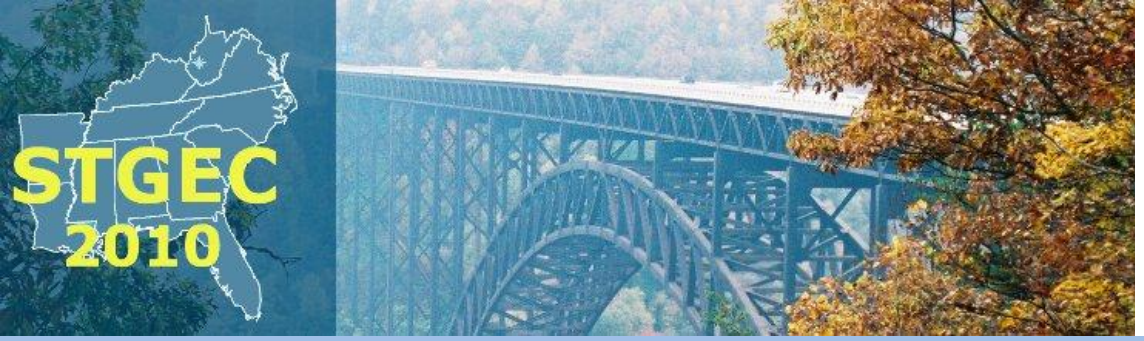


Soil Nail Launcher Inc.

Case Studies in Shallow Landslide Repair and Severe Erosion Mitigation along Roadway Networks in Appalachia, including Innovative Concepts for Roadway Widening

October 4-7, 2010

Colby Barrett

President

Soil Nail Launcher, Inc.

Outline

- Technology Overview
  - GCS®
  - Launched Soil Nails/Micropiles
  - Structural Wire Mesh
  - Shotcrete
- Case Studies
- Questions

