

FEBRUARY 2010 MEETING

Wednesday, February 10, 2010

TECHNICAL PROGRAM

Geogrids Reinforced Pavement Sections

Speaker: [Gretchen Davidson](#), P.E. with [Tensar International](#), Tel. 281-217-9616

Ms. Davidson is the South-Central Regional Manager for Tensar International, she works in Houston and has been with Tensar for eight years. She holds a BSCE degree from Georgia Institute of Technology and is a registered professional engineer in the state of Maryland.

PRESENTATION SUMMARY

To an audience of about 70 at the HESS club, Ms. Davidson gave a slide presentation titled, "Geogrids Reinforced Pavement Sections." Her company, Tensar International is worldwide and the geomembranes for North and South America are fabricated in Atlanta, Georgia, including Geotextiles, Geocells and Geogrids. Her presentation mainly covered Geogrids, which are used to reinforce pavements. Unlike Geotextiles, which must deform to work, Geogrids are stiff and are not meant to deform to work.



Ms. Davidson's said that Geogrids are typically recommended by geotechnical engineers to improve the subgrade, often in lieu of chemical stabilization. Geogrids are mainly fabricated in three geometries: Uniaxial, Biaxial and Triaxial. All three types begin fabrication as thick polymer sheets that are punched and stretched to give the desired grid geometry. The polymers can be different chemicals, e.g., HDPE is used for wall and slope reinforcement, fiberglass for asphalt reinforcement, and polypropylene for pavement subbase reinforcement.

Ms. Davidson said that in the past pavement reinforcements were mainly accomplished with biaxial Geogrids, but these are now being phased out as triaxial geogrids have been found to be superior to biaxial geogrids because they distribute wheel loads to the subgrade in a more uniform radial pattern, thereby reducing deflection. Geogrids are also used below spread footings in order to reduce the area of the footings. By adding the geogrid, the failure plane of the soil below the footing becomes more horizontal from say a 2:1 slope to a 1:1 slope.

The geogrid's life is believed to be 75 - 100 years. The tensile strength on the geogrid is approximately 1200 lb/LF. To be effective, the aggregate of the soil in contact with the geogrid should be smaller than the grid openings and can be sand if desired.

Ms. Davidson said Tensar's software for designing with their geogrids is available for the asking. She or other engineers will provide design assistance as needed. They will also seal the designs if the engineer does not feel comfortable with the product. She gave some examples using the software to show the savings in thickness. In one example, she reduced a non-reinforced pavement design consisting of 3" asphalt + 12" aggregate + 8" limestone (23" total) to 3" asphalt + 8.5" aggregate + 6" limestone (17.5" total) by inserting a geogrid within the limestone subbase.

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