

**CHARTER TOWNSHIP OF MERIDIAN
ENVIRONMENTAL COMMISSION AGENDA**

Wednesday, May 7, 2014

Town Hall Room

Meridian Municipal Building

5151 Marsh Road, Okemos, MI 48864

Work Session

1. Call the work session to order at 6:30 p.m.
2. Approval of the work session agenda
3. Review of the minutes of the April 2, 2014 work session/regular meeting
4. Public remarks
5. Adjournment

Regular Meeting

1. Call the regular meeting to order at 7:00 p.m.
2. Approval of the regular meeting agenda
3. Approval of the minutes of the April 2, 2014, work session/regular meeting
4. Green Themes presentation by Yvonne LeFave, owner and founder of Go Green Trikes, LLC entitled:

"Kickstand and Deliver: How Looking a Cycling Differently Can Lead to New Business Opportunities"
5. Public remarks
6. Chair's Report
7. Communications/staff report
 - Article on the Ember Oaks Drain
 - GLRC Stormwater brochure
 - May is National Bike Month
 - 2014 Ride of Silence to be held on Wednesday, May 21, 2014
 - Michigan Energy Fair in Mason – June 27 and 28, 2014
8. Other Business
 - Revise the September meeting date from the 3rd to the 17th.
9. Study groups/liaison reports
10. Public remarks
11. Adjournment

WORK SESSION

PRESENT: Chair Jackson and Commissioners Searl, McConnell, Scherbarth, and Sarver.

ABSENT: Commissioners Kilebaso and Moran

STAFF

PRESENT: Richard F. Brown, Jr., AICP, Associate Planner

OTHERS

PRESENT: None

1. **CALL WORK SESSION TO ORDER**

Chair Jackson called the meeting to order at 6:40 p.m.

2. **APPROVAL OF THE WORK SESSION AGENDA**

- **MOTION** by Commissioner Scherbarth to approve the agenda. Supported by Commissioner Searl. Approved 5-0.

3. **REVIEW OF THE MINUTES OF THE MARCH 5, 2014 WORK SESSION AND REGULAR MEETING**

No changes

4. **PREPARATION FOR THE ENVIRONMENTAL STEWARDSHIP AWARDS**

5. **PUBLIC REMARKS**

None

6. **DUTIES AND RESPONSIBILITIES OF THE COMMISSION**

Commissioner Scherbarth summarized his findings related to the duties and responsibilities of the Commission.

7. **PUBLIC REMARKS**

None

8. **ADJOURNMENT**

Work session temporarily adjourned by Chair Jackson without objection at 6:56 p.m.

9. CALL THE WORK SESSION BACK TO ORDER

The Work Session was called back to order by Chair Jackson at 8:28 p.m.

10. DISCUSSION ON THE COMMISSION'S ROLE AND RESPONSIBILITIES

Lengthy discussion amongst all the commissioners present and staff on how best to address these questions. Associate Planner Brown to invite the Planning Commission Chair (Pat Jackson) to attend an upcoming meeting.

11. PUBLIC REMARKS

None

12. ADJOURNMENT

Meeting adjourned by Chair Jackson without objection at 9:45 p.m.

**CHARTER TOWNSHIP OF MERIDIAN
ENVIRONMENTAL COMMISSION MINUTES
Meridian Municipal Building
April 17, 2013 - draft**

REGULAR MEETING

PRESENT: Chair Jackson; Vice-Chair Thomas; Commissioners Donahue, Kielbaso, Scherbarth, and Searl; and Student Commissioners Martell and Stanley.

ABSENT: Commissioner Scherbarth

STAFF

PRESENT: Richard F. Brown, Jr., AICP, CBSP Associate Planner

OTHERS

PRESENT: Ashley Hale of CATA and Environmental Stewardship Award Recipients

1. CALL REGULAR MEETING TO ORDER

Chair Jackson called the meeting to order at 7:02 p.m.

2. MOMENT OF SILENCE HELD FOR VICTIMS OF THE BOSTON MARATHON BOMBING

3. APPROVAL OF THE REGULAR MEETING AGENDA

- **MOTION** by Commissioner Thomas to approve the agenda. Supported by Commissioner Moran. Approved 6-0.

