

PIPELINE

Michigan Association of County Drain Commissioners Volume 22, No. 2 Summer 2013

DAM IMPROVEMENTS BENEFIT ALGONQUIN LAKE



Oil Spill Remediation –
Restoring Talmadge Creek

PLUS+
OIL SPILL
REMEDIATION -
RESTORING
TALMADGE CREEK



Quality Care With
Knowledge and Experience

Herbicide Division Inc.

- High Quality Vegetation Management
- Low and Mid Volume Applications
- Basal Bark Applications
- Invasive Species Control

Ray Owen
Vice President

(800) 724-6680 ☎ Fax (810) 724-2684

Email: rayowen@owentree.com



TETRA TECH

**WATER • SCADA • CSO / SSO
WASTEWATER • UTILITY RATE STUDIES
WATERSHED MANAGEMENT
ENERGY MANAGEMENT**

Ann Arbor 734.665.6000
Brighton 810.220.2112
Detroit 313.964.0790
Lansing 517.394.7900
Port Huron 810.956.9300

www.tetrattech.com



examples world | **CLEAR SOLUTIONS®**

wildtype™
Mason, MI

- ▷ Offers a wide range of ecological services
- ▷ Grower of native trees, shrubs, wildflowers, grasses & emergent wetland species

wildtypeplants.com • ph: (517) 244-1140 • fax: (517) 244-1142

NORTHERN CONCRETE PIPE



www.ncp-inc.com - info@ncp-inc.com

Manufacturers of:

- | | | |
|----------------------------|-------------|----------------------------|
| - Box Culverts | - Jack Pipe | - Catch Basins |
| - Hy-Span Culvert Systems | - Manholes | - Wet Wells |
| - Reinforced Concrete Pipe | - Gatewells | - Gasketed Elliptical Pipe |

**NOW AVAILABLE:
STORMCEPTOR**

Main Office
401 Kelton St. - Bay City, MI
989.892.3545 - Fax 989.892.3533
800.222.9918

**SPECIFY
CONCRETE PIPE
FOR PERMANENCY**

Lansing Office
5281 Lansing Rd. - Charlotte, MI
517.645.2777 - Fax 517.645.7774
800.874.9701

CONTENTS

Michigan Association of
County Drain Commissioners
Executive Board Members

Douglas D. Enos, President 989.832.6772	Midland County denos@co.midland.mi.us
Roger Zilke, First Vice-President 269.983.7111 ext. 8261	Berrien County rzilke@berriencounty.org
Brian Denman, Second Vice-President 989.875.5207	Graftiot County drain@gratiotmi.com
Jackie Fitzgerald, Secretary 231.592.0103	Mecosta County drain@co.mecosta.mi.us
Robert J. Mantey, Treasurer 989.672.3820	Tuscola County drain-commissioner@tuscolacounty.org
Brian Jonckheere, Immediate Past President 517.546.0040	Livingston County bjonckheere@co.livingston.mi.us
Cameron Cavitt, Northern District Chair 231.627.8493	Cheboygan County ccavitt@cheboygancounty.net
Greg Alexander, Northeast District Chair 810.648.4900	Sanilac County draincommr@sanilaccounty.net
Phil Hanses, Northwest District Chair 989.224.5160	Clinton County hansesp@clinton-county.org
David Thompson, Southeast District Chair 734.240.3110	Monroe County david_thompson1@monroemi.com
Joe Parman, Southwest District Chair 269.657.8241	Van Buren County parmanj@vbco.org
John Pekkala, Upper Peninsula District Chair 906.458.9118	Houghton County jpekkala@houghtoncounty.net
William Byl, Legislative Committee Chair 616.336.3688	Kent County bill.byl@kentcountymi.gov
Michael R. Gregg, Michigan Department of Agriculture and Resource Development 517.373.9802	greggm@michigan.gov

PIPELINE is published four times a year. It is funded by the Michigan Association of County Drain Commissioners, and with advertising revenues. The Michigan Association of County Drain Commissioners is a nonprofit, statewide association.

PIPELINE EDITORS	Theresa Lark Jeff Hammer
COMMUNICATIONS COMMITTEE	
Theresa Lark, Chair	Linda Brown
Jeff Friedle	Mike Gregg
Tony Groves	Stacy Hissong
Steve May	Evan Pratt
Claire Schwartz	Norma Stuart

CONTACT FOR ADVERTISING INFORMATION
Theresa Lark or Jeff Hammer, MACDC
120 N. Washington Sq., Suite 110A, Lansing, MI 48933
Phone: 517.484.9761, Fax: 517.371.1170
Email: lark.t@gcsionline.com

4	PRESIDENT’S MESSAGE
6	MACDC HOSTS FIRST CONTRACTOR TRAINING SEMINARS
8	CREATIVE ENGINEERING PROVIDES COST EFFECTIVE SOLUTION FOR ERODING DRAIN
12	MICHIGAN SUPREME COURT SETS BRIGHT LINE RULE FOR §161 REVIEW AND CHALLENGES TO DRAIN PROJECTS
14	RESTORING TALMADGE CREEK
22	DAM IMPROVEMENTS BENEFIT ALGONQUIN LAKE
30	DISTRICT NEWS
35	MICHIGAN ASSOCIATION OF DRAIN COMMISSIONERS 2014 AWARDS PROGRAM OFFICIAL ENTRY FORM
38	ASSOCIATE MEMBER NEWS
40	MACDC EVENTS CALENDAR
42	LIST OF ADVERTISERS

No part of this publication may be reproduced without permission of the publisher and the MACDC. All articles submitted will be considered for publication and accepted at the approval of the editor and the PIPELINE Committee. The editor reserves the right to edit submissions for accuracy, clarity and length.

PRESIDENT'S MESSAGE

By Doug Enos

Midland County Drain Commissioner



> “The future ain’t what it used to be.”
Another pearl of wisdom from Yogi Berra.
In this case, I am speaking about the laws relating to operations performed by Drain/Water Resources Commissioners.

The state legislature is now in summer recess, but the spring session was very busy with regard to MACDC issues.

House Bill 4622 has been introduced, which would amend Section 197 of the Drain Code to facilitate adding or deleting lands to a Drainage District. It has received testimony in committee. We are hopeful that this bill will wend its way through the process in a timely and uneventful manner.

Language for other proposed Drain Code revisions are either presently being drafted or have just recently been drafted and await introduction.

Of more controversial and perhaps more far-reaching significance are revisions to Parts 301 and 303 of Act 451 of 1994 (Inland Lakes and Streams and Wetlands Protection.) Senate Bill 163 has been approved by the legislature and, as of this writing, awaits the Governor’s signature. The bill attempts to sync Michigan law with the Federal Clean Water Act so that Michigan can keep its dual permitting authority for both state and federal laws. Dan Wyant, MDEQ Director, has said that it is his intent to keep the current dual permitting authority. Director Wyant considers this to be legacy legislation for both himself and for Governor Snyder.

EPA has reviewed the legislation and talks are in progress regarding certain aspects of it. Meanwhile some groups are less than thrilled with the changes and are threatening legal action if they are enacted. Yogi also said, “It’s tough to make predictions, especially about the future.”

To add to the angst being experienced by many Drain/Water Resources Commissioners, MDEQ is also holding stakeholder meetings with the goal being to draft wording changes to Part 31 (Floodplain Regulations.) The original stated goal was to clarify some issues and to make permitting a smoother process. Early in the stakeholder meeting process the discussion seemed to turn in a more ambitious direction regarding changes in definitions, Drain Commissioner exemptions, and future ability to make administrative rule changes. It now appears that these more ambitious goals will not be pursued.

As Yogi observed, the future will be difficult to predict but it also appears to not be what it used to be.



HUBBELL, ROTH & CLARK, INC

Consulting Engineers

TRUSTED ENGINEERS, ENVIRONMENTAL SCIENTISTS, ARCHITECTS



A Tradition of Personal Service & Successful Projects

Established in 1915

Engineering. Environment. Excellence. (248) 454-6300

www.hrc-engr.com

TOTAL STORMWATER & SANITARY SOLUTIONS

Engineered Drainage Structures



Nyloplast

SaniTite® HP 12"-60" Sanitary Sewer Pipe



SaniTite (HP)
HIGH PERFORMANCE

Retention/Detention Chambers

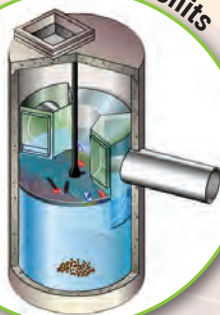


StormTech

N-12® 4"-60" Dual Wall Pipe



Water Quality Units



Geotextiles - Woven & Nonwoven Fabric



FLEXSTORM™ Inlet Filters



FLEXSTORM
INLET FILTERS



For more information contact
John Freeman at 517-862-2099
or visit www.ads-pipe.com

ADS

.....MACDC HOSTS FIRST CONTRACTOR TRAINING SEMINARS

■ By John Freeman, Regional Sales Manager, Advanced Drainage Systems



MACDC hosts first contractor training seminars

> I knew the first Michigan Association of County Drain Commissioner Contractor School would be great, as the room started to fill and each seat was taken. The anxiety over this first-time event quickly vanished as contractors filed in and I watched them become engaged from the very beginning. Two seminars were held, one in Grand Rapids on March 13, 2013 and another in Saginaw on March 14, 2013. In total, 40 contractor companies were represented with 119 attendees!

As an Association, I believe one of the most valuable things we do is to educate our members on issues that are important to Drain Commissioners and those working with them. Many times, this education includes political, legal, engineering, or product-related themes. These topics, while very important, may not always be relevant to the contractor. The Contractor Training program expands the scope of MACDC's educational offerings.

The first goal of the Contractor Training Seminar was to address some of the critical issues that challenge drain offices. The second was to create a database of contractors that had attended and list the services they provide. This will help drain offices know which contractors are interested in and prepared for drain work. The companies

that attended the Contractor School are now listed on the MACDC website (www.macdc.us) under the MACDC Preferred Contractors tab. The seminars also sought to help MACDC develop better relationships with contractors and make them aware of the networking benefits associated with being a member.

This is beneficial for everyone, as contractors play a key role in drain projects.

Pat Brown from MITA started the day with basic first aid training. Pat's prior experience as a paramedic was evident. He related many great stories and examples for the attendees. Pat then provided CPR training. Each attendee tested and will receive their First Aid/CPR Certificate of Completion. Pat also covered job site safety training, including trench safety, confined space entry and traffic control. Through his years of safety-training experience with MITA members, Pat often visits job sites and is quick to identify safety violations that could lead to citations or, worse yet, cause injury or death. He showed many examples and shared stories of real situations he has seen and helped members work through. Pat works with members should they ever receive a MIOSHA citation. The reality of excavation construction is that it can be dangerous. The information Pat provided could literally save a life.

Mark Cavanaugh from Hanes Geo Components had the tough job of being the last presenter before the evening reception. We all know cold drinks and hot food are hard to compete with. Mark presented on Best Management Practices concerning soil erosion and sedimentation control

(SESC), highlighting some that are required in the MACDC SESC Manual. This is especially critical since every Drain Office has been notified that, in the upcoming months, they will be audited for compliance. We were able to see product samples for every practice that he referenced in the manual and job site pictures of how these products performed after installation. Soil erosion and sedimentation control along County Drains is critical while working on the Drain itself or in a connecting channel. This is very evident this spring, as we have seen heavy rains take County Drains to full capacity and beyond. Improper sedimentation control has an adverse effect on county drains. With his wealth of knowledge, Mark was able to answer questions and add insight to issues these contractors are currently facing.

