

GENOA CHARTER TOWNSHIP BOARD
Regular Meeting
August 19, 2013
6:30 p.m.

AGENDA

Call to Order:

Pledge of Allegiance:

Call to the Public*:

Approval of Consent Agenda:

1. Payment of Bills.
2. Request to approve minutes: Aug. 5, 2013
3. Request for approval of appointments to the SELCRA Board.

Approval of Regular Agenda:

4. Request for approval of resolution to attempt to control and prevent oak wilt by banning pruning or trimming of oak trees between April 1 and October 15.
5. Request for approval of agreement for street lighting with the North Shore Community Association.
6. Presentation by Hubbell, Roth and Clark of a Road Improvement Master Plan.
7. Request for approval of a resolution to approve ballot language for a New Road Improvement Millage.
8. Request for approval of a proposal from LSL Planning to create new Interchange Campus and Interchange Commercial PUD Zoning Districts for an amount not to exceed \$5,000.

Correspondence

Member Discussion

Adjournment

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| <p>*Citizen's Comments- In addition to providing the public with an opportunity to address the Township Board at the beginning of the meeting, opportunity to comment on individual agenda items may be offered by the Chairman as they are presented.</p> |
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CHECK REGISTERS FOR TOWNSHIP BOARD MEETING

DATE: August 19, 2013

| | |
|---|--------------------|
| TOWNSHIP GENERAL EXPENSES: Thru August 19, 2013 | \$159,497.38 |
| August 16, 2013 Bi Weekly Payroll | \$76,445.24 |
| OPERATING EXPENSES: Thru August 19, 2013 | <u>\$77,244.55</u> |
| TOTAL: | \$313,187.17 |

| <u>Check Number</u> | <u>Vendor No</u> | <u>Vendor Name</u> | <u>Check Date</u> | <u>Check Amount</u> |
|---------------------|------------------|------------------------------------|-------------------|---------------------|
| 29875 | HUBBELL | Hubbell, Roth, Clark, Inc. | 07/26/2013 | 23,423.06 |
| 29876 | MCCRIRIE | Gary McCririe | 07/29/2013 | 5,349.48 |
| 29877 | Americ G | American General Life Insuranc | 07/31/2013 | 296.50 |
| 29878 | B S & A | B S & A Software, Inc. | 07/31/2013 | 4,420.00 |
| 29879 | MASTER M | Master Media Supply | 07/31/2013 | 70.93 |
| 29882 | OEX | Office Express Inc. | 07/31/2013 | 48.98 |
| 29883 | USBANK | U. S. Bank Equipment Finance | 07/31/2013 | 544.06 |
| 29885 | DTE LAKE | DTE Energy | 08/02/2013 | 1,222.35 |
| 29886 | ETNA SUP | Etna Supply Company | 08/02/2013 | 2,023.96 |
| 29887 | FIRST IM | First Impression Print & Marketing | 08/02/2013 | 2,127.46 |
| 29888 | LEO'S CU | Leo's Custom Sprinkler Service | 08/02/2013 | 554.90 |
| 29889 | Net serv | Network Services Group, L.L.C. | 08/02/2013 | 45.00 |
| 29890 | Perfect | Perfect Maintenance Cleaning | 08/02/2013 | 1,093.75 |
| 29891 | BODALSKI | Mary Lynn Bodalski | 08/06/2013 | 200.00 |
| 29892 | Brender | Karen Brender | 08/06/2013 | 200.00 |
| 29893 | Brenna | Deborah Brennan | 08/06/2013 | 200.00 |
| 29894 | BRENNAN | Ann Brennan | 08/06/2013 | 250.00 |
| 29895 | BURGNER | Mary Burgner | 08/06/2013 | 250.00 |
| 29896 | COLLINS | Shawn Collins | 08/06/2013 | 250.00 |
| 29897 | DHULB | Brian Dhulster | 08/06/2013 | 125.00 |
| 29898 | Gammon | Debra Gammon | 08/06/2013 | 200.00 |
| 29899 | Gogolin | Michael Gogolin | 08/06/2013 | 200.00 |
| 29900 | HYSEN | Theodore Hysen | 08/06/2013 | 200.00 |
| 29901 | LADUKJA | Janet La Duke | 08/06/2013 | 200.00 |
| 29902 | Lewis | Barbara Lewis | 08/06/2013 | 250.00 |
| 29903 | Lizak | Jean Lizak | 08/06/2013 | 200.00 |
| 29904 | LIZAKSTE | Steve Lizak | 08/06/2013 | 200.00 |
| 29905 | Lollo K | Kelly Lollo | 08/06/2013 | 250.00 |
| 29906 | MateviaG | Gerald Matevia | 08/06/2013 | 200.00 |
| 29907 | MateviaJ | Joyce Matevia | 08/06/2013 | 250.00 |
| 29908 | McCauley | Jennifer McCauley | 08/06/2013 | 250.00 |
| 29909 | McClure | Cecelia McClure | 08/06/2013 | 200.00 |
| 29910 | McGrath | Carol McGrath | 08/06/2013 | 200.00 |
| 29911 | NelsonD | Donna Nelson | 08/06/2013 | 200.00 |
| 29912 | Poppy | Kathryn Shreyer-Poppy | 08/06/2013 | 250.00 |
| 29913 | ristoj | Joni L. Risto | 08/06/2013 | 200.00 |
| 29914 | Sapienza | Kristen Renee Sapienza | 08/06/2013 | 250.00 |
| 29915 | SapienzP | Paul Sapienza Jr. | 08/06/2013 | 250.00 |
| 29916 | Saunder | John Saunders | 08/06/2013 | 250.00 |
| 29917 | Schelosk | Mary Scheloske | 08/06/2013 | 200.00 |
| 29918 | STEELE | Bonnie Steele | 08/06/2013 | 200.00 |
| 29919 | Vettrain | John Vettraino | 08/06/2013 | 200.00 |
| 29920 | WATSON V | Victor Watson | 08/06/2013 | 200.00 |
| 29921 | Wisser | Kathleen Wisser | 08/06/2013 | 250.00 |
| 29922 | Clearwat | Clearwater Systems | 08/06/2013 | 39.00 |
| 29923 | COMC | Comcast | 08/06/2013 | 337.95 |
| 29924 | COOPERST | Cooper's Turf Management LLC | 08/06/2013 | 657.00 |
| 29925 | ENVSYSRE | ESRI, INC. | 08/06/2013 | 3,150.00 |
| 29926 | GORDONFO | Gordon's Food Services | 08/06/2013 | 185.68 |
| 29927 | JETS PIZ | Jet's Pizza | 08/06/2013 | 200.00 |
| 29928 | MASTER M | Master Media Supply | 08/06/2013 | 279.94 |
| 29929 | MBH | MBH Marketing, LLC | 08/06/2013 | 10,593.93 |
| 29930 | MI MUNIC | Michigan Municipal League | 08/06/2013 | 24.00 |
| 29931 | ROCKET | Rocket Enterprise Inc | 08/06/2013 | 1,495.00 |
| 29932 | SKOLAR P | Paulette Skolarus | 08/06/2013 | 57.70 |
| 29933 | TRI COUN | Tri County Supply, Inc. | 08/06/2013 | 160.33 |
| 29934 | COOPERST | Cooper's Turf Management LLC | 08/07/2013 | 2,010.00 |
| 29935 | LEO'S CU | Leo's Custom Sprinkler Service | 08/07/2013 | 86.14 |
| 29936 | MAA | Michigan Assessors Association | 08/07/2013 | 18.75 |
| 29937 | Tetra Te | Tetra Tech Inc | 08/07/2013 | 5,725.00 |
| 29938 | Equitabl | Equivest Unit Annuity Lock Box | 08/16/2013 | 685.00 |
| 29939 | Chilson | Chilson Hills Baptist Church | 08/09/2013 | 200.00 |

| <u>Check Number</u> | <u>Vendor No</u> | <u>Vendor Name</u> | <u>Check Date</u> | <u>Check Amount</u> |
|----------------------|------------------|-----------------------------|-------------------|---------------------|
| 29940 | CLEARYUN | Cleary University | 08/09/2013 | 200.00 |
| 29941 | COMM BIB | Community Bible Church | 08/09/2013 | 200.00 |
| 29942 | DHULS | Catherine Dhulster | 08/09/2013 | 34.01 |
| 29943 | Howells | Howell Public Schools | 08/09/2013 | 200.00 |
| 29944 | Sitnar | Susan Sitner | 08/09/2013 | 96.85 |
| 29945 | BYRWA | David Byrwa | 08/09/2013 | 150.00 |
| 29946 | Duncan | Duncan Disposal Systems | 08/09/2013 | 77,998.20 |
| 29947 | LivCTrea | Livingston County Treasurer | 08/09/2013 | 672.94 |
| 29948 | LSL | LSL Planning, Inc. | 08/09/2013 | 3,009.11 |
| 29949 | SECURITY | Security Lock Service | 08/09/2013 | 389.00 |
| 29950 | Tetra Te | Tetra Tech Inc | 08/09/2013 | 2,660.00 |
| 29951 | DTE LAKE | DTE Energy | 08/09/2013 | 36.42 |
| Report Total: | | | | 159,497.38 |

Accounts Payable
Computer Check Register

Genoa Township

2911 Dorr Road
Brighton, MI 48116

(810) 227-5225

User: cathy

Printed: 08/08/2013 - 12:47

Bank Account: 101CH

| Check | Vendor No | Vendor Name | Date | Invoice No | Amount |
|--------------------|-----------|--------------------------------|------------|------------|--|
| 11147 | AETNA LI | Aetna Life Insurance & Annuity | 08/16/2013 | | 25.00 |
| Check 11147 Total: | | | | | 25.00 |
| 11148 | EFT-FED | EFT- Federal Payroll Tax | 08/16/2013 | | 8,127.16 4,432.09 4,432.09 1,036.54 1,036.54 |
| Check 11148 Total: | | | | | 19,064.42 |
| 11149 | EFT-PENS | EFT- Payroll Pens Ln Pyts | 08/16/2013 | | 1,964.44 |
| Check 11149 Total: | | | | | 1,964.44 |
| 11150 | EFT-TASC | EFT-Flex Spending | 08/16/2013 | | 871.10 |
| Check 11150 Total: | | | | | 871.10 |
| 29938 | Equitabl | Equivest Unit Annuity Lock Box | 08/16/2013 | | 685.00 |
| Check 29938 Total: | | | | | 685.00 |
| 11151 | FIRST NA | First National Bank | 08/16/2013 | | 250.00 2,480.00 50,267.25 75.00 |

Check 11151 Total:

53,072.25

Report Total:

75,682.21
CK# 12061 + 763.0
76,445.2

Genoa Charter Township
User: cathy

Payroll
Computer Check Register

Printed: 08/08/13 12:16
Batch: 616-08-2013

| <u>Check No</u> | <u>Check Date</u> | <u>Employee Information</u> | | <u>Amount</u> |
|------------------------------|-------------------|------------------------------|------------------|---------------|
| 12061 | 08/16/2013 | Galinac | Kristina Galinac | 763.03 |
| Total Number of Employees: 1 | | Total for Payroll Check Run: | | 763.03 |

#593 LAKE EDGEWOOD W/S FUND**Payment of Bills**

July 29 through August 12, 2013

| <u>Type</u> | <u>Date</u> | <u>Num</u> | <u>Name</u> | <u>Memo</u> | <u>Amount</u> |
|-------------|-------------|------------|-------------------------------|----------------------------|-------------------|
| Check | 08/02/2013 | 2393 | Brighton Analytical L.L.C. | Inv. #0713-81787 7/23/13 | -77.00 |
| Check | 08/02/2013 | 2394 | DTE Energy | LE Electricity Billings | -4,729.80 |
| Check | 08/02/2013 | 2395 | FONSON, INC. | Inv. #10677 7/22/13 | -1,003.97 |
| Check | 08/02/2013 | 2396 | GENOA TWP-DPW FUND | Maintenance - August 2013 | -9,300.17 |
| Check | 08/02/2013 | 2397 | NORTHWEST PIPE AND SUPPLY,INC | Inv. #1878 & #1880 7/19/13 | -499.11 |
| Check | 08/03/2013 | 2398 | DTE Energy | LE Electricity Billings | -68.89 |
| Check | 08/09/2013 | 2399 | Consumers Energy | Lake Edgewood Invoices | -43.21 |
| | | | | Total | -15,722.15 |

#503 DPW UTILITY FUND**Payment of Bills**

July 29 through August 12, 2013

| <u>Type</u> | <u>Date</u> | <u>Num</u> | <u>Name</u> | <u>Memo</u> | <u>Amount</u> |
|-------------|-------------|------------|---------------------|--|------------------|
| Check | 07/30/2013 | 2552 | USABlueBook | | -3,668.88 |
| Check | 08/02/2013 | 2553 | Fastenal Company | | -324.38 |
| Check | 08/02/2013 | 2554 | Ashley Repke | Mileage Reimbursement 6/26/13 - 8/1/13 | -153.68 |
| Check | 08/06/2013 | 2555 | Steve Anderson | DEQ Test Fee Reimbursement | -70.00 |
| Check | 08/06/2013 | 2556 | D&G Equipment, Inc. | | -392.19 |
| Check | 08/06/2013 | 2557 | PAETEC | | -31.74 |
| | | | | Total | -4,640.87 |

#595 PINE CREEK W/S FUND

Payment of Bills

July 29 through August 12, 2013

Type Date Num Name Memo Amount

no checks issued

#592 OAK POINTE WATER/SEWER FUND

Payment of Bills

July 29 through August 12, 2013

| <u>Type</u> | <u>Date</u> | <u>Num</u> | <u>Name</u> | <u>Memo</u> | <u>Amount</u> |
|-------------|-------------|------------|---------------------------------------|------------------------------------|-------------------|
| Check | 08/02/2013 | 2752 | BRIGHTON ANALYTICAL, LLC | Inv. #0713-81786 & #0713-81818 | -134.00 |
| Check | 08/02/2013 | 2753 | DUBOIS COOPER ASSOCIATES INCORPORATED | Inv. #158009 7/16/13 | -4,267.25 |
| Check | 08/02/2013 | 2754 | Dykema Gossett PLLC | Inv. #1522886 7/10/13 | -346.72 |
| Check | 08/02/2013 | 2755 | DTE ENERGY | Oak Pointe Electricity Billings | -10,248.18 |
| Check | 08/02/2013 | 2756 | EJ USA, Inc. | Inv. #3622346 7/31/13 | -3,638.78 |
| Check | 08/02/2013 | 2757 | GENOA TWP UTILITY FUND | Inv. #209 - 8/1/13 | -35,986.34 |
| Check | 08/02/2013 | 2758 | NORTHWEST PIPE AND SUPPLY, INC. | Inv. #1843 7/16/13 & #1861 7/17/13 | -25.46 |
| Check | 08/02/2013 | 2759 | WATER MASTERS LLC | Inv. #2605 - 7/27/13 | -1,975.00 |
| Check | 08/03/2013 | 2760 | DTE ENERGY | Oak Pointe Electricity Billings | -158.68 |
| Check | 08/06/2013 | 2761 | CONSUMERS ENERGY | Billing from 05/01/2013-05/30/2013 | -51.12 |
| | | | | Total | -56,831.53 |

GENOA CHARTER TOWNSHIP BOARD

Regular Meeting

August 5, 2013

MINUTES

Supervisor McCririe called the regular meeting of the Genoa Charter Township Board to order at 6:30 p.m. The Pledge of Allegiance was then said. The following persons were present for the transaction of business: Gary McCririe, Paulette Skolarus, Robin Hunt, Todd Smith, Jean Ledford, Jim Mortensen and Linda Rowell. Also present were Township Manager Michael Archinal, and eight persons in the audience.

A call to the public was made with the following response: Frank Castle – With regard to the wastewater treatment facility, you could go north through the new interchange. I have been monitoring my well and water levels have been dropping.

Approval of Consent Agenda:

Moved by Ledford and supported by Mortensen to approve all items listed under the Consent Agenda as requested. The motion carried unanimously.

1. Payment of Bills.

2. Request to approve minutes: July 15, 2013

Approval of Regular Agenda:

Moved by Hunt and supported by Mortensen to approve for action all items listed under the regular agenda with the tabling of the Oak Wilt resolution. The motion carried unanimously.

3. Request for approval of updated Oak Pointe Wastewater Treatment Plant consolidation project schedule, design proposal and summary of bond repayment scenarios.

Moved by Hunt and supported by Mortensen to approve the Oak Pointe WWTP conversion to equalization and Genoa Oceola solids handling and oxidation ditch improvements proposal for design and permitting phase services as prepared by Tetra Tech, Inc. dated July 29, 2013 as recommended by Dr. Tatara. The motion carried unanimously.

4. Request for approval of resolution to attempt to control and prevent oak wilt by banning pruning or trimming of oak trees between April 1 and October 15.

Tabled.

5. Request for approval of Board appointments for the Planning Commission and Zoning Board of Appeals.

[Type text]

GENOA CHARTER TOWNSHIP – Regular Meeting – August 5, 2013

Moved by Skolarus and supported by Smith to appoint Eric Rauch and John McManus to the Planning Commission and Jeff Dhaenens to the Zoning Board of Appeals for three-year terms to expire 06/30/2016. The motion carried unanimously.

6. Discussion regarding proposed road millage.

It was the consensus of the board to move forward with a millage request for roads. The ballot proposal, financing term and schedule of projects will be reviewed at the Aug. 19, 2013 regular meeting of the board taking into consideration board comments and concerns made this evening. The board will continue to subsidize these road projects out of the General Fund.

7. Correspondence: Consideration for approval of a July 13, 2013 letter from Pfeffer, Hanniford & Palka implementing rate changes for Lake Edgewood and Pine Creek.

Moved by Smith and supported by Ledford to approve the continuation of the existing water fee rates for Lake Edgewood and Pine Creek with an increase in the water connection fee from \$2,572.00 to \$2,672.00 per REU and an increase in the sewer connection fee from \$6,528.00 to \$6,888.00 per REU. The motion carried unanimously.

Member Discussion: Red Oaks road work is moving forward. SEMCOG will hold a meeting August 16, 2013 to discuss bike walk paths and trails.

Correspondence: Skolarus provided a copy of a letter that was sent from her office to the DEQ asking for a public hearing with regard to Chestnut Development (Steve Gronow). Rowell – I object to the letter dated July 25, 2013 to the Michigan DEQ (*regarding Chestnut Development*) since it was not presented to the Board for review prior to submission and the letter is not indicative of my opinion as trustee. *Note: According to the Township Attorney - correspondence from the Supervisor, Clerk and Treasurer is not subject to board approval.* Skolarus (in response) - Damage to imperiled wetlands and fen are a major concern to me as well as other board members. The request to the DEQ for **After the Fact** approval of a permit is unacceptable. Smith agreed.

The regular meeting of the Genoa Charter Township Board was adjourned at 7:55 p.m.



Paulette A. Skolarus
Genoa Charter Township Clerk

(Press/argus 08/09/2013)

Resolution No. 130819

GENOA CHARTER TOWNSHIP
Livingston County, Michigan

OAK WILT RESOLUTION

Whereas, Genoa Charter Township's trees, woodlots, landscapes, greenbelts, natural areas and right-of-ways, represent a valuable and precious asset, necessary to preserve; and

Whereas, various oak (*Quercus*) species comprise a significant component of this natural and rural forest environment, in some locations as much as 80-90% of the dominant tree species; and

Whereas, Genoa Charter Township is concerned a deadly disease known as oak wilt caused by the fungus *Ceratocystis fagacearum* is a threat to the Township's oak population. Improper tree trimming/removal practices may result in the establishment of oak wilt disease epicenters, which may lead to increased disease activity with devastating aesthetic and economic losses. It is therefore both advisable and prudent to attempt to prevent and control oak wilt.

The Genoa Charter Township Board of Trustees hereby resolves the following:

Tree Care Practices: Oak Wilt Prevention

- a) Oak trees should be pruned or trimmed between April 1 and October 15 regardless of their location. Exceptions include pruning for storm damage, construction, utility work, accidents, etc. (see item b).
- b) It is the responsibility of the property owner, developer, contractor to repair or cause to be repaired any oak trees that are inadvertently injured between April 1 and October 15, by removal of exposed jagged surfaces followed by prompt sealing with a tree pruning sealer or latex paint. Such repair should take place within hours of the injury.
- c) Oaks that exhibit symptoms of oak wilt (see the attached and/or Genoa Township's web site) or show signs of decline or death should be reported to the Livingston County Road Commission, (517) 546-4250.

Tree Care Practices: Oak Wilt Management

- a) Suspected cases of oak wilt should be reported as soon as observed, to Livingston County Road Commission, (517) 546-4250.
- b) Any developer, contractor and/or owner(s) of property preparing a site for construction during April 1st through October 15th should adhere to the above oak wilt prevention practices.
- c) Trees confirmed with oak wilt are the responsibility of the property owner to perform or cause to be performed, one or several of the following practices.
 - i) Members of the red oak family, which have died of oak wilt, should be removed within 5 weeks.

- Members of the red oak family not infected by oak wilt, but potentially root grafted to a tree that was killed or diseased with oak wilt, should be treated by injection of the fungicide Alamo by a registered company. Members of the white oak family diseased with oak wilt may recover with Alamo tree injections.
- ii) Trenching may be a practice in lieu of or in addition to injections for oak wilt management (see www.genoa.org).
 - iii) Dead oak trees should be removed and properly disposed by chipping to less than 3 inches or removed to a disposal site for debarking, burning or burial. Oak wood retained as firewood should be sealed with a (brown or green) tarp during the warm season, April 1-October 15.
 - iv) Stumps left by removal of oak trees should be promptly removed, buried or sealed.

Tree Care Practices: Best Practices and Public Education

- a) Genoa Charter Township staff will pursue best management practices for the Township's own efforts in dealing with suspected cases of oak wilt.
- b) The Township will promote public education regarding oak wilt through the Township website at genoa.org, and also through newsletters and social media.

Copies of this resolution shall be forwarded to appropriate State and County representatives, utility companies, tree service companies as well as Township property owners.

This Resolution is hereby declared to have been adopted by the Genoa Charter Township Board in a meeting thereof duly held and called on the 19th day of August, 2013.

Paulette A. Skolarus
Genoa Charter Township Clerk

**AGREEMENT FOR STREET LIGHTING
BETWEEN GENOA CHARTER TOWNSHIP
AND
NORTH SHORE COMMUNITY ASSOCIATION**

This Agreement, dated _____, 2013, is made by and between Genoa Charter Township, a Michigan municipal corporation, whose address is 2911 Dorr Road, Brighton, Michigan 48116, (hereinafter the "Township"), and North Shore Community Association, a Michigan non-profit corporation whose address is 4312 E. Grand River Ave., Howell, Michigan 48843, (hereinafter the "Association").

WHEREAS the Association desires to add street lighting to the entrances of Lakewood Shores Drive and Crooked Lake Road and Edgewood Shores Drive and Crooked Lake Road to the North Shore Community;

WHEREAS, the Association has obtained a proposal/purchase agreement from Detroit Edison Company ("DTE") for adding such lighting services, including installation costs and estimated total annual lamp charges (as set forth in Exhibit A to the attached **Exhibit 1**);

WHEREAS, DTE has expressed that it will only contract for such lighting (both installation and ongoing annual charges) with the Township and not with the Association;

WHEREAS, the Township is willing to contract directly with DTE to provide such lighting services to the Association under the terms of this Agreement and under the terms of the Master Agreement for Municipal Street Lighting (the "Master Agreement") and Exhibit A to the Master Agreement (collectively attached as **Exhibit 1**); and

WHEREAS, the Association desires to enter into this Agreement to obtain street lighting for the Crooked Lake entrances to the North Shore Community.

NOW WHEREFORE, the parties hereby agree as follows:

1. **Lighting Agreement.** The Township agrees to enter into a Master Agreement for Municipal Street Lighting and Purchase Agreement (Exhibit A to the Master Agreement) (collectively, the "Lighting Agreement") to provide lighting services to the Association at the intersections of Lakewood Shores Drive and Crooked Lake Road and Edgewood Shores Drive and Crooked Lake Road as set forth in **Exhibit 1**.
2. **Payment.** Prior to the Township having any obligation to enter into the Lighting Agreement, the Association shall pay to Genoa the sum of \$11,458.00 (the CIAC Amount) and \$619.00 for the first year's Estimated Total Annual Lamp Charges. Prior to each anniversary of this Agreement and on request by the Township, the Association shall pay to the Township the current estimated annual Lamp Charges as determined by DTE in accordance with the terms of the Lighting Agreement. The Township shall pay said amounts to DTE after receipt from the Association.
3. **Term.** The initial term of the Agreement shall be 5 years. Upon the expiration of the initial term, either party may terminate this Agreement by providing at least twelve (12) months written notice to the other party with the effective date of termination being the date that the Township's obligations to DTE are terminated under the terms of the Lighting Agreement as they pertain to Exhibit A to the Master Lighting Agreement, the Purchase Agreement. Upon receiving written notice of termination from the Association, the Township shall promptly

provide written notice of termination to DTE. Notwithstanding the above, this agreement may be terminated sooner upon mutual agreement of the Township and the Association and with the consent of DTE as set forth in Section 8 of the Lighting Agreement and Section 8 of the Purchase Agreement (**Exhibit 1**).

4. Incorporation of Lighting Agreement Terms. The terms and conditions of the Lighting Agreement (**Exhibit 1**) are hereby incorporated by reference into this Agreement. The Association agrees to be bound by the terms and conditions of the Lighting Agreement as they pertain to the Township. The Association shall not in any manner hinder the Township's performance of its obligations under the Lighting Agreement.

5. Hold Harmless and Indemnity. The Association shall indemnify, defend and hold the Township harmless from and against any and all liabilities, claims and costs (including reasonable attorney's fees, penalties and fines) for death, injury or damages to persons or property related directly or indirectly to (i) the Township entering into the Lighting Agreement with DTE, or (ii) the Township entering into this Agreement, or (iii) the installation of the street lighting as set forth in the Lighting Agreement (**Exhibit 1**). This hold harmless and indemnity shall survive termination or expiration of this Agreement.

6. Insurance. During the term of this Agreement, The Association shall maintain the following insurance coverage: \$1,000,000.00 (combined single limit) comprehensive general liability (including personal injury and property damage), and property damage \$500,000.00. The Association shall provide the Township with a certificate of insurance evidencing such coverage. Such certificate shall indicate that the Township is an additional named insured and that the policy of insurance may not be terminated or changed without at least 10 days notice to the Township.

7. Severability. If any provision of this Agreement or the application thereof to any party or circumstances shall, to any extent, now or hereafter be or become invalid or unenforceable, the remainder of this Agreement shall not be affected thereby and every other provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

8. Entire Agreement. This Agreement, including its Exhibits, represents the entire agreement between the parties with regard to its subject matter. This Agreement supersedes and merges any and all prior discussions, representations, demonstrations, negotiations, correspondence, writings and other agreements and states the entire understanding and agreement between the parties. This Agreement may be amended or modified only in a writing agreed to and signed by the authorized representatives of the parties.


IN WITNESS WHEREOF, the parties have executed this lease as of the day and year first above written.

GENOA CHARTER TOWNSHIP:
(the "Township")

By: _____
Gary McCrie

Title: Supervisor

NORTH SHORE COMMUNITY, INC.:
(the "Association")

By: 
Gregory Shevchik

Title: President



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
8/9/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

| | | | |
|---|--------------------------------------|--|--------|
| PRODUCER Pinnacle Insurance Partners 1430 Monroe Ave. NW, Suite 100 Grand Rapids MI 49505 | CONTACT NAME: Conni Austin | FAX (A/C. No.): (616) 913-3301 | |
| | PHONE (A/C. No. Ext): (616) 458-8990 | E-MAIL ADDRESS: connia@pigrmi.com | |
| INSURED North Shore Community c/o Your Peace of Mind PO Box 2148 Howell MI 48844 | INSURER(S) AFFORDING COVERAGE | | NAIC # |
| | INSURER A: OBE Insurance Co | | |
| | INSURER B: | | |
| | INSURER C: | | |
| | INSURER D: | | |
| | INSURER E: | | |

COVERAGES CERTIFICATE NUMBER: **CL138903489** REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS

| INSR LTR | TYPE OF INSURANCE | ADDL INSR | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS |
|----------|--|-----------|----------|---------------|-------------------------|-------------------------|--|
| A | GENERAL LIABILITY | | | CAU310563 | 12/1/2012 | 12/1/2015 | EACH OCCURRENCE \$ 3,000,000 |
| | <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 |
| | <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR | | | | | | MED EXP (Any one person) \$ 5,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | PERSONAL & ADV INJURY \$ 3,000,000 |
| | <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC | | | | | | GENERAL AGGREGATE \$ |
| A | AUTOMOBILE LIABILITY | | | CAU310563 | 12/1/2012 | 12/1/2015 | COMBINED SINGLE LIMIT (Ea accident) \$ 3,000,000 |
| | <input type="checkbox"/> ANY AUTO ALL OWNED AUTOS | | | | | | BODILY INJURY (Per person) \$ |
| | <input checked="" type="checkbox"/> HIRED AUTOS | | | | | | BODILY INJURY (Per accident) \$ |
| | <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS | | | | | | PROPERTY DAMAGE (Per accident) \$ |
| | <input type="checkbox"/> UMBRELLA LIAB | | | | | | EACH OCCURRENCE \$ |
| | <input type="checkbox"/> EXCESS LIAB | | | | | | AGGREGATE \$ |
| | <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE | | | | | | \$ |
| | DED RETENTION \$ | | | | | | WC STATUTORY LIMITS OTH-ER |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY | | | | | | E.L. EACH ACCIDENT \$ |
| | ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) | | | | | | E.L. DISEASE - EA EMPLOYEE \$ |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE - POLICY LIMIT \$ |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
Genoa Township is an Additional Insured as to General Liability

| | |
|---|--|
| CERTIFICATE HOLDER Genoa Township 2911 Dorr Road Brighton, MI 48116 | CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. |
| | AUTHORIZED REPRESENTATIVE Pam Osborn/KATHYZ |

NORTH SHORE COMM.

GENOA Genoa Township

| Invoice Number | Invoice Date | Voucher | Entity | Account | Invoice Amount |
|----------------|--------------|----------|----------------------|-----------------------|----------------|
| 08/12/13 | 08/12/13 | 00084472 | NS NORTH SHORE COMM. | 50700 Project Expense | 11,458.00 |

08/12/2013

Check NSCK1 002841

11,458.00

THIS DOCUMENT HAS A COLORED SECURITY BACKGROUND. DO NOT CASH IF THE WORD "VOID" IS VISIBLE. THIS PAPER HAS AN ARTIFICIAL WATERMARK AND IS ALTERATION PROTECTED.

Community Assoc Bank

91575
1221

002841

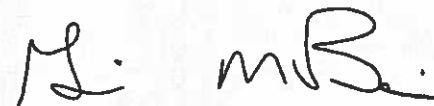
NORTH SHORE COMM.
PO Box 2148
Howell, MI 48844

08/12/2013

11,458.00

PAY: Eleven Thousand Four Hundred Fifty-Eight and no/100 DOLLARS

TO Genoa Township
THE 2911 Dorr Rd.
ORDER Brighton, MI 48116
OF



AUTHORIZED SIGNATURE - NOT VALID AFTER 90 DAYS

⑈002841⑈ ⑆122105757⑆ 274520353⑈

Genoa Charter Township

Road Improvement Master Plan

August 2013 - Draft



Conrad Road



Challis Road & Bauer Road Intersection

Hubbell, Roth & Clark, Inc.
105 W. Grand River Avenue
Howell, MI 48843
517.552.9199
www.hrc-engr.com



Engineering. Environment. Excellence

Introduction

With the population growth Genoa Charter Township has experienced over the last several decades, combined the future growth projected in the years to come (see Table 1 below), Genoa Township has realized that the existing rural roadway system throughout the Township is not sufficient to meet the transportation needs of its residents.

Table 1 – SEMCOG Population Data for Genoa Charter Township

| Census Year | Population |
|-------------|------------|
| 1960 | 2,402 |
| 1970 | 4,800 |
| 1980 | 9,261 |
| 1990 | 10,820 |
| 2000 | 15,901 |
| 2010 | 19,821 |
| 2020 | 20,969* |
| 2030 | 22,293* |

**projected*

The public roads within Genoa Charter Township are under the jurisdiction of the Livingston County Road Commission (LCRC). In recent years, funding for paving of gravel roads, or the maintenance of existing paved roads, has not been able to keep up with the need. The funding LCRC receives from the Federal Government and the Michigan Department of Transportation (MDOT) is not sufficient to maintain the “status quo” of the existing roadway network. Nor has it allowed LCRC to pave gravel roads that are in need of upgrading. In an effort to try and remedy this situation, several communities around Genoa Township have successfully passed road improvement/maintenance bond issues or millages. Township residents have come to the realization that if local money is not spent on the county roadway network system, the situation will get worse before it gets better. Genoa Township is exploring the idea of asking their residents to contribute to expand and improve their local roadway network.

In early 2013, the Township staff conducted a citizen survey asking about basic services provided by the Township to better understand where improvement efforts should be focused. Overwhelmingly, the survey showed that nearly 66% of the respondents indicated they were willing to pay more in taxes for road paving/maintenance. The respondents ranked roadway improvements over 20% higher than the next highest category that included police, fire and emergency medical services.

The Township authorized Hubbell, Roth & Clark (HRC) to prepare this Master Plan in May of 2013. The purpose of the Master Plan was to identify the locations where road improvements where necessary, and to prepare Engineers Opinion of Probable Cost estimates for each location.

This Master Plan will be the basis for identifying which roadways need improvement, when they are anticipated to be improved and how much the project will cost.

During development of this Master Plan numerous meetings occurred between Township staff, leaders from LCRC and HRC to review locations of potential roadway's that were in need of improvement. The scope of the various desired roadway improvements were also reviewed. When applicable, historical LCRC/MDOT plans and previous cost estimates were utilized to assist in the development of information contained in this Master Plan. Table 2 below summarizes the locations of the roadway improvement projects identified in those meetings. It lists the projects in priority order, the desired year of construction for each site and the Engineers Opinion of Probable Costs for each.

