

# Geosynthetic Stabilized Bridge Approach (GSBA)

## Reducing Roadway Backfill Settlement

[Geosynthetic Stabilized Bridge Approach \(GSBA\)](#) is a construction method that reduces roadway settlement directly adjacent to a bridge abutment, a problem commonly called "bridge bump," where drivers feel a "bump" as they enter or exit a bridge. By placing roadway backfill with layers of geosynthetic material adjacent to a bridge abutment, settlement of the roadway can be significantly reduced.

## What are the benefits?

- **Reduces costs** of roadway maintenance and repair
- **Enhances worker safety** by avoiding traffic control setups
- **Improves motorist satisfaction** by providing a smoother ride

## How does it work?

Due to seasonal temperature changes, loss of backfill by erosion, poor drainage, and high traffic loads, backfill on a roadway approaching a bridge can settle over time while the abutment resists settlement. This creates an abrupt change in elevation—or "bridge bump"—that worsens over time and can create safety issues or damage vehicles.

During construction of bridge roadway approaches, layers of porous backfill (open-graded aggregate) are bound by rigid geosynthetic fabric. The geosynthetic material and backfill work together to resist the settlement problems encountered with typical backfill, keeping the backfill-supported roadway at the same elevation as the adjacent abutment-supported roadway.



## How do I learn more?

To learn more about this innovation visit [www.penndot.pa.gov/stic](http://www.penndot.pa.gov/stic) or email [penndotstic@pa.gov](mailto:penndotstic@pa.gov).