

SAVE THE DATE

October 18-20, 2022

RAPID CITY, SD

37th Annual
North Central Regional
**LOCAL ROAD
CONFERENCE**



Richland Co MT Soil Cement 2010-2022

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Soil Cement vs. Gravel Base Structure

Soil Cement Stabilization



- Pro:** Less cost, less ROW
Less permeable – keeps surface water out of subgrade,
Less frost penetration,
Extends pavement life by reducing moisture vapor beneath pavements,
Safer shoulders,
Con: Requires cement spreader and reclaimer or Ag Tiller (limited depth)
Not suitable for soils where $PI > 20$

Gravel Base Rock with Grid



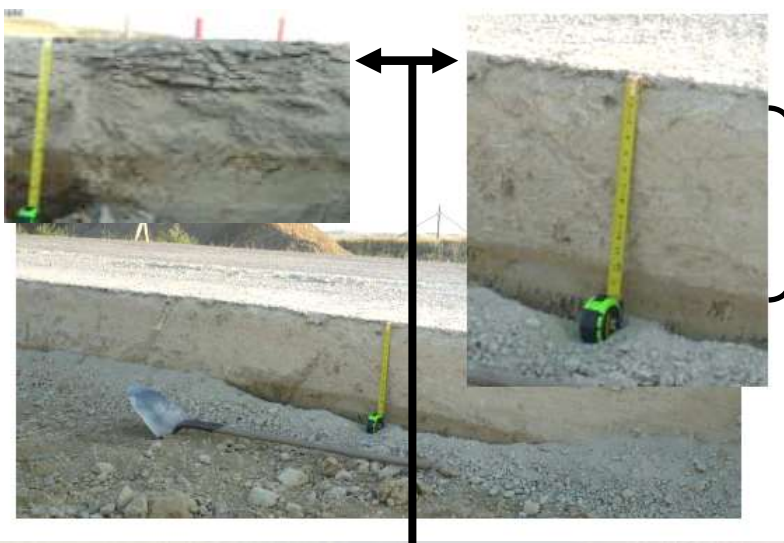
- Pro:** Build with available road crew construction equipment
Con: Longer construction time, higher cost

Richland Co MT Soil Cement

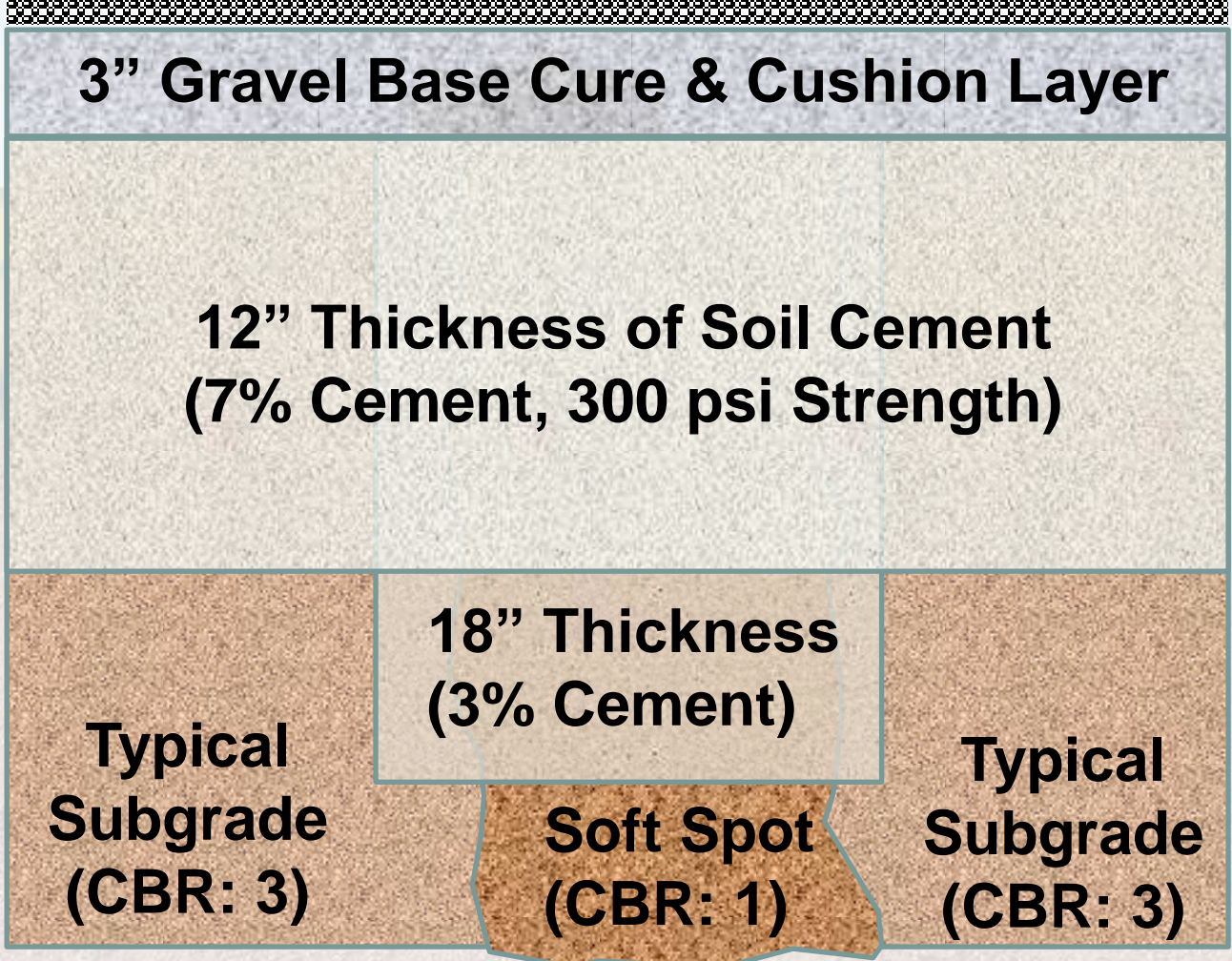
- 56 miles 3 seasons
- Lean Clay soils (PI <18)
- Soft Spot Pre-treatment (CBR of 1): 3% Cement 18” Depth
- CBR of 3: 7 to 8% Cement, 12” Depth
- BST on Soil Cement → Not recommended
- BST or AC on 3” Base → Best option
- Costs: < half cost of thick layer of aggregate base.

