Roadbond Service Company

In 1995, Texas DOT used Roadbond EN 1 soil stabilizer to rebuild a portion of FM 857 near Grand Saline, TX. According to the project manager Tony Buford, who at that time was the Texas DOT assistant maintenance supervisor for that area, the road section often needed base repair because of the traffic load, the nearby river, and the high water table underneath the road. Recent reports from Texas DOT employees who are familiar with the road confirm that the road is often submerged during periods of rainy weather.

The existing road was mixed 8" deep with a road reclaimer. This mixing resulted in a blend of pavement material, salvage base material, base and asphalt material from previous repairs, and clay Subgrade soil. Proportions of each constituent varied throughout the length of the treated section.

Roadbond EN 1 was distributed with a water truck and the road reclaimer was used to mix the Roadbond EN 1 full-depth into the soil. Once mixed in this manner, a motor-grader was used to windrow the treated material to the side. During this process, water was added to the material as needed to achieve Optimum Moisture Content (OMC) for compaction. Blade-mixing continued until the material was uniform and the moisture content was correct.

The treated material was next bladed back in lifts, compacted, placed on grade, and finished. The finished section was then paved with chip-seal. After 20 years, the section as received some routine pavement maintenance, but no base repairs have been needed.

On April 22, 2016, the section was tested for CBR value with a Kessler DCP. The device is hand held and is equipped with a 17.6 pound (7.98 kg) weight that drops 22.6 inches (57.4 cm) and strikes an anvil. These blows drive a 7/8" (22.2 mm) diameter 60° cone into the ground. Measurements in millimeters of the penetration depth into the soil are recorded. Once the data is obtained, the number of blows delivered to the anvil and the total depth of the penetration are entered into a Microsoft XL template that was developed by the US Army Corps of Engineers. The template converts the raw data to CBR. CBR is then easily converted to resilient modulus and used in pavement design.

A one-inch diameter hole was bored through the pavement to gain access to the Roadbond EN 1 treated soil at three locations. The DCP is positioned in the hole and the weight is dropped 2 times to seat the cone into the soil. The initial depth is recorded and the weight is dropped a number of times to achieve a minimum of 25 mm of penetration. The number of blows delivered and the total penetration is entered into the XL template to calculate CBR.

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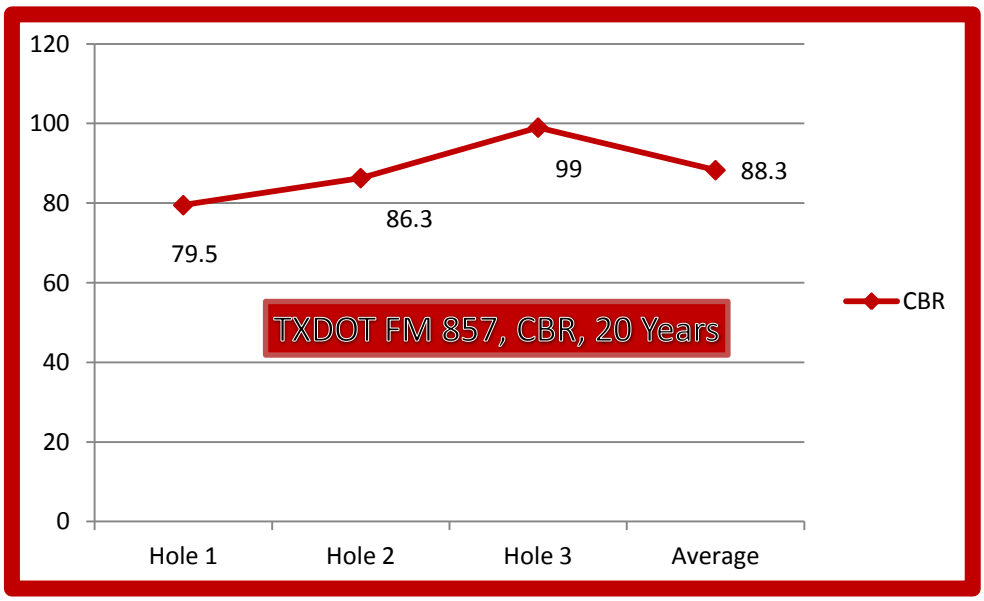
The results of the test appear in the following table.

Hole 1	31 Blows	99 mm
Hole 2	32 Blows	95 mm
Hole 3	55 Blows	111 mm
CBR		**88.3**
psf		**10,694**
Resilient Modulus		**287 MPa**

The following chart illustrates the calculated CBR.



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