Thank you Pat and Mark for contributing to the success of our first MACDC Contractor Training Seminar! Both presenters provided information that is necessary for contractors to be effective partners in their work on County Drains.

The Contractor School would not have been possible without the sponsorships provided by



Attendees take CPR training

Advanced Drainage Systems, AIS/John Deere, CSI Geoturf, ETNA Supply, EJ, HD Supply, Jensen Bridge, Michigan CAT, Michigan Pipe and Valve, Northern Concrete Pipe, and St. Regis Culvert. We thank all our sponsors and our seminar hosts, Fishbeck, Thompson, Carr & Huber, Inc. in Grand Rapids and Spicer Group, Inc. in Saginaw.

It was a pleasure working with the committee that kept focus on providing a quality training experience. Plans are already underway for the next Contractor School. We are hoping to incorporate it into the MACDC Winter Conference of 2014.



Environmental Services

- Stream Bank Restoration Design*
- Design for CSO and SSO Controls*
- Sewer Rehabilitation Design*
- NASSCO Certified CCTV Sewer Inspections and Training*
- Environmental Services*
- Water Resources Engineering Services*
- Industrial Hygiene*

EverydayBrilliance

Brilliant engineering solutions - delivered daily.



NTH Consultants, Ltd.
Infrastructure Engineering
and Environmental Services
(800) 736-6842
www.nthconsultants.com

CREATIVE ENGINEERING PROVIDES COST EFFECTIVE SOLUTION FOR ERODING DRAIN

■ By Summer R. Mathewson, Marketing Professional Spicer Group, Inc.



Preconstruction, bank erosion

> Is it possible to correct severe erosion on an intercounty drain with a limited budget, create a design that is sustainable and low impact, and do it within the scope of a maintenance project? This was the puzzle to be solved for the Kochville and Frankenlust Drain.

The Kochville and Frankenlust Drain is an intercounty drain located in Bay County and Saginaw County. Bay County Drain Commissioner Joseph Rivet was contacted by property owners who live along the drain in the Bay County area to express their concerns regarding severe undercutting, meandering and erosion along the drain. Swift water flows were cutting down in the channel bottom, producing steep banks in the highly erodible sandy soils. Some property owners were in danger of losing trees and landscaping; one land owner was in danger of losing his pond due to a collapsing retaining wall.

Drain Office staff completed a field observation, photographing along the drain and obtaining approximate measurements to aid in evaluating

the extent of erosion and the general condition of the drain. They collected survey measurements and cross-sections that would be necessary for the engineering design. The drain office staff documented bank erosion at numerous locations between Delta Road and Fraser Road in Bay County. Drain Commissioner Rivet recognized that adequately addressing the erosion problems would likely cost more than a typical drain maintenance project.

Based on these observations, Rivet asked Spicer Group to complete an evaluation of the conditions along this section of the drain to determine the causes of the erosion and design a solution. The goal was to implement measures to address the erosion that would also promote the long-term stability of the drain in the most cost-effective manner.

CREATIVE SOLUTIONS

Though improvements had been made to the drain previously, it was clear that the erosion



This landowner was losing lawn area and was in danger of losing mature trees to the severe erosion.

Drain Commissioner Rivet and Spicer Group faced the challenge of designing a solution that could meet those needs. Clearing sediment from the drain, replacing culverts and armoring the banks with riprap would be expensive and would only address the symptoms the drain was experiencing, not the cause of the problems. Spicer Group developed a solution that would be cost-effective and have lasting durability.



Kochville Frankenlust Drain preconstruction, minor bank erosion

As an alternative to the traditional drain cleanout and armoring, Spicer Engineers Ronald B. Hansen, P.E. and Steven K. Roznowski, E.I.T, presented a set of preliminary plans that introduced the concept of using low-impact design (LID) natural stream restoration techniques to manage a long-established country farm drain. These methods would not suit all drains but conditions on the Kochville and

Frankenlust Drain were favorable, as there were naturally-forming banks, significant changes in grade, and a consistent low flow.

problem had not been solved. Rivet wanted to limit or avoid assessing land owners for another drain project, yet it was clear that additional maintenance would be needed before the effects of the erosion became too severe to correct.

Fortunately, contingency funds from previous projects on the Kochville and Frankenlust Drain remained unused in the Drainage District's account. Those funds, previously supplied by the same land owners, could be used to pay for additional improvements in the District. If the project could be completed for the amount that was in the Drainage District's fund, the land owners would not have to be assessed.

Proposed LID methods for streambank stabilization and grade-control structures included using rock vane arms and cross vanes. In addition to reducing erosion, implementing these techniques would improve water quality by reducing the levels of phosphorus and pollutants while also increasing dissolved oxygen levels. The LID techniques replicate natural stream processes that help in achieving a self-sustaining system that would not require as much maintenance as a traditional drain.

PIPELINE | MACDC.NET | 9

APPROVAL & DESIGN PROCESS

The Spicer Group team met with the Drainage Board to review initial findings and recommendations. They were also able to provide the Board with an initial cost estimate for the proposed design. The Board reduced the project scope to stay within a budget of approximately \$120,000, approving the development of plans for work on the drain from Amelith Road to Fraser Road. The Drainage Board indicated that future work may be completed through maintenance funds over the course of the next several years, and Rivet suggested future work may also include natural stream design.



Riprap stabilizing toe of slope



Nine riprap cross vanes were installed in the Kochville Frankenlust Drain. The cross vanes help centralize the flow of water away from the banks.

The construction timeline required cooperation from landowners and agricultural producers, as heavy equipment would disturb the agricultural lands during growing season. Rivet found that the public was more than willing to cooperate and accommodate in any way they could. Farmers owning land along the drain upstream of Amelith Road were either planting or harvesting sections early or would not plant this season to accommodate the project.

Spicer began by collecting information from the Drain Office’s field inspection and comparing it to historical documents. Drain plans from 1986 were reviewed and updated, along with digital aerial photography and parcel boundaries. The engineers obtained measurements, photographs and documentation of the location and magnitude of erosion, along with the general condition of the drain. Survey elevation was correlated with benchmarks on the 1986 plans, including measuring the invert, deck and sizes of drain crossings. The Drain Office staff provided available GIS layers and aerial photography and relevant drain records.

Spicer updated the plan, profile, and cross section drawings of the drain that show the existing drain elevations, locations of erosion, and data collected in the field observation and survey phase of the project. The survey information collected was overlaid onto an aerial photograph plan view map. Road names, sections lines, other county drains, townships, counties and drain right-of-way width were outlined on each set of plans. Profile lines showing drain flow were provided and bridge/ crossing information, including inverts, crossing size, flow line elevations and road elevations, were shown. The cross sections were drawn at a 10-scale and included the flow line, sediment bar, toe of slope, and top of bank.

INCORPORATING NATURAL STREAM DESIGN SOLUTIONS

When current flow line grades and cross sections of the drain were compared with the 1986 design, it was found that the channel had incised, causing the banks to slough. The updated design restored the original flow line by evaluating the typical bank stabilization and erosion control measures and developing a recommended drain flow line, alignment, and cross section.

Five contractors bid on the project, with the lowest bidder, Monchilov Excavating, pricing



Cross vane looking upstream

the work at \$73,282. With an affordable bid in hand, the Drain Board offered and accepted a project extension to complete similar work further downstream. The contractor completed the first stage of the project on time with quality construction.


Riprap was used in sections of the drain that were experiencing the heaviest erosion. This helped provide long-term stability for the drain in a cost-efficient manner. The design also included installing rock cross vanes and vane arms that reduced the need to place heavy riprap along the banks. The vane arms are angled upstream, directing the energy of the current away from the banks and toward the center of the channel. Sediment settles out upstream of the vane arms along the sides of the drain, action that will create a two-stage channel over time. Nine cross vanes were designed to be set at the 1986 historical flow line. This would restore the flow line to a higher elevation by containing sediment and raising the drain floor. Eleven riprap vane arms were installed to direct the flow of water around bends, eliminating the need to armor the entire bank side.

The bottom of the drain was excavated in several places where sediment had accumulated. Toe slope protection was installed along 2,147 linear feet of the drain. The toe riprap extends three feet vertically and approximately seven feet up the slope in areas experiencing the heaviest erosion. In addition, 453 linear feet of riprap spillways were installed, 65 riprap splash pads were placed under field tile outlets, and the banks along sharp curves

in the drain were reinforced with riprap. The contractor repaired 30 tile outlets and 14,600 linear feet of site clearing, sediment removal and spoil leveling were completed. To save costs and preserve farm acreage, the tops of banks were not pulled back.

The finished project is a great example of adding a little creativity to a conventional design to produce a cost-effective solution. The project was completed on time and very much under budget, allowing additional lengths of the drain to be repaired.

The erosion problems and under-cutting have been eliminated, landowners are no longer losing land to erosion, and costs were paid out of the Drainage District's existing funds so that no additional assessments were needed.



THE
HUBBARD
LAW FIRM, P.C.

DRAIN & MUNICIPAL LAW ATTORNEYS

*MICHAEL WOODWORTH
ANDRIA DITSCHMAN
MATTHEW HEOS*

EXPERIENCED

RESPONSIVE

INNOVATIVE

5801 W. Michigan Avenue
PO Box 80857
Lansing, MI 48908-0857
T: (517) 886-7176
F: (517) 886-1080
info@hubbardlaw.com
www.hubbardlaw.com
www.michiganmunicipallawblog.com

**PROVIDING LEGAL SERVICES TO
DRAIN COMMISSIONERS FOR OVER 25 YEARS!**

MICHIGAN SUPREME COURT SETS BRIGHT LINE RULE FOR §161 REVIEW AND CHALLENGES TO DRAIN PROJECTS

■ By Douglas R. Kelly, Clark Hill PLC and Stacy L. Hissong, Fahey Schultz Burzych & Rhodes, PLC

On April 9, 2013, the Michigan Supreme Court released its opinion in *Elba Township v Gratiot County Drain Commissioner* (Docket No. 144166), finding in favor of the Gratiot County Drain Commissioner, Brian Denman. Their ruling allows a much-needed drain project to proceed after years of delay resulting from the court challenge.

This decision creates a “bright line” rule, a clearly defined standard, for judicial review under Section 161 of the Drain Code, which states that “the proceedings in establishing any drain and levying taxes therefor shall be subject to review on certiorari as herein provided.” Section 161 further provides for a ten-day limitation to file a writ of certiorari for an error after the filing of a final order, day of review, or filing of the board of review report, depending on when the claimed error occurred. This and other provisions of the Drain Code were designed to allow for an expedited case process to avoid lengthy litigation that would delay time-sensitive drain projects.

In this case, Elba Township filed a challenge to the drain proceedings, specifically the signature requirement on consolidation, months after the determination of necessity by the Board of Determination and also beyond the ten-day limitation period provided for in Section 161. Upon filing the complaint, Elba Township moved for a preliminary injunction in an attempt to stop the project. The motion for preliminary injunction was denied by the Gratiot County Circuit Court. Thereafter, four individual property owners intervened in the case, claiming that they were denied due process of law under the United States and Michigan Constitutions.