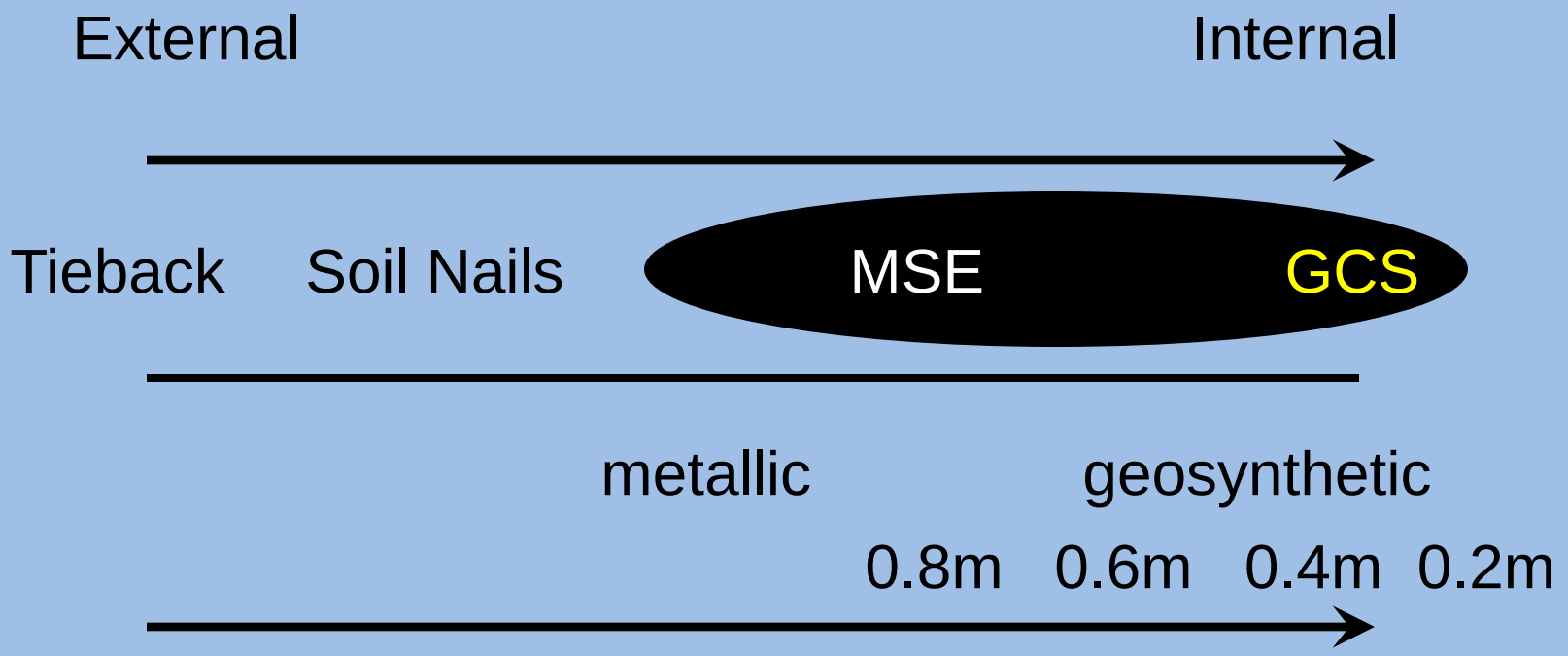
Technology Overview

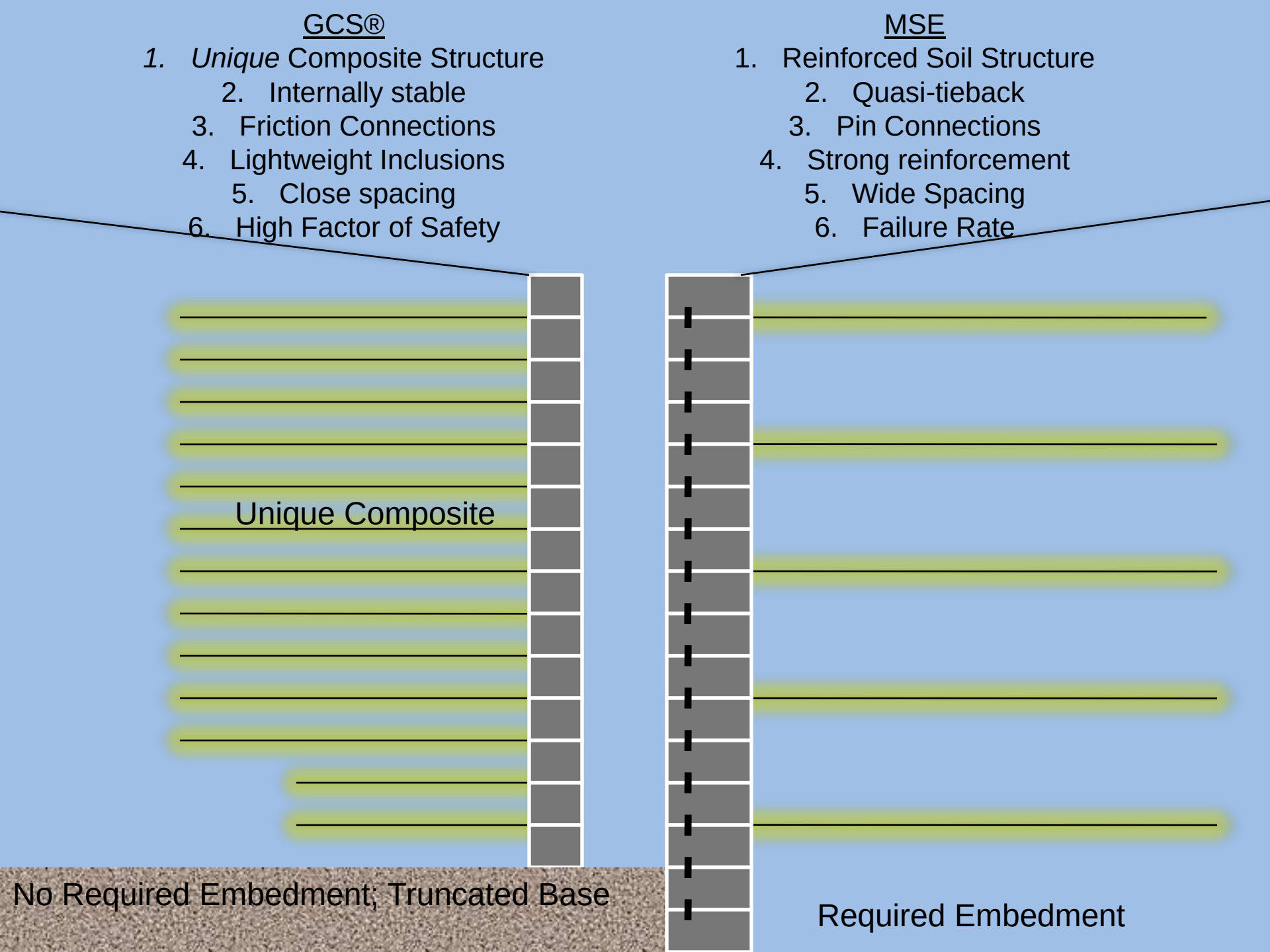
Geosynthetically Confined Soil

Photo courtesy of M. Adams

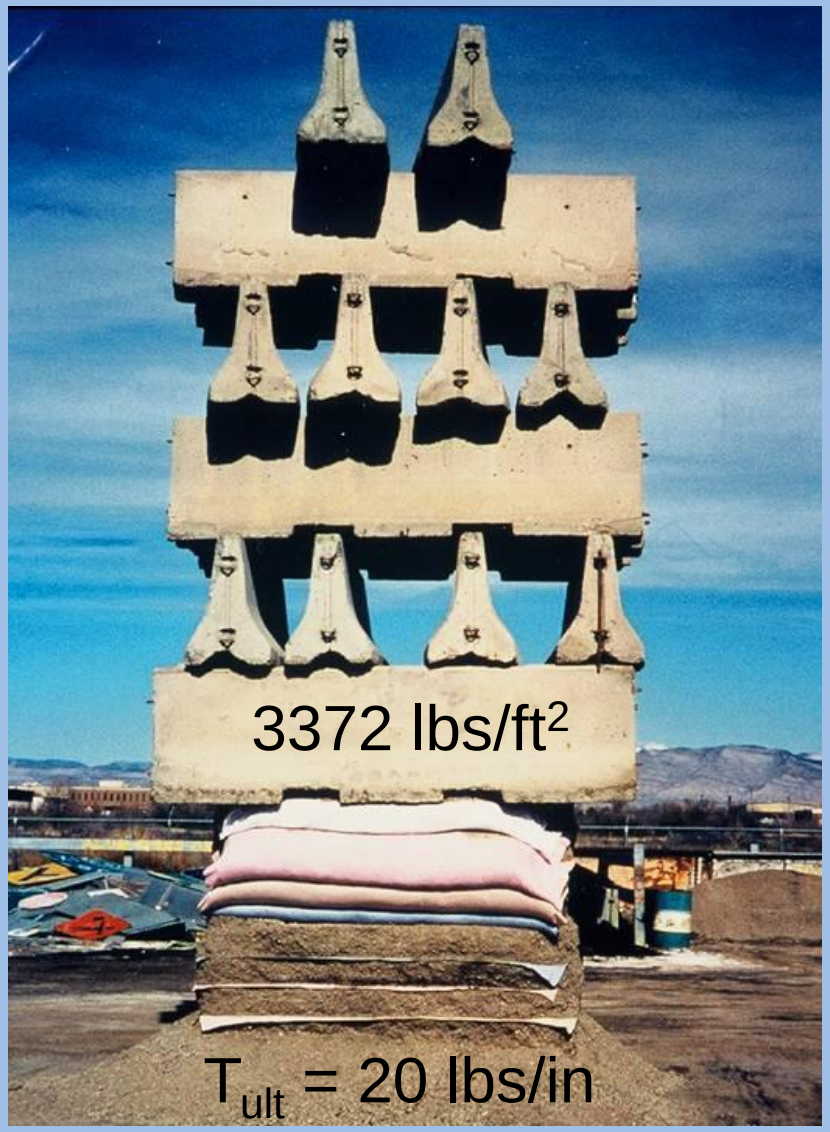
Definitions

Wall Type




GCS®
1. *Unique* Composite Structure
2. Internally stable
3. Friction Connections
4. Lightweight Inclusions
5. Close spacing
6. High Factor of Safety
MSE
1. Reinforced Soil Structure
2. Quasi-tieback
3. Pin Connections
4. Strong reinforcement
5. Wide Spacing
6. Failure Rate
Unique Composite
No Required Embedment; Truncated Base
Required Embedment

Weak Reinforcement?



Negative Batter?

(22.5 tsf) Load?