4. REVIEW AND APPROVAL OF MARCH 6, 2013 WORK SESSION AND REGULAR MEETING MINUTES

- **MOTION** by Commissioner Donahue to approve the minutes with corrections. Supported by Commissioner Thomas. Approved 6-0.

5. PRESENTATION OF THE ENVIRONMENTAL STEWARDSHIP AWARDS

Awards presented to Eckhart Dersch, Susan McGillicuddy, Mary Helmbrecht, Tom Woiwode, and Studio C.

6. GREEN THEMES PRESENTATION ON "CLEAN, GREEN & SMART COMMUTE" BY ASHLEY HALE OF CATA

7. PUBLIC REMARKS

Mary Helmbrecht thanked the Environmental Commission.

8. CHAIR'S REPORT

Chair Jackson noted Earth Day is on April 22nd and the Township Recycling Event is on

April 27th. Commission Donahue noted the upcoming charette which is taking place May 1st-7th.

9. **COMMUNICATIONS/STAFF REPORT**

Associate Planner Brown summarized the following:

- 2013 Ride of Silence
- Survey on recycling at multiple-family developments
- Semi-monthly newsletter
- May 9th hearing about proposed work along Cornell Road
- Commissioner Donahue's nomination for an Environmental Leadership Award

10. **OTHER BUSINESS**

None

11. **STUDY GROUPS/LIAISON REPORTS**

Commissioner Kielbaso briefly summarized the status of the Land Preservation Advisory Board.

Commissioner Moran summarized what took place at the most recent Park Commission meeting.

12. **PUBLIC REMARKS**

None

13. **ADJOURNMENT**

- **MOTION** by Commissioner Kielbaso to adjourn the Regular Meeting. Supported by Commissioner Thomas. Approved 6-0. Meeting adjourned at 8:17 p.m.

PIPELINE

Michigan Association of County Drain Commissioners Volume 23, No. 1 Spring 2014



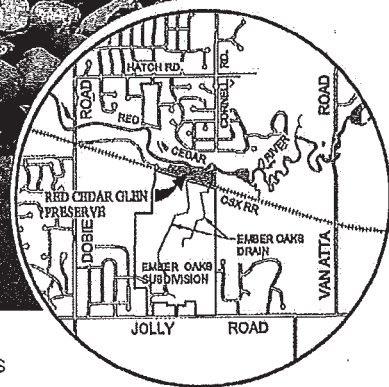
BALANCING NATURE AND DESIGN ON THE EMBER OAKS DRAIN

2014 INNOVATION & EXCELLENCE AWARD WINNER

EMBER OAKS DRAIN

Combining Public Awareness and Engineering Innovation to Achieve an Eco-Friendly Design with Sustainable Results

By Kyle McSeidel, PE, CFM, Anderson, Eckstein and Westrick, Inc.



Project Location: Meridian Township, Ingham County

The Ember Oaks Drain, located in Meridian Charter Township, Ingham County, Michigan, was established in November of 2006 by a 433 Agreement between the Ingham County Drain Commissioner, Patrick E. Lindemann, and the developer of the Ember Oaks Subdivision. The Ember Oaks Drain was originally established to the downstream property line of the Ember Oaks Subdivision. From this location, runoff from the Drain flowed to the Red Cedar River through a culvert under the CSX Railroad and then overland through two natural drainage courses within a Meridian Charter Township land preserve, known as the Red Cedar Glen Preserve.

In 2007, the Ingham County Road Commission filed a petition to add lands to the Drainage District for the purposes of improving road drainage management and to serve existing and future subdivision developments. These improvements included extending the Drain's route and course over the two natural drainage courses through the Land Preserve.

A PROBLEM DISCOVERED

During the process of acquiring the necessary easements, severe erosion was discovered on the two natural drainage courses within the Land Preserve. A comprehensive site investigation determined that the erosion resulted from the increased runoff from the developing upstream subdivision. Steep banks, fallen trees, and significant erosion presented an unsafe environment for local residents, deteriorating wildlife habitat and an unstable outlet for the Ember Oaks Drain. Following the investigation, it became

clear that plans to simply acquire easements to extend a route and course across the Land Preserve would need to change.

