NORTHFIELD TOWNSHIP PLANNING COMMISSION
NOTICE OF REGULAR MEETING
January 16, 2019 at 7:00 p.m.
Second Floor, Public Safety Building
8350 Main Street, Whitmore Lake, MI 48189

AGENDA

1. **CALL TO ORDER**
2. **PLEDGE OF ALLEGIANCE**
3. **ROLL CALL**
4. **ADOPTION OF AGENDA**
5. **CALL TO THE PUBLIC**
6. **CLARIFICATIONS FROM COMMISSION**
7. **CORRESPONDENCE**
   - **A.** Notification from Salem Township: Master Plan Review
8. **PUBLIC HEARINGS**
9. **REPORTS OF COMMITTEES**
   - **A. Board of Trustees**
   - **B. ZBA**
   - **C. Staff**
   - **D. Planning Consultant**
   - **E. Parks and Recreation**
   - **F. Downtown Planning Group**
10. **UNFINISHED BUSINESS**
    - A. Further Discussion Recreational Medical Marijuana
11. **NEW BUSINESS**

    A. Case #JPC180008 - Recommend to Approve, Approve with Conditions or Deny, the request of National Fiber Construction: 6785 Whitmore Lake Road. The applicant proposes to construct an office building and indoor parking/storage building to provide off-site servicing of fiber and utility infrastructure. Parcel number B-02-20-300-026 and is zoned LI-Limited Industrial

    B. Adopt 2019 Calendar

    C. Adopt Roberts Rules of Order - Simplified

    D. Board of Trustees – Term Renewal 2021 Larry Roman

    E. Board of Trustees – Acting Member Sam Iaquinto

    F. Zoning Administrator Quarterly Report 10/1/18 – 12/31/18

C. APPROVAL OF PRECEDING MINUTES: January 2, 2019 Regular Meeting

D. FINAL CALL TO THE PUBLIC

E. COMMENTS FROM THE COMMISSIONERS

F. ANNOUNCEMENT: Next Regular Meeting – February 6, 2019

G. ADJOURNMENT

This notice is posted in compliance with PA 267 Of 1976 as amended (open meetings act) MCLA 41.7 2A (2) (3) and the Americans with Disabilities Act. (ADA) Individuals with disabilities requiring auxiliary aids or services should contact the Northfield Township Office, (734) 449-5000 seven days in advance.

SALEM
TOWNSHIP

9600 Six Mile • PO Box 75002 • Salem, Michigan 48175 Phone: 248.349.1690 • Fax: 248.349.9350

RECEIVED
DEC 28 2018

TO: Contiguous Municipal Legislative Body, Washtenaw County, Public Utilities, Railroad Companies, and Other Public Agencies

FROM: Salem Township Planning Commission

DATE: 12/19/18

RE: **DISTRIBUTION OF DRAFT MASTER PLAN FOR REVIEW**

In accordance with the Michigan Planning Enabling Act (PA 33 of 2008 as amended), Salem Township has prepared an updated Master Plan and requests your cooperation in reviewing and commenting on the Plan. The Master Plan is ready for your review and can also be found on the Township's website by using the following link: http://www.salem-mi.org/

In accordance with the Michigan Planning Enabling Act, you have 63 days to provide your comments on the Master Plan.

We thank you for your consideration in this matter. If you have any comments on the draft Salem Township Master Plan Update please send comments to the secretary of the Planning Commission, care of Del Wensley, Township Clerk:

PO Box 75002, SALEM, MI 48175

Or

dwensley@salem-mi.org

MCKENNA

January 10, 2019

Planning Commission
Northfield Township
8350 Main Street
Whitmore Lake, MI 48189

MEMORANDUM: Marihuana Regulations

Dear Commission Members,

Per your request, we have prepared the following Zoning Ordinance revisions to accommodate medical and recreational marihuana uses in the Township. These standards are provided for your consideration and comment. If Planning Commission finds these standards to reflect the preferences of recent discussions, a Public Hearing must be scheduled prior to making a recommendation and forwarding the standards to the Township Board for consideration and adoption.

Please refer to the supportive memorandums and packet material from Planning Commission meetings on December 19, 2018 and January 2, 2019. Text that is struck through shall be deleted and text that is underlined shall be added.

RECOMMENDED REVISIONS:

ARTICLE II. - DEFINITIONS
SEC. 36-29. - DEFINITIONS.

Marihuana Establishments and Facilities: The term Marihuana Facilities, shall encompass all use classes specifically defined and authorized by the State of Michigan Medical Marihuana Act, MCL333.26421, et seq; the Medical Marihuana Facilities Licensing Act, MCL 333.27101 et seq: and the Marihuana Tracking Act, MCL 333.27901 et seq; and Michigan Regulation and Taxation of Marihuana Act, MCL 333.27951 et seq, and all other applicable rules promulgated by the state of Michigan as may be amended. Marihuana establishments and facilities include the following use classes:

(1) **Marihuana grower** means a person licensed to cultivate marihuana and sell or otherwise transfer marihuana to marihuana establishments. Growers shall be subdivided into six classes based on State licensing standards.
   a. Medical Class A – 500 marihuana plants.
   b. Medical Class B – 1,000 marihuana plants.
   c. Medical Class C – 1,500 marihuana plants.
   d. Recreational Class A – 100 marihuana plants.
   e. Recreational Class B – 500 marihuana plants
   f. Recreational Class C – 2,000 marihuana plants

(2) **Marihuana microbusiness** means a person licensed to cultivate not more than 150 marihuana plants; process and package marihuana; and sell or otherwise transfer marihuana to individuals who are 21 years of age or older or to a marihuana safety compliance facility, but not to other marihuana establishments.

HEADQUARTERS
235 East Main Street
Suite 105
Northville, Michigan 48167
O 248.596.0920
F 248.596.0930
MCKA.COM

(3) **Marihuana processor** means a person licensed to obtain marihuana from marihuana establishments; process and package marihuana; and sell or otherwise transfer marihuana to marihuana establishments.
(4) **Marihuana retailer** means a person licensed to obtain marihuana from marihuana establishments and to sell or otherwise transfer marihuana to marihuana establishments and to individuals who are 21 years of age or older.
(5) **Marihuana secure transporter** means a person licensed to obtain marihuana from marihuana establishments in order to transport marihuana to marihuana establishments.
(6) **Marihuana safety compliance facility** means a person licensed to test marihuana, including certification for potency and the presence of contaminants.
(7) **Provisioning center** means a licensee that is a commercial entity located in this state that purchases marihuana from a grower or processor and sells, supplies, or provides marihuana to registered qualifying patients, directly or through the patients' registered primary caregivers. Provisioning center includes any commercial property where marihuana is sold at retail to registered qualifying patients or registered primary caregivers. A noncommercial location used by a primary caregiver to assist a qualifying patient connected to the caregiver through the department's marihuana registration process in accordance with the Michigan medical marihuana act is not a provisioning center for purposes of this act.
(8) **Registered primary caregiver** means a primary caregiver who has been issued a current registry identification card under the Michigan medical marihuana act

ARTICLE III. - GENERAL PROVISIONS
SEC. 36-64. - HOME OCCUPATION.

(2) **Medical ~~marihuana cultivation, use and distribution~~ Licensed Caregivers.** In addition to the general standards as specified in subsection (a) of this section, medical marihuana, cultivation, use and distribution shall meet the following specific standards:

a. Conformance with section 36-729.

b. In recognition of the confidential nature of this use, a ~~medical marihuana cultivation, use and distribution~~ licensed caregiver certificate of zoning compliance application pursuant to section 36-729(c) shall be required, rather than a standard zoning compliance certificate.

ARTICLE VI. - AR—AGRICULTURE DISTRICT
SEC. 36-157. - CONDITIONAL USES.

(24) Marihuana Establishments and Facilities, subject to the standards of Section 36-761, including:
a. Growers, limited to Medical Class A, Medical Class B, Recreational Class A, and Recreational Class B
b. Microbusinesses, subject to the additional standards of Section 36-730.

ARTICLE XII. - WLD—WHITMORE LAKE DISTRICT
SEC. 36-340. - USES PERMITTED.

Retail Marihuana and Provisioning Centers, subject to the standards of Section 36-761	C	C	C

ARTICLE XIII. - LC—LOCAL COMMERCIAL DISTRICT
SEC. 36-364. - CONDITIONAL USES.

12) Marihuana Establishments and Facilities, subject to the standards of Section 36-761, including:
   a. Retail Marihuana and Provisioning Centers

ARTICLE XIV. - GC—GENERAL COMMERCIAL DISTRICT
SEC. 36-391. - CONDITIONAL USES.

21) Marihuana Establishments and Facilities, subject to the standards of Section 36-761, including:
   a. Retail Marihuana and Provisioning Centers
   b. Safety Compliance Facilities

ARTICLE XVIII. - LI—LIMITED INDUSTRIAL DISTRICT
SEC. 36-510. - CONDITIONAL USES.

11) Marihuana Establishments and Facilities, subject to the standards of Section 36-761, including:
   a. Growers, all licenses permitted.
   b. Processors
   c. Secure Transporters
   d. Safety Compliance Facilities
   e. Microbusinesses

ARTICLE XIX. - GI—GENERAL INDUSTRIAL DISTRICT
SEC. 36-533. - CONDITIONAL USES.

11) Marihuana Establishments and Facilities, subject to the standards of Section 36-761, including:
   a. Growers, all licenses permitted.
   b. Processors
   c. Secure Transporters
   d. Safety Compliance Facilities
   e. Microbusinesses

ARTICLE XXII. - RTM—RESEARCH/TECHNOLOGY/MANUFACTURING DISTRICT
SEC. 36-638. - CONDITIONAL USES.

2) Marihuana Establishments and Facilities, subject to the standards of Section 36-761, including::
   a. Processors
   b. Safety Compliance Facilities

ARTICLE XXIV. - SUPPLEMENTARY REGULATIONS AND STANDARDS

SEC. 36-729. - MEDICAL MARIHUANA ~~CULTIVATION, USE AND DISTRIBUTION~~ CAREGIVERS.

(a) **Intent.**

(1) It is the intent of these regulations to allow medical marihuana ~~cultivation, use and distribution~~ caregivers, as defined by the Michigan Marihuana Act, as a home occupation pursuant to section 36-64, and further to protect the health, safety, and welfare of law enforcement officers and other persons in the community.

These regulations are designed to allow the creation and maintenance of a private and confidential patient-caregiver relationship to facilitate the statutory authorization for the limited cultivation, distribution, and use of marihuana for medical purposes; and to regulate around this fundamental intent in a manner that does not conflict with the Act so as to address issues that would otherwise expose the community and its residents to significant adverse conditions and the uninspected installation of unlawful plumbing and electrical facilities that create dangerous health, safety, and fire conditions.

(2) These regulations allow for activity based on the Act. Nothing in these regulations shall be construed to undermine or provide immunity from federal law as it may be enforced by the federal or state government relative to the cultivation, distribution, or use of marihuana. ~~Thus, the authorization of activity, and the approval of this use, shall not have the effect of superseding or nullifying federal law applicable to the cultivation, use, and possession of marihuana, and all applicants are on notice that they may be subject to prosecution and civil penalty, including forfeiture of property.~~

(b) **Definitions.** The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:

Act means Initiated Law 1 of 2008 (MCL 333.26421 et seq.), and Michigan Administrative Rules, R 333.101 et seq.

Department means the state department of community health.

Distribution means the physical transfer of any amount of marihuana in any form by one person to any other persons, whether or not any consideration is paid or received.

Distributor means any person, including, but not limited to, a caregiver, patient or any other person, who engages in any one or more acts of distribution.

Facility or **premises** means one premises having a separate or independent postal address.

Marihuana means the substance or material defined in section 7106 of the public health code, Public Act No. 368 of 1976 (MCL 333.7106).

Primary caregiver or **caregiver** means a person as defined under MCL 333.26423(g) of the Act, and who has been issued and possesses a registry identification card under the Act.

Principal residence means the place where a person resides more than one-half of the calendar year.

Qualifying patient or **patient** means a person as defined under MCL 333.26423(h) of the Act.

Registry identification card means the document defined under MCL 333.26423(i) of the Act.

(c) **Application requirements.**

(1) In addition to the requirements for home occupation pursuant to section 36-64, a medical marihuana ~~cultivation, use, and distribution~~ caregiver zoning compliance certification must be submitted. The requirement of these regulations is to permit a location, and not to regulate persons. An application as supplied by the township shall describe each of the following and shall:

a. Not require the name, home address, or date of birth of a ~~patient or~~ caregiver.

b. Include the address and legal description of the precise premises~~, other than a patient's principal residence,~~ at which there shall be possession, cultivation, distribution or other assistance in the use

of marihuana. The fact that a caregiver or other person providing assistance to patients also has an ID card as a patient shall not relieve the obligation to provide this information.

c. Specify the address of the place where all unused portions of marihuana plants cultivated in connection with the use of marihuana or caregiver activity at the premises shall be disposed.

d. Describe the enclosed, locked facility in which any and all cultivation of marihuana is proposed to occur, or where marihuana is stored, with such description including: location in building; precise measurements, in feet, of the floor dimensions and height; the security device for the facility.

e. Describe all locations in the premises where a caregiver or other person authorized under the Act shall render assistance to a qualifying patient.

f. Specify the number of patients to be assisted, including the number of patients for whom marihuana is proposed to be cultivated, and the number of patients to be otherwise assisted on the premises, and the maximum number of plants to be grown or cultivated at any one time. If the location at which patients will be assisted is different from the licensed premises, the application shall provide the address of all such other locations (other than the address of a patient being assisted). The maximum number of patients and plants is specified in subsection (c)(2)b of this section.

g. For safety and other code inspection purposes, it shall describe and provide detailed specifications of all lights, equipment, and all other electrical, plumbing, and other means proposed to be used to facilitate the cultivation of marihuana plants as such specifications relate to the need for the installation of facilities. As noted in subsection (c)(2)d of this section, all new construction including structural, electrical, and plumbing shall meet current state construction code and shall be inspected for compliance.

The standards of approval as noted below will be used to review each application. An inspection will be made at each location noted in the application to verify the standards.

(2) **Requirements and standards for approval.**

a. Locations used for the cultivation and/or use of marihuana by caregivers and any other person permitted under the Act are pursuant to section 36-64. As a home occupation this use shall not be permitted under the following circumstances:

1. Within 1,000 feet from sites where children are regularly present, and specifically a daycare facility, a church, synagogue, mosque, or other religious temple, and from a recreational park and a public community center, a public or private preschool, elementary school, middle school, high school, community college, and all other schools that have different name references but serve students of the same age.
2. Within 1,000 feet of an adult use, as defined in this chapter, if applicable (attach appendix if not stated or incorporated).
3. Within 1,000 feet from the site at which any other caregiver or any other person cultivates marihuana, or assists in the use of marihuana, not including a patient's principal residence which is not used to cultivate marihuana or assist in the use of medical marihuana for persons other than the patient at such residence.

Measurements for purposes of this subsection a. shall be made from property boundary to property boundary.

b. The location of the facility at which a caregiver or any other person permitted under the Act cultivates marihuana, or assists a patient in the use of marihuana, shall not be the same facility at which any other caregiver or person cultivates marihuana or assists a patient in the use of marihuana. Accordingly, at a patient's principal residence used by such patient to cultivate marihuana for his personal use as permitted under the Act, there shall be not more than 12 marihuana plants being cultivated at any one time; only at a licensed facility may there be more than 12 marihuana plants being cultivated at any one time; and, at a facility at which a caregiver or any other person permitted under the Act cultivates marihuana for use by patients, there shall not be more than 12 marihuana plants being cultivated at any one time per patient, and in no event more than 60 marihuana plants being cultivated at any one time (which assumes cultivation for five patients), plus an additional 12 plants if the caregiver is also a patient that has not designated a caregiver to assist in providing medical marihuana.

c. In order to insulate children and other vulnerable individuals from such actions, all medical marihuana cultivation, and all assistance of a patient in the use of medical marihuana by a caregiver, shall occur within the confines of a building licensed under this section, and such activities shall occur only in locations not visible to the public. This subsection shall not prohibit a caregiver from assisting a patient at the patient's principal residence or at a hospital.

d. All lights, plumbing, equipment, and all other means proposed to be used to facilitate the growth or cultivation of marihuana plants shall be in accordance with all applicable state construction codes.

e. Considering that the distribution of marihuana is generally unlawful, and that the Act authorizes caregivers, and does not authorize any activity such as a dispensary (authorized by statutes in other states), and reading the Act as a whole, the activities of caregivers are interpreted as being limited to private and confidential endeavors. Moreover, the location and identity of a caregiver is known to patients. Accordingly:

1. Signage shall be in accordance with the township home occupation standards found in section 36-64(1)i.
2. Unless conducted as part of a related licensed professional medical or pharmaceutical practice, caregiver activity shall not be advertised as a clinic, hospital, dispensary, or other name customary ascribed to a multi-patient professional practice.

(3) **Use of land in accordance with approved application.** If approved, all use of property shall be in accordance with an approved application, including all information and specifications submitted by the applicant in reliance on which the application shall be deemed to have been approved.

(d) **Restriction on distribution.**

(1) The restrictions in this section are based on the following findings:

a. It is reasonable to expect and require that all undertakings of caregivers and other persons in assisting a patient are intended to occur on a confidential and private one-to-one basis.

b. The Act does not reflect the intent for distributions of marihuana by more than one caregiver or other person to one patient, or by one or more caregivers or other persons to more than one patient at any given time and place.

c. The confidentiality provisions of the Act reflect the intent for all caregivers and patients to remain anonymous in terms of their name and address, thus further reflecting the private and confidential nature of the activities contemplated between a caregiver and the patient he is assisting.

(2) **Restrictions.**

a. A caregiver and any other person authorized under the Act to assist patients, if any, shall distribute medical marihuana only on a confidential, one-to-one basis with no other caregiver being present at the same facility at the same time, and no other patient or other person being present at the same facility at the same time; provided that a patient's immediate family members or guardian may be present within the patient's private residence, and one family member or guardian may be present in any facility other than the patient's private residence. For purposes of this subsection, the term "same time" shall mean and include concurrently as well as within a time interval of one hour.

b. Considering the health issues presented, no food shall be sold from the facility used for the distribution of medical marihuana.

(e) **Inspection of patient cultivation.** Upon the request of a patient who is cultivating medical marihuana, the medical marihuana officer of the community shall confidentially coordinate electrical and plumbing inspectors (and other inspectors within whose expertise an inspection is needed) with regard to site of such cultivation for the purpose of determining whether all lights, plumbing, equipment, and all other means used to facilitate the cultivation of marihuana plants is in accordance with applicable code. In carrying out the provisions of this subsection, community officials shall not require the name and address of the patient. Rather, the intent of this subsection is to focus on the premises, and to ensure fire, electrical, plumbing, and other safety for the benefit of the resident of the premises and others who may be affected by one or more code violations.

(f) **Penalty for violation.**

(1) Civil infraction, with penalty of $1,000.00 (or the maximum permitted by law if less than $1,000.00 for each violation).

(2) In the event of two or more violations, increased civil penalty (if permitted by law), and grounds for revocation, following hearing.

ARTICLE XXIV. - SUPPLEMENTARY REGULATIONS AND STANDARDS

SEC. 36-761. – STANDARDS FOR MARIHUANA ESTABLISHEMTNS AND FACILITIES

1. These standards shall apply to all marihuana establishments and facilities, unless otherwise noted, and excepting caregivers, which are regulated by Sec. 36-729. - Medical marihuana caregivers and Sec. 36-64. - Home occupation.
2. Marihuana related activities shall comply at all times and in all circumstances with the Michigan Medical Marihuana Act, Medical Marihuana Facilities Licensing Act, the Marihuana Tracking Act, the Michigan Regulation and Taxation of Marihuana Act and all State of Michigan regulations for the transfer of marihuana, and the General Rules of the Michigan Department of Community Health, as they may be amended from time to time.
3. Site plan approval and conditional use approval shall be required for all marihuana establishments and facilities.
4. The applicant location shall meet all applicable written and duly promulgated standards of the Township and, prior to opening, shall demonstrate to the Township that it meets the rules and regulations promulgated by the Medical/Recreational Marihuana Licensing Board and
5. The establishment or facility location shall conform to all standards of the zoning district in which it is located.
6. Establishments and facilities are not permitted within a 500-foot radius of any primary, intermediate or secondary school.

7. The minimum distance from other marihuana facilities and establishments is 500 feet. This standard shall not apply in the WLD-NV, WLD-DD, and WLD-LF districts. Colocation of use classes on one site is permitted when consistent with State standards and permitted in the zoning district.
8. In the AR district, the minimum lot size for Medical Class B, Recreational Class B, Medical Class C, and Recreational C growers shall be 10 acres. In the AR district the minimum lot size for Medical Class A, and Recreational Class A growers shall be 5 acres.
9. Hours of operation permitted for retail, provisioning centers, and microbusinesses: Monday – Saturday: 9:00 a.m. – 9:00 p.m.; Sunday: 10:00 a.m. – 6:00 p.m.
10. All activity related to the marihuana establishment or facility shall be done indoors.

(1) All establishments and facilities must ensure that any water emanating from the establishment or facility meets or exceeds all applicable state and local environmental standards.

   a. No required water supply and sanitary sewerage facilities shall be erected, altered, or moved upon a lot or premises and used in whole or in part for a marihuana facility unless it shall be provided with a safe, sanitary and potable water supply and with a safe and effective means of collection, treatment, and disposal of human excreta and domestic, commercial, and industrial waste. All such installations and facilities shall conform to the minimum requirements Washtenaw County, and any applicable statutes, ordinances, or regulations.

11. Security cameras shall be installed, maintained and approved by the Township Director of Public Safety. All security cameras shall have at least 120 concurrent hours of digitally recorded documentation. The security cameras shall be in operation 24 hours a day, seven days a week, and shall be set to maintain the record of the prior 120 hours of continuous operation. An alarm system is required that is operated and monitored by a recognized security company. A security plan shall be provided.
12. Exterior lighting shall be required for security purposes, but in accordance with the provisions of the Zoning Ordinance.
13. Sign(s) shall be posted stating that “No loitering is permitted” on such property where a provisioning center or microbusiness is operating.

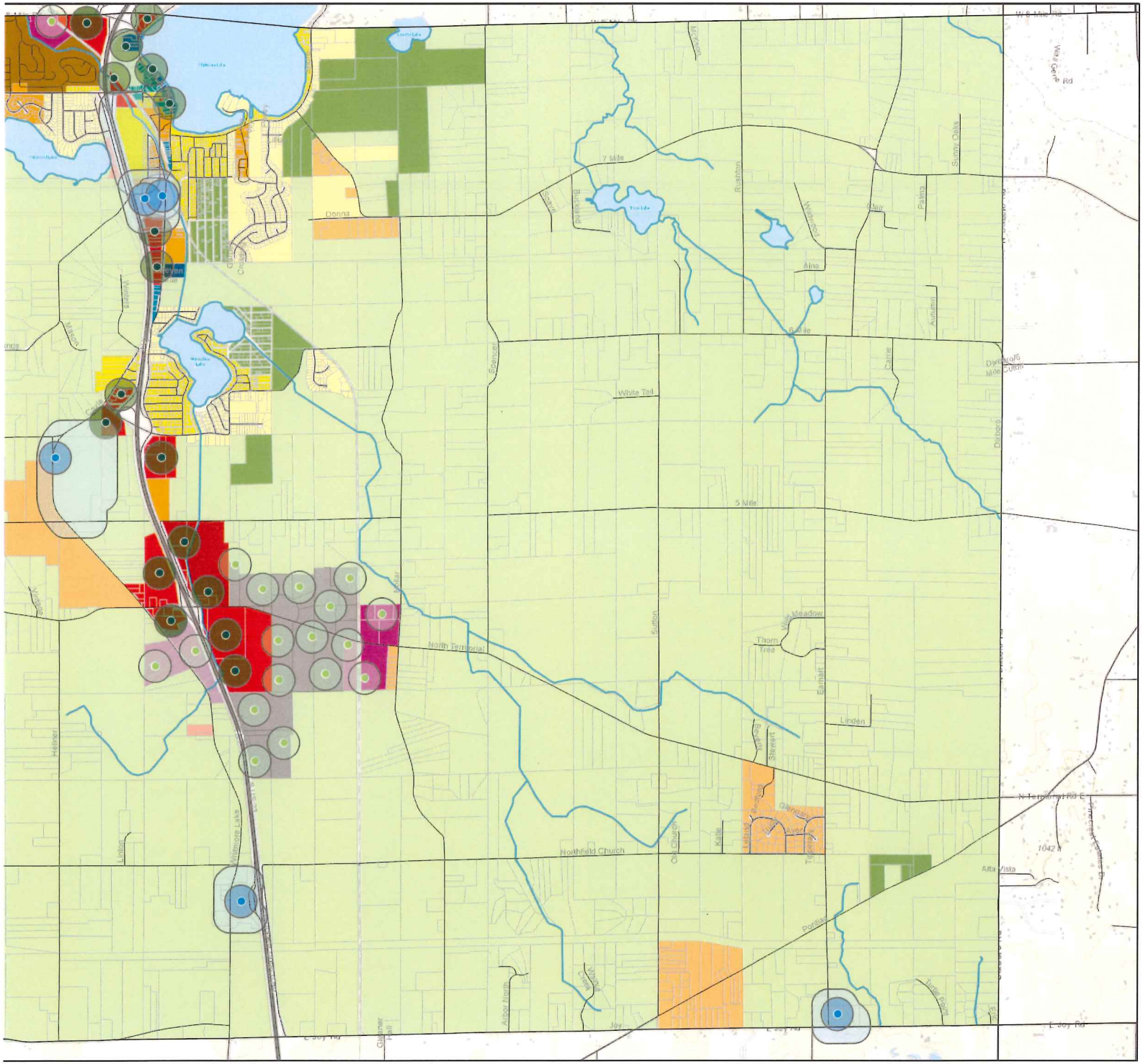
(2) Marihuana establishments and facilities are not permitted to operate in a manner that results in adverse impacts on adjacent property; including excessive odor, traffic, noise, or loitering. The Township may place reasonable conditions on facilities to ensure operation consistent with community norms. Failure to comply with Township regulations or conditions of approval shall be cause to revoke a local license. Odor for growers and processors shall be regulated as follows:

   a. The building shall be equipped with an activated carbon filtration system for odor control to ensure that air leaving the building through an exhaust vent first passes through an activated carbon filter.
   b. The filtration system shall consist of one or more fans and activated carbon filters. At a minimum, the fan(s) shall be sized for cubic feet per minute (CFM) equivalent to the volume of the building (length multiplied by width multiplied by height) divided by three. The filter(s) shall be rated for the applicable CFM.
   c. The filtration system shall be maintained in working order and shall be in use. The filters shall be changed a minimum of once every 365 days.
   d. Negative air pressure shall be maintained inside the building.
   e. Doors and windows shall remain closed, except for the minimum length of time needed to allow people to ingress or egress the building.
   f. An alternative odor control system is permitted if the special use permit applicant submits and the township accepts a report by a mechanical engineer licensed by the state of Michigan

demonstrating the alternative system will control odor as well or better than the activated carbon filtration system otherwise required. The Township may hire an outside expert to review the alternative system design and advise as to its comparability and whether in the opinion of the expert it should be accepted.

g. Secure transporters and safety compliance facilities shall also be required to submit plans for odor control for approval if in the opinion the planning commission such plans are required for the protection of the township and its residents.

14. If the marihuana establishment or facility ceases operation for a length of time of ninety days or greater, the conditional use shall expire.
15. Marihuana drive-through retail establishments and provisioning centers shall be prohibited.
16. All marihuana shall be contained within a structure that meets all applicable building code requirements in an enclosed, locked area. A floor plan shall be provided with the site plan application.
17. Application for a local Marihuana Facilities License shall be made to the Township Clerk upon application forms provided by the Clerk for Marihuana Facilities License and signed by the applicant verifying the truth and accuracy of all information and representations in the application. Applications including information and documentation provided pursuant to an application shall be subject to the confidentiality rules of the State of Michigan. In addition to information and submittals, the application shall include payment of application fee in an amount set by the Township Board. Applications shall be filed according to licensing regulations, procedures, and fees established by the Township Board, and may be amended.
18. A State license is required for all Marihuana Establishments and Facilities.
19. Prior to issuance of a certificate of occupancy for an authorized Marihuana Establishment or Facility shall comply with the following regulations and shall only be operated as long as it remains in compliance with all such ordinances.
    a. Compliance with State and Township licensing requirements and proof of issuance of a State operating license and compliance with all rules promulgated there under is filed with the Township.
    b. Compliance with all Township Zoning regulations with written approval of Zoning Compliance issued by the Township Zoning Administrator.
    c. Compliance with all Township construction and building ordinances and applicable police power ordinances.
20. Inspections may be made by the Township Official's designee to confirm the Marihuana Establishment or Facility is operating in accordance with applicable laws including, but not limited to, State Law and Township Ordinances.
21. The premises shall be open for inspection upon request by the Zoning Administrator, Code Enforcement Officer, Building Official, Fire Department and law enforcement officials for compliance with all applicable laws and rules, during the stated hours of operation/use and as such other times as anyone is present on the premises.
22. The penalties and fees collected by the Township for Marihuana Establishments and Facilities shall be the maximum permissible by the State of Michigan unless otherwise established by the Township Board.



Marihuana Zoning Analysis Facility

Northfield Township, Washtenaw County

January 11, 2019

LEGEND

- Schools -6
- Commercial District Marihuana Facilities -17
- Industrial District Marihuana Facilities -18
- Schools 500 ft Buffer
- Industrial District Marihuana 500 ft Buffer
- Commercial District Marihuana Facilities 500 ft Buffer
- 500ft School Parcel Buffer
- AR Agricultural
- LR Low-Density Residential
- MR Multi-Family Residential
- MHP Mobile Home Park
- SR1 Single-Family Residential
- SR2 Single-Family Residential
- RO Residential/Office
- LC Local Commercial
- GC General Commercial
- LI Limited Industrial
- GI General Industrial
- RTM Research/Technology/Manufacturing
- PUD Planned Unit Development
- PSC Planned Shopping Center
- RC Recreation Conservation
- WLD-DD Whitmore Lake Downtown
- WLD-NV Whitmore Lake North Village
- WLD-W Whitmore Lake Waterfront
- Northfield Boundary
- Roads
- Streams
- Water Body

0 0.5 1 Miles

SOURCES

Basemap Source: ESRI Accessed 2018, Data Source:Roads, and Parcels Washtenaw County 2016, Zonning Streams and Water Bodies. Northfield Township 2016 Municipl Boundaries Source: Semcog, Accessed 2018 McKenna 2018.

MCKENNA

Jan 11

Application # SPC18-0008

NORTHFIELD TOWNSHIP

SITE PLAN REVIEW APPLICATION

PROJECT NAME: 6785 Whitmore Lake Road

PROJECT ADDRESS: 6785 Whitmore Lake Road, Whitmore Lake, MI 48189

Applicant Information:	Owner Information:
Name: National Fiber Construction Co.	Name: Tree House Properties LLC
Address: 5070 W. Joy Road, Dexter, MI 48130	Address: 5070 W. Joy Road, Dexter, MI 48130
Phone: 734-580-2114	Phone: 734-580-2114
Email: jonathan@nationalfiberconstruction.com	Email: jonathan@nationalfiberconstruction.com

If the applicant is not the property owner, then a statement from the owner **MUST** be attached authorizing the application.

