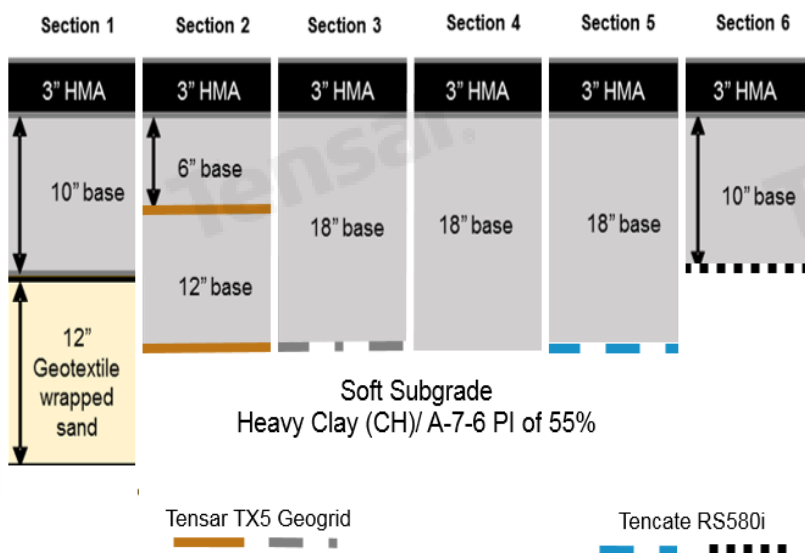


Evaluation of Geosynthetic Stabilized Pavement Over Soft Soil - Louisiana Transportation Research Center

Research Organization

Louisiana Transportation Research Center (LTRC)
Louisiana State University

Summary of Test Box Sections and Configurations



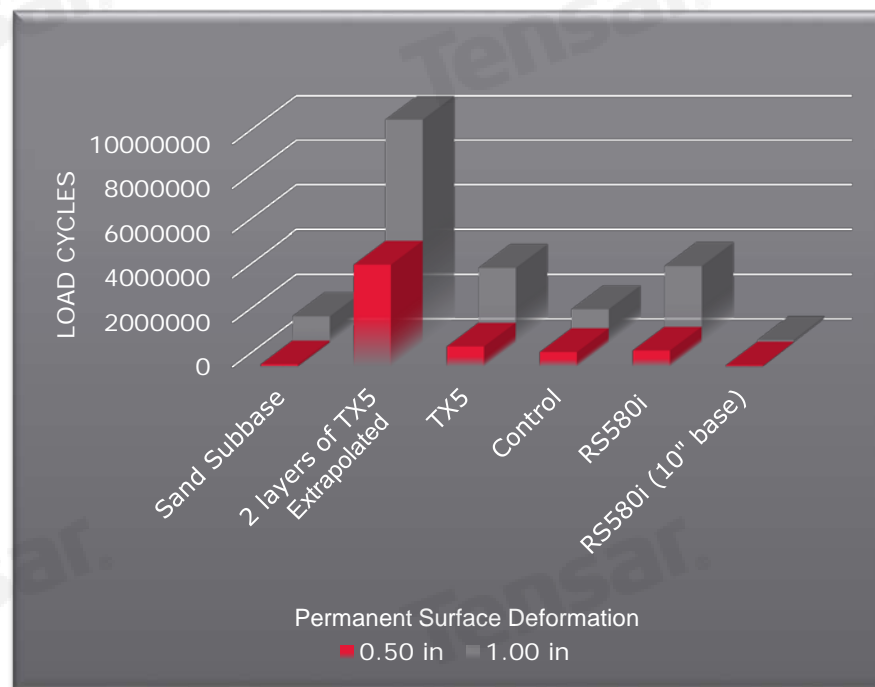
Testing Conducted

- Vertical Stress at top of subgrade
- Compressive strain mid-height of base course
- Permanent deformation of Subgrade, Base and Surface

Key Findings

Significant performance improvement demonstrated using a 2nd layer of TX5 for Pavement Optimization.

