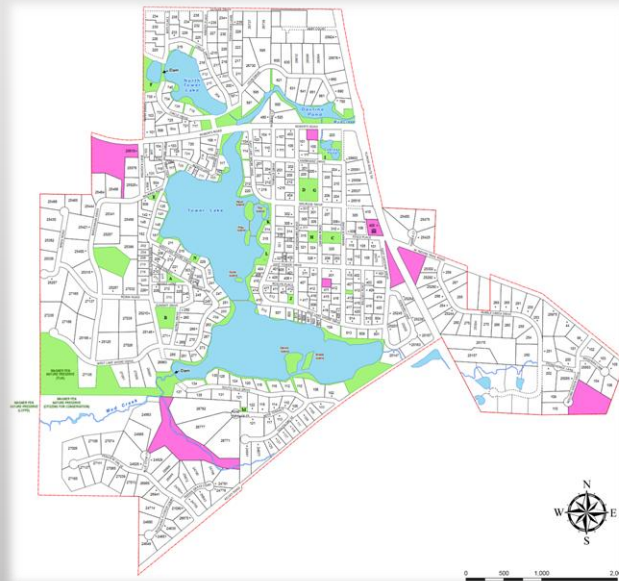




Tower Lakes Raingardens and Wetland Restoration Project



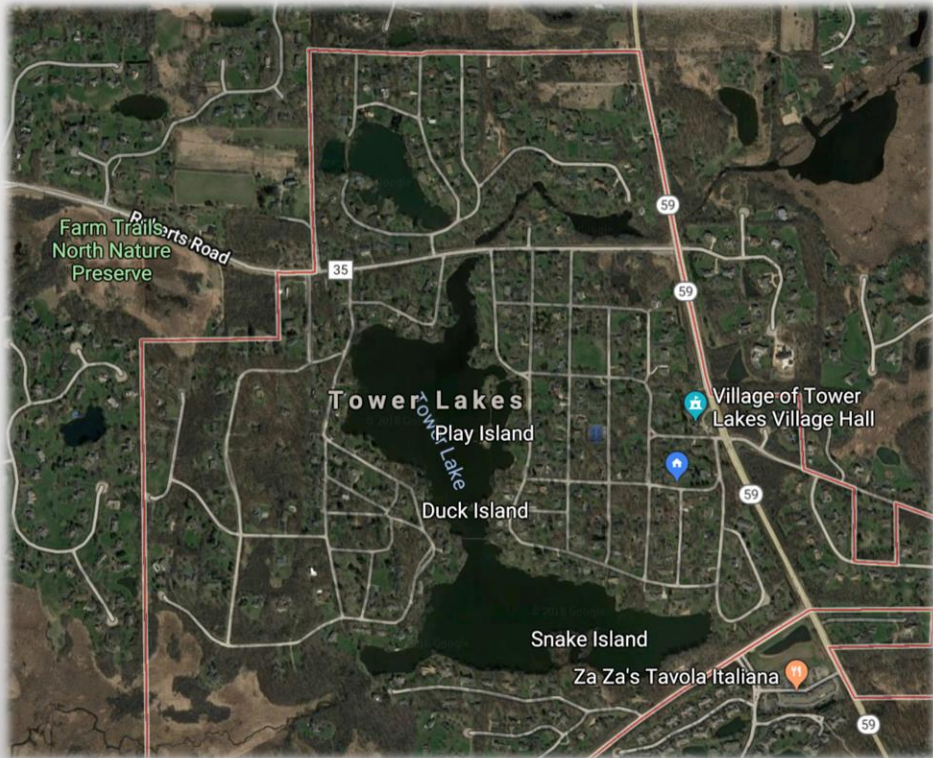
Tower Lakes Improvement Association

TLIA

Village of Tower Lakes



Tower Lakes, IL.



- **NW IL Suburbs**
 - **Lake County**
- **Wooded, small lots, parks, and some relief.**
- **~450 homes**
- **~1400 residents**
- **Developed from 1920's**
- **Incorporated in 1966**
- **Main lake plus 3 smaller lakes total ~85 acres**
 - **Main lake ~70 acres**
 - **Average depth ~5 feet**
 - **Max ~8ft**

The Problem(s)

- **Eutrophication**
 - Sediment from inbound streams
 - Weeds and Algae
 - Leaves
 - Storm Water runoff
- **Flooding**
 - Domestic
 - Roads and parks
 - Erosion
- **Fish kills and lake usage impact**
 - Algae blooms
 - Weed Overgrowth
 - Increase temp
 - Drops in dissolved O₂
 - Frozen solid
- **Pollution (non point source)**
 - Fertilizer
 - Goose poop
 - Roads
 - Weed killers
- **Aging infrastructure**
 - Inadequate stormwater management
 - Often overwhelmed

