
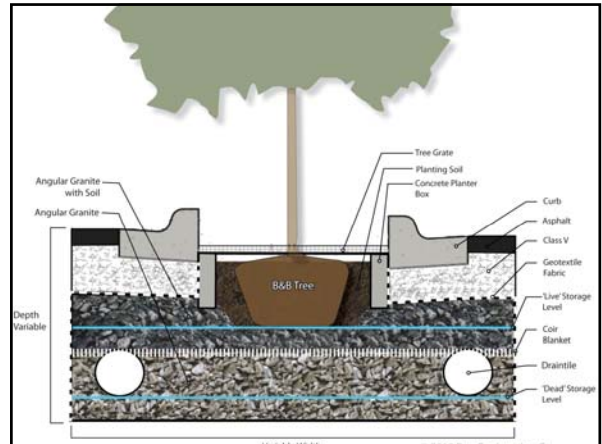


Structural Soils for Trees and Stormwater



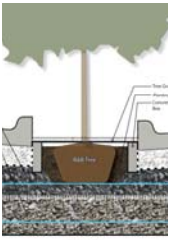
Erin Anderson Wenz, P.E.
Barr Engineering Company

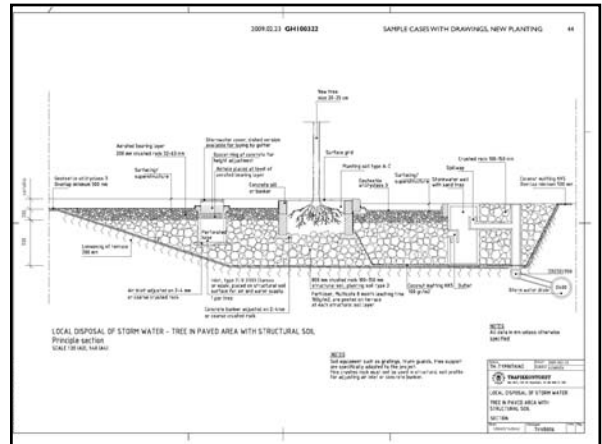
Minnesota Erosion Control Conference
March 6, 2013 St. Cloud, Minnesota

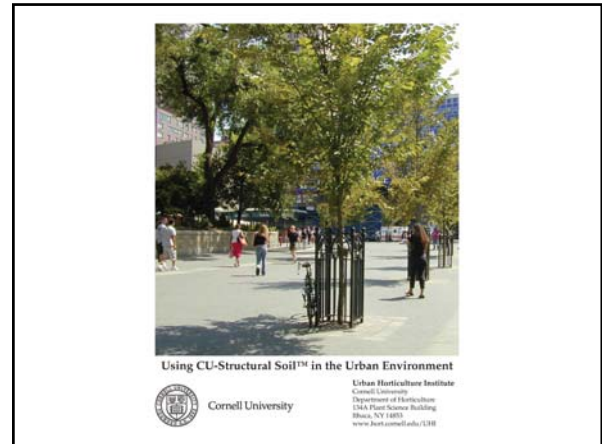
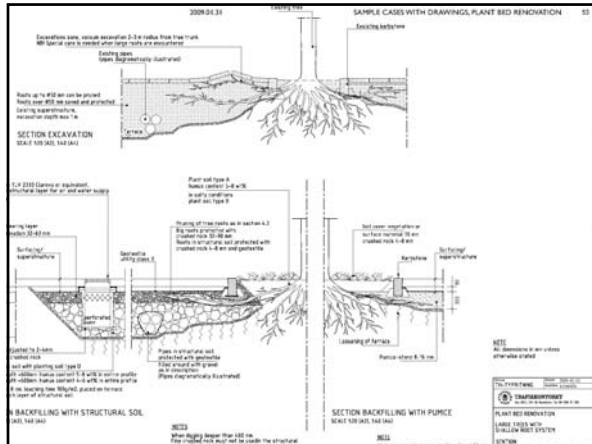


Structural Soils Provide...

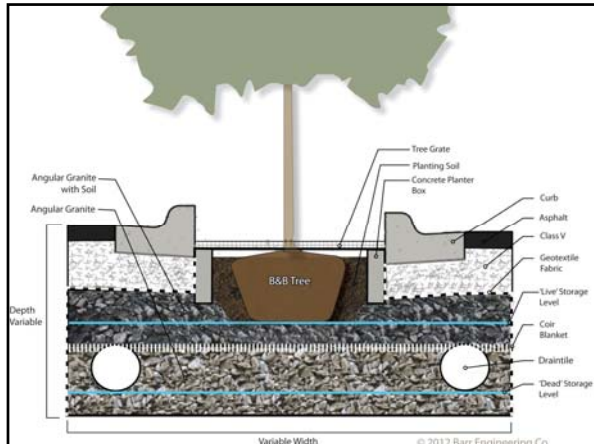
- Stable base for parking lots and pedestrian walkways
- Uncompacted soil conditions in highly impervious environments
- Roots room to grow and "breathe"
- Less soil than other methods