Table 2 – Project Location and Cost Summary

| Project Location | Construction Year | Engineers Opinion of Probable Project Cost |
|-------------------------------|--------------------------|---|
| Crooked Lake Road | 2014 | \$2,800,000 |
| Latson Road | 2014 | \$1,850,000 |
| Beck Road | 2015 | \$2,950,000 |
| Conrad/Challis Roads | 2015 | \$1,925,000 |
| Challis/Bauer Intersection | 2015 | \$2,100,000 |
| Herbst Road | 2016 | \$3,900,000 |
| Cunningham Lake & Bauer Roads | 2016 | \$3,650,000 |
| Bauer Road | 2016 | \$1,250,000 |
| Hughes Road | 2016 | \$2,550,000 |
| Grand Total = | | \$22,975,000 |

The *Road Improvement Location Plan* on the following page shows the various sites of the improvements throughout the Township.

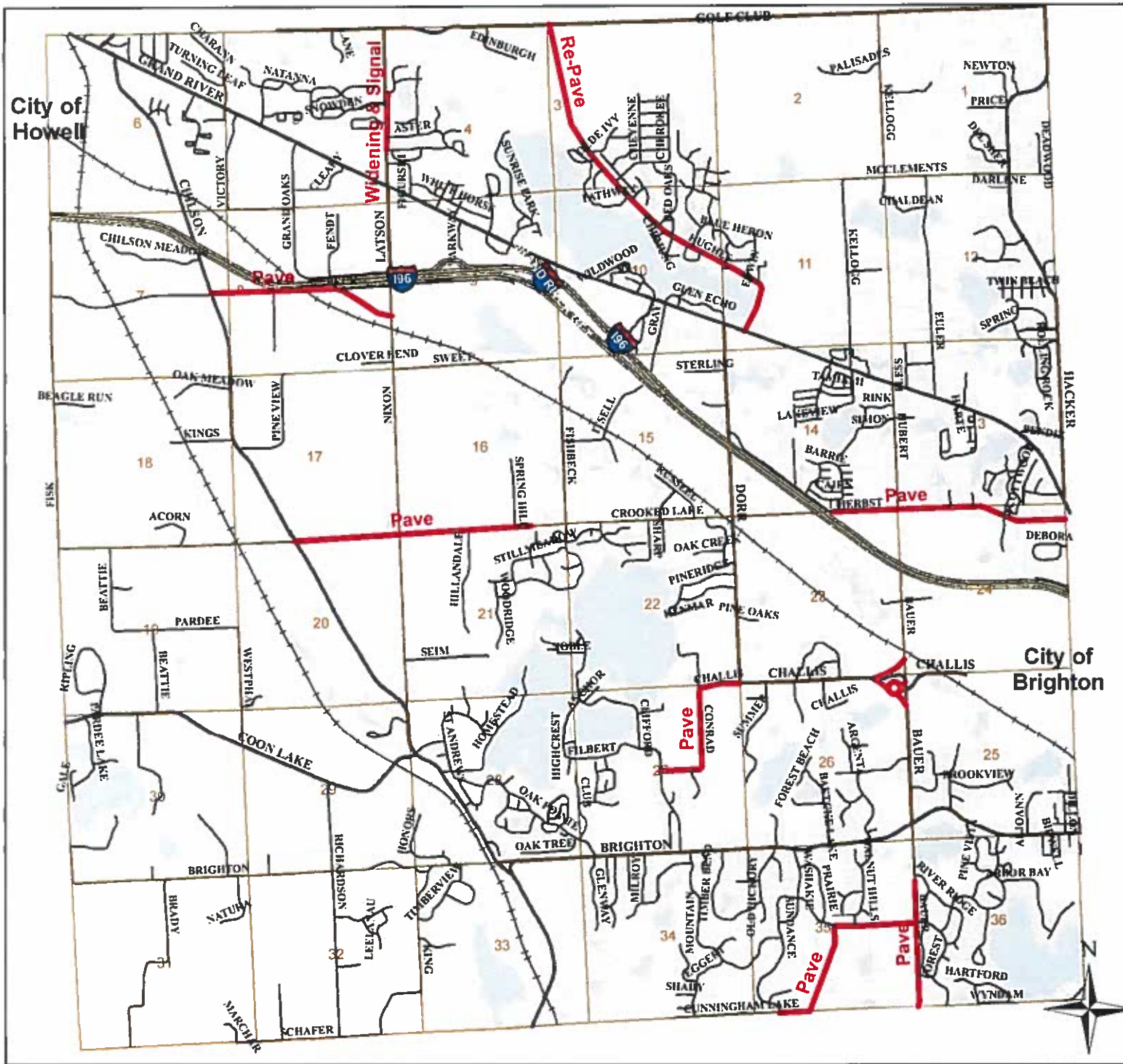
The limits of the roadway improvements shown in Table 2, along with a description of the important work assumptions are included in the following sections of this Master Plan. A detailed Engineers Opinion of Probable Cost for each location is also included for each location.



Capital Improvements Road Projects 2013-2019

Legend

-  Gravel Rd Projects
-  Road Pave Projects
-  Lakes
-  Parcels
-  Sections
-  Railroad
-  Interstate
-  Major Rd
-  Minor Rd



Crooked Lake Road

Once the Latson Road interchange at I-96 is completed, Crooked Lake Road will become a major paved east/west connector roadway through the Township connecting Challis Road to Dorr Road. The limits of the proposed paving improvements will commence at Chilson Road and extend east to Lakewood Shores Drive. The existing gravel portion of Crooked Lake Road will be paved. The easterly $\pm 900'$ of paved roadway west of Lakewood Shores Drive will be crushed and shaped to provide a uniform, consistent cross section, to better match the new roadway to the west. From discussions with LCRC the proposed cross-sections of Crooked Lake Road will be as follows:

| | <i>Chilson Road to just east of Spring Hill Drive</i> | <i>Just east of Spring Hill Drive to Lakewood Shores Drive</i> |
|-----------------------------|---|--|
| Proposed Improvement | Width or Thickness | Width or Thickness |
| Paved Lanes - 2 total | 11' | 11' |
| Paved Shoulder | 3' | 3' |
| Gravel Shoulder | 3' | 3' |
| HMA | 5" | 5" |
| 21AA limestone base | 10" | n/a |
| Class II sand sub-base | 9" | n/a |

LCRC shared with Genoa Township and HRC a copy of a soils report they had commissioned from SME back in August 2002. This soils report identified a proposed cross sections for the paving of Crooked Lake Road from Chilson Road to Fishbeck Road. A copy of the *Pavement Recommendation* section of the SME report is included in this section for reference. The pavement cross sections noted above closely reflect the recommendations identified by SME, with the exception of the easterly 900' of Crooked Lake Road. The easterly 900' section of Crooked Lake Road has been paved by an adjacent development that was built between 2002 and now. Therefore, after discussions between the Township and LCRC, it was agreed upon that this easterly 900' length of roadway only be crush-and-shaped, rather than fully reconstructed to the cross section noted in the SME report.

The intersection of Crooked Lake Road and Nixon Road will be improved (turning lanes, tapers, etc.) as part of MDOTs paving work on Nixon Road. Therefore, the Townships portion of the paving work will simply tie into the east and west limits of this improved intersection.

The vertical grade is relatively flat along the route of the proposed improvements. Therefore, dependent ditches (i.e. the grade of the ditch bottom will parallel the adjacent centerline roadway grade) will be utilized to direct drainage to existing drainage courses/outlets.

The horizontal location of the new paved roadway will need to be evaluated further during the design process. It appears that a majority of the properties along the route are acreage parcels

that are described to the road centerline. Therefore, the existing roadway location will need to be analyzed against the prescribed right-of-way (ROW) and the determination of easements and or additional ROW will have to be made at a later date.

The Township's CIP indicates a desire to have a safety path along this section of Crooked Lake Road. Therefore a 10' plateau will be provided one foot inside of the ROW line on the north side of Crooked Lake Road for the future safety path from Nixon Road to Lakewood Shores Drive.

The following Engineers Opinion of Probable Cost has been prepared for this section of roadway improvement based on the above scope of work.

DRAFT



Ms. Jodie Tedesco
 Livingston County Road Commission
 August 12, 2002
 Page 5

Excerpt from SME report

Groundwater was encountered at borings B16 and B17 at 5 to 6 feet below the ground surface. However, it should be noted that the existing roadway is acting somewhat as a dam in that area. We observed a pond along the north side of the road having a decorative fountain and water levels along the north side of the road were within 5 feet of the existing road surface. Water levels on the south side of the road are about 15 feet lower than the road. There is some evidence of seepage out of the side slope along the south side of the road but no signs of major erosion problems at the time of our visit. Groundwater was not encountered in the other borings.

PAVEMENT RECOMMENDATIONS

Based on the subgrade and drainage conditions encountered, we recommend a pavement cross section using a sand subbase as the typical section for inorganic subgrade areas. The subgrade encountered generally consists of clayey sands and sandy clay, and a sand subbase layer will provide needed frost heave and subgrade softening resistance. Special pavement sections using geotextile or geogrid reinforcement should be used in the peat marsh areas. Because of potential high groundwater conditions near boring B17, we have recommended a section using a capillary break layer in that area. Since the roadway at boring B12 is significantly above the peat marsh water surface, we have recommended a layer of geogrid reinforcement in that area without a capillary break layer. Table 3 provides some general observations regarding drainage conditions along the existing roadway:

Table 3. General Drainage Comments

| Location | Comment |
|-------------------------------|--|
| <i>East of B1</i> | Cross culvert and drainage improvements may be needed. |
| <i>Between B5 and B6</i> | Cross culvert and drainage improvements may be needed. |
| <i>Entrance to New School</i> | Low poorly drained area needs drainage improvements. |
| <i>Near Boring B10</i> | Cross culvert and drainage improvements may be needed. |
| <i>Borings B11 and B12</i> | Peat marsh area- grades are affected by existing Hillandale Street which is between low areas. |
| <i>from B12 to B14</i> | Cut area with poor drainage and wash/erosion along side of existing road needs drainage improvements. |
| <i>Borings B16 and B17</i> | Peat marsh/dam area- pond with fountain along north side of road may need to be protected during construction. |

We recommend the roadway geometry proposed at the peat marsh areas near boring B12, and borings B16 and B17 be closely reviewed. In both of these areas, grade raises should be minimized. Especially near boring B12, where about 8 to 10 feet of weak clayey fill

Consultants in the geosciences, materials, and the environment

Ms. Jodie Tedesco
Livingston County Road Commission
August 12, 2002
Page 6

Excerpt from SME report

was overlying a peat marsh deposit. This entire section of embankment may need to be reconstructed if grade increases are needed over this peat marsh.

Subgrade Preparation

The pavement areas should be cleared, grubbed, and excavated to grade by removing surface vegetation, topsoil, and other deleterious materials to expose suitable inorganic subgrade soils. Cut-to-fill transition areas and areas of shallow fill should be evaluated for the presence of buried topsoil layers beneath existing fill. Buried topsoil is most hidden and yet closest to the pavement surface in these areas. There is a potential for reduced pavement performance if these layers are left in place under the future paved surface. Depending on the nature and thickness of buried topsoil layers encountered, some additional undercutting may be necessary.

The upper 12 inches of subgrade, undercut areas, and all fill layers should be compacted to a minimum of 95 percent of the maximum modified Proctor dry density. In areas where the existing aggregate surfacing will remain as a subbase for the new pavement, widening areas should be undercut to a depth of 12 inches, improved, and backfilled with MDOT 23A road gravel to provide support similar to the existing roadbed conditions in the widening areas.

The final subgrade elevation should be proofrolled using a fully loaded tandem axle truck. Any loose or soft areas should be recompacted, undercut and replaced with engineered fill, or stabilized by other means as dictated by the site conditions at the time of construction. The criteria for the proofroll should be a maximum of ¼ inch of deflection or rutting.

Subgrade manipulation in the form of compaction should be expected and required in the contract documents. Also, undercutting may be required in order to provide a stable subgrade in some areas. The type and quantity of stabilization used should be determined by a qualified geotechnical/pavement engineer, based on field conditions encountered during construction. Therefore, some contingencies for subgrade preparation and undercutting should also be included in the project budget.

Since the site soils are frost susceptible and given the potential of perched groundwater conditions, we do not recommend construction of the pavements during the spring thaw period when these soils are typically in their weakest condition and may contain frost

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 Livingston County Road Commission
 August 12, 2002
 Page 7

Excerpt from SME report

lenses. Positive site drainage should be established early and the stormwater collection system installed at that time to assist in drainage of the site.

Recommended Sections

Per our discussions, the current traffic levels on this aggregate surfaced roadway are about 1500 vehicles per day (vpd). Shortly after paving traffic levels are anticipated to rise to about 3,000 vpd being about 3% heavy commercial vehicles. About 5 years after paving, traffic levels are anticipated to be at about 5,300 vpd. At about ten years after paving, traffic levels are anticipated to be at about 6,800 vpd. About 10 years after construction, a new freeway ramp is expected to open adding a 5,000 vpd jump in traffic volume to a level of 11,800 vpd. At about 20 years after paving, traffic is anticipated to be at about 16,000 vpd. Based on the assumption of 0.8 Equivalent Single Axle Loads per commercial vehicle, Table 4 summarizes the design cumulative traffic information:

Table 4. Summary of Traffic Data

| Traffic Period | 2-Way vpd Initial Value | 2-Way vpd Final Value | Percent Commercial | Growth Rate | Cumulative ESAL |
|----------------|-------------------------|-----------------------|--------------------|-------------|-----------------|
| 0 to 5 yr | 3,000 | 5,300 | 3% | 12% | 114,900 |
| 5 to 10 yr | 5,300 | 6,800 | 3% | 5% | 131,500 |
| 10 to 20 yr | *11,800 | 16,000 | 3% | 3% | 601,400 |
| Total: | | | | | 847,800 |

NOTE: ESAL Estimate based on 0.8 ESAL per commercial vehicle

* Reflects a jump due to the proposed ramp at I-96 and Latson Road

The subgrade conditions encountered are generally fair to poor. We have assigned an overall resilient modulus value of 3,500 psi for inorganic portions of Crooked Lake Road. Based on the AASHTO pavement design methodology the following minimum structural number is recommended:

$$M_R = 3,500 \rightarrow SN > 4.11$$

The pavement sections recommended below were selected based on the discussions stated in the previous sections of this report and our experience with similar projects and pavements in the area. The recommended layer materials refer to standard material designations listed in the 2003 edition of the "Standard Specifications for Construction" prepared by the Michigan Department of Transportation (MDOT), unless otherwise

Consultants in the geosciences, materials, and the environment

Ms. Jodie Tedesco
 Livingston County Road Commission
 August 12, 2002
 Page 8

Excerpt from SME report

modified in this report. The following tables present the layer material and thickness recommended for the pavements:

TYPICAL SAND SUBBASE SECTION
RECOMMENDED MATERIALS AND LAYERS

| LAYER | MATERIAL | THICKNESS (in) |
|----------------|---------------|----------------|
| Surface | MDOT 4C | 2.0 |
| Leveling | MDOT 3C | 3.0 |
| Aggregate Base | MDOT 21AA | 10.0 |
| Sand Subbase | MDOT Class II | 9.0 |

PEAT MARSH AREA NEAR B12: 65' W. OF B12 TO 125' E OF B12
RECOMMENDED MATERIALS AND LAYERS

| LAYER | MATERIAL | THICKNESS (in) |
|----------------|-----------------|----------------|
| Surface | MDOT 4C | 2.0 |
| Leveling | MDOT 3C | 3.0 |
| Aggregate Base | MDOT 21AA | 10.0 |
| Geogrid | BX1200 or equal | -- |
| Sand Subbase | MDOT Class II | 12.0 |

PEAT MARSH AREA NEAR B17: 100' W. OF B17 TO 100' E OF B17
RECOMMENDED MATERIALS AND LAYERS

| LAYER | MATERIAL | THICKNESS (in) |
|-------------------------|---------------------|----------------|
| Surface | MDOT 4C | 2.0 |
| Leveling | MDOT 3C | 3.0 |
| Aggregate Base | MDOT 21AA | 10.0 |
| Heavy Duty Woven Fabric | AMOCO 2016 or equal | -- |
| Capillary Break Layer | MDOT 4G Aggregate | 9.0 |
| Heavy Duty Woven Fabric | AMOCO 2016 or equal | -- |

CONSTRUCTION NOTES

In order to provide adequate service life and to protect the pavement investment, we present the following construction notes. These notes should be included in the project specifications and should be implemented during construction activities:

1. In general, earthwork and pavement construction should be performed in accordance with MDOT 2003 Standard Specifications for Construction unless otherwise noted in the following items.
2. Remove any existing topsoil, vegetation, trees and other deleterious materials to expose the subgrade soil. Tree roots should be completely removed.

Consultants in the geosciences, materials, and the environment



Crooked Lake Road

Chilson Road to Lakewood Shores Drive

Description: Pave existing gravel road for 1.5 miles with two (2) 11' lanes, 3' paved shoulders, 3' gravel shoulder. The new pavement section will be 5" HMA on 10" 21AA limestone on 9" of sand for the section along the gravel road. The crush and shape section is proposed to be 5" of HMA on existing crushed material/aggregate base. Turn lanes will be provided at Chilson and Nixon Roads. Safety path grading along the north side of the road from Nixon to Lakewood Shores.

| No. | Item | Qty | Unit Price | Cost |
|---|--------------------------------|------------|------------|--------------------|
| 1 | Pavement Removal | 0 syd | \$6 | \$0 |
| 2 | Curb & Gutter Removal | 0 ft | \$6 | \$0 |
| 3 | HMA Base Crushing & Shaping | 2,800 syd | \$3 | \$7,000 |
| 4 | Station Grading | 75 sta | \$2,000 | \$150,000 |
| 5 | Station Grading, Safety Path | 60 sta | \$500 | \$30,000 |
| 6 | Subgrade Undercutting | 2,000 cyd | \$30 | \$60,000 |
| 7 | Subgrade Underdrain | 0 ft | \$8 | \$0 |
| 8 | Subbase, Sand, 9 inches | 7,100 cyd | \$16 | \$113,600 |
| 9 | Aggregate Base, 21AA Limestone | 15,000 ton | \$20 | \$300,000 |
| 10 | Gravel Shoulder | 1,500 ton | \$18 | \$27,000 |
| 11 | HMA, 5 inch | 7,900 ton | \$85 | \$671,500 |
| 12 | HMA, Base Repair | 0 ton | \$100 | \$0 |
| 13 | Curb & Gutter | 500 ft | \$20 | \$10,000 |
| 14 | Driveway Approach | 30 ea | \$2,500 | \$75,000 |
| 15 | Lawn Restoration | 9 ac | \$10,000 | \$90,000 |
| 16 | Clearing & Grubbing | allowance | \$10,000 | \$10,000 |
| 17 | Storm Sewer | allowance | \$100,000 | \$100,000 |
| 18 | Erosion Control | allowance | \$75,000 | \$75,000 |
| 19 | Pavement Markings & Signs | allowance | \$15,000 | \$15,000 |
| 20 | Maintain Traffic | allowance | \$20,000 | \$20,000 |
| 21 | Traffic Control | allowance | \$10,000 | \$10,000 |
| 22 | Mobilization | allowance | \$150,000 | \$150,000 |
| 23 | Intersection Improvements | allowance | \$20,000 | \$20,000 |
| 24 | ROW/Easements | allowance | \$100,000 | \$100,000 |
| 25 | Wetlands | allowance | \$30,000 | \$30,000 |
| 26 | Permits | allowance | \$5,000 | \$5,000 |
| Subtotal Construction Cost | | | | \$2,069,100 |
| Contingencies (~15%) | | | | \$317,080 |
| Legal, Eng, Admin (20%) | | | | <u>\$413,820</u> |
| Total Engineers Opinion of Probable Cost | | | | \$2,800,000 |



Latson Road

Once the Latson Road interchange at I-96 is completed, the existing Latson Road north of the limits where MDOT terminates their work, will need to be improved. The scope of the MDOT improvements are proposed to end at Aster Boulevard. Currently there is a mix of passing lanes and acceleration/deceleration lanes for the residential developments that abut Latson Road north of Aster Boulevard. The scope of the proposed Township improvements will reconstruct the existing Latson Road from Aster Boulevard north, to just past the last residential development entrance. The new roadway will have a consistent and linear 3 lane cross section which will provide a center left turn lane. Acceleration and deceleration lanes will be provided for all of the existing residential developments roadways within the project limits. In addition to the roadway improvements, the Township desires to have a traffic signal installed at the intersection of Latson Road and Hampton Ridge Boulevard. From discussions with LCRC the proposed cross-sections of the new Latson Road will be as follows:

| | <i>Aster Boulevard to north of existing residential developments</i> |
|-----------------------------|--|
| Proposed Improvement | Width or Thickness |
| Paved Lanes | 3 @ 11' |
| Paved Shoulder | 3' |
| Gravel Shoulder | 3' |
| HMA | 8" |
| 21AA limestone base | 8" |
| Class II sand sub-base | 12" |

LCRC has indicated a desire to have a replacement roadway be a more substantial HMA section and include sand in the roadway subgrade for drainage. Since Latson Road is major north-south connector road, LCRC needs the structural design of this roadway to be able to handle the projected high vehicle volumes and high percentage of truck traffic the new interchange will bring to it. The cross section noted above will need further evaluation during the design phase to make sure it is structurally compatible with the future projected traffic volumes.

Conflicts with existing public utilities in the area of MHOGs existing pump station (on the east side of Latson Road, roughly across from Snowden Boulevard) may impact the design parameters of this project. MHOG identified several of its infrastructure components during MDOT's recent design process for the Latson Road interchange that could have implications on the Township's desired work area.

Storm water drainage within the limits of the Townships paving area will need to be addressed. There is an existing 30" storm sewer pipe crossing Latson Road, just north of Snowden Boulevard. Also, MDOT recently installed a 21" storm sewer on the east side of Latson Road at

the northern limits of their project. Dealing with these existing drainage facilities, along with their adjacent wetland areas, will need further evaluation during the roadway design process.

Due to the current traffic conditions, there are often difficulties with vehicles exiting the residential developments onto Latson Road north of Grand River Avenue. If a traffic signal were to be installed on Latson Road and Hampton Ridge Boulevard, it will provide gaps in the north-south flow of traffic, thereby making turns out of the adjacent subdivisions easier. Conceptual discussions with LCRC have yielded a positive response to the addition of this signal. However, a traffic signal warrant study will need to be conducted as part of the overall projects design to provide confirmation to LCRC that this proposed signal will provide the desired traffic movement improvements.

The Township's CIP indicates a desire to have a safety path along the east side of Latson Road. Therefore, where mass grading will be occurring within the ROW, a 10' plateau will be provided one foot inside of the ROW line on the east side of the roadway for the future safety path.

The following Engineers Opinion of Probable Cost has been prepared for this section of roadway improvement based on the above scope of work.



Latson Road

Aster Blvd to North of Conover Ct

Description: Remove existing pavement and install three (3) 11' lanes, 3' paved shoulder and 3' gravel shoulder. Pavement Section will be 8" HMA on 8" 21AA limestone on 12" of sand. Acceleration/deceleration tapers will be provided at subdivision entrances. Safety Path grading along the east side of the road.

| No. | Item | Qty | Unit Price | Cost |
|---|--------------------------------|-----------|------------|--------------------|
| 1 | Storm Sewer Removal | 1,500 ft | \$25 | \$37,500 |
| 2 | Pavement Removal | 8,000 syd | \$6 | \$48,000 |
| 3 | Curb & Gutter Removal | 2,000 ft | \$6 | \$12,000 |
| 4 | HMA Base Crushing & Shaping | 0 syd | \$3 | \$0 |
| 5 | Station Grading | 19 sta | \$2,000 | \$38,000 |
| 6 | Station Grading, Safety Path | 15 sta | \$500 | \$7,500 |
| 7 | Subgrade Undercutting | 700 cyd | \$30 | \$21,000 |
| 8 | Subgrade Underdrain | 500 ft | \$8 | \$4,000 |
| 9 | Subbase, Sand | 3,200 cyd | \$16 | \$51,200 |
| 10 | Aggregate Base, 21AA Limestone | 3,800 ton | \$20 | \$76,000 |
| 11 | Gravel Shoulder | 400 ton | \$18 | \$7,200 |
| 12 | HMA, 8 inch | 4,000 ton | \$85 | \$340,000 |
| 13 | HMA, Base Repair | 0 ton | \$100 | \$0 |
| 14 | Curb & Gutter | 2,000 ft | \$20 | \$40,000 |
| 15 | Driveway Approach | 1 ea | \$2,500 | \$2,500 |
| 16 | Lawn Restoration | 2 ac | \$10,000 | \$20,000 |
| 17 | Traffic Signal, Hampton Ridge | allowance | \$160,000 | \$160,000 |
| 18 | Public Utility Relocation | allowance | \$100,000 | \$100,000 |
| 19 | Clearing & Grubbing | allowance | \$10,000 | \$10,000 |
| 20 | Storm Sewer | allowance | \$100,000 | \$100,000 |
| 21 | Erosion Control | allowance | \$25,000 | \$25,000 |
| 22 | Pavement Markings & Signs | allowance | \$20,000 | \$20,000 |
| 23 | Maintain Traffic | allowance | \$20,000 | \$20,000 |
| 24 | Traffic Control | allowance | \$10,000 | \$10,000 |
| 25 | Mobilization | allowance | \$100,000 | \$100,000 |
| 26 | Intersection Improvements | allowance | \$90,000 | \$90,000 |
| 27 | Easements | allowance | \$10,000 | \$10,000 |
| 28 | Wetlands | allowance | \$30,000 | \$30,000 |
| 29 | Permits | allowance | \$5,000 | \$5,000 |
| Subtotal Construction Cost | | | | \$1,384,900 |
| Contingencies (~15%) | | | | \$188,120 |
| Legal, Eng, Admin (20%) | | | | <u>\$276,980</u> |
| Total Engineers Opinion of Probable Cost | | | | \$1,850,000 |



Beck Road

Like Crooked Lake Road, once the Latson Road interchange at I-96 is completed, Beck Road will become a major east-west connector road linking Chilson Road to the newly paved Nixon Road. The existing gravel section of Beck Road is proposed to be paved from Chilson Road to the end of MDOT's limits of the intersection improvements as part of the interchange project. From discussions with LCRC the proposed cross-sections of the new Beck Road will be as follows:

| <i>Chilson Road to Nixon Road</i> | |
|-----------------------------------|---------------------------|
| Proposed Improvement | Width or Thickness |
| Paved Lanes - 2 total | 11' |
| Paved Shoulder | 3' |
| Gravel Shoulder | 3' |
| HMA | 5" |
| 21AA limestone base | 8" |
| Class II sand sub-base | 12" |

Since LCRC anticipates a high volume of traffic (including trucks) utilizing Beck Road as access to Chilson Road, they indicated to the Township to include sand in the new roadway's subgrade.

At the time this Master Plan is being prepared, the disposition of the section of Beck Road that was relocated as part of MDOT's interchange work is unknown. MDOT had a quality control issue with scrap metal rods in the crushed concrete surface that was recently installed on Beck Road. If the crushed concrete were to be left in place, the Township's roadway paving improvements could be placed directly on top of the existing surface with little base preparation. However, MDOT may be removing the crushed concrete and replacing with 23A gravel. If this remedy is implemented, it will mean that Genoa Township will have to remove this gravel and complete additional excavation to prepare subgrade prior to placing the new HMA pavement.

A major cost in this segment of roadway improvement is dealing with the at-grade railroad crossing that currently exists on Beck Road, about halfway between Chilson and Nixon Roads. In conversations with LCRC, they indicated that MDOT recently spent over \$600,000 in construction costs to improve the at-grade crossing on Nixon Road (the next existing rail crossing immediately southeast of the existing crossing on Beck Road). This constraint will add complexity to the engineering design and ultimately the construction cost of this project.

LCRC has also expressed potential design complexities for the intersection of Beck and Chilson Roads. The intersection currently exists at a low point along Chilson Road that presents problems with sight distances and drainage. LCRC has indicated a willingness to participate in the alleviation, or reduction, of these potential issues if/when the Township makes improvement

problems with sight distances and drainage. LCRC has indicated a willingness to participate in the alleviation, or reduction, of these potential issues if/when the Township makes improvement to Beck Road. Since no firm commitments were made by LCRC during the preparation of this Master Plan, further discussion with LCRC will be necessary to determine magnitude of the issues as well as the funding of the resolution(s).

The vertical grade is reasonably flat along the route of the proposed improvements. Therefore, dependent ditches will be utilized to direct drainage to existing drainage courses/outlets.

The horizontal location of the new paved roadway will need to be evaluated further during the design process. It appears that a majority of the properties along the route are acreage parcels that are described to the road centerline. Therefore, the existing roadway location will need to be analyzed against the prescribed ROW and the determination of easements and or additional ROW will have to be made at a later date.

The Township's CIP does not anticipate safety path within the limits of this proposed roadway improvement project. Therefore, no grading provisions for a future pathway have been included in the scope of this work.

The following Engineers Opinion of Probable Cost has been prepared for this section of roadway improvement based on the above scope of work.

Beck Road

Chilson Road to Nixon Road

Description: Pave existing gravel road for 1.1 miles with two (2) 11' lanes, 3' paved shoulders, 3' gravel shoulder. the new pavement section will be 5" HMA on 8" 21AA limestone on 12" of sand. Turn lanes will be provided at Chilson Road.

| No. | Item | Qty | Unit Price | Cost |
|---|--------------------------------|-----------|------------|--------------------|
| 1 | Pavement Removal | 0 syd | \$6 | \$0 |
| 2 | Curb & Gutter Removal | 0 ft | \$6 | \$0 |
| 3 | HMA Base Crushing & Shaping | 0 syd | \$3 | \$0 |
| 4 | Station Grading | 60 sta | \$1,500 | \$90,000 |
| 5 | Station Grading, Safety Path | 0 sta | \$500 | \$0 |
| 6 | Subgrade Undercutting | 1,500 cyd | \$30 | \$45,000 |
| 7 | Subgrade Underdrain | 1,000 ft | \$8 | \$8,000 |
| 8 | Subbase, Sand | 7,600 cyd | \$16 | \$121,600 |
| 9 | Aggregate Base, 21AA Limestone | 9,100 ton | \$20 | \$182,000 |
| 10 | Gravel Shoulder | 1,200 ton | \$18 | \$21,600 |
| 11 | HMA, 5 inch | 5,200 ton | \$85 | \$442,000 |
| 12 | HMA, Base Repair | 0 ton | \$100 | \$0 |
| 13 | Curb & Gutter | 2,800 ft | \$20 | \$56,000 |
| 14 | Driveway Approach | 20 ea | \$2,500 | \$50,000 |
| 15 | Lawn Restoration | 7 ac | \$10,000 | \$70,000 |
| 16 | Rail Road Crossing, At-Grade | allowance | \$600,000 | \$600,000 |
| 17 | Clearing & Grubbing | allowance | \$10,000 | \$10,000 |
| 18 | Storm Sewer | allowance | \$75,000 | \$75,000 |
| 19 | Erosion Control | allowance | \$75,000 | \$75,000 |
| 20 | Pavement Markings & Signs | allowance | \$25,000 | \$25,000 |
| 21 | Maintain Traffic | allowance | \$20,000 | \$20,000 |
| 22 | Traffic Control | allowance | \$10,000 | \$10,000 |
| 23 | Mobilization | allowance | \$150,000 | \$150,000 |
| 24 | Intersection Improvements | allowance | \$50,000 | \$50,000 |
| 25 | Easements | allowance | \$20,000 | \$20,000 |
| 26 | Wetlands | allowance | \$0 | \$0 |
| 27 | Permits | allowance | \$5,000 | \$5,000 |
| Subtotal Construction Cost | | | | \$2,126,200 |
| Inflation (1 year @ 4%) | | | | \$85,048 |
| Contingencies (~15%) | | | | \$313,512 |
| Legal, Eng, Admin (20%) | | | | \$425,240 |
| Total Engineers Opinion of Probable Cost | | | | \$2,950,000 |

Conrad Road / Challis Road

Conrad Road and Challis Road are proposed to be improved from Clifford Road to Dorr Road, thereby providing another paved east-west connector through the middle of the Township. Improving this section of roadway will include substantial design challenges due to the existing: severe grades (both horizontal and vertical), ROW constraints, trees/vegetation and wetlands. Dealing with these complicated conditions will impact the construction cost of this project.

Back in 2007, LCRC completed design plans and prepared a preliminary construction cost estimate to improve this section of roadway. A copy of their Engineer's Opinion of Cost dated March 9, 2007 is attached in this section. They estimated the proposed construction cost of the road work to be \$1.4M in 2007 dollars. Adjusting their cost estimate for inflation (at an annual rate of 4%), this would translate into an estimated construction cost of \$1.925M in 2015 dollars.

The horizontal location of the new paved roadway will need to be evaluated further during the design process. It appears that a majority of the properties along the route are acreage parcels that are described to the road centerline. Therefore, the existing roadway location will need to be analyzed against the prescribed ROW and the determination of easements and or additional ROW will have to be made at a later date.

It is speculated that acquiring ROW has the potential to be complicated along the proposed roadway improvement route. Therefore, the Township may need to be prepared to consider alternative means of acquiring ROW or modify construction methods/techniques/materials to limit the amount of ROW needed to construct the desired roadway improvements (i.e. retaining walls, modified roadway sections, etc.), all of which may have impacts on the total project costs.

The Township's CIP does not anticipate safety path within the limits of this proposed roadway improvement project. Therefore, no grading provisions for a future pathway have been included in the scope of this work.

