



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

March 31, 2011

## CIRCULAR LETTER 2011-05

### GEOSYNTHETIC REINFORCED SOIL - INTEGRATED BRIDGE SYSTEM

COUNTY ENGINEERS/SUPERINTENDENTS OF HIGHWAYS  
MUNICIPAL ENGINEERS/DIRECTORS OF PUBLIC WORKS  
CONSULTING ENGINEERS

The Federal Highway Administration (FHWA), as part of their Every Day Counts initiative, is seeking candidate local agency structures for design and construction using a technology called Geosynthetic Reinforced Soil (GRS) Integrated Bridge System (IBS). The GRS-IBS technology uses alternating layers of compacted granular fill and fabric sheets of geotextile reinforcement, which make up the superstructure support at bridge abutments. Additional information on GRS-IBS technology may be found on the FHWA website, [http://www.fhwa.dot.gov/everydaycounts/technology/grs\\_ibs/intro.cfm](http://www.fhwa.dot.gov/everydaycounts/technology/grs_ibs/intro.cfm).

The goal of this initiative is to gain experience with this technology, with the objective to provide bridge owners with a more economical and time-efficient alternative beyond the standard bridge abutments widely used today.

The Illinois Department of Transportation is working with the FHWA to find suitable candidates and to help ensure the locations selected for this GRS-IBS technology are appropriate and minimize potential for future maintenance concerns. In particular, the department is concerned with closed abutment structures crossing a waterway on sub-grade susceptible to scour. Current analytical methods for calculating bridge scour are not reliable for evaluating the effects of scour at closed abutments.

Ideal candidates for GRS-IBS technology would be grade separation structures. However, these types of structures are not common on the local system. Therefore, the following guidelines are provided for identifying bridge sites potentially suitable for GRS-IBS technology:

- Competent soils resistant to scour
- Waterways with 100-yr velocities of 3 ft./sec. or less
- Non-staged construction
- Low Average Daily Traffic volumes
- Single Span with Precast Channel or PPCDB superstructure - range (25 ft. - 80 ft.)
- Skew 15° or less
- Abutment wall heights not exceeding 30 ft.

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The department is offering this opportunity for interested local agencies to participate in and receive the potential benefits of GRS-IBS technology for structures meeting the above criteria. The use of this technology may be expanded if initial results are satisfactory, or if additional information becomes available regarding evaluation of scour at closed abutments or other design features.

The first objective for this FHWA initiative is to find candidates, which can be designed and/or constructed by December 2011. In an effort to achieve this objective, local agencies having projects they would like to have considered for participation should submit notice of interest and information to the **Bureau of Bridges and Structures, Attn: Local Bridge Unit, by June 15, 2011**. Submittals should preferably include photographs of the site, soils information, existing plan and profile, and hydraulic information, as well as any other pertinent data that may be beneficial in evaluating the appropriateness of the location for GRS-IBS.

Additional candidate submittals will still be accepted and evaluated for some time after this date. However, in order to meet the proposed initial timeframes, projects already in the design phase or those that will be in the very near future, would be expected to be primary candidates.

There are currently no special funds available for promoting GRS-IBS technology. The expectation is that the potential cost and time savings associated with GRS-IBS will provide incentive for bridge owners to consider this technology.

If you have any questions regarding this Circular Letter, please contact Jack Elston at (217) 785-8748 or [jack.elston@illinois.gov](mailto:jack.elston@illinois.gov).

Sincerely,



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cc: Dan Brydl, FHWA - Illinois Division  
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