The Problem(s)

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The Solution(s)

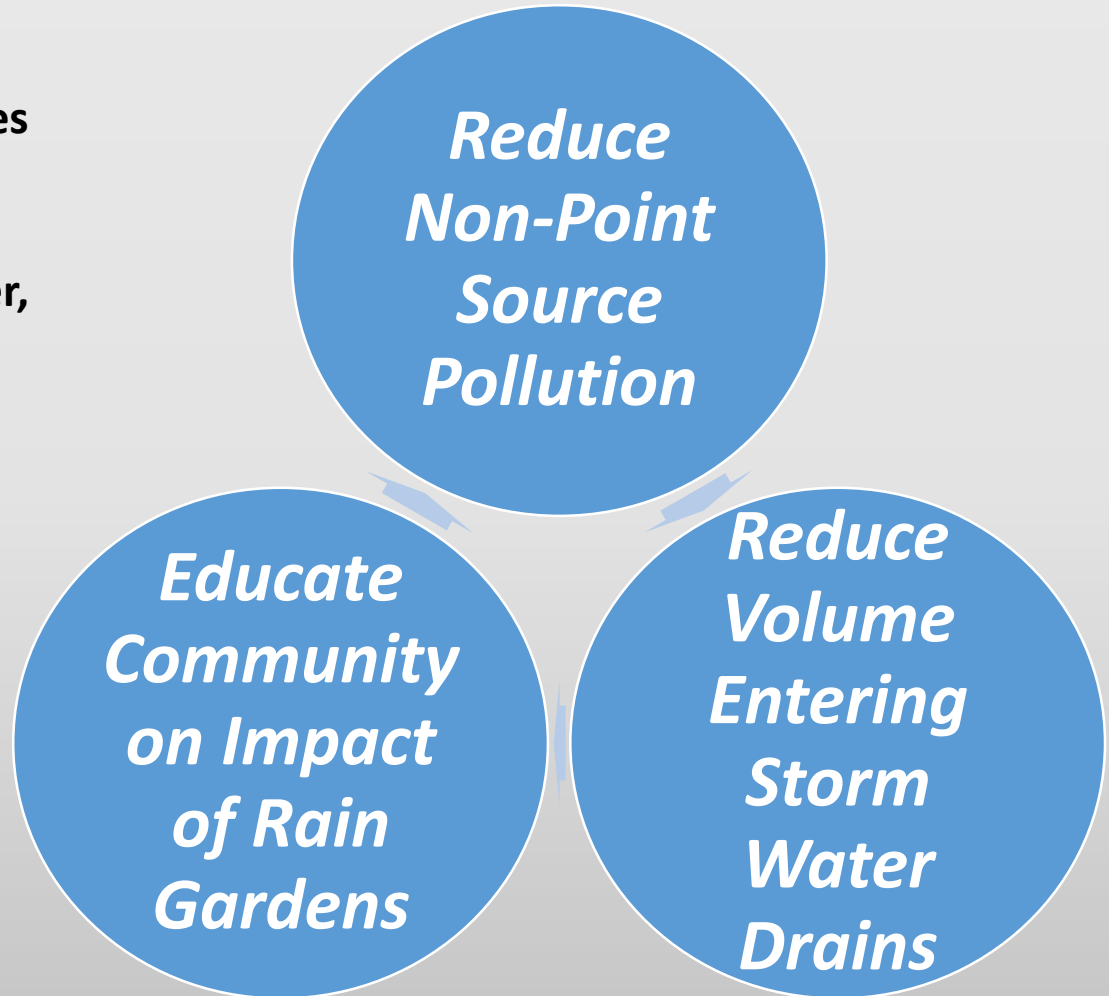
- **Sediment Removal**
- **Weed Control**
- **Goose Control**
- **Carp Control**
- **Ban Phosphates**
- **Improve Stormwater infrastructure**
- **Encourage lakefront homeowners to plant marginals**
- **Storm Water Retention**
- **Construction of Raingardens & Bioswales**
- **Restoration of Wetlands**
- **Participate in VLMP**
- **Encourage homeowners to install raingardens**

The Solution(s)

- Sediment Removal
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- Encourage lakefront homeowners to plant marginals
- Storm Water Retention
- Construction of Raingardens & Bioswales
- Restoration of Wetlands
- Participate in VLMP
- Encourage homeowners to install raingardens