The Drain Commissioner moved to dismiss the

case, arguing that the Township’s and property owners’ claims were untimely under Section 161 of the Drain Code and that the court, therefore, was without jurisdiction to hear the case. In addition, the Drain Commissioner contended that procedures were properly followed, requiring dismissal of the case. The Circuit Court granted the Drain Commissioner’s motion and dismissed the case in its entirety.

Thereafter, Elba Township and the individual property owners appealed to the Michigan Court of Appeals. The Court of Appeals reversed the Circuit Court. On May 23, 2012, the Michigan Supreme Court granted the Drain Commissioner’s request for leave to appeal.

MSC HEARS GRATIOT COUNTY DRAIN COMMISSIONER’S APPEAL

The Michigan Supreme Court first determined that the remedy for failure to comply with the requirements of the Drain Code is certiorari review as described in Section 161. The Court stated that lower courts may exercise “equitable jurisdiction”¹ over disputes involving Drain Code procedures only if the failure to follow procedures is so egregious that it implicates constitutional concerns.

The Court held that a writ of certiorari for any claimed error occurring before or in the final order of determination must be issued within ten days after the final order of determination is filed in the office of the Drain Commissioner. For any error alleged to have occurred after the final order of determination, the writ must be filed within ten days after the day of review or, if an appeal has been taken, within ten days after the filing of the report of the Board of Review. Under Section 161, if no certiorari is brought within



Gratiot County community petitions for relief from flooding.

the prescribed ten-day period, the drain will be deemed to have been legally established and the legality of the drain and the taxes therefore may not be questioned in any suit at law or equity.

While the Court recognized that Michigan courts have historically been permitted to exercise equitable jurisdiction in drain proceedings, a failure to follow the requirements of Drain Code procedures will not warrant the exercise of equitable jurisdiction unless the failure is so egregious that it implicates constitutional concerns.² The Court determined that the constitutional right to due process of law did not require that any notice be given regarding the meeting of the Board of Determination because such does not pertain to the deprivation of life, liberty or property. Rather, the notice pertained to the propriety of the drain project, which requires that the project be necessary and conducive to public health, convenience or welfare. Property owners are entitled to statutory notice, which was provided, but cannot claim a deprivation of due process rights. Elba Township and the individual property owners were entitled to notice that the subsequent Day of Review concerning apportionment of benefits would be held, and they each received that notice.

The Michigan Supreme Court therefore found in favor of the Gratiot County Drain Commissioner and determined that challenges to drain proceedings must be brought timely, either after the finding of necessity or within the time prescribed in Section 161 of the Drain Code.

The challenges raised in this case did not comply with the Drain Code and were therefore deemed untimely.

¹Equitable jurisdiction differs from legal jurisdiction in that it allows courts to ignore legal precedence or, in some cases, statutory law to arrive at decisions that the court believes is fair or equitable to the parties. However, Michigan courts have long recognized the overriding importance of a stopping-point in drain proceedings and the necessity to follow legal principles and statutory law.

²The Court did not make any determination that the Drain Commissioner failed to follow proper Drain Code procedures.



Serving Municipal Financial Needs
Since 1886



Contact
Karen Scoby
269-795-3338
email:kscoby@hastingscitybank.com
www.hastingscitybank.com
Member FDIC

RESTORING TALMADGE CREEK

■ By Theresa Lark, Editor and Stu Kogge, Cardno JFNew



➤ On July 25, 2010, a 40-foot segment of the Enbridge Energy Partners pipeline ruptured, spilling more than 800,000 gallons of heavy crude oil into the ground and wetlands surrounding Talmadge Creek, a tributary of the Kalamazoo River and designated Calhoun County drain. Alarms sounding in the firm's Edmonton headquarters were initially attributed to a bubble in the pipeline, which employees attempted to clear by increasing pressure. The rupture near Marshall, Michigan went undetected for 18 hours.

Heavy rains in the days prior to the incident caused the creek and Kalamazoo River to overflow its normal banks, pushing water into adjacent floodplains and wetlands. Leaking oil surfaced, flowed through wetlands into Talmadge Creek and into its associated floodplains. The flow of oil then entered the Kalamazoo River, where it also moved both downstream and laterally into the floodplains for approximately another 38 miles. The spill was contained in Morrow Pond three days after the pipe failure, having traveled to within 80 river-miles of Lake Michigan.

The result was the largest on-land oil spill in U.S. history and among the most expensive remediation actions. It was the first spill in the U.S. of heavy crude oil, also known

An aerial view of the spill near Marshall, Michigan.



Mat roads were installed to enable excavation.

as bituminous sands or tar sands. Tar sands must be diluted with chemicals, creating diluted bitumen or dil-bit, to enable the mixture to flow through a pipeline. EPA's assessment posited that, while conventional crude will float on water where it can be skimmed, the dilutant in dil-bit evaporates in open air and the heavy bitumen tends to sink.

The day after the spill was reported, the Environmental Protection Agency (EPA) ordered removal of the contamination and began assessing causes and cleanup measures. The spill response team had to form new remediation strategies. Initial efforts included: hydro-vacuuming, skimming or sponging oil from the water surface, excavating oil-laden soils and removing submerged deposits of oil. Excavated soils were hauled off-site for proper disposal.

Enbridge worked with EPA and the Michigan Department of Environmental Quality (MDEQ) to assemble emergency response teams. Stu Kogge, representative for Cardno JFNew, was among the experts called to the scene. Kogge (senior wetland/aquatic biologist and permit specialist), together with Cardno JFNew colleagues Kelly Rice (project manager) and Brian Majka (senior restoration specialist), met with the Enbridge team at the site, where containment and clean-up activities were already underway.

SAFETY FIRST – ESPECIALLY DURING AN EMERGENCY

“We met, took Enbridge’s safety training, then walked the creek from source to confluence,” Kogge said. “Safety was always the first priority during the clean-up.” After the site tour, Enbridge representatives asked, “how soon can we have a

restoration plan, we need it by midnight tonight.’ We said we would get it done, went back to office and put together the plan. Enbridge liked it and the MDEQ approved it within two days.”

Activities moved with an urgency born of necessity. “They asked us ‘can you do this?’ meaning implementation of the restoration plan. We said ‘yes.’” So began more than two years of recovery efforts. Working among the massive excavating operations to remove oil-soaked soils, Rice listened to Enbridge’s overview and directions, Majka contacted suppliers of restoration materials and Kogge busily documented plant communities and soil types before they were removed.

Safety was always the first priority. “We wore life vests when working near the creek with six inches of water. Within a 500-foot stretch, there could be upwards of 50 people working on either side of the creek, many of them sopping oil with absorbent pads. We had a safety meeting every



“Frac City,” where oil was separated from water and soil to recover some of the oil and to minimize landfill costs.



Upper reaches of creek with mix of higher and lower gradient, wider floodplain.

morning where we were reminded to watch for trips and falls, keep track of people in our groups, and identify muster points in case of emergency or injury. Then...’let’s get it done.’”

BALANCING ACT: ENBRIDGE, EPA, MDEQ, AND THE DRAIN COMMISSIONER

The Cardno JFNew team built their plan around agency and client requirements and, more importantly, around site conditions. Challenges included mucky soils, the presence of groundwater, logistics in working near the bank during ongoing remediation, and the very short lead-time needed to get materials such as coir (coconut fiber) logs to the site.

“Enbridge was a great client,” said Kogge. “They didn’t hide and they didn’t scrimp. They asked us to get it cleaned up right so there would be no problems down the road. They asked, ‘do you need more people, can you get it done faster with two crews? Bring them in.’ It was remarkable, they went to a 24-hour, around-the-clock remediation effort. Lighting was brought in and the entire area illuminated. At one point, Cardno JFNew had 40 staff, from their various Midwest offices, on the ground conducting restoration work.

“There can be many ways to reconstruct wetlands and streams,” said Kogge. “Choosing the methods to use depends on site conditions,

such as soils, vegetative types, and the sources of hydrology feeding the site. MDEQ wanted the creek restored back to its original conditions and, since there were no stones found naturally in the river and stream beds, we did not include them in our design.”

The team also engaged with then-Drain Commissioner Larry Cortright, walking the drain and discussing the clean-up, to verify prior conditions of the creek. “To address the low shear stress on the banks and the mixture of muck and mucky mineral soils that were highly saturated



Crews excavating contaminated soils



Talmadge Creek after soil scrapping was completed. Contaminated soil staging pads visible on the right.

with groundwater and that wouldn't hold a slope, we chose to use coir logs and blankets. Over time, in five to seven years, the coir logs will not be noticeable. They will have broken down and/or grown over with vegetation, leaving a stable bank." In some areas of the creek, less than three years after the incident, the coir logs cannot be seen. "It's just a mass of green wetland vegetation along the creek bank."

Cardno JFNew utilized several standard as well as a few unique restoration techniques to address the high volume of groundwater moving through the wetlands to the creek. Subsurface rock chutes, layering of various textured soils, and various erosion and sedimentation control materials were all used to control groundwater and maintain prior wetland hydrologic regimes. Team members installed underground rock vanes perpendicular to the stream to divert groundwater into the creek channel, allowing them to work in the newly placed organic soils, seeding and blanketing before they swelled with groundwater saturating the soils. "Otherwise, water would move in sheet flows through the soils," said Kogge. MDEQ representatives were concerned that the vanes would continue to direct flows and drain the wetlands. "We were confident that soils and root masses would naturally fill in over the rock vanes. Today, in most locations, the vanes are unnoticeable."

Because organic material builds over time, the wetlands along Talmadge Creek were elevated above the creek. "We had concerns that, if we stacked coir logs two feet high or more, we may lose some hydraulic connection with the creek for biota, so MDEQ granted the ability to rebuild ground contours of the wetlands and floodplains to within six inches of their previous elevations. The six-inch variance was also needed to help account for settling and swelling of the soils. By lowering the floodplain and wetland elevations, we increased flood water storage."

The restoration team also employed a technique they called "Creek in a Bag." The bag or tube was used to divert flow around the work area. "This innovation could definitely be used in a non-



BRIDGE & SUPPLY CO.

CORRUGATED STEEL PIPE

WATERMAN GATES

GEOTEXTILE FABRICS

SANDUSKY

400 Stoney Creek Drive

Sandusky MI 48471

810-648-3000

Fax: 810-648-3549

GRAND RAPIDS

3520 36th Street, S.E.

Grand Rapids MI 49512

616-940-2660

Fax: 616-940-0169

emergency situation when we want to work in the dry. It's an option in our tool box that we were able to use quite effectively in this emergency situation."

AS LONG AS WE'RE HERE...

Enbridge demonstrated a desire to both work quickly and get the job done right. Kogge suggested "as long as we're in here, let's put in wildlife and aquatic habitat structures." Enbridge was open to the structure and also routinely uses Best Management Practices (BMPs) that would improve on the site's original condition. MDEQ liked the suggestions and agents were pleased that the structures and BMPs went in at the front end rather than returning to do it later.