5+ ***Million*** foot/pound impact

NCHRP 556 (Seismic)

1 g sinusoidal motion at 3Hz for 20 seconds (i.e. 60 cycles at 1 g)

"The result suggests....with a the strongest earthquake that has ever happened on earth, a GRS abutment will likely feel nothing."
Dr. J. T. H. Wu (Reporting on the NCHRP GCS/GRS shake table testing, April, 2010)


KOMATSU

United States
Department of
Agriculture

Forest Service

Engineering Staff

EM 7170-12B

United States
Department of
Transportation

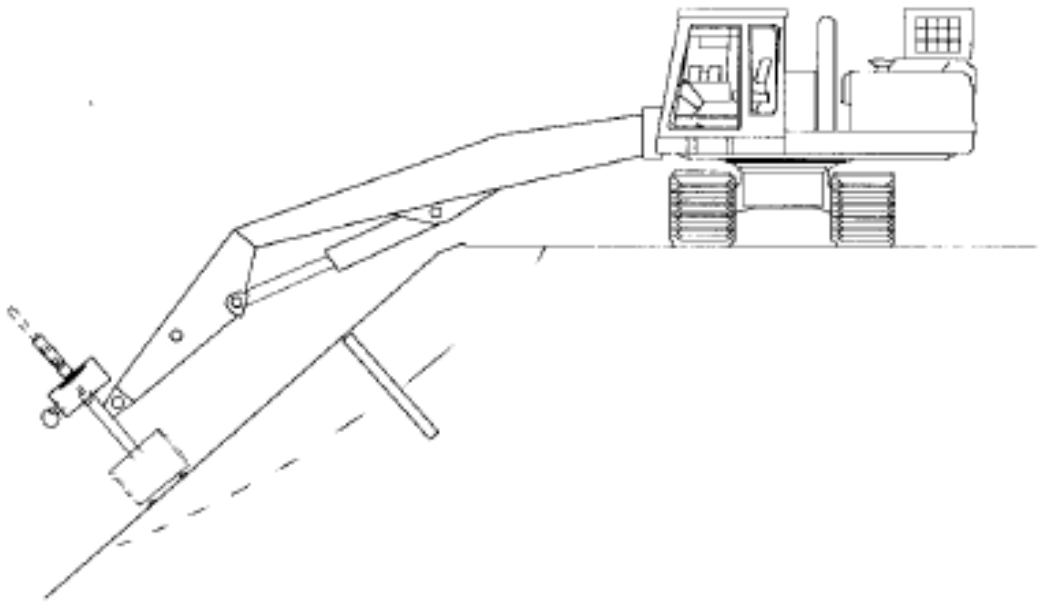
Federal Highway
Administration

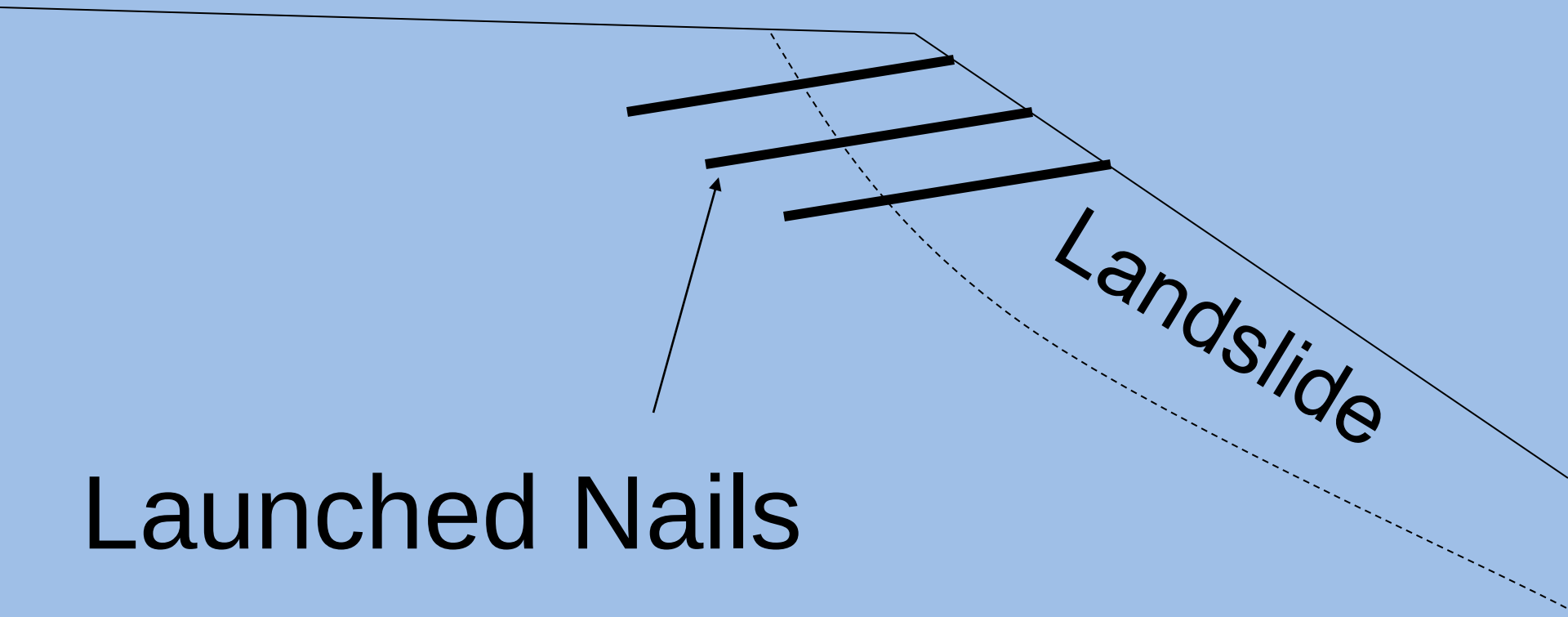
FHWA-FPL-93-004

July 1994

Project Report for Launched Soil Nails—1992 Demonstration Project

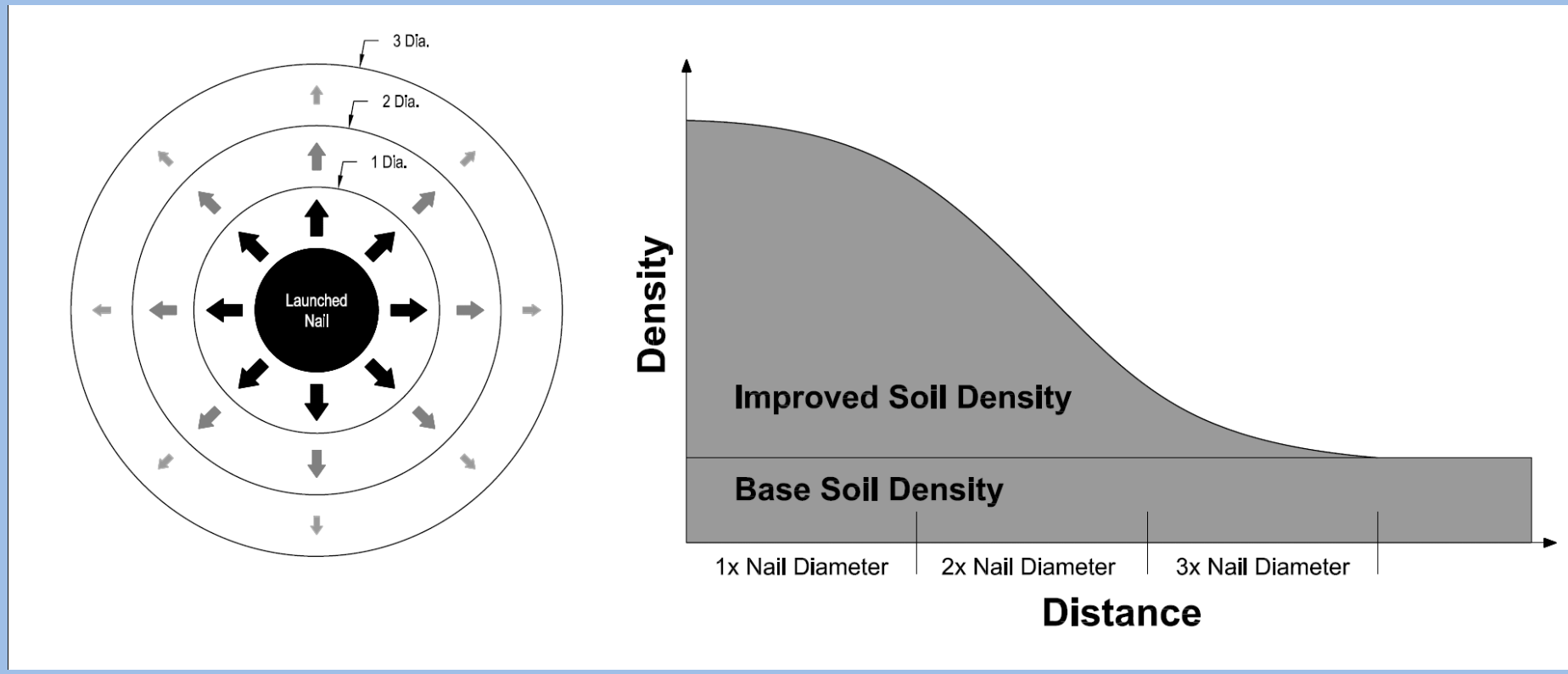
Volume 2



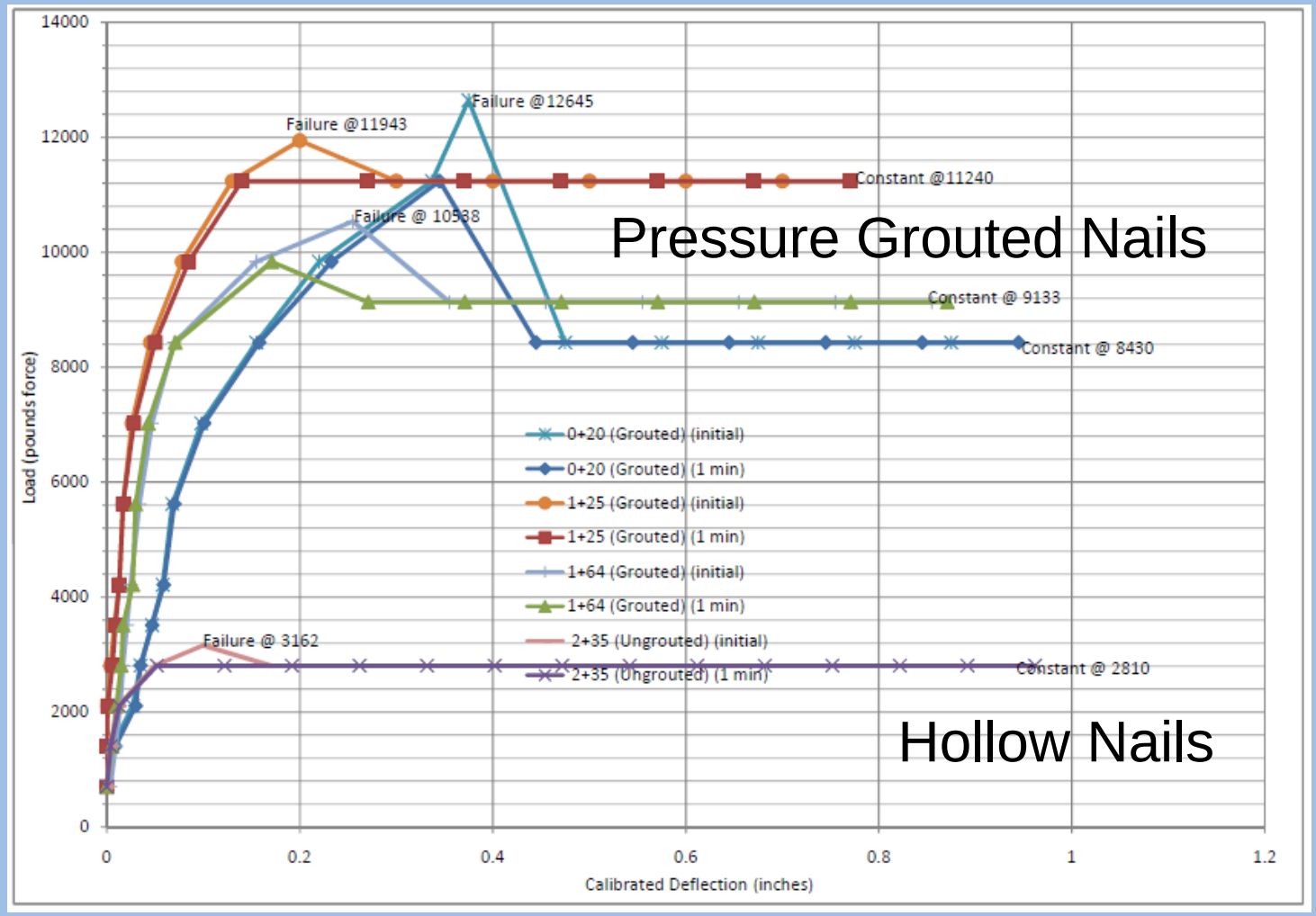


Launched Nails

Densification *Without* Soil Matrix Disruption

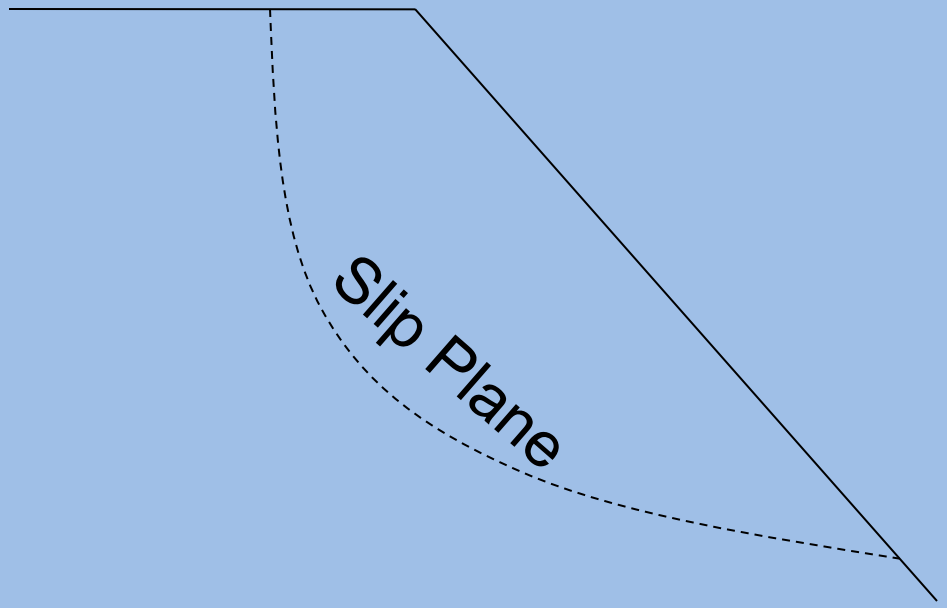


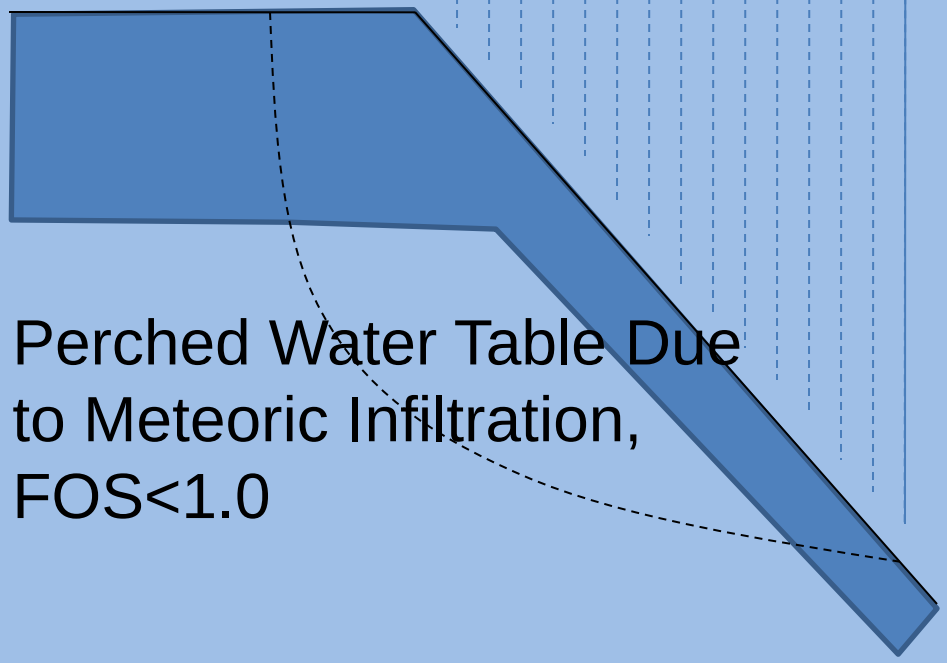