Proof of ownership **OR** Statement if applicant is not owner is attached. Property owner authorization letter

If applicant is not the owner, describe applicant's interest in the property

PROPERTY DESCRIPTION

Legal Description: ☐ Attached X On Site Plan

Parcel ID(s): B-02-20-300-026

Description of Proposed Use: Construct a commercial building and office building with associated parking and storage area

Total Acreage of Site:
10.02 acres

Total Floor Area: 14,400
Existing: 0
Proposed: 14,400

Height of Structure(s) (in stories & feet):
1 story, 24 feet

Sanitary Facilities: X Sewer ☐ Septic

Water: ☐ Municipal X Private Well

Zoning Classification(s):

☐ RC ☐ AR ☐ LR ☐SR1 ☐SR2 ☐MR ☐VC ☐LC ☐GC ☐ES ☐HC ☐GI X LI ☐Other _____

SITE PLAN REVIEW OPTIONS

Administrative Site Plan Review:

☐ Expansion or reduction of an existing, conforming structure less than 2,000 sq. ft. / 5% of floor area

☐ Additional parking, loading / unloading spaces and landscape improvements

Site Plan Review:

X New Construction

☐ Building Addition

Development Plan Review:

☐ Planned Unit Development

☐ Planned Residential Development

☐ Site Condominium Plan

Amendment to Approved Site Plan or Development Plan:

☐ Site Plan

☐ Development Plan

Site or Development Plan Review in conjunction with: ☐ Rezoning Request ☐ Special Land Use Request (Conditional)

Application # _____

AUTHORIZED SIGNATURE	
I hereby state that all of the above statements and all of the accompanying information are true and correct.	
Applicant's Signature: David Upton	Date: 11/14/2018
FOR OFFICE USE ONLY	
Application Received Date:	**Planning Commission Received Date:**
Planning Commission Action: ☐ Approved Date: _____	☐ Denied Date: _____
Expiration Date: _____	
Fee Received: ☐ Cash ☐ Check # _____	

RECEIVED
NOV 21 2018
NORTHFIELD TOWNSHIP

PAID
NOV 21 2018
NORTHFIELD TOWNSHIP
TREASURER

PRINCIPALS
R.J. WANTY, P.E.
D.J. HOUCK
ASSOCIATES
T.L. SUTHERLAND, P.S.
D.L. MOORE

WASHTENAW ENGINEERING COMPANY

CIVIL ENGINEERS • PLANNERS • SURVEYORS
TRANSPORTATION ENGINEERS
LANDSCAPE ARCHITECTS

RECEIVED
DEC 21 2018
NORTHFIELD TOWNSHIP

December 21, 2018

Planning Commission
Northfield Township
8350 Main Street, Suite A
Whitmore Lake, MI 48189

RE: National Fiber, 6785 Whitmore Lake Road
Site Plan Review #1

Planning Commission Members:

We offer the following comments in response to the review letters outlined below:

McKenna dated December 7, 2018 – Site Plan Review #1:

1. A conditional use approval application is submitted within 90 days.
   Acknowledged.

2. The Site Data table on the cover page must be revised to include accurate measurements of site and building dimensions.
   Acknowledged.

3. The parking calculation must be updated to include the number of vehicles stored on the premises.
   Acknowledged.

4. The parking spaces must be revised to a minimum area of 200 sq. ft. and a minimum width of 10 ft.
   Acknowledged.

5. Parking lot landscaping must be included to meet the intent of Section 36-722(m).
   Acknowledged.

6. The screening fence materials for the outdoor storage area must be revised to a material such as vinyl or wood.
   The outdoor storage area has been removed from the petitioner's plans.

7. A description of the materials stored within the outdoor storage area must be included on the site plan, including height.
   The outdoor storage area is no longer part of this planned development.

8. A waiver is granted for evergreen tree screening of outdoor storage, finding that the existing vegetation is sufficient in meeting the screen requirements.
   The outdoor storage area is no longer part of this planned development.

9. The lighting details include a note that all fixtures will be fully cut-off.
   Acknowledged.

POST OFFICE BOX 1128 • 3526 WEST LIBERTY ROAD • SUITE 400 • ANN ARBOR, MICHIGAN 48106 • TELEPHONE 734-761-8800 • FAX 734-761-9530
www.washtenawengineering.com

10. The pole height for the pole-mounted lighting is revised to meet the 16 ft. maximum allowed height.
Acknowledged.

11. The site plan elevations are revised to include labels of material types and colors as well as building heights for both proposed buildings.
Acknowledged.

12. A note is added to the site plan that any signage on the site will be approved administratively after site plan approval.
Acknowledged.

13. The Planning Commission approves the phasing of this development.
Acknowledged.

14. A performance guarantee estimate is submitted to the Township for review.
To be completed.

OHM dated December 11, 2018 – Site Plan Review #1

General

1. If this submittal is for both phases then more information will need to be shown on the plans regarding phasing of the grading and proposed utilities as the plan progress. We have assumed that this submittal is for approval of both phases.
Acknowledged.

Utilities

2. Existing and proposed water and sanitary sewer facilities are shown. Sanitary sewer will discharge to the existing sewer force main in the Whitmore Lake ROW. Domestic water will be provided by an existing on-site well.
No comment.

3. It appears that a well house or some type of water junction box is proposed near the phase 2 office building. The well appurtenance must be labeled and details must be provided as the plans progress.
Acknowledged.

4. Storm and sanitary sewer structure and pipe information must be provided on the utility sheet as the plans progress.
Acknowledged.

5. It appears that there is a proposed dry hydrant near the detention pond. It should be labeled.
Label added to Utility Plan, sheet 7.

6. Existing and proposed franchised utilities and services should also be shown. It appears that most of the franchised utilities are shown.
All known existing franchised utilities are shown. The placement for franchised utilities is shown on plan. Please clarify your comment.

7. The property is proposed to be serviced by public sanitary sewer. The applicant is proposing to tap a new sanitary sewer force main lead into an existing manhole. An REU factor will need to be assigned for this facility based on the proposed use and building size in accordance with the Northfield Township Utility Ordinance. This will need to be

reviewed with the Northfield Wastewater Superintendent prior to engineering plan approval.

REU calculations added to Utility Plan, sheet 7.

Paving/Grading

8. Several proposed trees are too close to proposed sanitary sewer manholes. Trees should be a minimum of 10 feet away.

   REU calculations added to Utility Plan, sheet 7.

9. Manhole rim and invert information should be provided on the grading plan as the plans progress.

   Acknowledged.

10. Some details are already provided. Additional details may need to be provided for any proposed paving items (dumpster pad, fencing, sidewalk, asphalt drive, asphalt parking, gravel parking, etc.) as the plans progress.

    Acknowledged.

11. The developed site runoff will be directed to a detention facility. The proposed detention facility should be designed to WCWRC standards. Based on the WCWRC review, the plans may need modification to meet their requirements. We will await the WCWRC's review of the plans.

    Acknowledged.

Northfield Township Fire Department dated December 19, 2018 – Site Plan Review #1:

1. A plan including the building dimensions in relation to door placement for the larger building (80' x 150') will need to be submitted for review of travel distance to egress.

   Exterior Door locations and distance to dry hydrant added to turning template plan, sheet 12.

2. An automatic sprinkler system is required for the larger building as it shall be provided throughout buildings with a fire area used for the repair of commercial trucks where the fire area exceeds 5,000 square feet.

   An FDC connection was added at the south west corner of the building and a 2" fire service lead from the well house for a sprinkler system in the larger building. Additional fire service designs to be completed in construction plan phase.

3. An automatic sprinkler system is required for the larger building as it shall be provided throughout buildings with a fire area used for storage of commercial trucks where the fire area exceeds 5,000 square feet.

   An FDC connection was added at the south west corner of the building and a 2" fire service lead from the well house for a sprinkler system in the larger building. Additional fire service designs to be completed in construction plan phase.

If you have any questions please contact the undersigned.

Sincerely,

Joseph K. Maynard, P.E.

S:\PROJECTS\NATIONAL FIBER\REVIEWS\NorthfieldTwp 181221 response ltr

Washtenaw County
Health Department

Return sample by 3pm on day collected
Environmental Health Division
705 N. Zeeb Rd., Ann Arbor, MI 48103
washtenaw.org/envhealth
734-222-3800

WASHTENAW COUNTY MICHIGAN 1826

CHEMICAL ANALYSIS OF WATER

See back side for sampling instructions and explanation of results

☑ COMMERCIAL
☐ RESIDENTIAL
☐ TIME OF SALE

SAMPLING INFORMATION: Before Sale

WSSN/TYPE II #	Well Permit #	
Person Sampling: Larry Clark / Cibley	Date Collected: 10-10-18	Time Collected: 16:00 AM
Sampling Point (kitchen faucet, outside spigot, pressure tank, etc.): Well Head	Arsenic Treated Sample — Check if YES: ☐	Raw/Untreated Sample — Check if YES: ☑
Well Owner Name: National Fiber		
Well Street Address: 6185 Whitmore Lake Rd		
City: Whitmore Lake	Township	Zip

REPORT RESULTS TO:

Name: Cibley		
Street Address: 8300 Lev - Chelsea Rd		
City: Dexter	State: MI	Zip: 48130
Email: sarah@cibley.com		
Phone: 734-426-4400	Fax: 734-426-4414	

LABORATORY RESULTS:

Analyzed by Water Tech, MI Cert #0023.
Nitrate/Nitrite Method: EPA 300.0 or SM4500NO3F.

Date Received: 10/10/18	Time Received: 16:35
Lab Sample #: 115568.03A	

RECEIPT (No refunds):

RECEIVED
OCT 11 2018
WASHTENAW CO.
ENV. HEALTH

Test	Results	Test	Results
☐ Arsenic		☐ Lead	
☑ Nitrate	10.1	☐ Nitrite	
☐ Fluoride		☐ Other:	
☐ Hardness		☐ Other:	
Analyst:		Date Analyzed:	

Oct. 15, 2018 10:51AM No. 7061 P. 1/1

No. 7033 P. 1/1

Oct. 12. 2018 2:05PM

Washtenaw County Health Department

Return sample by 3pm on day collected
Environmental Health Division
705 N. Zeeb Rd., Ann Arbor, MI 48103
washtenaw.org/envhealth
734-222-3800

CHEMICAL ANALYSIS OF WATER

See back side for sampling instructions and explanation of results.

☒ COMMERCIAL ☐ RESIDENTIAL ☐ TIME OF SALE

SAMPLING INFORMATION: Type of Well: Before Sale

WSSN/TYPE II #	Well Permit #	
Person Sampling: Cribley, Larry Clark	Date Collected: 10-10-18	Time Collected: 10:00 AM
Sampling Point (kitchen faucet, outside spigot, pressure tank, etc.): well Head	Arsenic Treated Sample Check if YES: ☐	Raw/Untreated Sample Check if YES: ☒
Well Owner Name: National Fiber		
Well Street Address: 6785 Whitmore Lake Rd		
City: Whitmore Lake	Township	Zip

REPORT RESULTS TO:

Name: Cribley		
Street Address: 8300 Dex-Chelsea Rd		
City: Dexter	State: MI	Zip: 48130
Email: sarah@cribley.com		
Phone: 734-426-4400	Fax: 734-426-4414	

LABORATORY RESULTS:
Analyzed by: Water Tech, MI Cert #0023.
Nitrate/Nitrite Method: EPA 300.0 or SM4500NO3F.

RECEIPT (No refunds):

Date Received: 10/10/18	Time Received: 1615
Lab Sample #: 115568-03B	

Test	Results	Test	Results
☒ Arsenic	0.021	☐ Lead	
☐ Nitrate		☐ Nitrite	
☐ Fluoride		☐ Other:	
☐ Hardness		☐ Other:	
Analyst: CM		Date Analyzed:	10/12/18

INSTRUCTIONS FOR COLLECTING WATER SAMPLES FOR CHEMICAL ANALYSIS OF WATER

Do not use this sample bottle for bacteriological analysis of water!

For questions, please call: 734-222-3800

Plan to return the sample before 3:00pm the same day it is collected. Bring the sample to our office at 705 N. Zeeb Rd., Ann Arbor, MI 48103, 8:30am - 3:00pm, Monday through Friday. Call ahead for holiday schedules.

Follow these sampling instructions carefully:

1. Wash your hands with warm water and soap before collecting the sample.
2. Do not open the bottle until you are ready to collect the sample.
3. Choose a clean, indoor faucet. A faucet you use for drinking water is best. Do not collect the sample from hose lines or leaking/dirty faucets.
4. Turn on the **COLD** water and let it run at full stream for 5 minutes.
5. Turn down the faucet to a small stream of the cold water.
6. Open the bottle. Do not set the cap down. Do not touch the inside of the cap or bottle. Do not rinse out the bottle.
7. Collect the water sample directly into the sample bottle. Fill to the neck of the bottle. Do not overflow. Do not allow the cap or bottle to touch the faucet.
8. Replace the cap securely on the bottle.
9. Place the bottle in a cooler with an ice pack during transport.
10. Fill out the form completely. Attach the form to the bottle with a rubber band. Return the bottle to our office **before 3:00pm**, Monday - Friday.

WHAT YOUR TEST RESULTS MEAN:

Test results are generally reported in milligrams per liter (mg/L).

Test	Good	Satisfactory	Caution	Potential Problem
Arsenic	0	0.010 or less	Over 0.010	Over time can impact nervous system and heart, and can lead to cancers or other health problems. Exposure to very high levels may cause stomach pain, nausea, vomiting, diarrhea and headaches.
Fluoride	0.7	0.7 - 2.0	Over 4.0	Low levels are beneficial in preventing tooth decay. High levels may cause mottling/pitting of teeth, skeletal fluorosis and increase in fractures in adults.
Hardness	50 - 125	125 - 250	Over 250	Can cause scaling of water fixtures. High levels cause soap scum and low levels cause corrosion.
Lead	0	0 - 0.015	Over 0.015	In children, can cause behavior and learning problems, lower IQ, hyperactivity and slowed growth. In adults, can cause high blood pressure and kidney problems.
Nitrate	0	1 - 10	Over 10	Can cause methemoglobinemia (blue baby) in infants under six months, pregnant women and certain sensitive individuals. Indication of pollution.
Nitrite	0	0 - 1.0	Over 1.0	Can cause methemoglobinemia (blue baby), especially in infants. Indication of pollution.

Rev. March 2017

PRELIMINARY & FINAL SITE PLAN FOR PARCEL REDEVELOPMENT

6785 WHITMORE LAKE ROAD

A PART OF THE SOUTHWEST 1/4 OF SECTION 20, T1S, R6E, NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

FOR:

NATIONAL FIBER CONSTRUCTION
5070 W. JOY RD.
DEXTER, MI. 48130
PH: (734) 580-2114

NOVEMBER 2018

CONSTRUCTION NOTES:

1.) IT IS ESSENTIAL THAT THE CONTRACTOR FAMILIARIZE HIMSELF WITH THE SITE PRIOR TO SUBMITTING PROPOSAL.

2.) ALL CONSTRUCTION SHALL BE PERFORMED PER THE NORTHFIELD TOWNSHIP STANDARD SPECIFICATIONS. IF THERE ARE WORK ITEMS NOT COVERD BY THE ABOVE SPECIFICATIONS, THEN THE CURRENT M.D.O.T SPECIFICATIONS SHALL APPLY AS DIRECTED IN THE PLANS AND SPECIFICATIONS.

3.) THE AREA WITHIN THE CONSTRUCTION LIMITS SHALL BE STRIPPED OF ORGANIC SOILS PRIOR TO COMMENCING GENERAL EXCAVATION. THIS MATERIAL SHALL BE STOCKPILED ON THE PROPERTY OR AS DIRECTED BY THE ENGINEER OR THE OWNER.

4.) THE CONTRACTOR WILL BE REQUIRED TO PROOF ROLL (WITH A HEAVY RUBBER-TIRED VEHICLE) ALL FILL AREAS PRIOR TO PLACING ADDITIONAL FILL AND ALL CUT AREAS UPON COMPLETION OF THE CUT AND PRIOR TO PLACING BASE MATERIAL. IF THE PROOF ROLLING INDICATES UNSTABLE AREAS, THE UNSTABLE MATERIAL MUST BE REMOVED AND REPLACED WITH MATERIAL MATCHING THE ADJACENT SOILS TO THE ELEVATION OF THE SUBGRADE.

5.) ALL FILL MATERIAL MUST BE PLACED IN LIFTS NOT EXCEEDING 9 INCHES AND COMPACTED TO 95% OF THE MAXIMUM UNIT WEIGHT.

6.) THE FINISHED SUBGRADE MUST BE GRADED WITHIN A TOLERANCE OF +/- 0.1 FEET OF DESIGN GRADE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT TO A DEPTH OF 9 INCHES AND APPROVED BY THE OWNER'S REPRESENTATIVE/ENGINEER PRIOR TO PLACEMENT OF THE AGGREGATE BASE. FINE GRADING, PRIOR TO THE PLACEMENT OF THE BASE MATERIAL, SHALL BE INCLUDED IN THE COST OF PREPARING THE SUBGRADE.

7.) ALL DISTURBED AREAS, DITCH BOTTOMS AND SLOPES UNLESS OTHERWISE NOTED, SHALL BE SEEDED AND MULCHED PER M.D.O.T. SPECIFICATION 6.53, INCLUDING PLACEMENT OF A 4-INCH TOPSOIL BED. DITCH BOTTOMS SHALL BE SODDED AND PEGGED WHERE DITCH GRADE EXCEEDS 3.00%.

8.) THE CONTRACTOR MUST CONTACT MISS DIG PRIOR TO BEGINNING CONSTRUCTION.

9.) ALL CONSTRUCTION ACTIVITIES SHALL BE SIGNED PER THE CURRENT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL MAINTAIN ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES.

10.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, MAINTENANCE AND REMOVAL OF ALL TEMPORARY EROSION CONTROL MEASURES PER THIS APPROVED PLAN.

11.) THE CONTRACTOR MUST OBTAIN AN EROSION CONTROL PERMIT PRIOR TO BEGINNING EARTH MOVING. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION.

12.) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE R.O.W. PERMITS FOR WHITMORE LAKE ROAD.

13.) NO NEW TREES, ROCKS, LANDSCAPING, BERMS, HEAD WALLS, PRIVATE DRIVES, SPRINKLERS OR PRIVATE UTILITIES ARE TO BE ALLOWED IN THE RIGHT-OF-WAY.

14.) NO HOME-BUILDING CONSTRUCTION TRAFFIC WILL BE ALLOWED ON NEW ROADS UNTIL BOTH BITUMINOUS BASE AND LEVELING COURSES ARE IN PLACE.

15) ANY CONDITIONS (EXISTING) ON THE SITE THAT ARE NOT CONSISTENT WITH THE PLANS OR SOIL EROSION SEDIMENTATION PERMIT WILL RESULT IN A STOP-WORK ORDER AND REVOCATION OF THE SOIL EROSION SEDIMENTATION CONTROL PERMIT.

16) ALL UTILITIES LYING WITHIN THE EXISTING OR PROPOSED INFLUENCE OF THE ROAD SHALL BE BACKFILLED WITH MDOT 21AA MATERIAL, COMPACTED TO 95% MAXIMUM UNIT WEIGHT. PER NORTHFIELD TOWNSHIP.

17) ALL UTILITIES SHALL BE INSTALLED WITH #25A BEDDING, COMPACTED TO 95% MAXIMUM OF ITS UNIT WEIGHT.

18) ALL DISTURBED AREAS THAT ARE OUTSIDE THE PAVED SURFACES AND WITHIN THE R.O.W. SHALL BE COVERED WITH A MINIMUM OF 4 INCHES OF TOPSOIL.

19) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND/OR OBTAIN ANY INFORMATION NECESSARY REGARDING THE PRESENCE OF UNDER-GROUND UTILITIES THAT MAY AFFECT THE WORK.

20) CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO AND THE REPAIR OF ANY EXISTING UTILITY LINE IN THE CONSTRUCTION ZONE.

21) THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE ONLY APPROXIMATE. NO FIELD VERIFICATION OF EXISTING UTILITY LINES HAS BEEN DONE.

SITE DATA

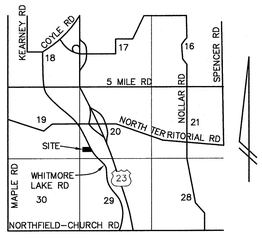
CATEGORY	REQUIRED	EXISTING	PROPOSED
ZONING - LI LIMITED INDUSTRIAL	LI	LI	LI
LOT SIZE (AC)	0.46 AC (MIN)	10.02 AC	10.02 AC
LOT SIZE (SF)[1]	20,000 SF (MIN)	436,593 SF	436,593 SF
AREA IN R.O.W.	NA	15,567 SF	15,567 SF
NET AREA	NA	421,026 SF	421,026 SF
LOT WIDTH	80' MIN.	346'	346'
PRINCIPLE BUILDING (CONTRACTOR)	NA	0 SF	12,000 SF
AUXILIARY BUILDING (OFFICE)	NA	0 SF	2,400 SF
LOT COVERAGE	25% MAX.	0%	3%
BUILDING HEIGHT	45' MAX	0'	24'
BUILDING SETBACKS			
FRONT	85'	75.5'	128'
SIDE (EAST)	20'	59.6'	57'
SIDE (WEST)	20'	65.4'	48'
REAR	35'	36'	154'

PHASE 1 PARKING	REQUIRED	EXISTING	PROPOSED
CONTRACTOR ESTABLISHMENT (1 PER EMPLOYEE) 18 MAXIMUM EMPLOYEES ONSITE	18	0	18
EXTERIOR VEHICLE STORAGE (1 PER VEHICLE)	(24)	0	(24)
INTERIOR VEHICLE STORAGE (1 PER VEHICLE)	(8)	0	(8)
ONE PARKING SPACE PER VEHICLE STORAGE SPACE	32	0	32
TOTAL PARKING, NOT INCLUDING VEHICLE STORAGE	50	0	50
BARRIER FREE PARKING[2]	2	0	2

PHASE 2 PARKING	REQUIRED	EXISTING	PROPOSED
OFFICE (1 PER 200 SQ. FT. OF FLOOR AREA)	12	0	12
TOTAL PARKING	12	0	12
BARRIER FREE PARKING[2]	1	0	1

NOTES:
1. LOT AREA FOR A PARCEL 3 ACRES OR LARGER SHALL INCLUDE THE R.O.W. IN AREA CALCULATIONS.
2. ACCESSIBLE PARKING SPACES NEED ONE SPACE TO BE VAN ACCESSIBLE PER 6 REQUIRED SPACES.

DESCRIPTION (By Others)
Part of the Southwest 1/4 of Section 20, T1S, R6E, Northfield Township, Washtenaw County, Michigan; being more particularly described as follows: Commencing at the Southwest corner of said Section 20; thence N02°01'50"E, a distance of 775.96 feet along the West line of said Section 20 the Point of Beginning; thence continuing along said West line of Section 20 N02°01'50"E, a distance of 730.06 feet; thence N81°18'20"E, a distance of 750.52 feet to a point on the centerline of Whitmore Lake Road (100 foot wide); thence along said centerline S35°51'25"E, a distance of 300.00 feet; thence S57°33'01"W, a distance of 1118.07 feet to the Point of Beginning. Containing 10.02 acres, more or less, and subject to the rights of the public over the existing Whitmore Lake Road (100 foot wide) and any other easements or restrictions of record.



VICINITY MAP
(NO SCALE)

SHEET TITLE	SHEET NO.
COVER SHEET	1
TOPOGRAPHICAL SURVEY	2
NATURAL FEATURES PLAN	3
REMOVAL PLAN	4
FINAL SITE PLAN	5
GRADING & SOIL EROSION CONTROL PLAN	6
UTILITY PLAN	7
STORM WATER MANAGEMENT-DRAINAGE AREAS-EXISTING	8
STORM WATER MANAGEMENT-DRAINAGE AREAS-PROPOSED	9
STORM WATER MANAGEMENT-CALCULATIONS	10
DETAILS	11
TURNING TEMPLATE PLAN	12
LANDSCAPE PLAN	13
TREE IDENTIFICATION PLAN	14
PHOTOMETRIC PLAN	15
PHOTOMETRIC DETAILS	16
ARCHITECT PLAN OFFICE BUILDING	P1
ARCHITECT PLAN MAIN BUILDING	P2

OWNER

TREE HOUSE PROPERTIES
5070 W. JOY RD
DEXTER, MI 48130
(734) 580-2114 OFFICE

APPLICANT

NATIONAL FIBER CONSTRUCTION
5070 W. JOY RD
DEXTER, MI 48130
(734) 580-2114 OFFICE
nationalfiberconstruction.com

WASHTENAW ENGINEERING
CIVIL ENGINEERS • PLANNERS
SURVEYORS • LANDSCAPE ARCHITECTS
P.O. BOX 1128
3250 WEST LIBERTY RD ANN ARBOR, MICHIGAN 48106
TEL. 734-761-8800 FAX. 734-761-9530
E-MAIL: weco@wengco.com
washtenawengineering.com

REVISION #1: 12-20-18
ORIGINAL: 11-19-18

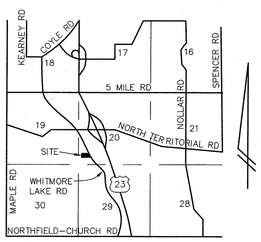
6875 WHITMORE LAKE ROAD

H:\MdS\eng\32499\dwg\499-cover.dwg, cover 24 x 36, 12/21/2018 10:53:45 AM

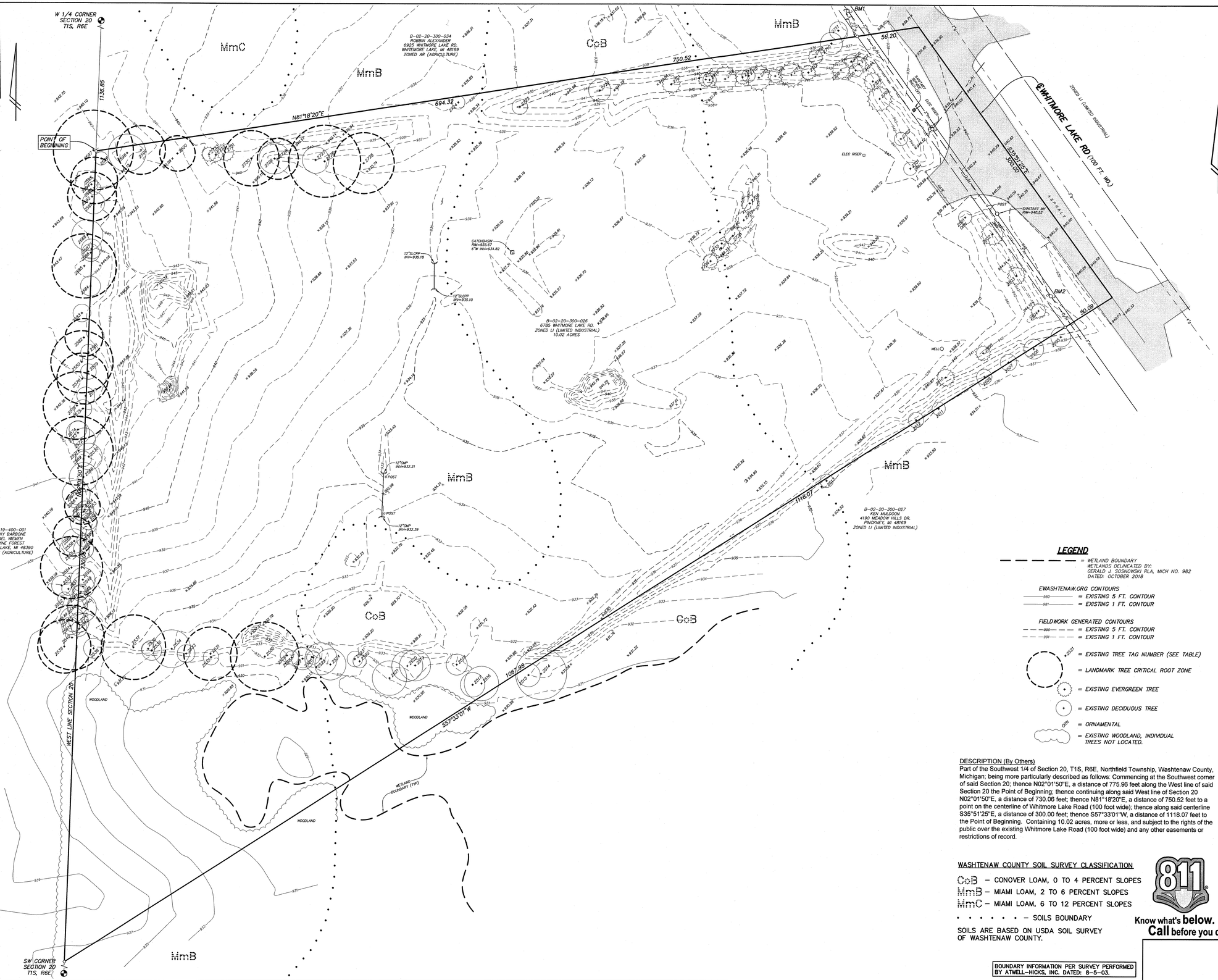
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING RECORDS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

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THE OWNER SHALL NOT USE OR AUTHORIZE ANY OTHER PERSON TO USE THE DRAWINGS, SPECIFICATIONS, ELECTRONIC DATA AND OTHER INSTRUMENTS OF SERVICE ON OTHER PROJECTS, FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THE PROJECT BY OTHERS UNLESS AGREED TO IN WRITING BY WASHTENAW ENGINEERING. ANY SUCH USE OR REUSE, OR MODIFICATION WITHOUT WASHTENAW ENGINEERING'S PROFESSIONAL INVOLVEMENT WILL BE AT THE OWNER'S SOLE RISK AND WITHOUT LIABILITY TO WASHTENAW ENGINEERING. THE OWNER SHALL INDEMNIFY AND HOLD HARMLESS WASHTENAW ENGINEERING AND ITS CONSULTANTS AND AGENTS AND EMPLOYEES OF ANY OF THEM FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING ATTORNEYS' FEES, ARISING OUT OF OR RESULTING THEREFROM. ANY UNAUTHORIZED REUSE OF DRAWINGS, SPECIFICATIONS, ELECTRONIC DATA OR OTHER INSTRUMENTS OF SERVICE



VICINITY MAP
(NO SCALE)



LEGEND

- WETLAND BOUNDARY
  WETLANDS DELINEATED BY:
  GERALD J. SOSNOWSKI RLA, MICH NO. 982
  DATED: OCTOBER 2018

EWASHTENAW.ORG CONTOURS
- 960 = EXISTING 5 FT. CONTOUR
- 961 = EXISTING 1 FT. CONTOUR

FIELDWORK GENERATED CONTOURS
- 990 = EXISTING 5 FT. CONTOUR
- 991 = EXISTING 1 FT. CONTOUR

- 2257 = EXISTING TREE TAG NUMBER (SEE TABLE)
- = LANDMARK TREE CRITICAL ROOT ZONE
- = EXISTING EVERGREEN TREE
- = EXISTING DECIDUOUS TREE
- ORN = ORNAMENTAL
- = EXISTING WOODLAND, INDIVIDUAL TREES NOT LOCATED.

DESCRIPTION (By Others)
Part of the Southwest 1/4 of Section 20, T1S, R6E, Northfield Township, Washtenaw County, Michigan; being more particularly described as follows: Commencing at the Southwest corner of said Section 20; thence N02°01'50"E, a distance of 775.96 feet along the West line of said Section 20 the Point of Beginning; thence continuing along said West line of Section 20 N02°01'50"E, a distance of 730.06 feet; thence N81°18'20"E, a distance of 750.52 feet to a point on the centerline of Whitmore Lake Road (100 foot wide); thence along said centerline S35°51'25"E, a distance of 300.00 feet; thence S57°33'01"W, a distance of 1118.07 feet to the Point of Beginning. Containing 10.02 acres, more or less, and subject to the rights of the public over the existing Whitmore Lake Road (100 foot wide) and any other easements or restrictions of record.

