

GENOA CHARTER TOWNSHIP BOARD
Regular Meeting
July 1, 2019
6:30 p.m.

AGENDA

Call to Order:

Pledge of Allegiance:

Call to the Public (Public comment will be limited to two minutes per person)*:

Approval of Consent Agenda:

1. Payment of Bills.
2. Request to Approve Minutes: June 17, 2019

Approval of Regular Agenda:

3. Request for approval on the proposed ordinance number 190701, granting to Consumers Energy Company, its successors and assigns, the right and authority to lay, maintain and commercially operate gas lines and facilities including but not limited to mains, pipes, services and on, under, along, and across public places including but not limited to highways, streets, alleys, bridges, and waterways, and to conduct a local gas business in the Charter Township of Genoa, Livingston County, Michigan, for a period of thirty years. Roll call vote.

- A. Call to the Public
- B. Disposition of Request

4. Consideration of a recommendation for approval of a special use, site plan and environmental impact assessment for a proposed 59,400 sq. ft. industrial building for Masonite Corporation. The property in question is located at 5665 Sterling Drive, Brighton on parcels #4711-15-200-028, 029 & 030. The request is petitioned by Schonscheck, Inc.

- A. Disposition of Special Use Application
- B. Disposition of Environmental Impact Assessment (4-24-19)
- C. Disposition of Site Plan (5-22-19)

5. Consider approval of a Transfer Agreement for Fire Stations 32 and 34 from Genoa Charter Township to the Brighton Area Fire Authority.

Correspondence
Member Discussion
Adjournment

*Citizen's Comments- In addition to providing the public with an opportunity to address the Township Board at the beginning of the meeting, opportunity to comment on individual agenda items may be offered by the Chairman as they are presented.

CHECK REGISTERS FOR TOWNSHIP BOARD MEETING

DATE: July 1 2019

TOWNSHIP GENERAL EXPENSES: Thru July 1 2019	\$166,220.90
06/28/2019 Bi Weekly Payroll	\$94,815.07
OPERATING EXPENSES: Thru July 1 2019	\$209,517.96
TOTAL:	<u>\$470,553.93</u>

Check Date	Check	Vendor Name	Amount
Bank FNBACK CHECKING ACCOUNT			
06/14/2019	35334	BLUE CROSS & BLUE SHIELD OF MI	38,464.73
06/14/2019	35335	CONSUMERS ENERGY	150.36
06/14/2019	35336	LIVINGSTON COUNTY MUNICIPAL CL	20.00
06/14/2019	35337	SHARON STONE	244.76
06/14/2019	35338	US BANK EQUIPMENT FINANCE	1,840.85
06/14/2019	35339	WELLNESS IQ	164.00
06/18/2019	35340	ADVANCED DISPOSAL SERVICES	87,658.92
06/18/2019	35341	DYKEMA GOSSETT, PLLC	648.00
06/18/2019	35342	EHIM, INC	7,478.49
06/18/2019	35343	ETNA SUPPLY COMPANY	14,560.30
06/18/2019	35344	VERIZON WIRELESS	1,786.91
06/19/2019	35345	BULLSEYE TELECOM	258.49
06/19/2019	35346	DELTA DENTAL	3,804.22
06/19/2019	35347	GUARDIAN	2,668.15
06/19/2019	35348	LIVINGSTON COUNTY CLERK	10.00
06/19/2019	35349	W4 SIGNS	105.00
06/20/2019	35350	MICHAEL ARCHINAL	500.00
06/20/2019	35351	BUSINESS IMAGING GROUP	821.47
06/20/2019	35352	CHASE CARD SERVICES	325.04
06/20/2019	35353	FEDERAL EXPRESS	41.31
06/20/2019	35354	MASTER MEDIA SUPPLY	400.36
06/20/2019	35355	SAFEBUILT STUDIO	4,229.54
06/20/2019	35356	UNITED STATES POSTAL SERVICE	40.00

FNBACK TOTALS:

Total of 23 Checks:	166,220.90
Less 0 Void Checks:	0.00
Total of 23 Disbursements:	166,220.90