Engineer's Opinion of Costs

Project Number: 459.446 Conrad
Estimate Number: 1
Project Type: Miscellaneous
Location: Challis and Conrad Roads, Genoa Twp. Sect. 27

Project Engineer: J.Tedesco
Date Created: 3/9/2007
Fed/State #:
Fed Item:
Control Section:

Description: Grade, Drain, Pave.

| Line | Pay Item | Description | Quantity | Units | Unit Price | Total |
|------|----------|---|------------|-------|-------------|--------------|
| 0001 | 1000001 | Mobilization, Max. _____ | 1.000 | LS | \$50,000.00 | \$50,000.00 |
| 0002 | 2020002 | Tree, Rem, 19 inch to 36 inch | 47.000 | Ea | \$550.00 | \$25,850.00 |
| 0003 | 2020003 | Tree, Rem, 37 inch or larger | 1.000 | Ea | \$1,000.00 | \$1,000.00 |
| 0004 | 2020004 | Tree, Rem, 6 inch to 18 inch | 449.000 | Ea | \$225.00 | \$101,025.00 |
| 0005 | 2030001 | Culv, Rem, Less than 24 inch | 3.000 | Ea | \$228.94 | \$686.82 |
| 0006 | 2030005 | Culv End, Rem, Less than 24 inch | 1.000 | Ea | \$200.00 | \$200.00 |
| 0007 | 2030015 | Sewer, Rem, Less than 24 inch | 10.000 | Ft | \$25.00 | \$250.00 |
| 0008 | 2037050 | _ Dr Structure Cover, Salvage | 1.000 | Ea | \$100.00 | \$100.00 |
| 0009 | 2040006 | Curb and Gutter, Rem | 420.000 | Ft | \$4.54 | \$1,906.80 |
| 0010 | 2040009 | Fence, Rem | 4,700.000 | Ft | \$1.50 | \$7,050.00 |
| 0011 | 2040011 | Pavt, Rem | 503.000 | Syd | \$4.00 | \$2,012.00 |
| 0012 | 2047001 | _ Fence, Splitrail, Salvage | 350.000 | Ft | \$3.00 | \$1,050.00 |
| 0013 | 2047011 | _ Driveway Preparation, Special | 1,277.000 | Syd | \$4.00 | \$5,108.00 |
| 0014 | 2050010 | Embankment, CIP | 8,950.000 | Cyd | \$5.92 | \$52,984.00 |
| 0015 | 2050016 | Excavation, Earth | 13,920.000 | Cyd | \$7.46 | \$103,843.20 |
| 0016 | 2050035 | Subgrade Manipulation | 19,000.000 | Syd | \$1.50 | \$28,500.00 |
| 0017 | 2050041 | Subgrade Undercutting, Type II | 1,000.000 | Cyd | \$20.00 | \$20,000.00 |
| 0018 | 2070001 | Obliterate Old Road | 2.000 | Sta | \$200.00 | \$400.00 |
| 0019 | 2080025 | Erosion Control, Silt Fence | 6,750.000 | Ft | \$1.50 | \$10,125.00 |
| 0020 | 3017021 | _ 5G Light Weight Blast Furnace Slag, CIP | 2,145.000 | Cyd | \$30.00 | \$64,350.00 |
| 0021 | 3027011 | _ Aggregate Base, 8 inch, Mod 21AA Limestone | 22,897.000 | Syd | \$12.00 | \$274,764.00 |
| 0022 | 3030020 | Geotextile Separator | 6,815.000 | Syd | \$2.00 | \$13,630.00 |
| 0023 | 3037011 | _ Structural Geogrid, Special | 3,178.000 | Syd | \$5.50 | \$17,479.00 |
| 0024 | 3070001 | Approach, CI I | 305.000 | Ton | \$20.00 | \$6,100.00 |

| Line | Pay Item | Description | Quantity | Units | Unit Price | Total |
|------|----------|--|-----------|-------|------------|--------------|
| 0025 | 3070021 | Approach, CI II | 225.000 | Ton | \$22.77 | \$5,123.25 |
| 0026 | 3070121 | Shoulder, CI II | 88.000 | Ton | \$25.00 | \$2,200.00 |
| 0027 | 4010321 | Culv, CI E, Conc, 15 inch | 100.000 | Ft | \$40.00 | \$4,000.00 |
| 0028 | 4010401 | Culv, CI A, CSP, 15 inch | 47.000 | Ft | \$35.00 | \$1,645.00 |
| 0029 | 4010840 | Culv End Sect, Conc, 12 inch | 1.000 | Ea | \$360.00 | \$360.00 |
| 0030 | 4010841 | Culv End Sect, Conc, 15 inch | 5.000 | Ea | \$440.00 | \$2,200.00 |
| 0031 | 4010861 | Culv End Sect, Metal, 15 inch | 2.000 | Ea | \$175.00 | \$350.00 |
| 0032 | 4020720 | Sewer, CI II, 12 inch, Tr Det A | 300.000 | Ft | \$25.00 | \$7,500.00 |
| 0033 | 4020721 | Sewer, CI II, 15 inch, Tr Det A | 40.000 | Ft | \$40.00 | \$1,600.00 |
| 0034 | 4020866 | Sewer, CI III, 12 inch, Tr Det B | 16.000 | Ft | \$50.00 | \$800.00 |
| 0035 | 4021205 | Sewer Tap, 15 inch | 1.000 | Ea | \$500.00 | \$500.00 |
| 0036 | 4021232 | Sewer Bulkhead, 18 inch | 1.000 | Ea | \$200.00 | \$200.00 |
| 0037 | 4030005 | Dr Structure, 48 inch dia | 4.000 | Ea | \$1,200.00 | \$4,800.00 |
| 0038 | 4030050 | Dr Structure, Adj, Add Depth | 8.000 | Ft | \$350.00 | \$2,800.00 |
| 0039 | 4030051 | Dr Structure Cover | 1,370.000 | Lb | \$1.00 | \$1,370.00 |
| 0040 | 4030052 | Dr Structure Cover, Adj, Case 1 | 1.000 | Ea | \$306.06 | \$306.06 |
| 0041 | 4030053 | Dr Structure Cover, Adj, Case 2 | 4.000 | Ea | \$300.00 | \$1,200.00 |
| 0042 | 4030064 | Dr Structure, Tap, 12 inch | 2.000 | Ea | \$275.00 | \$550.00 |
| 0043 | 4037050 | _ Dr Structure Cover, Salvage, Install | 1.000 | Ea | \$300.00 | \$300.00 |
| 0044 | 5020009 | Edge Trimming | 322.000 | Ft | \$3.50 | \$1,127.00 |
| 0045 | 5020031 | HMA, 3C | 3,950.000 | Ton | \$54.00 | \$213,300.00 |
| 0046 | 5020034 | HMA, 13A | 1,750.000 | Ton | \$54.00 | \$94,500.00 |
| 0047 | 5020061 | HMA Approach | 176.000 | Ton | \$90.00 | \$15,840.00 |
| 0048 | 8020016 | Curb and Gutter, Conc, Det B2 | 9,920.000 | Ft | \$13.00 | \$128,960.00 |
| 0049 | 8020038 | Curb and Gutter, Conc, Det F4 | 240.000 | Ft | \$15.00 | \$3,600.00 |
| 0050 | 8020050 | Driveway Opening, Conc, Det M | 80.000 | Ft | \$15.00 | \$1,200.00 |
| 0051 | 8020055 | Shoulder Gutter, Conc, Det 1 | 4.000 | Ea | \$300.00 | \$1,200.00 |
| 0052 | 8020056 | Shoulder Gutter, Conc, Det 2 | 5.000 | Ea | \$300.00 | \$1,500.00 |
| 0053 | 8020057 | Shoulder Gutter, Conc, Det 3 | 9.000 | Ea | \$300.00 | \$2,700.00 |
| 0054 | 8020075 | Spillway, Conc | 93.000 | Ft | \$22.10 | \$2,055.30 |

| Line | Pay Item | Description | Quantity | Units | Unit Price | Total |
|---------------------------------------|----------|--|------------|-------|------------|-------------|
| 0055 | 8080002 | Fence, Woven Wire with Steel Post | 5,900.000 | Ft | \$5.00 | \$29,500.00 |
| 0056 | 8110110 | Pavt Mrkg, Waterborne, 4 inch, White | 10,800.000 | Ft | \$0.15 | \$1,620.00 |
| 0057 | 8110111 | Pavt Mrkg, Waterborne, 4 inch, Yellow | 10,800.000 | Ft | \$0.15 | \$1,620.00 |
| 0058 | 8120005 | Barricade, Type III, High Intensity, Lighted, Furn | 8.000 | Ea | \$84.97 | \$679.76 |
| 0059 | 8120006 | Barricade, Type III, High Intensity, Lighted, Oper | 8.000 | Ea | \$20.00 | \$160.00 |
| 0060 | 8120030 | Flag Control | 1.000 | LS | \$2,000.00 | \$2,000.00 |
| 0061 | 8120050 | Minor Traf Devices | 1.000 | LS | \$1,000.00 | \$1,000.00 |
| 0062 | 8120102 | Plastic Drum, High Intensity, Lighted, Furn | 50.000 | Ea | \$20.94 | \$1,047.00 |
| 0063 | 8120103 | Plastic Drum, High Intensity, Lighted, Oper | 50.000 | Ea | \$5.97 | \$298.50 |
| 0064 | 8120120 | Sign, Type B, Temp, Furn | 400.000 | Sft | \$3.26 | \$1,304.00 |
| 0065 | 8120121 | Sign, Type B, Temp, Oper | 400.000 | Sft | \$0.79 | \$316.00 |
| 0066 | 8130010 | Riprap, Plain | 84.000 | Syd | \$40.54 | \$3,405.36 |
| 0067 | 8160020 | Fertilizer, Chemical Nutrient, CI A | 912.000 | Lb | \$1.60 | \$1,459.20 |
| 0068 | 8160025 | Mulch | 17,074.000 | Syd | \$0.20 | \$3,414.80 |
| 0069 | 8160026 | Mulch Anchoring | 17,074.000 | Syd | \$0.10 | \$1,707.40 |
| 0070 | 8160027 | Mulch Blanket | 2,286.000 | Syd | \$1.20 | \$2,743.20 |
| 0071 | 8160035 | Seeding, Mixture CR | 50.000 | Lb | \$1.30 | \$65.00 |
| 0072 | 8160039 | Seeding, Mixture THM | 880.000 | Lb | \$2.85 | \$2,508.00 |
| 0073 | 8160061 | Topsoil Surface, Furn, 3 inch | 19,360.000 | Syd | \$2.15 | \$41,624.00 |
| Estimate Total: \$1,388,672.65 | | | | | | |

Challis Road / Bauer Road Roundabout

Due to existing traffic volumes and turning movements there is a need to improve the intersection of Challis Road and Bauer Road. There are complicated features of this location (i.e. severe vertical grades, the close proximity of two 3-legged intersections to each other, the traffic volumes, high turning movements, etc.) that make a traditional signalized intersection a less than desirable solution. LCRC has been aware of the site's complications for many years and have conceptually determined that a roundabout would be the best intersection control measure to mitigate the existing site constraints. In addition to the roundabout at the southern Challis Road intersection, there would be other road alignment changes needed to accommodate the traffic volumes and traffic safety issues. These include abandonment of the section of Bauer Road between the two existing legs of Challis Road and the realignment/reconnection of the existing Challis Road west of the Bauer Road intersection. The attached rendering shows one concept for a redesigned intersection.

The design of a roundabout is a very complicated process taking into account design vehicle size, traffic volumes, turning movements, existing utilities, grading constraints, ROW needs, etc. Due to these complexities, the sizing and conceptual design of the potential roundabout is beyond the scope of this Master Plan document. However, based on the attached rendering, the Township could expect the construction cost of the improvement shown to be in the range of \$1.8M to \$2.3M in 2015 dollars. The costs for ROW and utility relocations were not included in this estimated range of cost.

The Township's CIP anticipates a safety path extension on Challis Road. While an allowance has been included in the Engineers Opinion of Probable Cost for the grading of a path plateau in this area, substantial pedestrian improvements within, and adjacent to, the roundabout have not. This location and complexity of the pedestrian improvements for this intersection will need to be further defined during the engineering design phase.

The pavement on Challis Road east of the intersection with Bauer Road is in poor condition. In conversations with LCRC, they have indicated a willingness to participate in the rehabilitation of this section of roadway when the Township constructs the roundabout. The Engineers Opinion of Probable Cost contained in this Master Plan do not include any costs/allowance for this additional pavement improvement.

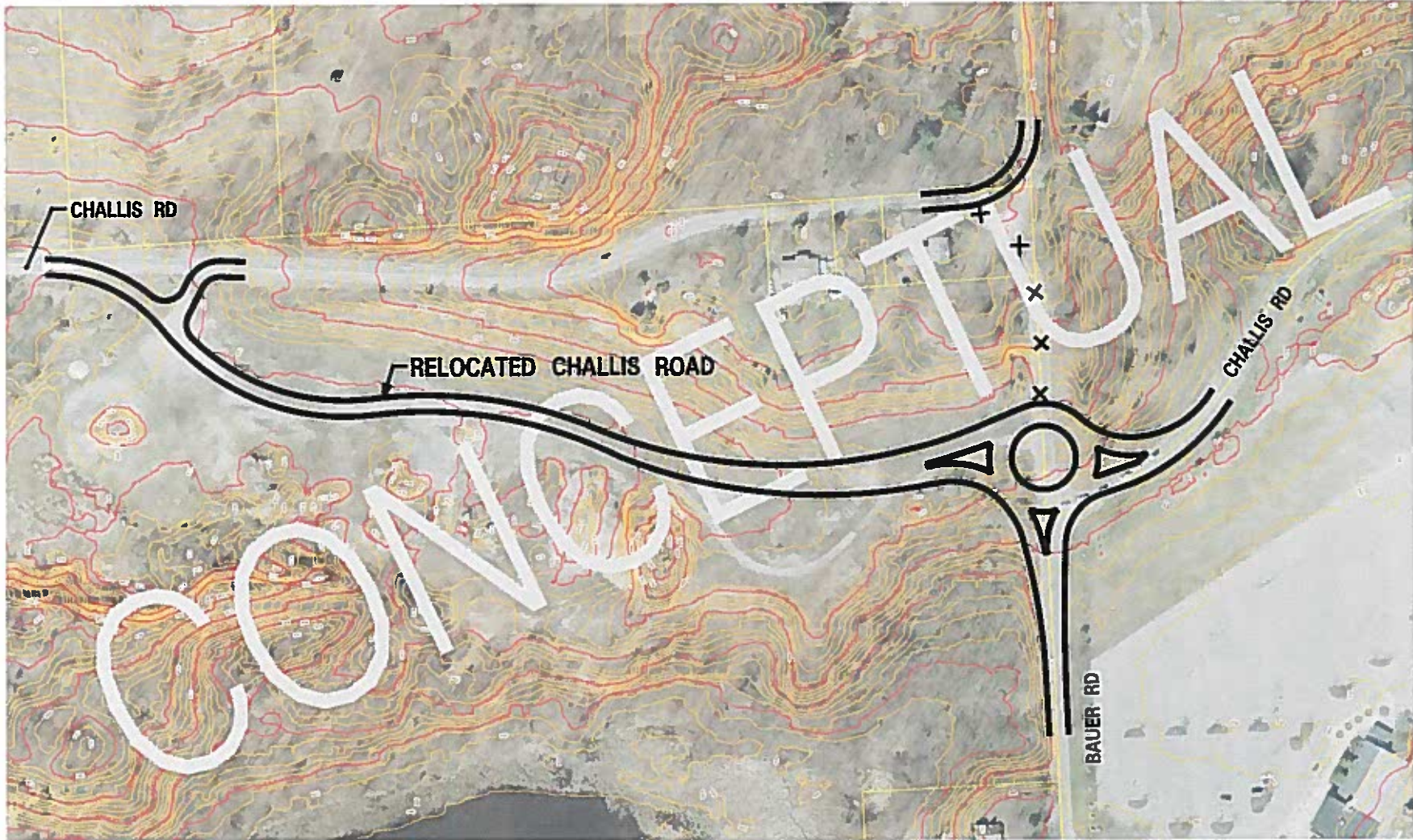
DATE: 11/11/13 10:58

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DESIGNER: J. HUBBELL

DATE: 11/11/13 10:58

SCALE: 1" = 40'



NO SCALE

CHALLIS AND BAUER RD ROUND-ABOUT

| | | |
|---------------------|---|-----------|
| JOB NO. 20130237 | HUBBELL, ROTH & CLARK, INC. | SHEET NO. |
| DATE JULY 2013 | CONSULTING ENGINEERS 105 W. GRAND RIVER AVE. HOWELL, MICHIGAN | 48843 OF |

Herbst Road

Herbst Road is proposed to be improved along its entire length, from Dorr Road all the way to Grand River Avenue. On the western end, from Dorr Road to Acre Hill, the existing paved roadway will be crushed and shaped. On the eastern end, from Acre Hill to Grand River Avenue, the gravel portion of the roadway will be paved. From discussions with LCRC the proposed cross-sections of Herbst Road will be as follows:

| | <i>Dorr Road to Acre Hill</i> | <i>Acre Hill to Grand River Avenue</i> |
|-----------------------------|-------------------------------|--|
| Proposed Improvement | Width or Thickness | Width or Thickness |
| Paved Lanes - 2 total | 11' | 11' |
| Paved Shoulder | 3' | 3' |
| Gravel Shoulder | 3' | 3' |
| HMA | 4" | 5" |
| 2 1/2" limestone base | n/a | 8" |
| Class II sand sub-base | n/a | 12" |

During the design engineering phase of this project, additional field information will need to be collected on the existing paved section of Herbst Road to confirm if the assumption of a 4" thick replacement section is sufficient for the existing and future traffic loads. Also, complications with existing sight distance and horizontal alignment will add to the complexity of the design on the east end of the project. LCRC has expressed concern about the existing ROW along the eastern end of this project. Further analysis will be needed on this matter as well.

LCRC has made some preparatory improvements to the Herbst Road leg of the intersection at Grand River in anticipation of a future paving project. This will help to minimize the paving costs to the intersection. We note that this easterly end of Herbst Road happens to fall outside of the corporate limits of Genoa Township. Therefore, there will like need to be discussions between the Genoa and Brighton Townships about the financial responsibilities of the easterly end of Herbst Road.

The vertical grade is relatively flat along the route of the proposed improvements. Therefore, dependent ditches will be utilized to direct drainage to existing drainage courses/outlets.

The horizontal location of the new paved roadway will need to be evaluated further during the design process. It appears that a majority of the properties along the route are acreage parcels that are described to the road centerline. Therefore, the existing roadway location will need to be analyzed against the prescribed ROW and the determination of easements and or additional ROW will be have to be made at a later date.

The Township's CIP does not anticipate safety path within the limits of this proposed roadway improvement project. Therefore, no grading provisions for a future pathway have been included in the scope of this work.

The following Engineers Opinion of Probable Cost has been prepared for this section of roadway improvement based on the above scope of work.

DRAFT



Herbst Road

Dorr Road to Grand River Ave

Description: Crush and Shape the existing roadway from Dorr Road to Acre Hill and pave the existing gravel road from Acre Hill to Grand River Ave. The section for the crush and shape roadway will be two (2) 11' lanes, 3' paved shoulder and 3' gravel shoulder. The pavement section will be 4" HMA on existing crushed material. The section of the existing gravel road will be two (2) 11' lanes, 3' paved shoulder and 3' gravel shoulder. The new pavement section will be 5" HMA, 8" Limestone Aggregate on 12" sand subbase.

| No. | Item | Qty | Unit Price | Cost |
|---|--------------------------------|------------|------------|--------------------|
| 1 | Pavement Removal | 0 syd | \$6 | \$0 |
| 2 | Curb & Gutter Removal | 1,000 ft | \$6 | \$6,000 |
| 3 | HMA Base Crushing & Shaping | 11,000 syd | \$3 | \$27,500 |
| 4 | Station Grading | 92 sta | \$2,000 | \$184,000 |
| 5 | Station Grading, Safety Path | 0 sta | \$500 | \$0 |
| 6 | Subgrade Undercutting | 2,800 cyd | \$30 | \$84,000 |
| 7 | Subgrade Underdrain | 1,000 ft | \$8 | \$8,000 |
| 8 | Subbase, Sand | 11,600 cyd | \$16 | \$185,600 |
| 9 | Aggregate Base, 21AA Limestone | 14,000 ton | \$20 | \$280,000 |
| 10 | Gravel Shoulder | 1,900 ton | \$18 | \$34,200 |
| 11 | HMA | 11,000 ton | \$85 | \$935,000 |
| 12 | HMA, Base Repair | 0 ton | \$100 | \$0 |
| 13 | Curb & Gutter | 3,000 ft | \$20 | \$60,000 |
| 14 | Driveway Approach | 50 ea | \$2,500 | \$125,000 |
| 15 | Lawn Restoration | 13 ac | \$10,000 | \$130,000 |
| 16 | Clearing & Grubbing | allowance | \$75,000 | \$75,000 |
| 17 | Storm Sewer | allowance | \$75,000 | \$75,000 |
| 18 | Erosion Control | allowance | \$100,000 | \$100,000 |
| 19 | Pavement Markings & Signs | allowance | \$50,000 | \$50,000 |
| 20 | Maintain Traffic | allowance | \$20,000 | \$20,000 |
| 21 | Traffic Control | allowance | \$10,000 | \$10,000 |
| 22 | Mobilization | allowance | \$200,000 | \$200,000 |
| 23 | Intersection Improvements | allowance | \$50,000 | \$50,000 |
| 24 | Easements | allowance | \$75,000 | \$75,000 |
| 25 | Wetlands | allowance | \$25,000 | \$25,000 |
| 26 | Permits | allowance | \$5,000 | \$5,000 |
| Subtotal Construction Cost | | | | \$2,744,300 |
| Inflation (2 years @ 4% each) | | | | \$223,935 |
| Contingencies (~15%) | | | | \$382,905 |
| Legal, Eng, Admin (20%) | | | | <u>\$548,860</u> |
| Total Engineers Opinion of Probable Cost | | | | \$3,900,000 |

Cunningham Lake Road & Bauer Road

Subdivision cut-through traffic is an existing issue in the southeast corner of the Township. This is mainly caused by drivers looking for a paved roadway surface to travel from the densely populated residential subdivisions to the City of Brighton (to the north) or towards Hamburg/Pinckney (to the south). Improving Cunningham Lake Road, and the northerly section of Bauer Road will provide motorists with paved connector roads thereby providing them an alternative from the internal subdivision roads. The proposed improvements will pave Cunningham Lake Road from Sundance Trail to Bauer Road, then north on Bauer Road from Cunningham Lake Road to the existing end of pavement south of River Ridge. The existing paved portion of Bauer Road, from River Ridge to Brighton Road, is proposed to be crushed and shaped. From discussions with LCRC the proposed cross-sections of these roadway improvements will be as follows:

| | <i>Cunningham Lake Road</i> | <i>Bauer Road - to be paved</i> | <i>Bauer Road - Crush & Shaped</i> |
|-----------------------------|-------------------------------------|--|--|
| | <i>Sundance Trail to Bauer Road</i> | <i>Cunningham Lake Road to River Ridge</i> | <i>River Ridge to Brighton Road</i> |
| Proposed Improvement | Width or Thickness | Width or Thickness | Width or Thickness |
| Paved Lanes - 2 total | 11' | 11' | 11' |
| Paved Shoulder | as ROW allows | 3' | 3' |
| Gravel Shoulder | as ROW allows | 3' | 3' |
| HMA | 5" | 5" | 5" |
| 21AA limestone base | 8" | 8" | n/a |
| Class II sand sub-base | n/a | 12" | n/a |

LCRC anticipates an increased traffic volume utilizing Bauer Road once it is paved, and since Bauer Road is a major north-south connector road, they have indicated to the Township to include sand in the new roadway's subgrade.

Improving this section of roadway will include substantial design challenges due to the existing: severe grades (both horizontal and vertical), ROW constraints, trees/vegetation and wetlands. Dealing with these complicated conditions will impact the construction cost of this project.

It is expected that a substantial amount of concrete curb and gutter will be needed to help reduce the complications associated with significant grading (i.e. additional ROW, temporary grading easements, need for enclosed storm sewer pipe to handle storm water, etc.). While an allowance for these items has been included in the Engineers Opinion of Probable Cost, the magnitude and final quantity of these items will not be determined until detail design engineering is completed.

The horizontal location of the new paved roadway will need to be evaluated further during the design process. It appears that a majority of the properties along the route are acreage parcels

that are described to the road centerline. Therefore, the existing roadway location will need to be analyzed against the prescribed ROW and the determination of easements and or additional ROW will be have to be made at a later date.

The Township's CIP does not anticipate safety path along Cunningham Lake Road. Therefore, no grading provisions for a future pathway have been included in the scope of this work for this portion of the project.

A safety path does exist along the east side of Bauer Road within the limits of the project. Currently, the elevation of the safety path is well below the surface of the existing Bauer Road. This may have the potential to create drainage issues when dealing with the roadway storm water runoff. An allowance has been included in the Engineers Opinion of Probable Cost for this issue.

The following Engineers Opinion of Probable Cost has been prepared for this section of roadway improvement based on the above scope of work.

DRAFT

Cunningham Lake-Bauer Road

Cunningham Lk Rd - Sundance Tr to Bauer Rd & Bauer Rd - Cunningham Lk Rd to Brighton Rd

Description: Pave existing gravel road for 1.5 miles with two (2) 11' lanes, 3' paved shoulders and 3' gravel shoulder. There may be sections of the roadway where the shoulder widths are reduced due to right of way constraints. The pavement section will be 5" HMA on 8" limestone aggregate on 12" sand subbase (sand is not proposed for the Cunningham Lk Rd section). The crush and shape section will be two (2) 11' lanes, 3' paved shoulders and 3' gravel shoulders. The pavement section will be 5" HMA on existing crushed material.

| No. | Item | Qty | Unit Price | Cost |
|---|--------------------------------|------------|------------|--------------------|
| 1 | Pavement Removal | 2,000 syd | \$6 | \$12,000 |
| 2 | Curb & Gutter Removal | 1,000 ft | \$6 | \$6,000 |
| 3 | HMA Base Crushing & Shaping | 6,000 syd | \$3 | \$15,000 |
| 4 | Station Grading | 79 sta | \$3,000 | \$237,000 |
| 5 | Station Grading, Safety Path | 15 sta | \$500 | \$7,500 |
| 6 | Subgrade Undercutting | 2,400 cyd | \$30 | \$72,000 |
| 7 | Subgrade Underdrain | 500 ft | \$8 | \$4,000 |
| 8 | Subbase, Sand | 2,000 cyd | \$16 | \$32,000 |
| 9 | Aggregate Base, 21AA Limestone | 12,000 ton | \$20 | \$240,000 |
| 10 | Gravel Shoulder | 1,600 ton | \$18 | \$28,800 |
| 11 | HMA | 9,000 ton | \$85 | \$765,000 |
| 12 | HMA Safety Path | 2,000 syd | \$25 | \$50,000 |
| 13 | HMA, Base Repair | 0 ton | \$100 | \$0 |
| 14 | Curb & Gutter | 1,000 ft | \$20 | \$20,000 |
| 15 | Driveway Approach | 25 ea | \$2,500 | \$62,500 |
| 16 | Lawn Restoration | 11 ac | \$10,000 | \$110,000 |
| 17 | Clearing & Grubbing | allowance | \$100,000 | \$100,000 |
| 18 | Storm Sewer | allowance | \$100,000 | \$100,000 |
| 19 | Erosion Control | allowance | \$100,000 | \$100,000 |
| 20 | Pavement Markings & Signs | allowance | \$50,000 | \$50,000 |
| 21 | Maintain Traffic | allowance | \$75,000 | \$75,000 |
| 22 | Traffic Control | allowance | \$25,000 | \$25,000 |
| 23 | Mobilization | allowance | \$180,000 | \$180,000 |
| 24 | Intersection Improvements | allowance | \$100,000 | \$100,000 |
| 25 | Easements | allowance | \$75,000 | \$75,000 |
| 26 | Wetlands | allowance | \$75,000 | \$75,000 |
| 27 | Permits | allowance | \$10,000 | \$10,000 |
| Subtotal Construction Cost | | | | \$2,551,800 |
| Inflation (2 years @ 4% each) | | | | \$208,227 |
| Contingencies (~15%) | | | | \$379,613 |
| Legal, Eng, Admin (20%) | | | | <u>\$510,360</u> |
| Total Engineers Opinion of Probable Cost | | | | \$3,650,000 |

Bauer Road

As a natural extension to the above project, the scope of this projects improvement proposes to pave Bauer Road from Cunningham Lake Road south to Genoa Township's southern border with Hamburg Township. Also, discussions with Hamburg Township indicated that they are considering paving Bauer Road from their northerly boundary south to Maltby Road. From discussions with LCRC the proposed cross-section of the new Bauer Road will be as follows:

| <i>Cunningham Lake Road to southern Township limits</i> | |
|---|---------------------------|
| Proposed Improvement | Width or Thickness |
| Paved Lanes - 2 total | 11' |
| Paved Shoulder | 3' |
| Gravel Shoulder | 3' |
| HMA | 5" |
| 21AA limestone base | 8" |
| Class II sand sub-base | 12" |

LCRC anticipates an increased traffic volume utilizing Bauer Road once it is paved, and since Bauer Road is a major north/south connector road, they have indicated to the Township to include sand in the new roadway subgrade.

The vertical grade is relatively flat along the route of the proposed improvements. Therefore, dependent ditches will be utilized to direct drainage to existing drainage courses/outlets.

A safety path exists along the east side of Bauer Road within the limits of the project. Currently, some of the elevation of the safety path is well below the surface of the existing Bauer Road on the north end, while on the southern end the path is at or above the roadway elevation. The southern end of the path meets the edge of the existing gravel road. A pedestrian crossing is expected to be constructed to connect the path to the unofficial parking area that exists on the west side of Bauer Road at the Township's border.

The following Engineers Opinion of Probable Cost has been prepared for this section of roadway improvement based on the above scope of work.

Bauer Road

Cunningham Lake Road to the Southern Township Limits

Description: Pave existing gravel road for 0.5 miles with two (2) 11' lanes, 3' paved shoulder, 3' gravel shoulder. The new pavement section will be 5" HMA, 8" limestone aggregate on 12" sand subbase.

| No. | Item | Qty | Unit Price | Cost |
|---|--------------------------------|-----------|------------|--------------------|
| 1 | Pavement Removal | 0 syd | \$6 | \$0 |
| 2 | Curb & Gutter Removal | 0 ft | \$6 | \$0 |
| 3 | HMA Base Crushing & Shaping | 0 syd | \$3 | \$0 |
| 4 | Station Grading | 28 sta | \$2,000 | \$56,000 |
| 5 | Station Grading, Safety Path | 28 sta | \$500 | \$14,000 |
| 6 | Subgrade Undercutting | 700 cyd | \$30 | \$21,000 |
| 7 | Subgrade Underdrain | 500 ft | \$8 | \$4,000 |
| 8 | Subbase, Sand | 3,600 cyd | \$16 | \$57,600 |
| 9 | Aggregate Base, 21AA Limestone | 4,500 ton | \$20 | \$90,000 |
| 10 | Gravel Shoulder | 600 ton | \$18 | \$10,800 |
| 11 | HMA, 5 inch | 2,700 ton | \$85 | \$229,500 |
| 12 | HMA Safety Path | 3,200 syd | \$25 | \$80,000 |
| 13 | HMA, Base Repair | 0 ton | \$100 | \$0 |
| 14 | Curb & Gutter | 0 ft | \$20 | \$0 |
| 15 | Driveway Approach | 4 ea | \$2,500 | \$10,000 |
| 16 | Lawn Restoration | 4 ac | \$10,000 | \$40,000 |
| 17 | Clearing & Grubbing | allowance | \$50,000 | \$50,000 |
| 18 | Storm Sewer | allowance | \$50,000 | \$50,000 |
| 19 | Erosion Control | allowance | \$30,000 | \$30,000 |
| 20 | Pavement Markings & Signs | allowance | \$15,000 | \$15,000 |
| 21 | Maintain Traffic | allowance | \$20,000 | \$20,000 |
| 22 | Traffic Control | allowance | \$10,000 | \$10,000 |
| 23 | Mobilization | allowance | \$60,000 | \$60,000 |
| 24 | Intersection Improvements | allowance | \$0 | \$0 |
| 25 | Easements | allowance | \$10,000 | \$10,000 |
| 26 | Wetlands | allowance | \$0 | \$0 |
| 27 | Permits | allowance | \$5,000 | \$5,000 |
| Subtotal Construction Cost | | | | \$862,900 |
| Inflation (2 years @ 4% each) | | | | \$70,413 |
| Contingencies (~15%) | | | | \$144,107 |
| Legal, Eng, Admin (20%) | | | | <u>\$172,580</u> |
| Total Engineers Opinion of Probable Cost | | | | \$1,250,000 |

Hughes Road

Hughes Road is currently paved from Grand River Avenue to Golf Club Drive. However the surface is in poor condition and is in need of rehabilitation. The existing asphalt pavement on the southern section (Grand River Ave to Cherokee Bend) will be milled and overlaid due to the thickness of the existing pavement (8.5" to over 9" thick). The existing pavement on the north section (Cherokee Bend to Golf Club Drive) will be crushed and shaped. From discussions with LCRC the proposed cross-sections for the rehabilitation of Hughes Road will be as follows:

| | <i>Grand River to Cherokee Bend</i> | <i>Cherokee Bend to Golf Club Drive</i> |
|-----------------------------|---|---|
| Proposed Improvement | Width or Thickness | Width or Thickness |
| Paved Lanes - 2 total | Match existing | 11' |
| Paved Shoulder | as ROW allows | 3' |
| Gravel Shoulder | as ROW allows | 3' |
| HMA | 4" | 4" |
| 21AA limestone base | n/a | n/a |
| Class II sand sub-base | n/a | n/a |

The Township's CIP does identify a safety path within the southern half of this proposed roadway improvement project. However, due to the existing narrow ROW and the close proximity of existing building structures to the existing roadway, it was decided by the Township and LCRC not to install, or prepare for installation of a safety path along this route. Therefore, no grading provisions for a future pathway have been included in the scope of this work.

The following Engineers Opinion of Probable Cost has been prepared for this section of roadway improvement based on the above scope of work.