Remediation efforts required the removal of soils from a few inches up to 3 feet in depth. "When surface soils were removed, they also included the seed bed. In so doing, invasive species such as reed canary and purple loosestrife were also removed. These happened to be a dominant species in many reaches of the creek and river system where remediation and restoration efforts were required. We then back-filled the excavated areas with organic muck soils that were free of invasive species." The team searched for and found the right soil profiles in Jackson. Using native seed mixes from Cardno JFNew increased the short-term bank stability and long-term floristic and ecological values of the sites. "We added diversity of plant species, which leads to more diversity of insects and wildlife, as they now have more choices for food. The restored site is now a more species-rich area."

ROUND TWO

The team actually restored Talmadge Creek twice. "In 2010, we focused on meeting the EPA order and their directives which restricted Enbridge (and us) from removing and replacing soils immediately along the creek and the soils beneath the creek bed. We cleaned up the oil and restored behind the creek bed and stabilized creek banks atop the areas we couldn't impact. In 2011, the agencies determined there was too much oil in the sub-soils of these banks and the creek bottom. We then reconstructed all of the creek banks, approximately 4.4 linear miles, and reconstructed a new creek channel (approximately 2.2 linear miles) by pumping creek flows around the channel, excavating out all of the oil-laden or sheen producing soils, and replacing all of the excavated soils with



Talmadge Creek after soil scraping was completed. Contaminated soil staging pads visible on the right.



Inverted weir installed on Talmadge Creek

proper soils and/or substrates." This work was done in "the dry." Mat roads were installed for equipment to drive on. The team installed clean gravel and sand substrates of various mixtures, depending on the slopes and locations within the creek. The banks were again reinforced with coir logs, and back-filled with organic muck or loamy materials, depending on the location within the creek.

The silver lining: they created rock ramps up to perched culverts. The water levels remained the same but the ramps allowed fish passage through the culvert. Kogge remarked that the effort was "personally satisfying, we made some ecological enhancements. We talked to people

Count on Us. Count on More.

Drain Law
Real Estate
Construction

Public Finance
Eminent Domain
Environmental

JAMES M. CROWLEY
DOUGLAS R. KELLY
RONALD A. KING
KENNETH P. LANE

KRISTEN POLANSKI
MATTHEW T. SMITH
SCOTT G. SMITH
ROGER A. SWETS

800.949.3124 | clarkhill.com

CLARK HILL



Coir (coconut fiber) logs and mats were used to stabilize creek banks

who said they loved to fish the river but it was hard to access. Enbridge removed a lot of woody debris so that they could access and clean up the river. This opened access to improve human use of the resource. Over the years, Cardno JFNew has been putting large woody debris back into the river for bank stabilization and for fish and wildlife habitat. Following remediation, we restored with a diversity of native plantings equal to or better than what we found. This is to Enbridge’s credit; they agreed it was the right thing to do. No one wanted (the spill) to happen but there is no doubt the site was left better than it was before.”

TO BE CONTINUED...

MDEQ uses Procedure 51 - Great Lakes Environmental Surface Water Assessment to determine water quality based on aquatic insects and fish. Kogge explains, “different assemblages of each tell about the water quality. The 2012 assessment reported well, showing good diversity. There are sites along the Kalamazoo



Rock ramps were constructed to allow fish passage – an improvement on previously-existing conditions.

River now where there is no clue that excavators were there.”

Enbridge has spent almost one billion dollars in a cleanup effort that included improvements such as habitat structures, invasive species removal, improved fish passage and increased species diversity. The firm completed an approved restoration plan, including plantings. On March 14, 2013, the EPA issued its final order to Enbridge, in which they directed additional cleanup. Enbridge is currently in negotiations with the Agency to assure that any further action will bring this regrettable event to a close.

Of the Cardno JFNew team that devoted nearly two years to restoration, Kogge says, “We put our ‘A-team’ out there and, at times, you couldn’t help but get fanatical about the good things we were doing to right an unfortunate event. In one stretch, I worked 22 days in a row averaging over 100 hours a week. We will find a way to get it done. In five to ten years, there will be no evidence of the spill,” Kogge predicts.



- Concrete Box Culverts
- Concrete Sumps/Inlets/Gateways
- PVC and ABS Truss Pipe and Fittings
- Manhole Block/Brick/Adjustment Rings
- Manhole Rehabilitation Products
- Steel Culvert/N-12 HDPE Pipe
- Clay Pipe and Fittings/Inserta Tees
- Concrete Pipe/Manholes/Catchbasins
- Pre-cast Concrete Junction Chambers
- Fernco 4"-24"/Connection Saddles
- Manhole Steps/Connection Boots
- Wrapit Seal/Preco Plug/Butyl Rope
- SCH 40/SDR 35/SDR 26 Sewer Pipe
- Copper Water Pipe and Fittings

Co-Pipe Products, Inc.
20501 Goddard Road, Taylor, MI 48180
Phone: (800) 521-3514 • Phone: (734) 287-1000 • Fax (734) 287-8132
Hours: Monday-Friday 7am-5pm; Saturday 8am-12pm
www.copipe.com



202 Morrell St.
Charlotte, MI 48813
(517) 543-3430
(800) 527-4604

PRODUCTS WITH PRIDE

- Corrugated Steel Pipe
- Storm-water Detention Structures
- Culvert Liners
- CSP Fabrications
- Custom Window Wells
- Campfire Rings
- Aluminum & Steel Structural Plate
- Aluminum & Steel Box Culverts
- Erosion Control Fabric
- Guard Rail
- Snow Plow & Grader Blades



Wetland after restoration.

Native plants along a portion of the project area.

www.MannikSmithGroup.com



**TECHNICAL SKILL.
CREATIVE SPIRIT.**

**County Drain Rehabilitation
Drainage & Hydrology
Civil / Structural Engineering
Environmental Engineering
Geotechnical Engineering
Planning / Landscape Architecture
Construction Support
Surveying**

Monroe	Canton	
734.289.2200	734.397.3100	
Detroit	Lansing	Traverse City
313.961.9500	517.316.9232	231.929.7330

Over 55 Years of Engineering Excellence!

DAM IMPROVEMENTS ALGONQUIN

■ By Pete Buurstra, P.E., Land and Resource Engineering, Inc.

Algonquin Lake is an all-sports, private lake located in Rutland Township, Barry County, Michigan. The Algonquin Lake Dam is regulated under Part 307, Inland Lake Levels, and Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and has been given the Hazard Potential Classification of “significant.” The dam is maintained and operated by the Algonquin Lake Community Association (ALCA) under direction from the Barry County Drain Commissioner. Comments and observations included in recent dam inspection reports prompted the Barry County Drain Commissioner to take action to correct failing dam components.

HISTORY

The Algonquin Lake Dam (dam) was originally constructed in 1926. The dam is an earthen embankment with a concrete control structure, approximately six to ten feet higher than W. State Road, which parallels the dam on the west side and serves as the primary thoroughfare between Hastings and Middleville. In 1978, discharge flow controls were added to the dam outlet structure to provide additional lake-level control. These flow controls consisted of a 3’8” wide weir with three stop logs stacked vertically and a 36” diameter slide gate at the dam base. Discharge from both controls was routed through a 36” diameter corrugated metal pipe (cmp) to a concrete box culvert under W. State Road, outletting to Kurtz Creek.

In June of 1996, the outlet pipe from the control structure failed and major improvements to the correct the failure were completed. These improvements included the addition of two (2) 40-foot stationary weirs with plain riprap spillways, replacement of the failed 36” cmp with a 36” polyethylene pipe, and the addition of an inlet

structure adjacent to W. State Road. The fixed weirs were designed to pass a 200-year rain event and are set at the court-ordered summer lake level. When the lake elevation begins to rise above the summer normal elevation, water spills over the weirs and is routed to the inlet structure through riprap spillways. The inlet structure collects the water and directs it to the concrete box culvert under W. State Road.

INSPECTION REVEALS PREVIOUSLY UNIDENTIFIED DEFICIENCIES

In December 2011, improvements were made to the outlet control structure to avoid failure of a support wall for the weir. If the support wall had failed, it would have been impossible to bring the lake up to the normal summer elevation. During the repair work, an inspection of the downstream box culvert revealed several major structural deficiencies. The Road Commission was immediately brought in to assess the condition and determined that the culvert was in urgent need of replacement.

Local MDEQ Land and Water Management Division staff visited the site to determine if a permit could be approved under emergency conditions. After an on-site structural analysis, MDEQ staff waived the public noticing period and granted an expedited permit for emergency conditions. Without an emergency permit, the culvert replacement would have been delayed until after the fall draw down because the culvert is key to maintaining the summer lake level.

STATE POLICE UNDERWATER RECOVERY UNIT AIDS STRUCTURAL ASSESSMENT

Preliminary scope of work was developed based on Dam Safety inspection reports. A more thorough investigation to determine the structural condition of the submerged portions was also

S BENEFIT N LAKE



Pouring the outlet control structure's floor in dewatered pit.

needed. The Michigan State Police Underwater Recovery Unit was contacted to observe and record the structure below the water level.

The Unit is made up of troopers and sergeants trained and certified as divers and dive masters. They are equipped with the latest diving and recording equipment, as well as underwater communication, GPS devices and navigation equipment. With their expertise and equipment, the existing structure was inspected from underwater to identify failing portions of the dam that otherwise could not be inspected without a lake drawdown. Their inspection allowed for the planning of items that, had they been identified post-bid, would likely have resulted in costly

change orders. It also provided hard evidence for ALCA as to the severity of the structural deficiencies of the outlet control structure.

COMMUNITY INVOLVEMENT GUIDES DESIGN

Throughout the design process, Land and Resource Engineering (LRE) and the Barry County Drain Commissioner, Russ Yarger (BCDC) held monthly meetings with the Algonquin Lake Community Association (ALCA) Board and Algonquin Lake Park and Dam Committee. They also met quarterly with the general membership of ALCA. Collaboration with ALCA members was integral to project design. Meeting discussion focused on how the dam operates, the



The Michigan State Police Underwater Recovery Unit provided video recordings of the submerged portions of the dam to assist in finalizing the scope of improvements.

maintenance involved, what has worked well and what needs to be improved. After each meeting, we walked away with a better understanding of the expectations for this project, beyond the necessary improvements to simply repair and replace failing components. Lake residents identified the following objectives:

GREATER LAKE LEVEL CONTROL

Historically, adjustable weirs with wooden stop logs (boards) were used to raise and lower the lake level. Flow control was limited because the weir height could only be adjusted by increments equal to the height of individual boards. Over time, these boards became warped, causing them to seep and become difficult to operate. The improved lake level control weir consists of a stainless steel plate that can be raised to allow water to flow under the bottom of the plate. The benefits of this design are ease of operation, greater flow control and life expectancy.

EASE OF OPERATION

The dam's operator, Mr. Don Montgomery is a retired school teacher who is approaching 80 years of age. As such, ease of operation was one of the primary objectives when designing the control structure. Due to the struggles with the previous stop logs, a more structurally sound weir plate was desired so long as it was easy to operate. A mechanic's chain hoist was

utilized as the mechanism to operate the weir plate. The chain hoist has a 2,200 pound lifting capacity that can be operated by applying approximately 20 pounds of pressure to lift the stainless steel weir plate.