Single layers of TX5 and RS580i, at the subgrade interface, had very similar performance over soft soils.

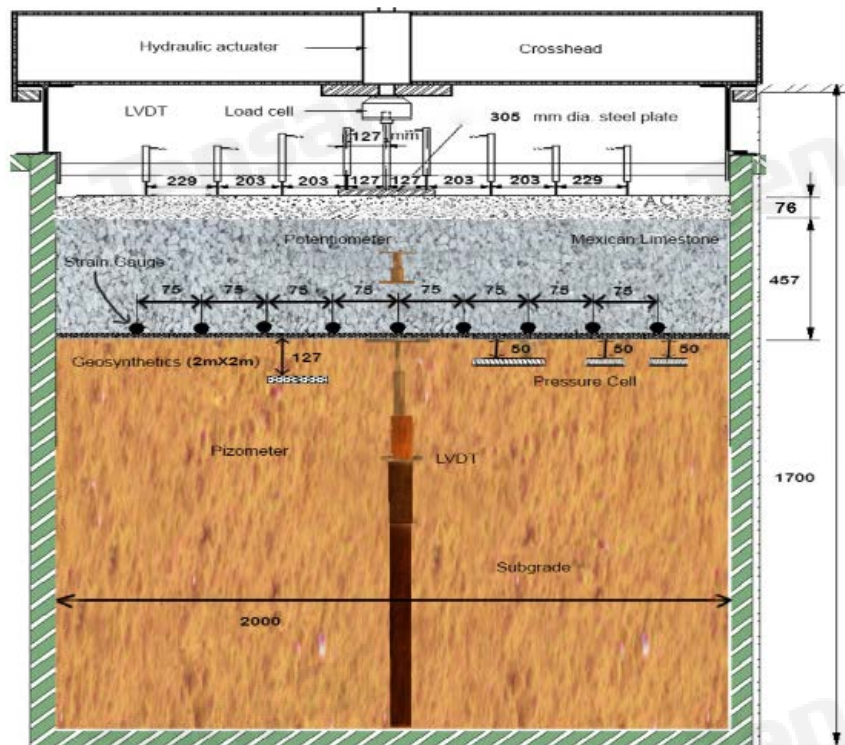


- OBJECTIVES:
 - Evaluate the benefits of Geosynthetics for both subgrade and base course stabilization.
 - Further progress of incorporating benefits of geosynthetic stabilized flexible pavement into Mechanistic-Empirical pavement design.