Pullout Test Results



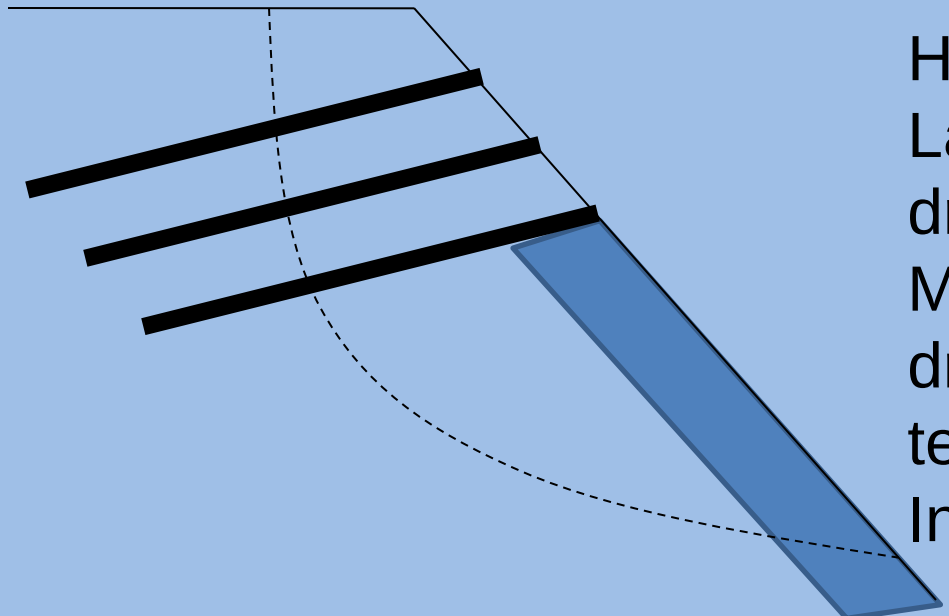
1. Average bond = 3.1 psi (ungrouted);
   11.5 psi (grouted)

Landslide in dry conditions, FOS>1.0





Perched Water Table Due to Meteoric Infiltration, FOS<1.0



Hollow, Perforated Launched Soil Nails act as drains during high Moisture events, allowing drainage and acting as tensile Inclusions, FOS>>1.0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Soil Nail Launcher, Inc
PC150LC
KOMATSU