Check Date	Check	Vendor Name	Amount
Bank 503FN DPW-UTILITIES #503			
06/13/2019	4673	AK SERVICE DRIVER TESTING, LI	150.00
06/13/2019	4674	ASCENSION MICHIGAN	330.00
06/13/2019	4675	STAPLES CREDIT PLAN	64.98
06/13/2019	4676	U.S. POSTMASTER	157.92
06/13/2019	4677	WINDSTREAM	43.85
06/14/2019	4678	BRIGHTON FORD INC.	417.38
06/14/2019	4679	CHASE CARD SERVICES	3,789.09
06/14/2019	4680	COMPLETE BATTERY SOURCE	150.00
06/14/2019	4681	GIFFELS WEBSTER	2,490.00
06/14/2019	4682	NORTHWEST PIPE & SUPPLY	152.93
06/14/2019	4683	RED WING BUSINESS ADVANTAGE ACCOUNT	582.48
06/14/2019	4684	TETRA TECH INC	4,887.50
06/14/2019	4685	USA BLUEBOOK	608.73
06/14/2019	4686	VERIZON WIRELESS	766.90
06/14/2019	4687	VICTORY LANE QUICK OIL CHANGE	96.97
06/20/2019	4688	GREG TATARA	700.00
06/20/2019	4689	PORT CITY COMMUNICATIONS, INC.	298.84
06/20/2019	4690	STERLING	160.00
06/21/2019	4691	A.K. SERVICES	150.00

503FN TOTALS:

Total of 19 Checks:	15,997.57
Less 0 Void Checks:	0.00
Total of 19 Disbursements:	15,997.57

Check Date	Check	Vendor Name	Amount
Bank 592FN OAK POINTE OPERATING FUND #592			
06/17/2019	4607	AT&T	147.65
06/17/2019	4608	BRIGHTON ANALYTICAL , L.L.C.	370.00
06/17/2019	4609	BYRUM ACE HARDWARE	10.99
06/17/2019	4610	COOPER'S TURF MANAGEMENT LLC	6,003.00
06/17/2019	4611	DUBOIS-COOPER	101,974.20
06/17/2019	4612	GENOA TOWNSHIP D.P.W. FUND	22,717.67
06/17/2019	4613	GENOA OCEOLA SEWER AUTHORITY	89.65
06/17/2019	4614	GENOA TOWNSHIP DPW FUND	19,068.50
06/17/2019	4615	GRAINGER	612.11
06/17/2019	4616	LIVINGSTON PRESS & ARGUS	1,020.00
06/17/2019	4617	TLS CONSTRUCTION	3,611.00
06/21/2019	4618	AT&T LONG DISTANCE	41.58
06/21/2019	4619	BRIGHTON ANALYTICAL , L.L.C.	185.00
06/21/2019	4620	CONSUMERS ENERGY	91.56

592FN TOTALS:

Total of 14 Checks:	155,942.91
Less 0 Void Checks:	0.00
Total of 14 Disbursements:	155,942.91

Check Date	Check	Vendor Name	Amount
Bank 593FN LAKE EDGEWOOD OPERATING FUND #593			
06/14/2019	3603	BRIGHTON ANALYTICAL , L.L.C.	67.00
06/14/2019	3604	CONSUMERS ENERGY	149.81
06/14/2019	3605	GENOA TOWNSHIP DPW FUND	1,022.95
06/17/2019	3606	COOPER'S TURF MANAGEMENT LLC	577.00
06/17/2019	3607	GENOA TOWNSHIP D.P.W. FUND	11,384.25
06/17/2019	3608	GENOA OCEOLA SEWER AUTHORITY	2,977.53
06/17/2019	3609	HARTLAND SEPTIC SERVICE, INC.	6,750.00
06/17/2019	3610	K & J ELECTRIC, INC.	264.00
06/17/2019	3611	USA BLUEBOOK	812.10
593FN TOTALS:			
Total of 9 Checks:			24,004.64
Less 0 Void Checks:			0.00
Total of 9 Disbursements:			24,004.64

Check Date	Check	Vendor Name	Amount
Bank 595FN PINE CREEK OPERATING FUND #595			
06/14/2019	2212	GENOA TOWNSHIP DPW FUND	3,572.84
06/19/2019	2213	CITY OF BRIGHTON	10,000.00
595FN TOTALS:			
Total of 2 Checks:			13,572.84
Less 0 Void Checks:			0.00
Total of 2 Disbursements:			13,572.84

GENOA CHARTER TOWNSHIP BOARD
Regular Meeting
June 17, 2019

MINUTES

Supervisor Rogers called the Regular Meeting of the Genoa Charter Township Board to order at 6:30 p.m. at the Township Hall with the Pledge of Allegiance. The following members were present constituting a quorum for the transaction of business: Bill Rogers, Paulette Skolarus, Robin Hunt, Jean Ledford, Terry Croft, Jim Mortensen and Diana Lowe. Also present were Township Assistant Manager Kelly VanMarter and one person in the audience.

