GEOSYNTHETIC REINFORCED SOIL INTEGRATED BRIDGE SYSTEM
Cross-Section of GRS-IBS

**Beam Seat**
(Supported Directly on Bearing Bed)

**Facing Elements**
(Frictionally Connected – Top Three Courses Pinned and Grouted)

**Jointless**
(Continuous Pavement)

**Integrated Approach**
(Geotextile Wrapped Layers at Beams to Form Smooth Transition)

**Bearing Bed**
Reinforcement
(Load Shedding Layers Spaced at ≤ 6 in.)

**Scour Protection (Rip Rap)**
(If Crossing a Water Way)

**GRS Abutment**
(Reinforcement Spacing ≤ 12 in.)

**Reinforced Soil Foundation**
(Encapsulated with Geotextile)
Road profile data

Figure 18. Surface profile for bridge joints a) on a bridge without GRS-Abutments (CR 27 Bridge Nr. 3340760) as compared to b) the GRS-Abutment at CR 27 Bridge Nr. 3340730
Performance Tests

Before

After
Performance Test
2400 lb/ft @ 8” Spacing
No CMU Facing
A-1-a Material
0.5 ksf
(25 kPa)
4.1 ksf (196 kPa)
8.5 ksf
(407 kPa)
18.1 ksf
(867 kPa)
$T_f = 2400 \text{ lb/ft}$

$S_v = 8\text{-inches}$

No CMU facing
Pier Settlement

Settlement (inches) vs. Time (days)

- A (#8, 2400 lb/ft)
- B (A-1-a, 4800 lb/ft)
- C (A-1-a, 4800 lb/ft)
- D (#8, 4800 lb/ft)
Settlement Monitoring *Continued*
Settlement Monitoring *Continued*

- EDM survey
- Bowman Road

![Graph showing settlement monitoring results.](image-url)

- East Beam Avg
- West Beam Avg
- East Face Avg
- West Face Avg

Settlement (ft) vs. Time (Days)

- Δ = 0.6 in
- ~0.25 in
- ~0.85 in
GRS IBS Reports
Example Projects
OH – Bowman Rd Bridge
NY – CR 38  St. Lawrence County
PA – Sandy Creek Bridge
IL – Great Western Trail over Grace ST
WI – STH 40 Bloomer, WI
SD – 8th Street Bridge, Custer
HI – Saddle Rd
MT, US-89 over the S. Fork Dry Fork Marias River
MN – CR 55 over MN Southern Railway
UT, I-84 Echo Project