Major Goals

- To reduce “Non Point Source Pollution” runoff into Tower Lakes
- To create raingardens and bioswales that detain stormwater, reduce the load on the stormwater drains, allow infiltration into the natural soil and rock hydrology
- To populate them with native plants whose deep root systems will process and remove toxins and organic material from the stormwater and improve the quality of the water which eventually runs into the lake



The Inspiration – Burnsville MN

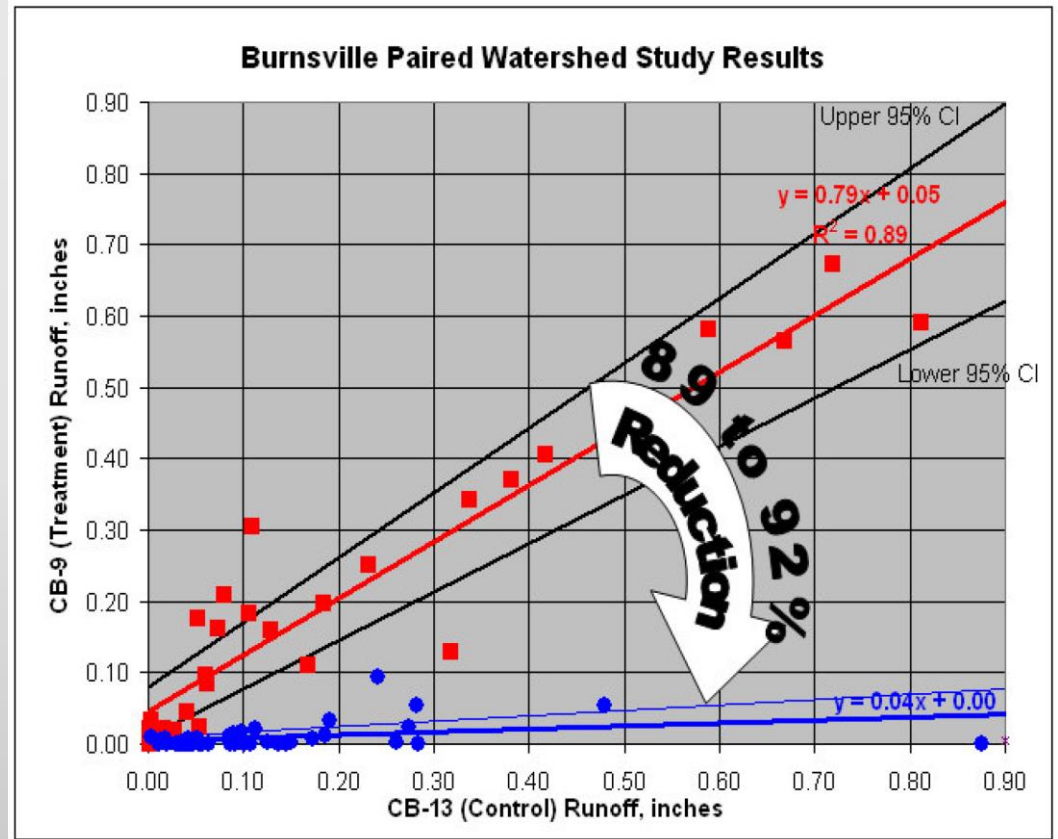
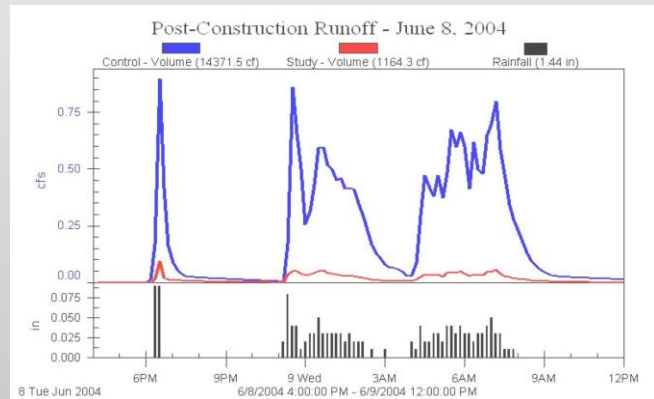
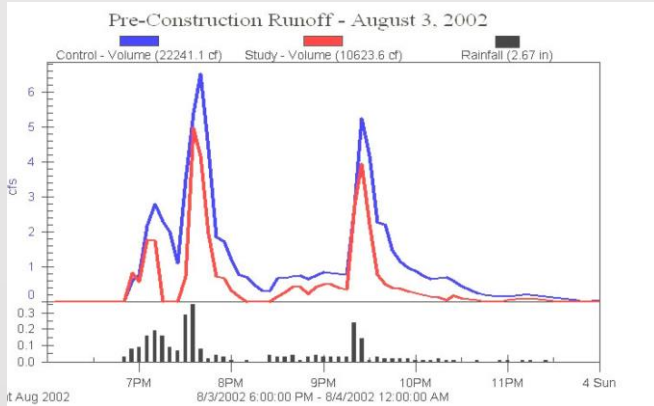