PUBLIC INVOLVEMENT AND EDUCATION

Meridian Charter Township was concerned. The purchase of property for the Land Preserve was made possible by a Township millage with conditions that assured voters that the area would be left undisturbed, as a preserve for sensitive natural features. The proposal for establishing, maintaining, and improving a public drain across the preserve had the potential to create strong opposition. Faced with this local reservation, Ingham County Drain Commissioner (ICDC) Lindemann recognized the need to involve all Land Preserve stakeholders and build consensus on (1) access to and reconstruction of the damaged streambeds and banks, which became the Ember Oaks Drain, (2) restoration of degraded aquatic and terrestrial ecosystems along the Drain corridor, and (3) long-term protection of the Drain corridor, along with maintenance of the Drain.

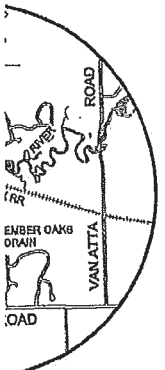
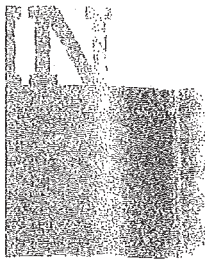
The Land Preserve stakeholders within Meridian Charter Township government included the Township Board, the Land Preservation Advisory Board (LPAB), and the Township Park Commission, including the professional staff that supports these boards and commissions. Stakeholders also included groups outside the government, such as

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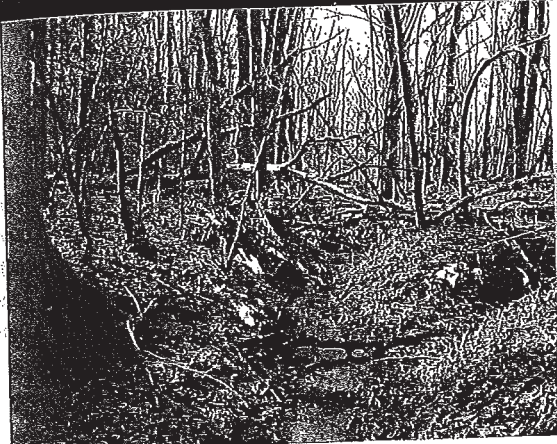
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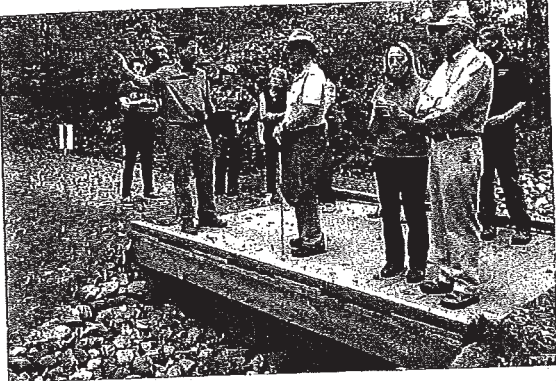
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Meridian
County



Pre-construction conditions, including severe erosion, steep banks, and fallen trees, creating an unsafe environment for local residents, as well as a deteriorating habitat for local wildlife and vegetation



Ongoing communication and public education was critical during every phase of the project.

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Construction of the Log Stilling Basins was completed onsite to ensure flush angles for durability.



During construction, smaller lightweight were specified to minimize disturbance to the Land Preserve.

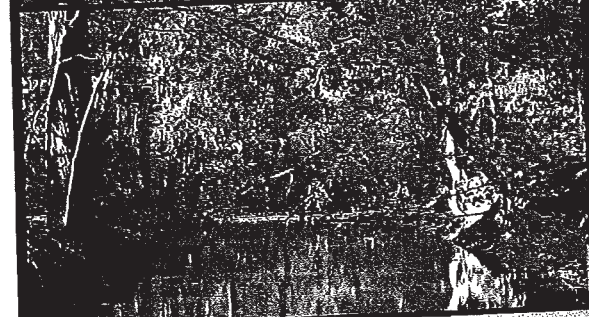
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Environmental Consulting & Technology, Inc.