WASHTENAW COUNTY SOIL SURVEY CLASSIFICATION

- CoB – CONOVER LOAM, 0 TO 4 PERCENT SLOPES
- MmB – MIAMI LOAM, 2 TO 6 PERCENT SLOPES
- MmC – MIAMI LOAM, 6 TO 12 PERCENT SLOPES
- . . . . . – SOILS BOUNDARY

SOILS ARE BASED ON USDA SOIL SURVEY OF WASHTENAW COUNTY.

Know what's **below.** **Call** before you dig.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL-HICKS, INC. DATED: 8-5-03.

LEGEND

- ☼ = LIGHT POLE
- ⊞ = UTILITY POLE
- ⊲ = GUY ANCHOR
- ⊳ = HYDRANT
- 900.53 = SPOT ELEV.
- ⊗ = POST
- ⊗ = GATE VALVE
- ⊣ = SIGN
- TC = TOP OF CURB
- TW = TOP OF WALL
- ○ = MANHOLE
- □ = CATCHBASIN
- ◡ = END SECTION
- = GRAVEL
- = FENCE
- = CONCRETE
- = ASPHALT
- r = EXISTING STORM
- s = EXISTING SANITARY
- w = EXISTING WATER
- g = EXISTING GAS
- e = EXISTING ELECTRIC
- t = EXISTING TELEPHONE

BENCHMARK BM1=NAIL IN E'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE NE'LY CORNER OF THE SITE, ELEV=937.00 (NAVD 88).

BM2=R.R. SPIKE IN SW'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE SE'LY CORNER OF THE SITE, ELEV=939.95 (NAVD 88).

REVISIONS –

SCALE 80
0 20 40
SCALE: 1"=40'

PREPARED BY
THOMAS L. SUTHERLAND P.S., MICH No. 24620

CIVIL ENGINEERS
PLANNERS • SURVEYORS
LANDSCAPE ARCHITECTS
3526 W. LIBERTY RD
SUITE 400
ANN ARBOR, MI 48103
TEL 734-761-8800
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WASHTENAW ENGINEERING

CLIENT
NATIONAL FIBER CONSTRUCTION
5070 W. JOY RD
DEXTER, MI 48130
TEL 734-580-2114
nationalfiberconstruction.com

TOPOGRAPHICAL SURVEY

PROJECT
6785 WHITMORE LAKE ROAD

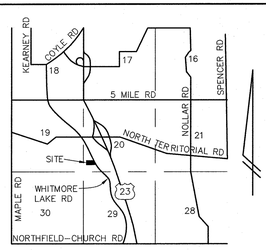
SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11-19-2018
JOB NO. 32499
DWG NO. 499-topo
FIELD BOOK NONE
FILE NO. 10542
SHEET 2

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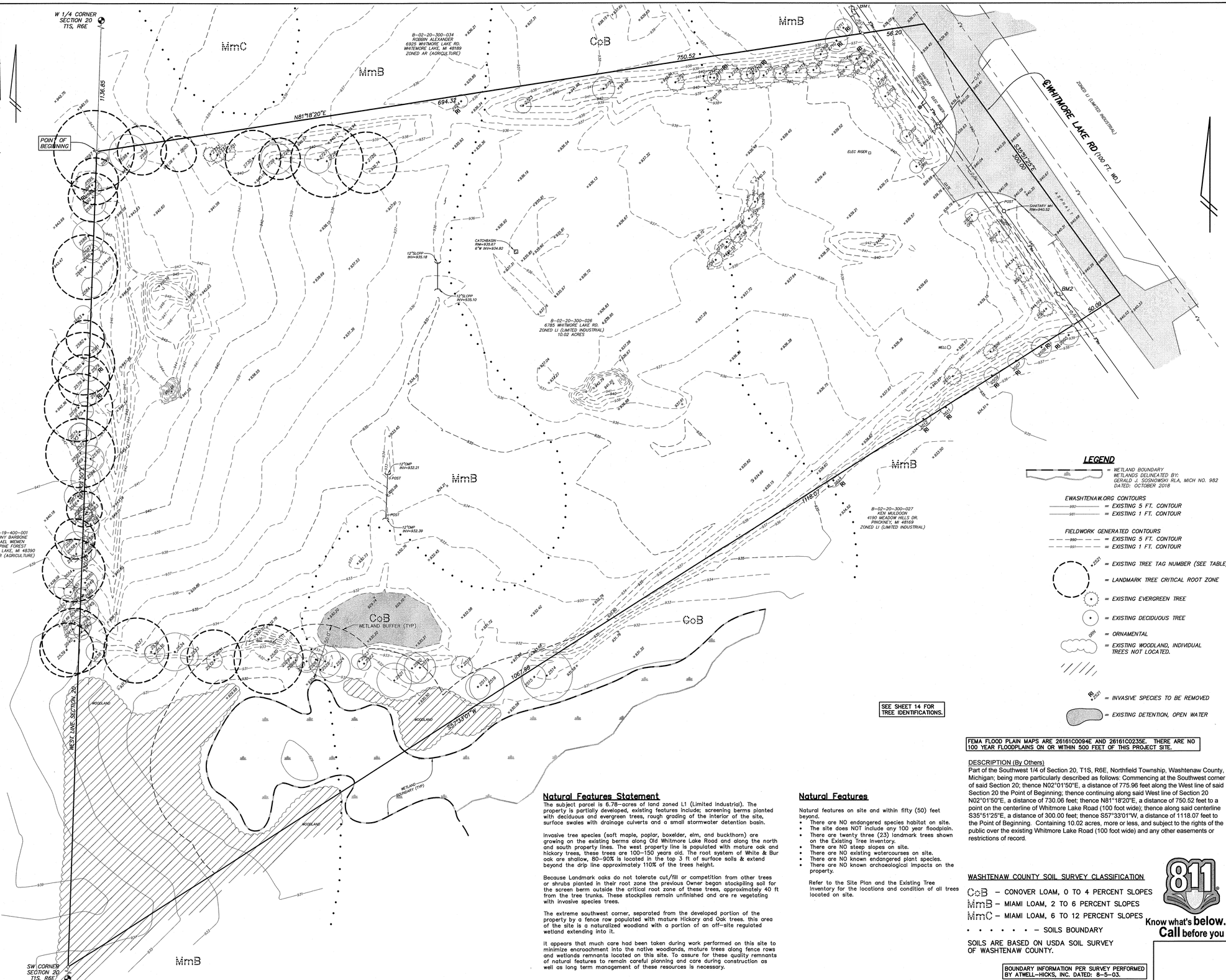
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VICINITY MAP
(NO SCALE)



LEGEND

- = WETLAND BOUNDARY
  WETLANDS DELINEATED BY: GERALD J. SOSNOWSKI RLA, MICH NO. 982 DATED: OCTOBER 2018

EWASHTENAW.ORG CONTOURS
- 980 = EXISTING 5 FT. CONTOUR
- 981 = EXISTING 1 FT. CONTOUR

FIELDWORK GENERATED CONTOURS
- 990 = EXISTING 5 FT. CONTOUR
- 991 = EXISTING 1 FT. CONTOUR

- ×2501 = EXISTING TREE TAG NUMBER (SEE TABLE)
- = LANDMARK TREE CRITICAL ROOT ZONE
- = EXISTING EVERGREEN TREE
- = EXISTING DECIDUOUS TREE
- ORN = ORNAMENTAL
- = EXISTING WOODLAND, INDIVIDUAL TREES NOT LOCATED.
- RI ×2501 = INVASIVE SPECIES TO BE REMOVED
- = EXISTING DETENTION, OPEN WATER

SEE SHEET 14 FOR TREE IDENTIFICATIONS.

FEMA FLOOD PLAIN MAPS ARE 26161C0094E AND 26161C0235E. THERE ARE NO 100 YEAR FLOODPLAINS ON OR WITHIN 500 FEET OF THIS PROJECT SITE.

DESCRIPTION (By Others)
Part of the Southwest 1/4 of Section 20, T1S, R6E, Northfield Township, Washtenaw County, Michigan; being more particularly described as follows: Commencing at the Southwest corner of said Section 20; thence N02°01'50"E, a distance of 775.96 feet along the West line of said Section 20 the Point of Beginning; thence continuing along said West line of Section 20 N02°01'50"E, a distance of 730.06 feet; thence N81°18'20"E, a distance of 750.52 feet to a point on the centerline of Whitmore Lake Road (100 foot wide); thence along said centerline S35°51'25"E, a distance of 300.00 feet; thence S57°33'01"W, a distance of 1118.07 feet to the Point of Beginning. Containing 10.02 acres, more or less, and subject to the rights of the public over the existing Whitmore Lake Road (100 foot wide) and any other easements or restrictions of record.

Natural Features Statement

The subject parcel is 6.78-acres of land zoned L1 (Limited Industrial). The property is partially developed, existing features include; screening berms planted with deciduous and evergreen trees, rough grading of the interior of the site, surface swales with drainage culverts and a small stormwater detention basin.

Invasive tree species (soft maple, poplar, boxelder, elm, and buckthorn) are growing on the existing berms along Old Whitmore Lake Road and along the north and south property lines. The west property line is populated with mature oak and hickory trees, these trees are 100–150 years old. The root system of White & Bur oak are shallow, 80–90% is located in the top 3 ft of surface soils & extend beyond the drip line approximately 110% of the trees height.

Because Landmark oaks do not tolerate cut/fill or competition from other trees or shrubs planted in their root zone the previous Owner began stockpiling soil for the screen berm outside the critical root zone of these trees, approximately 40 ft from the tree trunks. These stockpiles remain unfinished and are re vegetating with invasive species trees.

The extreme southwest corner, separated from the developed portion of the property by a fence row populated with mature Hickory and Oak trees. this area of the site is a naturalized woodland with a portion of an off-site regulated wetland extending into it.

It appears that much care had been taken during work performed on this site to minimize encroachment into the native woodlands, mature trees along fence rows and wetlands remnants located on this site. To assure for these quality remnants of natural features to remain careful planning and care during construction as well as long term management of these resources is necessary.

Natural Features

Natural features on site and within fifty (50) feet beyond.

- There are NO endangered species habitat on site.
- The site does NOT include any 100 year floodplain.
- There are twenty three (23) landmark trees shown on the Existing Tree Inventory.
- There are NO steep slopes on site.
- There are NO existing watercourses on site.
- There are NO known endangered plant species.
- There are NO known archaeological impacts on the property.

Refer to the Site Plan and the Existing Tree Inventory for the locations and condition of all trees located on site.

WASHTENAW COUNTY SOIL SURVEY CLASSIFICATION

CoB – CONOVER LOAM, 0 TO 4 PERCENT SLOPES
MmB – MIAMI LOAM, 2 TO 6 PERCENT SLOPES
MmC – MIAMI LOAM, 6 TO 12 PERCENT SLOPES
• • • • • • – SOILS BOUNDARY

SOILS ARE BASED ON USDA SOIL SURVEY OF WASHTENAW COUNTY.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL–HICKS, INC. DATED: 8–5–03.

811 Know what's below. Call before you dig.

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♂ = HYDRANT	—○— = SIGN	□ = CATCHBASIN	ASPHALT
		◡ = END SECTION	

r	EXISTING STORM
s	EXISTING SANITARY
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REVISIONS 2018-12-20 REV#1

SCALE 80
0 20 40
SCALE: 1"=40'

PREPARED BY
GERALD J. SOSNOWSKI RLA, MICH No. 982

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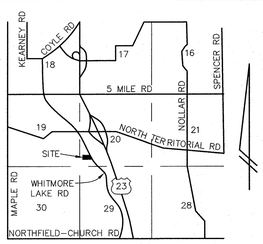
NATURAL FEATURES PLAN

SHEET

PROJECT
6785 WHITMORE LAKE ROAD

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11-19-2018
JOB NO. 32499
DWG NO. 499-nat
FIELD BOOK NONE
FILE NO. 10542
SHEET 3

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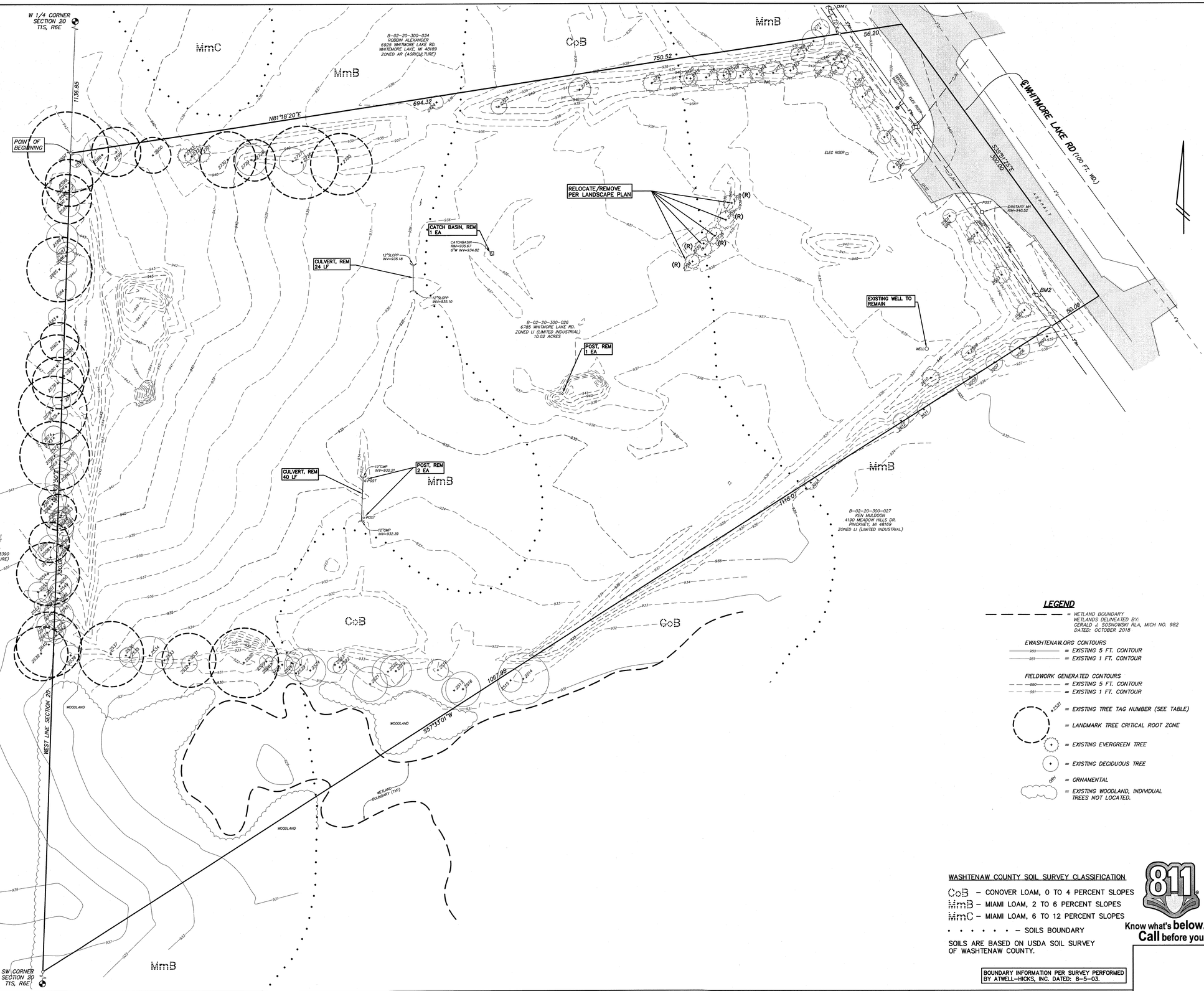


VICINITY MAP
(NO SCALE)

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WETLANDS DELINEATED BY:
GERALD J. SOSNOWSKI RLA, MICH NO. 982
DATED: OCTOBER 2018

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REVISIONS

SCALE 0 20 40 80
SCALE: 1"=40'

PREPARED BY
JOSEPH K. MAYNARD P.E., MICH No. 52559

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WASHTENAW ENGINEERING

CLIENT
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REMOVAL PLAN

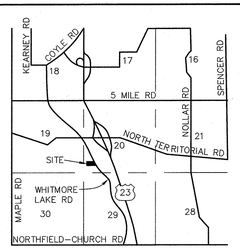
SHEET

PROJECT
6785 WHITMORE LAKE ROAD

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11-19-2018
JOB NO. 32499
DWG NO. 499-rem
FIELD BOOK NONE
FILE NO. 10542

4 SHEET

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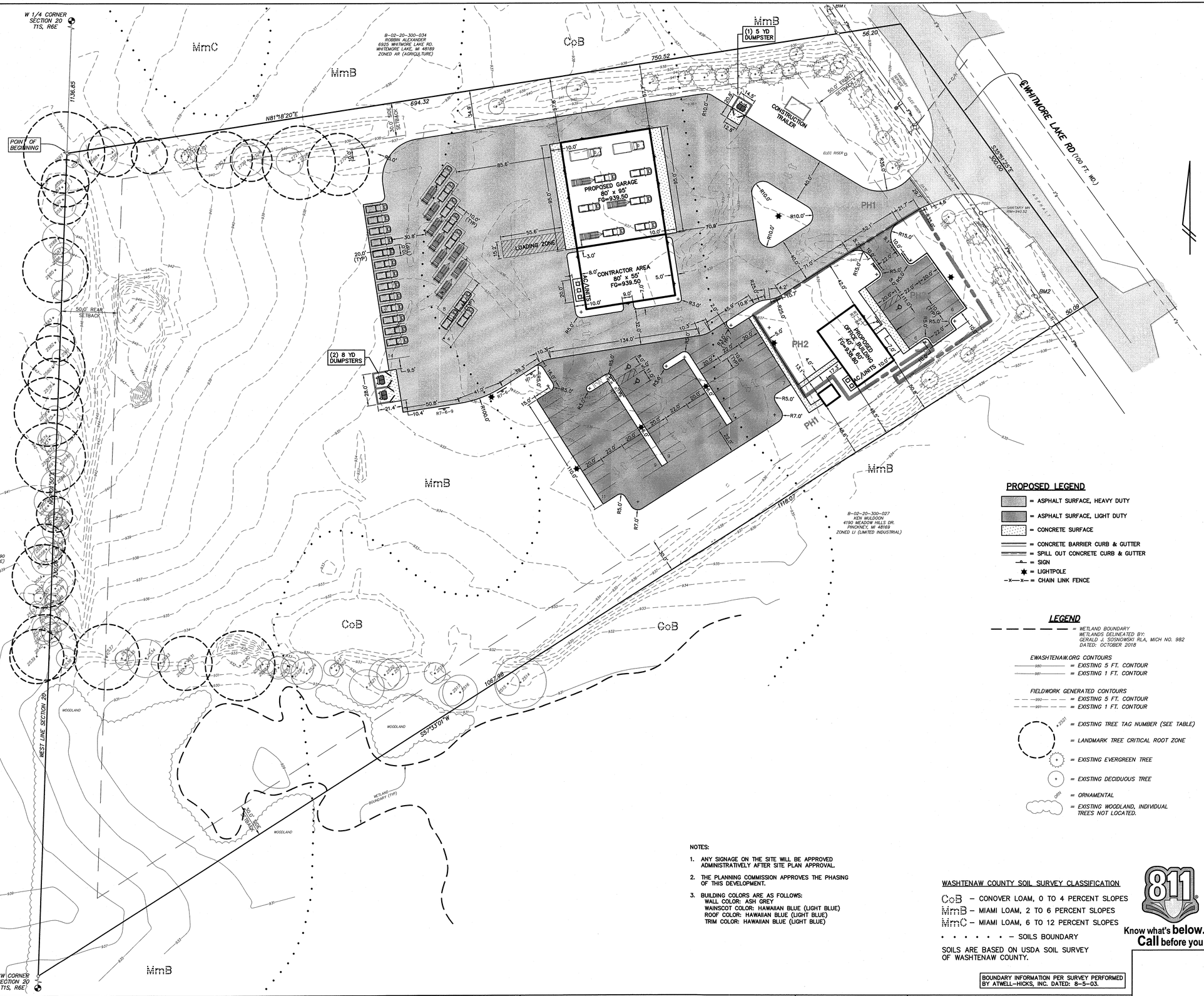


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PROPOSED LEGEND

- = ASPHALT SURFACE, HEAVY DUTY
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- = SPILL OUT CONCRETE CURB & GUTTER
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- = CHAIN LINK FENCE

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  WETLANDS DELINEATED BY:
  GERALD J. SOSNOWSKI R.L.A, MICH NO. 982
  DATED: OCTOBER 2018

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NOTES:

1. ANY SIGNAGE ON THE SITE WILL BE APPROVED ADMINISTRATIVELY AFTER SITE PLAN APPROVAL.
2. THE PLANNING COMMISSION APPROVES THE PHASING OF THIS DEVELOPMENT.
3. BUILDING COLORS ARE AS FOLLOWS:
   WALL COLOR: ASH GREY
   WAINSCOT COLOR: HAWAIIAN BLUE (LIGHT BLUE)
   ROOF COLOR: HAWAIIAN BLUE (LIGHT BLUE)
   TRIM COLOR: HAWAIIAN BLUE (LIGHT BLUE)

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REVISIONS 2018-12-20 REV#1

SCALE 0 20 40 80
SCALE: 1"=40'

PREPARED BY
JOSEPH K. MAYNARD P.E., MICH No. 52559

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FINAL SITE PLAN

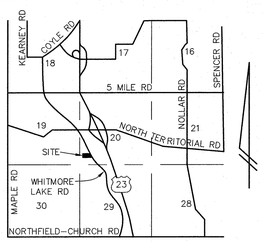
SHEET

PROJECT
6785 WHITMORE LAKE ROAD

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11-19-2018
JOB NO. 32499
DWG NO. 499-site
FIELD BOOK NONE
FILE NO. 10542
SHEET 5

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(NO SCALE)

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- = LIGHTPOLE
- = CHAIN LINK FENCE

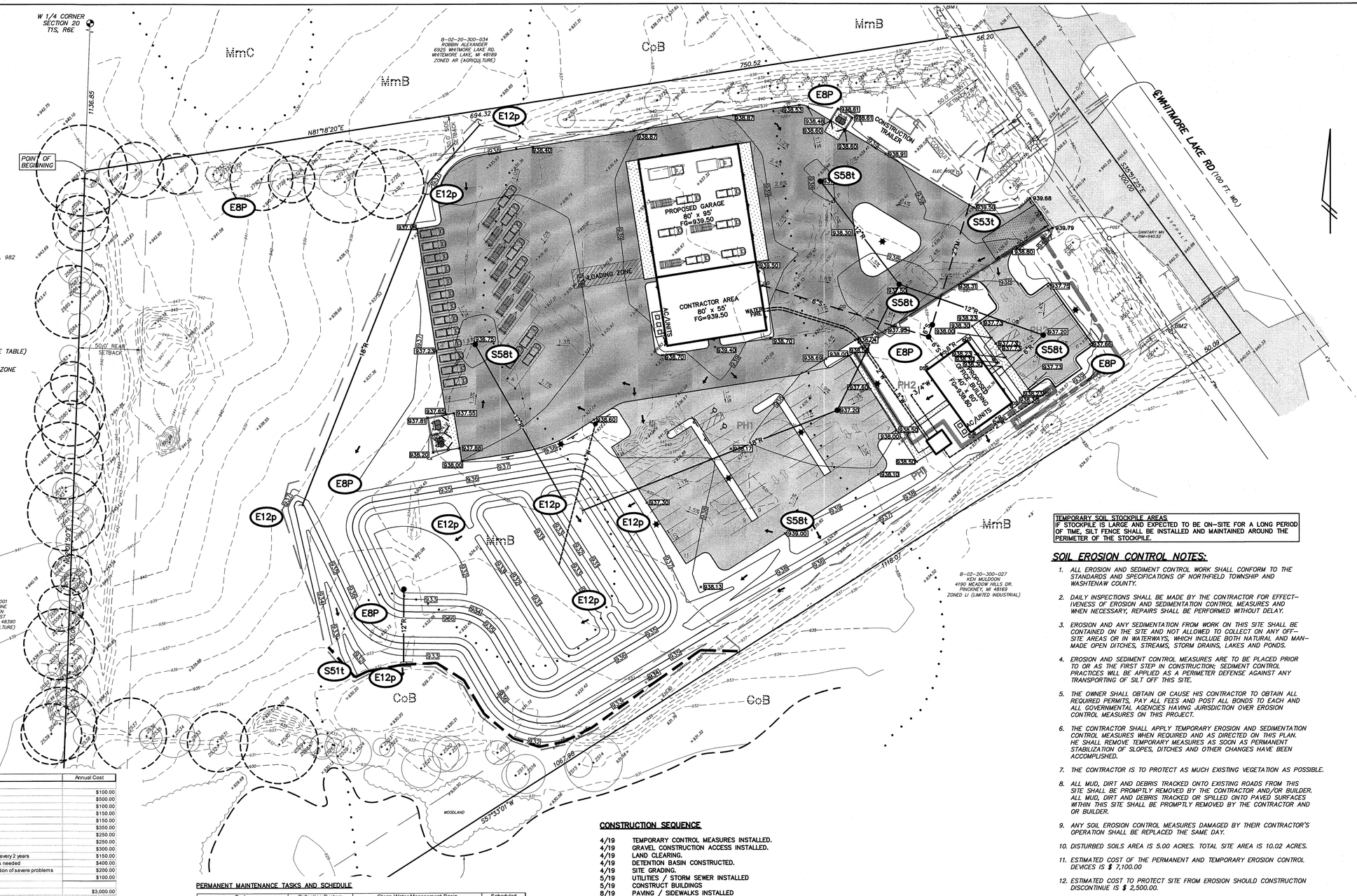
GRADING LEGEND

- 939 = PROPOSED 1FT CONTOUR
- 940 = PROPOSED 5FT CONTOUR
- = FLOW ARROW
- x 942.23 = EXISTING ELEVATION
- 939.00 x = PROPOSED ELEVATION
- 1.1% = SLOPE

B-02-19-400-001
ANTHONY BARBONE
MICHAEL WEMEN
1714 PINE FOREST
WHITMORE LAKE, MI 48390
ZONED AR (AGRICULTURE)

B-02-20-300-034
ROBBIN ALEXANDER
6925 WHITMORE LAKE RD.
WHITEMORE LAKE, MI 48189
ZONED AR (AGRICULTURE)

B-02-20-300-027
KEN MULDOON
4190 MEADOW HILLS DR.
PINCKNEY, MI 48169
ZONED LI (LIMITED INDUSTRIAL)



TEMPORARY SOIL STOCKPILE AREAS
IF STOCKPILE IS LARGE AND EXPECTED TO BE ON-SITE FOR A LONG PERIOD OF TIME, SILT FENCE SHALL BE INSTALLED AND MAINTAINED AROUND THE PERIMETER OF THE STOCKPILE.

SOIL EROSION CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF NORTHFIELD TOWNSHIP AND WASHTENAW COUNTY.
2. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR FOR EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES AND WHEN NECESSARY, REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
3. EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS, WHICH INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
4. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CONSTRUCTION; SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THIS SITE.
5. THE OWNER SHALL OBTAIN OR CAUSE HIS CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, PAY ALL FEES AND POST ALL BONDS TO EACH AND ALL GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER EROSION CONTROL MEASURES ON THIS PROJECT.
6. THE CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THIS PLAN. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER CHANGES HAVE BEEN ACCOMPLISHED.
7. THE CONTRACTOR IS TO PROTECT AS MUCH EXISTING VEGETATION AS POSSIBLE.
8. ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR AND/OR BUILDER. ALL MUD, DIRT AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES WITHIN THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR AND OR BUILDER.
9. ANY SOIL EROSION CONTROL MEASURES DAMAGED BY THEIR CONTRACTOR'S OPERATION SHALL BE REPLACED THE SAME DAY.
10. DISTURBED SOILS AREA IS 5.00 ACRES. TOTAL SITE AREA IS 10.02 ACRES.
11. ESTIMATED COST OF THE PERMANENT AND TEMPORARY EROSION CONTROL DEVICES IS $ 7,100.00
12. ESTIMATED COST TO PROTECT SITE FROM EROSION SHOULD CONSTRUCTION DISCONTINUE IS $ 2,500.00.
13. MAINTENANCE OF PERMANENT SOIL EROSION CONTROLS TO BE THE RESPONSIBILITY OF THE PROPERTY OWNER, NATIONAL FIBER CONSTRUCTION.
14. FEMA FLOOD PLAIN MAPS ARE 26161C0094E AND 26161C0235E. THERE ARE NOT ANY 100 YEAR FLOODPLAINS ON OR WITHIN 500 FEET OF THIS PROJECT SITE.
15. THERE ARE NO LANDMARK TREE CRITICAL ROOT ZONES WITHIN THE LIMITS OF DISTURBANCE.

CONSTRUCTION SEQUENCE

4/19 TEMPORARY CONTROL MEASURES INSTALLED.
4/19 GRAVEL CONSTRUCTION ACCESS INSTALLED.
4/19 LAND CLEARING.
4/19 DETENTION BASIN CONSTRUCTED.
4/19 SITE GRADING.
5/19 UTILITIES / STORM SEWER INSTALLED
5/19 CONSTRUCT BUILDINGS
8/19 PAVING / SIDEWALKS INSTALLED
9/20 FINAL GRADE/SEED.
9/20 PERMANENT CONTROL MEASURES INSTALLED AND FUNCTIONING.
10/20 REMOVE TEMPORARY CONTROL MEASURES.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET
S-E-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
E8	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
E12	RIPRAP		Use along shorelines, waterways, or where concentrated flows occur. Slows velocity, reduces sediment load, and reduces erosion.
S51	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S53	STABILIZED CONSTRUCTION ACCESS		Used at every point where construction traffic enters or leaves a construction site.
S58	INLET PROTECTION FABRIC DROP		Use at stormwater inlets, especially at construction sites.

t = TEMPORARY p = PERMANENT

MAINTENANCE ANNUAL BUDGET

Description	Annual Cost
Annual Inspection for sediment accumulation	$100.00
Removal of sediment accumulation every 2 years as needed	$500.00
Inspect for floatable & debris annually and after major storms	$100.00
Removal of floatables and debris annually and after major storms	$150.00
Inspect for erosion annually and after major storms	$150.00
Re-establish permanent vegetation on eroded slopes as needed	$350.00
Replacement of stone as needed	$250.00
Clean streets every 6 months as needed	$250.00
Mowing	$300.00
Inspect structural elements during wet weather and compare to as-built plans every 2 years	$150.00
Make structureal adjustments or replacements as determined by inspection as needed	$400.00
Have a professional engineer carry out emergency inspections upon identification of severe problems	$200.00
Records Maintenance	$100.00
Estimated Annual Maintenance Cost	$3,000.00

MAINTENANCE TASKS AND SCHEDULE DURING CONSTRUCTION

Tasks	Collection System				Storm Water Management Basins					Scheduled Frequency
	Storm Sewer System	Catch Basin Sumps	Catch Basin Inlet Casings	Ditches & Swales	Outflow Control Structure	Rip-Rap	Filtration Basins	Storm Detention Areas	Emergency Overflow	
Inspect for Sediment Accumulation	X	X		X	X		X	X		Weekly
Removal of Sediment Accumulation	X	X		X	X		X	X		As Needed[1] & prior to Acceptance
Inspect for floatables and debris			X	X	X		X	X		Quarterly
Removal of floatables and debris			X	X	X		X	X		As Needed & prior to Acceptance
Inspect for erosion				X	X		X	X		Weekly
Re-establish permanent vegetation on eroded slopes				X			X	X		As Needed & prior to Acceptance
Replacement of stone					X	X			X	As Needed & prior to Acceptance
Mowing			X	X	X		X	X		0-2 Times per year
Inspect during wet weather & after major storms				X	X		X	X		As Needed
Repair Storm Damage to System and Erosion Control	X	X	X	X	X	X	X	X	X	As Needed

[1] As Needed means when sediment has accumulated to a maximum of one foot.
During construction, it is the developer's responsibility to perform the maintenance.
Immediately following construction, the developer will have the storm water management system inspected by an engineer to verify grades of the detention and filtration areas and make recommendations for any necessary sediment removal.