Figure 2 Treatment Watershed Rainwater Garden Layout



Burnsville Stormwater Retrofit Study
June 2006

The Inspiration – Burnsville MN



The Inspiration – Burnsville MN

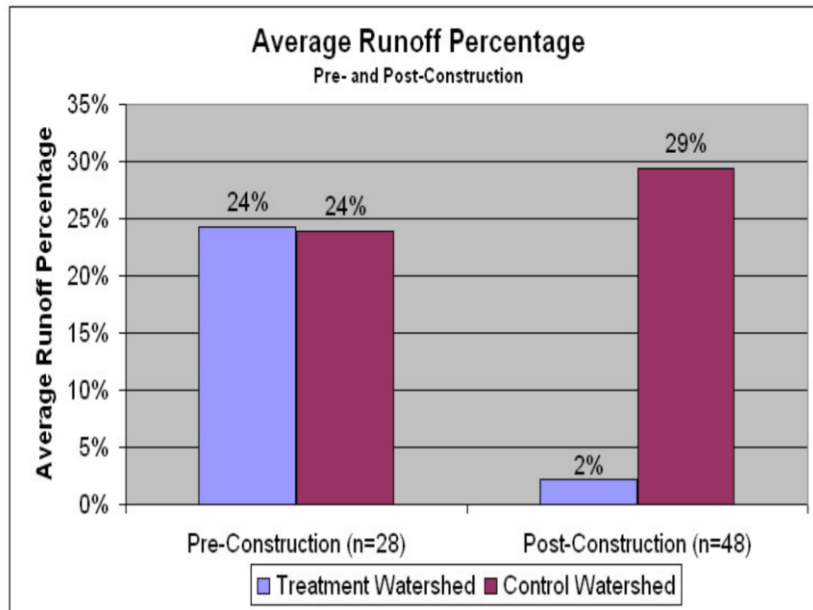
Post-construction (2004-2005)

48 rainfall events = 18.97 inches total

Control Watershed (7.5 acres) = 151,897 cu. ft. runoff (5.58")

Treatment Watershed (5.5 acres) = 7,861 cu. ft. runoff (0.41")

Figure 7 Runoff Volume Reduction Associated with Rainwater Gardens



- **Post construction**
 - 48 rainfall events
 - ~19 inches rainfall
- **No rain gardens**
 - 151,897 cu ft runoff
- **Rain garden**
 - 7,861 cu ft run off
- **93% reduction**

