



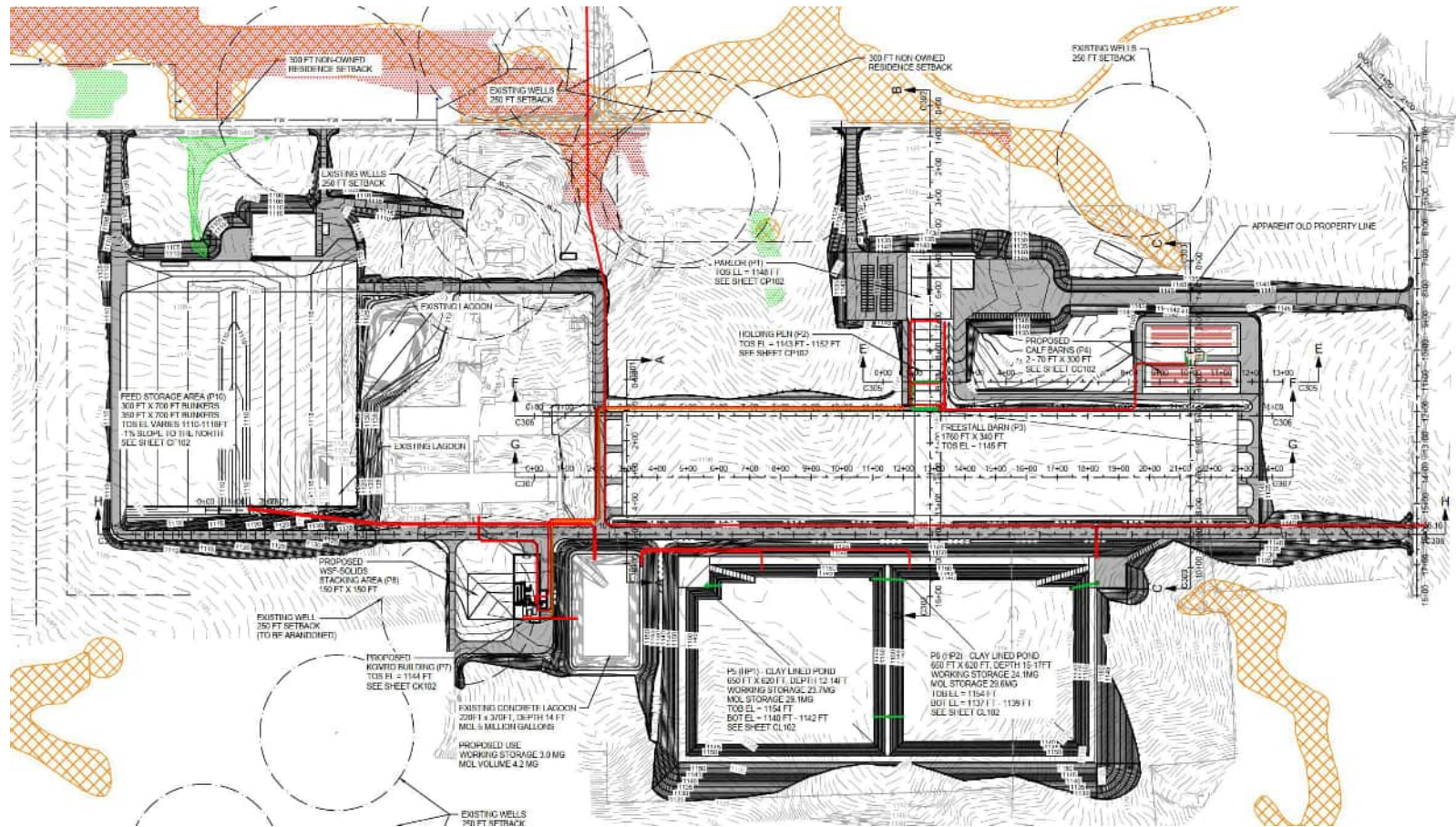
AGRICULTURAL ASPHALT

WISCONSIN ASPHALT PAVEMENT ASSOCIATION – 62ND ANNUAL CONFERENCE & BUSINESS MEETING
November 30 – December 1, 2021

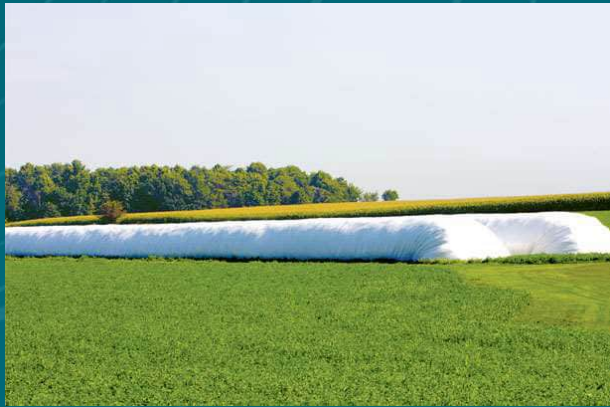


AGRICULTURAL SERVICES TEAM