PERMANENT MAINTENANCE TASKS AND SCHEDULE

Tasks	Collection System		Storm Water Management Basin					Scheduled Frequency
	Catch Basin Inlet Casings	Ditches and Swales	Outlet Control Structure	Rip-Rap	Filtration Basins	Storm Detention Areas	Emergency Overflow	
Inspect for Sediment Accumulation		X			X	X		Annually[1]
Removal of Sediment Accumulation		X			X	X		Every 2 Years As Needed[1]
Inspect for floatables and debris	X	X			X	X		Annually
Removal of floatables and debris	X	X			X	X		As Needed[1]
Inspect for erosion		X	X		X	X		Annually
Re-establish permanent vegetation on eroded slopes		X			X	X		As Needed
Replacement of stone			X	X			X	Every 3-5 years as Needed
Clean Streets								Semi-Annually
Mowing		X			X	X		0-2 Times per year
Inspection stormwater system components durring wet weather and compairing to as-built plans by professional engineer	X	X	X	X	X	X	X	Annually
Repair Storm Damage to System and Permanent Erosion Control	X	X	X	X	X	X	X	As Needed
Keep records on site of all maintenance inspections, actions and costs								As Needed

[1] As Needed means when sediment has accumulated to a maximum of one foot.
Following construction, it will be the responsibility of the owner, National Fiber Construction, to perform the maintenance.
The owner, National Fiber Construction, is required to pay for all maintenance activities on a continuing basis.

DESCRIPTION (By Others)
Part of the Southwest 1/4 of Section 20, T1S, R6E, Northfield Township, Washtenaw County, Michigan; being more particularly described as follows: Commencing at the Southwest corner of said Section 20; thence N02°01'50"E, a distance of 775.96 feet along the West line of said Section 20 the Point of Beginning; thence continuing along said West line of Section 20 N02°01'50"E, a distance of 730.06 feet; thence N81°18'20"E, a distance of 750.52 feet to a point on the centerline of Whitmore Lake Road (100 foot wide); thence along said centerline S35°51'25"E, a distance of 300.00 feet; thence S57°33'01"W, a distance of 1118.07 feet to the Point of Beginning. Containing 10.02 acres, more or less, and subject to the rights of the public over the existing Whitmore Lake Road (100 foot wide) and any other easements or restrictions of record.

WASHTENAW COUNTY SOIL SURVEY CLASSIFICATION

CoB – CONOVER LOAM, 0 TO 4 PERCENT SLOPES
MmB – MIAMI LOAM, 2 TO 6 PERCENT SLOPES
MmC – MIAMI LOAM, 6 TO 12 PERCENT SLOPES
• • • • • • – SOILS BOUNDARY

SOILS ARE BASED ON USDA SOIL SURVEY OF WASHTENAW COUNTY.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL-HICKS, INC. DATED: 8-5-03.

Know what's below. Call before you dig.

LEGEND

- ☼ = LIGHT POLE
- ⚲ = UTILITY POLE
- ▷ = GUY ANCHOR
- ⚦ = HYDRANT
- x941.23 = SPOT ELEV.
- ⚲ = POST
- ⊗ = GATE VALVE
- —o— = SIGN
- TC = TOP OF CURB
- TW = TOP OF WALL
- ○ = MANHOLE
- □ = CATCHBASIN
- ◡ = END SECTION
- = GRAVEL
- = FENCE
- = CONCRETE
- = ASPHALT
- r = EXISTING STORM
- s = EXISTING SANITARY
- w = EXISTING WATER
- g = EXISTING GAS
- e = EXISTING ELECTRIC
- t = EXISTING TELEPHONE

BENCHMARK BM1=NAIL IN E'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE NE'LY CORNER OF THE SITE, ELEV=937.00 (NAVD 88).
BM2=R.R. SPIKE IN SW'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE SE'LY CORNER OF THE SITE, ELEV=939.95 (NAVD 88).

REVISIONS 2018-12-20 REV#1

SCALE 0 20 40 80
SCALE: 1"=40'

PREPARED BY
JOSEPH K. MAYNARD P.E., MICH No. 52559

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CIVIL ENGINEERS
PLANNERS • SURVEYORS
LANDSCAPE ARCHITECTS
3526 W. LIBERTY RD
SUITE 400 48103
ANN ARBOR, MI
PH. 734-761-8530
FAX. 734-761-8533
WASHTENAWENGINEERING.COM

WASHTENAW ENGINEERING

CLIENT
NATIONAL FIBER CONSTRUCTION
5075 W. MAPLE RD
DEXTER, MI 48130
TEL 734-580-2114
nationalfiberconstruction.com

PROJECT
6785 WHITMORE LAKE ROAD

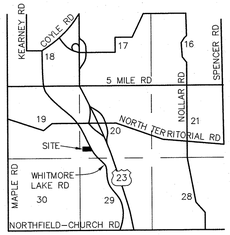
SHEET
GRADING & SOIL EROSION CONTROL PLAN

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
JOB NO. 3249
DWG NO. 499-grd
FIELD BOOK NONE
FILE NO. 10542
DATE 11-19-2018
SHEET 6

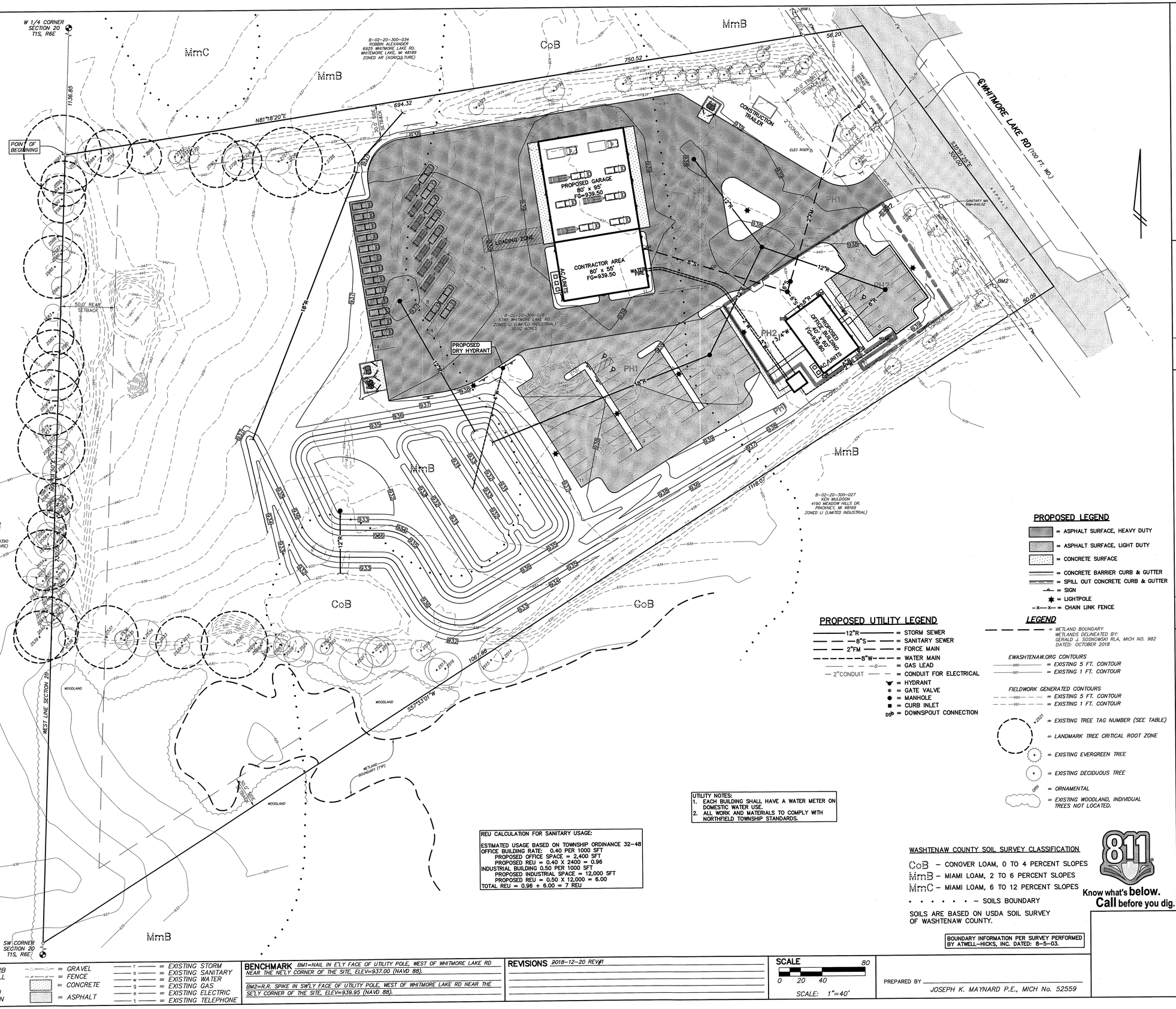
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VICINITY MAP
(NO SCALE)



PROPOSED LEGEND

- = ASPHALT SURFACE, HEAVY DUTY
- = ASPHALT SURFACE, LIGHT DUTY
- = CONCRETE SURFACE
- = CONCRETE BARRIER CURB & GUTTER
- = SPILL OUT CONCRETE CURB & GUTTER
- = SIGN
- = LIGHTPOLE
- = CHAIN LINK FENCE

PROPOSED UTILITY LEGEND

- 12"R = STORM SEWER
- 8"S = SANITARY SEWER
- 2"FM = FORCE MAIN
- 8"W = WATER MAIN
- G = GAS LEAD
- 2"CONDUIT = CONDUIT FOR ELECTRICAL
- = HYDRANT
- = GATE VALVE
- = MANHOLE
- = CURB INLET
- DSP = DOWNSPOUT CONNECTION

LEGEND

- = WETLAND BOUNDARY
  WETLANDS DELINEATED BY:
  GERALD J. SOSNOWSKI RLA, MICH NO. 982
  DATED: OCTOBER 2018

EWASHTENAW.ORG CONTOURS
- 980 = EXISTING 5 FT. CONTOUR
- 981 = EXISTING 1 FT. CONTOUR

FIELDWORK GENERATED CONTOURS
- 990 = EXISTING 5 FT. CONTOUR
- 991 = EXISTING 1 FT. CONTOUR

- +2521 = EXISTING TREE TAG NUMBER (SEE TABLE)
- = LANDMARK TREE CRITICAL ROOT ZONE
- = EXISTING EVERGREEN TREE
- = EXISTING DECIDUOUS TREE
- ORN = ORNAMENTAL
- = EXISTING WOODLAND, INDIVIDUAL TREES NOT LOCATED.

UTILITY NOTES:
1. EACH BUILDING SHALL HAVE A WATER METER ON DOMESTIC WATER USE.
2. ALL WORK AND MATERIALS TO COMPLY WITH NORTHFIELD TOWNSHIP STANDARDS.

REU CALCULATION FOR SANITARY USAGE:

ESTIMATED USAGE BASED ON TOWNSHIP ORDINANCE 32-48
OFFICE BUILDING RATE: 0.40 PER 1000 SFT
PROPOSED OFFICE SPACE = 2,400 SFT
PROPOSED REU = 0.40 X 2400 = 0.96
INDUSTRIAL BUILDING 0.50 PER 1000 SFT
PROPOSED INDUSTRIAL SPACE = 12,000 SFT
PROPOSED REU = 0.50 X 12,000 = 6.00
TOTAL REU = 0.96 + 6.00 = 7 REU

WASHTENAW COUNTY SOIL SURVEY CLASSIFICATION

CsB – CONOVER LOAM, 0 TO 4 PERCENT SLOPES
MmB – MIAMI LOAM, 2 TO 6 PERCENT SLOPES
MmC – MIAMI LOAM, 6 TO 12 PERCENT SLOPES
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811 Know what's below. Call before you dig.

LEGEND

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REVISIONS 2018-12-20 REV#1

SCALE 0 20 40 80
SCALE: 1"=40'

PREPARED BY
JOSEPH K. MAYNARD P.E., MICH No. 52559

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WASHTENAW ENGINEERING

CLIENT
NATIONAL FIBER CONSTRUCTION
5070 W. JOY RD
DEXTER, MI 48130
TEL. 480-467-2114
nationalfiberconstruction.com

UTILITY PLAN

SHEET

PROJECT
6785 WHITMORE LAKE ROAD

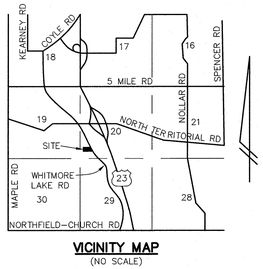
SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11-19-2018 JOB NO. 32499 DWG NO. 499-util FIELD BOOK NONE FILE NO. 10542

SHEET 7

N:\32xx\dwg\32499\dwg\499-util.dwg, 12/21/2018 2:47:53 PM, 1:1

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VICINITY MAP
(NO SCALE)

DRN 1
AREA=3.81 ACRES
C=0.29

DRN 2
AREA=0.38 ACRES
C=0.49

DRN 3
AREA=0.16 ACRES
C=0.47

DRN 4
AREA=1.69 ACRES
C=0.25

DRN 5
AREA=0.02 ACRES
C=0.25

DRN 6
AREA=0.04 ACRES
C=0.25

DRN 7
AREA=9.44 ACRES
C=0.27

EXISTING DRAINAGE NAME	IMPERVIOUS SFT	IMPERVIOUS ACRE	IMPERVIOUS C	TYPE B SOILS, 0-6% SFT	TYPE B SOILS, 0-6% ACRE	TYPE B SOILS, 0-6% C	TYPE B SOILS, 8%+ SFT	TYPE B SOILS, 8%+ ACRE	TYPE B SOILS, 8%+ C	TYPE C SOILS, 0-6% SFT	TYPE C SOILS, 0-6% ACRE	TYPE C SOILS, 0-6% C	TOTAL AREA SFT	TOTAL AREA ACRE	WEIGHTED C
DRN1 (Offsite)	0	0.00	0.95	92,250	2.12	0.25	49,063	1.13	0.35	24,529	0.56	0.30	165,842	3.81	0.29
DRN2 (Onsite)	5,741	0.13	0.95	9,315	0.22	0.25	0	0	0.35	1,458	0.03	0.30	16,514	0.38	0.49
DRN3 (Onsite)	2,420	0.06	0.95	4,566	0.10	0.25	0	0	0.35	0	0.00	0.30	6,986	0.16	0.47
DRN4 (Offsite)	0	0.00	0.95	73,591	1.69	0.25	0	0	0.35	0	0.00	0.30	73,591	1.69	0.25
DRN5 (Offsite)	0	0.00	0.95	797	0.02	0.25	0	0	0.35	0	0.00	0.30	797	0.02	0.25
DRN6 (Onsite)	0	0.00	0.95	1,891	0.04	0.25	0	0	0.35	0	0.00	0.30	1,891	0.04	0.25
DRN7 (Onsite)	0	0.00	0.95	280,999	6.45	0.25	0	0	0.35	130,301	2.99	0.30	411,300	9.44	0.27

WASHTENAW COUNTY SOIL SURVEY CLASSIFICATION

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LEGEND

- LIGHT POLE
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- GATE VALVE
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REVISIONS *2018-12-20 REV#1*

SCALE 0 30 60 120
SCALE: 1"=60'

PREPARED BY
JOSEPH K. MAYNARD P.E., MICH No. 52559

CIVIL ENGINEERS
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nationalfiberconstruction.com

SHEET
STORM WATER MANAGEMENT DRAINAGE AREA PLAN EXISTING

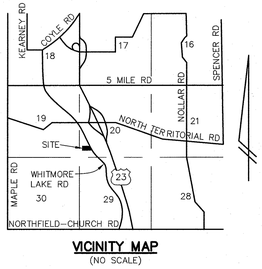
PROJECT
6785 WHITMORE LAKE ROAD

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11-19-2018
JOB NO. 32499
DWG NO. 499-swm-dm-ex
FIELD BOOK NONE
FILE NO. 10542
SHEET 8

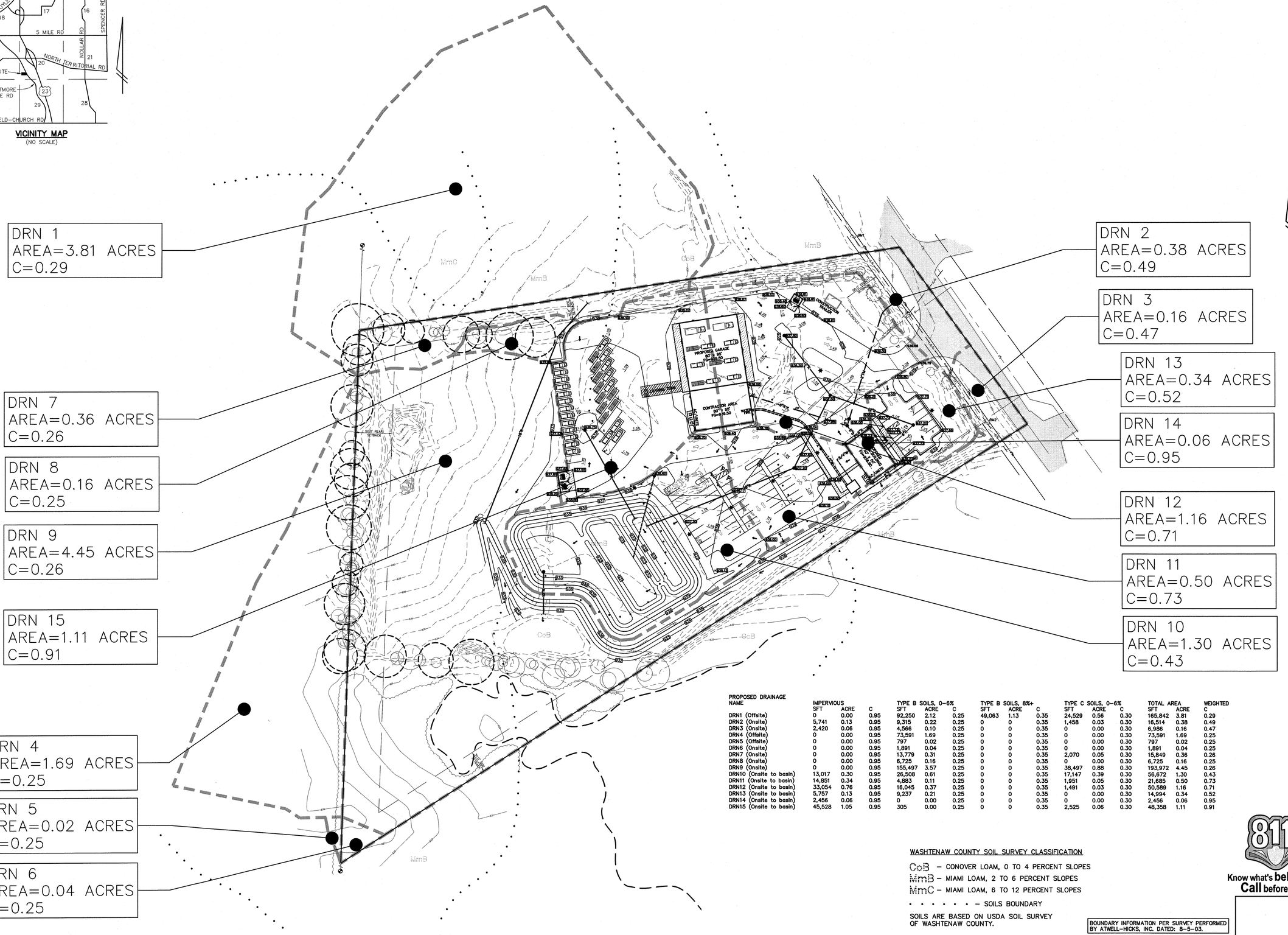
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VICINITY MAP
(NO SCALE)



PROPOSED DRAINAGE NAME	IMPERVIOUS SFT	IMPERVIOUS ACRE	IMPERVIOUS C	TYPE B SOILS, 0–6% SFT	TYPE B SOILS, 0–6% ACRE	TYPE B SOILS, 0–6% C	TYPE B SOILS, 8%+ SFT	TYPE B SOILS, 8%+ ACRE	TYPE B SOILS, 8%+ C	TYPE C SOILS, 0–6% SFT	TYPE C SOILS, 0–6% ACRE	TYPE C SOILS, 0–6% C	TOTAL AREA SFT	TOTAL AREA ACRE	WEIGHTED C
DRN1 (Offsite)	0	0.00	0.95	92,250	2.12	0.25	49,063	1.13	0.35	24,529	0.56	0.30	165,842	3.81	0.29
DRN2 (Onsite)	5,741	0.13	0.95	9,315	0.22	0.25	0	0	0.35	1,458	0.03	0.30	16,514	0.38	0.49
DRN3 (Onsite)	2,420	0.06	0.95	4,566	0.10	0.25	0	0	0.35	0	0.00	0.30	6,986	0.16	0.47
DRN4 (Offsite)	0	0.00	0.95	73,591	1.69	0.25	0	0	0.35	0	0.00	0.30	73,591	1.69	0.25
DRN5 (Offsite)	0	0.00	0.95	797	0.02	0.25	0	0	0.35	0	0.00	0.30	797	0.02	0.25
DRN6 (Onsite)	0	0.00	0.95	1,891	0.04	0.25	0	0	0.35	0	0.00	0.30	1,891	0.04	0.25
DRN7 (Onsite)	0	0.00	0.95	13,779	0.31	0.25	0	0	0.35	2,070	0.05	0.30	15,849	0.36	0.26
DRN8 (Onsite)	0	0.00	0.95	6,725	0.16	0.25	0	0	0.35	0	0.00	0.30	6,725	0.16	0.25
DRN9 (Onsite)	0	0.00	0.95	155,497	3.57	0.25	0	0	0.35	38,497	0.88	0.30	193,972	4.45	0.26
DRN10 (Onsite to basin)	13,017	0.30	0.95	26,508	0.61	0.25	0	0	0.35	17,147	0.39	0.30	56,672	1.30	0.43
DRN11 (Onsite to basin)	14,851	0.34	0.95	4,883	0.11	0.25	0	0	0.35	1,951	0.05	0.30	21,685	0.50	0.73
DRN12 (Onsite to basin)	33,054	0.76	0.95	16,045	0.37	0.25	0	0	0.35	1,491	0.03	0.30	50,589	1.16	0.71
DRN13 (Onsite to basin)	5,757	0.13	0.95	9,237	0.21	0.25	0	0	0.35	0	0.00	0.30	14,994	0.34	0.52
DRN14 (Onsite to basin)	2,456	0.06	0.95	0	0.00	0.25	0	0	0.35	0	0.00	0.30	2,456	0.06	0.95
DRN15 (Onsite to basin)	45,528	1.05	0.95	305	0.00	0.25	0	0	0.35	2,525	0.06	0.30	48,358	1.11	0.91

WASHTENAW COUNTY SOIL SURVEY CLASSIFICATION

CoB – CONOVER LOAM, 0 TO 4 PERCENT SLOPES
MmB – MIAMI LOAM, 2 TO 6 PERCENT SLOPES
MmC – MIAMI LOAM, 6 TO 12 PERCENT SLOPES
– – – – – – – SOILS BOUNDARY

SOILS ARE BASED ON USDA SOIL SURVEY OF WASHTENAW COUNTY.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL–HICKS, INC. DATED: 8–5–03.

Know what's below. Call before you dig.

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SHEET
STORM WATER MANAGEMENT
DRAINAGE AREA PLAN
PROPOSED

PROJECT
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SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
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STORM WATER MANAGEMENT CALCULATIONS BASIN A

Standard Method Runoff Volume Work Sheets

Project: 6785 WHITMORE LAKE ROAD
Basin: A
By: Seth Garner, P.E.
Date: 12/20/2018

W1 — Determining Post-Development Cover types, Areas, Curve Numbers and Runoff

Total Site area =	10.02	Ac	436,593 ft2
Disturbed Site Area =	5.00	Ac	217,827 ft2
% Disturbed =	49.9	%	

If less than 50% of the site over the last 10 years is being disturbed after initial approval by the WCWRC, only the disturbed area needs to be updated.

Total Tributary area Excluding "Self-Crediting" BMPS = 4.47 Ac

Rational Method Variables

Cover Type	Soil Type	Slope Letter	Area (ft2)	Area(acre)	Runoff Coefficient C	(C)(Area)
Pervious	B	A	56,978	1.31	0.25	0.33
Pervious	B	C	0	0	0.35	0.00
Pervious	C	A	23,114	0.53	0.3	0.16
Impervious		A	114,663	2.63	0.95	2.50
					Σ(C)(Area) =	2.99
					Σ(Area) =	4.47
					Weighted C = Σ(C)(Area)/Σ(Area) =	0.67

NRCS Variables - Pervious Cover

Cover Type	Soil Type	Area (ft2)	Area(acre)	Curve Number	(CN)(Area)
Pervious					
Open Space-Good	B	58,978	1.35	61	82.35
Open Space-Good	C	23,114	0.53	74	39.22
				Σ(CN)(Area) =	121.57
				Σ(Area) =	1.88
				Weighted CN = Σ(CN)(Area)/Σ(Area) =	65

NRCS Variables - Impervious Cover

Cover Type	Soil Type	Area (ft2)	Area(acre)	Curve Number	(CN)(Area)
Impervious					
Paved		114663	2.63	98	257.74
				Σ(CN)(Area) =	257.74
				Σ(Area) =	2.63
				Weighted CN = Σ(CN)(Area)/Σ(Area) =	98

W2 — First Flush

Vff =	(1")(1/12")(43560ft3/1ac)AC		
Total Area	A =	4.47	Ac
Weighted C	C =	0.67	
	Vff =	10,871	cft

W3 — Pre-development Bankfull Runoff Calculation (Vbf-pre)

Existing Cover Type =	Meadow	
2year/24 hour storm event P =	2.35	inches
Curve Number for Good Cover Woods or Meadow CN =	58	
S = (1000/CN) - 10 =	7.241379	inches
Q = (P-0.2S)²/(P+0.8S) =	0.099852	inches
Total Site Area (SF) excluding "Self-Crediting" BMPs Area =	196,755	square feet
Vbf-pre = Q(1/12)Area =	1,637	ft³

W4 — Pervious Cover Post-development Bankfull Runoff Calculation (Vbf-per-post)

2year/24 hour storm event P =	2.35	inches
Pervious Curve Number from W1 =	65	
S = (1000/CN) - 10 =	5.384615	inches
Q = (P-0.2S)²/(P+0.8S) =	0.243436	inches
Pervious Cover Area from W1 =	82,092	square feet
Vbf-per-post = Q(1/12)Area =	1,665	ft³

W5 — Impervious Cover Post-development Bankfull Runoff Calculation (Vbf-imp-post)

2year/24 hour storm event P =	2.35	inches
Impervious Curve Number from W1 =	98	
S = (1000/CN) - 10 =	0.204082	inches
Q = (P-0.2S)²/(P+0.8S) =	2.121674	inches
Impervious Cover Area from W1 =	114,663	square feet
Vbf-imp-post = Q(1/12)Area =	20,273	ft³

W6 — Pervious Cover Post-development 100-Year Storm Runoff Calculation ($V_{100\text{-per-post}}$)

100year/24 hour storm event P =	5.11	inches
Pervious Curve Number from W1 =	65	
S = (1000/CN) - 10 =	5.384615	inches
Q = (P-0.2S)²/(P+0.8S) =	1.727144	inches
Pervious Cover Area from W1 =	82,092	square feet
$V_{100\text{-per-post}}$ = Q(1/12)Area =	11,815	ft³

W7 — Impervious Cover Post-development 100-Year Storm Runoff Calculation ($V_{100\text{-imp-post}}$)

100year/24 hour storm event P =	5.11	inches
Impervious Curve Number from W1 =	98	
S = (1000/CN) - 10 =	0.204082	inches
Q = (P-0.2S)²/(P+0.8S) =	4.873	inches
Impervious Cover Area from W1 =	114,663	square feet
$V_{100\text{-imp-post}}$ = Q(1/12)Area =	46,563	ft³

W8 — Determine Time of Concentration for Applicable Flow Types (Tc-hrs)

Flow Type	K	Change in Elevation	Length (L)	Slope % (S*100)	$S^{0.5}$	$V=K*S^{0.5}$	Tc = L/(V*3600)
Sheet Flow*	0.48	2	200	1	1	0.48	0.12
Waterway	1.2	2.35	470	0.5	0.71	0.85	0.15
Small Trib.	2.1						
						Total Tc =	0.27

*Sheet flow cannot exceed 300 feet. Anything beyond this is considered waterway.