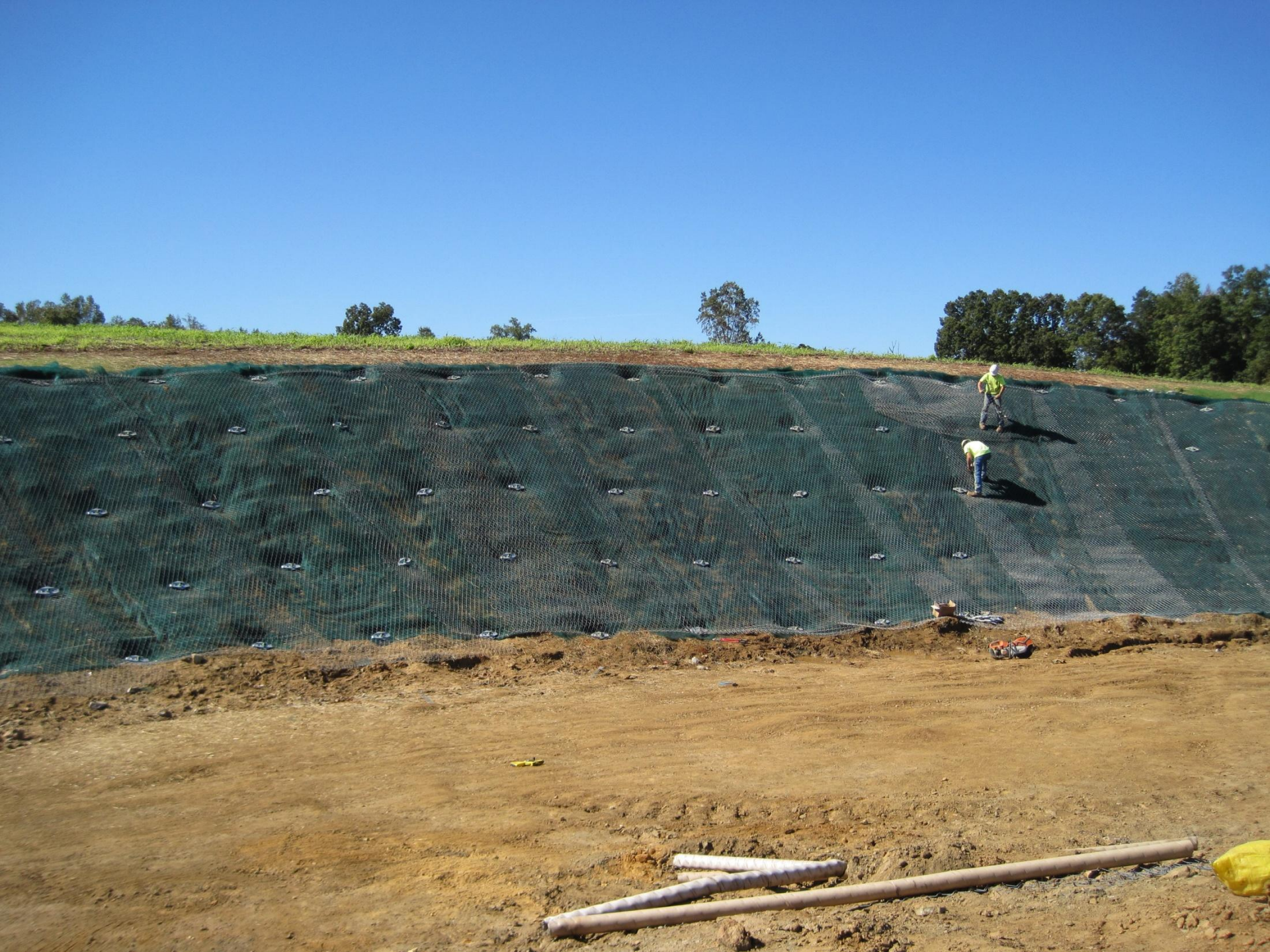

KOMATSU
Soil Nail Launcher, Inc
PC150LC

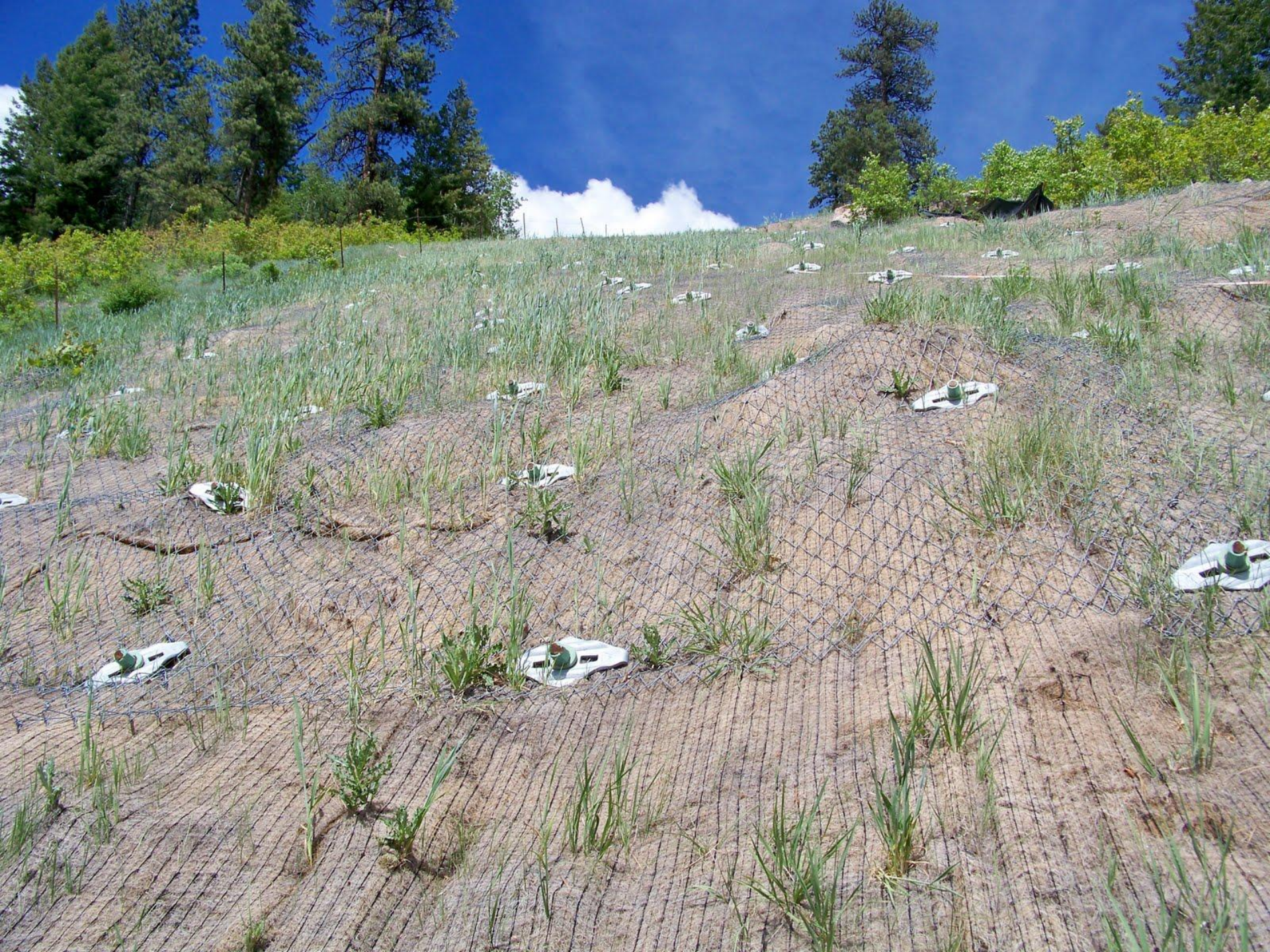
Temporary Shoring for Ohio DOT