- Location: LTRC facility at Baton Rouge, Louisiana

- Geogrid products tested: Tensar TX5 and Tencate RS580i

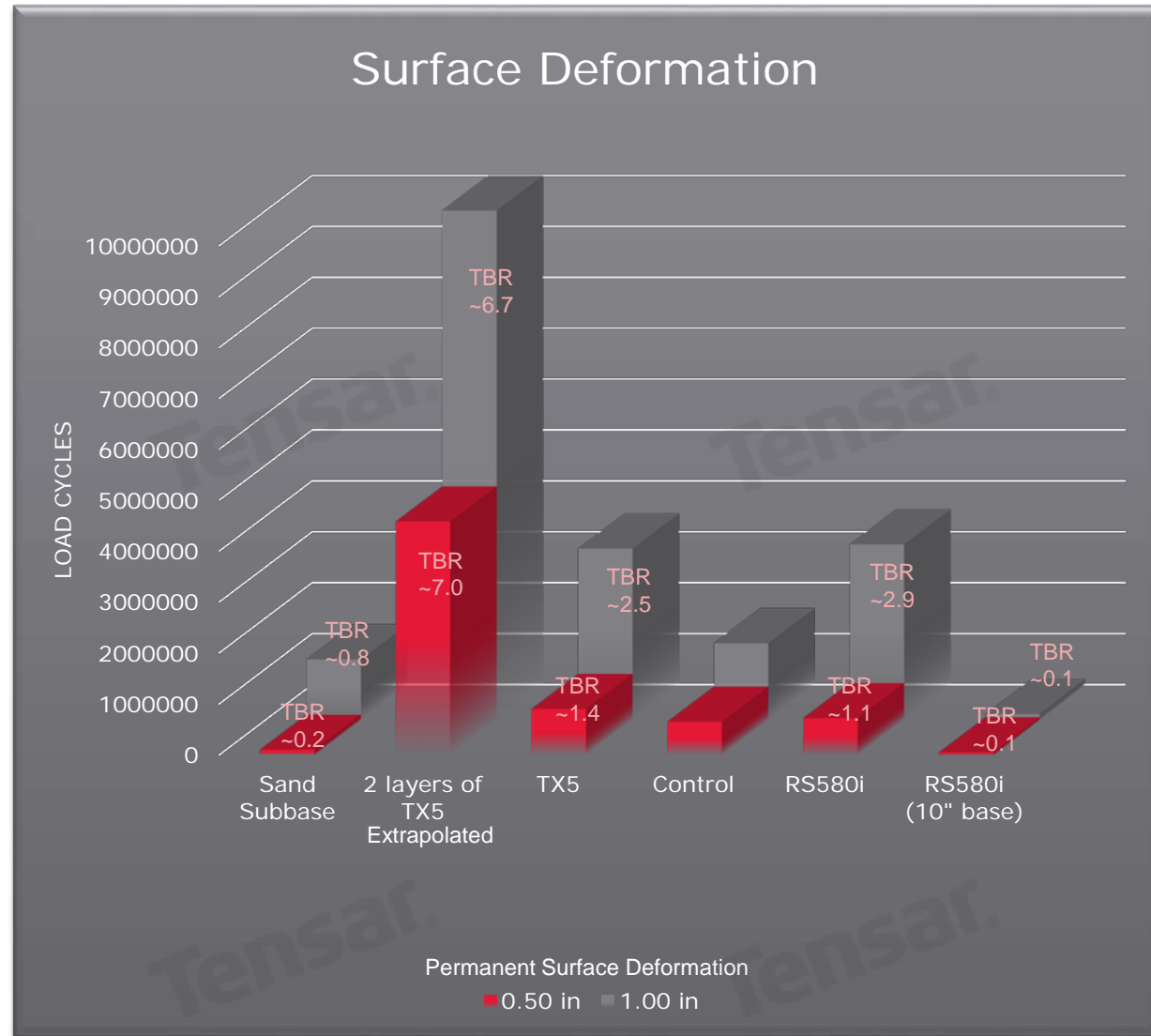
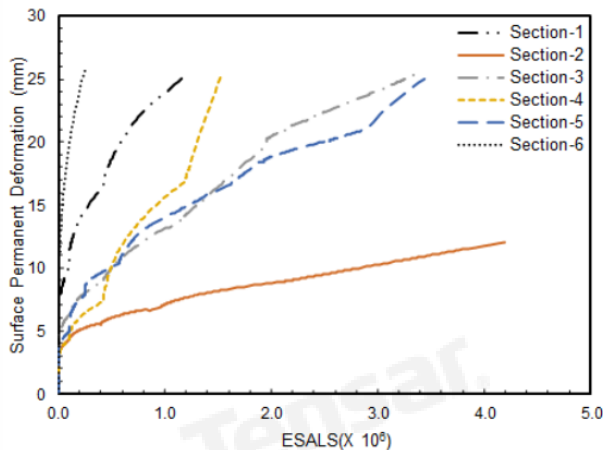
- Six Test sections were constructed in a steel box with dimension of 2 m (Length) × 2 m (Width) × 1.7 m (Height).