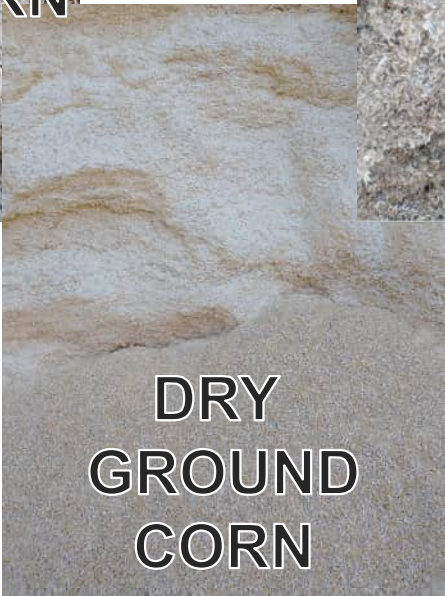
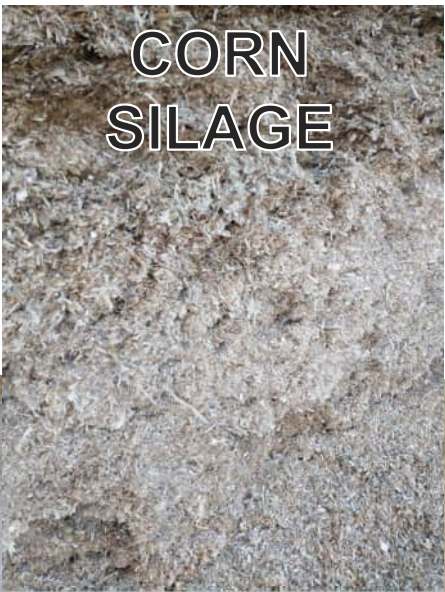
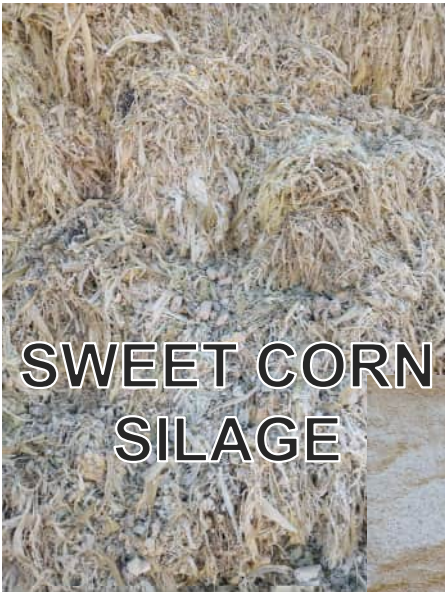
SERVING LIVESTOCK FARMERS ACROSS THE UNITED STATES



TYPES OF FEED STORAGE



TYPES OF FEED



Why do I like Asphalt Pavement for Feed Storage?