MAINTAIN COURT ORDERED LAKE ELEVATIONS

In an effort to minimize the negative impacts experienced during prior construction projects that utilized a lake draw down, ALCA and Drain Commissioner Yarger mandated that the court ordered lake level be maintained through the course of construction. The stationary weirs provided adequate capacity to accommodate the required emergency flow. The lake level control structure was isolated with steel sheet piling to establish a dry construction area.

COST EFFECTIVENESS

The BCDC was able to help control the cost of construction by coordinating with the Barry County Road Commission (BCRC) to assist with the improvements made within the West State Road right of way. These improvements included the removal and replacement of the box culvert between the inlet structure and the edge of pavement. West State Road is one of a few Class A roads between the City of Hastings and the Village of Middleville and experiences heavy traffic volumes. The BCRC agreed that

there were significant structural defects, to the point that it threatened the public health, safety and welfare. The deficiencies were significant enough to warrant the diversion of funds from scheduled projects to assist in this replacement. With the Road Commission's contribution, the project cost to ALCA was reduced by \$30,000.

The overall project cost was approximately \$400,000. However, due to the expediency at which the BCDC, ALCA and the team members acted, a failure was avoided. Had the structure failed, West State Road would have been compromised, there would be significant damage to downstream properties, public safety would have been threatened, and impacts on lake ecology would have been severe. The cost impacts of a failure would have significantly outweighed this project's cost.

FINAL SCOPE OF IMPROVEMENTS

From an operations standpoint, the improved structure matches the former with a few exceptions.

1. The existing outlet control structure was designed with two 3'-8" weirs and wood stop logs. The improved structure utilizes a single 7'-6" weir with a 1" thick stainless steel plate. This will extend the life of the controls and eliminate leaking around and through warped boards. It also eliminates the swelling of wood boards making operation difficult. The weir plate is raised and lowered using a chain hoist to simplify operation.
2. The existing outlet control structure was designed with a 6" outlet orifice to maintain flow to downstream riparian lands. Since 2006, the orifice has been plugged and downstream riparian flow was achieved through groundwater flow. With the improved structure, additional flow will be accomplished when requested, such as in times of drought, by partially raising the weir plate or slide gate.
3. The existing outlet control structure was designed with a slide gate at the base of the structure that is used to draw-down (lower) the lake level. The old slide gate was found to be inoperable during inspection. A new stainless steel slide gate will extend the useful life of the control structure.
4. A new and larger shed was constructed over the control structure, providing room to maneuver and operate the controls.



progressive|ae
The Leader in Lake Management

Experience is the Difference

1811 4 Mile Road, NE | Grand Rapids, MI 49525-2442
tel.: 800-556-5560 | fax: 616-361-1493
www.progressiveae.com | www.michiganlakeinfo.com



The failing and undersized portions of the box culvert under W. State Road were replaced to provide a hydraulically uniform outlet to Kurtz Creek.

5. The failing plastic outlet pipe was removed and replaced with a reinforced concrete pipe to add structural integrity.
6. Failing and undersized portions of the box culvert under West State Road were replaced to provide structural integrity and a hydraulically consistent outlet.

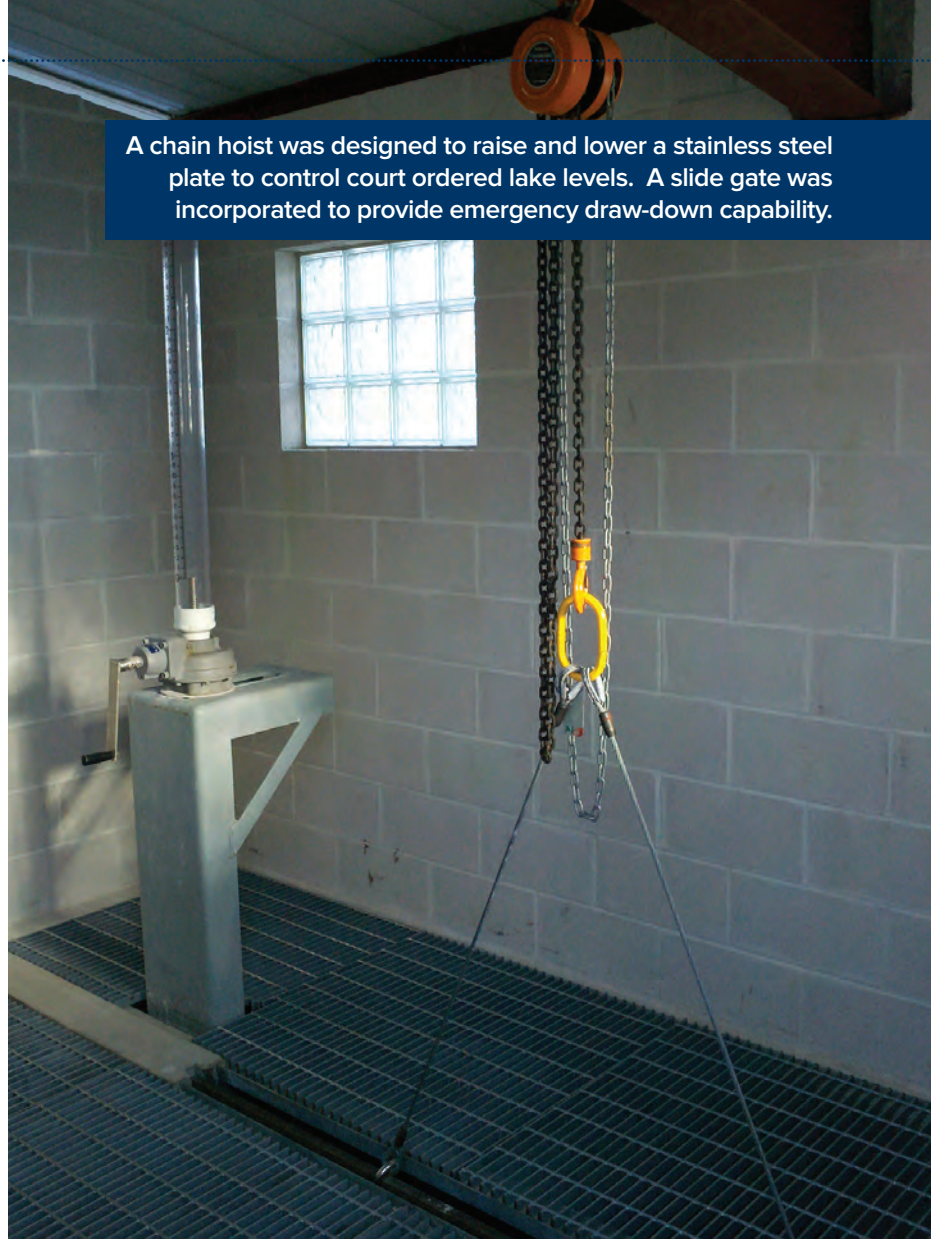
CONSTRUCTION AND SCHEDULE COMPLICATIONS

Since much of the dam structure was in good condition (earthen embankment, fixed weirs, riprap spillways, etc.), ALCA and the BCDC believed it would be prudent to limit reconstruction to failing items, such as the outlet control structure, outlet pipe and box culvert. Constructing improvements while maintaining much of the existing structure added complexity.

To comply with the Court-Ordered summer lake level, project activities were on a tight schedule. When the box culvert's structural deficiencies were identified late in the design process, the team pursued emergency approval of the Part 301 portion of the permit. This required a significant amount of coordination with MDEQ staff in both Dam Safety and Inland Lakes and Streams. The contractor had just four days to remove and replace the box culvert. The construction schedule was further limited by MDEQ-imposed scheduling constraints on certain construction activities to avoid impacts on fish spawning.

ONGOING COMMUNITY INVOLVEMENT

Throughout the process, LRE and the BCDC continued provide updates on construction activities, challenges faced and proposed solutions at ALCA's monthly meetings. Each meeting ended



A chain hoist was designed to raise and lower a stainless steel plate to control court ordered lake levels. A slide gate was incorporated to provide emergency draw-down capability.

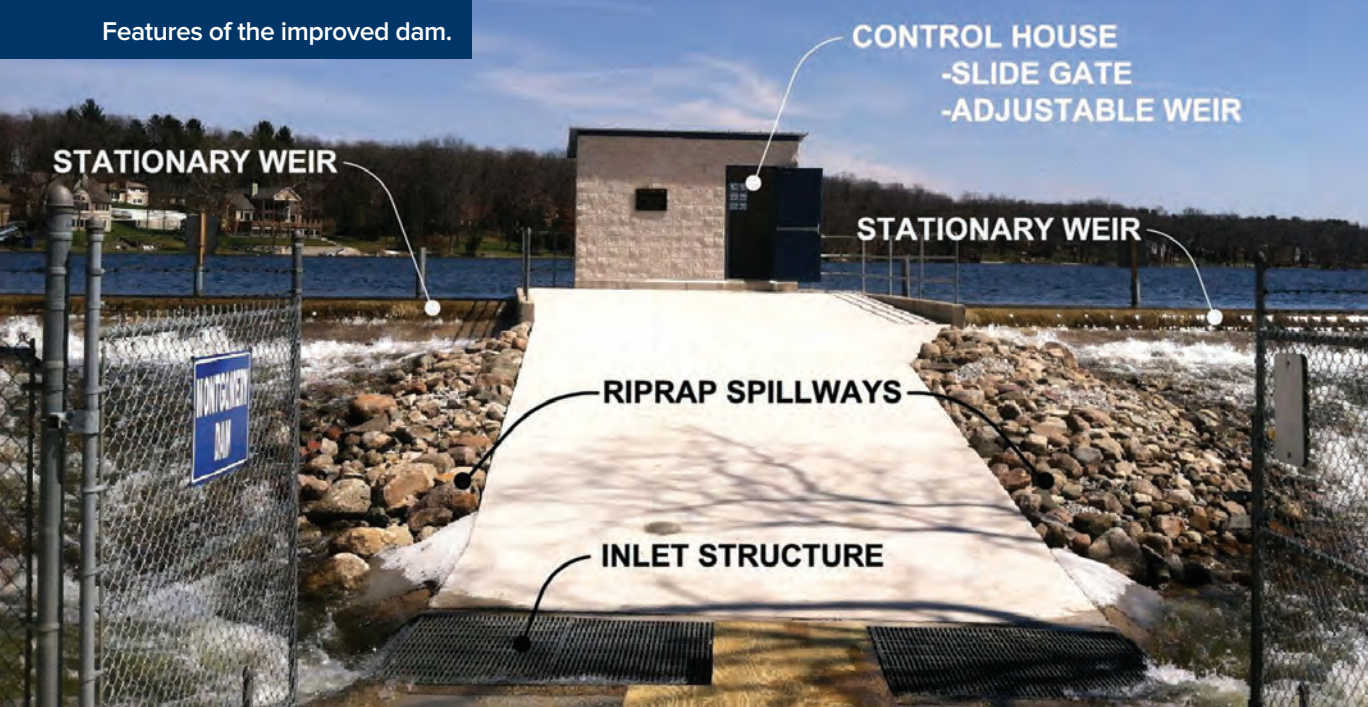
with a question-and-answer session and feedback from ALCA members that either supported or altered the construction process.