Most Cost Effective Structural Sections

Double Bituminous Surface Treatment



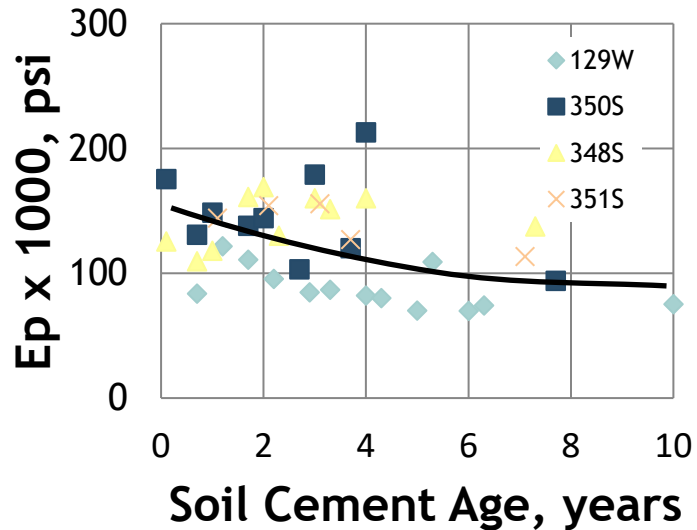
Soil Cement Rubblization in Wheel Tracks – Use Gravel Base between BST & Soil Cement



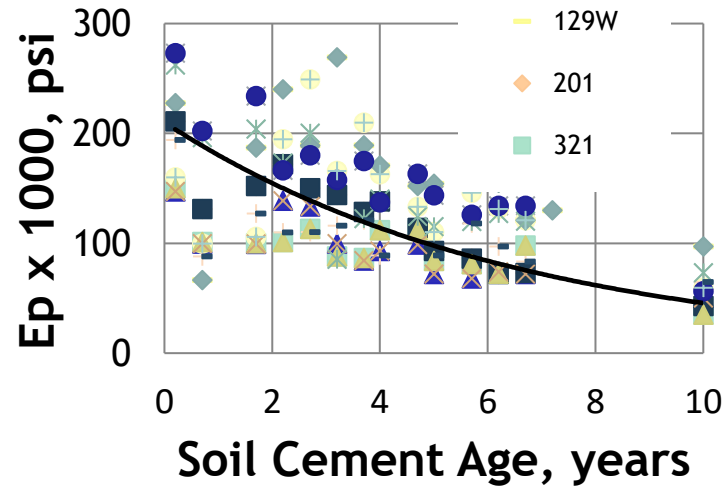
Soil Cement Strength Testing (2010-2021)

- Falling Weight Deflectometer (FWD) Test Trends
- Strength of Soil Cement is 4 to 5 times that of aggregate base after 10 years

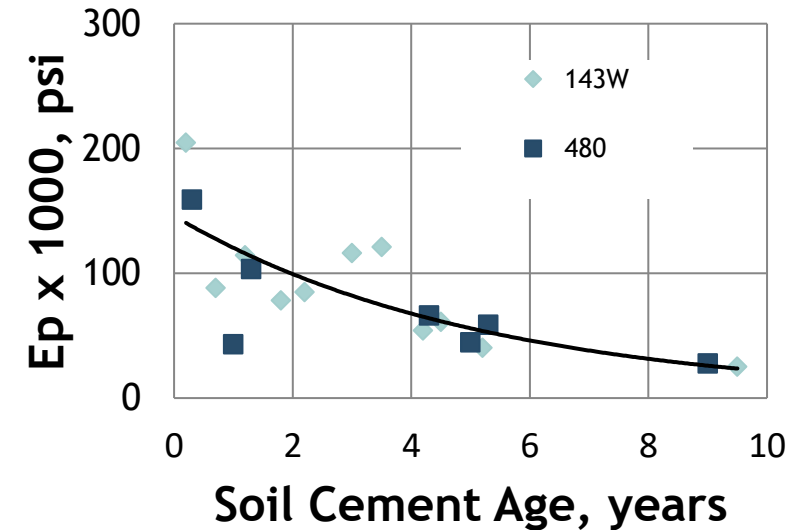
BST on 3" Base on Soil Cement (Best Option)



BST on Soil Cement (Rubblized)



BST on Soil Cement (Under Designed)



Conclusions

- Critical Points
 - Modify subgrade soft spots with cement prior to stabilization
 - Must have gravel base between BST and soil cement
 - Good Quality Assurance Plan
- 149 pg Report (Richland Co Soil Cement 2010-15)
- 5 pg Summary Report (soil cement mt.gov research)

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