Minimizing Mud Problems in the Spring

The US Army Corps of Engineers has released a report that examines various techniques designed to mitigate problems with muddy gravel roads during spring thaw. The study was done over 2 seasons in Vermont in 2002 and 2003.

Several techniques thought to mitigate deterioration of unpaved roads during spring thaw were constructed on test sections of unpaved roads in two towns. Each potential remedy was aimed at providing some combination of limiting the availability of moisture in the winter, improving drainage during spring, and strengthening the upper portion of the road. Each technique used local and/or commercially available materials, and all were easy to construct, i.e., a town road crew could build them.

For two spring thaw seasons, we compared strength estimates based on dynamic cone penetrometer tests and the percentage of the road surface rutted for treated and control sections. Methods that permanently improved the strength of the top 12 inches of the road or decreased the water content of the upper 12 inches of the road resulted in significant performance improvement during spring thaw.

Cement and cellular confinement systems worked well by improving the strength of the upper layers of the soil. Two new techniques-geowrap, comprising clean sand sandwiched by geotextile separators placed 12–18 inches deep, and the patented Geosynthetic Capillary Barrier Drain—provided benefit by keeping the upper layers of the soil relatively dry. Geogrid and geotextile separators placed 12 inch deep and trench drains parallel to the road provided no observable benefit.

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