Project Title	Agmt./Task No.	Item No.	Agency Bgt. No.
Subsurface Drainage for Landslide and Slope Stabilization	GCA6381		
Research Agency	**Start Date**	**Estimated Completion**	**Revised Completion**
WSU/Desert Research Institute (DRI)	3/2007	12/2010	6/2011
Principal Investigator(s)	**Technical Contact**		
Balasingam Muhunthan (WSU) and Greg Pohll (DRI)	Tom Badger 360.709.5461		
WSDOT Program Manager	**FHWA or Other Technical Contact**		
Kim Willoughby 360.705.7978	Mike Adams		
Funding Source	**Schedule Status**		
CA, MD, MS, MT, NH, OH, PA, TX, WA, WY	☐ On schedule ☐ Ahead of schedule ☒ On revised schedule ☐ Behind schedule		

Research Area

☐ Bridges & Structures ☐ Environment ☒ Highway Design & Safety ☐ Mobility & Intermodal Planning
☒ Operations & Materials ☐ Traffic & Intelligent Transportation Systems Evaluation

Original Estimated Cost	Revised Cost	% Funds Expended	% Work Completed
$ 300,000		35%	40%

Objective

(1) Provide best practices and guidance for subsurface drainage applications for slope stabilization, including subsurface investigation and testing, groundwater-flow characterization, analysis, drain configurations and design, installation methods, monitoring, and maintenance. (2) Evaluate new applications of existing materials and technologies, such as trenchless technologies (horizontal directional drilling, micro tunneling, guided boring, etc.) and other innovative technologies and materials, for stabilizing slopes using subsurface drainage.

Project Progress:

The primary goal during the second quarter of the project was to complete the literature review on the current state-of practice of subsurface drainage design. The literature review consisted of reviewing books, reports and peer-reviewed articles in the fields of irrigation and drainage and geotechnical engineering, hydrology, and mining. The results of the literature review were compiled into a presentation for the Technical Advisory Committee.

A wealth of literature was reviewed from the above-specified research fields and a comprehensive reference list has been created. A variety of characterization activities, measurement technologies, analytic/graphical, and numerical modeling techniques have been identified for potential use in the design manual. The results of the literature review were presented to the technical advisory committee.

New Period Proposed Activity:

During the next quarter we will review the information on the proposed study sites and select a subset for model analysis and verification. We will also present a finalized proposal for the second year of the study.