OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
GEOSYNTHETIC SUBGRADE REINFORCEMENT

These Special Provisions amend and where in conflict, supersede applicable sections of the 1999 Standard Specifications for Highway Construction, English and Metric. Units of measurement are provided in the subsections in both English and Metric equivalents. The units for this project will be those specified in the project plans.

328.01. DESCRIPTION.

This work shall consist of the installation of a geosynthetic subgrade reinforcement material beneath the aggregate base layer in the pavement section. This includes the use of geogrids as well as geotextiles. The installation shall be performed in accordance with these Specifications and as directed by the Engineer.

328.02. MATERIALS.

(a) Use only geosynthetic reinforcement that is an integrally formed single layer structure with high tensile modulus in relation to the material being reinforced.
(b) Geogrids shall meet the requirements specified in Section 712.07.
(c) Geotextiles shall meet the requirements as specified in AASHTO M 288 for Class 1 geotextiles.

328.03. EQUIPMENT.

The Contractor shall furnish equipment required for satisfactory progress and completion of acceptable work in accordance with Subsection 108.06.

328.04. CONSTRUCTION METHODS.

Label each roll to provide product identification for inventory and quality control. In the field, geosynthetic rolls shall be protected from the following : site construction damage, extended ultraviolet radiation including sunlight, chemicals that are strong acids or bases, flames including welding sparks, temperatures in excess of 160° F (71° C), and any other environmental condition that may damage the physical properties of the geosynthetic.

Before placement of the geosynthetic, clear the site of all topsoil, trees, stumps, rocks and other debris. After clearing, grade and smooth the site with a non-vibratory steel-wheeled roller to achieve a firm and level working surface, as a final ironing pass.

Place the geosynthetic at the elevation and alignment as shown on the Plans and orient such that the roll length runs parallel to the road direction. When geosynthetic rolls are placed side by side, or end to end; overlap, sew, or join the edges as specified in AASHTO M288, Appendix A3., Table 8. Sewn seams shall conform to AASHTO M288 Appendix A1 Place the geosynthetic in the direction that fill will be spread. Do not place geosynthetic in excess of 500 feet ahead of the aggregate base construction operations.

Tension the geosynthetic by hand and secure it to the ground surface as directed by the Engineer. Anchor the geosynthetic to the ground in such a manner that any wrinkles that are formed, during placement of the aggregate base may freely unfold as aggregate placement is advanced. Make sure that the overlap sections of the geosynthetic do not separate during construction. Placement of geosynthetic to accommodate curves will require cutting of geosynthetic product and diagonal overlapping to ensure that excessive wrinkling of material does not occur. Secure overlapped areas with small piles of aggregate fill, a washer and pin, or large heavy gauge staples driven securely into the subgrade.

Over relatively competent subgrades (CBR>2) place aggregate base material by end dumping onto the geosynthetic from the edge of the geosynthetic, or from previously placed aggregate base and blade the aggregate fill onto the geosynthetic in such a manner that the fill rolls onto the material ahead (e. g. by gradually raising a dozer blade while moving forward. In softer conditions, fill should be dumped over ground that will bear its weight and then pushed out over the geosynthetic. Work from stronger to weaker subgrade areas. In very soft conditions, fill should be paced by a lightweight, low ground pressure dozer at the direction of the Engineer.

Standard compaction methods can be used unless the subgrade soils are very soft. In these cases, static rather than vibratory compaction should be used. Compaction is normally accomplished with a light roller and moisture. If rutting or severe pumping occurs under truck or dozer traffic, aggregate fill should be added immediately to strengthen the structure.

Do not operate tracked construction equipment directly upon the geosynthetic. Place a minimum fill thickness of 8 inches (200 mm) prior to operation of tracked vehicles over the geosynthetic. Rubber tired equipment may pass over the geosynthetic at slow speeds, less than 5 MPH (8 km/h), only if the underlying subgrade is capable of supporting the loads without rutting and the tires do not cause damage to or wrinkles in the geosynthetic. Operators must avoid sudden braking or sharp turning movements. Fill any ruts which are created in the aggregate base by construction traffic with additional aggregate base material, rather than blading adjacent material into the rut. Place a minimum depth of 8 inches (200 mm) aggregate base material over the geosynthetic.

Place separator fabric, when used with geogrid, as shown in the Plans in accordance with Subsection 325.04. After placement, do not directly traffic the separator fabric by construction equipment.

328.05. METHOD OF MEASUREMENT.

Geosynthetic Subgrade Reinforcement shall be measured by the square yard in place. No allowance will be made for laps.

328.06. BASIS OF PAYMENT.

The accepted quantities measured as provided above, will be paid for at the contract unit price for:

(A) (SP) GEOSYNTHETIC SUBGRADE REINFORCEMENT . . . . . SQUARE YARD (SQUARE METER)

which shall be full compensation for furnishing all material, equipment labor and incidental to complete the work as specified.

Preparation, grading and rolling of the site will not be measured for payment, but the cost of same will be included in the unit price bid for geosynthetic subgrade reinforcement.