- Section 1: 12" nonwoven geotextile-wrapped sand and 10" base
- Section 2: 6" base + TX5 and 12" base + TX5
- Section 3: 18" base + TX5
- Section 4: 18" base control
- Section 5: 18" base + Tencate RS580i geotextile
- Section 6: 10" base + Tencate RS580i

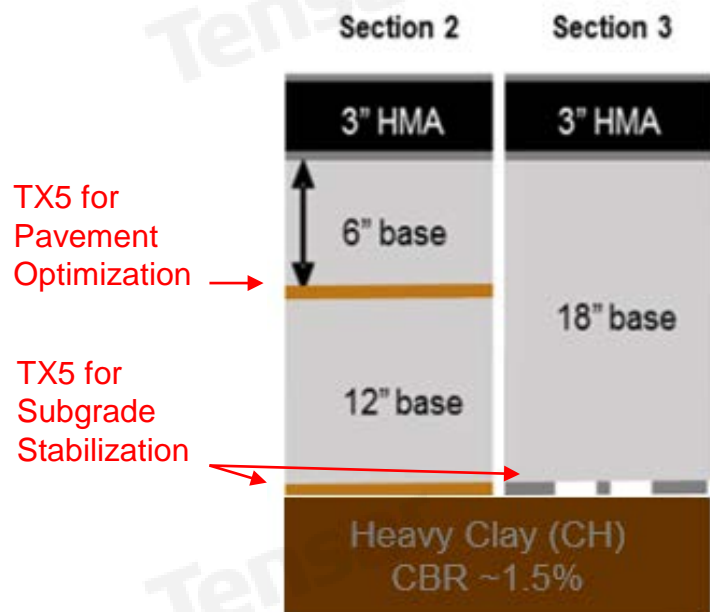
Sections constructed over soft soils.
CBR ~ 1.5%

The addition of another layer of TX5, within the upper portion of the base (pavement optimization), significantly reduces surface, base and subgrade deformation.

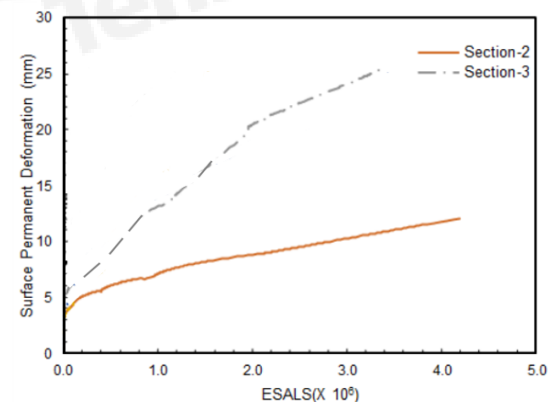


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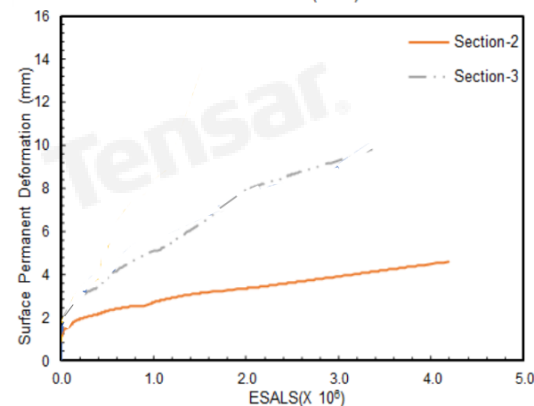
Adding a layer of TX5, for Pavement Optimization, significantly reduced deformations at all levels of the pavement structure.