W9 — Runoff Summary & Onsite Infiltration Requirement

First Flush Volume Vff =	10,871	ft³
Pervious-Post Development Bankfull Runoff Volume Vbf-per-post =	1,665	ft³
Impervious Cover Post-Development Bankfull Runoff Volume Vbf-imp-post =	20,273	ft³
Total BF Volume Vbf-post =	21,938	ft³
Pervious - Post Development 100-year Runoff Volume $V_{100\text{-per-post}}$ =	11,815	ft³
Impervious Cover Post-Development 100-year Runoff Volume $V_{100\text{-imp-post}}$ =	46,563	ft³
Total 100-year Volume V_{100} =	**58,378**	ft³
Determine Onsite Infiltration Requirement		
Subtract the Pre-Development Bankfull from the Post Development Bankfull Volume		
Total Post-Development Bankfull Volume Vbf-post =	21,938	ft³
Pre-Development Bankfull Runoff Volume Vbf-pre =	1,637	ft³
Bankfull Volume Difference =	20,301	ft³
Compare the Bankfull Volume Difference with the First Flush Volume.		
The greater of the two is the Onsite Infiltration Requirement.		
Onsite Infiltration Requirement V_{inf} =	**20,301**	ft³

W10 — Detention/Retention Requirement

Detention

Peak of Unit Hydrograph $Qp=238.6Tc^{-0.82}$ =	698	cfs/in-mi²
Total Site Area (ac) excluding "Self Crediting" BMPs Area =	4.47	ac
$Q_{100} = Q_{100\text{-per}} * Q_{100\text{-imp}}$ =	6.6001441	in
Peak Flow PF = $Qp*Q100'Area/640$ =	32.176321	cfs
Δ = PF - 0.15 Area =	31.505821	cfs
Vdet = (Δ/PF)*$V_{100\text{-post}}$ =	**57,162**	ft³

STORM WATER MANAGEMENT CALCULATIONS BASIN A (CONTINUED)

W13 — Summary

A. Storm Water Management Summary

Minimum Onsite Infiltration Requirement, Vinf =	20,301	cft
Designed/Provided Infiltration Volume =	0	cft
% Minimum Required Infiltration Provided =	0	%
Total Calculated Detention Volume, Vdet =	57,162	cft
Net Required Detention Volume		
(Vdet - Designed/Provided Infiltration Volume) =	57,162	cft

B. Detention Volume Increase for sites where the required infiltration cannot be achieved.

% Required Infiltration NOT provided		
(100%-%Minimum Required Infiltration Provided)	100	%
Net % Penalty		
(20% x %Required Infiltration NOT Provided)	20	%
Total Required Detention Volume, including penalty		
[(100% + Net % Penalty) x Net Required Detention Volume)]	68,594	cft

Additional Design Requirements

New Impervious Area =	114,663	sf	
Sediment Forebay Volume =	100yr storage volume*0.05		
	2,858	cft	

DETENTION BASIN CALCULATIONS BASIN A

DETENTION BASIN CALCULATIONS
PROJECT NAME: 6785 WHITMORE LAKE ROAD
Basin: A
Design By: Seth Garner, P.E. Date: 12/20/2018

100 YEAR FLOOD VOLUME STORAGE
V100 = 68594 cft

BANKFULL FLOOD VOLUME:
Vbf = 21938

FIRST FLUSH VOLUME
Vff = 10871 cf

STORAGE ANALYSIS

Pond Area Elevation	Area A	Vol A (cft)	Additional Pond Area Area B	Vol B (cft)	Vol A+B (cft)	Cumulative Vol (cft)
937.5	36385	17720	0	0	17720	140496
937	34493	32687	0	0	32687	122776
936	30860	29152	0	0	29152	90089
935	27424	25775	0	0	25775	60937
934	24125	21711	0	0	21711	35162
933	19296	12183	0	0	12183	13451
932	5070	1268	0	0	1268	1268
Xbot 931.5	0	0	0	0	0	0
			TOTAL VOLUME (A+B)		**122776**	**CF**

Storage Elev Calc: First Flush (Xff) **Storage Elev Calc: Bankfull (Xbf)**
Xff = 932.79 **Xbf =** 933.39

Storage Elev Calc: 100 year
X100 = 935.26

OUTLET CONTROL STRUCTURE DESIGN

FIRST FLUSH:
Calculate Allowable Release Rate for First Flush Runoff (Vff)
Qff = Vff/[(24 hrs)*(3600 s/hr)]
Qff = 0.126 cfs
Calculate Average Head for First Flush Runoff
"assume trapezoidal cross section
H(average) = 2/3*(Xff-Xbot)
H(average) = 0.86 ft
Calculate Orifice Area Required for First Flush Discharge
Aff= Qff/(0.62*(2*g*h)^.5)
Aff = 0.0272 sft
Calculate # of Orifice Openings
Orifice Diam. 1 1/4 inches
Area = 0.00852211 sft
openings = Aff/(Area of orifice)
openings = 3.20
openings required = 3.00
Total Area of orifice = 0.02557 sft
Calculate Detention Time for Orifice Openings
Qff(new) = Aff(0.62)(2*g*Have)^.5
Qff(new) = 0.118 cfs
Tff(new) = Vff/Qff(new)
Tff(new) = 92127.1186 sec
Tff(new) = 25.59 **hours**
> 24 hour minimum time for discharge

BANKFULL FLOOD
Check FF Orifice to Determine Whether Adequate for BF Discharge in Allowable T(36<T<4
Calculate Average Head for First Flush Runoff Orifice
"assume trapezoidal cross section
H(average) = 2/3*(Xbf-Xbot)
H(average) = 1.26 ft
Calculate Q Utilizing First Flush Orifice
Qbf = Aff(0.62)(2*g*Hbf)^.5
Qbf = 0.143 cfs
Calculate Time for Bankfull Discharge (36 hrs< Tbf < 48 hrs)
Tbf = Vbf/Qbf
Tbf = 153412.59 sec
Tbf = 42.6 hours
Determine Additional Orifice Required for Bankfull Discharge Within 48 hrs
T(target) = 39 hrs
V(remaining) Vbf - Vff
V(remaining) 11067 cf
T(remaining) T(target) - Tff
T(remaining) 13.4 hrs
Calculate Q and V for Remaining Time
Hbf = 2/3(Xbf-Xff)+(Xff-Xbot)
Hbf = 1.69 ft
Qbf+ff = 0.62*Aff*(2*g*Hbf)^.5
Qbf+ff = 0.1655 cfs
V = T(remaining)*Qbf+ff
V = 7987 cft
Calculate Discharge Volume for Bankfull Orifice
Vbfo = Vrem - V
Vbfo = 3080 cft
Qbfo = Vbfo/Trem
Qbfo = 0.06380 cfs
Hbf = 2/3(Xbf - Xff)
Hbf = 0.40000 ft
Abf = Qbf/(0.62*(2*g*h)^.5]
Abf = 0.02027 sft
Calculate # of Orifice Openings
Orifice Diam. 1 1/4 inches
Area of orifice = 0.00852 sft
Calculate # of Orifice Required
= 2.3789
openings required = 3.00
Total Area of orifice = 0.02557 sft
Check Time for Bankfull Discharge (36 hrs< Tbf < 48 hrs)
Qbfo = 0.62*Aff*(2*g*Hbf)^.5
Qbfo = 0.08045 cfs
Tbf = Tff(new)+Vrem/[(Qbf+ff + Qbfo)*(3600sec/1hr)]
Tbf = 38.1 hrs

DETENTION BASIN CALCULATIONS BASIN A

100 YEAR FLOOD
Maximum Allowable Flow = Qa
Qa = 0.15 * Total Area Tributary to Basin(acres)
Qa = 0.15 * 4.47
Qa = 0.671 cfs

Calculate Q100 (flow not accomodated by FF or BF orifice under 100 year conditions)
Hbf = X100-Xff
Hbf = 2.5 ft
Hff = X100-Xbot
Hff = 3.8 ft
Qff + Qbf = (0.62)(Aff)(2gHff)^.5 + (0.62)(Abf)(2gHbf)^.5
Qff + Qbf = 0.4466 cfs

Calculate Q100
Q100 = Qa - (Qff+Qbf)
Q100 = 0.224 CFS

Calculate Orifice Area required to Discharge Q100
H100 = X100-Xbf
H100 = 1.9 ft
Atot = Q100/(0.62(2*g*H100)^.5)
Atot = 0.03298 sft

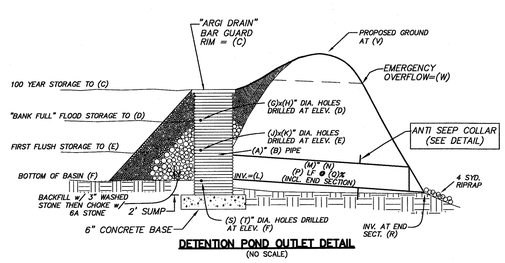
Calculate # of Orifice Openings
Orifice Diam. 1 1/4 inches
Area of orifice = 0.00852 sft
Calculate # of Orifices Needed
Orifice = Atot/(Area of Orifice)
Orifice = 3.87
openings required = 3.00
Check allowable flow rate is not exceeded.
Qact = Qff + Qbf + 0.62*#orifice*Aorifice*(2gH100)^0.5
Qact = 0.621 cfs
Check Time for 100-year Storm Discharge (T100 < 72 hrs)
Discharge through ff orifices
Hall = 2/3(X100-Xbf)+(Xbf-Xbot)
Hall = 3.14 ft
Qall = (0.62)(#ffforif)(Affforif)[2gHall)^0.5
Qall = 0.225 cfs
Discharge through Bf orifices
Hbf = 2/3(X100-Xbf)+(Xbf-Xff)
Hbf = 1.85 ft
Qbf+100 = (0.62)(#bforif)(Abforif)[2gHbf)^0.5
Qbf+100 = 0.173 cfs
Discharge through 100yr orifices
H100 = 2/3(X100-Xbf)
H100 = 1.25 ft
Q100 = (0.62)(#100orif)(A100orif)[2gH100)^0.5
Q100 = 0.142 cfs
Time to Discharge
Vrem = V100-Vbf
Vrem = 46656 cft
T100 = Tbf + Vrem/[(Qall + Qbf+100 +Q100)*(3600sec/1hr)]
T100 = 62.10 hrs

ORIFICE TABLE

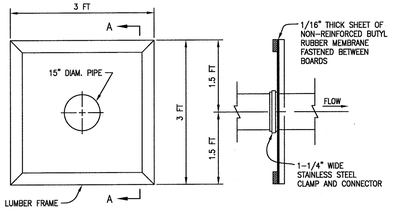
CALCULATED ELEVATION	ORIFICE #	DIAM. (IN)
931.50	3	1 1/4
932.79	3	1 1/4
933.39	3	1 1/4

OUTLET STANDPIPE DATA CHART

DIAMETER OF STANDPIPE	A	48 inch	INVERT OF OUTLET PIPE	L	931.50
MATERIAL OF STANDPIPE	B	CMP	DIAMETER OF OUTLET PIPE	M	12 inch
100 YEAR STORAGE TO	C	935.26	MATERIAL OF OUTLET PIPE	N	C76 CLN RCP
BANK FULL FLOOD STORAGE TO	D	933.39	LENGTH OF OUTLET PIPE	P	58
FIRST FLUSH STORAGE TO	E	932.79	SLOPE OF OUTLET PIPE	Q	0.50%
BOTTOM OF BASIN	F	931.5	INVERT AT END OF OUTLET PIPE	R	931.21
NUMBER OF HOLE(S) AT BANK FULL	G	3	NUMBER OF HOLE(S) AT BOTTOM OF BASIN	S	3
DIAMETER OF HOLE(S) AT BANK FULL	H	1 1/4 inch	DIAMETER OF HOLE(S) AT BOTTOM OF BASIN	T	1 1/4 inch
NUMBER OF HOLE(S) AT FIRST FLUSH	J	3	PROPOSED FINISH GROUND ELEVATION	V	936.26
DIAMETER OF HOLE(S) AT FIRST FLUSH	K	1 1/4 inch	EMERGENCY OVERFLOW ELEVATION	W	935.76



DETENTION POND OUTLET DETAIL
(NO SCALE)



ELEVATION — SECTION A–A

NOTES:
1. COAT THE PIPE AT THE COLLAR LOCATION WITH BUTYL RUBBER ROOF PATCH CEMENT SEALER OR OTHER BUTYL RUBBER SEALER. (DO NOT USE ASPHALT ROOF PATCH)
2. FOR PIPE DIAMETERS OF 1" TO 4", CUT A HOLE (CENTERED) IN THE BUTYL RUBBER APPROXIMATELY 1/2" IN DIAMETER. FOR PIPE DIAMETERS 6" TO 16", CUT A HOLE 3" SMALLER THAN THE DIAMETER OF THE PIPE.
3. FORCE THE BUTYL RUBBER OVER THE UPSTREAM END OF THE PIPE AND OVER THE BUTYL RUBBER ROOF SEALER.
4. INSTALL A 1–1/4" WIDE STAINLESS STEEL CLAMP AROUND THE PIPE, OVER THE BUTYL RUBBER, AND TIGHTEN UNTIL SEALER IS FORCED OUT.
5. STAPLE THE BUTYL RUBBER TO THE LUMBER FRAME.
6. THE COMPLETED INSTALLATION MUST BE WATERTIGHT.
7. THE WOOD FRAME SHALL BE CONSTRUCTED FROM EITHER 1" x 4" OR 2" x 2" LUMBER AND SHALL BE RIGID ENOUGH TO WITHSTAND BACKFILL OPERATIONS.

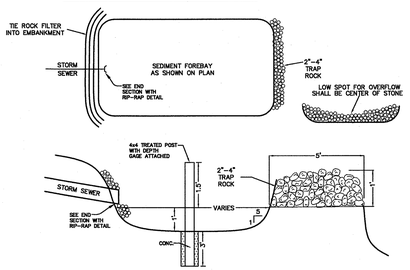
TABLE OF QUANTITIES (PER COLLAR)

"W" FEET	BUTYL RUBBER SQ. FT.	STAINLESS STEEL CLAMP	LUMBER LIN. FT.
2	4	1	8
3	9	1	12
4	16	1	16
5	25	1	20
6	36	1	24

ANTI–SEEP COLLAR
(NO SCALE)

SEDIMENT FOREBAY CALCULATIONS BASIN A

Basin:	A	
Sediemt Forebay		
Level	Area (sf)	Volume(cft)
932.5	3699	1,668
932	2972	2,294
931	1615	404
930.5	-	-
Total		4,365
Volume required:		2858
Volume overage/(shortfall)		1,507.00



SEDIMENT FOREBAY DETAIL
(NO SCALE)

BASIN A EMERGENCY OVERFLOW CALCULATIONS

Emergency Overflow Design		
Basin:	**Pond A**	
Design by:	**Seth Garner, P.E.**	
Date:	**12/20/2018**	
Design Requirements:		
Area =	**4.47**	acres
C=	**0.67**	
Tc for 100 Year Flood Volume Storage Calculation		
Calculate Qo		
Qa =	0.15 cfs/acre * Acres	
Qa =	0.6705	cfs
Qo =	Qa/(A*C)	
Qo =	0.22388	cfs/(ac-imp)
Calculate Storage Time for 100 year storm event		
Tc =	-25 + (10312.5/Qo)^.5	
Tc =	189.62	min
Maximum Flow Rate		
Qmax =	C*I*A	
Tc =	189.62	
I_{10yr}=	175/(Tc+25)	
Qmax =	**2.44**	cfs
Minimum Velocity =	2	fps
Maximum Velocity =	6	fps
Minimum Slope =	1.5	%
Side Slope No Steeper Than =	1V : 3H	
Calculations:		
Channel Bottom Width (B) =	2.000	feet
Channel Depth(d) =	0.5	feet
Channel Side Slope 1V : H =	5	
Flow Area =	B*d + 2*(1/2)*(d*(H*d))	
	2.250	square feet
Wetted Perimeter =	B+2*(d*2+(d*H)^2)^.5	
	7.099	feet
Hydraulic radius =	Area/Wetted Perimeter	
	0.317	
Mannings Formula:		
n =	0.035	
slope, s =	2	percent
Full Flow, Q =	1.486/n*A*(A/P)^(2/3)*(s/100)^(1/2)	
	6.280	cfs
Is Full Flow greater than Qmax?	**YES**	
Velocity, V =	Q/A	
	2.79	fps
Is Velocity less than 10 fps?	**YES**	

STORM WATER NARRATIVE:

THE EXISTING SITE IS LOCATED ALONG WHITMORE LAKE RD SOUTH OF N. TERRITORIAL RD. IN NORTHFIELD TOWNSHIP. THE SITE DRAINS TO AN EXISTING STORM WATER DETENTION BASIN AT THE SOUTH WEST CORNER OF THE SITE. FROM THERE IT OUTLETS TO THE SOUTH ACROSS THE NEIGHBORING PROPERTIES TO THE CATHOLIC CHURCH–HORSESHOE LAKE DRAIN. FROM THERE IT OUTLETS TO THE HORSESHOE LAKE.

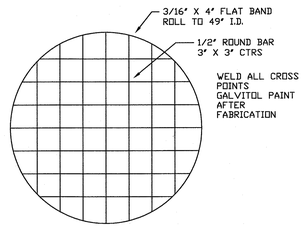
THE EXISTING SOILS ARE CONOVER LOAM, 0 TO 4% SLOPES, CLASS B, AND MIAMI LOAM. 2 TO 6% AND 6 TO 12% SLOPES, CLASS C.

THE PROPOSED DEVELOPMENT IS TO CONSTRUCT A COMMERCIAL BUILDING AND OFFICE BUILDING WITH PARKING LOT AND STORAGE AREA.

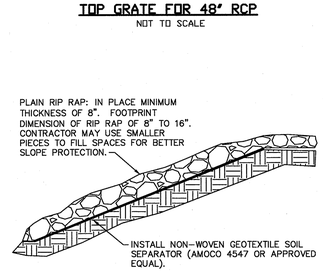
NO SOILS INSPECTION HAS BEEN COMPLETED TO DATE FOR INFILTRATION.

THE PROPOSED STORM WATER MANAGEMENT WILL INCLUDE ALL OF THE PROPOSED IMPROVED AREA. IT IS PROPOSED TO HAVE A SEDIMENTATION BASIN, A PERMANENT POOL FOR THE DRY HYDRANT AND A DETENTION BASIN. THE DETENTION BASIN IS BEING SIZED TO HANDLE 120% OF THE 100 YEAR STORM EVENT FOR THE AREA TRIBUTARY TO THE BASIN.

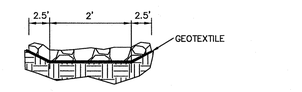
THE EMERGENCY OUTLET FOR THIS STORM WATER SYSTEM WILL CONTINUE TO BE THE EXISTING OUTLET TO THE SOUTH EAST PROPERTY. NO INCREASE OR DETRIMENT TO THE DOWNSTREAM PROPERTIES IS EXPECTED FOR THIS DEVELOPMENT.



TOP GRATE FOR 48" RCP
NOT TO SCALE

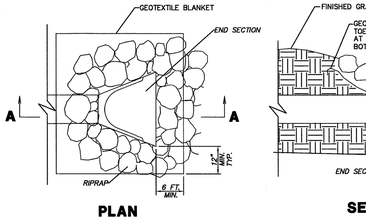


LONGITUDINAL SECTION OF SPILLWAY

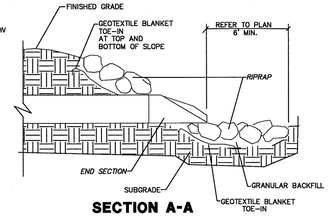


CROSS SECTION OF SPILLWAY

EMERGENCY OVERFLOW DETAIL
NOT TO SCALE



PLAN



SECTION A-A

END SECTION W/ RIPRAP
NOT TO SCALE

Know what's below. Call before you dig.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL–HICKS, INC. DATED: 8–5–03.

LEGEND

☆ = LIGHT POLE
▽ = UTILITY POLE
◇ = GUY ANCHOR
♂ = HYDRANT
$^{890'.83}$ = SPOT ELEV.
⚲ = POST
⊗ = GATE VALVE
—o— = SIGN
TC = TOP OF CURB
TW = TOP OF WALL
○ = MANHOLE
□ = CATCHBASIN
◡ = END SECTION
= GRAVEL
= FENCE
= CONCRETE
= ASPHALT
—— r —— = EXISTING STORM
—— s —— = EXISTING SANITARY
—— w —— = EXISTING WATER
—— g —— = EXISTING GAS
—— e —— = EXISTING ELECTRIC
—— t —— = EXISTING TELEPHONE

BENCHMARK *BM1=NAIL IN E'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE NE'LY CORNER OF THE SITE, ELEV=937.00 (NAVD 88).*

BM2=R.R. SPIKE IN SW'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE SE'LY CORNER OF THE SITE, ELEV=939.95 (NAVD 88).

REVISIONS *2018–12–20 REV#1*

SCALE 200 — 0 50 100 — SCALE: 1"=100'

PREPARED BY _____ JOSEPH K. MAYNARD P.E., MICH No. 52559

WASHTENAW ENGINEERING
CIVIL ENGINEERS
PLANNERS * SURVEYORS
LANDSCAPE ARCHITECTS
3526 W. LIBERTY RD
SUITE 400
ANN ARBOR, MI 48103
TEL 734–761–8800
FAX 734–761–9530
WASHTENAWENGINEERING.COM

CLIENT
NATIONAL FIBER CONSTRUCTION
5070 W. JOY RD
DEXTER, MI. 48130
TEL 734–580–2114
nationalfiberconstruction.com

PROJECT
6785 WHITMORE LAKE ROAD

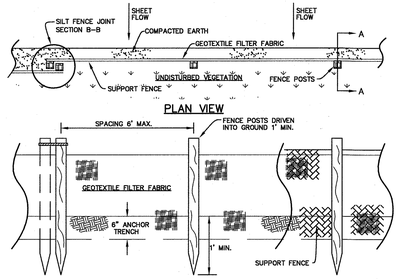
SHEET
STORM WATER MANAGEMENT CALCULATIONS

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11–19–2018
JOB NO. 32499
DWG NO. 499–swm–calc
FIELD BOOK NONE
FILE NO. 10542
10 SHEET

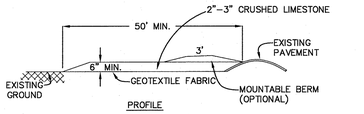
I:\Jobs\eng\32499\dwg\499-swm-calc.dwg, Layout1, 12/21/2018 10:57:16 AM

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING RECORDS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

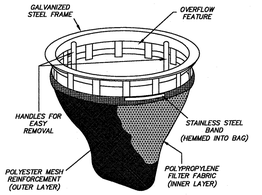
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SILT FENCE DETAIL (S51t)
NOT TO SCALE

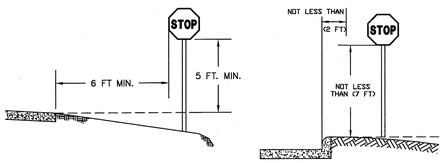


MUD TRACKING SURFACE (S53t)
NOT TO SCALE

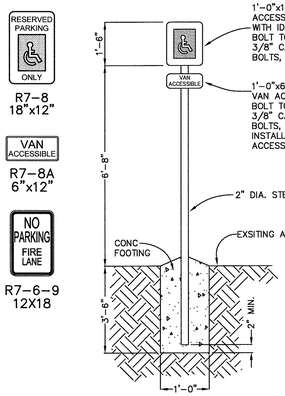


INLET DROP SHOW IS AN EXAMPLE OF ONE TYPE AVAILABLE. DETAIL IS THE "CATCHALL" PROVIDED BY PRICE AND COMPANY, INC.

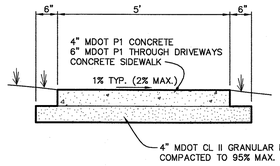
INLET PROTECTION FABRIC DROP DETAIL (S58T)
(NOT TO SCALE)



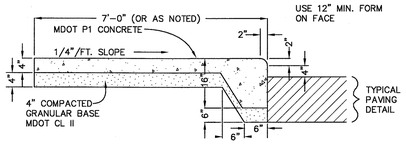
NOTES:
1. SIGNS ARE TO COMPLY WITH THE MOST CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE PAVEMENT, OF SIGNS INSTALLED AT THE SIDE OF THE ROAD IN RURAL AREAS SHALL BE 5 FEET.
3. THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB, OR IN THE ABSENCE OF CURB, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE TRAVELED WAY, OF SIGNS INSTALLED AT THE SIDE OF THE ROAD IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREAS WHERE PARKING OR PEDESTRIAN MOVEMENTS ARE LIKELY TO OCCUR, OR WHERE THE VIEW OF THE SIGN MIGHT BE OBSTRUCTED SHALL BE 7 FEET.
4. POST MOUNTED SIGN AND OBJECT MARKER SUPPORTS SHALL BE CRASH WORTHY (BREAKAWAY, YIELDING, OR SHIELDED WITH A LONGITUDINAL BARRIER OR CRASH CUSHION) IF WITHIN A CLEAR ZONE.
5. SIGN POSTS, FOUNDATIONS, AND MOUNTINGS SHALL BE SO CONSTRUCTED AS TO HOLD SIGNS IN A PROPER AND PERMANENT POSITION, AND TO RESIST SWAYING IN THE WIND OR DISPLACEMENT BY VANDALISM.



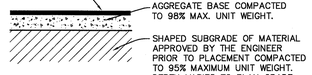
HANDICAP PARKING SIGN DETAIL
NOT TO SCALE



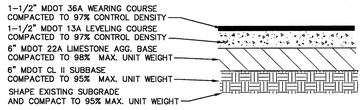
TYPICAL SIDEWALK SECTION
NOT TO SCALE



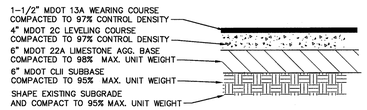
INTEGRAL CURB & WALK
NOT TO SCALE



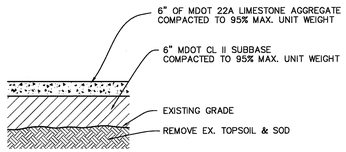
DUMPSTER PAD SECTION
NOT TO SCALE



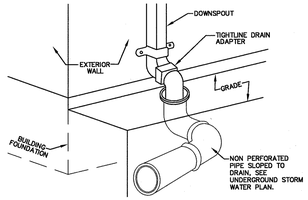
ASPHALT SURFACE, LIGHT DUTY SECTION
NOT TO SCALE



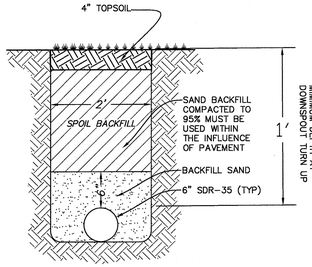
ASPHALT SURFACE, HEAVY DUTY SECTION
NOT TO SCALE



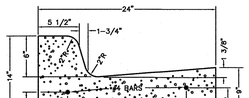
GRAVEL STORAGE AREA DETAIL
NOT TO SCALE



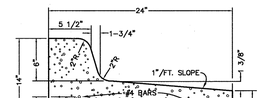
DOWNSPOUT CONNECTION DETAIL
NO SCALE



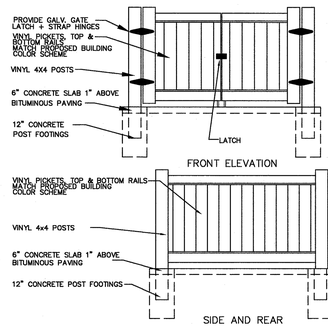
ROOF DRAIN OUTLET TILE DETAIL
(NOT TO SCALE)



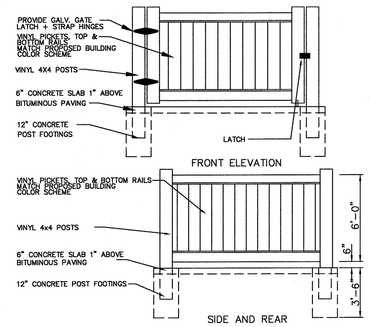
BARRIER (MDOT DETAIL F4)
NOT TO SCALE



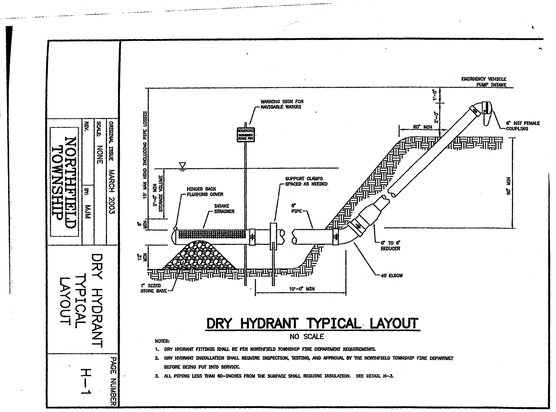
SPILL-OUT (MODIFIED MDOT DETAIL F-4)
NOT TO SCALE

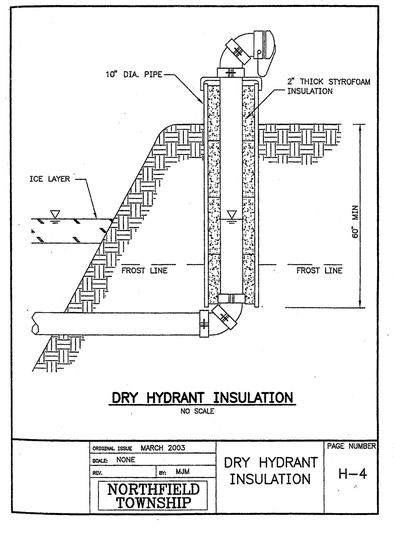


DOUBLE DUMPSTER ENCLOSURE
NOT TO SCALE



SINGLE DUMPSTER ENCLOSURE
NOT TO SCALE





BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL-HICKS, INC. DATED: 8-5-03.

Know what's below. Call before you dig.

LEGEND

☆ = LIGHT POLE	○ = SPOT ELEV.	TC = TOP OF CURB	= GRAVEL
▷ = UTILITY POLE	⚲ = POST	TW = TOP OF WALL	= FENCE
◁ = GUY ANCHOR	⊗ = GATE VALVE	○ = MANHOLE	= CONCRETE
◁ = HYDRANT	= SIGN	□ = CATCHBASIN	= ASPHALT
		◡ = END SECTION	

r = EXISTING STORM
s = EXISTING SANITARY
w = EXISTING WATER
g = EXISTING GAS
e = EXISTING ELECTRIC
t = EXISTING TELEPHONE

BENCHMARK *BM1=NAIL IN E'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE NE'LY CORNER OF THE SITE, ELEV=937.00 (NAVD 88).*

BM2=R.R. SPIKE IN SW'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE SE'LY CORNER OF THE SITE, ELEV=939.95 (NAVD 88).

REVISIONS *2018-12-20 REV#1*

SCALE NO SCALE

PREPARED BY *JOSEPH K. MAYNARD P.E., MICH No. 52559*

CIVIL ENGINEERS
PLANNERS + SURVEYORS
LANDSCAPE ARCHITECTS
3526 W. LIBERTY RD
SUITE 400
ANN ARBOR, MI 48103
PH: 734-761-8530
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WASHTENAW ENGINEERING

CLIENT
NATIONAL FIBER CONSTRUCTION
5070 W. JOY RD
DEXTER, MI. 48130
TEL. 734-580-2114
nationalfiberconstruction.com

DETAILS

SHEET

PROJECT
6785 WHITMORE LAKE ROAD

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY + MICHIGAN
DATE 11-19-2018
JOB NO. 32499
DWG NO. 499-det
FIELD BOOK NONE
FILE NO. 10542

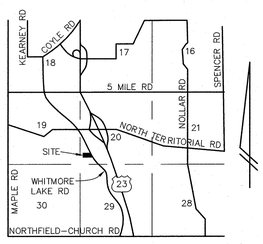
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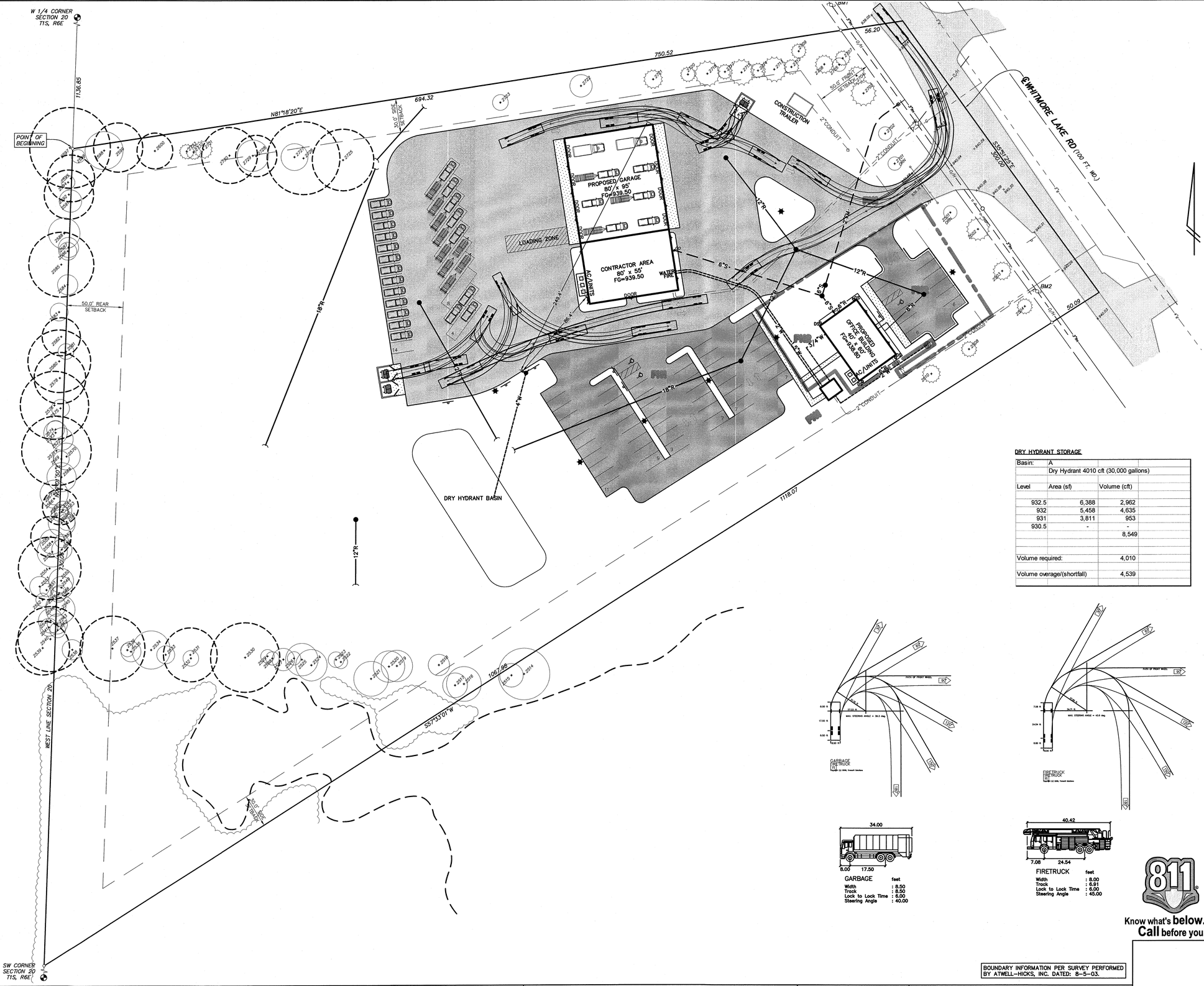
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VICINITY MAP
(NO SCALE)



DRY HYDRANT STORAGE

Basin:	A		
	Dry Hydrant 4010 cft (30,000 gallons)		
Level	Area (sf)	Volume (cft)	
932.5	6,388	2,962	
932	5,458	4,635	
931	3,811	953	
930.5	-	-	
		8,549	
Volume required:		4,010	
Volume overage/(shortfall)		4,539	

GARBAGE

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.00
Steering Angle	: 40.00

FIRETRUCK

	feet
Width	: 8.00
Track	: 6.91
Lock to Lock Time	: 6.00
Steering Angle	: 45.00

811 Know what's **below.** **Call** before you dig.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL–HICKS, INC. DATED: 8–5–03.

