Geocomp
Trusted to help mitigate risk

Iowa DOT
Column Supported Embankment

PROJECT PROFILE

CLIENT:
Iowa DOT

FHWA

LOCATION:
Des Moines, IA

VALUE:
- Reduced cost and maintenance for the client with battery operated pack lasting up to two months

SERVICES PROVIDED:
- Instrumentation program developed with real-time data

- Evaluation of design parameters

- Web-based reporting of all data

"Each of the data loggers are powered by internal battery packs and backed up by deep cell marine batteries to provide constant power to the units for a period of up to two months. This allows for minimal maintenance of the data collection system and cost to the client."

INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA AUTOMATION

Geocomp furnished ten 8-channel data loggers along with two cell phone portal units to provide data collection and transmittal. The loggers are housed in a custom built foot locker located at the top of the embankment and all instrumentation wiring is run directly to the centralized logger location. Each of the loggers are powered by internal battery packs and backed up by deep cell marine batteries to provide constant power to the units for a period of up to two months. This allows for minimal maintenance of the data collection system and cost to the client. The instrumentation used to monitor the performance of the production and research test sections consists of: 48 resistive strain gages mounted on both geotextiles and steel H-piles, 24 VW settlement cells, and 6 VW earth pressure cells. Geocomp has been using its *i*SiteCentral® web-based reporting service to present all data for the project. *i*SiteCentral® provides a location where all data is loaded and reduced in real time and can be viewed by all FHWA and Iowa DOT authorized users.

BACKGROUND

The Iowa DOT together with the FHWA commenced a research project in May 2004 to validate the design methods for column supported embankments (CSE). The project comprised two full scale test sections in a new highway embankment on I-295 located in Des Moines, Iowa. Objectives consisted of providing data on the performance of the CSE to calibrate a numerical model used to evaluate the design parameters and to develop a modular instrumentation program to be used to obtain similar information on other CSE projects.