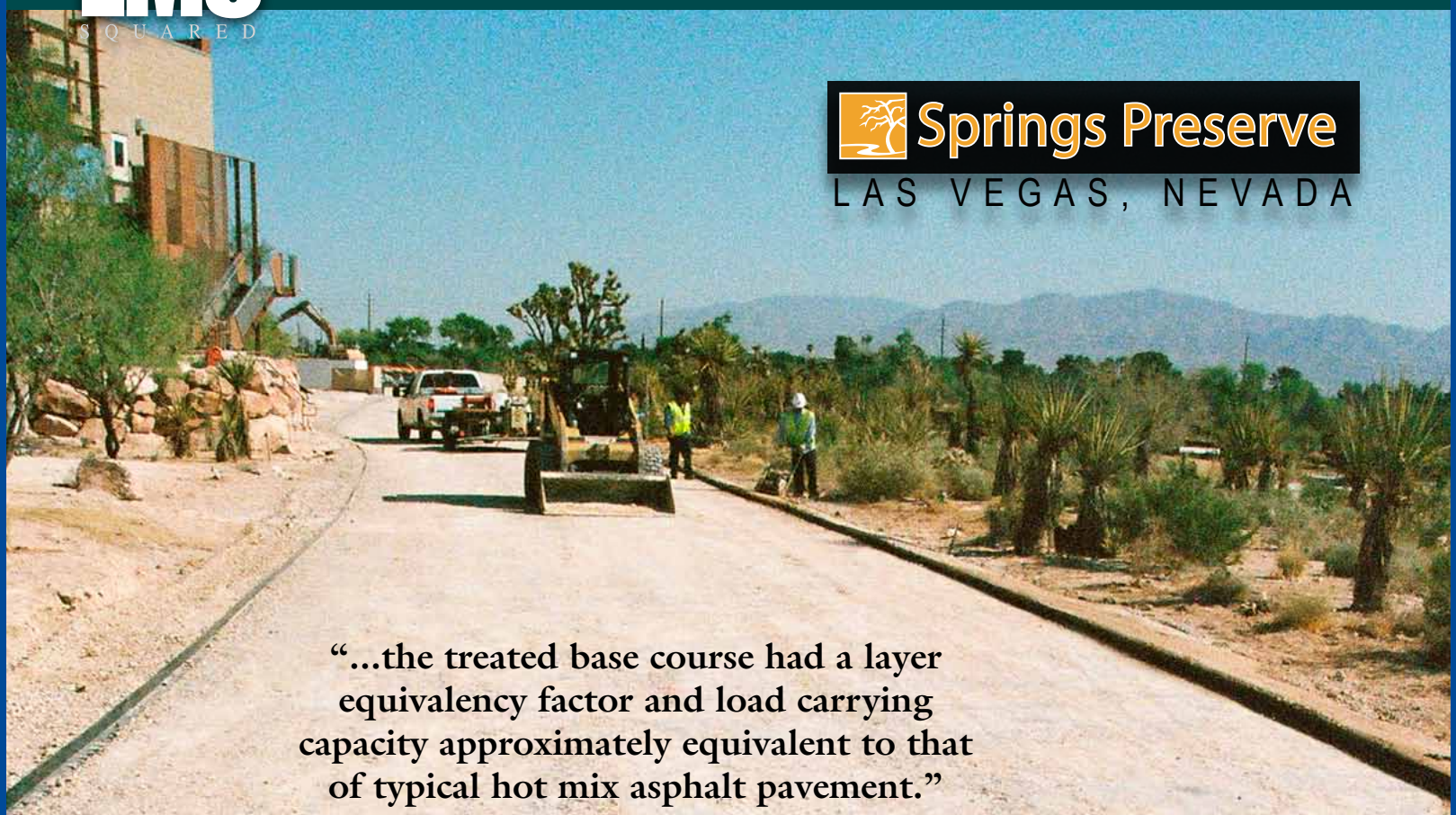
EMC SQUARED® SYSTEM

ADVANCED BASE STABILIZATION "THICKENS" EFFECTIVE PAVEMENT LAYER



"...the treated base course had a layer equivalency factor and load carrying capacity approximately equivalent to that of typical hot mix asphalt pavement."

The Stabilized Base Course

The aggregate base course material was treated with EMC SQUARED® Stabilizer, an economical concentrated liquid stabilizer treatment for base course materials that increases stability without the excessive rigidity (cracking) typical of cement treated base (CTB) materials. In testing conducted at University of Nevada Reno (UNR), the EMC SQUARED System treatment improved the resilient modulus of base course material by a factor of more than 5 times. Materials engineering consultants Professional Service Industries (PSI) provided layer equivalency factors (see next page and report following) and commented that the treated base course had a layer equivalency factor and load carrying capacity approximately equivalent to that of typical hot mix asphalt pavement. The soil subgrade underneath the stabilized base course was also treated with the EMC SQUARED Stabilizer as the first step in the road construction process.