Hughes Road

Golf Club Drive to Grand River Avenue

Description: The roadway from Grand River Ave will be milled and overlaid. From Cherokee Bend to Golf Club Drive the roadway will be crushed and shaped with a new cross-section of two (2) 11' lanes, 3' paved shoulder, 3' gravel shoulder. The pavement section will be 4" HMA on existing crushed material.

| No. | Item | Qty | Unit Price | Cost |
|---|--------------------------------|------------|------------|--------------------|
| 1 | Pavement Removal | 5,000 syd | \$6 | \$30,000 |
| 2 | Curb & Gutter Removal | 0 ft | \$6 | \$0 |
| 3 | HMA Base Crushing & Shaping | 20,000 syd | \$3 | \$50,000 |
| 4 | Station Grading | 0 sta | \$2,000 | \$0 |
| 5 | Station Grading, Safety Path | 0 sta | \$500 | \$0 |
| 6 | Subgrade Undercutting | 1,000 cyd | \$30 | \$30,000 |
| 7 | Subgrade Underdrain | 500 ft | \$8 | \$4,000 |
| 8 | Subbase, Sand | 0 cyd | \$16 | \$0 |
| 9 | Aggregate Base, 21AA Limestone | 0 ton | \$20 | \$0 |
| 10 | Gravel Shoulder | 1,000 ton | \$18 | \$18,000 |
| 11 | HMA | 10,000 ton | \$85 | \$850,000 |
| 12 | HMA, Base Repair | 2,200 ton | \$100 | \$220,000 |
| 13 | Curb & Gutter | 0 ft | \$20 | \$0 |
| 14 | Driveway Approach | 60 ea | \$2,500 | \$150,000 |
| 15 | Lawn Restoration | 7 ac | \$10,000 | \$70,000 |
| 16 | Clearing & Grubbing | allowance | \$0 | \$0 |
| 17 | Storm Sewer | allowance | \$50,000 | \$50,000 |
| 18 | Erosion Control | allowance | \$40,000 | \$40,000 |
| 19 | Pavement Markings & Signs | allowance | \$20,000 | \$20,000 |
| 20 | Maintain Traffic | allowance | \$40,000 | \$40,000 |
| 21 | Traffic Control | allowance | \$20,000 | \$20,000 |
| 22 | Mobilization | allowance | \$125,000 | \$125,000 |
| 23 | Intersection Improvements | allowance | \$50,000 | \$50,000 |
| 24 | Easements | allowance | \$10,000 | \$10,000 |
| 25 | Wetlands | allowance | \$0 | \$0 |
| 26 | Permits | allowance | \$5,000 | \$5,000 |
| Subtotal Construction Cost | | | | \$1,782,000 |
| Inflation (4% @ 2yrs) | | | | \$145,411 |
| Contingencies (~15%) | | | | \$266,189 |
| Legal, Eng, Admin (20%) | | | | <u>\$356,400</u> |
| Total Engineers Opinion of Probable Cost | | | | \$2,550,000 |

MEMORANDUM

TO: Township Board

FROM: Michael Archinal 

DATE: August 15, 2013

RE: Road Millage Referendum

This evening's agenda includes a presentation of a Road Improvement Master Plan and a Resolution to Approve Ballot Language for a New Road Improvement Millage. At the last meeting the Board directed that we move forward with a referendum and that the General Fund subsidize the debt service at \$250,000 per year. Please find attached the following information:

- A revised debt service analysis assuming 2% growth in SEV and a \$250,000 General Fund subsidy at a millage rate of 1.5 Mills.
- Crash Statistics and Traffic Counts for the various project locations.
- Financing Schedule and Timetable for a Millage and Issuance of Capital Improvement Bonds.
- Resolution to Approve Ballot Language for a New Road Improvement Millage.

It is likely that a resident or two may be in attendance to express opposition to this concept. Most of the questions I have dealt with since this issue made the papers are related to justifying the specific projects. The text in the Road Improvement Master Plan and the Crash Statistics/Traffic Counts table help to explain why each of these areas was deemed a priority. In addition to current statistics several of the projects are listed because of the imminent impacts of the Latson Interchange. Crooked Lake paving, Beck paving and Latson signal and expansion all fall into this category.

I look forward to discussing this matter with you on Monday evening. Please consider approval of the resolution as presented.

ANNUAL YIELD AT 2% T.V. GROWTH

| YEAR | TAXABLE VALUE | T.V. @ 1.5 MILLS | DEBT SERVICE* | VARIANCE |
|-------------|----------------------|-------------------------|----------------------|-----------------------|
| 2014 | \$ 994,688,522 | \$ 1,492,033 | \$ 1,962,160 | \$ (470,127) |
| 2015 | \$ 1,014,582,292 | \$ 1,521,873 | \$ 1,962,160 | \$ (440,287) |
| 2016 | \$ 1,034,873,938 | \$ 1,552,311 | \$ 1,962,160 | \$ (409,849) |
| 2017 | \$ 1,055,571,417 | \$ 1,583,357 | \$ 1,962,160 | \$ (378,803) |
| 2018 | \$ 1,076,682,845 | \$ 1,615,024 | \$ 1,962,160 | \$ (347,136) |
| 2019 | \$ 1,098,216,502 | \$ 1,647,325 | \$ 1,962,160 | \$ (314,835) |
| 2020 | \$ 1,120,180,832 | \$ 1,680,271 | \$ 1,962,160 | \$ (281,889) |
| 2021 | \$ 1,142,584,449 | \$ 1,713,877 | \$ 1,962,160 | \$ (248,283) |
| 2022 | \$ 1,165,436,138 | \$ 1,748,154 | \$ 1,962,160 | \$ (214,006) |
| 2023 | \$ 1,188,744,861 | \$ 1,783,117 | \$ 1,962,160 | \$ (179,043) |
| 2024 | \$ 1,212,519,758 | \$ 1,818,780 | \$ 1,962,160 | \$ (143,380) |
| 2025 | \$ 1,236,770,153 | \$ 1,855,155 | \$ 1,962,160 | \$ (107,005) |
| 2026 | \$ 1,261,505,556 | \$ 1,892,258 | \$ 1,962,160 | \$ (69,902) |
| 2027 | \$ 1,286,735,667 | \$ 1,930,104 | \$ 1,962,160 | \$ (32,056) |
| 2028 | \$ 1,312,470,381 | \$ 1,968,706 | \$ 1,962,160 | \$ 6,546 |
| | | | | \$ (3,630,055) |

***\$22,599,000 Level Debt Service 15 Year @ 3.5%: \$1,962,160**

****\$250,000 General Fund Subsidy X 15 Years = \$3,750,000**

**Genoa Township Road Millage
Crash Statistics*/Traffic Counts****

| Location | Total Crashes | Total Injury Crashes | Total Fatal Crashes | Total Property Damage Crashes | Traffic Counts 2012 |
|----------------------|---------------|----------------------|---------------------|-------------------------------|---|
| Crooked Lake Road | 26 | 6 | 0 | 20 | 2,760 (between Chilson, Fishbeck) |
| Latson Road | 74 | 13 | 2 | 58 | 35,540 (between Grand River, Golf Club) |
| Beck Road | 3 | 1 | 0 | 2 | 320 (between Chilson, Nixon) |
| Conrad Road | 6 | 0 | 0 | 6 | 1,150 (between Clifford, Challis) |
| Challis Road | 12 | 3 | 0 | 9 | 1,200 (between Dorr, Conrad) |
| | | | | | 9,010 (between Bauer, Brighton Interior Drive) |
| Herbst Road | 11 | 0 | 0 | 11 | 1,800 (between Dorr, Grand River) |
| Cunningham Lake Road | 2 | 0 | 0 | 2 | 650 (between Sundance East, Bauer) |
| Bauer Road | 45 | 8 | 0 | 38 | 12,310 (between White Pines, Challis West) |
| | | | | | 2,080 (between Cunningham Lake, City-Township line) |
| Hughes Road | 20 | 4 | 1 | 15 | 7,970 (between Grand River, Golf Club) |

*Livingston County Road Commission 2011-12

**<http://www.livingstonroads.org/>

NOTE: The Livingston County Road Commission recommends that gravel roads be paved when traffic counts reach 1,000 vehicles.

**Genoa Charter Township
 Voter Approved Millage (1.5 mills) for Road Improvements
 and Issuance of Capital Improvement Bonds
 Financing Schedule and Timetable**

| <u>Step</u> | <u>Action</u> | <u>Date</u> |
|-------------|--|-------------------------------|
| 1. | Presentation to Township Board of Trustees | August 5, 2013 |
| 2. | Township Board of Trustees Adopts Resolution Approving Ballot Language for Road Improvement Millage | August 19, 2013 |
| 3. | Election on Road Millage | November 5, 2013 |
| 4. | Election Results are Certified | November __, 2013 |
| 5. | Plans and Specifications are Prepared and Finalized | November 2013 to January 2014 |
| 6. | Millage Levied on December Tax Bills | December 1, 2013 |
| 7. | Township Board of Trustees Adopts Resolution Authorizing Publication of Notice of Intent to Issue Bonds and providing for Preliminary Expenditures to be Reimbursed from Bond proceeds | December __, 2013 |
| 8. | Notice of Intent to Issue Bonds is Published in Livingston County Daily Press & Argus | December __, 2013 |
| 9. | Construction Documents Released to Contractors for Phase 1 of the Project | January, 2014 |
| 10. | Construction Bids Received from Contractors with a 90-day Hold Period for Phase 1 of the Project | February, 2014 |
| 11. | Expiration of 45 Days to File Petition Requesting a Referendum | February __, 2014 |
| 12. | Certificate of No-Referendum is signed | February __, 2014 |
| 13. | Confirm Qualifying Statement Status with Michigan Department of Treasury (based on 2013 fiscal year end) | February, 2014 |
| 14. | Township Board of Trustees Adopts Bond Authorizing Resolution with Bond Repayment Plan | February, 2014 |
| 15. | Apply for Rating on the Series 1 Bonds | March, 2014 |
| 16. | Prepare and Publish Preliminary Official Statement on the Series 1 | March, 2014 |
| 17. | Prepare and Publish Official Notice of Sale on the Series 1 | March, 2014 |
| 18. | Receive Rating on the Series 1 Bonds | March, 2014 |
| 19. | Conduct Bond Sale on the Series 1 | March, 2014 |

| <u>Step</u> | <u>Action</u> | <u>Date</u> |
|-------------|--|-------------|
| 20. | Township Authorized Officer signs Award Certificate for the Series 1 Bond Sale | March, 2014 |
| 21. | Publish Final Official Statement for the Series 1 Bonds | March, 2014 |
| 22. | Closing on Series 1 Bond Issue* | April, 2014 |
| 23. | Post-Closing Filing with the Department of Treasury | April, 2014 |
| 24. | Issue Notice to Proceed and Start Construction on Phase I of the Project | April, 2014 |
| 25. | Preparation of Plans and Specifications for Phase 2 of the Project | Fall 2014 |
| 26. | Steps Related to the Sale of the Series 2 Bonds | TBD |

*Certain intermediate steps have been omitted from the bond issuance process.

LAN01\317238 1
IDJPK - 070280\0031

GENOA CHARTER TOWNSHIP

At a regular meeting of the Board of Trustees of Genoa Charter Township, Livingston County, Michigan, (the "Township") held in the Township Offices, on August 19, 2013, at _____ p.m., there were

PRESENT: _____

ABSENT: _____

The following preamble and resolution were offered by _____ and supported by _____:

**Resolution to Approve Ballot Language
for a New Road Improvement Millage**

WHEREAS, the Constitution and statutes of the State of Michigan provide that the Township Board may submit a ballot question to the electors of the Township for the purposes of levying a new millage; and

WHEREAS, the Township Board hereby determines that it is necessary and appropriate to submit the ballot question set forth in this Resolution to the electorate of the Township.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWNSHIP BOARD AS FOLLOWS:

1. The following ballot proposition shall be submitted to a vote of the qualified electors of the Township at a special election to be held on Tuesday, November 5, 2013 (the "Special Election Date"):

Shall the limitation upon the amount of taxes which may be levied by Genoa Charter Township on all property within the Township be increased by 1.5 mills (\$1.50 on each \$1,000.00 of taxable valuation) for a period of fifteen (15) years, for the years 2013 through 2027 inclusive, for the purpose of raising funds for road improvement projects in Genoa Charter Township, including paying debt service on bonds to be issued for the purpose of financing road improvement projects. If approved and levied in full, this millage will raise an estimated \$1,492,003 in the first year the millage is levied.

2. The Township Clerk is directed to post and publish, as provided by law, Notice of Registration and Notice of the Election and to take all necessary actions to request any necessary or appropriate approvals of the proposed Special Election Date.

3. The Township Clerk shall have prepared and printed, as provided by law, ballots for voting on the above-referenced ballot question.

4. The officers, administrators and agents of the Township are authorized and directed to take all other actions necessary for the election called pursuant to this Resolution.

5. All resolutions, and parts of resolutions, in conflict with this resolution are hereby rescinded.

A ROLL-CALL VOTE ON THE RESOLUTION WAS TAKEN, THE RESULTS OF WHICH WERE AS FOLLOWS:

YEAS: _____

NAYS: _____

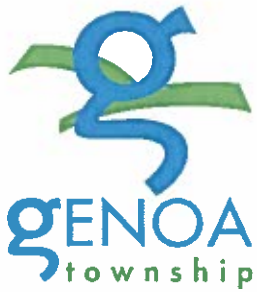
THE RESOLUTION WAS DECLARED ADOPTED.

The undersigned, being the duly qualified and acting Clerk of Genoa Charter Township, Livingston County, Michigan, hereby certifies that the foregoing is a true and complete copy of a resolution duly adopted at a meeting of the Township Board, at which meeting a quorum was present and remained throughout and that an original thereof is on file in the records of the Township. I further certify that the meeting was conducted, and public notice thereof was given, pursuant to and in full compliance with Act No. 267, Michigan Public Acts of 1976, as amended, and that minutes were kept and will be or have been made available as required thereby.

Paulette Skolarus, Clerk
Genoa Charter Township

Dated: August __, 2013

LAN01\317244.1
IDJPK - 070280\0031



2911 Dorr Road
Brighton, MI 48116
810.227.5225
810.227.3420 fax
genoa.org

MEMORANDUM

TO: Honorable Board of Trustees
FROM: Kelly VanMarter, Assistant Township Manager
DATE: August 15, 2013
RE: Proposal to create new interchange PUD District

MANAGER'S REVIEW: _____


Attached please find a proposal from LSL Planning to assist with drafting a new Interchange PUD District. This new district is necessary to ensure implementation of the Latson Road subarea plan as currently proposed in the draft Master Plan. The goal is to start work on the new zoning category while the master plan is under review so that we are prepared to respond to development proposals if necessary. In regard to this proposal please consider the following action:

Moved by _____, supported by _____, to approve a proposal dated August 15, 2013 with LSL Planning to provide services related to creating a new Interchange PUD Zoning District for an amount not to exceed \$5,000.

SUPERVISOR

Gary T. McCrie

CLERK

Paulette A. Skolarus

TREASURER

Robin L. Hunt

MANAGER

Michael C. Archinal

TRUSTEES

H. James Mortensen

Jean W. Ledford

Todd W. Smith

Linda Rowell



LSL Planning, Inc.

Community Planning Consultants

August 15, 2013

Kelly VanMarter, Planning Director and Assistant Township Manager
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Subject: Proposal to Create New Interchange PUD Zoning District

Dear Kelly:

We appreciate the Township's interest in having LSL Planning, Inc. assist with drafting a new Interchange PUD district zoning amendment. We believe drafting this district now will ensure implementation of the Latson subarea plan will occur seamlessly upon adoption of the plan update. Many ideas have begun percolating through the Master Plan process that are best implemented through zoning rather than the plan, and drafting the district simultaneously to the plan will ensure the Township's vision is appropriately detailed in both documents.

Based upon our recent conversations, we propose the following tasks as part of the zoning ordinance update:

- Draft Interchange PUD Zoning district
- Call with Planning Director to review draft
- One set of revisions to draft district
- Preparation of a presentation for the public hearing

Costs for the tasks listed above would be about \$5,000.

Please do not hesitate to contact me should you need additional information or have any questions.

Sincerely,
LSL Planning, Inc.

A handwritten signature in black ink that reads "Bradley K. Strader". The signature is fluid and cursive.

Bradley K. Strader, AICP, PTP
President

August 12, 2013

GENOA TOWNSHIP

AUG 14 2013

RECEIVED

Genoa Township
2911 Dorr Rd
Brighton, MI 48116

Attention: Jim Mortensen

Dear Jim,

We read your remarks in the August 6th Daily Press and Argus regarding the proposed "Road Millage". We wanted to let you know that we agree with you 100%, and we are not alone. We don't need to be burdened with more taxes at this time. We are just beginning to see the light at the end of the tunnel after a long hard recession.

There are many of our residents that are already paying additional taxes through special assessments for road repairs in their neighborhoods. Add to that the millage for the Library that has recently been passed. Do we really want to force residents into bankruptcy or facing foreclosures?

Thank you for stepping up to the plate for the residents of our township. We appreciate you looking out for our interest.

Sincerely,

Terry and Rita Croft
1367 S Hacker Rd
Brighton, MI 48114

Mike Archinal

From: Tammy Lindberg
Sent: Wednesday, August 07, 2013 10:09 AM
To: Mike Archinal
Subject: FW: recycling tons for July

From: Randy Duncan [<mailto:Randy@mygarbageguy.com>]
Sent: Tuesday, August 06, 2013 10:08 PM
To: Tammy Lindberg
Subject: recycling tons for July

Hi
The recycling tonnage for July for Genoa was 122.73 tons, the week after the fourth was a heavy week!

Have a great day

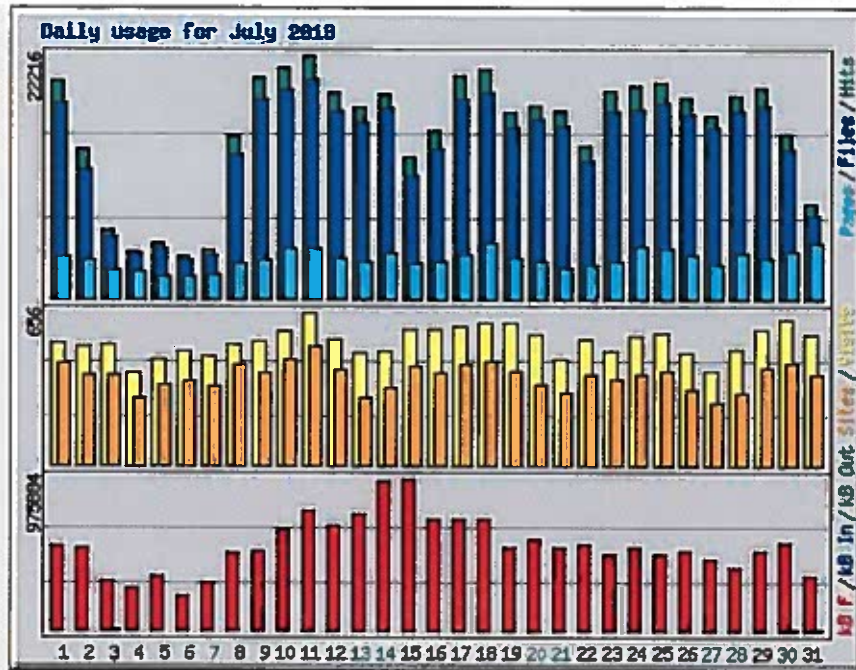
Randy

Usage Statistics for genoa.org

Summary Period: July 2013
Generated 01-Aug-2013 00:36 EDT

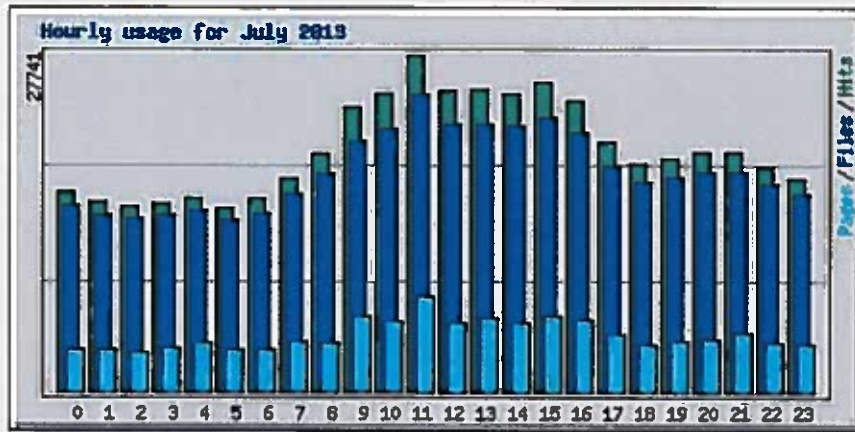
[\[Daily Statistics\]](#) [\[Hourly Statistics\]](#) [\[URLs\]](#) [\[Entry\]](#) [\[Exit\]](#) [\[Sites\]](#) [\[Referrers\]](#) [\[Search\]](#) [\[Agents\]](#) [\[Locations\]](#)

| Monthly Statistics for July 2013 | | |
|----------------------------------|------------|------------|
| Total Hits | 480689 | |
| Total Files | 436976 | |
| Total Pages | 112252 | |
| Total Visits | 16275 | |
| Total kB Files | 16934415 | |
| Total kB In | 4 | |
| Total kB Out | 258 | |
| Total Unique Sites | 6472 | |
| Total Unique URLs | 4281 | |
| Total Unique Referrers | 1346 | |
| Total Unique User Agents | 1525 | |
| | Avg | Max |
| Hits per Hour | 646 | 1890 |
| Hits per Day | 15506 | 22216 |
| Files per Day | 14096 | 20078 |
| Pages per Day | 3621 | 5102 |
| Visits per Day | 525 | 656 |
| kB Files per Day | 546271 | 975884 |
| kB In per Day | 0 | 2 |
| kB Out per Day | 8 | 127 |
| Hits by Response Code | | |
| Undefined response code | 67 | |
| Code 200 - OK | 436976 | |
| Code 206 - Partial Content | 358 | |
| Code 301 - Moved Permanently | 178 | |
| Code 302 - Found | 1384 | |
| Code 304 - Not Modified | 7064 | |
| Code 403 - Forbidden | 2 | |
| Code 404 - Not Found | 34660 | |



Daily Statistics for July 2013

| Day | Hits | Files | Pages | Visits | Sites | kB F | kB In | kB Out | | | | | | | | |
|-----|-------|-------|-------|--------|-------|-------|-------|--------|-----|-------|--------|-------|---|--------|-----|--------|
| 1 | 19882 | 4.14% | 17950 | 4.11% | 3819 | 3.40% | 524 | 3.22% | 440 | 6.80% | 545511 | 3.22% | 0 | 0.00% | 0 | 0.00% |
| 2 | 13679 | 2.85% | 11932 | 2.73% | 3578 | 3.19% | 512 | 3.15% | 389 | 6.01% | 534131 | 3.15% | 0 | 0.00% | 0 | 0.00% |
| 3 | 6325 | 1.32% | 5691 | 1.30% | 2719 | 2.42% | 514 | 3.16% | 387 | 5.98% | 320592 | 1.89% | 1 | 25.00% | 61 | 23.53% |
| 4 | 4296 | 0.89% | 4081 | 0.93% | 2544 | 2.27% | 398 | 2.45% | 287 | 4.43% | 269313 | 1.59% | 0 | 0.00% | 0 | 0.00% |
| 5 | 5105 | 1.06% | 4668 | 1.07% | 2079 | 1.85% | 453 | 2.78% | 346 | 5.35% | 345122 | 2.04% | 0 | 0.00% | 0 | 0.00% |
| 6 | 3882 | 0.81% | 3603 | 0.82% | 1986 | 1.77% | 485 | 2.98% | 360 | 5.56% | 224292 | 1.32% | 0 | 0.00% | 0 | 0.00% |
| 7 | 4423 | 0.92% | 4056 | 0.93% | 2137 | 1.90% | 468 | 2.88% | 341 | 5.27% | 301654 | 1.78% | 0 | 0.00% | 0 | 0.00% |
| 8 | 14814 | 3.08% | 13181 | 3.02% | 3255 | 2.90% | 520 | 3.20% | 430 | 6.64% | 494554 | 2.92% | 0 | 0.00% | 0 | 0.00% |
| 9 | 20233 | 4.21% | 18232 | 4.17% | 3597 | 3.20% | 529 | 3.25% | 394 | 6.09% | 507347 | 3.00% | 0 | 0.00% | 0 | 0.00% |
| 10 | 21143 | 4.40% | 19099 | 4.37% | 4570 | 4.07% | 575 | 3.53% | 453 | 7.00% | 644389 | 3.81% | 0 | 0.00% | 0 | 0.00% |
| 11 | 22216 | 4.62% | 20078 | 4.59% | 4673 | 4.16% | 656 | 4.03% | 508 | 7.85% | 765961 | 4.52% | 0 | 0.00% | 0 | 0.00% |
| 12 | 18780 | 3.91% | 17174 | 3.93% | 3652 | 3.25% | 539 | 3.31% | 410 | 6.33% | 674897 | 3.99% | 0 | 0.00% | 0 | 0.00% |
| 13 | 17402 | 3.62% | 16144 | 3.69% | 3455 | 3.08% | 482 | 2.96% | 287 | 4.43% | 748576 | 4.42% | 0 | 0.00% | 0 | 0.00% |
| 14 | 18683 | 3.89% | 17469 | 4.00% | 4226 | 3.76% | 487 | 2.99% | 333 | 5.15% | 957637 | 5.65% | 0 | 0.00% | 0 | 0.00% |
| 15 | 12847 | 2.67% | 11229 | 2.57% | 3318 | 2.96% | 580 | 3.56% | 425 | 6.57% | 975884 | 5.76% | 0 | 0.00% | 0 | 0.00% |
| 16 | 15395 | 3.20% | 13748 | 3.15% | 3416 | 3.04% | 579 | 3.56% | 394 | 6.09% | 708198 | 4.18% | 0 | 0.00% | 0 | 0.00% |
| 17 | 20266 | 4.22% | 18249 | 4.18% | 3969 | 3.54% | 595 | 3.66% | 431 | 6.66% | 711505 | 4.20% | 0 | 0.00% | 0 | 0.00% |
| 18 | 20913 | 4.35% | 18878 | 4.32% | 5102 | 4.55% | 610 | 3.75% | 448 | 6.92% | 707803 | 4.18% | 0 | 0.00% | 0 | 0.00% |
| 19 | 16996 | 3.54% | 15615 | 3.57% | 3738 | 3.33% | 608 | 3.74% | 403 | 6.23% | 531655 | 3.14% | 0 | 0.00% | 0 | 0.00% |
| 20 | 17658 | 3.67% | 16386 | 3.75% | 3442 | 3.07% | 561 | 3.45% | 347 | 5.36% | 589438 | 3.48% | 0 | 0.00% | 0 | 0.00% |
| 21 | 17079 | 3.55% | 15809 | 3.62% | 2746 | 2.45% | 453 | 2.78% | 311 | 4.81% | 530888 | 3.13% | 0 | 0.00% | 0 | 0.00% |
| 22 | 13953 | 2.90% | 12633 | 2.89% | 3159 | 2.81% | 537 | 3.30% | 390 | 6.03% | 553125 | 3.27% | 0 | 0.00% | 0 | 0.00% |
| 23 | 19012 | 3.96% | 17166 | 3.93% | 3386 | 3.02% | 486 | 2.99% | 364 | 5.62% | 485880 | 2.87% | 0 | 0.00% | 0 | 0.00% |
| 24 | 19441 | 4.04% | 17327 | 3.97% | 4714 | 4.20% | 551 | 3.39% | 390 | 6.03% | 532169 | 3.14% | 0 | 0.00% | 0 | 0.00% |
| 25 | 19751 | 4.11% | 17928 | 4.10% | 4604 | 4.10% | 569 | 3.50% | 404 | 6.24% | 487752 | 2.88% | 0 | 0.00% | 0 | 0.00% |
| 26 | 18314 | 3.81% | 16843 | 3.85% | 4040 | 3.60% | 482 | 2.96% | 325 | 5.02% | 513054 | 3.03% | 0 | 0.00% | 0 | 0.00% |
| 27 | 16774 | 3.49% | 15589 | 3.57% | 3123 | 2.78% | 402 | 2.47% | 270 | 4.17% | 453603 | 2.68% | 0 | 0.00% | 0 | 0.00% |
| 28 | 18513 | 3.85% | 17196 | 3.94% | 4125 | 3.67% | 494 | 3.04% | 311 | 4.81% | 397616 | 2.35% | 0 | 0.00% | 0 | 0.00% |
| 29 | 19288 | 4.01% | 17642 | 4.04% | 3737 | 3.33% | 579 | 3.56% | 419 | 6.47% | 512420 | 3.03% | 0 | 0.00% | 0 | 0.00% |
| 30 | 15003 | 3.12% | 13689 | 3.13% | 4291 | 3.82% | 625 | 3.84% | 437 | 6.75% | 566201 | 3.34% | 1 | 30.00% | 70 | 27.23% |
| 31 | 8623 | 1.79% | 7691 | 1.76% | 5052 | 4.50% | 557 | 3.42% | 390 | 6.03% | 343247 | 2.03% | 2 | 45.00% | 127 | 49.24% |



Hourly Statistics for July 2013

| Hour | Hits | | Files | | Pages | | kB F | | kB In | | kB Out | | | | | | | |
|------|------|-------|-------|-------|-------|-------|------|-------|-------|-------|---------|-------|---|---|--------|---|-----|--------|
| | Avg | Total | Avg | Total | Avg | Total | Avg | Total | Avg | Total | Avg | Total | | | | | | |
| 0 | 530 | 16441 | 3.42% | 495 | 15365 | 3.52% | 110 | 3439 | 3.06% | 17192 | 532959 | 3.15% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 1 | 502 | 15583 | 3.24% | 469 | 14553 | 3.33% | 112 | 3484 | 3.10% | 18205 | 564364 | 3.33% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 2 | 492 | 15279 | 3.18% | 459 | 14252 | 3.26% | 103 | 3216 | 2.86% | 15491 | 480212 | 2.84% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 3 | 501 | 15544 | 3.23% | 470 | 14589 | 3.34% | 117 | 3630 | 3.23% | 15577 | 482902 | 2.85% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 4 | 514 | 15956 | 3.32% | 482 | 14970 | 3.43% | 128 | 3976 | 3.54% | 15371 | 476494 | 2.81% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 5 | 488 | 15150 | 3.15% | 457 | 14185 | 3.25% | 114 | 3549 | 3.16% | 16966 | 525953 | 3.11% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 6 | 513 | 15924 | 3.31% | 476 | 14757 | 3.38% | 110 | 3417 | 3.04% | 13796 | 427675 | 2.53% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 7 | 568 | 17624 | 3.67% | 524 | 16270 | 3.72% | 132 | 4108 | 3.66% | 19978 | 619315 | 3.66% | 0 | 1 | 25.00% | 2 | 61 | 23.53% |
| 8 | 634 | 19667 | 4.09% | 577 | 17907 | 4.10% | 131 | 4073 | 3.63% | 21766 | 674739 | 3.98% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 9 | 756 | 23450 | 4.88% | 666 | 20647 | 4.72% | 199 | 6194 | 5.52% | 33405 | 1035561 | 6.12% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 10 | 793 | 24584 | 5.11% | 700 | 21706 | 4.97% | 188 | 5851 | 5.21% | 28207 | 874428 | 5.16% | 0 | 1 | 25.00% | 2 | 61 | 23.53% |
| 11 | 894 | 27741 | 5.77% | 789 | 24467 | 5.60% | 253 | 7851 | 6.99% | 32885 | 1019448 | 6.02% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 12 | 800 | 24806 | 5.16% | 712 | 22094 | 5.06% | 182 | 5648 | 5.03% | 26534 | 822569 | 4.86% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 13 | 806 | 25002 | 5.20% | 710 | 22021 | 5.04% | 196 | 6094 | 5.43% | 27471 | 851586 | 5.03% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 14 | 792 | 24576 | 5.11% | 705 | 21878 | 5.01% | 184 | 5732 | 5.11% | 24477 | 758794 | 4.48% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 15 | 820 | 25437 | 5.29% | 728 | 22593 | 5.17% | 199 | 6191 | 5.52% | 37879 | 1174235 | 6.93% | 0 | 0 | 5.00% | 0 | 10 | 3.70% |
| 16 | 774 | 24024 | 5.00% | 688 | 21336 | 4.88% | 189 | 5881 | 5.24% | 26613 | 825008 | 4.87% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 17 | 661 | 20503 | 4.27% | 602 | 18674 | 4.27% | 153 | 4756 | 4.24% | 26465 | 820428 | 4.84% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 18 | 605 | 18772 | 3.91% | 557 | 17289 | 3.96% | 127 | 3949 | 3.52% | 18925 | 586679 | 3.46% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 19 | 618 | 19176 | 3.99% | 570 | 17675 | 4.04% | 133 | 4139 | 3.69% | 23663 | 733544 | 4.33% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 20 | 635 | 19715 | 4.10% | 583 | 18096 | 4.14% | 138 | 4292 | 3.82% | 22682 | 703127 | 4.15% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 21 | 635 | 19715 | 4.10% | 585 | 18157 | 4.16% | 154 | 4801 | 4.28% | 26028 | 806858 | 4.76% | 0 | 2 | 45.00% | 4 | 127 | 49.24% |
| 22 | 597 | 18522 | 3.85% | 553 | 17173 | 3.93% | 131 | 4074 | 3.63% | 17842 | 553110 | 3.27% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| 23 | 564 | 17498 | 3.64% | 526 | 16322 | 3.74% | 126 | 3907 | 3.48% | 18852 | 584427 | 3.45% | 0 | 0 | 0.00% | 0 | 0 | 0.00% |

