



Emerson Woods Stream Restoration Project – July 2013

Project Summary

- Emerson Woods site has had an eroding gully for many years impacting water quality, downstream, local wildlife habitat was degraded, vegetation was altered and public safety was endangered.
- The cause of the erosion was 30" stormwater pipe discharging from residential area adjacent to Emerson Woods. In addition the gully soils were very erosive causing unstable conditions and continued erosion.
- NJ DEP has been looking for sites for use as mitigation for permitted flood plain and wetland activities that had impacts that could not be mitigated on-site.
- Bergen SWAN identified Emerson Woods as a potential project, and Conservation Resources Inc. (CRI) sought and obtained approval from NJDEP to use mitigation funds held by CRI to fund the project.
- CRI sent out a "Request for Proposals" to environmental engineering firms that specialize in stream restoration and Princeton Hydro of Ringoes, NJ was selected to design and construct the project. River Logic Solutions of Wellsboro, PA was the subcontractor that did actual construction.
- The gully was repaired by creating a riffle/pool sequence using large native stone, and stabilizing the banks with coconut fiber "soil lifts". Tree root wads were incorporated into stone.
- A large concrete vault was installed to catch sediment and floatables from the 16 acre watershed above the site. The vault will need to be cleaned periodically by Emerson DPW.
- Expected outcomes include improved surface water quality, increased infiltration of stormwater runoff into groundwater, enhanced wildlife habitat, improved safety.
- Tree removal was minimized by contractors, they removed less than 10 large mature trees. Several of the trees removed were already compromised by erosion and had roots exposed and had heart rot. Some of the trees removed were required by Bergen Soil Cons. District in order to shape slopes 2:1 or flatter.
- More than 50 containerized native trees and shrubs will be planted. 130 smaller shrubs will be planted in soil lifts. 400 herbaceous plant plugs will be established at the site. A small, local native tree producer has offered small native trees/shrubs for the site for free. We are exploring the idea of some public involvement with the fall planting.
- Native grass/forb seed mix was used under fabric and mulch with a "nurse crop" of oats which will provide temporary stabilization then die off.
- Split rail safety fence planned above steepest slopes and a deer fence is planned for entire project after the plantings are completed. Educational kiosk will be installed after planting is completed.
- We feel that the Emerson Woods Stream Restoration project can serve as a model for other municipal lands with restoration needs in New Jersey.
- Project funding will also support 3 years of monitoring and replacement of plantings, as needed, to be performed by Bergen SWAN

Plant List for September Plantings

Riparian Trees and Shrubs

Red maple, sugar maple, shadbush, hackberry, flowering dogwood, American beech, sycamore, maple leaf viburnum, arrowwood viburnum, blackhaw

Terrace Trees and Shrubs

Red maple, river birch, swamp white oak, elderberry

Soil Lift Plants

Winterberry holly, spicebush, pussy willow, black willow, blackhaw

Riparian Herbaceous Plants

Autumn bentgrass, blue wood aster, Pennsylvania sedge, swan sedge, wood reed grass, hayscented fern, marginal wood fern, bottlebrush grass, riverbank wild rye, white snakeroot, Christmas fern, woodland goldenrod