The Opportunity – 319 Grant

319 Grant Program for States and Territories

319 Overview

Current Guidance

Historic Guidance

Reports

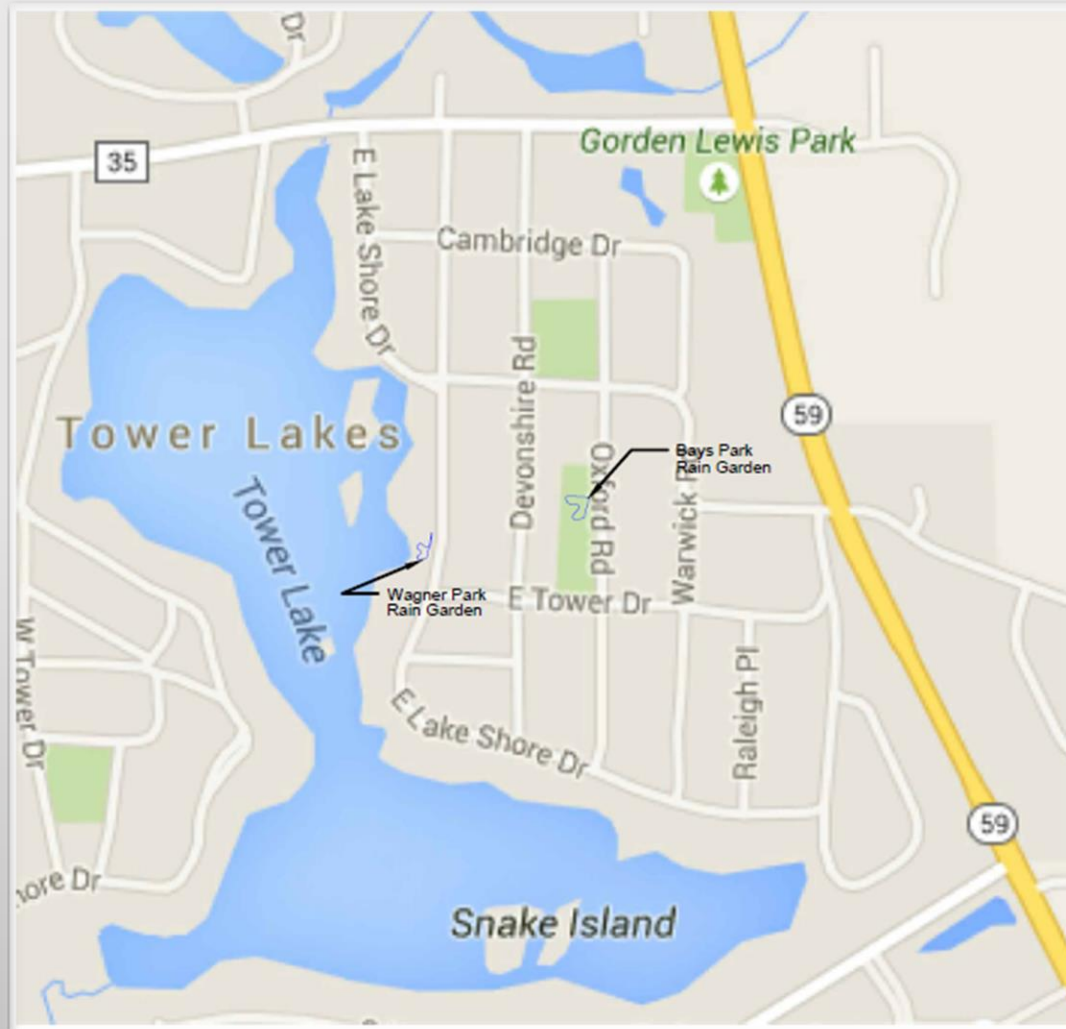
The 1987 amendments to the Clean Water Act (CWA) established the [Section 319 Nonpoint Source Management Program](#). Section 319 addresses the need for greater federal leadership to help focus state and local nonpoint source efforts. Under Section 319, states, territories and tribes receive grant money that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects.

Started in 1990, annually awarded grants to reduce Nonpoint Source Pollution, Federally funded from fines levied on companies polluting the waterways, administered by the State EPA, in 2016 targeting applications in N Illinois.

The Project(s)

- **Form a team to complete a four year project.**
- **Joint collaboration between homeowners association and village.**
- **Obtain funding grants from IL EPA and Lake County.**
- **Select a strategic partner for Environmental Engineering support.**
- **Design and build two Raingardens to capture, detain and allow infiltration of stormwater.**
- **Restore a natural wetland, currently turfed.**
- **Establish a program of community education to support the projects and encourage others to build raingardens on their properties.**

The Project(s)