LEGEND

☆ = LIGHT POLE	932.53 = SPOT ELEV.	TC = TOP OF CURB	= GRAVEL	r = EXISTING STORM
⊕ = UTILITY POLE	⊙ = POST	TW = TOP OF WALL	= FENCE	s = EXISTING SANITARY
⊗ = GUY ANCHOR	⊗ = GATE VALVE	○ = MANHOLE	= CONCRETE	w = EXISTING WATER
♂ = HYDRANT	= SIGN	□ = CATCHBASIN	= ASPHALT	g = EXISTING GAS
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REVISIONS *2018–12–20 REV#1*

SCALE 80
0 20 40
SCALE: 1"=40'

PREPARED BY _____
JOSEPH K. MAYNARD P.E., MICH No. 52559

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SHEET
TURNING TEMPLATE PLAN

PROJECT
6785 WHITMORE LAKE ROAD

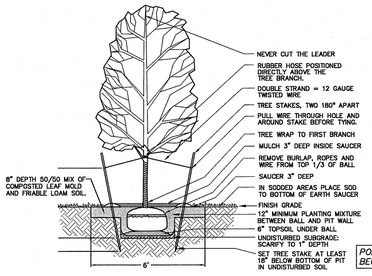
SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11–19–2018 JOB NO. 32499 DWG NO. 499–turn FIELD BOOK NONE FILE NO. 10542
SHEET 12

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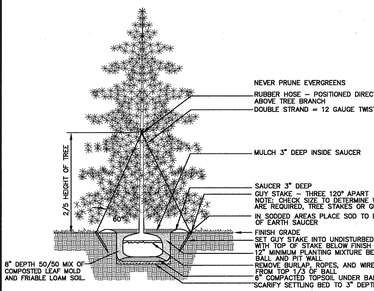
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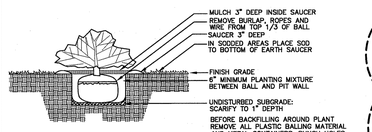
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DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



SHRUB PLANTING DETAIL
NOT TO SCALE

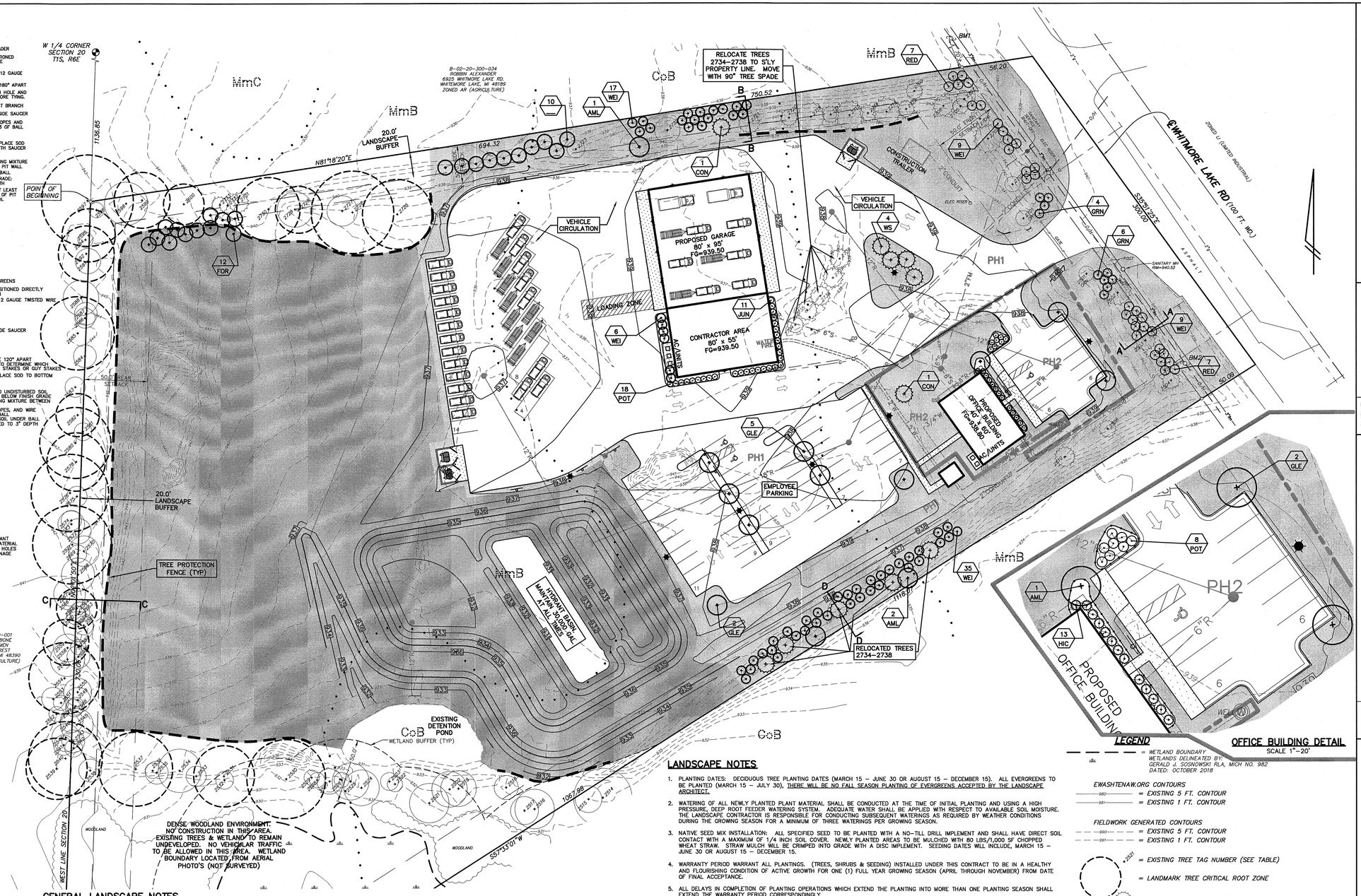
NATIVE RESTORATION MIX
(BROADCAST RATE: .75#/1,000 SF)

BLUE FLAG IRIS	0.063#/AC
BLUEJOINT REEDGRASS	0.031#/AC
BLUE VERVAIN	0.031#/AC
BRISTLEY SEDGE	0.250#/AC
CANADA ANEMONE	0.016#/AC
CARDINAL FLOWER	0.031#/AC
COMMON ARROWHEAD	0.188#/AC
DARK GREEN BULRUSH	0.250#/AC
FOX SEDGE	0.188#/AC
FRANK'S SEDGE	0.188#/AC
GIANT BUR REED	0.063#/AC
GREAT BLUE LOBELIA	0.125#/AC
HARDSTEM BULRUSH	0.250#/AC
HOP SEDGE	0.063#/AC
JOE PYE WEED	0.188#/AC
MONKEY FLOWER	0.188#/AC
NEW ENGLAND ASTER	0.063#/AC
PRAIRIE CORDGRASS	0.040#/AC
RICE CUT GRASS	0.040#/AC
RIVERBANK WILDRYE	1.000#/AC
SOFTSTEM BULRUSH	0.063#/AC
SOFT RUSH	0.250#/AC
SWAMP MILKWEED	0.125#/AC
SWEET FLAG	0.125#/AC
TUSSOCK SEDGE	0.125#/AC
VIRGINIA WILDRYE	0.063#/AC
WATER PLANTAIN	0.188#/AC
WOOLGRASS	0.250#/AC
SEED OATS	32.00#/AC
TOTAL	36.445#/AC

KENTUCKY BLUEGRASS LAWN MIX
20% KENTUCKY BLUE 98/80
25% PERENNIAL RYE
25% CREEPING RED FESCUE
10% BARON KENTUCKY BLUEGRASS
10% KEN BLUE KENTUCKY BLUGRASS

SEED RATE: 4 LBS/1000 SFT
STARTER FERTILIZER (15-30-15) RATE: 3.25 LBS/1000 SFT

WASHTENAW COUNTY SOIL SURVEY CLASSIFICATION
CoB – CONOVER LOAM, 0 TO 4 PERCENT SLOPES
MmB – MIAMI LOAM, 2 TO 6 PERCENT SLOPES
MmC – MIAMI LOAM, 6 TO 12 PERCENT SLOPES
. . . . . – SOILS BOUNDARY
SOILS ARE BASED ON USDA SOIL SURVEY OF WASHTENAW COUNTY.



GENERAL LANDSCAPE NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO NORTHFIELD TOWNSHIP STANDARDS AND SPECIFICATIONS. ALL PLANT MATERIAL SHALL BE SIZES AND MEASUREMENTS CONFORMING TO THE USA STANDARD FOR NURSERY STOCK. ALL PLANT MATERIAL SHALL BE OF SELECTED SPECIMEN QUALITY AND HAVE A NORMAL HABIT OF GROWTH. ALL PLANT MATERIAL IS SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT.
2. ALL PLANT MATERIAL SHALL BE BALLED AND BURLAPPED STOCK MOVED BY TREE SPADE OR CONTAINER STOCK. NO BARE ROOT STOCK IS PERMITTED. ALL PLANT BALLS SHALL BE FIRM, INTACT AND SECURELY WRAPPED AND BOUND.
3. ALL PLANT BEDS SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND OTHER EXTRANEOUS OBJECTS AND POOR SOILS TO A MINIMUM DEPTH OF TWELVE INCHES (12") AND ALL BACKFILLED TO GRADE WITH PLANTING MIX.
4. PLANTING MIXTURE SHALL BE 50% COMPOSTED LEAF MOLD & 50% FRIABLE LOAM SOIL.
5. ALL PLANT BEDS AND INDIVIDUAL PLANTS SHALL BE MULCHED WITH A THREE INCH (3") LAYER OF SHREDDED BARK MULCH.
6. ALL PLANTS AND PLANT BEDS SHALL BE THOROUGHLY WATERED.
7. THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE THE WORK IS ACCEPTED, IN WRITING, BY THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL REPLACE, WITHOUT COST TO THE OWNER, WITHIN A SPECIFIED PERIOD OF TIME, ALL DEAD PLANTS, AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION, AS DETERMINED BY THE LANDSCAPE ARCHITECT DURING AND AT THE END OF THE GUARANTEE PERIOD. REPLACEMENT STOCK SHALL CONFORM TO THE ORIGINAL REQUIREMENTS.
8. ALL AREAS OF THE SITE THAT BECOME DISTURBED DURING CONSTRUCTION AND ARE NOT TO BE PAVED, STONED OR LANDSCAPED SHALL BE SEEDED AND MULCHED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH A DENSE LAWN OF PERMANENT GRASSES, FREE OF LUMPS AND DEPRESSIONS. ANY PART OF THE AREA THAT FAILS TO SHOW A UNIFORM GERMINATION SHALL BE RESEEDED AND SUCH RESEEDING SHALL CONTINUE UNTIL A DENSE LAWN IS ESTABLISHED. DAMAGE TO SEEDED AREAS RESULTING FROM EROSION SHALL BE REPAIRED BY THE CONTRACTOR.
9. ALL AREAS OF THE SITE SCHEDULED FOR SEEDING SHALL BE DISCED AND GRADED IN CONFORMANCE WITH THE GRADING PLAN.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE THE UTILITIES, BOTH ABOVE AND UNDERGROUND PRIOR TO LANDSCAPING. ANY CONFLICTS BETWEEN UTILITIES AND PLANT MATERIAL SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT.

LANDSCAPE NOTES

1. PLANTING DATES: DECIDUOUS TREE PLANTING DATES (MARCH 15 – JUNE 30 OR AUGUST 15 – DECEMBER 15). ALL EVERGREENS TO BE PLANTED (MARCH 15 – JULY 30), THERE WILL BE NO FALL SEASON PLANTING OF EVERGREENS ACCEPTED BY THE LANDSCAPE ARCHITECT.
2. WATERING OF ALL NEWLY PLANTED PLANT MATERIAL SHALL BE CONDUCTED AT THE TIME OF INITIAL PLANTING AND USING A HIGH PRESSURE, DEEP ROOT FEEDER WATERING SYSTEM. ADEQUATE WATER SHALL BE APPLIED WITH RESPECT TO AVAILABLE SOIL MOISTURE. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING SUBSEQUENT WATERINGS AS REQUIRED BY WEATHER CONDITIONS DURING THE GROWING SEASON FOR A MINIMUM OF THREE WATERINGS PER GROWING SEASON.
3. NATIVE SEED MIX INSTALLATION: ALL SPECIFIED SEED TO BE PLANTED WITH A NO-TILL DRILL IMPLEMENT AND SHALL HAVE DIRECT SOIL CONTACT WITH A MAXIMUM OF 1/4 INCH SOIL COVER. NEWLY PLANTED AREAS TO BE MULCHED WITH 80 LBS/1,000 SF CHOPPED WHEAT STRAW. STRAW MULCH WILL BE CRIMPED INTO GRADE WITH A DISC IMPLEMENT. SEEDING DATES WILL INCLUDE, MARCH 15 – JUNE 30 OR AUGUST 15 – DECEMBER 15.
4. WARRANTY PERIOD WARRANT ALL PLANTINGS. (TREES, SHRUBS & SEEDING) INSTALLED UNDER THIS CONTRACT TO BE IN A HEALTHY AND FLOURISHING CONDITION OF ACTIVE GROWTH FOR ONE (1) FULL YEAR GROWING SEASON (APRIL THROUGH NOVEMBER) FROM DATE OF FINAL ACCEPTANCE.
5. ALL DELAYS IN COMPLETION OF PLANTING OPERATIONS WHICH EXTEND THE PLANTING INTO MORE THAN ONE PLANTING SEASON SHALL EXTEND THE WARRANTY PERIOD CORRESPONDINGLY.

LANDSCAPE REQUIREMENTS
PHASE 1 PARKING LOT = 50 SPACES = 1 TREE/ 8 SPACES = (7) TREES
PHASE 2 PARKING LOT = 12 SPACES = 1 TREE/ 8 SPACES = (2) TREES

PLANT LIST
TREES

Sym.	Qty.	Botanical	Common	Size	Comment
CON	1	Abies concolor	CONCOLOR FIR	8' HT.	B & B
WS	4	Picea glauca	WHITE SPRUCE	8' HT.	B & B
GLE	9	Gleditsia Tricanthos 'Inermis'	HONEY LOCUST	2.5" Cal.	B & B
AML	4	Amelanchier canadensis	JUNEBERRY	6' HT.	B & B
RED	14	Cornus alba	RED TWG DOGWOOD	36" HT.	CONTAINER
GRN	10	Juniperus chinensis 'green sargent'	GREEN SARGENT JUNIPER	24" SPR	CONTAINER
WEI	53	Weigela florida 'bristol ruby'	BRISTOL RUGBY WEIGELA	36" HT.	B & B
POT	26	Potentilla fruticosa	GOLDFINGER CINQUEFOIL	24" SPR	CONTAINER
HIC	13	Taxus hicksi	HICKS YEW	36" HT.	CONTAINER
JUN	11	Juniperus chinensis 'blue point'	BLUE POINT JUNIPER	36" HT.	CONTAINER
OPU	23	Physocarpus opulifolius	EASTERN NINEBARK	36" HT.	CONTAINER
ORA	10	Chaenomeles speciosa	'ORANGE STORM' FLOWERING QUINCE	36" HT.	CONTAINER
FOR	12	Forsythia suspensa	WEEPING FORSYTHIA	36" HT.	CONTAINER

LEGEND
= WETLAND BOUNDARY WETLANDS DELINEATED BY GERALD J. SOSNOWSKI RLA, MICH NO. 982 DATED: OCTOBER 2018

EWASHTENAW.ORG CONTOURS
= EXISTING 5 FT. CONTOUR
= EXISTING 1 FT. CONTOUR

FIELDWORK GENERATED CONTOURS
= EXISTING 5 FT. CONTOUR
= EXISTING 1 FT. CONTOUR

= EXISTING TREE TAG NUMBER (SEE TABLE)
= LANDMARK TREE CRITICAL ROOT ZONE
= EXISTING EVERGREEN TREE
= EXISTING DECIDUOUS TREE
= ORNAMENTAL
= EXISTING WOODLAND, INDIVIDUAL TREES NOT LOCATED.
= EDGING
= PLANT KEY
= PROPOSED DECIDUOUS TREE
= PROPOSED EVERGREEN TREE
= PROPOSED DECIDUOUS SHRUB
= PROPOSED EVERGREEN SHRUB
= NATIVE RESTORATION MIX
= LAWN MIX
= TREE PROTECTION FENCE
= 50' WETLAND BUFFER

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL-HICKS, INC. DATED: 8-5-03.

OFFICE BUILDING DETAIL
SCALE 1"=20'

Know what's below. Call before you dig.

LEGEND
SPOT ELEV. = LIGHT POLE = UTILITY POLE = GUY ANCHOR = HYDRANT = POST = GATE VALVE = SIGN
TC = TOP OF CURB TW = TOP OF WALL = MANHOLE = CATCHBASIN = END SECTION
= GRAVEL = FENCE = CONCRETE = ASPHALT
= EXISTING STORM = EXISTING SANITARY = EXISTING WATER = EXISTING GAS = EXISTING ELECTRIC = EXISTING TELEPHONE

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REVISIONS *2018-12-20 REV#1*

SCALE 0 20 40 80
SCALE: 1"=40'

PREPARED BY
GERALD J. SOSNOWSKI RLA, MICH No. 982

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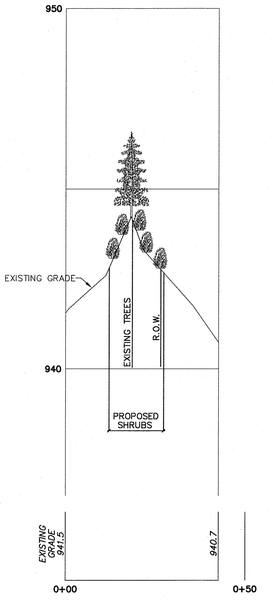
PROJECT
6785 WHITMORE LAKE ROAD

SHEET
LANDSCAPE PLAN

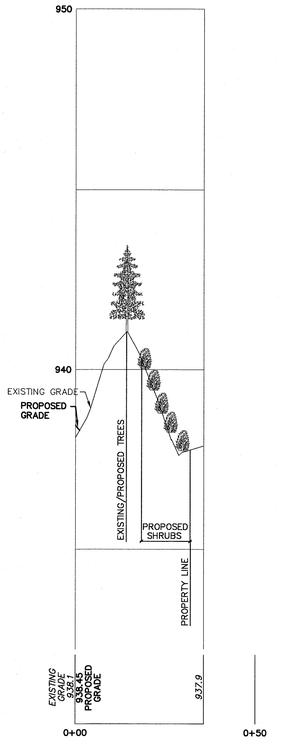
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NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11-19-2018
JOB NO. 32499
DWG NO. 499-land
FIELD BOOK NONE
FILE NO. 10542
13 SHEET

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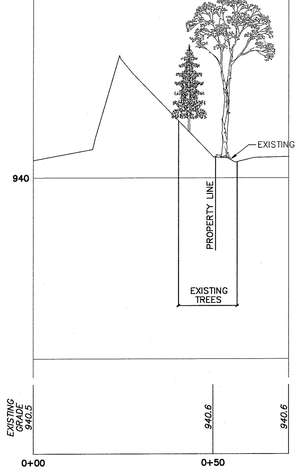
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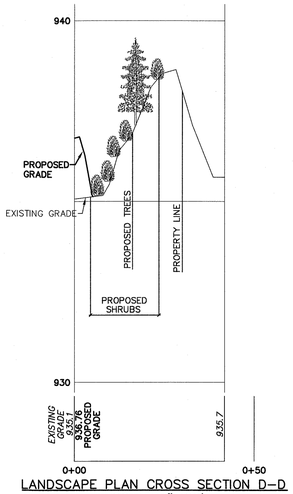
LANDSCAPE PLAN CROSS SECTION A–A
HSCALE 1"=20'
VSCALE 1"=2'



LANDSCAPE PLAN CROSS SECTION B–B
HSCALE 1"=20'
VSCALE 1"=2'



LANDSCAPE PLAN CROSS SECTION C–C
HSCALE 1"=20'
VSCALE 1"=2'



LANDSCAPE PLAN CROSS SECTION D–D
HSCALE 1"=20'
VSCALE 1"=2'

	TAG	COMMON NAME	DBH	CONDITION
	2501	Crabapple	6	Good
	2502	Blue Spruce	9	Excellent
	2503	White Spruce	7	Excellent
	2504	White Spruce	6	Excellent
RI	2505	Cottonwood	6	Fair
RI	2506	Boxelder	9	Good
RI	2507	Cottonwood	7.5" (6, 5)	Fair
	2508	Colorate Spruce	6" (5, 4)	Good
RI	2509	Cottonwood	7	Fair
	2510	Colorate Spruce	7	Excellent
RI	2511	Cottonwood	6	Fair
RI	2512	Boxelder	7	Good
RI	2513	Boxelder	6	Good
	2514	Walnut	23	Excellent
	2515	Walnut	10.5	Good
	2516	Walnut	15.5	Excellent
	2517	Walnut	11	Good
	2518	Walnut	9.5	Good
	2519	Walnut	14	Good
	2520	Walnut	14	Good
	2521	Walnut	15.5	Good
	2522	Walnut	6	Good
	2523	Walnut	7	Good
	2524	Walnut	14	Dead
	2525	Walnut	14.5	Good
	2526	Walnut	6	Excellent
	2527	Walnut	10	Good
	2528	Walnut	6	Dead
	2529	Walnut	6	Fair
LM	2530	Walnut	31	Good
LM	2531	Walnut	24	Good
	2532	Walnut	7	Fair
	2533	Walnut	8	Fair
	2534	Walnut	17	Poor
	2535	Walnut	9	Good
	2536	Hawthorn	6	Fair
LM	2537	Walnut	29	Excellent
	2538	Hawthorn	9	Good
LM	2539	Walnut	29	Excellent
LM	2540	Red Oak	24" (13, 14, 9, 8, 6.5)	Good
	2541	Hickory	8	Good
	2542	Hickory	7	Good
	2543	Walnut	9	Good
	2544	Walnut	11	Good
	2545	Walnut	13	Good
	2546	Hickory	11" (9, 7)	Good
	2547	Walnut	7	Good
	2548	Hickory	9" (6, 7)	Good
	2549	Walnut	10	Fair
	2550	Walnut	11	Good
	2551	Walnut	6	Good
	2552	Walnut	6	Fair
	2553	Walnut	9	Good
LM	2554	White Oak	28" (12, 13, 16, 15)	Good
	2555	Hickory	13.5	Good
	2556	Red Oak	9	Good
	2557	Hickory	6	Good
	2558	Hickory	11	Good
LM	2559	White Oak	18" (13, 13)	Good
	2560	Walnut	12	Good
	2561	Walnut	7.5	Fair
	2562	Hickory	7.5	Good
	2563	Hickory	6	Good
	2564	Hickory	8	Good
LM	2565	White Oak	16" (14, 5, 7)	Good
	2566	Hickory	5.5	Good
	2567	Hickory	12.5	Good
	2568	Walnut	13	Good
	2569	Hickory	7	Good

	TAG	COMMON NAME	DBH	CONDITION
	2570	Walnut	12	Good
LM	2571	White Oak	31	Excellent
	2572	Hickory	11" (9, 7)	Good
	2573	Hickory	10.5" (5, 6, 7)	Good
	2574	Hickory	8	Good
	2575	Hickory	8	Good
LM	2576	White Oak	30.5" (16, 16, 12, 17)	Good
RI	2577	Elm	8	Good
LM	2578	Red Oak	23" (14, 13, 13)	Good
RI	2579	Elm	7	Good
LM	2580	White Oak	28	Good
	2581	Hickory	7	Good
LM	2582	White Oak	17	Good
	2583	Hickory	8	Good
	2584	Bur Oak	9	Good
LM	2585	White Oak	29" (22, 19)	Good
	2586	Hickory	8" (6, 5, 3)	Good
	2587	Hickory	9	Good
	2588	White Oak	14	Good
	2589	Walnut	10	Good
	2590	Oak	6	Dead
	2591	Walnut	10	Good
LM	2592	Red Oak	22" (18, 13)	Good
RI	2593	Elm	6	Fair
	2594	Hickory	6	Fair
LM	2595	White Oak	21" (13, 17)	Good
	2596	Bur Oak	6	Poor
LM	2597	Bur Oak	36	Good
	2598	Bur Oak	17	Fair
LM	2599	Walnut	22	Excellent
LM	2600	Red Oak	16	Excellent
	2701	Crabapple	6	Good
	2702	Mulberry	6	Good
	2703	Blue Spruce	10	Good
	2704	White Spruce	7	Excellent
	2705	Crabapple	6	Good
RI	2706	Boxelder	6	Good
	2707	Juniper	6	Excellent
	2708	White Spruce	7	Excellent
	2709	Blue Spruce	9	Good
RI	2710	Cottonwood	10	Good
RI	2711	Cottonwood	8	Good
	2712	Green Spruce	6	Good
	2713	Blue Spruce	10	Good
	2714	Green Spruce	6	Good
	2715	Blue Spruce	10	Good
RI	2716	Boxelder	6	Good
	2717	Blue Spruce	6	Good
	2718	Blue Spruce	10	Good
RI	2719	Boxelder	6	Good
	2720	Green Spruce	6	Fair
	2721	Green Spruce	7	Good
	2722	Red Maple	10	Excellent
	2723	Red Maple	7	Excellent
RI	2724	Cottonwood	6	Good
LM	2725	White Oak	27.5" (12,14,12,12,11)	Excellent
LM	2726	Red Oak	32" (11,12,13,11,12,13,12)	Excellent
	2727	White Oak	12	Excellent
LM	2728	Walnut	18.5" (13,12,6)	Good
	2729	Walnut	14	Good
LM	2730	Bur Oak	25" (18,17)	Good
	2731	Green Spruce	7	Poor
	2732	Green Spruce	6	Poor
	2733	Green Spruce	6	Poor
	2734	Green Spruce	6	Good
	2735	Green Spruce	7	Excellent
	2736	Green Spruce	7	Excellent
	2737	Green Spruce	7	Excellent
	2738	Green Spruce	7	Excellent

RI = REMOVE INVASIVE SPECIES
LM = LANDMARK TREE
(_____) = MULTI-STEM TREE
DBH" = $\sqrt{a^2 + b^2 + c^2 + d^2}$

NOTE:
THE PETITIONER WILL NOT BE REQUIRED TO REPLACE REMOVED INVASIVE SPECIES TREES.

Know what's **below.**
Call before you dig.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL-HICKS, INC. DATED: 8-5-03.

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LEGEND

☼ = LIGHT POLE	⌀ = SPOT ELEV.	TC = TOP OF CURB	= GRAVEL	r = EXISTING STORM
T = UTILITY POLE	○ = POST	TW = TOP OF WALL	= FENCE	s = EXISTING SANITARY
◁ = GUY ANCHOR	⊗ = GATE VALVE	○ = MANHOLE	= CONCRETE	w = EXISTING WATER
⌀ = HYDRANT	⊣ = SIGN	□ = CATCHBASIN	= ASPHALT	g = EXISTING GAS
		◡ = END SECTION		e = EXISTING ELECTRIC
				t = EXISTING TELEPHONE

BENCHMARK *BM1=NAIL IN E'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE NE'LY CORNER OF THE SITE, ELEV=937.00 (NAVD 88).*

BM2=R.R. SPIKE IN SW'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE SE'LY CORNER OF THE SITE, ELEV=939.95 (NAVD 88).