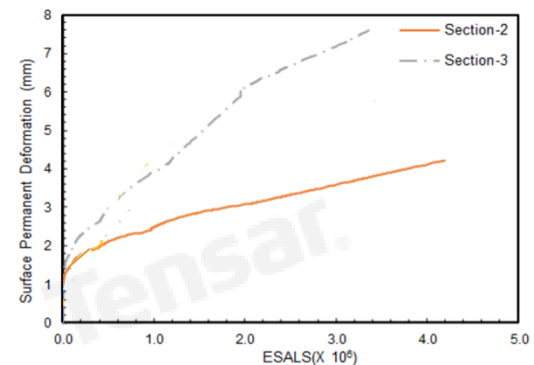
Surface Deformation



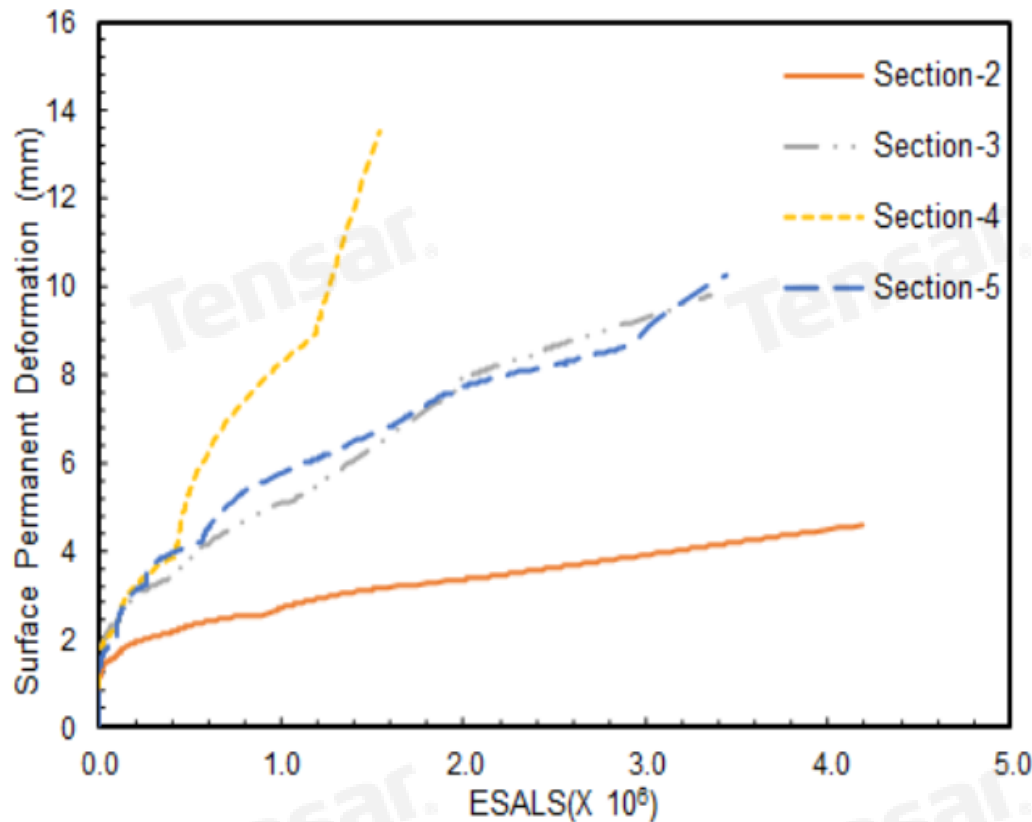
Base Deformation



Subgrade Deformation



Base Deformation



- Section 1: 12" nonwoven geotextile-wrapped sand and 10" base
- Section 2: 6" base + TX5 and 12" base + TX5
- Section 3: 18" base + TX5
- Section 4: 18" base control
- Section 5: 18" base + Tencate RS580i geotextile
- Section 6: 10" base + Tencate RS580i

Key Findings

- Dual layered TX5 stabilized section provided the greatest reduction in permanent deformation (subgrade, base and surface).
- By placing a 2nd layer of TX5 within the upper portion of the base course (Pavement Optimization Application), significant reduction was seen in permanent deformation of the surface, base course and subgrade.
- Similar performance was observed between the TX5 stabilized section and the RS580i sections at both 0.5 and 1.0 inches of surface deformation.