Top 30 of 4281 Total URLs

| # | Hits | kB F | kB In | kB Out | URL | | | | |
|---|-------|-------|--------|--------|-----|-------|---|-------|--|
| 1 | 26335 | 5.48% | 533404 | 3.15% | 0 | 0.00% | 0 | 0.00% | /js/wymeditor/jquery.wymeditor.pack.js |
| 2 | 26285 | 5.47% | 406754 | 2.40% | 0 | 0.00% | 0 | 0.00% | /js/jquery/jquery.js |
| 3 | 26267 | 5.46% | 15856 | 0.09% | 0 | 0.00% | 0 | 0.00% | /js/roundtabs.js |
| 4 | 26253 | 5.46% | 23020 | 0.14% | 0 | 0.00% | 0 | 0.00% | /js/dropdowns.js |
| 5 | 26250 | 5.46% | 13916 | 0.08% | 0 | 0.00% | 0 | 0.00% | /js/headersearch.js |
| 6 | 26237 | 5.46% | 55521 | 0.33% | 0 | 0.00% | 0 | 0.00% | /css/style.css |
| 7 | 26120 | 5.43% | 15361 | 0.09% | 0 | 0.00% | 0 | 0.00% | /css/print.css |
| 8 | 14285 | 2.97% | 78539 | 0.46% | 0 | 0.00% | 0 | 0.00% | /admin/searchreview |
| 9 | 12193 | 2.54% | 72523 | 0.43% | 0 | 0.00% | 0 | 0.00% | / |

| | | | | | |
|----|-------|-------|-----|-------|-----------------------------------|
| 1 | 12193 | 2.54% | 460 | 7.52% | / |
| 2 | 2032 | 0.42% | 149 | 2.43% | /departments/assessing/data |
| 3 | 1008 | 0.21% | 72 | 1.18% | /meetings/minutes |
| 4 | 750 | 0.16% | 54 | 0.88% | /departments/utilities/refuse |
| 5 | 620 | 0.13% | 54 | 0.88% | /departments/utilities/watersewer |
| 6 | 675 | 0.14% | 46 | 0.75% | /articles/article/billpay |
| 7 | 309 | 0.06% | 37 | 0.60% | /government/employment |
| 8 | 494 | 0.10% | 36 | 0.59% | /government/contact |
| 9 | 363 | 0.08% | 28 | 0.46% | /departments/zoning |
| 10 | 331 | 0.07% | 27 | 0.44% | /meetings/boardminutes/3/1969 |

| Top 30 of 6472 Total Sites | | | | | | | | | | | | | |
|----------------------------|------|-------|-------|-------|---------|--------|-------|-------|--------|-------|--------|----------|---|
| # | Hits | | Files | | kB F | | kB In | | kB Out | | Visits | Hostname | |
| 1 | 6900 | 1.44% | 6753 | 1.55% | 1804842 | 10.66% | 0 | 0.00% | 0 | 0.00% | 193 | 1.19% | crawl-66-249-73-98.googlebot.com |
| 2 | 3191 | 0.66% | 3183 | 0.73% | 856401 | 5.06% | 0 | 0.00% | 0 | 0.00% | 279 | 1.71% | 208.115.113.82 |
| 3 | 3131 | 0.65% | 3117 | 0.71% | 725500 | 4.28% | 0 | 0.00% | 0 | 0.00% | 260 | 1.60% | 208.115.113.92 |
| 4 | 3076 | 0.64% | 3076 | 0.70% | 5154 | 0.03% | 0 | 0.00% | 0 | 0.00% | 2 | 0.01% | ch11.lon.monitorengine.com |
| 5 | 2492 | 0.52% | 2489 | 0.57% | 775580 | 4.58% | 0 | 0.00% | 0 | 0.00% | 266 | 1.63% | spider-100-43-83-129.yandex.com |
| 6 | 2166 | 0.45% | 2159 | 0.49% | 871821 | 5.15% | 0 | 0.00% | 0 | 0.00% | 29 | 0.18% | crawler-101.crawler.istella.it |
| 7 | 1067 | 0.22% | 1067 | 0.24% | 13626 | 0.08% | 0 | 0.00% | 0 | 0.00% | 5 | 0.03% | 5.10.83.62-static.reverse.softlayer.com |
| 8 | 960 | 0.20% | 900 | 0.21% | 11419 | 0.07% | 0 | 0.00% | 0 | 0.00% | 60 | 0.37% | 99-20-60-55.lightspeed.brhmmi.sbcglobal.net |
| 9 | 866 | 0.18% | 865 | 0.20% | 22358 | 0.13% | 0 | 0.00% | 0 | 0.00% | 2 | 0.01% | 173.199.119.19.ahrefs.com |
| 10 | 814 | 0.17% | 692 | 0.16% | 20177 | 0.12% | 0 | 0.00% | 0 | 0.00% | 2 | 0.01% | static.181.41.9.5.clients.your-server.de |
| 11 | 785 | 0.16% | 757 | 0.17% | 1242 | 0.01% | 0 | 0.00% | 0 | 0.00% | 51 | 0.31% | static.68.51.9.5.clients.your-server.de |
| 12 | 777 | 0.16% | 776 | 0.18% | 17842 | 0.11% | 0 | 0.00% | 0 | 0.00% | 4 | 0.02% | 173.199.116.91.ahrefs.com |
| 13 | 745 | 0.15% | 689 | 0.16% | 34774 | 0.21% | 0 | 0.00% | 0 | 0.00% | 25 | 0.15% | msnbot-65-55-213-73.search.msn.com |
| 14 | 706 | 0.15% | 682 | 0.16% | 422 | 0.00% | 0 | 0.00% | 0 | 0.00% | 41 | 0.25% | static.66.51.9.5.clients.your-server.de |
| 15 | 689 | 0.14% | 686 | 0.16% | 5991 | 0.04% | 0 | 0.00% | 0 | 0.00% | 129 | 0.79% | 101.227.4.23 |
| 16 | 677 | 0.14% | 611 | 0.14% | 3440 | 0.02% | 0 | 0.00% | 0 | 0.00% | 142 | 0.87% | 218.30.103.142 |
| 17 | 674 | 0.14% | 664 | 0.15% | 9803 | 0.06% | 0 | 0.00% | 0 | 0.00% | 3 | 0.02% | 5.10.83.39-static.reverse.softlayer.com |
| 18 | 623 | 0.13% | 618 | 0.14% | 6379 | 0.04% | 0 | 0.00% | 0 | 0.00% | 1 | 0.01% | crawl-81-144-138-34.wotbox.com |
| 19 | 613 | 0.13% | 603 | 0.14% | 46311 | 0.27% | 0 | 0.00% | 0 | 0.00% | 191 | 1.17% | msnbot-157-56-92-165.search.msn.com |
| 20 | 570 | 0.12% | 415 | 0.09% | 12014 | 0.07% | 0 | 0.00% | 0 | 0.00% | 25 | 0.15% | email.only-remax.net |
| 21 | 544 | 0.11% | 529 | 0.12% | 6553 | 0.04% | 0 | 0.00% | 0 | 0.00% | 4 | 0.02% | 5.10.83.105-static.reverse.softlayer.com |
| 22 | 530 | 0.11% | 520 | 0.12% | 42318 | 0.25% | 0 | 0.00% | 0 | 0.00% | 123 | 0.76% | msnbot-157-55-33-112.search.msn.com |
| 23 | 506 | 0.11% | 505 | 0.12% | 8782 | 0.05% | 0 | 0.00% | 0 | 0.00% | 3 | 0.02% | 173.199.116.11.ahrefs.com |
| 24 | 503 | 0.10% | 498 | 0.11% | 6786 | 0.04% | 0 | 0.00% | 0 | 0.00% | 2 | 0.01% | 5.10.83.88-static.reverse.softlayer.com |
| 25 | 503 | 0.10% | 415 | 0.09% | 70219 | 0.41% | 0 | 0.00% | 0 | 0.00% | 19 | 0.12% | c-71-238-199-127.hsd1.mi.comcast.net |
| 26 | 492 | 0.10% | 489 | 0.11% | 75248 | 0.44% | 0 | 0.00% | 0 | 0.00% | 1 | 0.01% | sr341.2dayhost.com |
| 27 | 491 | 0.10% | 487 | 0.11% | 35812 | 0.21% | 0 | 0.00% | 0 | 0.00% | 147 | 0.90% | msnbot-157-55-32-237.search.msn.com |
| 28 | 490 | 0.10% | 294 | 0.07% | 108415 | 0.64% | 0 | 0.00% | 0 | 0.00% | 32 | 0.20% | mail.bosseng.com |
| 29 | 485 | 0.10% | 283 | 0.06% | 2262 | 0.01% | 0 | 0.00% | 0 | 0.00% | 94 | 0.58% | img-spider-37-140-165-201.yandex.com |
| 30 | 482 | 0.10% | 467 | 0.11% | 38212 | 0.23% | 0 | 0.00% | 0 | 0.00% | 162 | 1.00% | msnbot-157-56-93-40.search.msn.com |

[View All Sites](#)

| Top 10 of 6472 Total Sites By kB F | | | | | | | | | | | | | |
|------------------------------------|------|-------|-------|-------|---------|--------|-------|-------|--------|-------|--------|----------|----------------------------------|
| # | Hits | | Files | | kB F | | kB In | | kB Out | | Visits | Hostname | |
| 1 | 6900 | 1.44% | 6753 | 1.55% | 1804842 | 10.66% | 0 | 0.00% | 0 | 0.00% | 193 | 1.19% | crawl-66-249-73-98.googlebot.com |
| 2 | 2166 | 0.45% | 2159 | 0.49% | 871821 | 5.15% | 0 | 0.00% | 0 | 0.00% | 29 | 0.18% | crawler-101.crawler.istella.it |
| 3 | 3191 | 0.66% | 3183 | 0.73% | 856401 | 5.06% | 0 | 0.00% | 0 | 0.00% | 279 | 1.71% | 208.115.113.82 |
| 4 | 2492 | 0.52% | 2489 | 0.57% | 775580 | 4.58% | 0 | 0.00% | 0 | 0.00% | 266 | 1.63% | spider-100-43-83-129.yandex.com |
| 5 | 3131 | 0.65% | 3117 | 0.71% | 725500 | 4.28% | 0 | 0.00% | 0 | 0.00% | 260 | 1.60% | 208.115.113.92 |

| | | | | | | | | | | | | | |
|----|-----|-------|-----|-------|--------|-------|---|-------|---|-------|----|-------|--|
| 6 | 128 | 0.03% | 119 | 0.03% | 137686 | 0.81% | 0 | 0.00% | 0 | 0.00% | 3 | 0.02% | 76-250-217-239.lightspeed.livnmi.sbcglobal.net |
| 7 | 167 | 0.03% | 131 | 0.03% | 135186 | 0.80% | 0 | 0.00% | 0 | 0.00% | 8 | 0.05% | c-71-238-173-193.hsd1.mi.comcast.net |
| 8 | 490 | 0.10% | 294 | 0.07% | 108415 | 0.64% | 0 | 0.00% | 0 | 0.00% | 32 | 0.20% | mail.bosseng.com |
| 9 | 20 | 0.00% | 18 | 0.00% | 87252 | 0.52% | 0 | 0.00% | 0 | 0.00% | 4 | 0.02% | c-68-61-77-62.hsd1.mi.comcast.net |
| 10 | 492 | 0.10% | 489 | 0.11% | 75248 | 0.44% | 0 | 0.00% | 0 | 0.00% | 1 | 0.01% | sr341.2dayhost.com |

| Top 30 of 1346 Total Referrers | | | |
|--------------------------------|-------|--------|---|
| # | Hits | | Referrer |
| 1 | 74830 | 15.57% | - (Direct Request) |
| 2 | 2107 | 0.44% | http://www.google.com/url |
| 3 | 981 | 0.20% | https://www.google.com/ |
| 4 | 470 | 0.10% | http://www.bing.com/search |
| 5 | 313 | 0.07% | http://www.google.com/search |
| 6 | 251 | 0.05% | http://search.yahoo.com/search |
| 7 | 95 | 0.02% | http://domains.checkparams.com/index.php |
| 8 | 71 | 0.01% | http://search.yahoo.com/mobile/s |
| 9 | 67 | 0.01% | + |
| 10 | 64 | 0.01% | http://www.google.com/ |
| 11 | 53 | 0.01% | http://search.aol.com/aol/search |
| 12 | 46 | 0.01% | http://tidsoptimistens.blogg.se/2008/september/ |
| 13 | 46 | 0.01% | http://www.google.ca/url |
| 14 | 43 | 0.01% | http://yandex.ru/yandsearch |
| 15 | 42 | 0.01% | http://www.google.com/webhp |
| 16 | 40 | 0.01% | http://www.baidu.com/s |
| 17 | 39 | 0.01% | http://search.yahoo.com/table/s |
| 18 | 36 | 0.01% | http://drbobah.com/ |
| 19 | 36 | 0.01% | http://search.comcast.net/ |
| 20 | 36 | 0.01% | http://us.yhs4.search.yahoo.com/yhs/search |
| 21 | 33 | 0.01% | http://www.genoa.org |
| 22 | 28 | 0.01% | http://publicrecords.netronline.com/state/MI/county/livingston/ |
| 23 | 27 | 0.01% | http://www.livgov.com/Pages/Municipalities.aspx |
| 24 | 24 | 0.00% | http://www.google.com |
| 25 | 23 | 0.00% | http://www.google.com/m |
| 26 | 22 | 0.00% | http://search.daum.net/ |
| 27 | 21 | 0.00% | http://www.google.com/blank.html |
| 28 | 20 | 0.00% | http://varmdomorsan.se/2008/march/ |
| 29 | 18 | 0.00% | http://www.facebook.com/l.php |
| 30 | 16 | 0.00% | http://co.livingston.mi.us/municipalities/genoa.htm |

[View All Referrers](#)

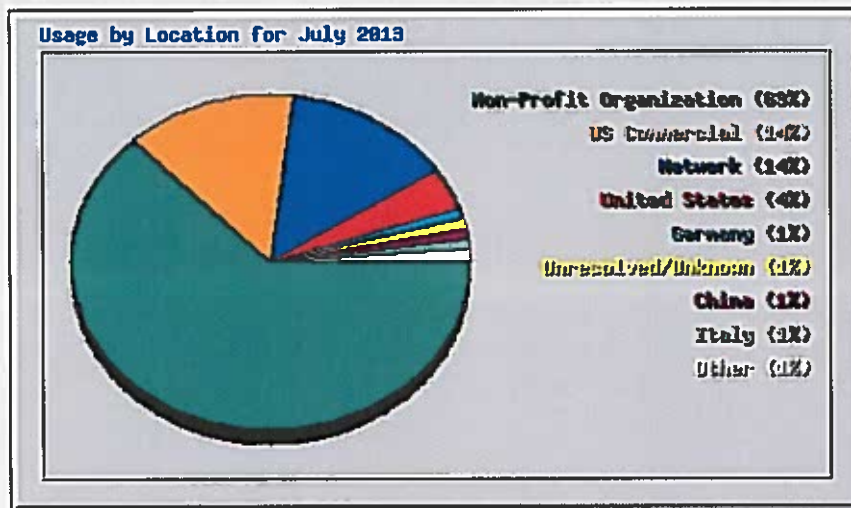
| Top 20 of 842 Total Search Strings | | | |
|------------------------------------|------|--------|-------------------------|
| # | Hits | | Search String |
| 1 | 298 | 13.98% | genoa township mi |
| 2 | 254 | 11.92% | genoa township |
| 3 | 73 | 3.43% | genoa twp mi |
| 4 | 60 | 2.82% | genoa township michigan |
| 5 | 42 | 1.97% | genoa twp |
| 6 | 33 | 1.55% | mhog |
| 7 | 22 | 1.03% | genoa township assessor |
| 8 | 21 | 0.99% | genoa.org |
| 9 | 19 | 0.89% | www.genoa.org |
| 10 | 15 | 0.70% | genoa park howell mi |
| 11 | 15 | 0.70% | genoa twp. mi |

| | | | |
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| 12 | 11 | 0.52% | windspire genoa township |
| 13 | 10 | 0.47% | genoa charter township |
| 14 | 10 | 0.47% | genoa township mi manager |
| 15 | 9 | 0.42% | genoa park michigan |
| 16 | 9 | 0.42% | how to clean basement floor after sewer backup |
| 17 | 9 | 0.42% | how to clean sewer backup in basement |
| 18 | 9 | 0.42% | north shore pud agreement genoa twp. mi. |
| 19 | 8 | 0.38% | city of brighton mi |
| 20 | 8 | 0.38% | genoa |

[View All Search Strings](#)

| Top 15 of 1525 Total User Agents | | |
|----------------------------------|--------|---|
| # | Hits | User Agent |
| 1 | 290978 | 60.53% Mozilla/5.0 (Windows NT 6.1; rv:22.0) Gecko/20100101 Firefox/22.0 |
| 2 | 10395 | 2.16% Mozilla/5.0 (compatible; MSIE 10.0; Windows NT 6.1; WOW64; Trident/6.0) |
| 3 | 8844 | 1.84% Mozilla/5.0 (Windows NT 6.1; WOW64; rv:22.0) Gecko/20100101 Firefox/22.0 |
| 4 | 8252 | 1.72% Mozilla/5.0 (compatible; AhrefsBot/5.0; +http://ahrefs.com/robot/) |
| 5 | 6986 | 1.45% Mozilla/5.0 (compatible; bingbot/2.0; +http://www.bing.com/bingbot.htm) |
| 6 | 6322 | 1.32% Mozilla/5.0 (compatible; Ezooms/1.0; ezooms.bot@gmail.com) |
| 7 | 5523 | 1.15% Mozilla/5.0 (iPad; CPU OS 6_1_3 like Mac OS X) AppleWebKit/536.26 (KHTML, like Gecko) Version/6.0 Mobile/10B329 Safari/8536.2 |
| 8 | 5182 | 1.08% Mozilla/5.0 (compatible; MJ12bot/v1.4.3; http://www.majestic12.co.uk/bot.php?+) |
| 9 | 4777 | 0.99% Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 |
| 10 | 4204 | 0.87% Mozilla/5.0 (compatible; Googlebot/2.1; +http://www.google.com/bot.html) |
| 11 | 4017 | 0.84% Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0) |
| 12 | 3800 | 0.79% Mozilla/5.0 (iPhone; CPU iPhone OS 6_1_3 like Mac OS X) AppleWebKit/536.26 (KHTML, like Gecko) Version/6.0 Mobile/10B329 Safa |
| 13 | 3321 | 0.69% Mozilla/5.0 (compatible; AhrefsBot/4.0; +http://ahrefs.com/robot/) |
| 14 | 3076 | 0.64% checks.panopta.com |
| 15 | 2938 | 0.61% Spiceworks/6.2.00916 |

[View All User Agents](#)



| Top 30 of 73 Total Locations | | | | | | | | | | | |
|------------------------------|--------|--------|--------|--------|---------|----------|---|--------|-----|--------|-------------------------|
| # | Hits | Files | KB F | KB In | KB Out | Location | | | | | |
| 1 | 303672 | 63.17% | 277620 | 63.53% | 4885962 | 28.85% | 0 | 0.00% | 0 | 0.00% | Non-Profit Organization |
| 2 | 68344 | 14.22% | 63208 | 14.46% | 4945237 | 29.20% | 0 | 0.00% | 0 | 0.00% | US Commercial |
| 3 | 67939 | 14.13% | 58905 | 13.48% | 3439256 | 20.31% | 2 | 45.00% | 127 | 49.24% | Network |
| 4 | 20844 | 4.34% | 19079 | 4.37% | 2209906 | 13.05% | 0 | 0.00% | 0 | 0.00% | United States |
| 5 | 4618 | 0.96% | 4356 | 1.00% | 54881 | 0.32% | 0 | 0.00% | 0 | 0.00% | Germany |

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|----|------|-------|------|-------|--------|-------|---|-------|---|-------|-----------------------------|
| 6 | 3916 | 0.81% | 3766 | 0.86% | 100406 | 0.59% | 0 | 0.00% | 0 | 0.00% | Unresolved/Unknown |
| 7 | 2818 | 0.59% | 2613 | 0.60% | 161401 | 0.95% | 0 | 0.00% | 0 | 0.00% | China |
| 8 | 2527 | 0.53% | 2504 | 0.57% | 878788 | 5.19% | 0 | 0.00% | 0 | 0.00% | Italy |
| 9 | 763 | 0.16% | 576 | 0.13% | 15892 | 0.09% | 0 | 0.00% | 0 | 0.00% | US Educational |
| 10 | 701 | 0.15% | 653 | 0.15% | 15960 | 0.09% | 0 | 0.00% | 0 | 0.00% | Canada |
| 11 | 507 | 0.11% | 209 | 0.05% | 5139 | 0.03% | 0 | 0.00% | 0 | 0.00% | US Government |
| 12 | 384 | 0.08% | 371 | 0.08% | 70371 | 0.42% | 0 | 0.00% | 0 | 0.00% | Russian Federation |
| 13 | 377 | 0.08% | 371 | 0.08% | 12524 | 0.07% | 0 | 0.00% | 0 | 0.00% | Ukraine |
| 14 | 328 | 0.07% | 318 | 0.07% | 34203 | 0.20% | 0 | 0.00% | 0 | 0.00% | Czech Republic |
| 15 | 322 | 0.07% | 306 | 0.07% | 6128 | 0.04% | 0 | 0.00% | 0 | 0.00% | France |
| 16 | 305 | 0.06% | 275 | 0.06% | 6474 | 0.04% | 0 | 0.00% | 0 | 0.00% | India |
| 17 | 291 | 0.06% | 277 | 0.06% | 11789 | 0.07% | 0 | 0.00% | 0 | 0.00% | Japan |
| 18 | 257 | 0.05% | 249 | 0.06% | 11887 | 0.07% | 0 | 0.00% | 0 | 0.00% | Netherlands |
| 19 | 235 | 0.05% | 235 | 0.05% | 2348 | 0.01% | 0 | 0.00% | 0 | 0.00% | Belgium |
| 20 | 133 | 0.03% | 109 | 0.02% | 10607 | 0.06% | 0 | 0.00% | 0 | 0.00% | Romania |
| 21 | 130 | 0.03% | 127 | 0.03% | 1616 | 0.01% | 0 | 0.00% | 0 | 0.00% | Sweden |
| 22 | 129 | 0.03% | 118 | 0.03% | 6787 | 0.04% | 0 | 0.00% | 0 | 0.00% | Turkey |
| 23 | 93 | 0.02% | 87 | 0.02% | 3098 | 0.02% | 0 | 0.00% | 0 | 0.00% | Philippines |
| 24 | 80 | 0.02% | 70 | 0.02% | 5604 | 0.03% | 0 | 0.00% | 0 | 0.00% | Cote D'Ivoire (Ivory Coast) |
| 25 | 79 | 0.02% | 72 | 0.02% | 4074 | 0.02% | 0 | 0.00% | 0 | 0.00% | Old style Arpanet (arpa) |
| 26 | 75 | 0.02% | 72 | 0.02% | 759 | 0.00% | 0 | 0.00% | 0 | 0.00% | Korea (South) |
| 27 | 63 | 0.01% | 59 | 0.01% | 1113 | 0.01% | 0 | 0.00% | 0 | 0.00% | Indonesia |
| 28 | 56 | 0.01% | 56 | 0.01% | 845 | 0.00% | 0 | 0.00% | 0 | 0.00% | Viet Nam |
| 29 | 49 | 0.01% | 48 | 0.01% | 7011 | 0.04% | 0 | 0.00% | 0 | 0.00% | Poland |
| 30 | 48 | 0.01% | 48 | 0.01% | 493 | 0.00% | 0 | 0.00% | 0 | 0.00% | Finland |



2911 Dorr Road
Brighton, MI 48116
810.227.5225
810.227.3420 fax
genoa.org

August 5, 2013

Mr. Thomas Kolhoff
Lansing District Supervisor
Michigan Department of Environmental Quality
Water Resources Division - Lansing District Office
525 West Allegan Street (Constitution Hall, 4th Floor, North)
P.O. Box 30242
Lansing, MI 48909-7742

Re: File Number 13-47-0031-P
TOWNSHIP COMMENTS AND REQUEST FOR PUBLIC HEARING

Dear Mr. Kolhoff,

This letter is being sent in response to the Public Notice dated July 17, 2013 in regard to File Number 13-47-0031-P for a Part 301 Permit located in Sections 33 and 34 of Genoa Charter Township. Township staff and consultants have reviewed the notice and permit application and would like to offer comments for your consideration. We also urge the Department to set this matter for a Public Hearing so that nearby property owners within Genoa Township who may be impacted by the proposed operations and the Michigan DNR, due to the property being adjacent to the Brighton Recreation Area, be allowed to comment at the Public Hearing. Genoa Township's consultant's (ASTI Environmental) has provided comments in the attached ASTI August 5, 2013 letter which Genoa Township incorporates into its comment and request for public hearing. Genoa Township staff's additional concerns are summarized as follows:

- 1.) During a site visit on the morning of August 5, 2013, Township staff witnessed active dewatering of the pond occurring at the excavation site (photographs showing the dewatering are attached to ASTI's August 5, 2013 letter). From previous photos it appears that the level of the pond has been drawn down approximately 12 feet (at an earlier Township staff visit of the site a few weeks ago, no dewatering was taking place). It is apparent that over 8 acres of the site has been disturbed. There was no staking of the limits of grading and excavation to ensure that the pond was being constructed according to the proposed plan. The only stakes observed appear to be property line markers along the property line that borders the state land to the east. Grading appears to have occurred on property that is owned by the State of Michigan. The significant mining that has occurred in close proximity to this property line brings to question the ability of the property owner to establish stable slopes after extraction operations cease. A condition of any permit should require staking of the site and construction of the pond to the plan to ensure that the pond is properly constructed.

SUPERVISOR

Gary T. McCririe

CLERK

Paulette A. Skolarus

TREASURER

Robin L. Hunt

TRUSTEES

H. James Mortensen

Jean W. Ledford

Todd W. Smith

Linda Rowell

MANAGER

Michael C. Archinal

- 2.) Necessity for a very large pond requiring dewatering, extensive site disturbance, and environmental degradation is not adequately addressed in the application. The owner indicates desire to construct a pond and restore the property to be developed with a single family home, however it is not clear in the permit why the proposed pond and associated impacts must be so large. The proposed dewatering, depth of the pond (as noted), steep side slopes, and the amount of excavation proposed seems excessive for the purpose of restoration and building a home. In this regard, the Township requests MDEQ consideration of the following:
 - a. The large size of the proposed pond appears to limit the ability to construct a home on the property that complies with the Township setback requirements. If the owner's intention is to construct a home on the property, the size of the pond should be reduced to provide sufficient buildable area.
 - b. The permit and supplemental information indicate a pond depth of 10 feet with an average excavation depth of 22 feet. It appears that excavation has already taken place below the proposed 10 foot pond depth (see photographs attached to ASTI's August 5, 2013 letter).
 - c. The alternatives section (Section 4) of the permit application should investigate a smaller scale project. Ideally, a project that does not require dewatering would be ideal due to the highly sensitive wetlands on and adjacent to the subject property. If dewatering is absolutely necessary, a hydrologic study should be performed to ensure negative impacts are minimized or eliminated (please refer to ASTI's August 5, 2013 letter).

- 3.) The on-site and adjacent wetland is a very sensitive and high quality wetland system. The wetland has been characterized as a Prairie Fen and protecting groundwater and limiting excessive withdrawals are critical to managing and protecting this type of system. As such, the Township requests consideration of the following:
 - a. The project should not be assumed to be minor, and impacts to the fen should be analyzed with the permit review process. Please see comment number 2 in ASTI's August 5, 2013 letter.
 - b. The wetland delineation provided with the permit application should accurately reflect the extent of the impacted wetlands. The stream and prairie fen south of the access road have been omitted. Please see comment number 8 in ASTI's August 5, 2013 letter.
 - c. A hydrologic analysis should be provided to determine if the dewatering will negatively impact water levels in the fen.
 - d. The alternatives section of the permit application should provide an analysis of a smaller excavation footprint as referenced in comment 2 above.

- 4.) The Public Notice states that the permit is being reviewed under Part 301. The Township would like to request that Part 303 be considered due to the impacts to adjacent wetlands. Please see comment number 1 on ASTI's August 5, 2013 letter.
- 5.) The wetland crossing appears to have been significantly expanded in both width and structure without reference to any MDEQ permit (Please see pictures of the "2-track" before and after the "haul road" was installed attached to ASTI's August 5, 2013 letter). Changes to the culvert could potentially alter rates of flow through the culvert, thereby possibly affecting both the wetland upstream and the fen downstream of the haul road.
- 6.) We are extremely troubled by the previous and CONTINUED excavation and dewatering on this property despite the lack of proper MDEQ permits. The applicant indicates that this is an "after the fact" permit because they were unaware of regulated wetlands on the property, yet the applicant continues to engage in regulated activities without a permit. This statement is particularly troubling since the Township informed the owner/applicant regarding the Township's concern for the wetland systems on this site more than one year ago.

In closing, the Township is staunchly opposed to the issuance of a MDEQ permit for the excessive excavation, dewatering, and related activities as proposed. The applicant has exhibited a disregard for the environment and the government processes established to protect it. The permit application does not appear to justify the proposed dewatering or the damage to imperiled wetlands nor does it present that these items are necessary for the construction of a single family home overlooking a pond. We are also concerned that property owners within the vicinity of the project (including the DNR) be allowed to voice their concerns at a public hearing. We thank you in advance for your consideration of our comments and request for a public hearing and we hope you find them helpful in your review process.

Sincerely,

GENOA CHARTER TOWNSHIP



Michael Archinal, Township Manager

Copy: Michael Donnelly, Michigan DNR
Gary McCririe
Kelly Van Marter
Genoa Township Board of Trustees

Sent Via Email Only

August 6, 2013

Mr. Michael Archinal, Township Manager
Genoa Charter Township
722 E. Grand River Avenue
Brighton, MI 48116

RE: *Review Comments - Chestnut Development MDEQ Wetland Permit Application
MDEQ File #13-47-0031-P
Genoa Township, Livingston County, Michigan
ASTI File No. 8181*

Dear Mr. Archinal:

As requested, ASTI has reviewed Chestnut Development's application for a Part 303 Wetland Permit, MDEQ File# 13-47-0031-P, and offers the following comments:

General

As described in the application, the proposed project includes:

- Construction of an approximately 4.8 acre pond;
- Temporary dewatering during pond construction;
- Discharge of the water from dewatering activities in upland on the site; and
- Construction/installation of a sediment trap, stone check dams, and silt fence, partially within adjacent wetlands, to remove sediment from the discharge.

A portion of the proposed sediment filtration structure has already been constructed within MDEQ-regulated wetland, and sediment was discharged to the wetland prior to installation of that structure. The applicant proposes to leave the existing sediment structure in place for the duration of the project, to enlarge that structure from 15' x 15' to 40' x 60', and to ultimately remove accumulated sediment from the wetland and restore the wetland following construction activities.

Public Notice

1. The Public Notice states that Chestnut Development has applied for a Part 301, Inland Lake & Streams permit, whereas the online (CIWPIS) listing for the application indicates that the permit is being reviewed under Part 303 and the federal Section 404 wetland statutes.

It is ASTI's opinion that this permit should be reviewed under both Parts 301 and 303. Part 301 is applicable because the project involves construction of a pond within 500 feet of a stream, and Part 303 applies due to the impacts to adjacent wetlands that have already occurred; the presence of structures built within the adjacent wetland, and proposed to remain for the duration of excavation and dewatering activities; the proposed expansion of those same sediment control structures; and for the future restoration of those wetland impacts following construction/dewatering.

I spoke with Mr. Koehoff, MDEQ, this morning and he indicated that the discrepancy between the online listing and the Public Notice may be due to the fact that his site inspection occurred after the application was listed in CIWPIS. ASTI wishes to make it clear that both Parts 301 and 303 are applicable to this application and that both need to be taken into account during the MDEQ's permit review.

Permit Application Form

2. The application states that the proposed activities are covered by two separate minor permit (MP) categories. However, the MDEQ's Minor Project Procedures state, in part, "if at any time in the review process, it is determined that an activity in a proposed project, although within an MP category, is likely to cause more than minimal adverse effects on the environment or aquatic resources, including high-value aquatic habitats, the WRD may require the application to be processed as an individual permit application." (emphasis added).

Further, in their March 27, 2013 revisions to *Minor Project Categories in the State of Michigan*, the MDEQ notes that certain activities, though otherwise fitting minor permit categories, may not qualify as minor if they are associated with sensitive natural resources. Sensitive natural resources, as defined by MDEQ, include state or federally listed, or proposed, threatened or endangered species or an identified rare or unique ecological type.

ASTI has previously identified a prairie fen on the site, south of the proposed project location, and extending off-site into the Brighton State Recreation Area. Prairie fens are identified with the state wetland statute as a rare and imperiled wetland type. Additionally, ASTI found that this fen exhibited characteristics of optimal habitat for the listed small white lady's slipper (state threatened) and the eastern massasauga rattlesnake (state special concern species/federal candidate species). As such, it is ASTI's opinion that the proposed project cannot be assumed to be minor and that possible impacts to the fen must be considered as part of the permit review.

Photos taken today, and provided by the Township, further emphasize this point (attached photo log). The proposed activity may indeed cause more than minimal adverse effects to these high-value wetland habitats. It is ASTI's opinion that the applicant has failed to adequately demonstrate that the impact of the proposed project will be minor (please see comments regarding hydrologic analysis below).

3. The Project Description (Section 3) and Section 11 both state that the proposed pond depth is 10 feet. However, Township officials observed and photographed the site earlier today while site dewatering was being conducted. They noted that the pond water surface, was markedly lower today, approximately 12 feet lower, than that observed approximately two

weeks ago when dewatering was not being conducted. Excavation was being conducted further below that water surface. This raises the question of how the proposed area and depth are being managed. Because the nearby fen is a groundwater driven system, it is ASTI's opinion that a hydrologic study should be conducted to determine that the proposed activity will not adversely impact the fen. Further, if dewatering and/or excavation are going to be conducted to different elevations than those stated in the permit application, the hydrologic analysis must assess and represent actual elevations and pumping rates.

4. Section 4 of the application describes three alternatives: (1) No action, (2) excavating within the wetland instead of upland, and (3) the preferred/proposed alternative. ASTI agrees that it is preferable to excavate in upland rather than in wetland. However the applicant includes no analysis of a smaller excavation footprint.