Weekly site meetings with select ALCA Board members, the BCDC, the contractor and design professionals were also held to address construction progress, upcoming schedules and any comments or concerns from the Board and/or the general membership. At the completion of the project, LRE and Drain Commissioner Yarger met with ALCA members to tour the project and review the Operations and Maintenance manual that was prepared for the Dam Operator, Mr. Don Montgomery. The dam's components were operated to demonstrate the measures necessary to adjust and maintain the lake level and to respond to emergency situations, should a complete drawdown be necessary.

The importance of the collaboration with ALCA, BCDC, the contractor and design professionals is best summed up by Tammy Berdecia, the Barry County Deputy Drain Commissioner. "While there were challenges presented during this



Features of the improved dam.



project, constant partnership with Land & Resource Engineering and Cordes Trenching was essential and the reason for the success of the Algonquin Lake Dam Project. Professional and personal relationships were key to the continued support of the community and collaboration with lake residents.”

SUMMARY

The Algonquin Lake Dam Improvement project successfully met the objectives laid out by ALCA and Drain Commissioner Yarger. It promoted ease of operation, added flow control and increased the longevity to the existing dam. The success of this project was due to the continual coordination and collaboration with Drain Commissioner Yarger, ALCA, BCRC and the MDEQ. The efforts of these team members helped to ensure that residents of Algonquin Lake no longer have to worry about failing components of their dam. The system was certainly tested this spring,

following seven inches of rain over a seven day period. The structure was able to safely pass the storm water without any damage to lakefront or downstream riparian properties.



Pete Buurstra, P.E., of Land and Resource Engineering, Inc., with Tammy Berdecia, Barry County Deputy Drain Commissioner

GOING **green**

will keep you in the **black**

SAVING MONEY in today's challenging development environment is what Triton Stormwater Solutions is all about.

From shipping to site preparation, to installation and maintenance, Triton's unique underground chamber design saves time and money. Lighter, stronger and easier to work with, Triton is the most cost-effective stormwater solution available.

Going green means savings you can bank on!

Learn how Triton Stormwater Solutions cost-efficient chambers can make a difference on your next project at www.tritonsws.com.



LIFETIME SYSTEM WARRANTY



810-222-7652 | tritonsws.com



**Power
over Water™**

balance between
nature and design

- Geomorphic drain assessments
- Hydrologic and hydraulic modeling
- Natural channel design
- Drain restoration and stabilization
- Water resource management
- Drainage design and flood controls
- GIS mapping and stormwater asset management
- Site development guidelines and plan review



Fishbeck, Thompson, Carr & Huber, Inc.
engineers | scientists | architects | constructors

Follow us on:
[f](#) [in](#) [t](#)

www.ftch.com
1.800.456.3824

NORTHERN



Stacy Hissong of Fahey Schultz Burzych & Rhodes PLC discusses pending legislation.

The Northern District met on Wednesday, April 25, 2013. The meeting was hosted by Wade-Trim and held in their Gaylord offices. The event was well-attended, as Northern District Chair Cameron Cavitt (Cheboygan county) asked Drain Commissioners who planned to attend to bring another representative from their county with them. The purpose was to help educate other officials up north on the responsibilities of the Drain Commissioner's office. Those who tagged along were County Road Commissioners, County Commissioners, Soil Erosion Officers, a County Harbor Master and a Township official. Also in attendance were representatives from various state agencies and industry professionals.

Cavitt opened the meeting, commenting on the diversity of those in attendance and noting that this meeting was a first for the Northern District in many years. Stacy Hissong from Fahey, Shultz, Burzych, Rhodes, PLC provided a legislative



Jennifer Jermalowicz Jones talks about lake improvement projects.



Jason Kenyon leads a discussion on soil erosion and sedimentation control.

update. A question and answer session followed, with panelist Jennifer Jermalowicz – Jones, Restorative Lake Services, LLC, Stacy Hissong, Fahey, Schultz, Burzych, Rhodes, PLC and Jason Kenyon Wade-Trim, Inc. The topics presented and discussed were: Inland Lake Levels, Inland Lake Improvements, Dams, and Soil Erosion/Sedimentation Control. Though many northern counties do not have established Drainage Districts, most administer lake levels and sit on lake improvement boards. These presentations were well received. Many of the Drain Commissioners in attendance commented on the knowledge and professionalism of the speakers.

Word is out in the north country that the MACDC is becoming active, providing its membership with professional development opportunities and continuing education allowing us to better serve our constituents. The next Northern District meeting is at the summer convention and a fall meeting is being planned.

NORTHEAST

“Life will be different beginning January 20, 2014,” Stacy Hissong, MACDC Corporate Counsel, reported in her legislative update, in reference to the imminent passage of Senate Bill 163, a measure to bring Michigan’s administration of federal Clean Water Act (CWA) provisions into compliance with EPA standards. Issues of primary importance to Drain Commissioners involve certain exemptions provided by the Drain Code that will be modified by SB 163. Beginning in 2014, every Drain Office will have to apply for a general permit that will cover activities such as replacing culverts and minor drain realignments. More extensive changes



Northeast District attendees view improvements to the Gilkey Creek Drain.

(deepening, widening, straightening, adding branches) will require individual permits.

As a condition under the general permit, Drain Offices will be required to check for impact to Threatened and Endangered (T&E) species. Hissong anticipates that Drain Offices would use the Michigan Natural Features Inventory (MNFI) for a preliminary search; additional confirmations from a consultant would be needed only if the MNFI indicates that a T&E species is likely to exist in the project area.

A further condition is the testing of sediments for contaminants. This facet has the potential to add significant costs to Drainage Districts for removal and disposal of excavated spoils. Ron Hansen, P.E., of Spicer Group suggested that Drain Commissioners obtain restrictive covenants from landowners that would allow the contaminated spoils to remain onsite. Hansen is part of MACDC’s team negotiating revisions to Part 301 (Inland Lakes and Streams) and Part 303 (Wetlands Protection.) The team is headed by Tuscola County Drain Commissioner Bob Mantey and very ably assisted by Corporate Counsel Stacy Hissong and MACDC’s lobbyist, Deena Bosworth (Michigan Association of Counties.)

The 301/303 Committee worked hard to maintain as much flexibility as possible, so that Drain Commissioners can continue to respond to the



Genesee County Drain Commissioner Jeff Wright with project engineer Ron Hansen, P.E.

emerging and urgent needs of their constituents. Bill Sponsor Senator Mike Green (R – Mayville) has been open to incorporating provisions that would address the concerns of agriculture, as represented by Farm Bureau and MACDC. Hissong said that the Association would likely hold training sessions in the autumn of 2013 to discuss the final rules resulting from these revisions.

Also of interest to Drain and Water Resources Commissioners is House Bill 4622, introduced by Representative Al Pscholka (R – Stevensville), that would allow the revision of Drainage District boundaries without reconvening the Board of Determination. A licensed professional engineer would have to recommend new District boundaries. Following a period for public review and comment, the new boundaries could be adopted.

Genesee County Drain Commissioner Jeff Wright and consulting engineer Ron Hansen discussed details of the Gilkey Creek drain project. Gilkey Creek is a man-made open channel, historically used for agriculture drainage. More recently, land use has shifted to residential and commercial development, with the typical intensification of storm water flows resulting from the increase in impervious surfaces.

Residents and business owners in the Drainage District were subjected to frequent flooding and resulting property damage – so much so that some were considering relocation. Mott Community College’s parking garage was seven to eight feet under water in one incident, and the estate of General Motors founder C.S. Mott was likewise frequently inundated. Hansen noted that, though the residential area was not designated as a

floodplain by FEMA, their survey information and modeling indicated that much of the District was, in fact, in the 100-year floodplain.

In 2004, residents filed their first petition to request action from the Drain Commissioner to alleviate the flooding. “The project moved forward during the real estate bust, allowing us to acquire a 100-acre site for less than \$200,000 where we could build a regional detention basin,” Wright said. A local advocacy group, The Friends of Gilkey Creek, wanted a project that would create natural areas along the drain. Wright delayed the project while seeking grants to accommodate their request but funding was not forthcoming. “That sort of project would have added \$25 - \$30 million to a project budgeted to spend \$2.5 million. We all want to address environmental considerations and we all benefit from improved water quality. The small population in this Drainage District simply could not bear the increased taxation,” said Wright. The detention basin as constructed does provide habitat and has become “nicely naturalized.” The Drain Office will work with nearby City of Burton to incorporate bike paths on the site.



A tour of the Union Township Water Treatment Facility.

Mantey asked if the approach to the project would have to be changed if performed after the changes proposed by SB 163. Genesee County Deputy Drain Commissioner Jim Gerth said most of the activity would remain exempt, as they didn’t deepen or widen the drain and didn’t excavate in wetlands. Hissong noted that sediment testing and T&E assessments are not required for exempt activities (i.e., maintenance.)

NORTHWEST

Members heard the legislative update regarding potential changes to Parts 301 & 303 (see notes on Northeast.) The use of riprap to create sustainable channels remains an issue, according



ADS specializes in custom fit materials.

to MACDC President Doug Enos, as the EPA seems determined to class riprap as fill, even if the channel is excavated to accommodate the material. MACDC will continue to advocate for agreeable solutions.

Hissong discussed the recent Michigan Supreme Court Ruling on the Elba Township v. Gratiot County Drain Commissioner case. The Court ruled in favor of the Drain Commissioner. See the article in this issue, “Michigan Supreme Court Sets Bright Line Rule for §161 Review and Challenges to Drain Projects.”

SOUTHWEST

District Chair Joe Parman welcomed attendees to the meeting and subsequent tour of the ADS (Advanced Drainage Systems) facility tour in Findlay, Ohio. The Findlay plant operates continuously, 24 hours a day, seven days a week. It houses much of the firm’s Research and Development activities, including the formulation and testing of recycled materials. Quality Assurance Manager Dave Gonso discussed the many “recipes” devised to achieve the correct melt point and density for use in ADS’ HDPE pipe. Materials are tested regularly and throughout the day. Each section of pipe is date-coded to enable assessment and tracing. The useful life for properly-installed HDPE pipe is 50-100 years.



ADS manufactures the Nyloplast product line.



Southwest District hosted by the ADS team at their Findlay, Ohio facility.

Plant Manager Steve Farrow and Fabrication Supervisor Randy Weyant led the group through the production facility. Attendees observed precision cutting and crown/valley joining to create site-specific custom piping and fittings. On the day of our visit, the plant was manufacturing 60" pipe and fittings to be used on a project for a Livonia, Michigan school. The Findlay facility uses 50 million pounds of virgin and recycled materials each year. While some projects welcome recycled materials, particularly

those seeking LEED certification, others specify the use of all-new materials. When asked about the relative benefits of each, Farrow said they can mix recycled materials to out-perform virgin, if desired.

ADS has expanded through various acquisitions and mergers, incorporating Hancor and Nyloplast into its core operations. "We're always looking for ways to move the bar and achieve more," said Farrow. ADS is nearing its 50th anniversary.

Drainage basin studies | Master drainage plans | Storm sewer design | Open drainage systems | Pumping stations
 Detention/retention basins | Dams and protective dikes | Storm water permit/compliance | Storm water utilities



WADETRIM

Engineering | Landscape Architecture | Operations
 Planning | Sciences | Surveying

800.482.2864 | www.wadetrim.com

IT'S MORE THAN JUST THE LAW.