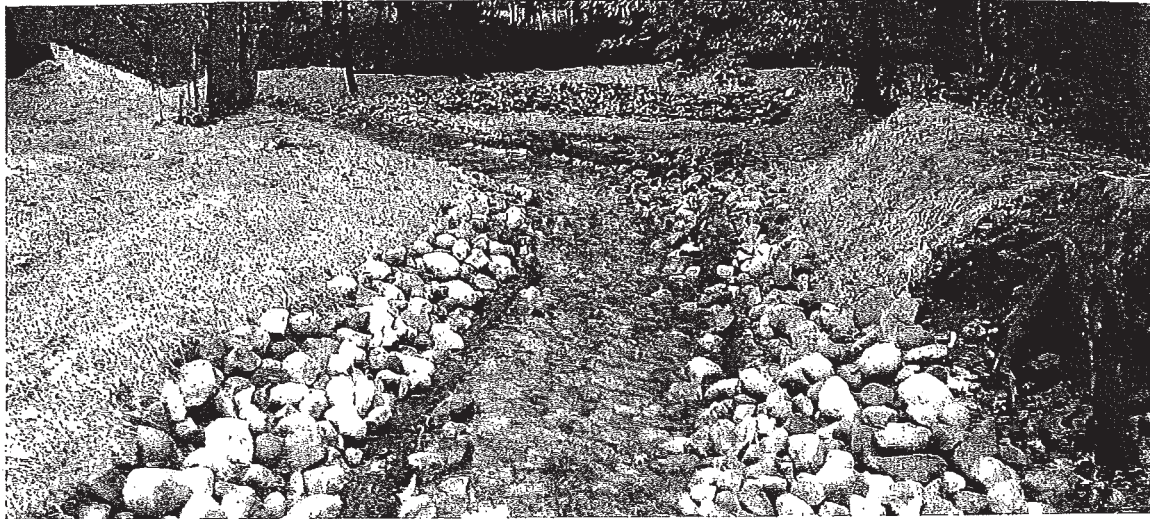
- Lake level management
- Streambank stabilization
- Lake restoration
- Detention pond retrofitting
- Hydraulics, hydrology and water quality modeling
- Green infrastructure design
- Grant funding assistance
- Public education, outreach and facilitation
- Drain assessments
- Water quality monitoring
- Hydrologic and ecological improvements to drains
- Illicit discharge identification
- Storm water permit assistance
- NPDES permit compliance
- Regulatory compliance
- Hazardous materials management



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Log Revetments, constructed with onsite dead ash trees, serve as natural barricades to protect against drain bank damage and erosion.

the Ember Oaks Subdivision developer and the Sylvan Glen property owners, whose neighborhood would be most affected by the construction within the Land Preserve.

Collectively, a vision needed to be developed that would be compatible with the aesthetics of the Land Preserve and incorporate sustainable design techniques to dissipate the severe erosive velocities associated with upstream drainage. The challenges and complexity of this undertaking were met with innovative thinking and a sincere commitment by all stakeholders for the shared vision of protecting the environment and the natural features of the Land Preserve, while also providing a stable outlet for the Drain.

Building a consensus took several years. Agreement was finally reached and easements were conveyed to the Drainage District by the Township in 2012, nearly six years after the Drainage District was established. The time devoted to building trust among the various stakeholders was well spent. Once the easements were acquired, the Drain Commissioner and his design team were able to efficiently and, with better information, complete the Drain plans and resolve any final legal procedures.

Public involvement and education were critical components in every phase of this project, from design through construction, and continuing into maintenance. Ongoing communication occurred between the Drain Commissioner, the Engineer, the Contractor, and with the stakeholders. Numerous public meetings, work sessions, construction notices, internet postings, and weekly on-site progress meetings during construction kept the team and affected parties involved and informed of project advancement.

CHALLENGES OF WORKING IN A LAND PRESERVE

The most significant challenge on this project involved bringing together the many different stakeholders, each with different interests in the protection of the Land Preserve. Primary stakeholder concerns included affects to the surrounding ecosystem and the environmental appropriateness of the materials to be used. An example of the challenges faced was the identification and marking of existing sensitive plants within the Land Preserve by the LPAB. With the knowledge of the existing native species on the Preserve, the team selected specific plant species that were best suited for continuity within the Land Preserve. While not all parties agreed with the initial recommendations, through education and regular communication, the resulting selections satisfied the range of preferences and were essential to the development of a natural construction design.