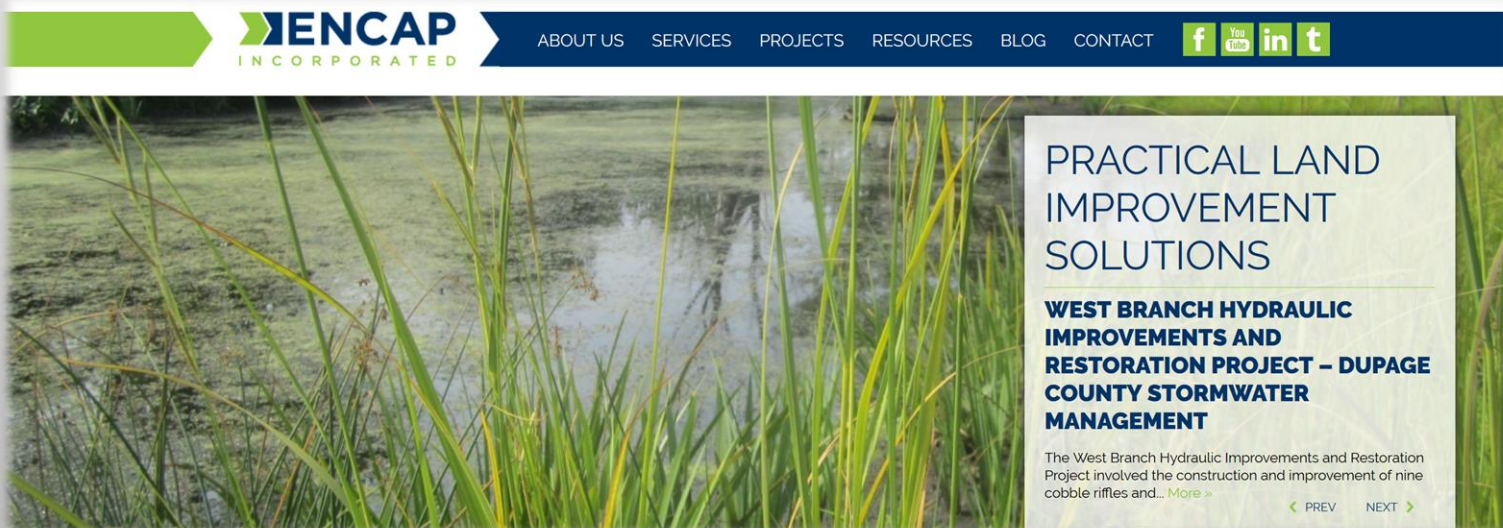
SECTION 2 TOWNSHIP 43 NORTH RANGE 9 EAST

Wagner Park
25364 E Lake Shore Dr
Tower Lakes, IL 60010

Bays Park
25412 Warwick Road
Tower Lakes, IL 60010

ENCAP INC – Environmental Engineering

- RFP published in local papers
- 5 Bids received, two excluded based on price
- Small committee reviewed, shortlisted three
- Had them present their bids and answer questions
- Selected ENCAP as strategic partner
- www.encapinc.net



The screenshot displays the ENCAP INC website. The top navigation bar is dark blue with a green arrow on the left. The ENCAP INC logo is on the left, and the menu items 'ABOUT US', 'SERVICES', 'PROJECTS', 'RESOURCES', 'BLOG', and 'CONTACT' are in the center. Social media icons for Facebook, YouTube, LinkedIn, and Twitter are on the right. Below the navigation bar is a large image of a wetland with tall grasses and water. A white text box on the right side of the image contains the following text:

PRACTICAL LAND IMPROVEMENT SOLUTIONS

WEST BRANCH HYDRAULIC IMPROVEMENTS AND RESTORATION PROJECT – DUPAGE COUNTY STORMWATER MANAGEMENT

The West Branch Hydraulic Improvements and Restoration Project involved the construction and improvement of nine cobble riffles and... [More >](#)

< PREV NEXT >

The Budget

- **Total Project Value ~\$260k over three years**
- **IL EPA Funded 319h Grant of ~\$160k**
- **Lake County SWMC Grants of \$10k and \$12k**
- **Remainder funded by volunteer value matching and split between VoTL and TLIA (The community)**



NONPOINT SOURCE WATER POLLUTION CONTROL PROGRAM

Tower Lakes Bioswale/Raingarden

Best management practices have been installed to improve the water quality of the Upper Fox River watershed.

Funded, in part, under Section 319 of the Federal Clean Water Act.
Grant No.: C99520016

For more information, contact the Illinois EPA at 217/782-3362
FAA Number: 3191615

This Raingarden/Bioswale is a project of the Tower Lakes Improvement Association
partnership with the Village of Tower Lakes

This project will protect water quality and manage stormwater as recommended in the 9-Lakes Watershed Plan

Funding for this project is provided in part by grants from Lake County Stormwater Management Commission through a Watershed Management Board Grant and

Illinois Environment Protection Agency Section 319 grant funds.



Illinois Environmental Protection Agency
Proposed Best Management Practices (BMP) Application Form
Nonpoint Source Pollution Control Financial Assistance Program