Let Us Put Our Statewide Resources to Work for You

**MILLER
CANFIELD**

millercanfield.com/PublicLaw

Miller Canfield attorneys offer bond counsel and specialized legal services to drain commissioners throughout the state for municipal bonds, government and regulatory affairs, brownfield and environmental response projects, tax assessment defense, and advice on specific issues.

For more information please contact Dave Massaron at 313.496.7523.

DETROIT • ANN ARBOR • TROY • LANSING • KALAMAZOO • GRAND RAPIDS • CHICAGO

Michigan Association of County Drain Commissioners 2014 Awards Program • Official Entry Form

Applications must be received by 5:00 p.m., November 1, 2013

Information supplied on this form will be used to print awards and/or certificates. Please type or print the project name and the names of firms EXACTLY as they should appear on the award.

Award Winners must supply project abstract and photos electronically so that they can be posted on the MACDC website (www.macdc.net.)

Note: Engineers, Contractors, Suppliers, or Consultants must be MACDC Members or Associate Members to be listed on the award.

Project Name:

(please do not exceed 45 characters)

Submitted by:

Applicant's Name

Street Address

City/State/Zip

Telephone _____

Fax _____

E-mail _____

Engineers(s) (if any)

Contractor(s) (if any)

Supplier(s) (if any)

Other Firms or Individuals

Drain Commissioner's Approval

I approve this submission to MACDC's 2014 Awards Program. The project was completed under my authority or through the authority of a Board of which I am a member. To my knowledge, this entry meets all program requirements.

Name _____

Office _____

Signature _____

Please submit a separate application for each entry. The \$50 entry fee must accompany each application.

Make checks payable to:

Michigan Association of County Drain Commissioners

See reverse side of this form for further details.

MACDC 2014 Awards Program Rules and Procedures

Purpose and Goals

This Awards Program aims to:

- ♦ Recognize creative and innovative accomplishments of Members and Associate Members of the Michigan Association of County Drain Commissioners (MACDC).
- ♦ Promote public awareness of the activities and contributions of MACDC, its Members and Associate Members.

Eligibility

Any MACDC Member or Associate Member may enter this Awards Program. Drain Commissioner(s) and/or Associate Member(s) may submit projects jointly or separately. Associate Members submitting separately must obtain the signature of the Drain Commissioner of record on their Entry Form.

Award Categories

MACDC's panel of judges will review submittals. Two projects will receive an *Innovation and Excellence* award. MACDC will provide one award for each winning project; recipients may purchase additional copies of the award.

MACDC may also award Honorable Mention certificates to a maximum of two projects.

Schedule

Application Packets Due: 5:00 p.m. on November 1, 2013

Notification of Winners: on or before January 3, 2014

Awards Presentation: Wednesday, February 12, 2014

General Criteria

1. All entries must be submitted in accordance with the rules outlined in this document.
2. The project must have been conducted under the direct authority of the Drain Commissioner or through a Board of which the Drain Commissioner is a member.
3. A Member or Associate Member may enter as many qualified projects as they wish.
4. Projects that have received awards from other organizations may be entered.
5. Projects must have been completed and in use between April 1, 2011 and December 31, 2013.
6. Entries must comply with Submission Guidelines section of this document. Failure to comply may disqualify an entry. Please read the Guidelines thoroughly.
7. MACDC Awards Committee reserves the right to determine entry eligibility.
8. MACDC Awards Committee determines the Award Category based on submitted information.

Fees

An entry fee of \$50 is required with each submission, and is used to defer program expenses. Make checks payable to: **Michigan Association of County Drain Commissioners.**

Judges and Judging Criteria

A panel of three qualified judges will evaluate entries based on the work completed by the entering organization(s). Finalists and winners are selected based on overall project excellence. Judges will evaluate and compare projects based on the following Judging Criteria:

1. Public involvement and education
2. Environmental and water quality benefits
3. Use of new materials
4. Use of new technologies
5. Innovation
6. Complexity
7. Cost effectiveness

Note: Projects need not contain all seven of the above criteria.

Submission Guidelines

Each entry must include:

1. Completed Official Entry Form; forms must be signed by the Drain Commissioner with jurisdiction over the project.
2. A brief narrative describing the project as it relates to the Judging Criteria previously listed. The narrative should not exceed five pages. Submit at least 3 photographs; additional photographs and other relevant material may also be submitted. The complete application packet must not exceed ten pages. Application packets should be bound or stapled – please do not use three-ring binders.
3. One original and three copies of all materials.
4. \$50 Entry Fee (Checks payable to Michigan Association of County Drain Commissioners)

Due Date: Received by 5:00 p.m., November 1, 2013

Mail Application Packets along with Entry Form to:

MACDC Awards Committee
120 N. Washington Sq., Suite 110A
Lansing, MI 48933

Public Relations

Winning Projects are honored at MACDC's Winter Conference, and are featured in Pipeline Magazine. The Awards Committee will issue a press release to publicize the Awards Program and award-winning projects. Project descriptions will be posted on the MACDC Website (www.macdc.net.)

Special Requirements

All entries will be recognized at the Winter Conference. MACDC will host a display area. All applicants, regardless of whether they receive an award, may present graphic panels for their projects. Applicants provide a 32" x 40" board (standard crescent matte board) mounted on foam core. The panel should include text such as the Project Title, Drain Commissioner's Name, and a brief list of project highlights. Type size no smaller than 18 point is recommended. Photos, other graphics, and captions that illustrate project features should also be incorporated. The finished graphic panel should "tell a story" about the project. MACDC's Awards Committee recommends simple, inexpensive production for these panels.

Award Winners will be invited to make brief slide presentations highlighting their projects at a conference session on Wednesday, February 12, 2014. Further information will be provided with the notification of award (on or before January 3rd.) Due to time constraints, slide presentations cannot be made for projects receiving Honorable Mention.

Questions? Contacts:

Coreen Strzalka, P.E., Awards Program Chair, at
517.373.3397 (email: strzalkac@michigan.gov)

Larry Protasiewicz, P.E., Spicer Group Inc., 989.224.2355

ECT

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



Great Lakes Offices:

**Ann Arbor, Benton Harbor, Clinton Twp.,
Detroit, Lansing, and Traverse City - Michigan
Chicago - Illinois and Iowa City - Iowa**

(734) 769-3004 - Phone
(734) 769-3164 - Fax
www.ectinc.com



Applied Science, Inc.
Consulting Engineers Since 1984

www.asi-detroit.com

**Watershed Management
Stream/Lake
Restoration
Hydrologic/Hydraulic
Modeling
Small Dam Design**



300 River Place, Ste 5400 Detroit, MI 48207 Phone: 313.567.3990 FAX: 313.567.3750



Grand Haven, Ann Arbor,
& Lansing

616.847.1680

www.cardnojfnew.com

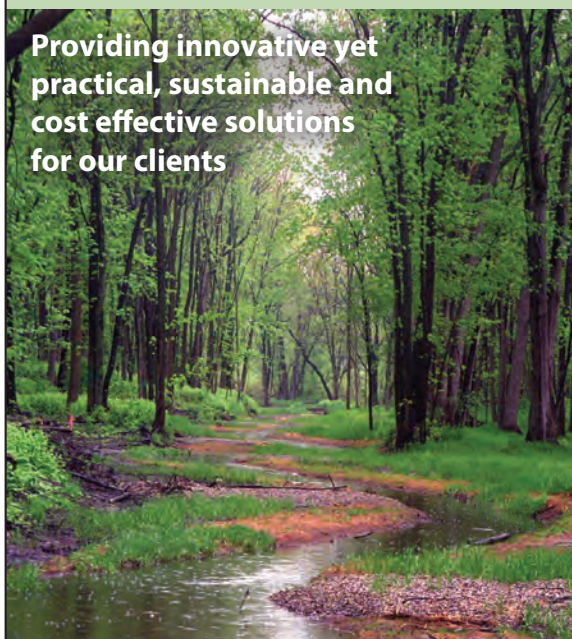
Clients turn to **Cardno JFNew**
for help navigating complex
ecological challenges because
of our integrity, responsiveness,
and reputation for providing
innovative and successful
solutions.

**Ecological assessment
Restoration planning & design
Environmental permitting
Erosion & sediment control
Native plant & seed nursery**



**Consultants in the geosciences,
materials, and the environment**

**Providing innovative yet
practical, sustainable and
cost effective solutions
for our clients**



*Carrier Creek Drain Watershed Improvements
Delta/Windsor Townships, Michigan*

**Offices Throughout Michigan
(800) 837-8800 | www.sme-usa.com**

AEW CEO HONORED BY CHAMBER OF COMMERCE

Roy C. Rose, Professional Engineer and Chief Executive Officer of Anderson, Eckstein and Westrick, Inc. (AEW) was honored in May with the 2013 Lil Adams Award from the Sterling Heights Regional Chamber of Commerce and Industry. The award is a tribute to the legacy of Lil Adams, whose humble and caring spirit was dedicated to the Chamber for more than 30 years. Qualifying nominees are individuals who exemplify Lil's spirit of commitment to the Chamber, communities and society.

Throughout his more than 30-year career, Roy has dedicated himself to community activities including various associations, donations to philanthropic groups, and the management of a civil engineering firm that assists more than 25 municipalities and hundreds of private clients across southeast Michigan. His activities include service on the Sterling Heights Regional Chamber Public Policy Committee, Board of Regents for Baker College (Clinton Township), Leadership Macomb (President), Utica Community Schools Foundation for Excellence (President), Macomb Community College Civil Technology Advisory Board (Member), Businesses for Better Transportation (Vice Chairman), and most recently, the Regional Transit Authority (Macomb County Representative.)

Upon hearing of the award, Roy gave a humbled smile and said, "I just want to make a difference. Contributing and participating in associations with similar values will make this world a better place for future generations and that's what it's all about."

FTC&H RELOCATES SOUTHEAST MICHIGAN OFFICE

Fishbeck, Thompson, Carr & Huber, Inc. (FTC&H), a full-service civil engineering, architectural/engineering, environmental, and construction management firm, is pleased to announce the relocation of its Southeast Michigan office to a new facility to accommodate its growing team. The new office is located at:

39500 Mackenzie Drive, Suite 100, Novi, Michigan 48377
Telephone: (248) 324-2090, Facsimile: (248) 324-0930, Web: www.ftch.com.

SPICER OPENS NEW OFFICE IN MONROE

Spicer Group recently opened up a new office in the City of Monroe. This effort is a result of Spicer's growth strategy of improving efficiency and capabilities of services associated with clients in the southeastern regions of Michigan. The firm's Corporate headquarters is located in Saginaw with other offices located in St. Johns, Lansing, Monroe, Belleville, Benton Harbor and Grand Rapids.

FTC&H EXPANDS TEAM IN NOVI



Sedki

Maria Sedki, P.E., Senior Civil Engineer, graduated from the University of Michigan with both M.S. and B.S. Degrees in Civil/Environmental Engineering. She is a licensed professional engineer in Indiana, Michigan, Ohio, and Texas, and brings 19 years of experience to FTC&H.

Maria's projects have encompassed sanitary sewer system design and rehabilitation, pump station and water system design, state revolving fund project plans and associated grant applications, flow monitor studies, sewer system evaluation surveys, illicit discharge elimination programs, and sewer inspections. She has also been involved with many project management and department leadership responsibilities.