Pros

- Acid Resistance
- Hot Joints
- Non-Dolomitic aggregate
- Self-healing
- Ability to resurface
- Smoother surface
- Does not utilize PVC waterstops
- Snow removal and ice management

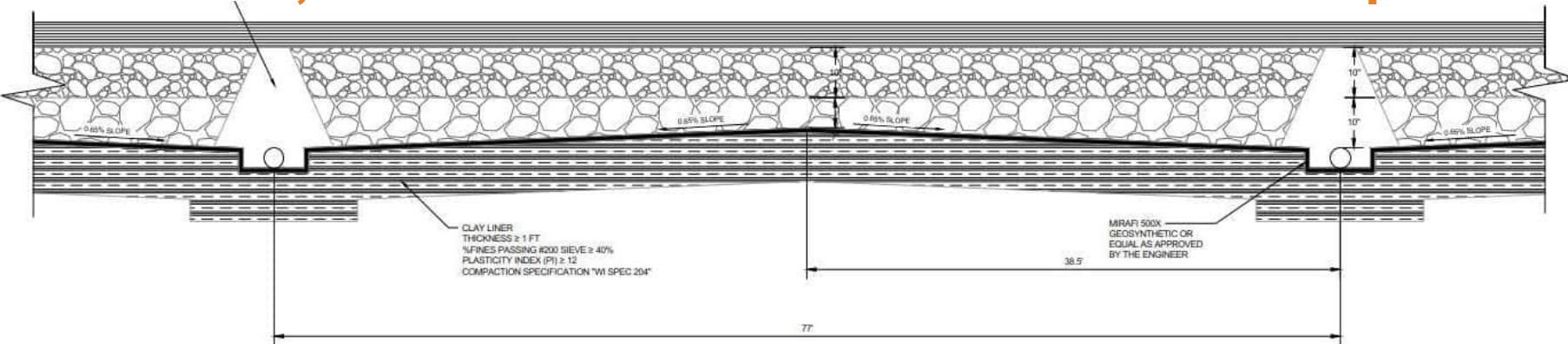
Cons or Challenges

- Wheel loader turning movements
- Many not be the least expensive option
- Flexible
- More maintenance