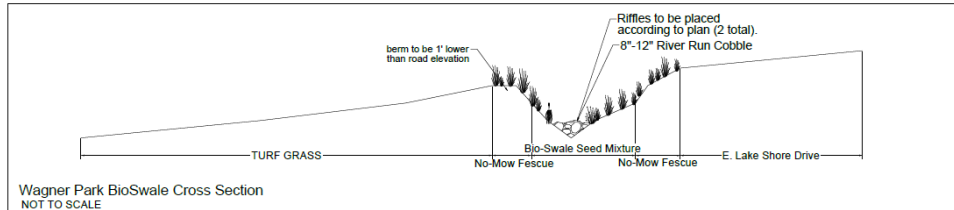
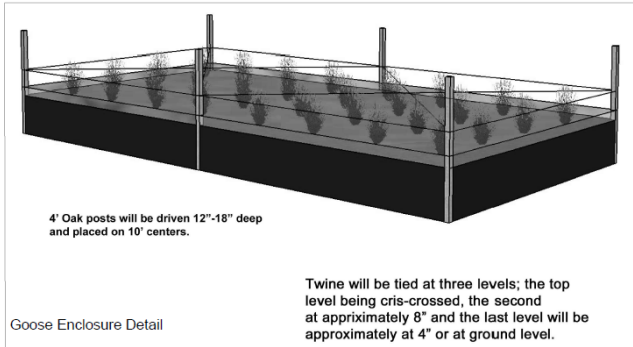
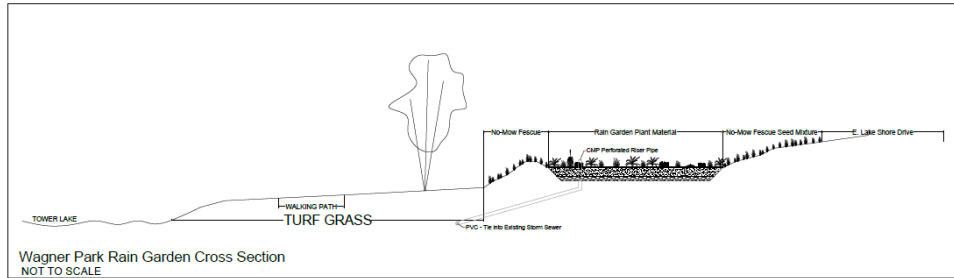
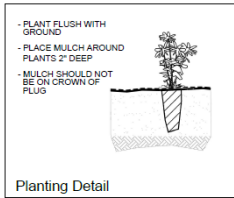
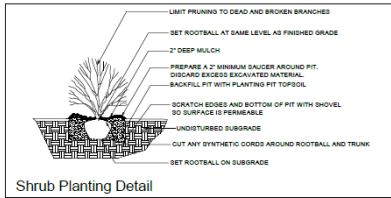
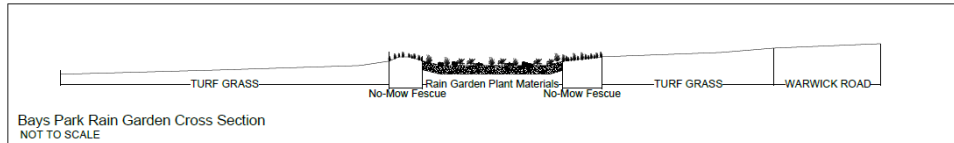
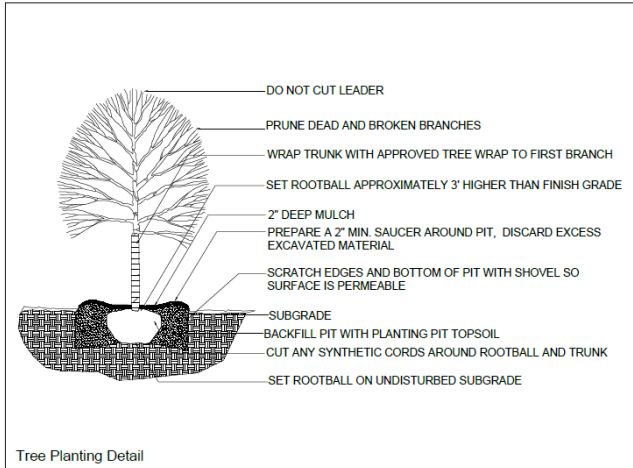
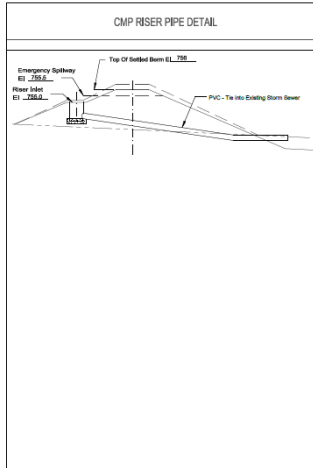
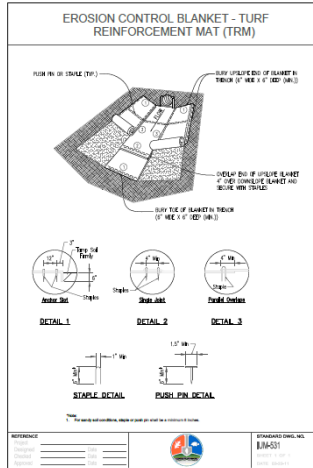
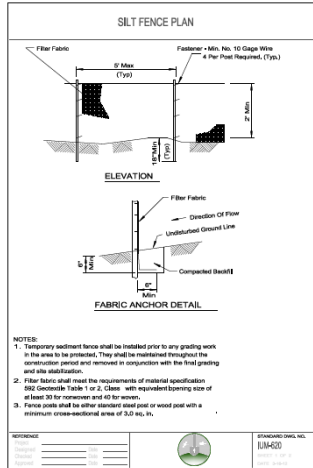
Phase One – Bays Park