Hardin

Michael M. Hardin, Mechanical Engineering Specialist, has an extensive controls and commissioning background, having worked in the HVAC controls field for twelve years as a Lead Systems Technician, Project Manager and, most recently, Field Engineer. Michael

specializes in new commercial and industrial construction projects. He attended Wayne County Community College and holds certificates for Boiler and Chiller Operation as well as Refrigeration.

SPICER GROUP, INC. ANNOUNCES PROMOTIONS, ACCOMPLISHMENTS

James E. Ensign, P.E. recently earned his Professional Engineer License for Michigan and was named as an Associate at Spicer Group, Inc. Ensign earned his bachelor's degree in civil engineering from Michigan



Ensign

Certified Floodplain Manager and Licensed Part 91 SESC Storm Water Operator.

State University in 2009. James specializes in structural analysis and water resources. He works primarily out of Spicer's St. Johns and Lansing office locations and provides engineering solutions for local municipalities and county drain commissioners. Ensign is a



Bedford

Michigan University in 2001 and has been with Spicer since 2004.

Aaron K. Bedford was also recently named as an Associate at Spicer Group. He is the marketing manager at Spicer and assists with the coordination of business development efforts. Bedford received his bachelor's degree in English and Journalism from Northern

ENG. NEW NAME FOR A FAMILIAR TEAM

When most of your firm's work comes from municipalities, and those municipalities are dealing with new economic realities, what do you do? At Eng. ("E-N-G"), the Lansing civil engineering firm known until recently as Fitzgerald Henne & Associates, you adapt, you innovate, you remain true to your core competencies—and you keep moving forward.

The name change was finalized in May, reflecting a company with an eye on the future. While a new name sometimes signals deeper changes in an organization, Eng. president Greg Minshall says that's not the case at Eng.

"Only our name has changed," says Minshall, emphasizing that there have been no changes in staff; no relocation or reorganization. Why the new name? "Quite simply, it is a contractual obligation, negotiated when the firm spun off its environmental practice in 2008," Minshall explains. The company agreed to change its name by the end of 2013.

Of course, naming your business is a little bit like naming your child—and renaming a successful, financially sound firm with a well-established reputation can be an even greater challenge. In the end, Minshall says, they chose a name that



Towar Rain Garden Drains, designed by Eng.

reflects the company's innovative, forward-thinking approach. "As our name implies, our focus and commitment remain on civil engineering and surveying. We believe the name Eng. is a great representation of who we are and what we do—a fusion of functionality and creativity."

Eng. performs civil engineering design work for municipalities, including projects such as sewers, water mains, private developments and site planning. Minshall says, Eng.'s two niches are road design and Michigan county drain projects, with the latter making up a significant amount of its workload. It's an area that requires specific knowledge of the Michigan Drain Code.

"Fifty years ago, the approach in Michigan was to drain all the swamps," Minshall says, with storm water drain systems designed to remove water as quickly as possible. Today, he explains, run-off is retained and slowly released to relieve rivers and downstream communities. Wetlands are protected and even created, and road design is focused on slowing down for pedestrian safety instead of moving traffic in high volume.

Minshall says he and his Eng. colleagues love what they do, and hope that their civil engineering solutions go unnoticed. "If we solve the problem," Minshall says, "you won't know that we've been there."

MACDC EVENT CALENDAR

JULY 17-19, 2013
MACDC Annual Summer Conference
Crystal Mountain, Thompsonville

SEPTEMBER 15-17, 2013
Annual Conference
Michigan Association of Counties
Bavarian Inn Lodge, Frankenmuth

JANUARY 28-31, 2014
MTA Annual Educational Conference & Expo
Michigan Townships Association
Grand Traverse Resort, Traverse City

FEBRUARY 12-14, 2014
MACDC Annual Winter Conference
Grand Traverse Resort, Acme

JULY 16-18, 2014
MACDC Annual Summer Conference
Crystal Mountain, Thompsonville

Editor’s Note: to place your event on this calendar, contact us at 517.484.9761

“Engineering Strong Communities”
Stormwater and Floodplain Management
Hydrology and Hydraulic Design
Bridge and Structural Design
Municipal Engineering



**ANDERSON, ECKSTEIN
AND WESTRICK, INC.**
Engineers • Surveyors • Architects
www.aewinc.com 586.726.1234

LSG

Engineers
& Surveyors

exceptional service

County Drains	Boundary Surveys	Alan Boyer, PE
Intercounty Drains	Topographic Surveys	Jeff Friedle, PE
Drain Inventories	As-built Surveys	Doug Richardson, PS
Assessment Districts	Inspections	
Design	GPS Services	(517) 393-2902
Hydrologic / Hydraulic Modeling	Construction Staking	www.lsg-es.com
	Legal Descriptions	3135 Pine Tree Rd., Ste D, Lansing, MI 48911

Eng.™

Engineering & Surveying

It's who we are and what we do.

4063 Grand Oak Drive
Suite A109
Lansing, MI 49811
t. 517.887.1100
f. 517.887.6335
engdot.com

Same principals, same talented staff
Same commitment to clients.

Formerly
PIZZERARD HENNE
& ASSOCIATES, INC.



ARCHITECTS. ENGINEERS. PLANNERS.

Leaders rely on OHM Advisors' proven public and private sector expertise, insightful counsel and forward thinking to create thriving places for people.

888.522.6711

OHM-Advisors.com

MICHIGAN | OHIO | TENNESSEE

EXPERIENCED LEGAL COUNSEL IS NOT A LUXURY.

Fahey Schultz Burzych Rhodes PLC covers the waterfront of legal issues facing drain commissioners every day. From the specifics of the Drain Code to special assessments to contract disputes, condemnation and litigation, Michigan's most experienced municipal lawyers can help you resolve any drain-related situation. Successfully. Efficiently. Economically.



Ross K. Bower II



Stacy L. Hissong



Lauren K. Dutcher



call: 517-381-0100
email: rbower@fsbriaw.com
email: shissong@fsbriaw.com
email: ldutcher@fsbriaw.com
visit: www.fsbriaw.com



519 Huron Avenue
Port Huron, MI 48060
(810) 984-5596

www.bmjinc.com

Tested Solutions, Innovative Approaches



Drain Engineering

- ◆ Evaluation of Open & Closed Drainage Infrastructure
- ◆ Design & Rehabilitation Project Services
- ◆ Process Expertise
- ◆ Solutions Using New & Time-Tested Tools

800.494.5202
www.fveng.com



Engineering
Survey
Environmental

Protecting Your Community's Resources



FLEIS & VANDENBRINK
ENGINEERING, INC.

THANK YOU ADVERTISERS

ADS.....	5	LSG Engineers & Surveyors	40
Anderson, Eckstein & Westrick, Inc	40	Mannik & Smith Group, Inc	21
Applied Science, Inc.	37	Miller, Canfield, Paddock & Stone	34
Arcadis.....	IBC	Northern Concrete Pipe	IFC
BMJ Engineers & Surveyors, Inc.....	41	NTH Consultants, Ltd.....	7
Cardno JFNew.....	37	OHM Advisors.....	41
Clark Hill PLC.....	19	Owen Tree Services, Inc.....	IFC
Co-Pipe Products Inc.	20	Prein & Newhof.....	27
Environmental Consulting & Technology Inc...	37	Progressive AE	25
Fahey Schultz Burzych Rhodes PLC	41	Soil and Materials Engineers, Inc.	37
Fishbeck, Thompson, Carr & Huber, Inc	29	Spartan Specialties LTD	IBC
Eng.....	40	Spicer Group, Inc.	BC
Fleis & VandenBrink Engineering, Inc.....	41	St. Regis Culvert, Inc.	20
Hastings City Bank	13	Tetra Tech	IFC
The Hubbard Law Firm	11	Triton Stormwater Solutions	29
Hubbell, Roth and Clark, Inc.....	4	Wade-Trim	33
Jack Doheny Supplies, Inc.	IBC	WILDTYPE Design, Native Plants & Seed	IFC
Jensen Bridge & Supply Co.....	17		

Advertise in Pipeline

Your connection to stormwater management professionals

Ad Size

Price
Per Issue

Full Page	\$380
Half Page	\$330
Quarter Page	\$230
Business Card	\$165

Contact:

MACDC
Pipeline Magazine
120 N. Washington Sq., Suite 110A
Lansing, MI 48933
517.484.9761
Theresa Lark, Editor
lark.t@gcsionline.com

WORKING HARD FOR YOU



VACTOR SEWER CLEANERS



SEWER EQUIPMENT CO. JETTERS



PIPELINE TELEVISION INSPECTION EQUIPMENT



HYDRO EXCAVATORS



STANLEY HYDRAULIC TOOLS



SAFETY EQUIPMENT & TRAINING



RECONDITIONED UNITS WITH FULL WARRANTIES

AT JACK DOHENY COMPANIES, WE BELIEVE THAT YOUR EQUIPMENT COMPANY SHOULD WORK AS HARD AS YOU DO. JACK DOHENY COMPANIES WORKS HARD TO OFFER THE MOST COMPREHENSIVE PROBLEM SOLVING SOLUTIONS FOR YOU.

WWW.DOHENYSUPPLIES.COM/WORKING



800-336-4369

Jack Doheny Companies

"World's Largest Distributor of Sewer Cleaning and Industrial Air Handling Equipment"



Water is two great elements coming together as one. So are we.

The fusion of ARCADIS' and Malcolm Pirnie's rich, century long water management and treatment experience brings a comprehensive and results-driven approach to the complex water environment

Brighton - 810 229 8594
Detroit - 313 965 8436
Lansing - 517 337 0111
Novi - 248 994 2240

www.arcadis-us.com



Imagine the result

SPARTAN SPECIALTIES LTD SOIL STABILIZATION SOLUTIONS

GROUTING TECHNOLOGIES

Jet Grouting ■ Compaction Grouting
Chemical Grouting ■ Micro Fine Cement

CONCRETE REPAIR

Preplaced Aggregate ■ Epoxy Injection
Fabric Form Grout Bags ■ Gunite

PILES

Mini Piles ■ Soil Nailing
Earth & Rock Anchors

586-826-8811

6250 Sims ■ Sterling Heights MI 48313



PIPELINE

120 N. Washington Sq., Suite 110A
Lansing, MI 48933
www.MACDC.net

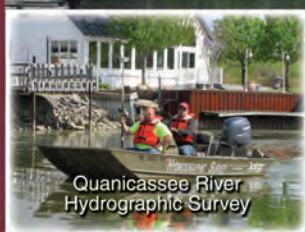
PRSRT STD
U S Postage
PAID
Lansing, MI
Permit No. 515



AuGres River
Restoration



Lake Shore Drain
Rain Gardens



Quanicasssee River
Hydrographic Survey

Site Plan Reviews & Storm Water Management Plans
Inland Lake Management
Dam Safety Inspections & Lake Level Improvement Studies
Floodplain Studies, Delineations, & Mapping
GIS/Mapping & Data Management
Hydrologic & Hydraulic Analysis

ENGINEERS SURVEYORS PLANNERS

Drain & Storm Sewer Inspection & Design
Storm Water Detention Basin Design
Soil Erosion & Sedimentation Control Plans
NPDES Phase II Permit Coordination
Bathymetric/Hydrographic Surveying

(800) 833-0062
WWW.SPICERGROUP.COM

Spicer
group