Other complexities included the determination of proper design methods using natural materials, and hydraulically modelling the historic flows of the upstream development. Upon establishing both pre- and post-development flows, it was necessary to secure the cooperation of the Ember Oaks Subdivision developer for the incorporation of the necessary improvements to limit drainage into the Land Preserve, thus returning to "pre-development" flows.

PERSONALIZED DESIGN

Approaching the design required a complex mixture of fact finding, professional judgment, common sense, and consensus. Design challenges associated with this project included working in a Land Preserve with steep topography, erosive soils, slope failures, fallen trees and ground water to surface erosion.



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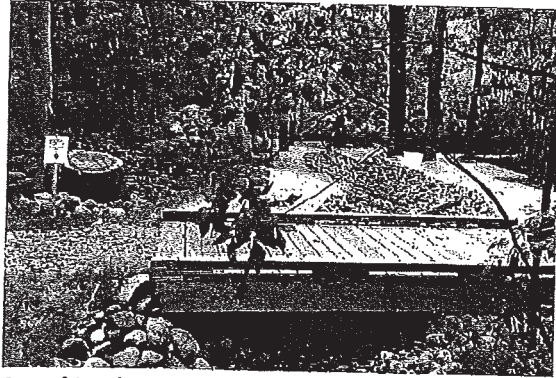
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ENVIRON SUSTAIN

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One of two boardwalk crossings, adding to accessibility of the drain.

These conditions, combined with public concerns, required a design team capable of providing an innovative and cohesive design, with highly personalized service. The design team was comprised of the Engineer, Wetland and Stream Restoration Specialists, a Native Species Specialist and a Professional Forester.

Final drain construction design involved a low impact approach with 800 feet of channel stabilization, including a series of log and fieldstone stilling basins, fieldstone riffles, fieldstone riprap, and log revetments. The project also included construction of two timber boardwalks to accommodate pedestrian traffic over the drains. The final Ember Oaks Drain Improvements project cost was \$895,000.

While the design components were selected primarily to satisfy the various concerns of the stakeholders, they were also considered for the environmental benefits they would bring to the Land Preserve, including water quality, sustainability, and more.

ENVIRONMENTAL BENEFITS AND NATURALLY SUSTAINABLE MATERIALS

Establishing and maintaining the stability of banks and streambeds for drains that, like the Ember Oaks Drain, have steep profile slopes of up to a 10% grade, can be challenging. With these steep slopes, water flow velocities can become very erosive. As a result, design methods to control the energy in the flowing water were used to reduce soil from entering the Red Cedar River.

Although common design practices for stabilization projects normally focus on commercially-created products, this project concentrated on implementing onsite material to create a natural setting, interconnected with the Land Preserve. With special considerations for durability and preservation of natural habitat, along with the requests of the Land

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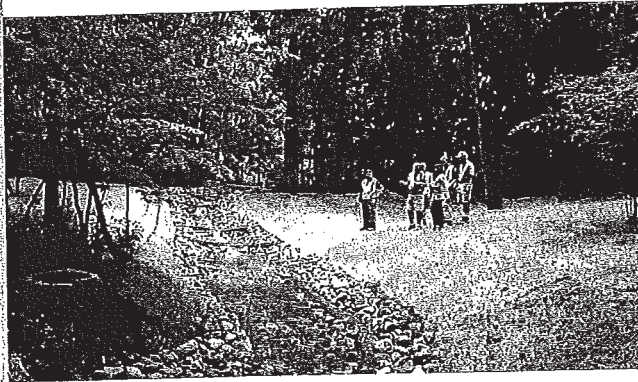
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EMBER OAKS DRAIN STORY



Post Construction August 2013 – Main Branch

Preserve stewards, standard design materials were not the appropriate solution. Instead, natural materials such as fieldstone riprap, logs, and native plant species were selected. A series of aesthetic grade control stilling basins were used to absorb the energy of the water and progressively convey flows down the 12 foot drop across the Land Preserve to the Red Cedar River.

