

City of Thunder Bay, ON  
Bioretention Swale and Rain Gardens

Description:

Bare Point Water Treatment Plant (WTP) biofiltration rain gardens: The project consisted of designing and building a series of swales, retention areas and planting these areas with native plants and scrubs to retain and treat the stormwater from the WTP's downspouts and parking lots. The project will be phased in over a number of years and include porous pavement in an area where the parking lot drainage is poor. Total project cost \$150,000.

Background:

The water treatment plant is built along the shore line of Lake Superior. The downspouts of the plant as built were designed to empty into stone drainage channels that facilitated drainage directly into the lake. The majority of the parking lots are sloped to direct stormwater runoff into the lake. The project uses Low Impact Development (LID)\*, to capture, slow, infiltrate and treat the stormwater before it enters the lake. Included in the project is an aesthetic design in the arrangement, type and variety of the vegetation to promote a healthy community. The Local Green Community Organization has developed workshops with community volunteers to plant the rain gardens.

\*Note LID can be defined “(LID), uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs.” NAHB Research Center, Inc. 2003

Project Results:

The downspouts on the lake side of the main building of the treatment plant are now directed into retention swales. None of the stormwater directly from the downspouts and from the southside circle road enters the lake. As of mid Sept 2011 the swale will become a rain garden/bioretention swale which will treat the stormwater as it infiltrates the groundwater near shore. In the fall of 2011 and 2012, the swale will be extended along the entire water front capturing stormwater all parking lots and downspouts.

Vegetation Details:

- 3 - quercus macrocarpa
- 21 - pinus mugo pumilio
- 15 - physocarpus opulifolius
- 36- juniperus horizontalis
- 9 - rhus glabra
- 25 - diervilla lonicera
- 11 - cornus sericea
- 2 - prunus maackii
- 12 - physocarpus opulifolius
- 5 - sedum autumn joy

3 - potentilla fruticosa  
3 - echinacea purpurea  
10 - hemerocallis stella de oro  
5 - calamagrostis karl foerster  
5 - rudbeckia fulgida

#### Contacts

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