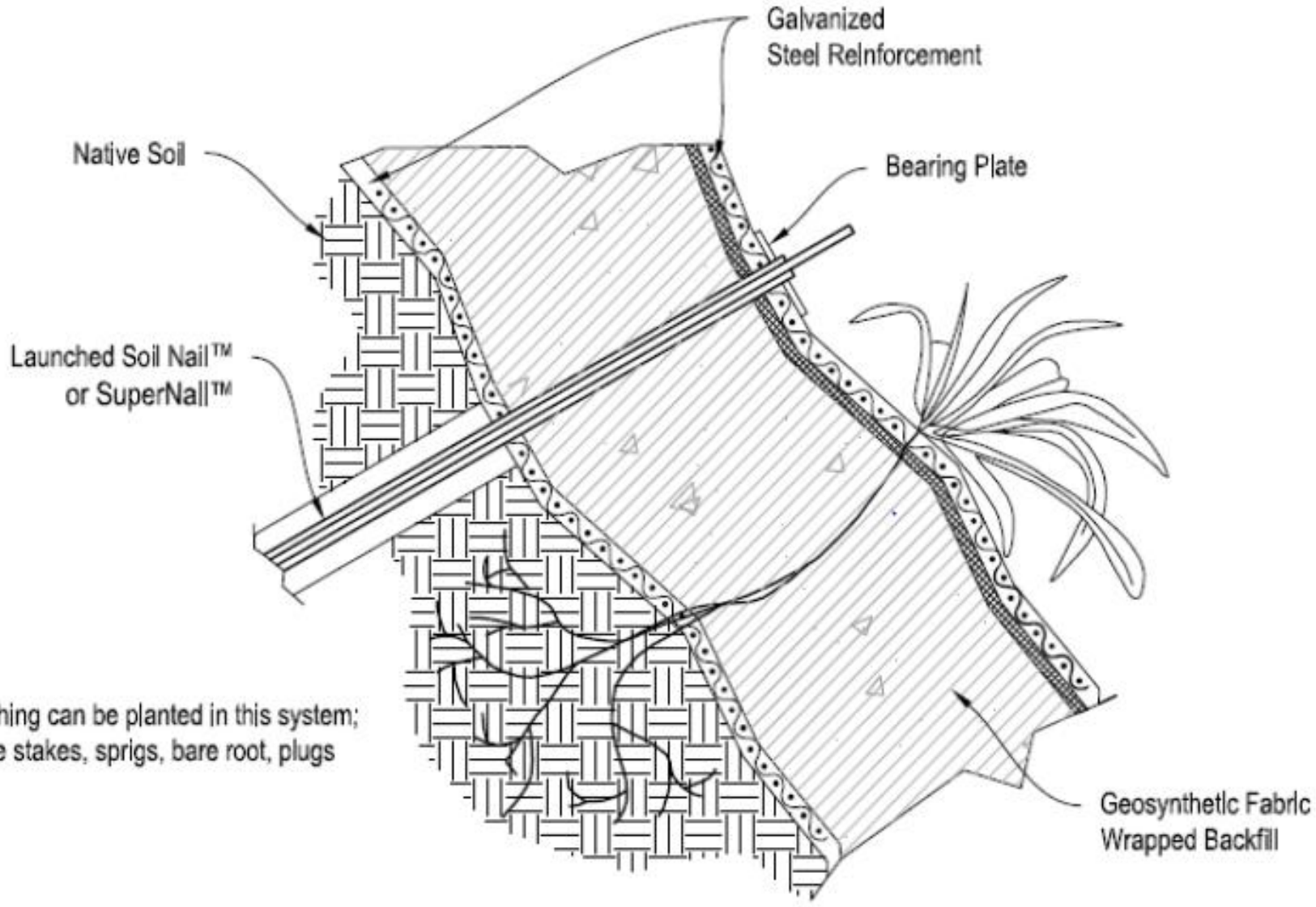
3 DAYS AND $45,000
NO PROJECT DELAY
COMPARED TO
$200,000 AND 6 WEEKS
FOR A
PILE WALL


