CLEARWATER TOWNSHIP  
SHANNON COLONY  
MINER COUNTY, SD  

Working towards a cooperative effort  
Ron Krempges - Superintendent  

**PROBLEM**  
• Shannon Colony is a growing colony with a large scale grain and corn facility, hog confinement and soon to be adding a large dairy production unit.  
• Township roads in the current state cannot handle the increase in heavy truck traffic  
• Township cannot afford improvements on their own 1.5 miles  
• County would need to improve 2 miles of their system to handle the...
Future Expansion

ROAD DESIGN OPTIONS

• DEEP BASE GRAVEL WITH FABRIC
• DEEP BASE GRAVEL
• TREATED GRAVEL
• TREATED BASE

IMPORTANT FACTORS

• DAILY USE
• HEAVY TRUCK TRAFFIC
• YEAR ROUND PERFORMANCE
• SHORTEST ROUTE TO MAJOR HIGHWAY - SD 81
• DECREASE PRESSURE ON COUNTY SYSTEM
• DRAINAGE
• DUST CONTROL
• SAFETY

PROPER MATERIAL

• Use of proper materials is a must when designing for heavy truck traffic and higher than normal ADT
• Understanding the differences between state spec materials
• Placing the material properly
• Correct cross section must be established
Base – Surface Gravel Comparison

Table 1. Example of Gradation Requirements and Plasticity for Two Types of Materials.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Aggregate Base Course</th>
<th>Gravel Surfacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1”</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3/4”</td>
<td>80-100</td>
<td>100</td>
</tr>
<tr>
<td>1/2”</td>
<td>66-91</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>46-70</td>
<td>50-70</td>
</tr>
<tr>
<td>No. 8</td>
<td>34-54</td>
<td>37-67</td>
</tr>
<tr>
<td>No. 200</td>
<td>3-12</td>
<td>13-35</td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>6-6</td>
<td>11</td>
</tr>
</tbody>
</table>

From: South Dakota Standard Specifications (14)

Miner County Specs

SOLUTION – STABILIZED GRAVEL

• Clearwater township, Shannon Colony and Miner County will work together to provide a safe and dependable route to the state highway.

• Clearwater township repaired 2 weak areas with fabric and 12” of base and 4” of surface gravel on the west .5 miles.

• Miner county added 4” of state spec surface gravel to the east township

Results

A quarter placed to show size of material and embedment of stone
BENEFITS

• Reduced cost to all 3 parties
• Miner County needed to help improve only part of 1 mile instead of 2 on its own
• Township reduced maintenance costs associated with the road and were able to fix weak areas
• Shannon Colony has a safe and dependable route for future expansion