Kieler Farms, Inc. – 2017 WAPA Business Innovation Award Recipient

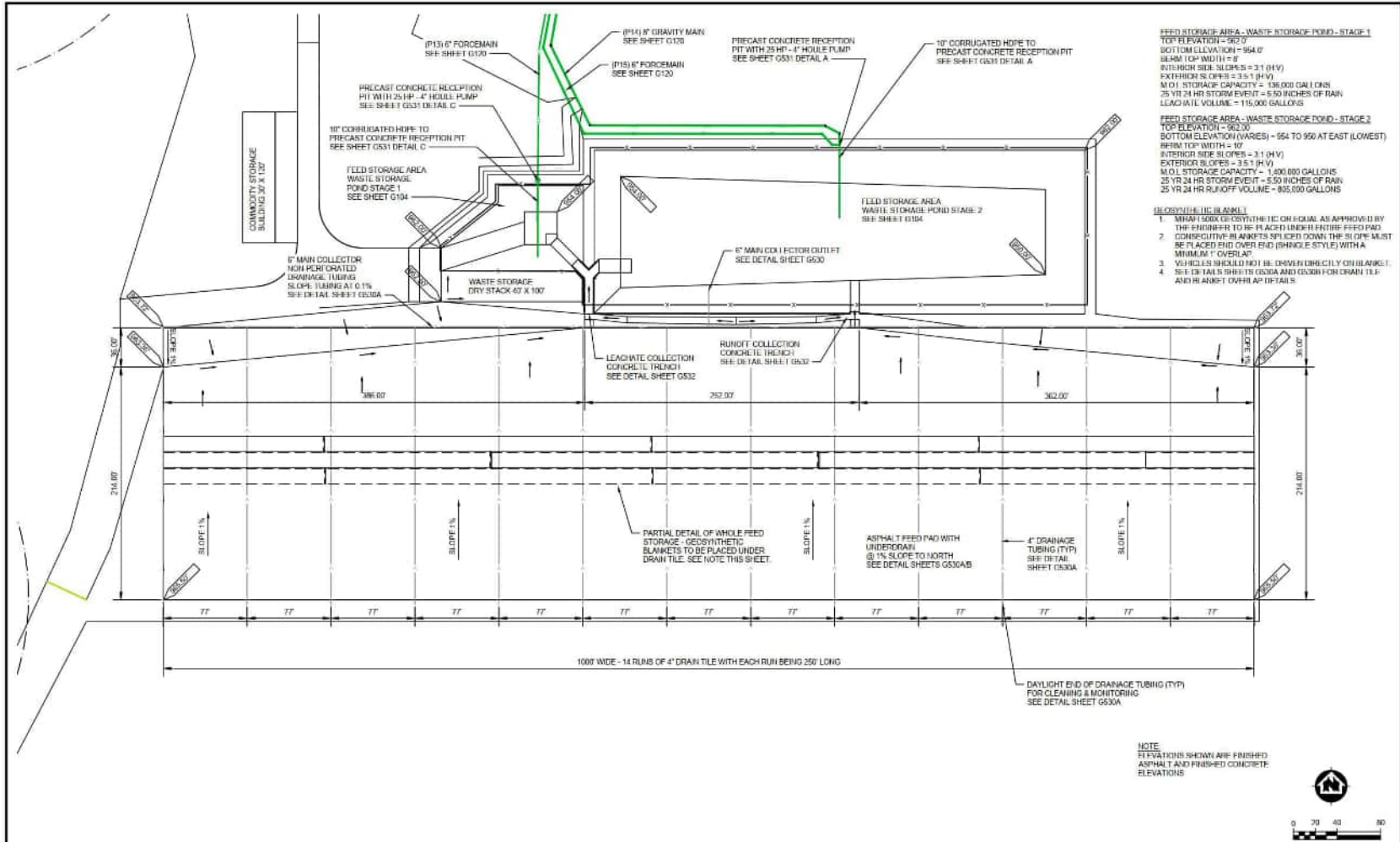


PROJECT DESIGN PARAMETERS:

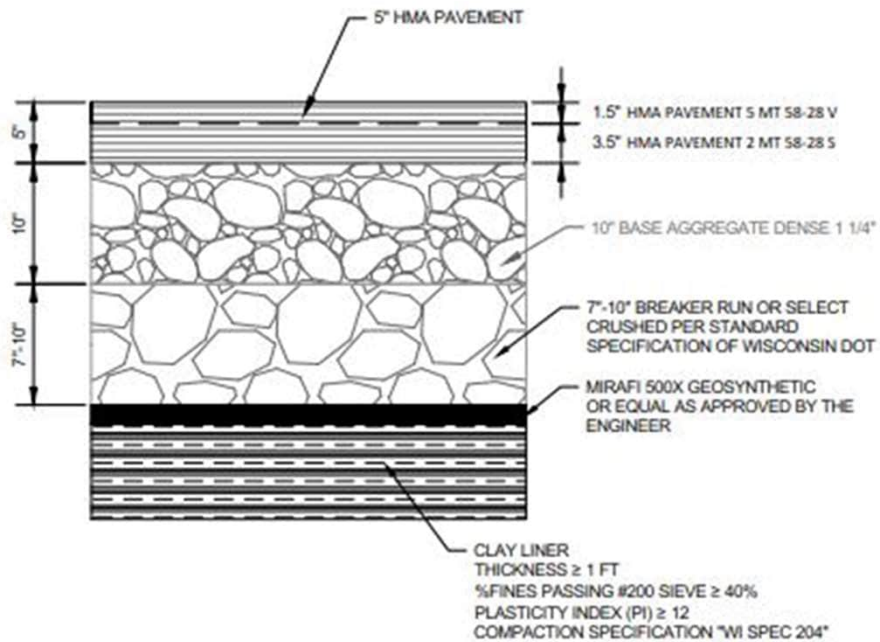
- Drive-Over Feed Pad System
 - Capacity for 35,000 Tons of feed
- Uniformly Sloped Pad: 250'x1,000'
- Soil Conditions: Clayey, mostly CL Type Soils
- Traffic: ~2 million ESALs
- Seasonal high traffic conditions
- Access and traffic routing
- Cutting edge wear on surface
- Drainage
- Runoff Collection



FINAL PLAN



CONCRETE VS ASPHALT



Permeability Test Results:

