



Tech Brief

Erosion Control of Sandy Soils

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HERE'S THE PROBLEM

The soils in the southern half of New Jersey are primarily composed of sandy, nutrient deficient soils that do not support the growth of traditional roadside grasses. When vegetation is not sustainable along roadsides, the soil is susceptible to dramatic erosion that causes the foundation of the pavement to wash away. On slopes, such erosion causes soil to slip and clog drainage structures. Reconstructing these slopes is costly, especially if non-vegetative erosion control methods such as rip-rapping are used.

AND, HERE IS THE SOLUTION...

Vegetation is typically the most cost effective and aesthetically pleasing solution to controlling erosion. In order to sustain vegetation on sandy soils two criteria must be met: the soils must be enriched with organic matter to improve their fertility and moisture retention, and secondly, appropriate plant species must be chosen that are adaptable to harsh conditions.

BUT, HOW CAN IT BE DONE?

By establishing vegetation that will provide good erosion control on poor, sandy soils.

THESE ARE OBJECTIVES OF THE STUDY...

- To determine the potential use of weeping love grass in place of traditional roadside grass mixes.
- To enrich the sandy soil with bio-solids that will allow stands of weeping love grass to create a meadow in place of mostly barren soil, thus reducing the need to do costly, polluting mowing.

AND, HERE'S WHAT WE DID...

A test section of the median on New Jersey Route 55, with very poor and sandy soil, was selected. Little existing vegetation was in place since the traditional grasses, such as tall fescues, were unable to survive. Median drainage inlets were filled with sand, and erosion had already crumbled parts of the edge of the roadbed by undermining the ground supporting it.

The first task was amending the existing soils. Biosolids were used for the soil amendment. The second task was finding suitable grass species to seed. This was accomplished through a literature search and field observations of similar sites. Weeping lovegrass was selected due to its ability to survive long droughts, poor soils, and minimal maintenance.

The biosolids were applied and existing weeds were treated prior to the fourteen day germination period of the weeping lovegrass. No mowing occurred during the summer months, and a second application of biosolids was administered in October, through surface application that would not disturb the already growing weeping lovegrass plants.

The following spring, bare areas were reseeded following the third application of biosolids by surface application. The grasses were again allowed to grow without mowing until late fall; in the late fall another biosolid application occurred.

The process of applying biosolids in the spring and fall, and then mowing in the fall, was carried out for four years.

An additional activity occurred as part of this project. Public education about the new vegetation appearance of the highway median occurred. The educational program was used to explain the concept of meadows and their value. Two bill board signs and several smaller signs were erected, as well as an educational flyer printed for distribution.

CONCLUSION...

By increasing the organic content of sandy, infertile soils through the application of biosolids, a successful stand of weeping lovegrass could be sustained indefinitely, provided that correct maintenance procedures are followed. The most critical maintenance procedure to follow is to only mow the grass once in the fall, after the grass has gone dormant. Mowing the grass during the summer growing season weakens the weeping lovegrass and its potential to control erosion. By not mowing the grass during the summer, the grass is able to produce viable seeds that contain the ongoing process of producing denser turf.

WHAT IS THE NEXT STEP?

There are many roadways in New Jersey that would be conducive to planting the weeping lovegrass meadows. The New Jersey Department of Transportation management should review the results of this project for possible policies regarding vegetation and maintenance roads under their jurisdiction.

FOR MORE INFORMATION CONTACT:	
NJDOT PROJECT MANAGER:	Vincent F. Nichnadowicz
PHONE NO.	(609) 530-5963
e-mail	vincent.nicknadowicz@dot.state.nj.us
UNIVERSITY PRINCIPAL INVESTIGATORS	Dr. Robert Duell
UNIVERSITY:	Rutgers, Cook College
PHONE NO.	
e-mail	
UNIVERSITY PRINCIPAL INVESTIGATORS	
UNIVERSITY:	
PHONE NO.	
e-mail	

A final report is available online at <http://www.state.nj.us/transportation/research/research.html>

If you would like a copy of the full report, please FAX the NJDOT, Bureau of Research, Technology Transfer Group at (609) 530-3722 or send an e-mail to Research.Bureau@dot.state.nj.us and ask for:

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