Care was exercised to use to the greatest extent possible only native plant species and on-site materials, to maintain the integrity of the Land Preserve. Species of wood such as dead ash found on site and various imported Michigan hardwoods that were best suited for the sustainable drain features were used for log revetments and log stilling basins. In addition, native species such as wild columbine, little bluestem and foxglove beardtongue were included in the permanent seeding. Guided by the Forester, only native Michigan tree species were planted during restoration of the site.

One of the project goals was to enhance and improve the quality of water discharged from the upstream subdivision before it flowed to the Red Cedar River. Construction of the stilling basins created splash pads that add oxygen to the water, while also creating new and more diverse habitat for wildlife. Designing a solution that used natural, native and durable materials and techniques achieved both objectives of environmental enhancement and sustainability, while also providing an aesthetic adaptation to the Land Preserve.

MINIMIZING IMPACT ON THE LAND PRESERVE

As the construction site was within a Land Preserve, it was imperative to minimize site disturbance and maintain the existing natural growth in the forest. This was achieved by limiting the size of construction equipment, clearly defining access routes, minimizing soil compaction, and specifying

the use of on-site natural materials, to the greatest extent possible, to complete the construction.

Because site access was limited to a single track walking path that meandered 2,500 feet through the Land Preserve to the construction site, the design team required smaller, lighter-weight equipment, capable of remaining stationary at the base, while rotating a full 360 degrees. This specialized equipment completed project tasks with minimal disturbance to the Land Preserve. Additionally, the design team required the contractor to power wash and clean all equipment prior to entering the Land Preserve to further reduce the possibility

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of introducing invasive or noxious plant species. Using materials found on-site to the greatest extent possible while also limiting the amount of imported material reduced disturbance along the access path, thus minimizing disruption to vegetation and wildlife.

LOOKING AHEAD

From the onset of design for this project, focus remained on providing a quality, cost-effective and environmentally sensitive design that would endure over time. We appreciate the recognition that this project has earned from the Michigan Association of County Drain Commissioners and the American Council of Engineering Companies (Michigan Section), yet it is our opinion that the sustainability of this project is its own reward. As designers and planners affecting the balance of nature, it is important that we design and build sustainable projects that enhance our environment for the enjoyment of our generation and for generations to come.

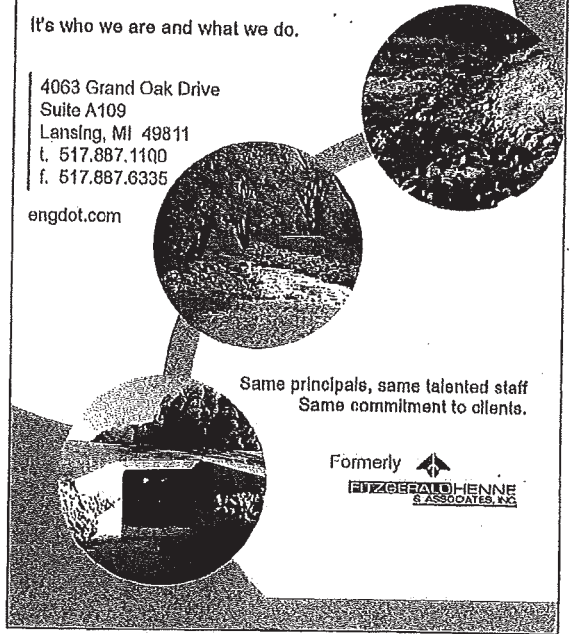
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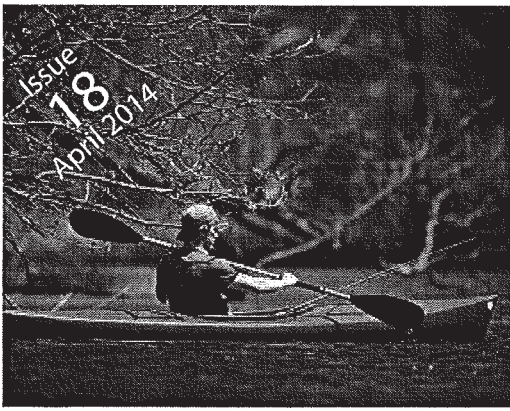
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The GLRC Has a New Look!