The size of the pond influences the withdrawal of water required to dewater the pond excavation. No hydrologic analysis has been conducted to determine if the proposed dewatering will negatively impact adjacent wetlands, particularly the high quality fen south of the proposed excavation. ASTI recommends that the MDEQ require a pump test, or other appropriate hydrologic analysis, to determine whether the proposed dewatering will negatively impact surface or subsurface water levels in the nearby fen and, if so, whether a smaller pond area could reduce or eliminate that impact.

Supporting Documents

5. In their Correction Request, the MDEQ asked for further details regarding the proposed dewatering. However, the supporting documents provide only a brief description. Item 5 of Niswander Environmental's June 13 response, states that, "Dewatering is only completed as necessary, is intermittent, and expected to be done for several hours on days that excavation is occurring." Again, it is ASTI's opinion that the volumes, durations, and expected elevations of the proposed dewatering be provided as part of a hydrological analysis to assess any hydrologic impacts to the adjacent wetlands.
6. In their June 13 Correction Request response, Niswander Environmental stated that the access road was previously used as both a farm road and as a haul road during previous sand mining activities. In the attached aerial photos, the road appears to have been widened. If fill was added to widen the road, this should be included in the permit application, as it may have involved additional wetland fill. Of greater concern, is whether or not any changes to the culvert were made to improve the access road. Changes to the culvert could potentially alter rates of flow through the culvert, thereby possibly affecting both the wetland upstream and the fen downstream of the haul road.
7. The applicant has stated that all damage to the wetlands, from sedimentation and the construction of sediment traps and check dams, will be restored following excavation and site development. Supplemental documentation should be provided describing planting and/or seeding plans, grading, and the location of spoils disposal, etc. for wetland restoration. Additionally, the MDEQ should consider requiring short-term monitoring to demonstrate that the restoration is successful.
8. In their June 13, 2013 Wetland Delineation report, Niswander Environmental delineated a portion of the wetland north of the haul road, adjacent to the sediment trap and excavation,

but otherwise incorporated wetland limits from a previous (2004) delineation for other areas of the property.

Figures 1 and 1a of the wetland delineation report show approximate wetland boundaries for the remainder of the wetland immediately west of the pond excavation and for wetlands on the west end of the property, adjacent to Chilson Road. However, they have omitted the approximate boundary of the wetland and stream in the area south of the access road.

This omitted area includes the stream that determines that pond construction requires an MDEQ permit, wetlands adjacent to that stream, and the prairie fen farther south. A portion of this wetland boundary is included in Figures 2 and 4, Wetland Impact and Pond Construction, respectively, and in the Plot Plan, but it is ASTI's opinion that this omission should be made clear to the MDEQ. In our investigations of the site, both earlier this year and in 2004, we found clear evidence of groundwater seeps feeding that stream and the fen further downstream. The location and proximity of these water and wetland resources need to be clearly shown on the drawings. It needs to be clear that these various wetland areas and the proposed pond share common groundwater connections and, as such, that hydrologic impacts need to be assessed.

9. Given the concern for adverse impacts to the nearby fen, and to ensure that staff of the Brighton State Recreation Area have an opportunity to review and comment regarding concerns surrounding the fen, ASTI recommends that Genoa Township request a public hearing on this application.

Thank you for the opportunity to review these documents. Please let me know if you have any questions.

Sincerely,



Paul Rentschler
Aquatic/Wetland Ecologist

HAUL ROAD COMPARISON

APRIL 2013



Google earth feet 900
meters 200 ←

OCTOBER 2011



Google earth feet 900
meters 200 ←

PHOTO LOG

Chestnut Development Pond Excavation, Chilson Road, Genoa Township, Michigan



Photo 1.



Photo 2.



Photo 3.

ASTI Project No. 8181
Photographs provided by Genoa Charter Township
August 5, 2013



PHOTO LOG

Chestnut Development Pond Excavation, Chilson Road, Genoa Township, Michigan



Photo 4.



Photo 5.



Photo 6.

ASTI Project No. 8181
Photographs provided by Genoa Charter Township
August 5, 2013



PHOTO LOG

Chestnut Development Pond Excavation, Chilson Road, Genoa Township, Michigan



Photo 7.



Photo 8.



Photo 9.

ASTI Project No. 8181
Photographs provided by Genoa Charter Township
August 5, 2013



State of Michigan
Department of Environmental Quality

Water Resources Division
Lansing District Office
525 West Allegan Street, 4th Floor-North
Lansing, Michigan 48933-1502
517-373-7055

File Number 13-47-0031-P

Date: July 17, 2013

PUBLIC NOTICE

Mr. Steve Gronow of Chestnut Development, 3800 Chilson Road, Howell, Michigan 48843, has applied to this office for a permit under authority of Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). This application is associated with the excavation of a historically mined portion of a 76-acre parcel located on Chilson Road, Howell, Michigan resulting in restoration and reclamation of the site and creation of a 4.8 acre pond. The applicant requests After-the-Fact authorization to construct a dewatering-sediment basin that discharges to wetland. The basin will temporarily impact 0.02 acre of wetland. The wetland will be totally restored upon completion of the reclamation activity. The purpose of the project is to convert an abandoned sand pit to a single family home site. The project is located in T2N, R5E, Sections 33 and 34, Genoa Township, Livingston County, Michigan, in accordance with plans attached to this notice.

THIS NOTICE IS NOT A PERMIT

The proposed project may also be regulated by one or more additional parts of the NREPA that are administered by the Water Resources Division. The requirements of all applicable parts are considered in determining if it is in the public interest to issue a permit.

When a permit application is received requesting authorization to work in or over the inland waters of the State of Michigan, pursuant to Part 301, Inland Lakes and Streams, of the NREPA, the NREPA provides that the department submit copies for review to the department of public health, the city, village or township, and the county where the project is to be located, the local soil conservation district, any local watershed council organized under Part 311, Local River Management, and the local port commission. Additional notification is provided to certain persons as required by statute or determined by the department.

Those persons wanting to make comments on the proposed project shall furnish this office with their written comments no later than 20 days from the date of this notice. Written comments will be made part of the record and should reference the above file number. Objections must be factual, specific, and fully describe the reasons upon which any objection is founded. Unless a written request is filed with the department within the 20-day public comment period, the department may make a decision on the application without a public hearing. The determination as to whether a permit will be issued or a public hearing held will be based on evaluation of all relevant factors defined in Sections 30106 and 30311, or permit criteria defined by other appropriate parts of the NREPA. These Sections address the effect of the proposed work on the public trust or interest including navigation, fish, wildlife, and water quality among other criteria. Public comments received will also be considered.

The entire copy of the public notice package may be viewed at the DEQ (address listed on the top of this public notice), or on-line at <http://www.deq.state.mi.us/lwmpnh/>. To access the public

Public Notice
File Number 13-47-0031-P
Page 2
July 17, 2013

notice package on-line, enter the file number on the left panel and view by clicking on the icon next to the public notice date. Comments may be sent electronically by clicking on the icon next to the comment period date. A hard copy of the public notice may be requested by calling the above number or by e-mailing deq-wrd-jointpermit@michigan.gov.

cc: Chestnut Development, applicant
Livingston County Clerk
Livingston County Drain Commissioner
Livingston Conservation District
Livingston County Health Department
Genoa Township Clerk
Local Postmaster

Mr. Jeff Braunscheidel, DNR Fisheries
Mr. Tim Payne, DNR Wildlife
Mr. Marlio Lomez, DEQ
Mr. Mario Fusco, DEQ
Mr. Steve Niswander, Niswander Environmental
Adjacent Land Owners, see file



RECEIVED

MAY 03 2013

DEQ-LANSING DO

| | | | |
|------------|----------------------------|---------------|-----------------|
| AGENCY USE | Previous USACE File Number | Date Received | DEQ File Number |
| | USACE File Number | | 13-47-31 |
| | | | Fee received \$ |
| | | | \$1500.00 |

- Validate that all parts of this checklist are submitted with the application package. Fill out application and additional pages as needed.
- All items in Sections 1 through 9 are completed.
 - Project-specific Sections 10 through 20 are completed.
 - Dimensions, volumes, and calculations are provided for all impact areas.
 - All information contained in the headings for the appropriate Sections (1-20) are addressed, and identified attachments (➔) are included.
 - Map, site plan(s), cross sections; one set must be black and white on 8 1/2 by 11 inch paper; photographs.
 - Application fee is attached.

1 Project Location Information For Latitude, Longitude, and TRS info anywhere in Michigan see www.mcqi.state.mi.us/wetlands/

| | | | |
|--|------------------------------|---|----------------------|
| Project Address (road, if no street address) vacant Chilson Road parcel | Zip Code | Municipality (Township/Village/City) Genoa Township | County Livingston |
| Property Tax Identification Number(s) 4711-33-400-003 and 4711-34-300-005 | Latitude 42.30° 55.50" N | Township/Range/Section (TRS) T 2 N or S, R 5 E or W; | |
| Subdivision/Plat and Lot Number | Longitude 83.50° 57.98" W | Sec 33 and 34 OR Private Claim # | |

2 Applicant and Agent Information

| | |
|---|---|
| Owner/Applicant (Individual or corporate name) Steve Gronow - Chestnut Development | Agent/Contractor (firm name and contact person) Niswander Environmental, LLC contact - Steve Niswander |
| Mailing Address 3800 Chilson Road | Mailing Address 10524 East Grand River Ave., Suite 103 |
| City Howell State MI Zip Code 48843 | City Brighton State MI Zip Code 48116 |
| Contact Phone Number Fax (810) 599-5147 | Contact Phone Number Fax (810) 225-0539 (810) 225-0653 |
| Email steve@gronows.com | E-mail sniswan@niswander-env.com |
| <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Is the applicant the sole owner of all property on which this project is to be constructed and all property involved or impacted by this project? ➔ If no, attach letter(s) of authorization from all property owners including the owner of the disposal site. | |
| Property Owner's Name (If different from applicant) | Mailing Address |
| Contact Phone Number | City State Zip Code |

3 Project Description

| | |
|--|---|
| Project Name Chilson Road | Preapplication File Number _____ - _____ - _____ -P |
| Name of Water body un-named sand/gravel pond | Date project staked/flagged May 1, 2013 |

| | |
|---|--|
| The proposed project is on, within, or involves (check all that apply) | Project Use |
| <input type="checkbox"/> an inland lake (5 acres or more) <input type="checkbox"/> a Great Lake or Section 10 Waters <input checked="" type="checkbox"/> a pond (less than 5 acres) <input type="checkbox"/> a wetland <input type="checkbox"/> a stream, river, ditch or drain <input type="checkbox"/> a 100-year floodplain <input type="checkbox"/> a legally established County Drain <input type="checkbox"/> a dam Date Drain was established <input type="checkbox"/> a designated high risk erosion area <input type="checkbox"/> a channel/canal <input type="checkbox"/> a designated critical dune area <input checked="" type="checkbox"/> 500 feet of an existing water body <input type="checkbox"/> a designated environmental area | <input checked="" type="checkbox"/> private <input type="checkbox"/> commercial <input type="checkbox"/> public/government <input type="checkbox"/> project is receiving federal/state transportation funds <input type="checkbox"/> WRP <input type="checkbox"/> other |

Indicate the type of permit being applied for: General Permit Minor Project Individual (All other projects.) ➔ See Appendix C.

Written Summary of All Proposed Activities Chestnut Development (applicant) is proposing develop a single family home site on a vacant 76-acre property along Chilson Road in Genoa Township. The location of the home site is on a portion of a property that was historically mined for sand but was never restored. The area contains 50-foot vertical sand slopes, an un-vegetated borrow area, and a small pond at the bottom of the excavation. This applicant proposes to expand the small existing pond to create a 4.8 acre pond. The proposed pond expansion will flatten the vertical slopes and place topsoil over the exposed sand so that they can be restored and vegetated. The home site will be located adjacent to the newly created pond, which will serve as a focal point for the home. The excavated sand will be hauled offsite and used for the I-96 Latson Road interchange. No permanent wetland impacts are proposed.

The MDEQ guidelines for constructing pond were used to assist in design. The existing pond will be enlarged and excavated to an average



depth of approximately 10 feet. The proposed activities will occur on upland areas within the property. It was believed that the proposed pond creation was exempt from requiring a MDEQ permit because it was greater than 500 feet from any watercourses or stream. It was also believed that the pond could be constructed without dewatering; however, heavy spring rains and snowmelt have created the need to dewater. Temporary dewatering requires a MDEQ permit and is provided under Minor Permit Category 43 (Temporary Construction, Access, and Dewatering). Recent investigations have also revealed a watercourse within 500 feet of the proposed pond that was not previously observed. Therefore, this permit application is also requesting a permit for Pond construction provided under Minor Permit Category 29 (Pond: Inland Lakes and Streams).

Dewatering activity has already taken place due to the high water, and incidental temporary impacts to adjacent wetlands have occurred (minor fill - sediment). A sediment trap (~15'x15') and check dams were installed at the discharge point. The check dams and sediment trap are partially located in wetland and Niswander Environmental advised the applicant that these areas would have to be restored to original conditions. Due to this dewatering and start of pond construction, the After-the-Fact fee is being submitted.

The area of the dewatering and sediment trap could be restored now but Niswander Environmental recommended the check dams and sediment trap be left in and evaluated by MDEQ as part of this Permit Application. Niswander Environmental also recommended that the Applicant install an additional sediment trap (~40' x ~60') and check dam to further trap sediment. This larger trap has not been constructed and is pending review of this permit application. In addition, two rows of silt fence have been installed and Niswander Environmental recommended that straw bales be installed to further prevent sediment from entering the adjacent wetland. After completion of the pond construction, the wetland will be restored through the removal of sediment and seeding with native wetland species.

Construction Sequence and Methods The project will be constructed using standard earth moving equipment. The existing pond will be dewatered in phases and excavated to an average depth of 10 feet. Excavators and loaders will be used to excavate the material which will be stockpiled in areas that drain towards the pond so all runoff will be directed back into the pond. The existing pond will be expanded to 4.8 acres by the end of the proposed project.

4 Project Purpose, Use and Alternatives *Attach additional sheets as necessary.*

Describe the purpose of the project and its intended use; include any new development or expansion of an existing land use.

The purpose of the proposed project is to restore an abandoned sand pit to a single family residential home site. This will be accomplished through the excavation of sand for creation of a pond, the re-grading of steep slopes to flatter slopes, placement of topsoil, and seeding. The proposed pond location is an improperly abandoned sand pit that has been intermittently mined for at least 20 years. The entire area proposed for the pond is currently degraded and offers no ecological benefit to the adjacent woodland and wetland areas. The excavated sand will be hauled off site and used at the I-96 Latson Road interchange. The I-96 interchange fortunately generates a need for the sand which provides the economic return needed to complete this restoration project. Once restored, the pond and surrounding restored land will provide a significant positive ecological benefit to the surrounding wetlands and watershed.

Describe the alternatives considered to avoid or minimize resource impacts. Include factors such as, but not limited to, alternative locations, project layout and design, and construction technologies. For utility crossings include alternative routes and construction methods.

The alternatives considered included doing nothing which would result in no restoration of this site. This would cause a long-term negative impact to the surrounding wetlands and woodlands due to erosion, windblown erosion, no wildlife habitat, negative water quality impacts due to increased runoff due to lack of vegetation, and eventual failure of the side slopes, resulting in loss of woodland habitat.

A second alternative was to construct the pond in the existing wetland. This could be completed as a minor project if the impact was kept to less than 1/3 of an acre. It was determined that this would have more impact than the preferred alternative.

Preferred Alternative:

The preferred alternative is to create a 4.8-acre pond and adjacent single-family home site. The entire proposed pond area is an abandoned sand pit. No trees or significant vegetation was present or required clearing. Most of the area was not vegetated and a 50-foot vertical exposed sand bank was present along the east side of the Property. The pond location does not encroach on any wetlands and the haul road was located outside of any wetland areas, along a historic two-track road. An existing wetland crossing was utilized for accessing the site of the proposed pond excavation. All direct and permanent wetland impacts have been avoided. Silt fence at the direction of the Livingston County Drain Commissioner's (LCDC) Office has been installed to protect wetlands from sedimentation. No dewatering was originally proposed but high spring rains and a desire to use traditional earthmoving equipment will require temporary dewatering of the existing pond.

The proposed pond expansion has been designed according to MDEQ Guidelines for Pond Construction and the Livingston County Drain Commissioner's guidelines. The LCDC's office standards for basin side slopes are: not flatter than 20:1 vertical, nor steeper than 3:1 horizontal. The proposed pond will not perch water and will be an expression of the regional groundwater. The MDEQ considers groundwater-fed ponds to be the most successful since their water supply is more predictable. In addition, these types of ponds are less susceptible to surface water contamination, less likely to impact adjacent properties, and will provide aquatic and terrestrial wildlife habitat once restored. Furthermore, there is a pond of similar size that was created within the past 15 years just north of the proposed pond. The north pond appears to have good water quality and has resulted in no negative impacts to the adjacent wetland. Overall, the proposed project will provide an aesthetically pleasing focal point for the proposed single family home, and will significantly improve the environmental conditions of the immediate area.

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**5 Locating Your Project Site** *Attach a legible black and white map with a North arrow.*

Names of roads of closest intersection Chilson Road and Brighton Road

Directions from main intersection to the project site, with distances from the best and nearest visible landmark and water body
Chilson Road south to railroad crossing. Property is vacant, on east side of Chilson, a driveway and gate have been installedDescription of buildings on the site (color; 1 or 2 story, other)
noneDescription of adjacent landmarks or buildings (address; color; etc)
Chilson Road and the railroad crossing constitute the western property boundary.

How can your site be identified if there is no visible address? east of Chilson Road/railroad crossing - see attached Fig 1 (Site Location Map)

6 Easements and Other Permits No Yes Is there a conservation easement or other easement, deed restriction, lease, or other encumbrance upon the property?
→ If yes, attach a copy. Provide copies of court orders and legal lake levels if applicable.

List all other federal, interstate, state, or local agency authorizations including required assurances for Critical Dune Area projects.

| Agency | Type of Approval | Number | Date Applied | Date approved /denied | Reason for denial |
|-------------------|--------------------|--------|--------------|------------------------------|-------------------|
| Livingston County | SESC | NA | Nov 2012 | November 2012 | |
| Genoa Township | Site Plan Approval | NA | Oct-Nov 2012 | November 2012, court ordered | |
| LCRC | Driveway Permit | NA | Nov 2012 | November 2012 | |

7 Compliance

If a permit is issued, when will the activity begin? (M/D/Y) November 2012 Proposed completion date (M/D/Y) December 2013

 No Yes Has any construction activity commenced or been completed in a regulated area?

→ If Yes, identify the portion(s) underway or completed on drawings or attach project specifications and give completion date(s)

 No Yes Were the regulated activities conducted under a DEQ and/or USACE permit?

→ If Yes, list the permit numbers

 No Yes Are you aware of any unresolved violations of environmental law or litigation involving the property?

→ If Yes, attach explanation.

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DEQ-LANSING DO**8 Adjacent Property Owners** *Provide current mailing addresses. Attach additional sheets/labels for long lists.* Established Lake Board Lake Association
Contact Person Mailing Address City State and Zip Code

List all adjacents. If you own the adjacent lot, provide the requested information for the first adjacent parcel that is not owned by you.

| Property Owner's Name | Mailing Address | City | State and Zip Code |
|-----------------------|-----------------|------|--------------------|
| N/A - Minor Permit | | | |

9 Applicant's Certification*Read carefully before signing.*

I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application; that it is true and accurate, and, to the best of my knowledge, that it is in compliance with the State Coastal Zone Management Program. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the DEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site before and during construction and after the completion of the project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does not release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does not guarantee the issuance of a permit.

| | | | |
|--|-------------------------------------|---|---------------------|
| <input type="checkbox"/> Property Owner <input checked="" type="checkbox"/> Agent/Contractor <input type="checkbox"/> Corp. or Public Agency / Title | Printed Name Steven F. Niswander | Signature <i>Steven F. Niswander</i> | Date May 1, 2013 |
|--|-------------------------------------|---|---------------------|

**ADJACENT PROPERTY OWNERS
MDEQ FILE NO 13-47-0031-P
CHESTNUT DEVELOPMENT – APPLICANT**

Genoa Township

4711-33-400-007 NW- DNR Exempt/ MDOT- PO Box 30050, Lansing, MI48909

4711-33-400-008 North- Lucy LLC 3766 Noble, Brighton, MI 48116

4711-33-400-005 West- Lucy LLC 3766 Noble, Brighton, MI 48116

4711-33-300-021 East- DNR Financial Accounting Division- PO Box 30722, Lansing, MI 48909

4711-34-300-006- East- Miller Jeffrey C & Linda W,5827 Washington Ave., Whittier, CA
90601-3623

4711-34-300-003- North- Lucy LLC 3766 Noble, Brighton, MI 48116

Hamburg Township

15-04-100-004- South- DNR- PO Box 30028, Lansing MI, 48909

15-03-101-990- South- Pine Lake Drain Drainage District- 2300 E. Grand River Suite 105,
Howell, MI 48843

JUN 17 2013
WATER RESOURCES DIVISION

April 25, 2013

Mr. Thomas Kolhoff
Lansing District Supervisor
Michigan Department of Environmental Quality
525 W. Allegan, 4th Floor
Lansing, MI

Subject: *Letter of Authorization*
Chestnut Development, LLC - Applicant
Section 34-35, Genoa Twp. (T02N, R5W)
Livingston County, MI

Dear Mr. Kolhoff:

This letter is to inform you that Niswander Environmental is authorized to prepare and submit a Joint Permit Application to the Michigan Department of Environmental Quality (MDEQ) on behalf of Chestnut Development, LLC for temporary dewatering during the construction of a pond and pond construction in Section 34-35 of Genoa Township, Livingston County, MI. If you have any questions regarding this authorization please call me at your convenience at (810) 599-5147.

Sincerely,



Steve Gronow
Chestnut Development

cc: Steven Niswander, Niswander Environmental

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Kannninga & Roodvoets, Inc.

MICHIGAN OFFICE • 3435 Droadmoor S.E. • Grand Rapids, MI 49512 • Ph. (616) 949-0800 • Fax (616) 949-1894
FLORIDA OFFICE • 5219 Cono Road • P.O. Box 310396 • Tampa, FL 33660 • Ph. (813) 623-3031 • Fax (813) 628-4490
— AN EQUAL OPPORTUNITY EMPLOYER —

April 30, 2013

Mr. Thomas Kolhoff
Lansing District Supervisor
Michigan Department of Environmental Quality
525 W. Allegan, 4th Floor
Lansing, MI

Subject: *Letter of Authorization to Supply Dredge Material (Sand)*
Chestnut Development, LLC - Applicant
Section 34-35, Genoa Twp. (T02N, R5W)
Livingston County, MI

Dear Mr. Kolhoff:

This letter is to inform you that Chestnut Development is authorized to supply sand to Kannninga & Roodvoets (K&R), contractor, for use on the I-96 Latson Road Interchange construction. The sand will come from the creation of a pond in Section 34-35 of Genoa Township, Livingston County, MI. If you have any questions regarding this authorization please call me at your convenience at (616) 949-0800 x127.

Sincerely,

David Shane
VP Construction
Kannninga & Roodvoets (K&R)

cc: Steven Niswander, Niswander Environmental

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10 Projects Impacting Inland Lakes, Streams, Great Lakes, Wetlands or Floodplains

- Complete only those sections A through M applicable to your project.
- If your project impacts wetlands also complete Section 12. If your project impacts regulated floodplains also complete Section 13.
- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27. Example: (25 ft long x 10 ft wide x 2 feet deep) / 27 = 18.5 cubic yards
- Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness.
 - ➔ Provide a black and white overall site plan, with cross-section and profile drawings. Show existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures, land change activities and soil erosion and sedimentation control measures. Review Appendix B and EZ Guides for aid in providing complete site-specific drawings.
 - ➔ Provide tables for multiple impact areas or multiple activities such as multiple fill areas or multiple culverts. Include your calculations.

Water Level Elevation

On inland waters NAVD 29 NAVD 88 other 924.7 Observed water elevation (ft) date of observation (M/D/Y) 10--23-12
 On a Great Lake IGLD 85 surveyed converted from observed still water elevation.

A. PROJECTS REQUIRING FILL (See All Sample Drawings)

- ➔ Attach a site plan and cross-section views to scale showing maximum and average fill dimensions with calculations.
- ➔ For multiple impact areas on a site provide a table with location, dimensions and volumes for each fill area.

Purpose bioengineered shore protection boat ramp boat well bridge or culvert crib dock
 riprap seawall swim area other check dam, secc measures

| | | |
|---|----------------------------------|---|
| Dimensions of fill (ft) Length 46' Width 20' Maximum Depth 0.5 | Total volume (cubic yards) 17 | Volume below OHWM (cubic yards) 0 |
| Maximum water depth in fill area (ft) 0.5 | Area filled (sq ft) 926 | Will filter fabric be used under proposed fill? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If Yes, type) |

Fill will extend 15 feet into the water from the shoreline and upland 15 feet out of the water.

Type of clean fill peastone % sand % gravel % other rip rap and sand

Source of clean fill commercial on-site ➔ If on-site, show location on site plan.
 other ➔ If other, attach description of location.

B. PROJECTS REQUIRING DREDGING OR EXCAVATION (See Sample Drawings)

- Refer to www.mi.gov/jointpermit for spoils disposal and authorization requirements.
- ➔ Attach a site plan and cross-section views to scale showing maximum and average dredge or excavation dimensions with calculations.
- ➔ For multiple impact areas on a site provide a table with location, dimensions and volumes for each dredge/excavation area.

Purpose boat ramp boat well bridge or culvert maintenance dredge
 navigation pond/basin other sediment trap

| | | |
|---|-----------------------------|---------------------------------|
| Dimensions (ft) Length 15.3 Width 7.5 Maximum Depth 4 | Total volume (cu yds) 17 | Volume below OHWM (cu yds) 0 |
|---|-----------------------------|---------------------------------|

Has this same area been previously dredged? No Yes If Yes, provide date and permit number: *MAY 03 2011*

Will the previously dredged area be enlarged? No Yes If Yes, when and how much?

Is long-term maintenance dredging planned? No Yes If Yes, how often? *DECLASSIFIED*

Dredge or Excavation Method Hydraulic Mechanical other

Spoils Disposal
 Dredged or excavated spoils will be placed on-site landfill USACE confined disposal facility other upland off-site
 For disposal, provide a ➔ Detailed spoils disposal area location map and site plan with property lines.
 ➔ Letter of authorization from property owner of spoils disposal site, if disposed off site.

For volumes less than 5,000 cu yards, has proposed dredge material been tested for contaminants within the past 10 years?
 No Yes ➔ If Yes, provide test results with a map of sampling locations.

C. PROJECTS REQUIRING RIPRAP (See Sample Drawings 2, 3, 8, 12, 14, 22, and 23)

| | |
|---|--|
| Riprap water ward of the ordinary high water mark: dimensions (ft) length width depth | Volume(cu yd) |
| Riprap landward of the ordinary high water mark: dimensions (ft) length width depth | Volume(cu yd) |
| Type and size of riprap (inches) <input type="checkbox"/> field stone <input type="checkbox"/> angular rock <input type="checkbox"/> other | Will filter fabric or pea stone be used under proposed riprap? <input type="checkbox"/> No <input type="checkbox"/> Yes, Type |



| | | | |
|--|--|--|---|
| K. MOORING and NAVIGATION BUOYS (See EZ Guide for Sample Drawing) → Provide a site plan showing the distances between each buoy and from the shore to each buoy, and depth (ft) of water at each location. → Provide cross-section drawing(s) showing anchoring system(s) and dimensions. | | | |
| Purpose of buoy <input type="checkbox"/> mooring <input type="checkbox"/> navigation <input type="checkbox"/> scientific structures <input type="checkbox"/> swimming <input type="checkbox"/> other | | | |
| Number of buoys | Dimensions of buoys (ft) width height swing radius chain length | | Boat Lengths Type of anchor system |
| Buoy Location: Latitude N Longitude W. → Provide a table for multiple buoys. | | | |
| Do you own the property along the shoreline? | | <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes | → If No, attach an authorization letter from the property owner(s). |
| Do you own the bottomlands? | | <input type="checkbox"/> No <input type="checkbox"/> Yes | → If No, attach an authorization letter from the property owner(s). |
| L. FENCES → Provide an overall site plan showing the proposed fencing through streams, wetlands or floodplains. → Provide a drawing of fence profile showing the design, dimension, post spacing, mesh, and distance from ground to bottom of fence. | | | |
| Purpose of fence <input type="checkbox"/> Airport <input type="checkbox"/> Cervidae <input type="checkbox"/> Livestock <input type="checkbox"/> Residential <input type="checkbox"/> Security <input type="checkbox"/> Other | | | |
| Total length (ft) of fence through streams wetlands floodplains | | Fence height (ft) | Fence type and material |
| <input type="checkbox"/> M. OTHER - e.g., structure removal, maintenance or repair, aerator, dry fire hydrant, gold prospecting, habitat structures, scientific measuring devices, soil borings, or survey activities. | | | |
| Structure description, dimensions and volumes. Complete Sections 10A-C as applicable. | | | |
| K. EXPANSION OF AN EXISTING or CONSTRUCTION OF A NEW LAKE or POND (See Sample Drawings 4 and 15) → Complete Section 10J for outlets and Section 17 for water control structures. → Provide elevations, cross-sections and profiles of outlets, dams, dikes, water control structures and emergency spillways to nearest water bodies. | | | |
| Which best describes your proposed water body use (check all that apply) <input type="checkbox"/> mining <input checked="" type="checkbox"/> recreation <input type="checkbox"/> storm water retention basin <input type="checkbox"/> wastewater basin <input checked="" type="checkbox"/> wildlife <input type="checkbox"/> other | | | |
| Water source for lake/pond <input checked="" type="checkbox"/> groundwater <input type="checkbox"/> natural springs <input type="checkbox"/> Inland Lake or Stream <input type="checkbox"/> storm water runoff <input type="checkbox"/> pump <input type="checkbox"/> sewage <input type="checkbox"/> other | | | |
| Location of the lake/basin/pond <input type="checkbox"/> floodplain <input type="checkbox"/> wetland <input type="checkbox"/> stream (inline) <input checked="" type="checkbox"/> upland | | | |
| Maximum dimensions (ft) length 836 width 250 depth average = 10' | | Maximum Area: <input checked="" type="checkbox"/> acres <input type="checkbox"/> sq ft 4.8 acres | |
| Has the there been a hydrologic study performed on the site? | | <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes | → If Yes, provide a copy. |
| Has the DEQ conducted a wetland assessment for this parcel? | | <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes | → If Yes, provide a copy or WIP number; |
| Has a professional wetland delineation been conducted for this parcel? | | <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes | → If Yes, provide a copy with data sheets. |
| Spoils Disposal | Dredged or excavated spoils will be placed <input type="checkbox"/> on-site <input type="checkbox"/> landfill <input type="checkbox"/> USACE confined disposal facility <input checked="" type="checkbox"/> other upland off-site For disposal, provide a → Detailed spoils disposal area location map and site plan with property lines. → Letter of authorization from property owner of spoils disposal site, if disposed off-site. | | |

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12 ACTIVITIES THAT MAY IMPACT WETLANDS (See Sample Drawings B & 9). Complete other Sections as applicable.

- Locate your site and wetland information with the DEQ Wetlands Map Viewer at www.mcqi.state.mi.us/wetlands/
- For information on the DEQ's Wetland Identification Program (WIP) visit www.mi.gov/wetlands/.
 - ➔ Provide a detailed site plan with labeled property lines, upland and wetland areas, and dimensions and volumes of wetland impacts.
 - ➔ Complete the wetland dredge and wetland fill dimension information below for each impacted wetland area.
 - ➔ Attach tables for multiple impact areas or activities.
 - ➔ Attach at least one cross-section for each wetland dredge and/or fill area; show wetland and upland boundaries on the cross-section.

| | | |
|--|--|---|
| Has the DEQ conducted a wetland assessment for this parcel? | <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes | ➔ If Yes, provide a copy or WIP number. |
| Has a professional wetland delineation been conducted for this parcel? | <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes | ➔ If Yes, provide a copy with data sheets |
| Is there a recorded DEQ easement on the property? | <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes | ➔ If Yes, provide the easement number |
| Did the applicant purchase the property before October 1, 1980? | <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes | ➔ If Yes, provide documentation. |
| Is any grading or mechanized land clearing proposed? | <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes | ➔ If Yes, label the locations on the site plan. |
| Has any of the proposed grading or mechanized land clearing been completed? | <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes | ➔ If Yes, label the locations on the site plan |
| Proposed Activity | <input type="checkbox"/> boardwalk or deck (Section 10I) <input type="checkbox"/> bridges and culverts (Section 14) <input checked="" type="checkbox"/> dewatering <input type="checkbox"/> draining surface water <input type="checkbox"/> fences (Section 10L) <input checked="" type="checkbox"/> fill or dredge <input type="checkbox"/> septic system <input type="checkbox"/> stormwater discharge (Section 10J) | <input type="checkbox"/> designated environmental area <input type="checkbox"/> driveway / road <input type="checkbox"/> restoration <input type="checkbox"/> other |
| FILL | Dimensions maximum length (ft) 46 maximum width (ft) 20 Area <input type="checkbox"/> acres <input checked="" type="checkbox"/> sq ft 926 | Average depth (ft) 0.5 Volume (cu yd) 17 |
| DREDGE | Dimensions maximum length (ft) 15.3 maximum width (ft) 7.5 Area <input type="checkbox"/> acres <input checked="" type="checkbox"/> sq ft 115 | Average depth (ft) 4 Volume (cu yd) 17 |
| Spoils Disposal | Dredged or excavated spoils will be placed <input checked="" type="checkbox"/> on-site <input type="checkbox"/> landfill <input type="checkbox"/> USACE confined disposal facility <input type="checkbox"/> other upland off-site For disposal, provide a ➔ Detailed spoils disposal area location map and site plan with property lines. ➔ Letter of authorization from property owner of spoils disposal site, if disposed off-site. | |
| Septic System | The proposed project will be serviced by: <input type="checkbox"/> public sewer <input type="checkbox"/> private septic system ➔ Show system on plans. | If a private septic system is proposed, has an application for a permit been made to the County Health Department? <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, has a permit been issued? <input type="checkbox"/> No <input type="checkbox"/> Yes ➔ Provide a copy of the permit. |
| Describe the wetland impacts, the proposed use or development, and the alternatives considered: There are no permanent wetland impacts. The only temporary wetland impact is for construction of a sediment trap for dewatering purposes. The fill will be removed and the excavated sediment trap will be filled upon construction completion. The purpose of the project is to restore and vegetate an abandoned sand pit and create a high quality pond to be a focal point for a single family home. The preferred alternative is to create a 4.8-acre pond and adjacent single-family home site. The other alternatives considered included doing nothing which would result in no restoration of this site. This would cause a long-term negative impact to the surrounding wetlands and woodlands due to erosion, windblown erosion, no wildlife habitat, negative water quality impacts due to increased runoff due to lack of vegetation, and eventual failure of the side slopes, resulting in loss of woodland habitat. A second alternative was to construct the pond in the existing wetland. This could be completed under a minor project if the impact was kept to less than 1/3 of an acre. It was determined that this would have more impact than the preferred alternative. | | |
| Does the project impact more than 1/3 acre of wetland? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes ➔ If Yes, submit a Mitigation Plan with the type and amount of mitigation proposed. For more information go to www.mi.gov/wetlands/ | | |



Describe how impacts to waters of the United States will be avoided and minimized:

The 4.8-acre pond was located to avoid all wetland impacts. The entire proposed pond area is an abandoned sand pit. There are no permanent wetland impacts. No trees or significant vegetation were present or required clearing. Most of the area was not vegetated and a 50-foot vertical exposed sand bank was present along the east side of the Property. The pond location does not encroach on any wetlands and the haul road was located outside of any wetland areas, along a historic two-track road. An existing wetland crossing was utilized for accessing the site of the proposed pond excavation. All direct and permanent wetland impacts have been avoided. Sill fence at the direction of the Livingston County Drain Commissioner's Office has been installed to protect wetlands from sedimentation. No dewatering was originally proposed but high spring rains and a desire to use traditional earthmoving equipment will require temporary dewatering of the existing pond. The temporary wetland impacts are required for dewatering. The installation of the check dam and sediment trap will protect the wetland from sedimentation.