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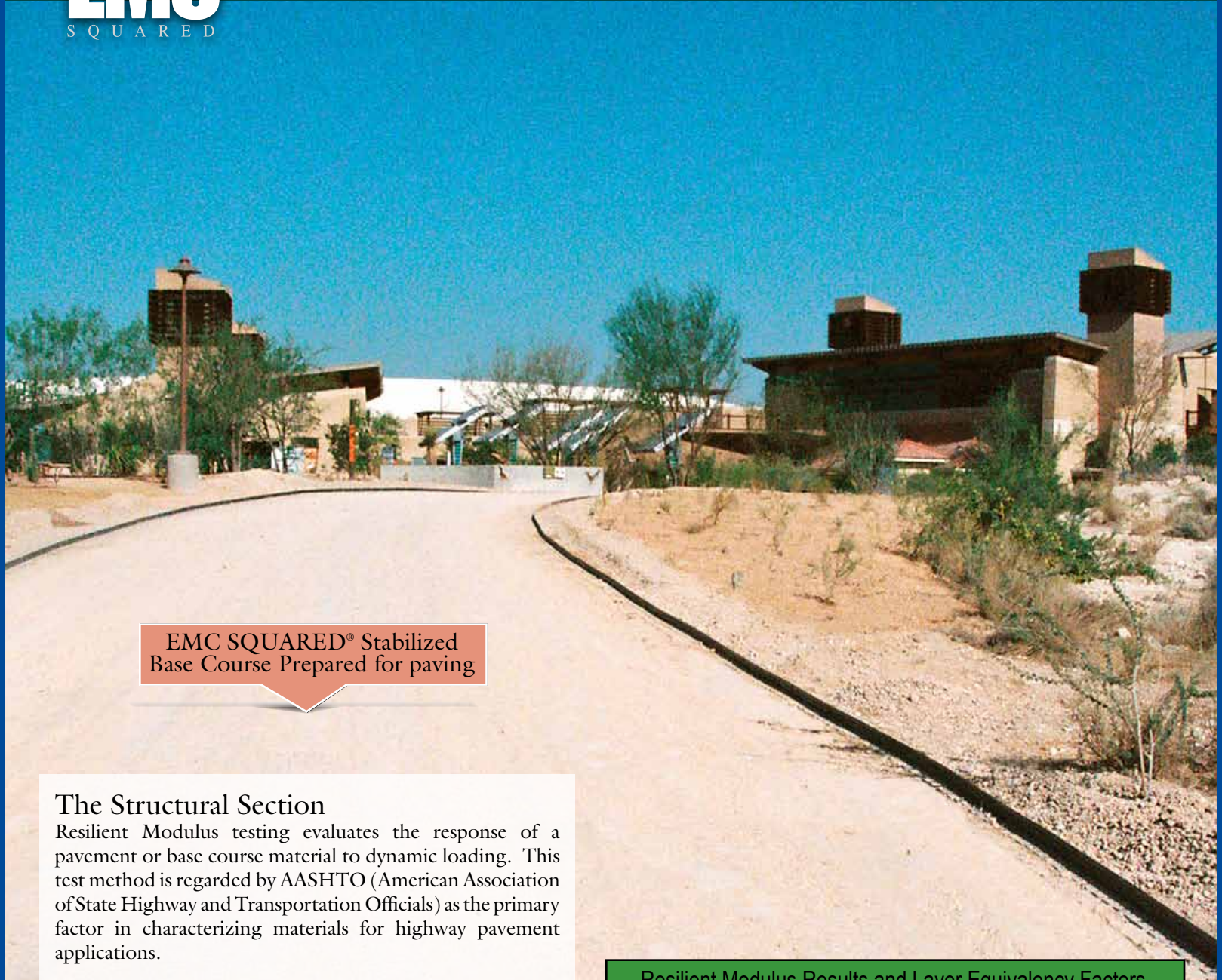


EMC SQUARED® Stabilized Base Course Prepared for paving

The Structural Section

Resilient Modulus testing evaluates the response of a pavement or base course material to dynamic loading. This test method is regarded by AASHTO (American Association of State Highway and Transportation Officials) as the primary factor in characterizing materials for highway pavement applications.

As indicated in the Resilient Modulus test results and the layer equivalency factor provided below for the aggregate base course treated with EMC SQUARED, the structural section on this project is more representative of "full depth asphalt," rather than the typical flexible pavement layer on top of a weaker base course with distinctly different engineering characteristics. Given the low cost of the EMC SQUARED Stabilizer treatment, the pavement-like performance of the stabilized base provides a highly economical method of "thickening" the effective pavement layer.

Resilient Modulus Results and Layer Equivalency Factors

Sample ID	Average Resilient Modulus (psi)*	Layer Equivalency Factor**
Aggregate Base with EMC SQUARED	272,500	0.35***
Untreated Aggregate Base	51,000	0.10

*Resilient Modulus results reported by UNR
**Professional Service Industries, Inc.
*** Standard practice in Southern Nevada is to assign a layer coefficient of 0.35 for dense graded hot mix asphalt.