- ~1 Acre Park on East Side
- Partial Wetlands with established trees
- In run off basin from IL-59 and local homes
- Designed to retain 16 inches/hr equiv to a 25 yr high rainfall



Phase One – Bays Park



Phase One – Bays Park

- RFP closed Dec 16
- 5 bids rec'd
 - \$57k to \$386k
 - 3 shortlisted and interviewed
 - Encap selected
- Permits received x 4
- Open days and neighbor consultations
- Newsletter articles
- Signage installed
- Ground break April 17
- Erosion control installed
- May major construction
 - Excavation
 - Tap into storm drains
- June planting and labelling
- July 4th Grand Opening
 - 134 attendees
 - \$1100 match value

Phase One – Bays Park



Bays Park July 4th 2017



Bays Park July 4th 2017



Common Name	Species
Obedient Plant	Phystostegia virginina
Prairie Dropseed	Sporobolus heterolepis
New England Aster	Symphotrichum novae-angliae
Nodding Wild Onion	Allium cernuum
Swamp Milkweed	Asclepis incarnata
Blue Flag Iris	Irisi versicolor
Wild Bergamot	Monarda fistulosa
Foxglove Beardtongue	Penstemon digitalis
Cardinal Flower	Lobelia cardinalis
Wild Geranium	Geranium maulatum
Purple Prairie Clover	Dalea purpurea
Whilte Wild Indigo	Baptisia leucanta
Rough Blazig Star	Liatrix aspera
Boneset	Eupatorium perfoliatum

Over 3000 plugs, from 14 native species, selected by members of the TL Beautification Committee, in combination with BACT.

Mother Nature's – Soak Tests !!



Phase's Two and Three



REVISIONS	DATE	DRAWN BY

ENCAP
 INCORPORATED
 2555 West Central, Oak Hills, IL 60116
 (708) 915-7788, (4500) (F) 815-748-4259
 www.encapinc.net

Wagner Park - Native Planting Plan
 Village of Tower Lakes
 400 N. Route 59
 Tower Lakes, Illinois 60010

DATE: 09/29/2015
 SCALE: 1"=10'
 DRAWN BY: KM
 REVIEWED BY: JPK

SHEET
5 OF 7

Phase's Two and Three

- **Second Lake County SWMC Grant Award Received**
- **Army Corp Permit pending**
- **LC Wetland Development Plan submitted**
- **Plan to break ground in the winter 2018**
- **Construction completed Spring 2019**
- **Planting Spring 2019**
- **Grand Opening July 4th 2019 (hopefully)**

Ongoing Education

- Continue with regular community updates
- Encourage homeowners to self certify with BACT Conservation@Home program
- Help other homeowners design and install raingardens on their property
 - >6 to date
- Promote awareness in neighboring communities through TLDP, 9 Lakes, ILMA etc



The Key Success Factor(s)

- **Critical to have good consultants and partners**
- **Need great community engagement**
- **Great relationships with IL EPA, Lake County Storm Water Management, ACE, IL DNR, other local drain partners and conservation trusts**
- **Over communicate with residents**
 - **Newsletters, townhalls, 1:1s.**
- **Keep the faith, long projects = great results**

The Thank You(s)

- To IL EPA for their generous financial support through the 319h grant award
- To LC SWM for their financial support and ongoing advise
- To Nancy Schumm, for her technical expertise and grant writing
- To Village and TLIA Boards for their financial support and trust
- To all of the committees and sub boards for their educational support
- To the Communications Team, for the photos, newsletter articles and blasts
- To the community of Tower Lakes for rallying behind a great cause with 569 man hours of volunteer time so far.
- To ILMA for allowing us to share the success

Thank You

Andy Hay

**Project Manager – Raingarden and Bioswale Project
Village of Tower Lakes/ Tower Lakes Improvement Association**

Cell: 847 736 9640

Email: andy@andyhay7.com