Describe how the impact to waters of the United States will be compensated. OR Explain why compensatory mitigation should not be required for the proposed impacts.

The proposed pond will significantly improve the environmental conditions of the area. This area is currently an un-vegetated abandoned sand pit. The site in its current condition will cause a long-term negative impact to the surrounding wetlands and woodlands due to erosion, windblown erosion, no wildlife habitat, negative water quality impacts due to increased runoff due to lack of vegetation, and eventual failure of the side slopes, resulting in loss of woodland habitat. The proposed pond expansion and site restoration will eliminate these problems.

Furthermore, the pond has been designed according to MDEQ Guidelines for Pond Construction and the Livingston County Drain Commissioner's (LCDC) guidelines. The LCDC's office standards for basin side slopes are: not flatter than 20:1 vertical, nor steeper than 3:1 horizontal. The proposed pond will not perch water and will be an expression of the regional groundwater. The MDEQ considers groundwater-fed ponds to be the most successful since their water supply is more predictable. In addition, these types of ponds are less susceptible to surface water contamination, less likely to impact adjacent properties, and will provide aquatic and terrestrial wildlife habitat once restored. Furthermore, there is a pond of similar size that was created within the past 15 years just north of the proposed pond. The north pond appears to have good water quality and has resulted in no negative impacts to the adjacent wetland. Overall, the project will provide an aesthetically pleasing focal point for the proposed single family home, and will significantly improve the environmental conditions of the immediate area.

13 FLOODPLAIN ACTIVITIES (See Sample Drawing 5 and others. Complete other applicable sections.)

- For more information go to www.mi.gov/floodplainmanagement. This site also lists the projects and requirements for an expedited floodplain review under "Expedited Review Information for Minor Floodplain Projects."
- Examples of projects proposed within the non-floodway portions of the 100-year-floodplain which may qualify for an expedited review: Open pile decks and boardwalks; residences, commercial/industrial facilities, garages and accessory structures; parking lots; pavilions, gazebos, large community playground structures; residential swimming pools
- Examples of projects proposed within the floodway portions of the floodplain which may qualify for an expedited review: Open pile decks and boardwalks, (non-enclosed) that are anchored to prevent floatation and that do not extend over the bed and bank of a watercourse; parking lots constructed at grade or resurfacing that is no more than 4 inches above the existing grade; dry hydrants that do not require fill placement; scientific structure such as staff gauges, water monitoring devices, water quality testing devices, and core sampling devices which meet specific design criteria and fish structures that meet specific design criteria.
- For expedited review include:
 - ➔ Photographs of the work site labeled to identify what is being shown and with the direction of the photo clearly indicated. Include photographs of any river or stream adjacent to the project.
 - ➔ A letter or statement from the local unit of government acknowledging your proposed application. See the website for sample wording.
 - A hydraulic analysis or hydrologic analysis may be required to fully assess floodplain impacts.
 - The state building code requires an Elevation Certificate for any building construction or addition in a floodplain. A sample form can be found at www.fema.gov/nlip/elvms1.shtml.
 - ➔ Attach additional sheets or tables for multiple proposed floodplain activities and provide hydraulic calculations.
 - ➔ Show reference datum used on plans.

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| | | |
|--|---|---|
| Proposed Activity | <input type="checkbox"/> fill <input checked="" type="checkbox"/> excavation or cut <input type="checkbox"/> other | 100-year floodplain elevation (ft) (if known) Datum <input type="checkbox"/> NGVD 29 <input type="checkbox"/> NAVD 88 <input type="checkbox"/> other |
| Site is | feet above <input type="checkbox"/> ordinary high water mark (OHWM) OR <input type="checkbox"/> observed water level. Date of observation (M/D/Y) | |
| Fill volume below the 100-year floodplain elevation (cu yds) | Compensating cut volume below the 100-year floodplain elevation (cu yds) | |
| s and/ or | Type of construction is <input type="checkbox"/> residential <input type="checkbox"/> garage/pole barn <input type="checkbox"/> non residential <input type="checkbox"/> other | |
| | Construction is <input type="checkbox"/> new <input type="checkbox"/> addition AND Served by <input type="checkbox"/> public sewer <input type="checkbox"/> private septic <input type="checkbox"/> other | |



NISWANDER ENVIRONMENTAL, LLC

10524 E Grand River Ave
Suite 103
Brighton, MI 48116
phone: 810.225.0539
fax: 810.225.0653
www.niswander-env.com

Finding Solutions in a Complex World

June 13, 2013

Ms. Carol Valor
District Representative
Michigan Department of Environmental Quality, LWMD
525 W. Allegan (Constitution Hall, 4th Floor, North)
Lansing, MI 48933

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JUN 17 2013

DEQ-LANSING DO

Subject: *Correction Request – MDEQ File No. 13-47-0031-P
Chestnut Development (Steve Gronow) - Applicant
76-Acre Vacant Chilson Road Property
Sections 34 & 35 of Genoa Township, Livingston County, Michigan
NE 1291*

Dear Ms. Valor:

On May 1, 2013, Niswander Environmental, on behalf of Chestnut Development (Applicant), submitted a wetland permit application (MDEQ File No. 13-47-0031-P) for the proposed expansion of an existing gravel pit into a 4.8-acre pond located on a vacant property (Property) along Chilson Road in Sections 34 and 35 of Genoa Township, Livingston County, Michigan. The MDEQ sent an Application Correction Request, dated May 22, 2013 requesting additional information pertaining to this project.

In response to your Correction Request letter, Niswander Environmental has addressed the issues as stated below or as presented in the enclosed materials:

1. *“Please resend all adjacent property owners’ names and mailing address”*

A list of adjacent property owners is included as part of this submittal.

2. *“Provide a copy of the wetland delineation, map, and flagging map”*

A wetland delineation report, including a Wetland Location Map (Figure 1), Wetland Flagging Map (Figure 1a), Data Forms, and Photographic Log is included as part of this submittal. Please note that Niswander Environmental flagged only a portion of the wetland that occurs immediately adjacent to the proposed Project Limits. The remaining on-site wetlands were delineated by a previous consultant several years ago and the wetland limits were confirmed in the field by Niswander Environmental as accurate. The surveyed wetland boundary has been shown on the plan sets.



3. *"It appears there is a drain crossing proposed in the new road, however no detailed plan of this crossing is in the application. Please provide the detailed plan and cross section with wetland boundary line (if present)"*

A new road crossing has not been proposed. As evidenced in the attached historic aerial photographs from 1992, 1998, 2005, and 2010, a road crossing has been present in this location for at least 20 years and appears to have been used both for agricultural and sand extraction purposes (Figures A-D). Since a new road crossing is not proposed, plans and cross sections are not necessary.

4. *"Cross sections. Provide at least 2 cross sections of the proposed pond"*

A new revised Figure 4 (Pond Construction) has been developed to show the cross section locations and cut/fill volumes. Cross section A-A' has been revised to show the pond and a new cross sections (B'-B) has been developed. Both cross sections are included as part of this submittal.

5. *"Provide the volume for extraction to construct the pond. Provide a narrative description of the extraction methods including the duration of dewatering"*

The total excavation area is 7.2 acres and as previously mentioned the site has been previously graded and has a steep un-vegetated slope that is failing. This project will eliminate the failing slopes and create stable vegetated slopes. The average depth of excavation is 22 feet and the total amount of excavation is estimated at 255,000 cyd. The excavation is being completed with traditional earth moving equipment. The pond is being created with a crane, off road truck, bulldozer. The material is excavated, stockpiled, and loaded on trucks. All material is being removed from the site and there are no permanent fill areas. Dewatering is only completed as necessary, is intermittent, and expected to be only done for several hours on days that excavation is occurring.

6. *"Add to plan sheet #2 the location for dewatering basin and pipe outfall. Provide an analysis of alternative locations for dewatering such as upland"*

Plan Sheet #2 has been revised and is included as part of this submittal. Several locations were evaluated for the location of the dewatering basins. The area to the south of the pond is sloping and close to wetland and the concern was the dewatering operation would result in slope erosion. The area to the north of the pond was also evaluated and while it had available area for a dewatering the location at the very north edge of the pond would not allow for dewatering the southern portion of the basin. The central location was selected because it allowed for the efficient dewatering of the basin, was largely located outside of wetland, had grades that were suitable for efficient settling of sediments, and was in an area that would not result in erosion. As discussed in the permit application, the dewatering area was previously installed. Therefore, it was Niswander Environmental's opinion that the additional impact caused by the removal of the existing basin would result in additional wetland impact. Therefore, the most feasible and prudent alternative is utilize this existing location and restore the wetland in this location after dewatering operations are completed.



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7. "Clarify the application cut and fill volumes and indicate the location of this material. Add to site plan as well"

The cut volume for the pond construction is approximately 255,000 cyd and no fill is proposed. All excavated material will be removed from the site. No permanent wetland impacts are proposed and only 1,041 square feet of temporary wetland impact is proposed.

If you have any questions or require additional information please call me at your convenience.

Sincerely,

Steven F. Niswander
Principal
Professional Wetland Scientist #1276

cc. Steve Gronow, Chestnut Development

Attachments: List of Adjacent Property Owners
Wetland Delineation Report with Wetland Maps, Data Forms, and Photo Log
Historic Aerial Photographs (Figures A – D)
Cross Sections of the Proposed Pond (A'-A and B'-B)
Figure 4. Pond Construction
Revised Plan Sheet #2

JUN 17 2013

VISION



NISWANDER ENVIRONMENTAL, LLC

10524 E Grand River Ave
Sulto 103
Brighton, MI 48116
phone. 810.225.0539
fax.810.225.0653
www.niswander-env.com

Finding Solutions in a Complex World

June 13, 2013

Mr. Steve Gronow
Chestnut Development
3800 Chilson Road
Howell, MI 48843

Subject: *Wetland Delineation
Chilson Road Parcel
Sections 34/35 of Genoa Township, Livingston County, MI
NE 1291*

JUN 17 2013
WATER RESOURCES DIVISION

Dear Mr. Gronow:

Niswander Environmental has completed a wetland delineation on a vacant 76-acre property ("Property"), located on the east side of Chilson Road, south of Brighton Road, in Sections 34 and 35 of Genoa Township, Livingston County, Michigan. It is our understanding that you are proposing to develop a single family home site on the Property, which was historically mined for sand. Specifically, it is our understanding that you are proposing to expand a small existing pond to create a 4.8 acre pond. The area of the pond expansion is defined as the Project Limits. On May 1, 2013, Niswander Environmental performed a wetland delineation within the Project Limits, which included flagging the limits of each wetland.

METHODS AND DATA USED

Prior to the site investigation, Niswander Environmental completed a thorough review of available State and County GIS data, online resources, wetland maps, historic aerial photos, topographic maps, soil maps, and materials obtained from you. Infrared and color aerial photographs (Michigan Geospatial Digital Library - MiGDL, 1998 and 2005) and 2010 color aerial photographs (GoogleEarth) were obtained and evaluated for any remarkable features. A review of National Wetland Inventory (NWI) was conducted to determine the likely presence, location, size and type of wetlands that may be located on the Site. The United States Fish and Wildlife Service produced the NWI data through aerial photograph interpretation.

A review of the available wetland maps, including the NWI and MDEQ Wetland Map Viewer (www.mi.gov/wetlands) for Livingston County, revealed the potential presence of emergent wetland on the Property, immediately west of the Project Limits. According to GIS soil data ([NRC's Web Soil Survey](#)), much of the Project Limits is composed of Gravel Pit (Gr), although Houghton muck is present within 20 feet of the Project Limits. These maps, however, may not accurately show the extent or existence of wetland systems in a specific area or correctly identify the wetlands present since they were

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primarily generated through aerial interpretation. Wetland inventory maps are utilized for preliminary analysis only. Actual field reconnaissance is necessary to determine the actual existence and type of wetlands in a given area.

Therefore, potential wetland areas within the Project Limits were evaluated in the field using the procedures of the US Army Corps of Engineers *Wetland Delineation Manual* (Technical Report Y-87-1; hereafter referred to as the "Corps Manual"), and the Northcentral and Northeast Regional Supplement to the Corps Manual. According to these procedures, wetlands were identified by the presence of hydric soils, signs of hydrology indicators, and dominant hydrophytic vegetation.

Hydric soil indicators were assessed in the field in several soil test pits. A soil is considered hydric if it meets requirements as stated in the Natural Resources Conservation Service *Field Indicators of Hydric Soils in the United States* (Version 7.0, 2010), which specifies parameters such as soil matrix color, amount and contrast of redox concentrations or depletions, and depth and thickness for a specific soil type such as loamy, clayey, or sandy soils.

Signs of hydrology within potential wetland areas were also investigated. Standing water or saturated soils, water marks on trees, drift lines, sediment deposits, and water-stained leaves (among others) are considered primary indicators of hydrology, while secondary signs include drainage patterns, moss trim lines, crayfish burrows, and surface soil cracks. Either one primary or two secondary indicators are necessary in determining the presence of wetland hydrology.

Dominant vegetation for wetland areas is typically determined by estimating the most common species of tree, shrub, and forb layers. The top dominants are visually estimated for each layer or strata, and the indicator status of each dominant species is then determined. An indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU) and/or upland (UPL) is typically assigned to each plant species on the National Wetland Plant List (Michigan 2012 Final State Wetland Plant List (Lichvar, R.W. 2012). An area has hydrophytic (wetland) vegetation when, under normal circumstances, more than 50 percent of the composition of the dominant species from all strata are OBL, FACW, and/or FAC species. An area has non-hydrophytic vegetation when 50 percent or more of the composition of the dominant species from all strata are FACU and/or UPL species. Areas that met the three criteria of hydric soils, wetland hydrology, and hydrophytic vegetation were considered wetlands. The perimeter of a wetland is typically determined by locating areas where one of these three criteria is no longer present (*i.e.*, where wetland vegetation transitions to upland vegetation or where signs of hydrology are no longer apparent, etc.).

Wetland boundaries were flagged in the field using day-glo pink ribbon labeled "WETLAND DELINEATION". The limits of each wetland are shown on Figure 1 (Wetland Location Map).

Under state law (MCL 324 Part 303, Wetland Protection), wetlands are regulated if they are greater than 5 acres in size or if they are connected to or within 500 feet of an inland lake, pond, river, drain, or stream (*i.e.*, watercourse). Watercourses are regulated by the State under Part 301 (Inland Lakes and Streams) if they exhibit defined banks, a bed, and visible evidence of a continued flow or continued occurrence of water. Again, it should be noted that the MDEQ has the final authority on the regulatory status of wetlands and watercourses in the State of Michigan.

In addition to a review of available wetland resources, Niswander Environmental conducted a review of the FEMA FIRM (Flood Insurance Rate Map) Floodplain Map to determine the existence, location and



zone of any floodplain which may be located within the Site. FIRM maps show FEMA-identified floodplain areas along rivers and tributaries. The maps record the following data: 100-year and 500-year floodplains, the height of the base flood, and the risk premium zones developed from topographical information across a floodplain. The FIRM for this Property indicates that floodplain is not present on the site. This information should be verified with Genoa Township prior to any development, as there may be more accurate local data available. Floodplain permits may be required for development from the MDEQ.

FINDINGS

Wetland Delineation

On May 1, 2013, Niswander Environmental completed a wetland delineation within the Project Limits. The wetland limits were determined based on subtle topographic changes, presence/lack of hydrologic indicators and hydric soils, and/or the interface between upland and wetland vegetation. Wetland delineation data sheets are attached. Niswander Environmental's investigation revealed the presence of one wetland (Wetland A) adjacent to the Project Limits.

Wetland A

Wetland A is a 5.5-acre emergent wetland that exhibits a perimeter of scrub-shrub vegetation. Although it contains an abundance of non-native vegetation, it is of moderate quality and is dominated by cattail (*Typha latifolia* and *Typha angustifolia*), reed canary grass (*Phalaris arundinacea*), and tussock sedge (*Carex stricta*). Within the Project Limits, the wetland is comprised of reed canary grass, tussock sedge, willow (*Salix* spp.), gray dogwood (*Cornus foemina*), sensitive fern (*Onoclea sensibilis*), and lakebank sedge (*Carex lacustris*).

A topographic change and a noticeable difference in vegetation defines the wetland/upland interface. Soils within this area consisted of a sandy clay loam or sandy clay, and exhibited indicators of hydric soils such as Redox Dark Surface and Depleted Below Dark Surface. Signs of hydrology were also present, including saturation, surface water, and a high groundwater table.

Due to the fact that this wetland is greater than 5 acres in size, Wetland A is likely regulated by the Michigan Department of Environmental Quality.

CONCLUSIONS

Niswander Environmental's investigation revealed the presence of one wetland (Wetland A) immediately adjacent to the Project Limits. No other wetlands were observed within the Project Limits, other than an abandoned gravel pit that permanently holds water. It is opinion of Niswander Environmental that Wetland A is regulated by the MDEQ under Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, PA451 of 1994, as amended. Although you have stated that permanent impacts are not proposed, please be advised that temporary impacts to regulated wetland require a permit from the MDEQ.

We look forward to working with you to make this project a success. If you have any questions or require additional information please call us at your convenience.



NISWANDER ENVIRONMENTAL, LLC
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JUN 18 2013

WATER RESOURCES DIVISION

Sincerely,

Jeff Bridgland
Ecologist
Professional Wetland Scientist #1810

Steven F. Niswander
Principal
Professional Wetland Scientist #1276

Attachments: Figure 1 - Wetland Location Map
Wetland Data Forms
Photographic Log

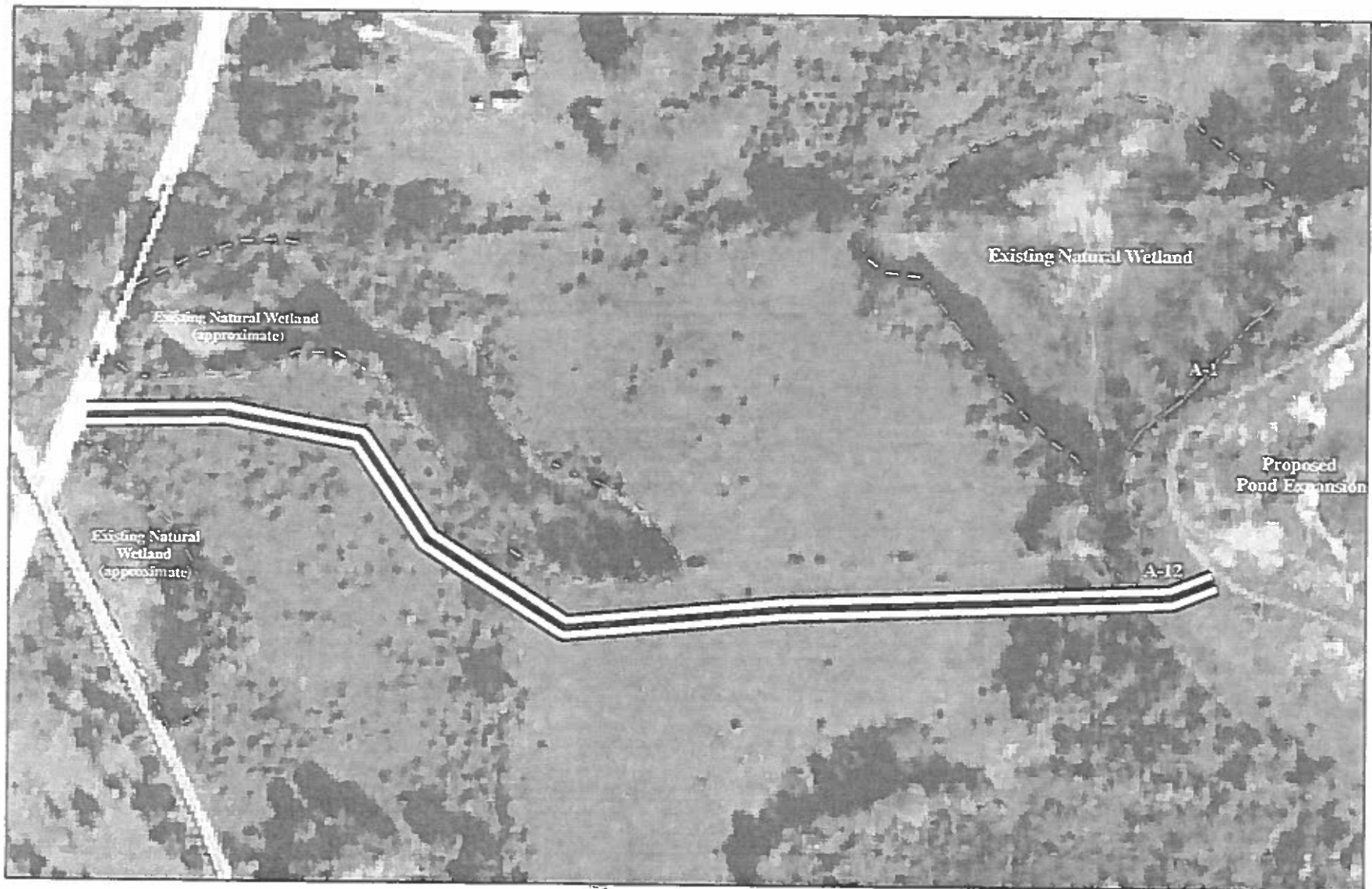
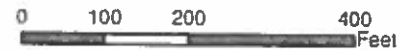



Figure 1 - Wetland Location Map

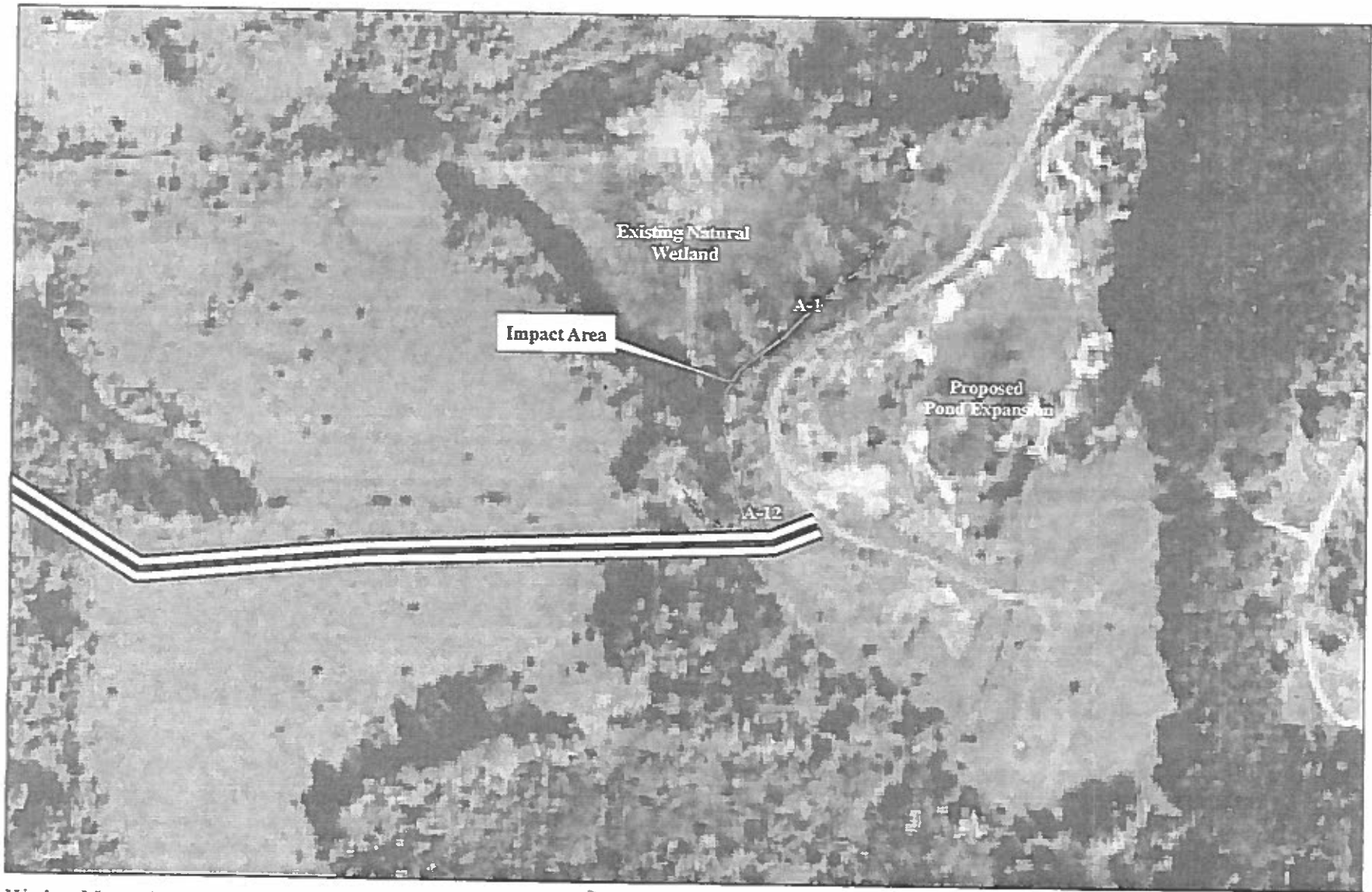
NE 1291 Chestnut Development
 76-Acre Chilson Road Property
 Sections 33/34 of Genoa Township, Livingston Co., MI
 Wetland Delineated: May 1, 2013
 Map Created: May 1, 2013

WATER RESOURCES DIVISION

JUN 17 2013




NISWANDER ENVIRONMENTAL, LLC
 10524 E. Grand River Ave., Suite 103, Brighton, MI 48116
 810.225.0539 Fax: 810.225.0653



Wetland Location Map

NE 1291 Chestnut Development
 76-Acre Chilson Road Property
 Sections 33/34 of Genoa Township, Livingston Co., MI
 Wetland Delineated: May 1, 2013
 Map Created: May 1, 2013

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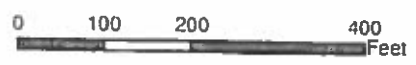

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 810.225.0539 Fax: 810.225.0653



Figure 1a - Wetland Flagging Map

NE 1291 Chestnut Development
 76-Acre Chilson Road Property
 Sections 33/34 of Genoa Township, Livingston Co., MI
 Wetland Delineated: May 1, 2013
 Map Created: May 1, 2013

WETLAND RESOURCES DIVISION
 JUN 19 2013



| | | |
|--|--|--|
| | NISWANDER ENVIRONMENTAL, LLC | |
| | 10524 E. Grand River Ave., Suite 103, Brighton, MI 48116 | |
| | 810.225.0539 Fax: 810.225.0653 | |

Photographic Log



Photo 1

View facing north showing the sediment trap and rock checkdam created to prevent sediment from entering the adjacent wetland. Photo taken May 1, 2013.



Photo 2

A small area of sediment was incidentally deposited into the wetland when the pond was being de-watered. This area will be fully restored upon completion of construction. Photo taken May 1, 2013

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Photographic Log



Photo 3

The existing sand/gravel pond will be expanded to 4.8 acres as part of the proposed project.



Photo 4

View facing north of the existing natural wetland, which is dominated by reed canary grass, tussock sedge, and willow at the edge. Photo taken May 1, 2013

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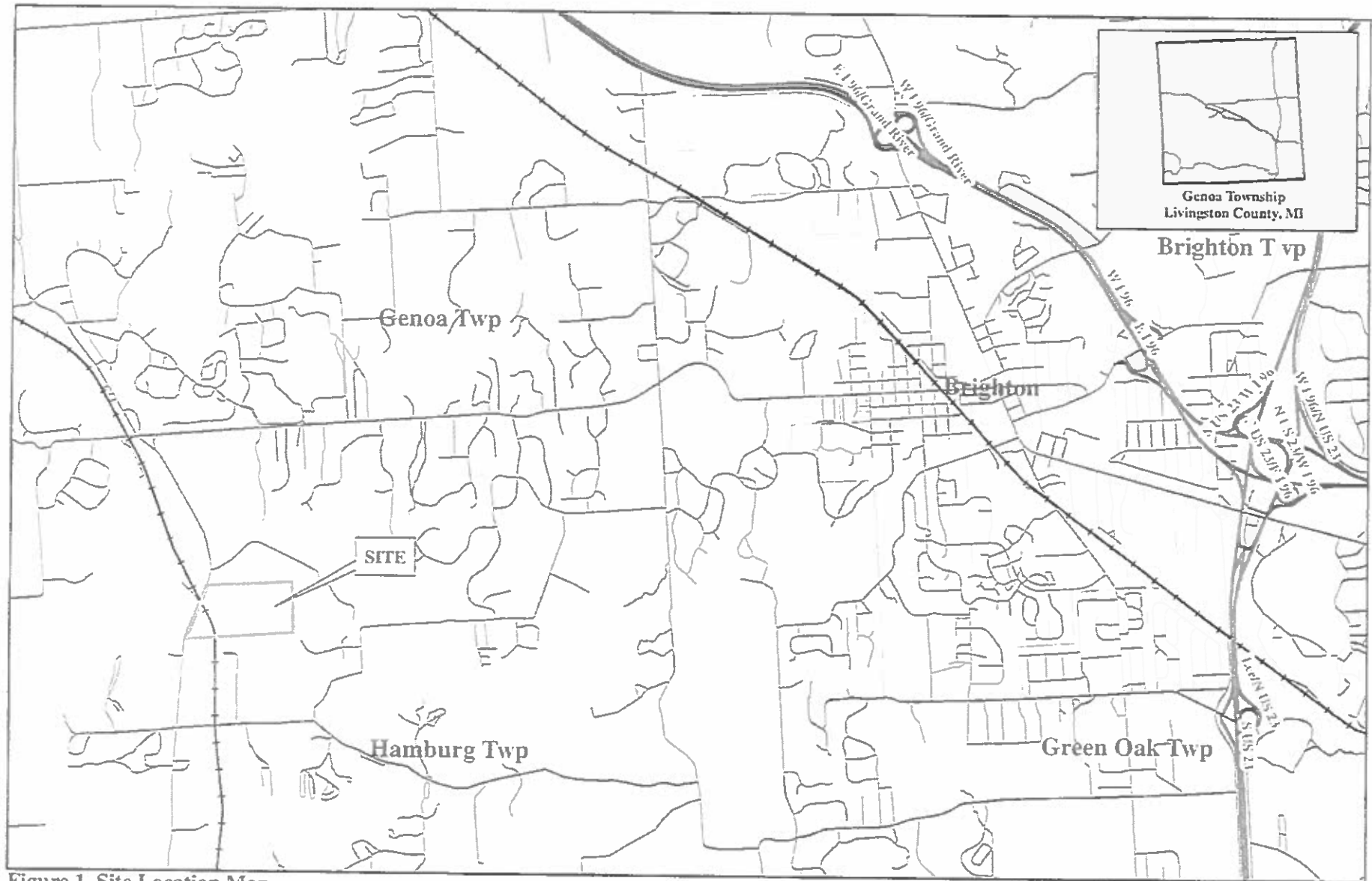



Figure 1. Site Location Map

NE 1291 Chestnut Development
 76-Acre Chilson Road Property
 Sections 33 and 34 of Genoa Twp, Livingston Co. MI
 Aerial Photograph: NA
 Map Created: April 19, 2013



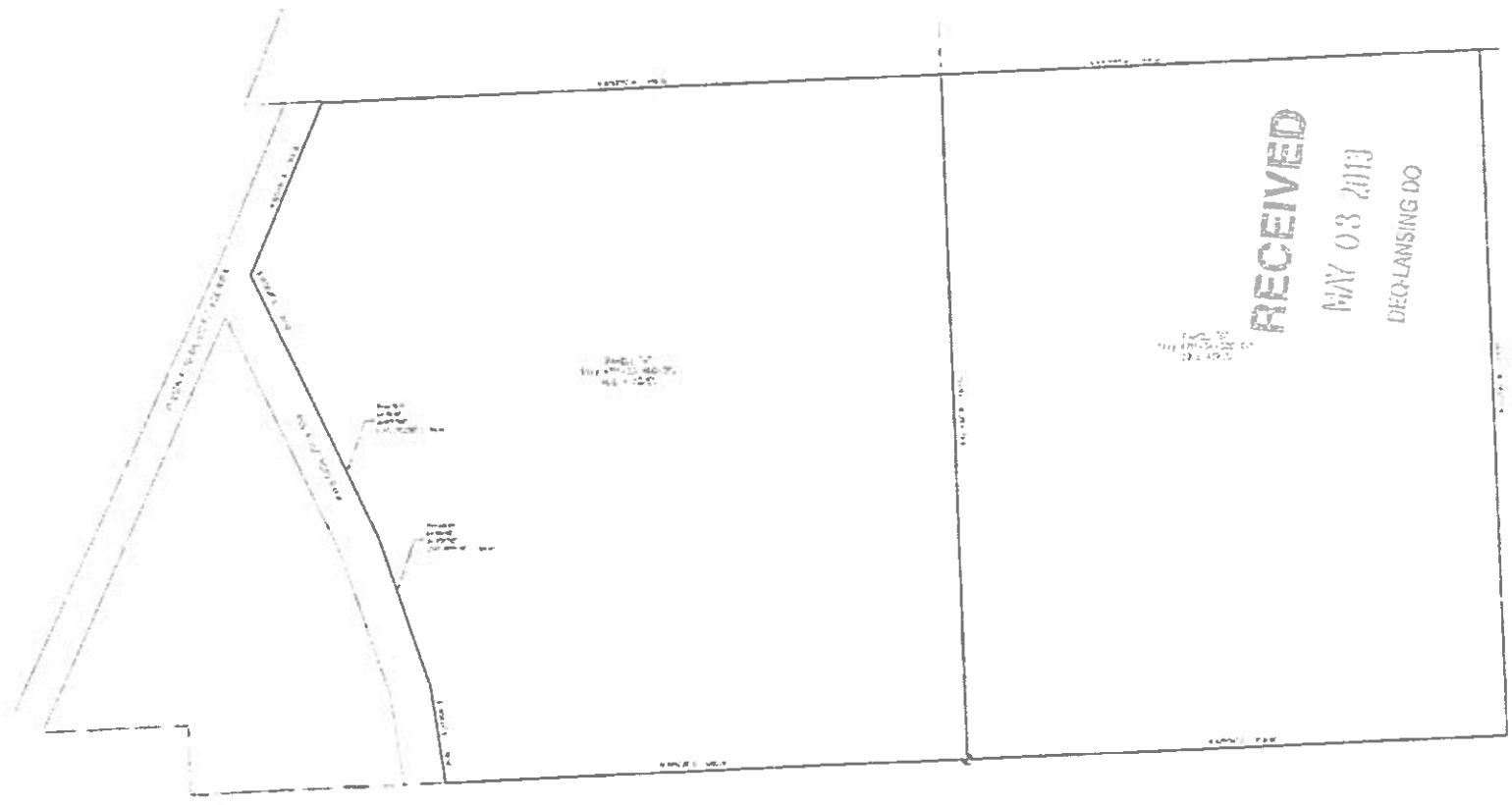

NE NISWANDER ENVIRONMENTAL, LLC
 10524 E. Grand River Ave., Suite 103, Brighton, MI 48116
 810.225.0539 Fax: 810.225.0653

PROPERTY INFORMATION

NOT TO SCALE
 THIS PLAN IS A PRELIMINARY PLAN AND IS NOT TO BE USED FOR CONSTRUCTION OR RECORDING PURPOSES.
 THE CLIENT IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT.
 THE CLIENT IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT.
 THE CLIENT IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT.