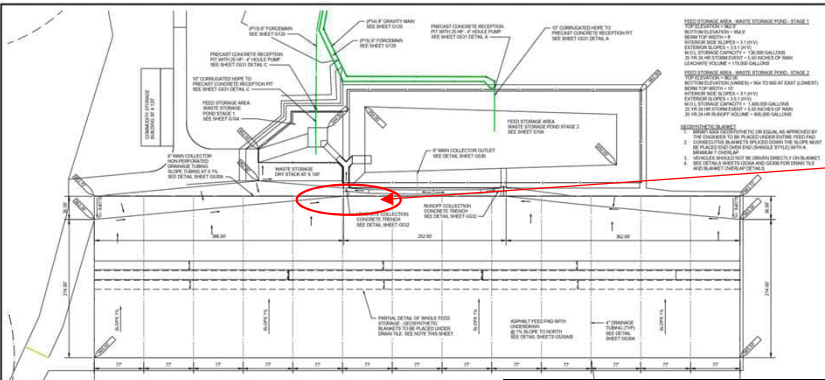
2 impermeable samples

24 hr Test Result = 1.23435×10^{-8} cm/sec

****Important Point:**

Kieler Farms owns an aggregate source.

4 YEARS LATER...



4 YEARS LATER...



What about bunker feed storage?



PRECAST BUNKER WALLS AND NON-DOLOMITIC ASPHALT

COMPLETE AND NEW



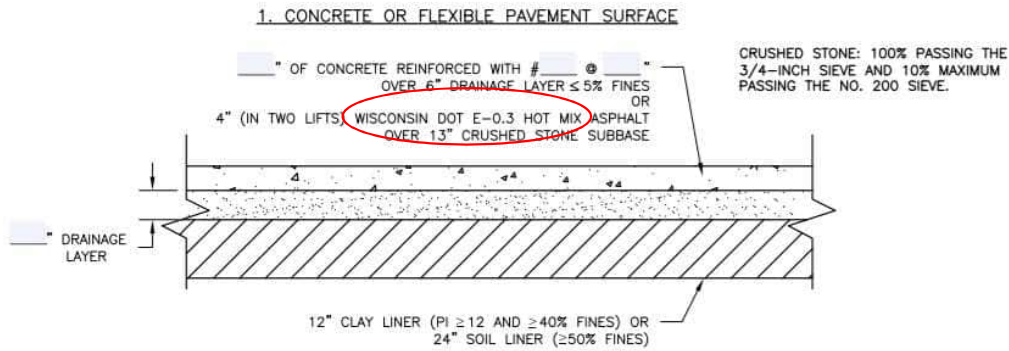
PRECAST AND NON-DOLOMITIC ASPHALT...4 YEARS LATER

2017 TO 2021

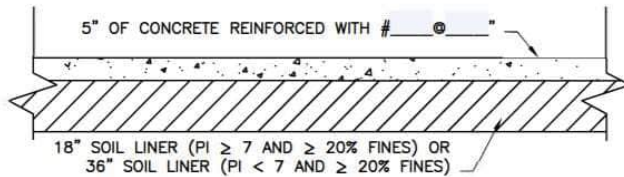


Challenges moving forward...

Concrete is the standard...



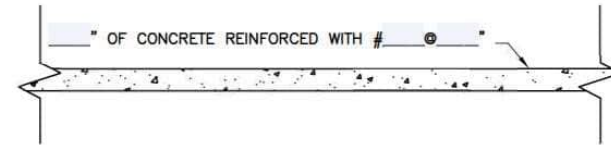
2. REINFORCED CONCRETE/SOIL COMPOSITE



NOTES :

- THE CONCRETE IS IN INTIMATE CONTACT WITH THE SOIL.
- NO CONTRACTION OR EXPANSION JOINTS ARE REQUIRED.
- STEEL SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS.
- WATERSTOP IS NOT REQUIRED.

1. LIQUID TIGHT REINFORCED CONCRETE



NOTES:

- ALL CONTRACTION OR EXPANSION JOINTS SHALL HAVE EMBEDDED NON-METALLIC WATER STOPS IN ACCORDANCE WITH NRCS FOTG, SECTION IV, WISCONSIN CONSTRUCTION SPECIFICATION 004-WS, "EMBEDDED OR EXPANSIVE WATERSTOP".
- STEEL SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS.
- IF REQUIRED IN PLANS, WATERSTOP SHALL BE INSTALLED AS SHOWN IN DRAWING WI-_____.
- REFER TO CONSERVATION STANDARD 629 FOR CONCRETE THICKNESS CRITERIA.



Thank you for your time!!!

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