

RoaDrain™ Provides a Simplified Drainable Base Solution Under Reinforced Concrete Pavement

Project Name: County Highway 34/NW 26th Street

Location: Owatonna, MN

Owner: Steele County, MN

Engineer: Steele County Highway Department



The long and cold winters of Minnesota can be detrimental to pavements. To provide effective performance, pavement drainage systems must be properly designed, constructed and maintained

As the city of Owatonna, MN continued to grow, so did the demands on the aging pavement structure of Steele County Highway 34 which also serves as the community's NW 26th Street. With direct access to Interstate 35, NW 26th Street is a primary route in and out of the city's north side. Contributing greatly to the growing demands is a busy stone quarry that services more than 250 trucks per day. The need for repair had become very evident and the county sought a solution that would serve the community for many years to come.

Recognizing the existing a growing traffic demands, the county opted to reconstruct NW 26th Street with PCC. Steele County engineers recognize the value of including a drainable base layer under PCC pavements but were hesitant to include them because of concerns regarding a lack of stability and long term effectiveness of open-graded base. Several studies cast doubt as to how long the hydraulic conductivity of open-graded bases can be maintained due to upward migration of subgrade soils into the layer, as well as infiltration of fine particles through fractures in the pavement surface. A granular layer or geotextile filter must be included to prevent this. The use of an asphalt or cement stabilizer is a common solution to aid stability, but these materials are known to strip or erode away over time, becoming less effective and provide cause for environmental concerns.

Just a few years earlier, Syntec RoaDrain™, a void-maintaining synthetic subsurface drainage layer, provided an efficient and effective solution to a problem area of Steele CH-35. (see Syntec Case History: *RoaDrain™ - Highway 35 Road Reconstruction at Bridge Abutment, MN*) Drawing on this previous success, they explored the use of RoaDrain-T™ for the reconstruction of NW 26th Street.



RoaDrain™ is a complete synthetic sub-surface drainage layer (SSDL) that is manufactured in a controlled environment to strict quality standards. Installation is as simple as unrolling and joining the panels with no special equipment or time consuming construction testing required.

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RoaDrain-T™ opens the door for flexibility to the paving process. The void-maintaining triplanar structure supports the weight of typical paving equipment without damage. This is not possible with conventional open graded based materials.

The Synthetic Aggregate Solution

The solution to the problems associated with roadway drainage is RoaDrain-T™. By providing “EXCELLENT” drainage, RoaDrain-T™ will greatly extend the service life of your roads and reduce maintenance costs. RoaDrain-T™ is a synthetic subsurface drainage layer (SSDL) that provides a flow rate up to 5 times greater than a typical open graded base layer. Durable nonwoven geotextile filters are laminated to the top and bottom of the void maintaining, triplanar geonet core. The result is a subsurface drainage layer that out performs natural stone in

performance, longevity, ease of installation and cost.

The installation proved to be simple and provided options not associated with natural open graded bases. The void maintaining, triplanar structure RoaDrain-T™ is capable of supporting typical paving equipment without damage. RoaDrain-T™ was placed directly over a prepared base and easily connected to a conventional edge drain. The project is considered a complete success and more RoaDrain is planned for future projects.