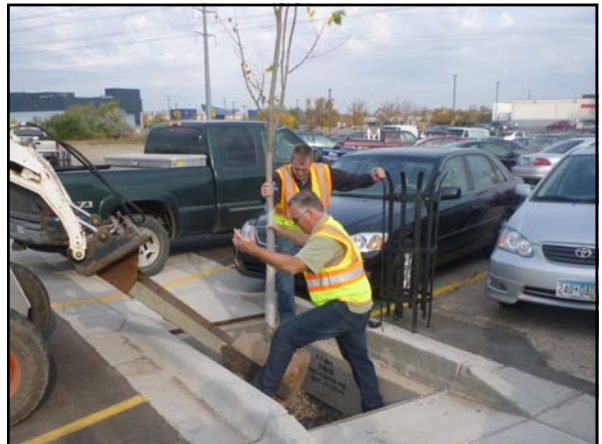
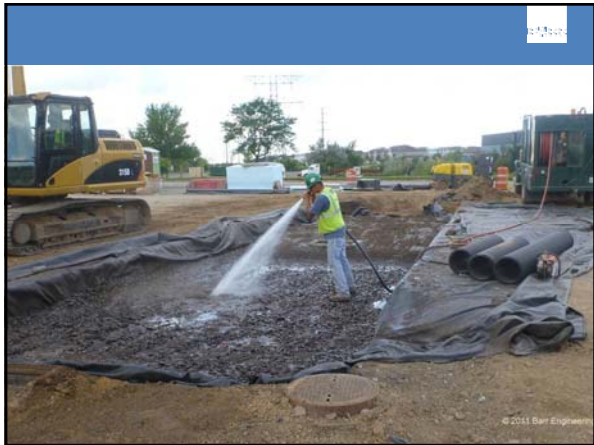


- Using Structural Soils to Reduce Stormwater Runoff involves...
- Similar ingredients
 - A modified cross section
 - More stormwater diverted to the structural soil in the tree trenches
 - An adjustable downstream structure that can control and vary the water level and drawdown time in the trenches



Agri Drains allow control of the water level in the STTeMS







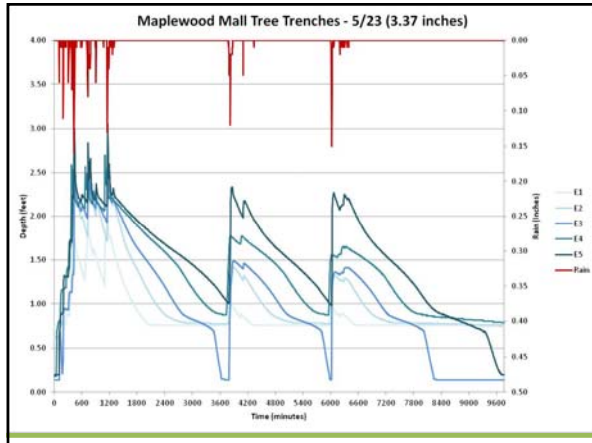
Structural soils with trees can provide various layers of stormwater treatment

- Extended detention
- Filtration
- Infiltration
- Interception
- Wicking of water into soil in the tree trenches
- Uptake of water from tree roots

Considerations in using Structural Soils for Stormwater Management

- Size of tributary drainage area
- Consider wetting the structural soils indirectly, rather than driving water directly through
- Conveyance during larger storm events
- Adjustable outlets





Structural Soils Projects in St. Paul

- Central Corridor Light Rail Transit Corridor
- White Bear Ave (between Larpenneur and Hoyt)
- 4th Street (between Minnesota and Cedar)
- North Quadrant Development (7th Street, between Wacouta and Sibley)
- Payne Ave north of Phalen Boulevard
- Upper Landing plaza (near Chestnut and Shepard Road intersection)
- Summit Avenue
- Mears Park
- Xcel Center
- Como Park
- 4th Street Ramp
- Minnesota Department of Human Services
- State Capital
- Riverview Busway

Structural Soils Projects in Minneapolis

- W 54th Street
- Riverside (between 20th St. and 22nd St.)
- 25th Ave SE
- 14th Ave N
- Washington Ave
- 2nd Ave and Marquette Ave
- Target Field
- Xcel Plaza
- Pat's Tap plaza
- University of Minnesota
- U of MN Childrens' Hospital
- 730 Lofts
- Chicago Avenue
- Lowry Ave and Lake Street
- Skyscape Towers
- Minneapolis Technical College
- Opus Northwest Building
- Hennipen Ave Theater District
- Hennipen County Government Center
- Midtown Exchange

Structural Soils Projects in Other Cities

- Edina
- Duluth
- Apple Valley
- St. Louis Park
- Brainerd
- Osseo
- St. Peter
- Mankato
- Minnetonka
- Northfield
- Wayzata
- Bloomington
- Rochester
- Marshall
- Sauk Rapids
- Lino Lakes
- Bird Island
- Staples
- Maple Grove
- Columbia Heights
- Maplewood
- Cottage Grove
- Golden Valley
- Ramsey
- Burnsville
- St. Michael