REVISIONS *2018-12-20 REV#1*

SCALE 80
0 20 40
SCALE: 1"=40'

PREPARED BY _____
GERALD J. SOSNOWSKI RLA, MICH No. 982

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WASHTENAW ENGINEERING

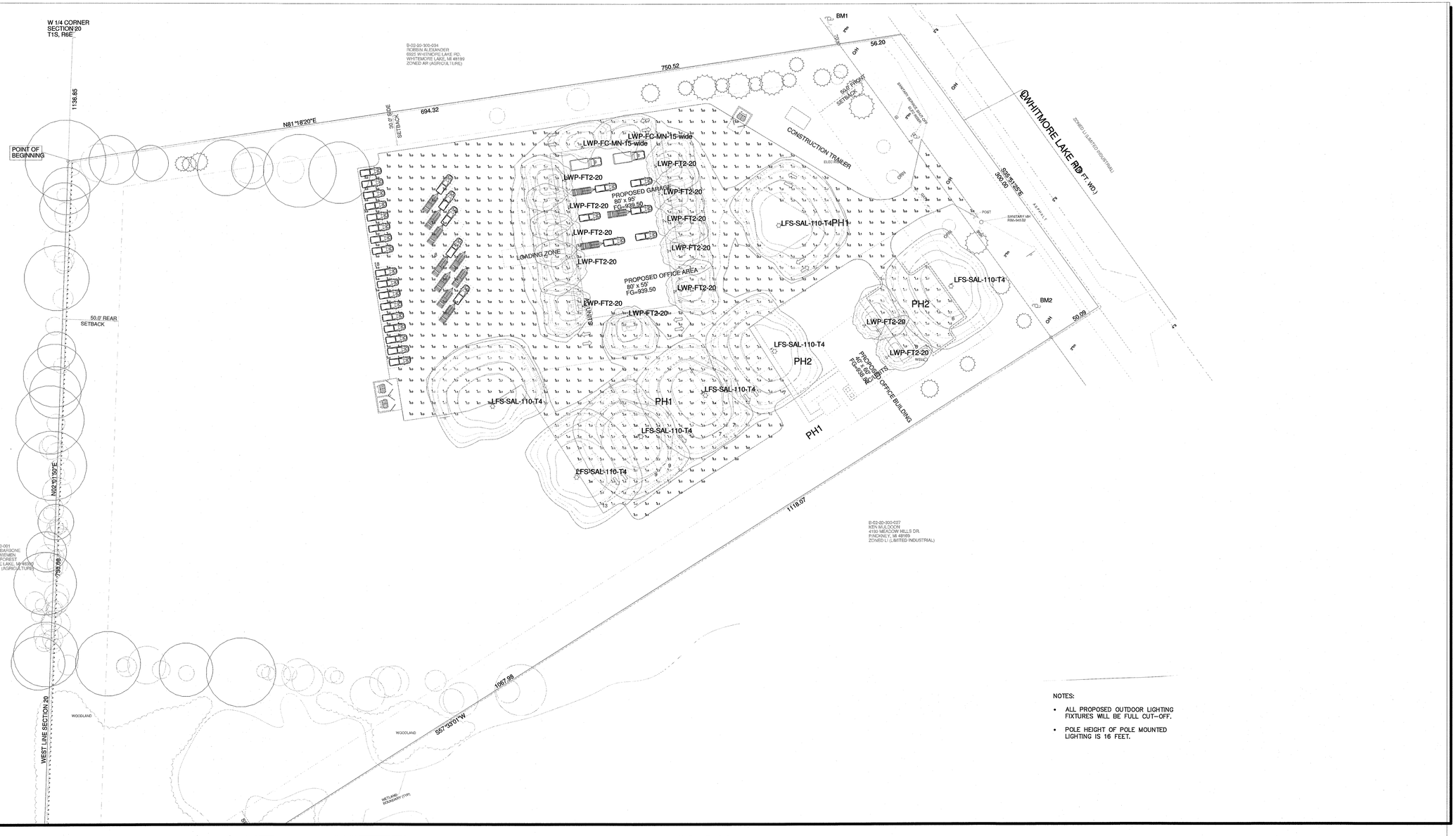
CLIENT
NATIONAL FIBER CONSTRUCTION
5070 W. JOY RD.
DEXTER, MI 48130
TEL 734-580-2114
nationalfiberconstruction.com

TREE IDENTIFICATION

PROJECT
6785 WHITMORE LAKE ROAD

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
JOB NO. 32499
DWG NO. 499-tree ID
FIELD BOOK NONE
FILE NO. 10542
DATE 11-14-2018
SHEET 14

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NOTES:

- ALL PROPOSED OUTDOOR LIGHTING FIXTURES WILL BE FULL CUT-OFF.
- POLE HEIGHT OF POLE MOUNTED LIGHTING IS 16 FEET.

Luminaire Schedule					
Symbol	Qty	Label	Lum. Lumens	LLF	Description
	7	LFS-SAL-110-T4	13453	0.890	
	13	LWP-FT2-20	2490	0.890	
	2	LWP-FC-MN-15-wide	1433	0.890	CRT1507151301-001, LWP-FC

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
AsphaltLOT_Planar	Illuminance	Fc	0.72	9.4	0.0	N.A.	N.A.
PropertyLine_Wall_1	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
PropertyLine_Wall_2	Illuminance	Fc	0.01	0.1	0.0	N.A.	N.A.
PropertyLine_Wall_3	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
PropertyLine_Wall_4	Illuminance	Fc	0.03	0.1	0.0	N.A.	N.A.

Fixtures: 7 LFS-SAL-110 type4
106 watts; 13,453 lumens
Mounting height: 16ft

Fixtures: 13 LWP-FT2-20 wallpacks
22 watts; 2,490 lumens
Mounting height: 12 ft

Fixtures: 2 LWP-FC-MN-15 wallpack
13 watts; 1,433 lumens
Mounting height: 12 ft

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE THE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP. THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

Illuminance Values

- 0.2 - 0.29 fc
- 0.3 - 0.49 fc
- 0.5 - 0.99 fc
- 1.0 - 1.99 fc
- 2.0 - 5.0 fc

Lumecon
LED Innovation Since 2006

#	Date	Comments

Revisions

Drawn By: M. Woznicki
Checked By:
Date: 12/20/2018
Scale:

National Fiber

5

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING RECORDS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN–SERVICE OR ABANDONED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE DIGGING, TRENCHING OR BLASTING. THE SURVEYOR DOES CERTIFY THAT THE UTILITIES AS LOCATED ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

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PROJECT
6785 WHITMORE LAKE ROAD

SHEET
PHOTOMETRIC DETAILS

Lumecon
FIRE SERIES

LFS - SAL
LED Small Area Light



Catalog Number:	
Project:	
Comments:	
Prepared By:	Date:

Description

The LFS-SAL small area light is the first of its kind in Lumecon's LED Fire Series. Combining a sleek fixture design with energy efficient performance allows this fixture to be used in parking lots, roadways, pathways and general area lighting applications.

Performance Data

Model	Watts	Equiv	Delivered Lumens	Efficacy
LFS-SAL-30 (Type V)	31W	250W HID	3,998 Lm	130 LPW
LFS-SAL-30 (Type IV)	30W	250W HID	3,940 Lm	130 LPW
LFS-SAL-30 (Type III)	31W	250W HID	3,929 Lm	126 LPW
LFS-SAL-30 (Type II)	31W	250W HID	4,040 Lm	130 LPW
LFS-SAL-60 (Type V)	60W	250W HID	7,881 Lm	132 LPW
LFS-SAL-60 (Type IV)	60W	250 HID	7,644 Lm	127 LPW
LFS-SAL-60 (Type III)	60W	250W HID	7,682 Lm	129 LPW
LFS-SAL-60 (Type II)	60W	250W HID	8,007 Lm	134 LPW
LFS-SAL-80 (Type V)	78W	400W HID	10,262 Lm	132 LPW
LFS-SAL-80 (Type IV)	78W	400W HID	10,034 Lm	129 LPW
LFS-SAL-80 (Type III)	78W	400W HID	9,936 Lm	127 LPW
LFS-SAL-80 (Type II)	78W	400W HID	10,426 Lm	133 LPW
LFS-SAL-110 (Type V)	110W	400W HID	13,967 Lm	127 LPW
LFS-SAL-110 (Type IV)	99W	400W HID	12,444 Lm	126 LPW
LFS-SAL-110 (Type III)	107W	400W HID	13,383 Lm	125 LPW
LFS-SAL-110 (Type II)	109W	400W HID	13,976 Lm	128 LPW

Dimensions & Weights

Model	Width	Height	Length	Weight
LFS-SAL	13.39"	3.58"	15"	15 lbs.

Technical Specifications

Input Voltage: 120-277V or 347-480V.

Housing: Die cast aluminum housing and front frame with textured architectural bronze powder coat finish over a chromate conversion coating. Housing features an integrated heat sink and driver compartment built into the fixture design. Optional photocell accessory available.

Lens: Tempered clear glass lens.

Mounting: Mounting arm designed for a square / round pole (standard). Additional mounting options include a pole mounting arm adaptor.

Effective Projected Area (EPA): 0.51 ft² (0.78ft² with arm)

Color Temperature: 5000K WW, 4000K NW (standard), 5000K CW.

LED Lifetime: All LED's are rated for a minimum of 100,000 hours of continuous operation at ambient temperatures from -40°F/-40°C to 95°F/35°C.

Color Rendering Index (CRI): Minimum of 70 or higher.

Dimming: 0-10V standard dimming capability.

Surge Protection: Thermally protected 20kA/ 40kV varistor type surge suppressor is included and meets ANSI C136.2-2015: Extreme Level. Also meets IEC61643-11 Class II / EN61643-11 Type 2, and US Dept of Energy MSSLC Model Spec for surge protection. The device is wired in series with the luminaire input power in order to interrupt power to the luminaire when consumed, protecting the LED power supply and circuit boards from additional electrical surges.

Lumecon ETD™ System: The enhanced thermal dissipation system engines are thermally bonded to provide maximum thermal dissipation to the exterior of the fixture to ensure long life. To protect the light engine panel from moisture and corrosion, the LED light engine panel is uniformly coated with a UV stabilized acrylic polymer resin that meets MIL and ASTM dielectric standards, UL, and IPC standards for flammability, moisture resistance and thermal shock.

Certification Data: CSA Listed to UL 1598, UL 8750 and CSA 22.2 No. 250 for Wet Locations. *Full compliance and test documentation is available for TM-21, LM-79, LM-80, ETL Listing to UL1598 and UL 8750, and Lighting Facts.

DesignLights Consortium® (DLC) Qualified Product: Unless noted, not all versions of this product may be DLC* qualified. For a complete list of Lumecon DLC* Qualified Products visit: www.designlights.org.

Manufacturing Origin: US Manufactured and Assembled.

Buy American: Meets Buy American requirements within the ARRA.

Warranty: 10 Year L70 performance based warranty. For full warranty terms, please visit our website: www.lumecon.com

Email: sales@lumecon.com Website: www.lumecon.com Phone: 248-477-5009
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Please see www.lumecon.com for current specifications and documentation.

Lumecon
FIRE SERIES

LFS - SAL
LED Small Area Light

Ordering Information

LFS-SAL – Options / Ordering Example: LFS-SAL-110-DB-T5-C-1-NW-MAS-X-X

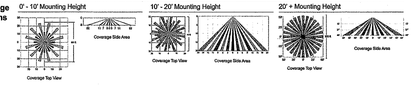
WATTAGE	COLOR	DISTRIBUTION	LENS	VOLTAGE	COLOR TEMPERATURE
30 - 30 Watts 60 - 60 Watts 80 - 80 Watts 110 - 110 Watts	DB - Dark Bronze CC - Custom Color	T5 - Type V T4 - Type IV T3 - Type III T2- Type II	C - Clear Glass	1 - 120v - 277v 2 - 347 - 480v	NW - Neutral CW - Cool WW - Warm

MOUNTING METHODS	PHOTOCELL	OCCUPANCY SENSOR	ACCESSORIES
MAS - Mounting Arm (Square Pole)* MAR - Mounting Arm (Round Pole)* PM - Pole Mount Arm Adaptor* SB - Swivel Bracket SF - Slip Fitter Y - Yoke *Designed to mount to a 3" or 4" pole	X - None R - Receptacle Only RS - Receptacle Only with Shorting Cap 7P - Seven-pin Twist Lock Photocell Receptacle Only (controls by others) PC1 - 120v - 277v Twist Lock Photocell* PC2 - 347v - 480v Twist Lock Photocell* * Includes receptacle	X - None OC1 - On/Off OC2 - Dim/High	LFS-SAL Wire Guard LFS-SAL Glare Shield

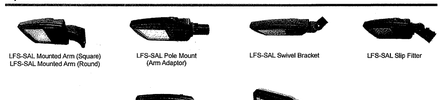
If OCC Sensor Option is selected, mounting height specifications need to be clarified:
- ☐ Mounting height between 0' - 10'
- ☐ Mounting height between 10' - 20'
- ☐ Mounting height over 20'+

OCC Sensor Patterns

Coverage Patterns



Options & Accessories



LFS-SAL Mounted Arm (Square)
LFS-SAL Mounted Arm (Round)

LFS-SAL Pole Mount (Arm Adaptor)

LFS-SAL Swivel Bracket

LFS-SAL Slip Fitter

LFS-SAL Yoke Mount

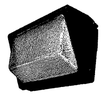
LFS-SAL Glare Shield

LFS-SAL Wire Guard

Email: sales@lumecon.com Website: www.lumecon.com Phone: 248-477-5009
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Please see www.lumecon.com for current specifications and documentation.

Lumecon

LWP - FT2
LED Wall Pack



Catalog Number:	
Project:	
Comments:	
Prepared By:	Date:

Description

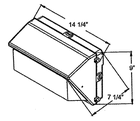
The LWP-FT2 forward throw wall pack is ideal for distributing light in an outward direction. The LWP-FT2 can replace up to a 400W HID one-for-one making it a perfect fixture for building facades, general security, storage areas, and entry door applications.

Performance Data

Model	Watts	Equiv	Delivered Lumens	Efficacy
LWP-FT2-20	22W	175W HID	2,495 Lm	112 LPW
LWP-FT2-45	44W	250W HID	4,641 Lm	104 LPW
LWP-FT2-55	55W	250W HID	5,760 Lm	105 LPW
LWP-FT2-70	70W	400W HID	7,775 Lm	112 LPW

Dimensions & Weights

Model	Width	Height	Depth	Weight
LWP-FT2	14 1/4"	9"	7 1/4"	9.9 lbs.



Technical Specifications

Input Voltage: 120-277V or 347-480V

Housing: Die cast aluminum housing with hinged front frame and textured architectural bronze powder coat finish over a chromate conversion coating. 1/2" coin plugs with O-rings for conduit & photocell installation.

Lens/Optics: Injection molded acrylic optics are placed over each LED to maximize light distribution to exactly where is needed. A molded prismatic borosilicate glass outer lens provides watertight protection of the LEDs.

Mounting: Cast-in template for wall or junction box mounting. Mount directly over a 4" recessed outlet box, or use 5/8" surface conduit.

Effective Projected Area (EPA): 0.75 ft²

Color Temperature: 2700K WW, 4000K NW, 5000K CW.

LED Lifetime: All LED's are rated for a minimum of 100,000 hours of continuous operation at ambient temperatures from -40°F/-40°C to 95°F/35°C.

Color Rendering Index (CRI): Minimum of 70 or higher.

Dimming: 0-10V standard dimming capability.

Surge Protection: Thermally protected 20kA/ 40kV varistor type surge suppressor is included and meets ANSI C136.2-2015: Extreme Level. Also meets IEC61643-11 Class II / EN61643-11 Type 2, and US Dept of Energy MSSLC Model Spec for surge protection. The device is wired in series with the luminaire input power in order to interrupt power to the luminaire when consumed, protecting the LED power supply and circuit boards from additional electrical surges.

Lumecon ETD™ System: The enhanced thermal dissipation system engines are thermally bonded to provide maximum thermal dissipation to the exterior of the fixture to ensure long life. To protect the light engine panel from moisture and corrosion, the LED light engine panel is uniformly coated with a UV stabilized acrylic polymer resin that meets MIL and ASTM dielectric standards, UL, and IPC standards for flammability, moisture resistance and thermal shock.

Battery Back-Up (Optional): When triggered into emergency mode, the BBU operates the LEDs for a code-compliant 90 minutes. When AC power is restored, the driver automatically returns to charging mode. The BBU is a UL recognized component and meets all applicable safety standards.

Occupancy Sensor (Optional): Microwave sensor technology rated for -40°F to 150°F. Available in on/off and dim/high functionality.

Certification Data: ETL Listed to UL 1598, UL 8750 and CSA 22.2 No. 250 for Wet Locations. *Full compliance and test documentation is available for TM-21, LM-79, LM-80, ETL Listing to UL1598 and UL 8750.

DesignLights Consortium® (DLC) Qualified Product: Unless noted, not all versions of this product may be DLC* Qualified. For a complete list of Lumecon DLC* Qualified Products visit: www.designlights.org.

Manufacturing Origin: US Manufactured and Assembled.

Buy American: Meets Buy American requirements within the ARRA.

Warranty: 10 Year L70 performance based warranty. For full warranty terms, please visit our website: www.lumecon.com

Email: sales@lumecon.com Website: www.lumecon.com Phone: 248-477-5009
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Please see www.lumecon.com for current specifications and documentation.

Lumecon

LWP - FT2
LED Wall Pack

Ordering Information

LWP – FT2 Options / Ordering Example: LWP-FT2-20-DB-1-NW-PC1-OC1

WATTAGE	COLOR	VOLTAGE	COLOR TEMPERATURE
20 - 22 Watts 45 - 44 Watts 55 - 55 Watts 70 - 70 Watts	DB - Dark Bronze C - Custom	1 - 120v - 277v 2 - 347v - 480v	NW - Neutral CW - Cool WW - Warm

Options & Accessories

F - Full Cutoff	BB1 -120v BBU	SC - Split Circuit
S - Side Cutoff	BB2 -277v BBU	PC1 - 120/277v Photo Cell
P - Polycarbonate	BBC1 -120v BBU Cold Temp Rated*	PC2 - 347/480v Photo Cell
W - Wire Guard	BBC2 -277v BBU Cold Temp Rated*	OC1 - On/Off
	*Requires external box	OC2 - Dim/High

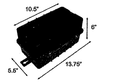


LWP-FT2 Full Cutoff
LWP-FT2 Side Cutoff
LWP-FT2 Polycarbonate Guard
LWP-FT2 Wire Guard

Battery Back-Up

UL Component Recognized / CSA certified

Lumecon's Emergency LED driver has been tested in accordance with the standards set forth in UL 924, "Emergency Lighting and Power Equipment," and with the standards set forth in C22.2 No. 141, "Unit Equipment for Emergency Lighting." Our Emergency LED driver's are UL Component Recognized and CSA Certified for factory installation only. Emergency illumination time exceeds the National Electrical Code (NEC), Life Safety Code (NFPA-LSC), National Building Code of Canada (NBC), National Fire Code of Canada (NFC) and UL 90-minute requirements.



Email: sales@lumecon.com Website: www.lumecon.com Phone: 248-477-5009
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Please see www.lumecon.com for current specifications and documentation.

Lumecon

LWP - FC - MN
LED Wall Pack



Catalog Number:	
Project:	
Comments:	
Prepared By:	Date:

Description

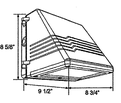
The LWP-FC-MN full cut-off wall pack delivers the illumination performance to replace up to a 175W HID fixture one-for-one. The compact size of the LWP-FC-MN makes this an energy saving solution for outdoor building facades, general security, storage areas, and entry door applications.

Performance Data

Model	Watts	Equiv	Delivered Lumens	Efficacy
LWP-FC-MN-15	14W	150W HID	1,633 Lm	113 LPW
LWP-FC-MN-15 WIDE	13W	150W HID	1,433 Lm	107 LPW
LWP-FC-MN-25	26W	175W HID	2,493 Lm	99 LPW
LWP-FC-MN-25 WIDE	23W	175W HID	2,343 Lm	100 LPW

Dimensions & Weights

Model	Width	Height	Depth	Weight
LWP-FC-MN	9 3/4"	8 5/8"	9 1/2"	7.2 lbs.



Technical Specifications

Input Voltage: 120-277V or 347-480V

Housing: Die cast aluminum housing with hinged full cutoff front frame and textured architectural bronze powder coat finish over a chromate conversion coating. 1/2" coin plugs with O-rings for conduit & photocell installation.

LED Lifetime: All LED's are rated for a minimum of 100,000 hours of continuous operation at ambient temperatures from -40°F/-40°C to 95°F/35°C.

Color Temperature: 3000K WW, 4000K NW (standard), 5000K CW.

Color Rendering Index (CRI): Minimum of 70 or higher.

Dimming: 0-10V standard dimming capability.

Surge Protection: Thermally protected 20kA/ 40kV varistor type surge suppressor is included and meets ANSI C136.2-2015: Extreme Level. Also meets IEC61643-11 Class II / EN61643-11 Type 2, and US Dept of Energy MSSLC Model Spec for surge protection. The device is wired in series with the luminaire input power in order to interrupt power to the luminaire when consumed, protecting the LED power supply and circuit boards from additional electrical surges.

Lumecon ETD™ System: The enhanced thermal dissipation system engines are thermally bonded to provide maximum thermal dissipation to the exterior of the fixture to ensure long life. To protect the light engine panel from moisture and corrosion, the LED light engine panel is uniformly coated with a UV stabilized acrylic polymer resin that meets MIL and ASTM dielectric standards, UL, and IPC standards for flammability, moisture resistance and thermal shock.

Battery Back-Up (Optional): When triggered into emergency mode, the BBU operates the LEDs for a code-compliant 90 minutes. When AC power is restored, the driver automatically returns to charging mode. The BBU is a UL recognized component and meets all applicable safety standards.

Certification Data: ETL Listed to UL 1598, UL 8750 and CSA 22.2 No. 250 for Wet Locations. *Full compliance and test documentation is available for TM-21, LM-79, LM-80, ETL Listing to UL1598 and UL 8750 and DLC*.

DesignLights Consortium® (DLC) Qualified Product: The 4000K NW is DLC* qualified. Unless noted, not all versions of this product may be DLC* qualified. For a complete list of Lumecon DLC* Qualified Products visit: www.designlights.org.

Manufacturing Origin: US Manufactured and Assembled.

Buy American: Meets Buy American requirements within the ARRA.

Warranty: 10 Year L70 performance based warranty. For full warranty terms, please visit our website: www.lumecon.com

Email: sales@lumecon.com Website: www.lumecon.com Phone: 248-477-5009
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Please see www.lumecon.com for current specifications and documentation.

Lumecon

LWP - FC - MN
LED Wall Pack

Ordering Information

Ordering Example: LWP-FC-MN-25-DB-ST-1-NW-X-X-X-X

WATTAGE	COLOR	DISTRIBUTION	VOLTAGE	COLOR TEMPERATURE	BATTERY BACK-UP
15 - 15 Watts 25 - 26 Watts	DB - Dark Bronze C - Custom	ST - Standard WD- Wide (Type III)	1 - 120v - 277v 2 - 347v - 480v	CW - Cool (5000K) NW - Neutral (4000K)* CW - Warm (3000K) WW - Warm (2700K) *DLC® Qualified	X - None BB1 -120v BBU* BB2 -277v BBU* BBC1 -120v BBU Cold Temp Rated* BBC2 -277v BBU Cold Temp Rated* *Requires external box

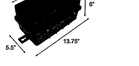
SPLIT CIRCUIT	PHOTOCELL	INLINE FUSE
X - None SC - Split Circuit	X - None PC1 - 120v/277v PC PC3 - 347v PC PC4 - 480v PC	X - None F - Inline Fuse, 2.5A

Battery Back-Up

An external battery back-up box may be required on certain light fixtures. Please contact Lumecon Sales Agent for clarification.

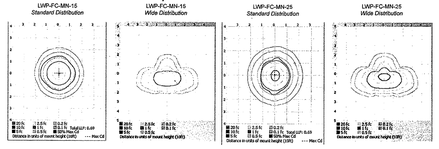
UL Component Recognized / CSA certified

Lumecon's Emergency LED driver has been tested in accordance with the standards set forth in UL 924, "Emergency Lighting and Power Equipment," and with the standards set forth in C22.2 No. 141, "Unit Equipment for Emergency Lighting." Our Emergency LED driver's are UL Component Recognized and CSA Certified for factory installation only. Emergency illumination time exceeds the National Electrical Code (NEC), Life Safety Code (NFPA-LSC), National Building Code of Canada (NBC), National Fire Code of Canada (NFC) and UL 90-minute requirements.

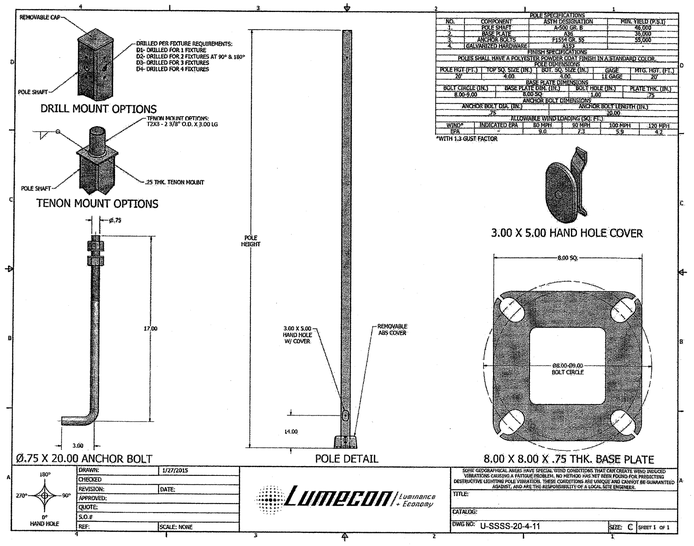


Photometric Data

For .ies files of this product, please visit the downloads tabs on the LWP-FC-MN product page: http://lumecon.com/products/lwp-fc-mn-wall-pack/



Email: sales@lumecon.com Website: www.lumecon.com Phone: 248-477-5009
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Please see www.lumecon.com for current specifications and documentation.



Know what's below. Call before you dig.

BOUNDARY INFORMATION PER SURVEY PERFORMED BY ATWELL–HICKS, INC. DATED: 8–5–03.

LEGEND

☆ = LIGHT POLE	ø20"-3.5 = SPOT ELEV.	TC = TOP OF CURB	–·–·–·– = GRAVEL	r ——— = EXISTING STORM
○ = UTILITY POLE	○ = POST	TW = TOP OF WALL	–x–x–x–x– = FENCE	s ——— = EXISTING SANITARY
⊙ = GUY ANCHOR	⊗ = GATE VALVE	○ = MANHOLE	▭ = CONCRETE	w ——— = EXISTING WATER
☆ = HYDRANT	–○– = SIGN	□ = CATCHBASIN	▭ = ASPHALT	g ——— = EXISTING GAS
		◡ = END SECTION		e ——— = EXISTING ELECTRIC
				t ——— = EXISTING TELEPHONE

BENCHMARK *BM1=NAIL IN E'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE NE'LY CORNER OF THE SITE, ELEV=937.00 (NAVD 88).*

BM2=R.R. SPIKE IN SW'LY FACE OF UTILITY POLE, WEST OF WHITMORE LAKE RD NEAR THE SE'LY CORNER OF THE SITE, ELEV=939.95 (NAVD 88).

REVISIONS :–

SCALE: NO SCALE

PREPARED BY
JOSEPH K. MAYNARD P.E., MICH No. 52559

SECTION 20 TOWN 1 SOUTH RANGE 6 EAST
NORTHFIELD TOWNSHIP
WASHTENAW COUNTY • MICHIGAN
DATE 11–19–2018 JOB NO. 32499 DWG NO. 499–photometric–det FIELD BOOK NONE FILE NO. 10542
SHEET 16

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MCKENNA

January 4, 2019

Planning Commission
Northfield Township
8350 Main Street
Whitmore Lake, MI 48189

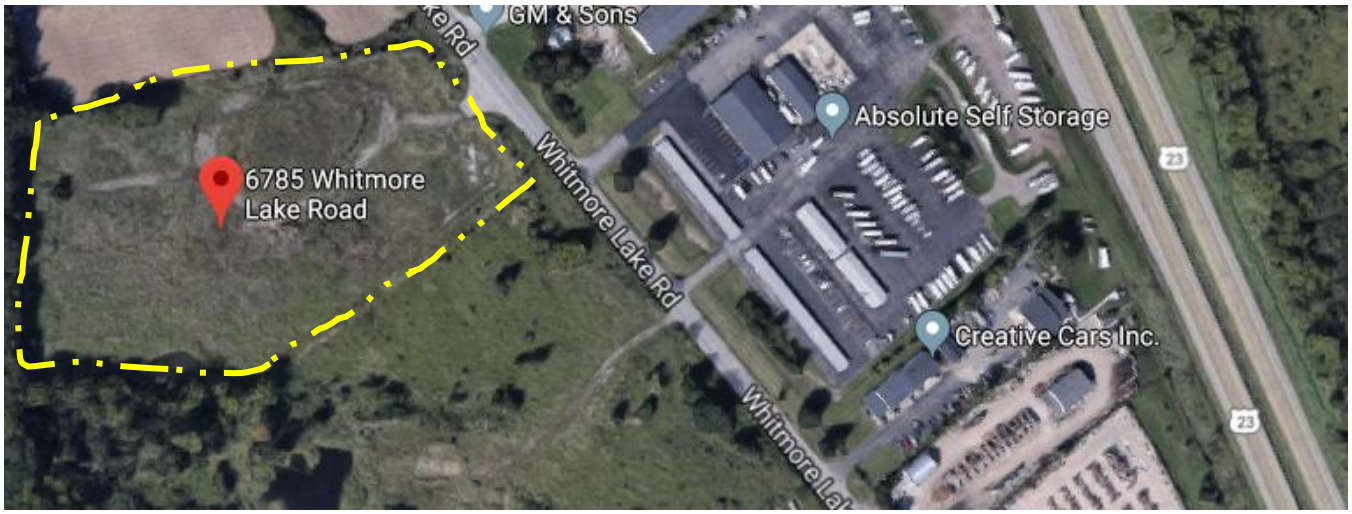
Subject: National Fiber, 6785 Whitmore Lake Road
Site Plan Review #2; Plans Dated 11/19/18, with a revision date of 12/20/18.

Dear Planning Commissioners:

National Fiber and Tree House Properties, the owner of the parcel at 6785 Whitmore Lake Road (Parcel ID#: B-02-20-300-026), proposes to construct an office building and indoor parking/storage building to provide off-site servicing of fiber and utility infrastructure. This parcel is approximately 10 acres and is located on the west side of Whitmore Lake Road, south of North Territorial and west of the US-23 interchange. The site is located in the Limited Industrial (LI), which permits equipment servicing of this character as a Permitted Use. The applicant has previously discussed including outdoor storage and minor and major vehicle repair on the site, both can be permitted Conditional Use approval in the LI District. The applicant has chosen to remove those areas and uses from the site plan at this time and seek approval for the site plan as proposed. The applicant has must place a note on the site plan stating that minor and major vehicle servicing, or outdoor storage will not be provided on the site.

We have reviewed the site plan for compliance with the Township's Zoning Ordinance and with sound planning and design principles, and we offer the following comments for your consideration (items requiring correction or additional information are underlined):

Site Photo: 6785 Whitmore Lake Road (Source: Google Maps 2018)



HEADQUARTERS
235 East Main Street
Suite 105
Northville, Michigan 48167

O 248.596.0920
F 248.596.0930
MCKA.COM

COMMENTS

1. **Use.** The site is zoned LI, Limited Industrial District. The district is intended to permit light manufacturing, limited industrial uses, and similar uses that generate a minimum of noise, glare, odor, dust, vibration, and air and water pollutants. Permitted uses include warehousing and distribution centers; provided all products and materials are enclosed within a building and an accessory use, building or structure. Conditional uses include outdoor storage of materials and equipment to be used as part of the principal business and minor or major repair. As mentioned above, a note is required on the plan stating acknowledging that outdoor storage and major vehicle repair will not be provided on the site. The site plan includes floor plans with descriptions of some of the uses, which are proposed to include the following:

   Principal Permitted Use (Commercial and Office Buildings):

   A. **Main Building (Sheet P2).** Office, truck storage, and truck servicing and vehicle repair. The floor plan P2 shows a mechanics and tool room, vehicle repair lanes, and rolling tool carts; one of these are permitted without a Conditional Use approval. They must be removed from the floor plan.
   B. **Phase 2 Building (Sheet P1).** Office building only.