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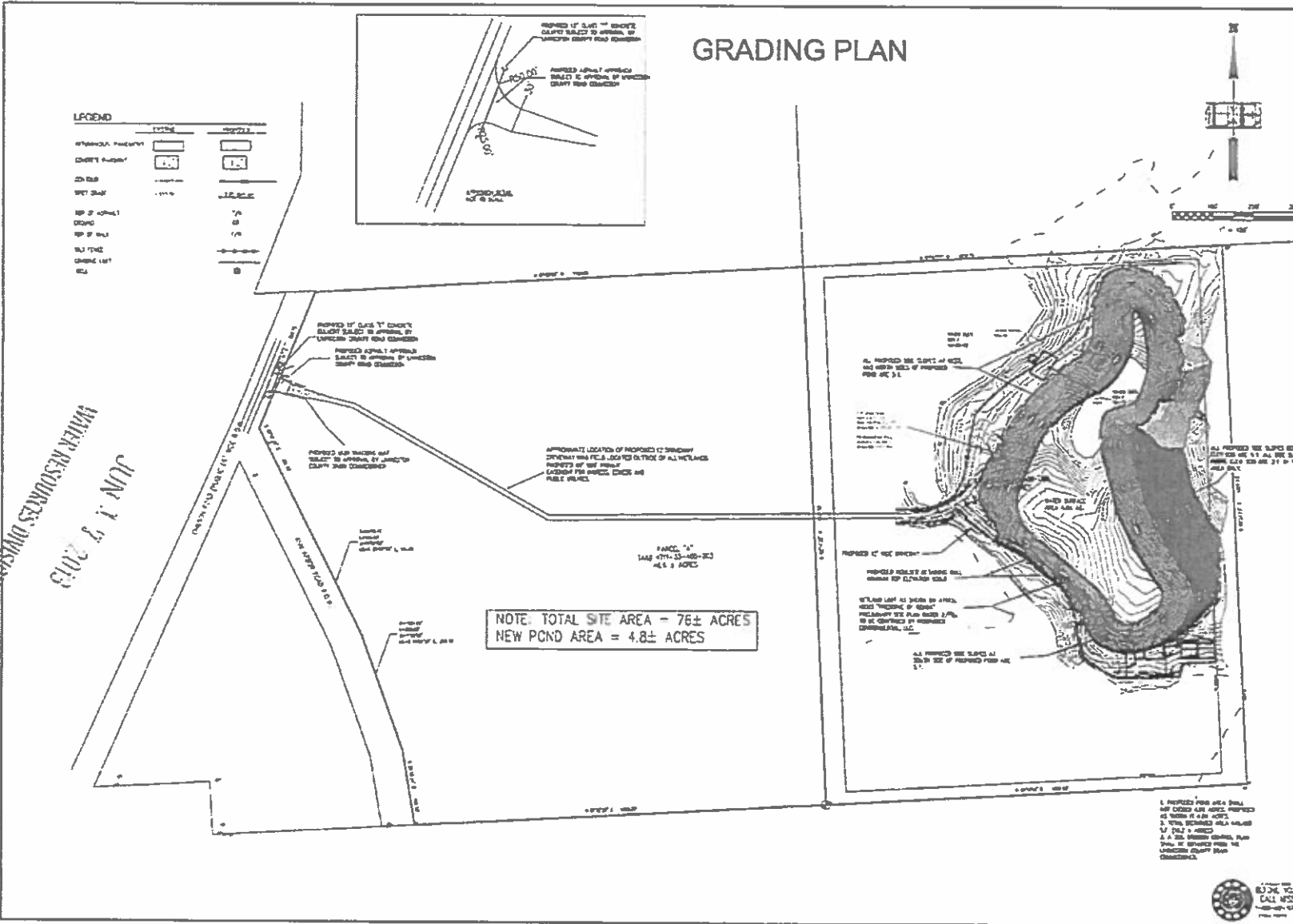
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CHESTNUT DEVELOPMENT LLC
 12316
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 12316

DEPARTMENT OF
 LAND MANAGEMENT
 PORTLAND, OREGON

L.E. LIVINGSTON ENGINEERING
 12316
 12316
 12316

GRADING PLAN



NOTE: TOTAL SITE AREA = 76± ACRES
NEW POND AREA = 4.8± ACRES

LIVINGSTON ENGINEERING
 2005 LIVINGSTON AVENUE
 SUITE 200
 FARMINGDALE, NY 11737
 (516) 426-8800

CHESTNUT DEVELOPMENT LLC
 150 W. FARMINGDALE AVENUE
 FARMINGDALE, NY 11737

| | | | | | |
|------------------|----------------------------|-------|----------------------------|-------|----------|
| DATE | 12/20/13 | DRAWN | LS | SCALE | AS SHOWN |
| PROJECT | ST. JOSEPH'S MIDDLE SCHOOL | | | | |
| PROJECT NO. | 2013-001 | | | | |
| DRAWING NO. | 1 | | | | |
| PROJECT LOCATION | | | FARMINGDALE, NY | | |
| PROJECT CLIENT | | | ST. JOSEPH'S MIDDLE SCHOOL | | |
| PROJECT OWNER | | | ST. JOSEPH'S MIDDLE SCHOOL | | |

Site No. 12338

Scale 1" = 100'

North Arrow (Symbol)

MINER RESOURCES DIVISION
JUN 17 2013



THE DATE OF THIS DRAWING IS 12/20/13. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.

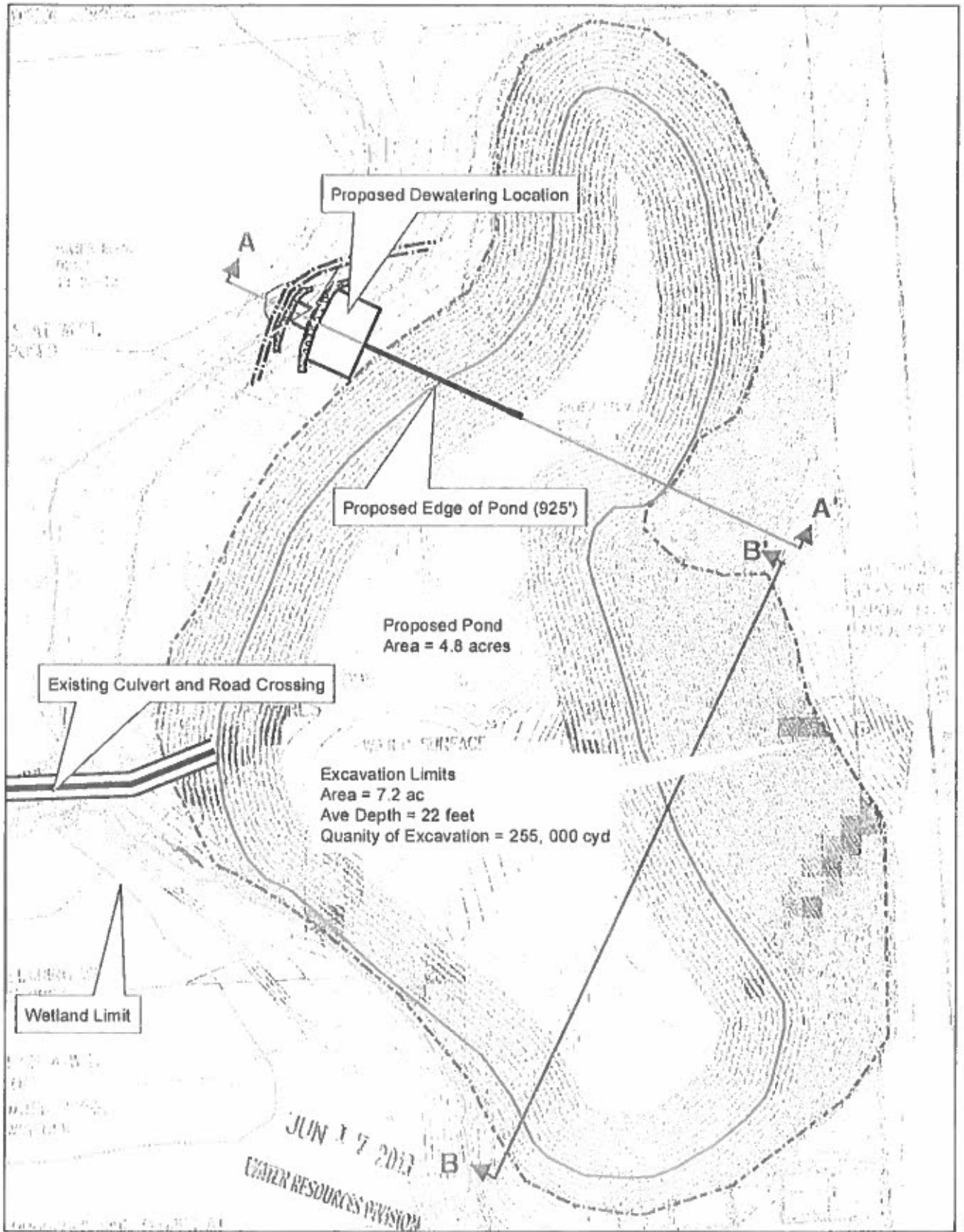


Figure 4. Pond Construction
 Steve Gronow
 Chilson Road Property
 Genoa Township, Livingston County, MI
 Map Created: June 14, 2013



NIOWANDER ENVIRONMENTAL, L.L.C.

18120E Grand River Ave., Suite 103
 Brighton, MI 48116
 810.225.0530 Fax: 810.225.0553

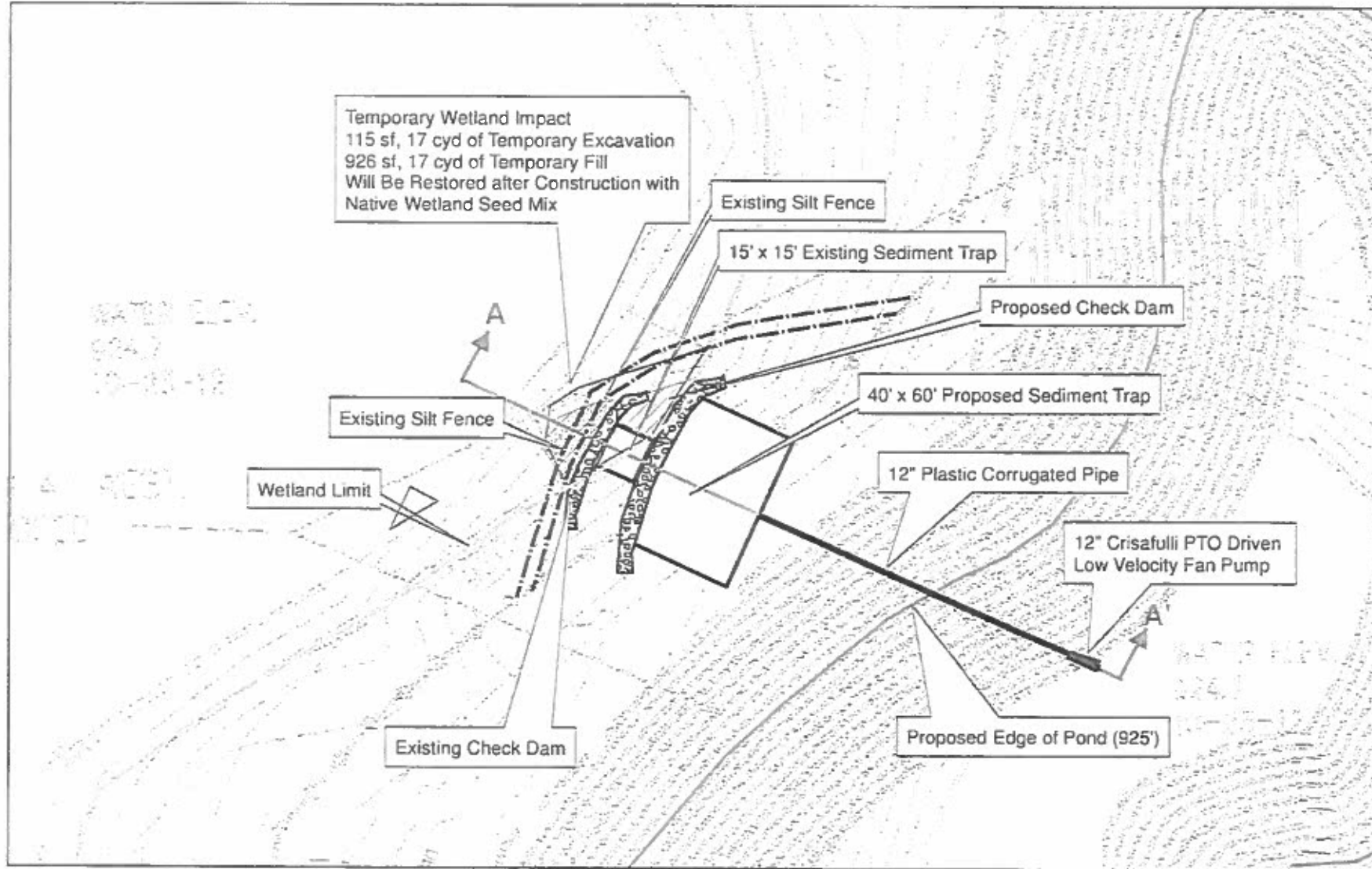


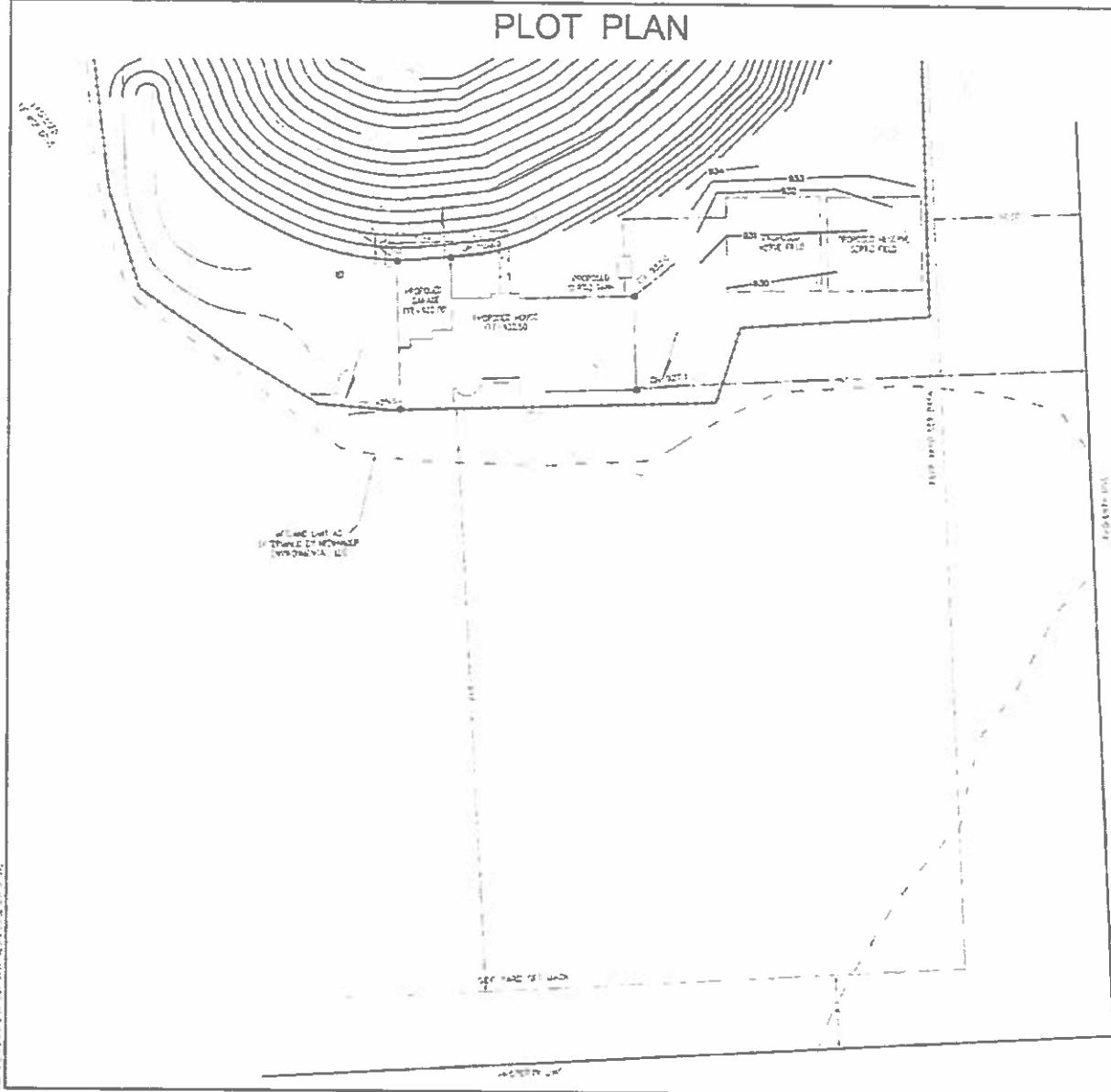
Figure 2. Wetland Impact

Steve Gronow
 Chilson Road Property
 Genoa Township, Livingston County, MI
 Map Created: April 29, 2013

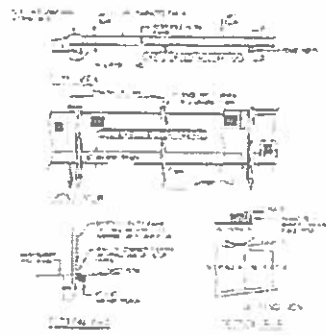
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 MAY 03 2013
 LIVINGSTON CO



NEWANDER ENVIRONMENTAL, LLC
 19524 E. Grand River Ave., Suite 103
 Brighton, MI 48116
 810.225.9528 Fax 810.225.9530



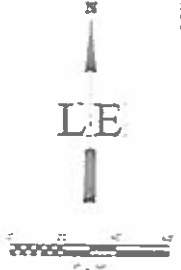
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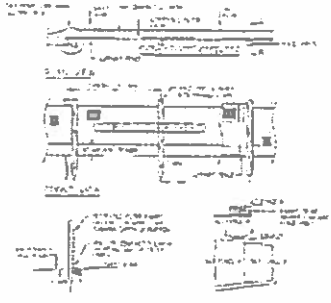
SUT FENCE (SP-2)
 AT 120' TO THE PROPOSED LOT

LEGEND

| | |
|-----------------|--|
| PROPOSED DRIVE | |
| EXISTING DRIVE | |
| PROPOSED HOUSE | |
| PROPOSED GARAGE | |
| PROPOSED LOT | |
| EXISTING LOT | |
| PROPOSED DRIVE | |
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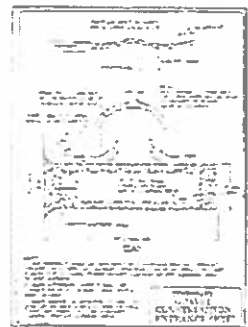
| | | |
|--|---|-----------------------|
| | LIVINGSTON ENGINEERING 10000 W. LANSING ROAD TROY, MICHIGAN 48068 TEL: 313.486.1100 FAX: 313.486.1101 | 0202 |
| CLIENT CHESTRUT DEVELOPMENT LLC 10000 W. LANSING ROAD TROY, MICHIGAN 48068 | PROJECT 12336 | DATE 5/1/13 |
| SCALE AS SHOWN | PROJECT NO. 12336 | DATE 5/1/13 |
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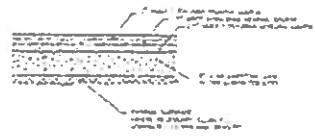
DETAILS

PROPOSED CONSTRUCTION SCHEDULE FOR THE YEAR 2012/2013

| NO. | DESCRIPTION | START DATE | END DATE | STATUS |
|-----|-------------|------------|----------|--------|
| 1 | ... | ... | ... | ... |
| 2 | ... | ... | ... | ... |
| 3 | ... | ... | ... | ... |
| 4 | ... | ... | ... | ... |
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| 8 | ... | ... | ... | ... |
| 9 | ... | ... | ... | ... |
| 10 | ... | ... | ... | ... |



MUD MAT DETAIL



APPROACH PAVEMENT CROSS-SECTION DETAIL

RECEIVED
 MAY 03 2013
 DEQ-LANSING DO



DISCLAIMER

- The Engineer does not warrant that the information provided by the contractor is true, accurate, or complete.
- The Engineer is not responsible for any delays or interruptions in the construction of the project caused by the contractor or any other party.
- The Engineer is not responsible for any damage to property or persons caused by the contractor or any other party.
- The Engineer is not responsible for any costs or expenses incurred by the contractor or any other party.
- The Engineer is not responsible for any claims or liabilities arising from the project.
- The Engineer is not responsible for any claims or liabilities arising from the project.



11216

DATE: 05/03/13

PROJECT: ...

SCALE: ...

CHESTNUT DEVELOPMENT LLC

11216 CHESTNUT DEVELOPMENT LLC

PROJECT NO. 11216

DATE: 05/03/13

SCALE: ...

D 702

LE LIVINGSTON ENGINEERING
 11216 CHESTNUT DEVELOPMENT LLC
 11216 CHESTNUT DEVELOPMENT LLC

Cross Section
A-A'

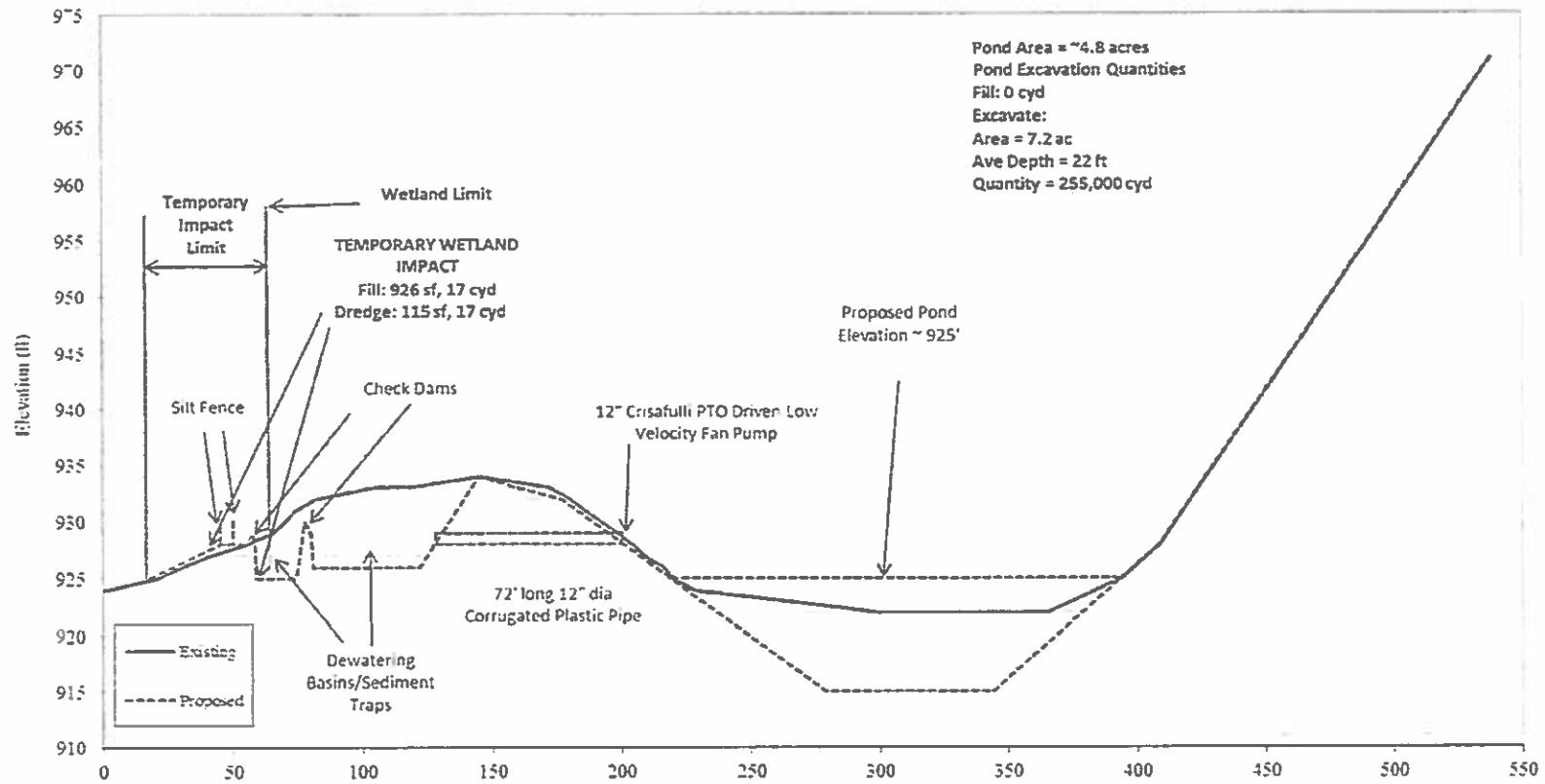


Figure 3. Cross Section A-A'
 NE 1291 Steve Gronow/Chesnut Development
 Residential Home Development/Pond Construction
 Section 33 and 34 of Genoa Township, MI
 Date: April 29, 2013 revised June 14, 2013

WATER RESOURCES DIVISION
 JUN 19 2013

| | |
|--|--|
| | NISWANDER ENVIRONMENTAL, LLC |
| | 10524 E. Grand River Ave., Suite 103, Brighton, MI 48116 |
| | 810.225.0539 Fax: 810.225.0653 |

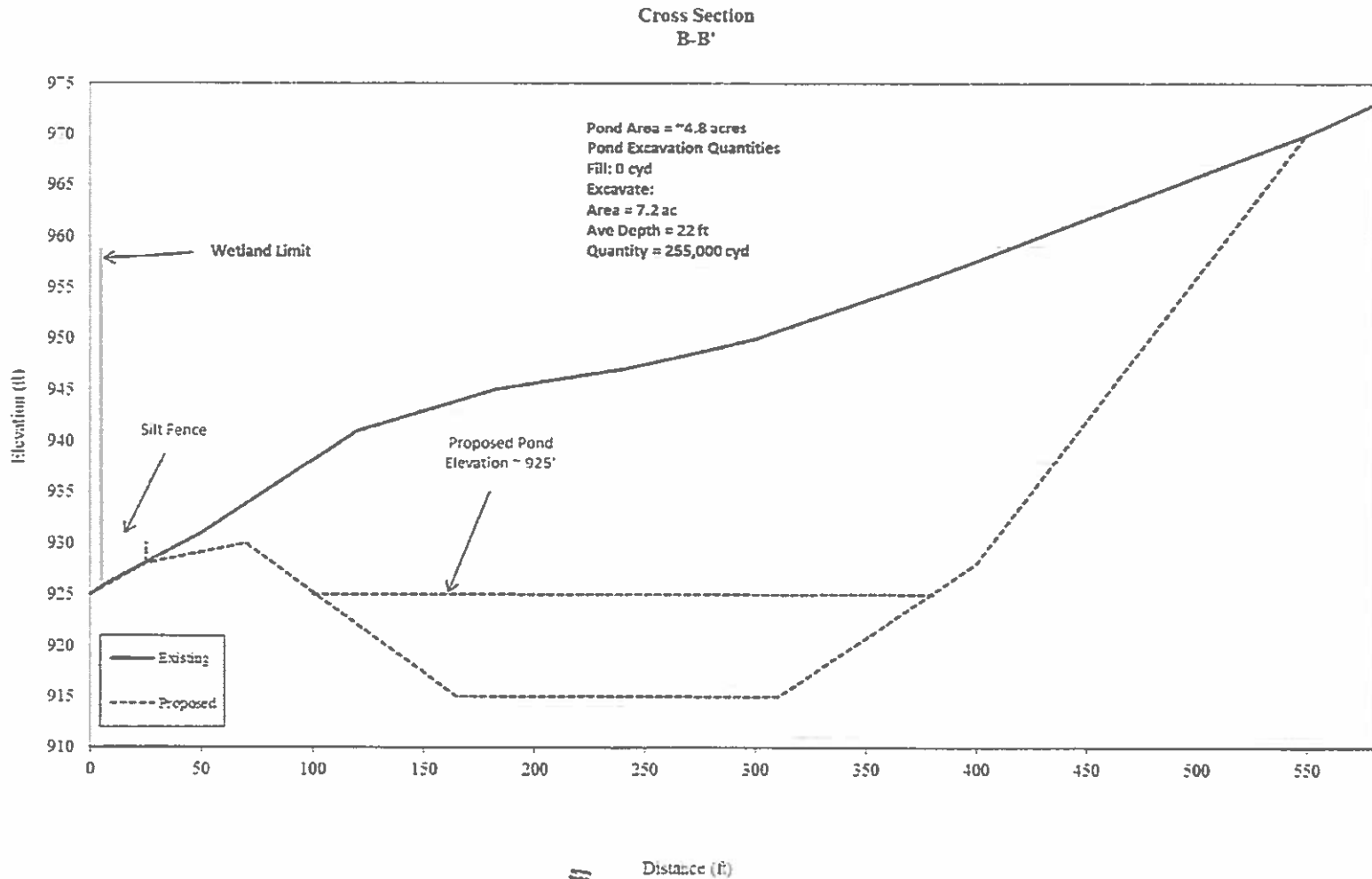


Figure 4. Cross Section B-B'
 NE 1291 Steve Gronow/Chesnut Development
 Residential Home Development/Pond Construction
 Section 33 and 34 of Genoa Township, MI
 Date: June 14, 2013

WATER RESOURCES DIVISION
 JUN 17 2013

| | |
|--|--|
| | NISWANDER ENVIRONMENTAL, LLC |
| | 10524 E. Grand River Ave., Suite 103, Brighton, MI 48116 |
| | 810.225.0539 Fax: 810.225.0653 |




Regional Growth Partnership
BUILDING A HIGH-TECH, HIGH-PERFORMANCE ECONOMY
in collaboration with

greater ann arbor
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MONROE COUNTY
COMMUNITY COLLEGE



Economic Development 101 for Elected Officials

Friday, October 11 – 8 a.m. – 1:15 p.m.
Monroe Community College – La-Z-Boy Center
1555 S. Raisinville Rd., Monroe, MI 48161

MARK YOUR CALENDAR for this very special event for elected officials such as county commissioners and administrators; county treasurers and auditors; city mayor and councils; village's mayor and councils; townships; road/drain/plan commissions; school superintendents and treasurers.

Economic Development professionals from the state and communities in south central Michigan will describe how they work and how local governments can best support economic development efforts.

Don't miss this hard-hitting workshop to better understand what economic developers do! Registration (\$20) includes a continental breakfast and lunch buffet. The program will begin and end on time. Register by Friday, October 4 at www.regonline.com/EconDev101. Cancellations made after that date are non-refundable.

Contact Peggy Ricard at ricard@tmacog.org or 419-241-9155 ext. 105