We hope you enjoy our updated newsletter. In partnership with the Middle Grand River Organization of Watersheds and several other watershed groups, we are promoting the Pollution Isn't Pretty campaign. We have incorporated elements of the campaign into our revised logo and exhibit display.

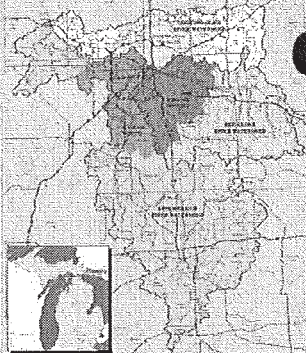
Stop by our display at the Adopt A River Environmental Fair, this Saturday, May 3, 2014 10 a.m. - 2 p.m. at Impression 5 Science Center. Thanks to Impression 5 and the Lansing Board of Water & Light for sponsoring this event! We hope to see you there!


POLLUTION ISN'T PRETTY.

Everyone lives in a watershed. What happens on your property can affect the entire watershed and beyond.

What can you do? There are lots of things you can do to protect water quality: volunteer for a river clean-up event, choose natural cleaning products, clean up spills on your driveway and pick up and properly dispose of pet waste.

It all leads to Lake Michigan. The Great Lakes contain nearly 20 percent of the world's and 95 percent of the United States' fresh surface water supply. Reducing pollutants in your backyard can help keep the Great Lakes clean.






IT ALL ENDS UP IN THE WATER

YOU CAN PLAY A ROLE IN PROTECTING OUR WATER RESOURCES

Small sources add up to **BIG POLLUTION PROBLEMS**, so it is important to prevent pollution *before* it reaches the water.

- Soil test before you fertilize
- Use no-phosphorus fertilizers
- Never dump - only rain in the drain
- Use native vegetation
- Take your car to the carwash
- Maintain your vehicle
- Pick up after your pet
- Recycle & dispose of household chemicals properly
- Capture and reuse rainwater
- Maintain your septic system



GREATER LANSING REGIONAL COMMITTEE FOR STORMWATER MANAGEMENT

www.mywatersheds.org

Be sure to check out the GLRC on Facebook and Twitter!



REMEMBER: Everything you leave on the ground will eventually make it to the Grand River - and then on downstream to Lake Michigan!

Please pick up your pet waste, use phosphorus free fertilizer (if any!), maintain your septic system, and call your local municipality if you have questions.

Upcoming Events/ Meetings

Adopt A River: May 3, 2014

Children's Water Festival: May 6, 2014

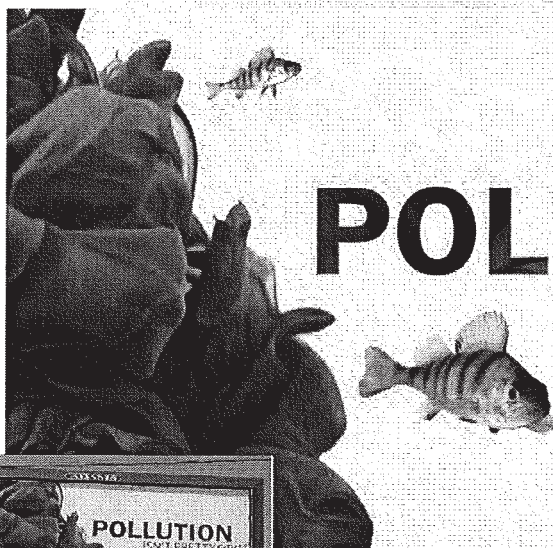
MDEQ Green Infrastructure Conference: May 8-9, 2014

GLRC Full & Executive Committee Meetings: June 12, 2014

Mid-MEAC Volunteer Stream Monitoring: June 7, 2014

Grand American Fish Rodeo: June 12-14, 2014

The Eaton Conservation District was able to match the GLRC purchase of 5 billboard locations for a total of 10 billboards that were around town for 60 days. You could see the Pollution Isn't Pretty billboards from Holt, to Delta Township, Old Town and Grand Ledge.



Learn how you can help **keep our water clean.**