KOMATSU

SURFACE TREATMENTS







BioWall®

Not to Scale


During Construction


08/29/2006

KOMATSU


Lumsden
Saskatoon


Steamboat


place form here


FAHY


2915
Thunder Mountain Enterprises, Inc.
1-888-448-9551
8C29137

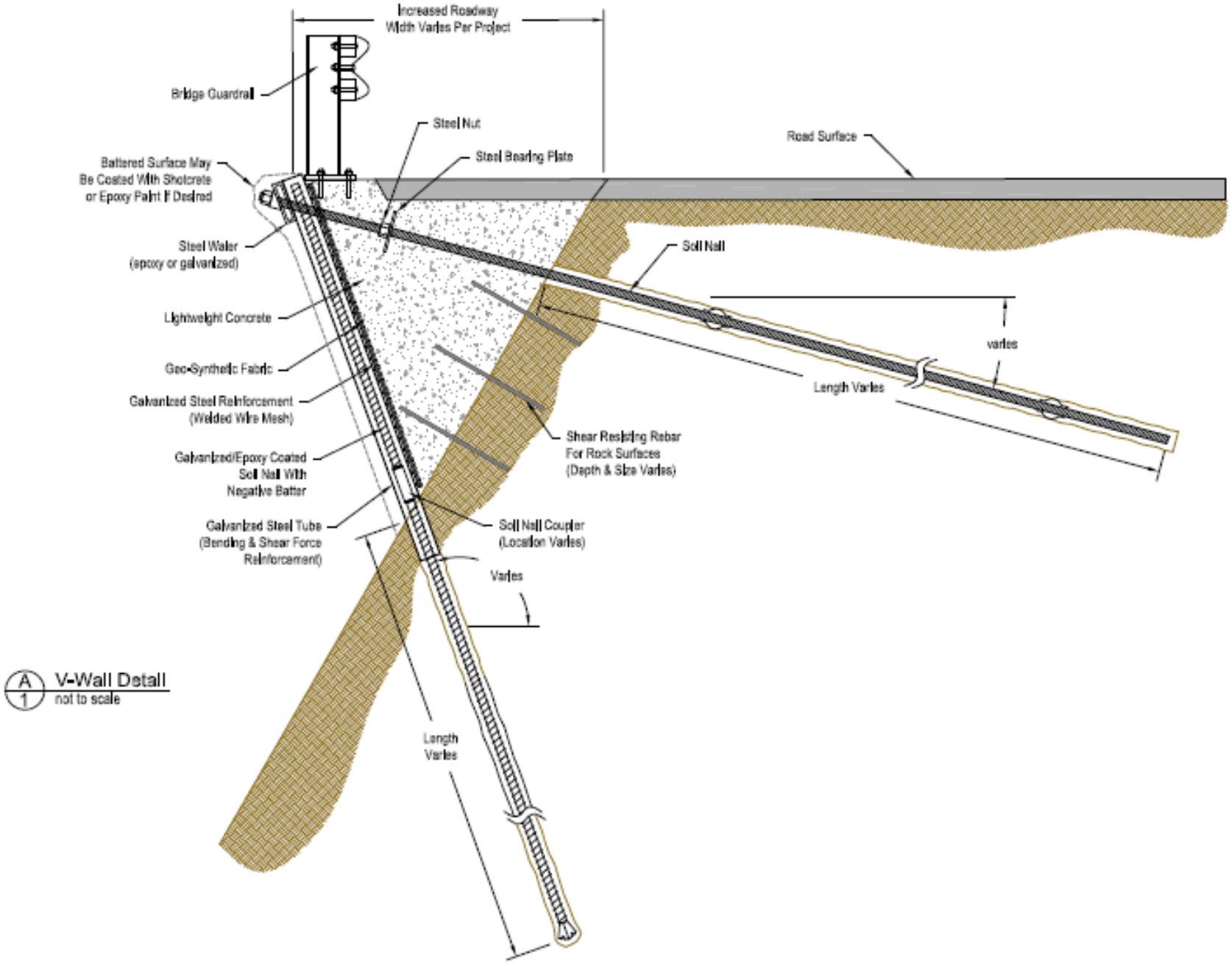

Launched Bearing Micropiles
North Island, New Zealand


Link-Belt
LS-3400

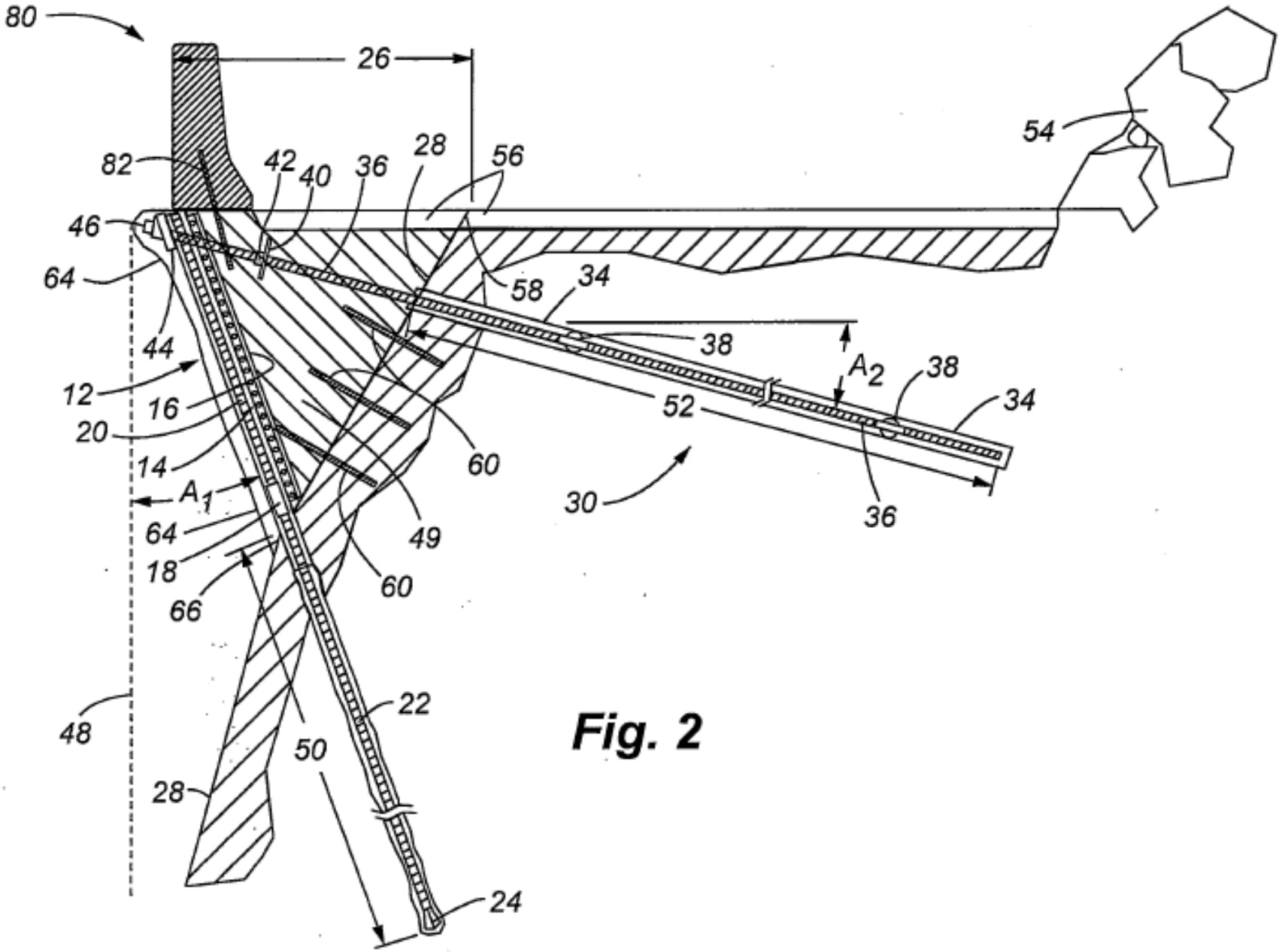

KOMATSU


04/04/2008

11/22/200



A/1 V-Wall Detail
not to scale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A_1
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A_2
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Fig. 2