To learn more about the EMC SQUARED System visit www.stabilizationproducts.net

Stabilization Products LLC
Ph: (800)523-9992 or (209)383-3296, Fax: (209)383-7849, Email: info@stabilizationproducts.net
Canadian Sales: Milieu Road Technologies (780) 857-9159

PSI Information To Build On
Engineering • Consulting • Testing

January 16, 2004
Project No.: 282-40001

Mr. Bob Randolph
Soil Stabilization Products Company, Inc.
P.O. Box 2779
Merced, CA 95344-0079

Subject: **Review of Resilient Modulus Testing On Aggregate Base Materials Stabilized with EMC Squared Stabilizer**
Las Vegas Springs Preserve
Las Vegas Valley Water District
Contract No. 1024

Dear Mr. Randolph:

As per your request, PSI has reviewed diametral resilient modulus results performed by the University of Nevada Reno (UNR), on Type II aggregate base material sampled at the Las Vegas Springs Preserve project and treated with EMC SQUARED (1000) stabilizer supplied by Soil Stabilization Products Company.

The EMC SQUARED stabilized Type II aggregate base was installed as an aggregate base coarse for several miles of paved access road. The surface of the access road was constructed using a flexible Resin Pavement supplied by Soil Stabilization Products Company. The Type II aggregate base material was produced by Southern Nevada Paving at their West Charleston Pit.

Prior to sampling and testing, Dan Ridolfi of PSI had an opportunity to visit the Las Vegas Springs Preserve during construction of the Type II aggregate base and flexible resin pavement surface, and return after completion of access road construction to observe the finished products.

Samples used to evaluate resilient modulus were obtained and fabricated for testing by Kleinfelder, Inc. To prepare the samples for testing, water was added to each sample so the moisture content of each sample was at optimum moisture content for the treated material, as determined by ASTM D1557, prior to compaction. EMC SQUARED Stabilizer was added to the water used to adjust the sample moisture content such that 9.35 ml of EMC SQUARED Stabilizer per cubic of foot of treated aggregate was added to the mixture. The treated material was then compacted using the methods specified in ASTM D1557.

Professional Service Industries, Inc. • 3430 Polaris Avenue • Las Vegas, NV 89102 • Phone 702/873-1775 • Fax 702/873-2840

Two, six inch diameter samples were fabricated as described above for resilient modulus testing at the (UNR). Two additional six inch diameter samples were fabricated as described above without EMC SQUARED Stabilizer. UNR performed diametral resilient modulus dry at 77° F on each of the four samples. The results of the resilient modulus tests are presented in the following table.

Table 1. Resilient Modulus results reported by UNR

Sample ID	Average Resilient Modulus (psi)
SNP Type II AB With EMC^2	272,500
SNP Type II AB	51,000

The diametral resilient modulus was chosen because a relatively high resilient modulus value was anticipated. The diametral resilient modulus measurement technique versus a triaxial type measurement (that is typical of unbound material) is more conservative due to the lack of confining pressure. We would expect a higher resilient modulus value had a triaxial type measurement been selected.

Based on the resilient modulus information provided, the resilient modulus measurements were then converted to AASHTO pavement section design layer equivalency factors used for pavement structural design. The conversion was made from conversion charts published by Van Til et al. for NCHRP 128.

Table 2. Resilient Modulus Results and Layer Equivalency Factors

Sample ID	Average Resilient Modulus (psi)	Layer Equivalency Factor
SNP Type II AB With EMC^2	272,500	0.35
SNP Type II AB	51,000	0.10

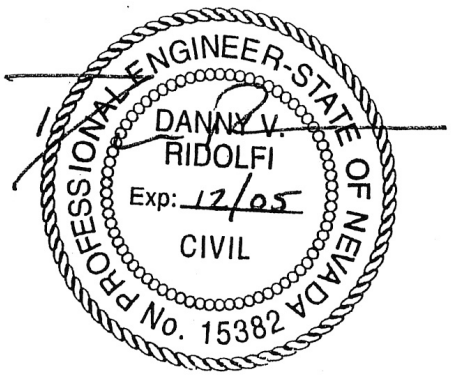
Using the current AASHTO design guide for pavement sections (Dated 1985) typical dense graded hot mix asphalt would be assigned a layer coefficient ranging from 0.35 – 0.45. The standard of practice in Southern Nevada is to assign a layer coefficient of 0.35 for dense graded hot mix asphalt. In Southern Nevada dense graded high quality aggregate base is typically assigned a layer coefficient of 0.12. A pavement's structural capacity is calculated by summing the product of the layer thickness by the layer equivalency factor for each layer and then adjusting that product for the base and subgrade layers to account for potential drainage issues. With all things being equal and a choice of two different aggregate bases with the structural layer coefficient of the second twice that of the first, a pavement section constructed with the second aggregate base would theoretically require one half the aggregate base thickness.

Based on the calculated layer equivalency factors and industry standards, the EMC SQUARED stabilized aggregate base appears to provide significantly greater load carrying capacity than untreated Type II aggregate base, and a load carrying capacity approximately equivalent to that of typical Southern Nevada dense graded hot mix asphalt.

We trust the information provided satisfies your requirements. Should you have any questions or require further information, please feel free to contact the undersigned at (702) 873-1775.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES

Dan V. Ridolfi, P.E.
Materials Engineer



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