   Conditional Uses:

   A. **Outdoor Storage of Materials and Equipment (Section 36-510(9)).** The first site plan submitted included a large gravel area (approximately 16,000 sq. ft.) with a 10 ft. chain link fence is proposed adjacent to the west end of the asphalt surface. There is a concrete pad with 3 – 50' x 10' storage bins proposed near the west side of the site. We advised the applicant that these uses seem essential to the operation of the business and that an application for Conditional Use was required. The applicant has chosen to remove the features from the site plan. It is not advisable to approve uses that cannot adequately function as shown on the submitted materials. We request that the applicant provide a detailed use description and information as to which other facilities and locations will be used to provide the storage needed for the business operation.
   B. **Major and Minor Repair of Vehicles (Section 36-510).** The major and minor vehicle repair use is reviewed as a Conditional Use under Section 36-510(1). The applicant has not applied for approval of major or minor vehicle servicing, so none will be permitted or considered at this time and the floor plans must be updated as stated previously. Further, we request that the applicant provide the address and reference for of a servicing center on the site plan.

2. **Dimensional Requirements.** Section 36-511 of the Zoning Ordinance includes the dimensional requirements for lot area (1 acre; 20,000 sq. ft. with sanitary sewer); lot width (150 feet; 80 feet with sanitary sewer); lot coverage (25%), front yard setback (85 feet), side yard setback (20 feet); rear yard setback (35 feet), and height (45 feet). All of these standards have been met, but the cover page of the site plan indicates proposed setbacks that do not match those measured on Sheet 5. The Site Data table on the cover page must be revised to change the existing setbacks to zero. The following table details the setbacks that we measured compared to those in the Site Data table on the cover page:

CATEGORY	REQUIRED	"EXISTING"	PROPOSED
Lot Coverage	25% max.	0%	3%
Building Height	45' max.	0	24'
Front Setback	85'	*75.5'*	128'
Side Setback (north)	20'	*59.6'*	57'
Side Setback (south)	20'	*65.4'*	48'
Rear Setback	35'	*36'*	154'

3. **Access and Circulation.** The site will have one driveway at Whitmore Lake Road. The front of the vehicular circulation area will have a triangle island to direct trucks around the building to the rear portion of the site, where a large asphalt area will be sufficient for circulation, loading, and unloading.

4. **Parking and Loading.** Contractor establishments require 1 parking space for each employee plus 1 space for each vehicle stored on the premises. The cover sheet of the site plan states that there will be 18 employees in the largest shift (maximum onsite) additionally. the number of vehicles stored on the premises (both indoor and outdoor). The site plan notes 1 parking space is be provided for every 200 sq. ft. of office floor area. Phase 2 includes a 2,400 sq. ft. office building, requiring 12 parking spaces. 50 parking spaces have been provided, meeting the requirements. The minimum required aisle width is 22 feet, and all parking aisles meet the requirement.

   Section 36-766 requires 1 loading space at least 10 feet in width and 55 feet in length, and the loading space on the west side of the main building meets the requirement.

5. **Landscaping and Screening.**

   a. **Parking Lot Landscaping.** Section 36-722(m) of the Zoning Ordinance requires 1 canopy tree per 8 parking spaces. With 50 parking spaces proposed in phase 1, 7 canopy trees are required. The parking area for phase 2 has 12 spaces proposed and 2 trees are required. The purpose of parking lot landscaping required by Section 36-722(m) is to promote the following:
      1) Divide and break up the expanse of pavement.
      2) Define parking areas.
      3) Designate areas for vehicular circulation.
      4) Separate parking lots from streets and off-street parking.

      The proposed parking lot landscaping meets the requirements.

   b. **Tree Mitigation.** There are 5 trees that will be removed and relocated within the property. None of them are landmark trees. The tree list notes 12 invasive trees that are marked for removal, including cottonwoods, boxelders, and elm. Invasive species are not required to be mitigated. No landmark trees or smaller native trees are proposed to be removed from the woodland areas.

   c. **Transition Strips.** Section 36-511(7) of the Zoning Ordinance requires every lot in the LI District and RTM Districts to have a 25-foot wide transition strip along any lot line that abuts a lot in the AR that consists of a screen wall or hedge between 4'-8' in height. Therefore, a transition strip is required along the north and west lot lines.
      i. **Western Transition Strip.** The transition strip on the west side of the site (abutting an AR District) consists of an existing tree line of dense landmark trees and scrub brush that will remain. The tree line extends the entire length of the west parcel line.
      ii. **Northern Transition Strip.** The transition strip on the north side of the site (abutting an AR District) consists of keeping the topography and vegetation (trees and brush) in their current state. Some additional trees are proposed to accent the buffer, including 10 trees that will screen the truck parking area that have no species designated. We assume based on the plant list these are flowering quince shrubs. <u>The species are required to be noted on the plan, we recommend the trees to be an evergreen species to provide additional screening.</u>

While front lot lines are exempt from the transition strip requirements, Section 36-511(7)(b) requires a 20-foot wide landscaped area in the front yard. The front yard will preserve the existing berm and its plant materials, while adding staggered rows of shrubs creating a 20-foot width. This landscaped berm meets the requirements of Section 36-511(7)(b).

d. Berms. There are existing berms on site but no details are provided to confirm that they conform to current design requirements. We defer to the Township Engineer as to whether more details should be requested to confirm that maintenance or updates to the berm slopes are not needed at this time.

e. Screening of Materials Stored. Section 36-701 of the Zoning Ordinance includes requirements for the storage and screening of outdoor materials. The proposed truck parking area is consistent with the definition of outdoor storage. We note that any additional storage added in the future may require additional screening.

Although Section 36-701(4)(d) requires outdoor storage to be screened on all sides by evergreen trees, this section allows the Planning Commission to waive the evergreen screening requirements where there is existing vegetation that can be used to fulfill or supplement the requirements. The proposed outdoor storage area is screened by existing tree lines on the north, west, and south sides, and by the proposed building on the east side. We find the existing vegetation and proposed additions to be sufficient in meeting the screening requirements and recommend the Planning Commission approve a waiver.

6. **Natural Features.** Section 36-723 of the Zoning Ordinance requires a natural features impact statement, which is provided on Sheet 3. While the tree mitigation comments are previously addressed, there are existing woodland environment and edges of an offsite wetland within the property (in the southwest corner). These environments will not be disturbed, and protective measures are proposed to preserve the wetlands and woodlands including a small detention pond that exists in the southwest corner of the site to capture stormwater runoff before it releases into these natural feature areas.

7. **Stormwater Management.** A stormwater ponds exists in the southwest corner of the site, and a detention basin is proposed adjacent to the existing stormwater pond towards the southwest corner of the site. We will defer stormwater management comments to the Township Engineer.

8. **Lighting**. The site proposes 15 wall mounted light fixtures and 10 pole mounted light fixtures. The site plan states that fixtures will be full cut-off. Pole mounted fixtures will be 16 ft. height.

9. **Trash Enclosure.** Section 36-701(3) of the Zoning Ordinance requires dumpsters to be located within an enclosure constructed of opaque materials on at least three sides, with an opening or gate on the fourth side. The two proposed dumpster enclosures are located within the gravel-surfaced outdoor storage area and the northeast corner of the vehicular circulation area. The enclosures are 6-foot high solid vinyl fencing on three sides with a 6-foot high solid vinyl gate on the fourth side. The color of the vinyl fencing material is noted that it will be consistent with the color of the main building. Section 36-701(3) also requires the storage area to have a 4-inch thick concrete floor, and a 6-inch thick concrete floor is proposed.

10. **Building Façade and Floor Plans.** The first building to be constructed (Phase 1) will be the main industrial building on the north side of the site. Although the building materials are not noted on the elevations in the site plan, the entire building seems to have a corrugated metal façade and seam metal roof, the east and west facades will have 4 overhead garage doors each, and the south elevation will have 7 windows and an access

door. The material types and colors are labeled on the site plan. The building height is noted. The AC units will be located on the ground level, along the western side of the building with some landscaping.

The second building to be constructed (Phase 2) is the office building, located southeast of the main building and closer to Whitmore Lake Road. Although the building materials are not noted on the elevations in the site plan, the base of the building seems to be made of concrete block with siding in the middle and a shingle roof. The material types and colors are labeled on the site plan. The building height is noted.

11. **Signs.** Article 26 of the Zoning Ordinance includes all of the requirements for the number, height, area, and placement of signs. A sign is proposed within the right-of-way, but no details have been provided. Signs can be approved administratively after site plan approval. Signs in industrial districts are regulated in Section 36-793.

12. **Phasing.** Phasing of development is permitted by Section 36-868 with approval of the Planning Commission. Such phasing must be in conformance with the criteria of site plan review (Section 36-867), and any changes to the approved phasing plan must be amended according to Section 36-869. The Planning Commission must approve the phasing of this development.

13. **Performance Guarantee.** If the site plan is approved by planning Commission a performance guarantee shall be provided to cover all improvements noted on the site plan, as outlined in Section 36-872. A Performance guarantee shall be provided prior to Certificate of Occupancy being granted by the Zoning Administrator.

RECOMMENDATION
At this time, we recommend that the Planning Commission approve the site plan subject to the following notes and conditions per the Northfield Zoning Ordinance:

1. Notes are added to the site plan stating that no vehicle repair or outdoor storage will take place on the site AND the building floor plans are revised to remove repair and maintenance features.
2. A waiver is granted for evergreen tree screening of the equipment parking area, finding that the existing vegetation is sufficient in meeting the screening requirements. Additionally, details on the 10 trees on the north lot line must be noted on the plan.
3. The Planning Commission approves the proposed phasing of the development.
4. A performance guarantee estimate is submitted to the Township for review and a performance guarantee is provided to the Township prior to any Certificate of Occupancy being granted..

We look forward to reviewing these findings with you. If you have any questions about this report or require additional information, please contact us.

Respectfully submitted,
MCKENNA



Paul Lippens, AICP
Director of Urban Design and Mobility

ARCHITECTS. ENGINEERS. PLANNERS.

OHM Advancing Communities℠

December 11, 2018

Northfield Township Planning Commission
Northfield Township
8350 Main Street
Whitmore Lake, Michigan 48189

Regarding: National Fiber Construction
Site Plan Review #1

We have reviewed the November 19, 2018 site plan based on the Township's engineering standards for the above referenced project received by the Township on November 21, 2018. Plans were prepared by the Washtenaw Engineering. The applicant is requesting Site Plan approval for construction of a new building and other site improvements. A general summary of the site, followed by our review comments and conclusion are noted below.

General

The site is located on parcel #02-20-300-026 with address 6785 Whitmore Lake Road. The site is zoned as Limited Industrial (LI). General comments are as follows:

1. If this submittal is for both phases then more information will need to be shown on the plans regarding phasing of the grading and proposed utilities as the plans progress. We have assumed that this submittal is for approval of both phases.

Utilities

2. Existing and proposed water and sanitary sewer facilities are shown. Sanitary sewer will discharge to the existing sewer force main in the Whitmore Lake ROW. Domestic water will be provided by an existing on-site well.
3. It appears that a well house or some type of water junction box is proposed near the phase 2 office building. The well appurtenance must be labeled and details must be provided as the plans progress.
4. Storm and sanitary sewer structure and pipe information must be provided on the utility sheet as the plans progress.
5. It appears that there is a proposed dry hydrant near the detention pond. It should be labeled.
6. Existing and proposed franchised utilities and services should also be shown. It appears that most of the franchised utilities are shown.
7. The property is proposed to be serviced by public sanitary sewer. The applicant is proposing to tap a new sanitary sewer force main lead into an existing manhole. An REU factor will need to be assigned for this facility based on the proposed use and building size in accordance with the Northfield Township Utility Ordinance. This will need to be reviewed with the Northfield Wastewater Superintendent prior to engineering plan approval.

Paving/Grading

8. Several proposed trees are too close to proposed sanitary sewer manholes. Trees should be a minimum of 10 feet away.
9. Manhole rim and invert information should be provided on the grading plan as the plans progress.
10. Some details are already provided. Additional details may need to be provided for any proposed paving items (dumpster pad, fencing, sidewalk, asphalt drive, asphalt parking, gravel parking, etc.) as the plans progress.

Drainage

OHM Advisors
34000 PLYMOUTH ROAD
LIVONIA, MICHIGAN 48150
T 734.522.6711
F 734.522.6427
OHM-Advisors.com

11. The developed site runoff will be directed to a detention facility. The proposed detention facility should be designed to WCWRC standards. Based on the WCWRC review, the plans may need modification to meet their requirements. We will await the WCWRC's review of the plans.

Permits and Other Agency Approvals

Copies of all permits and/or letters of waiver should be provided. The current status of all necessary permits should be included on the cover sheet. We note that this project may require the following permits and/or approvals:

- Northfield Township Fire Department approval for emergency vehicle access and maneuverability.
- Northfield Township Building Department.
- Washtenaw County Water Resources Commissioner's office for storm water and soil erosion and sedimentation control.
- Washtenaw County Environmental Health Division – well approval.
- Washtenaw County Road Commission for work in the Whitmore Lake Road ROW.

Conclusion

If the Planning Commission approves the Site Plan, then we recommend that our comments be addressed as a contingency. Please note that additional comments may be generated on future reviews based upon revised material being presented.

Additionally, in an effort to assist the applicant with preparation of construction plans, we are providing the following comments that should be considered prior to submittal of construction plans for detailed engineering review. Please note that these comments are not all inclusive and additional comments may be generated based on the construction plan information provided for review.

1. Storm, sanitary and water system details must be provided on a detail sheet.

2. Proposed sidewalk and handicap parking spaces must be ADA compliant. Additional spot grades and slopes are needed to verify compliance with ADA requirements. Additional spot grades are also needed in the parking areas to assure proper drainage.

3. Utility profiles for water, sanitary, and storm sewer piping shall be provided on the plans to ensure that crossings can be accomplished without conflict.

If you have any questions, please contact us at (734) 522-6711 or ronald.cavallaro@ohm-advisors.com.

Sincerely,
OHM ADVISORS

Ronald A. Cavallaro, Jr., PE

cc: Mary Bird, Northfield Township (via e-mail)
Paul Lippens, MCKA, Township Planner (via e-mail)
File

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Northfield Township Fire Department

8350 Main Street Whitmore Lake, MI 48189
Phone (734) 449-2385 Fax (734) 449-2521

Fire Chief
William E. Wagner, Jr.

To: **Mary Bird**
From: **Lieutenant Rennells**
Date: **December 19, 2018**
Subject: **Site Plan Review for 6785 Whitmore Lake Road**

Upon review of the site plan for 6785 Whitmore Lake Road, the following concerns/requirements have been identified per the *2012 International Fire Code*.

- A plan including the building dimensions in relation to door placement for the larger building (80' x 150') will need to be submitted for review of travel distances to egress.
- An automatic sprinkler system is required for the larger building as it shall be provided throughout buildings with a fire area used for the repair of commercial trucks where the fire area exceeds 5,000 square feet.
- An automatic sprinkler system is required for the larger building as it shall be provided throughout buildings used for storage of commercial trucks where the fire area exceeds 5,000 square feet.

This approval is subject to field inspection. This approval does not exempt the project from complying with all applicable codes. Additional submittals and approvals may be required.

Northfield Township Planning Commission Calendar

January	2	2019
January	16	2019
February	6	2019
February	20	2019
March	6	2019
March	20	2019
April	3	2019
April	17	2019
May	1	2019
May	15	2019
June	5	2019
June	19	2019
July	3	2019
July	17	2019
August	7	2019
August	21	2019
September	4	2019
September	18	2019
October	2	2019
October	16	2019
November	6	2019
November	20	2019
December	4	2019
December	18	2019

Roberts Rules of Order – Simplified

Guiding Principle:

Everyone has the right to participate in discussion if they wish, before anyone may speak a second time.
Everyone has the right to know what is going on at all times.
Only urgent matters may interrupt a speaker.
Only one thing (motion) can be discussed at a time.

A **motion** is the topic under discussion (e.g., "I move that we add a coffee break to this meeting"). After being recognized by the president of the board, any member can introduce a motion when no other motion is on the table. A motion requires a second to be considered. Each motion must be disposed of (passed, defeated, tabled, referred to committee, or postponed indefinitely).

How to do things:

You want to bring up a new idea before the group.

After recognition by the president of the board, present your motion. A second is required for the motion to go to the floor for discussion, or consideration.

You want to change some of the wording in a motion under discussion.

After recognition by the president of the board, move to amend by

- adding words,
- striking words or
- striking and inserting words.

You like the idea of a motion being discussed, but you need to reword it beyond simple word changes.

Move to substitute your motion for the original motion. If it is seconded, discussion will continue on both motions and eventually the body will vote on which motion they prefer.

You want more study and/or investigation given to the idea being discussed.

Move to refer to a committee. Try to be specific as to the charge to the committee.

You want more time personally to study the proposal being discussed.

Move to postpone to a definite time or date.

You are tired of the current discussion.

Move to limit debate to a set period of time or to a set number of speakers. Requires a $2/3^{rds}$ vote.

You have heard enough discussion.

Move to close the debate. Requires a $2/3^{rds}$ vote. Or move to previous question. This cuts off discussion and brings the assembly to a vote on the pending question only. Requires a $2/3^{rds}$ vote.

You want to postpone a motion until some later time.

Move to table the motion. The motion may be taken from the table after 1 item of business has been conducted. If the motion is not taken from the table by the end of the next meeting, it is dead. To kill a motion at the time it is tabled requires a $2/3^{rds}$ vote. A majority is required to table a motion without killing it.

You believe the discussion has drifted away from the agenda and want to bring it back.
Call for orders of the day.

You want to take a short break.
Move to recess for a set period of time.

You want to end the meeting.
Move to adjourn.

You are unsure that the president of the board has announced the results of a vote correctly.
Without being recognized, call for a "division of the house." At this point a roll call vote will be taken.

You are confused about a procedure being used and want clarification.
Without recognition, call for "Point of Information" or "Point of Parliamentary Inquiry." The president of the board will ask you to state your question and will attempt to clarify the situation.

You have changed your mind about something that was voted on earlier in the meeting for which you were on the winning side.
Move to reconsider. If the majority agrees, the motion comes back on the floor as though the vote had not occurred.

You want to change an action voted on at an earlier meeting.
Move to rescind. If previous written notice is given, a simple majority is required. If no notice is given, a 2/3^{rds} vote is required.

You may INTERRUPT a speaker for these reasons only:

to get information about business – **point of information**
to get information about rules – **parliamentary inquiry**
if you can't hear, safety reasons, comfort, etc. – **question of privilege**
if you see a breach of the rules – **point of order**
if you disagree with the president of the board's ruling – **appeal**

Quick Reference					
	Must Be Seconded	**Open for Discussion**	**Can be Amended**	**Vote Count Required to Pass**	**May Be Reconsidered or Rescinded**
Main Motion	√	√	√	Majority	√
Amend Motion	√	√		Majority	√
Kill a Motion	√			Majority	√
Limit Debate	√		√	2/3^{rds}	√
Close Discussion	√			2/3^{rds}	√
Recess	√		√	Majority	
Adjourn (End meeting)	√			Majority	
Refer to Committee	√	√	√	Majority	√
Postpone to a later time	√	√	√	Majority	√
Table	√			Majority	
Postpone Indefinitely	√	√	√	Majority	√

MCKENNA

January 7, 2019

Township Board of Trustees and Planning Commission
Northfield Township
8350 Main Street
Whitmore Lake, MI 48189

Subject: **Zoning Administrator Quarterly Report 10/1/2018 – 12/31/2018**

Dear Trustees and Commissioners:

Section 36-971(6) of the Zoning Ordinance requires the Zoning Administrator to submit to the Township Board and Planning Commission, a quarterly report in which a summary of the activities of the office is presented. Following is a concise summary of the activities of note in the LAST quarter of 2018 (October 1 through December 31, 2018).

Zoning Compliance Applications: A total of 15 applications were APPROVED.

1. Approved four (4) new dwellings.
2. Approved four (4) new decks.
3. Approved two (2) new fence permits.
4. Approved one (1) solar panel array installation.
5. Approved one (1) private road application for review by PC.
6. Approved two (2) wireless equipment upgrade installations.

Non-residential Uses:

1. ***9547 Main Street/Bicycle Sales and Repair Shop –*** A retail sales and repair shop is proposed at a vacant space in the WLD-D District. The Township has no clear prior records of any approvals for the site. Proposed use is approved pending application for Administrative Site Plan approval.

Denied

1. One application for a shed addition was denied due to placement of addition within the side yard setback. Lot is large enough to easily accommodate a new structure or expansion in conformance to Ordinance standards. Request was denied. It appears property owner constructed the addition despite denial. Code enforcement officer is currently reviewing the situation.

2. One application for deck was denied due to placement of structure within the front yard setback. The applicant subsequently applied for and received approval for a variance.

Administrative Site Plan Approvals

1. ***Littlefish Design Inc./8425 N. Main Street*** – Conducted initial administrative review of proposal with applicant to operate an architectural and graphics design studio on a site previously used for industrial/high intensity commercial uses. Site was in a state of neglect and disrepair. Discussed required site plan improvements including the reorientation of parking spaces along the site's frontage located within Main Street right-of-way, onto the subject property. The applicant initially

agreed to the revisions but subsequently changed their mind. When an applicant chooses to disagree with an administrative review requirement, it is the option of the ZA to send the project over to the Planning Commission for review and approval. The applicant appeared before the PC and received conditional site plan approval.

2. ***665 W. 8 Mile Road/MDOT Park 'n Go*** – Reviewed and granted administrative site plan approval for the construction of an MDOT Park 'n Go facility with a bus drop off pick-up area and vehicle parking area. The site is a 5.6 acre parcel located on the south side of W. 8 Mile in the GC (General Commercial) District which allows essential services as principal permitted uses. The site plan included layout of parking, crosswalks, lighting and landscaping. MDOT has agreed to work with the Township on issuance of a permit for a non-motorized pathway along its south property line along the railroad, in the event the Township in the future decides to incorporate a Rails to Trails plan to connect the downtown. The site plan met all design standards with the exception of the size of the proposed trees which was 1.5" caliper for deciduous trees and 4' for evergreens. This is below the minimum size requirement of 2.5" caliper and 6' respectively. Approval was granted subject to tree sizes being revised to meet minimum standards.

3. ***9571 N. Main/Jump in Time Tack*** – Reviewed and granted administrative site plan approval for the existing retail use of the building, which was occupied with no Zoning Compliance approval or site plan approval for change of use. Approval included review of building façade (need for clean-up), addition of planters on the exterior and review of barrier free access for space and parking.

Zoning Board of Appeals Cases:

1. **9433 Sandalwood Drive/ Front Yard Setback** – Applicant requested variance from front yard setback requirement along Sandlewood and Timbercrest frontages to allow for the installation of barrier free access ramps and garage for use by the homeowner who is disabled. Variances were granted.

2. **808 W. Five Mile/Front Yard Setback** – Applicant requested a variance from front yard setback requirement to allow for the construction of a deck addition on the side of an existing non-conforming dwelling which was constructed in 1863. The location of an existing well, retaining wall, garage and the dwelling itself, limited the placement of the deck. Variance was granted.

Final Site Inspections:

1. ***Ann Arbor Dog Club/E. North Territorial*** – Inspected the site for compliance to site plan and conditional use approval granted by Township in November 2017. All improvements have been installed.

Zoning Administrator Office Hours:

Upon authorization from the Township Board, I have office hours at Township Hall every Wednesday for four (4) hours in the morning. I work with the Zoning Coordinator, Township Manager and Code Enforcement official to address and resolve issues by meeting with property owners and going on-site inspections. I am also available to meet by appointment with any citizen who has any questions or concerns regarding zoning matters. I continue to have meetings almost every Wednesday with homeowners to help them with zoning related questions. I also meet with existing business owners in response to code violation notices and with prospective business owners to help guide them.

The addition of a new Code Enforcement Officer has been helpful in addressing issues of long pending code violations. We are making slow progress in achieving compliance on some violators. At the

direction of the Township Attorney, and based upon guidance from the Township Board, the Code Officer has issued letters to some of the major violators to try and initiate a conversation on how to accomplish compliance with zoning regulations.

A draft text amendment clarifying the role, powers and authority of the of the Code Enforcement officer was presented to the Planning Commission; however the PC had questions and concerns regarding the language of the whole section and directed staff to do a revised amendment. The language in the relevant section has legal implications; therefore, the Code Enforcement Officer and I have requested the Township Attorney to review the language and amend it.

Other Items: The challenge of interacting with some property owners continues, with the Code Enforcement Officer and me interacting with property owners who are sometimes aggressive and occasionally hostile in their approach. We continue to do our best to be supportive of existing businesses in the Township will enforcing the Zoning Ordinance. Waiving requirements of the ordinance is not my prerogative.

As the Zoning Administrator, I strive to be prompt and attentive to the needs of the applicants while ensuring that they understand the process and also comply with the rules and regulations set forth in the Zoning Ordinance.

Respectfully submitted,
McKenna Associates

Vidya Krishnan
Senior Planner

Cc: Steven Aynes, Township Manager
Mary Bird, Zoning Coordinator
Jim Turner, Code Enforcement Officer
Paul Lippens, Planning Consultant

NORTHFIELD TOWNSHIP
PLANNING COMMISSION
Minutes of Regular Meeting
January 2, 2019

1. CALL TO ORDER

The meeting was called to order by Chair Roman at 7:00 P.M. at 8350 Main Street.

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL AND DETERMINATION OF QUORUM

Roll call:

Janet Chick	Present
Brad Cousino	Present
Eamonn Dwyer	Absent with notice
Sam Iaquinto	Present
Cecilia Infante	Present
Larry Roman	Present
John Zarzecki	Present

Also present:
Building/Planning/Zoning Coordinator Mary Bird
Planning Consultant Paul Lippens, McKenna Associates
Recording Secretary Lisa Lemble
Members of the Community

4. ADOPTION OF AGENDA

▶ **Motion:** Roman moved, Iaquinto supported, that the agenda be adopted as presented.
Motion carried 6—0 on a voice vote.

5. FIRST CALL TO THE PUBLIC

No comments.

6. CLARIFICATIONS FROM THE COMMISSION

None.

7. CORRESPONDENCE

None.

8. PUBLIC HEARINGS

None.

9. REPORTS

9A. Board of Trustees
Has not met since the last Planning Commission meeting.

9B. ZBA
Has not met since the last Planning Commission meeting.

9C. Staff Report
Nothing to report.

9D. Planning Consultant
Sloan noted a site plan will probably be on the next agenda.

9E. Parks and Recreation
Nothing new to report.

9F. Downtown Planning Group
Has not met since the last Planning Commission meeting.

10. UNFINISHED BUSINESS

10A. Further Discussion of Northfield Township Mater Plan Update.

Lippens reviewed proposed possible changes, including adding more LI zoning along Whitmore Lake Road.

In answer to a question, Lippens said the RTM north of Territorial and west of Nollar is represented by the industrial designation on the Land Use map.

Commissioners asked for a list of addresses and types of businesses in the area being proposed for LI zoning for discussion at the next meeting, as well as a description of how that proposed designation was arrived at.

In answer to a question from Chick regarding the US-23 and Eight Mile designation, Lippens said that change was made when the Commission looked at the downtown area, and the proposed designation corresponds to the “cottage retail” referenced in the downtown plan.

Draft

10B. Further Discussion of Recreational Medical Marijuana.

Lippens recalled the discussion at the last meeting about which type of marijuana facilities should be allowed in the various zoning districts. He referred to the chart in his December 20th memo reflecting that discussion.

He also referred to the map he had prepared showing the potential for the location and number of marijuana facilities given the proposed separation requirements. He noted this indicates that approximately 17 facilities could be located in commercial districts and 18 in industrial districts. He said he had not done a similar analysis for the AR district. He added that licensing regulations could limit the total number of facilities in addition to the zoning and separation restrictions.

Commissioners discussed the draft Conditional Use Standards. Comments included:

- Not using unspecified language such as "or like facility" is preferred.
- Not specifying schedules for inspections (such as by use of the term "quarterly") is preferred.
- Prohibiting the use of the words "marijuana" or "marihuana" on signs might be an unconstitutional restriction on content, and it could be an unfair restriction not placed on businesses serving or selling alcohol. However, prohibiting the use of the words "marijuana" or "marihuana" on signs for secure (non-retail) locations might be appropriate.
- Six months following closing of an operation before a CUP expires may be too long if there is a waiting list of other applicants. Lippens noted this could also be regulated through the licensing process. Three months was suggested.
- There needs to be clarification about whether the 500 foot separation from schools is measured from the building or the property line, and the elementary school needs to be included on the map. Opinions varied as to whether 500 feet was too much or too little, or whether than separation should be required only for retail operations.
- It could be useful to look at ordinances of nearby communities which have allowed medical marijuana sales, such as Ann Arbor, regarding signage and other regulations.
- Prohibiting neon and decorative signs seems unfair given that these are permitted for other businesses.
- The hours of operation proposed may appropriately apply to retail locations, but not growing and other facilities.
- Requiring a local license in addition to a State license would be another layer of regulation not required for liquor licenses.
- Opinions varied as to whether a minimum lot size of 10 acres in AR zoning might be too restrictive. It was noted there are five acre farms in existence now, and that these facilities will be allowed as conditional uses, not by right; however, a large part of the township is agricultural, and allowing facilities on five acre parcels could potentially be problematic.
- Standards can include odor abatement requirements, building design, etc.
- Prohibiting anyone from residing on the premises of a facility could be in conflict with the desirable multi-use character of the downtown area. That language should be clarified or eliminated.
- It would not be desirable to have clusters of retail marijuana shops or have the Township become known as the marijuana capital of the state.

It was agreed that:

- Regarding item 6: Remove this.
- Regarding item 7: Remove "or like facility." Also, more detail shown on a map is needed to assess whether the 500 foot radius should be from door to door or property line to property line.
- Regarding item 8: The separation requirement should be eliminated in the WLD districts, although the maximum number of facilities in the WLD districts should or could be limited
- Regarding item 9: Commissioners were split on whether the minimum lot size in AR should be 5 or 10 acres. A minimum setback or screening requirement could address concerns about 5 acre lots.
- Regarding item 10: The hours listed should apply only to retail operations.
- Regarding item 17: The reference to "quarterly" inspections should be removed.
- Regarding item 18: Signs should be subject to existing regulations, so this should be removed.
- Regarding item 20: The six month time period should be reduced to 90 days.

10A. Discuss 2019 Calendar.

It was agreed to vote on the meeting calendar at the next meeting.

DRAFT

11. NEW BUSINESS

None.

12. MINUTES

▶ **Motion:** Roman moved, Iaquinto supported, that the minutes of the December 19, 2018, regular meeting be approved as presented, and to dispense with the reading.
Motion carried 6—0 on a voice vote.

13. SECOND CALL TO THE PUBLIC

Lyn Watson, 3685 Five Mile Road, and Chuck Cozier, 7701 Sutton Road, made brief comments about the marijuana ordinance discussion, including about odors, the growing of hemp, and whether the Right to Farm Act would apply.

14. COMMENTS FROM THE COMMISSIONERS

Commissioners thanked Watson and Cozier for the information they provided, and announced the Michigan Pond Hockey event February 8-10.

15. ANNOUNCEMENT OF NEXT MEETING

January 16, 2019, at 7:00 P.M. at the Public Safety Building was announced as the next regular Commission meeting time and location.

16. ADJOURNMENT

▶ **Motion:** Roman moved, Iaquinto supported, that the meeting be adjourned.
Motion carried 6—0 on a voice vote.

The meeting was adjourned at 8:55 P.M.

Prepared by Lisa Lemble.
Corrections to the originally issued minutes are indicated as follows:
Wording removed is ~~stricken through~~;
Wording added is underlined.

Adopted on _____, 2019.

_____ _____
Larry Roman, Chair John Zarzecki, Secretary

Official minutes of all meetings are available on the Township's website at
http://www.twp-northfield.org/government/

Draft