A Call to the Public was made with no response.

Approval of Consent Agenda:

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

1. Payment of Bills.

2. Request to Approve Minutes: June 3, 2019

Approval of Regular Agenda:

Moved by Ledford and supported by Croft to approve for action all items listed under the Regular Agenda, changing the word schedule to conduct on item 5 concerning Consumers Energy Company, as requested. The motion carried unanimously.

3. Discussion and possible action regarding the construction of a basketball court at Genoa Park.

Hunt provided an overview of the two bids that were solicited. The two bids contained different guideline related to construction. The first bid included fencing and the second did not. Bidders will be asked for an alternate bid related to the construction of the first court and grading for the future site, depth of the concrete, fencing and painting. This proposal will be included in the July 1, 2019 board package for final action.

4. Request for approval of repairs and maintenance for the parking lots and driveway at the Township Hall in an amount not to exceed \$14,940.42 from DeBottis Development and Asphalt Maintenance LLC.

Moved by Skolarus and supported by Lowe to approve the repairs and maintenance for the low bidder as requested for the driveway and parking lots at the township hall. The motion carried unanimously.

5. Request to introduce and conduct the first reading on proposed ordinance number 190701, granting to Consumers Energy Company, its successors and assigns, the right and authority to lay, maintain and commercially operate gas lines and facilities including but not limited to mains, pipes, services and on, under, along, and across public places including but not limited to highways, streets, alleys, bridges, and waterways, and to conduct a local gas business in the Charter Township of Genoa, Livingston County, Michigan, for a period of thirty years.

Kathryn Burkholder, representing Consumers Energy, addressed the board. Our contract is not exclusive and other gas suppliers may be used for the purchase of gas. Mortensen suggested that the township attorney review the contract prior to the next regular meeting of the board. No formal action was taken.

6. Discussion regarding the Township’s water shut-off policy.

The policy was discussed, with consideration for the separation of industrial properties and residential properties related to water shut-off. At this time all unpaid water bills are added to the tax bill in December. If the tax bill is not paid, the County then accepts responsibility for collection. Some member felt that there was not a need to change the 1989 ordinance or existing procedure. The board took no formal action.

The regular meeting of the Genoa Charter Township Board was adjourned at 7:10 p.m.



Paulette A. Skolarus, Clerk
Genoa Charter Township Board

Polly

From: Joe Seward <jseward@sewardhenderson.com>
Sent: Thursday, June 27, 2019 7:07 AM
To: Polly
Subject: RE: RE:

You are welcome



T. Joseph Seward
210 East Third Street, Suite 210
Royal Oak, MI 48067
T 248.733.3580
F 248.733.3633
E jseward@SewardHenderson.com

From: Polly [<mailto:pskolarus@genoa.org>]
Sent: Wednesday, June 26, 2019 9:30 PM
To: Joe Seward <jseward@sewardhenderson.com>
Subject: Re: RE:

Thank you.

Sent from my iPad

On Jun 26, 2019, at 4:51 PM, Joe Seward <jseward@sewardhenderson.com> wrote:

Polly I am fine with the language of the ordinance. It complies with the statutes and the state constitution.

Joe

<image001.png>
T. Joseph Seward
210 East Third Street, Suite 210
Royal Oak, MI 48067
T 248.733.3580
F 248.733.3633
E jseward@SewardHenderson.com

From: Polly [<mailto:pskolarus@genoa.org>]
Sent: Tuesday, June 18, 2019 11:54 AM
To: Joe Seward <jseward@sewardhenderson.com>
Subject:

Joe, Jim Mortensen asked for your review of the attached document. Every 30 years Consumers asks for renewal of their franchise agreement. We held the first reading last evening with a final approval for

July 1st. I don't think this needs a lot of work, just a quick review and approval. Thank you in advance. Polly

Polly

To: Jessah A. Rolstone
Subject: RE: Consumers Energy Franchise Renewal for the Charter Township of Genoa, Livingston County

Jessica, The first reading will be scheduled for June 17, 2019 and a final review and approval on July 1, 2019. Polly

From: Jessah A. Rolstone [mailto:Jessah.Rolstone@cmsenergy.com]
Sent: Monday, May 20, 2019 10:15 AM
To: Polly
Cc: Kathryn L. Burkholder
Subject: Consumers Energy Franchise Renewal for the Charter Township of Genoa, Livingston County

Dear Clerk,

As you may be aware, the Consumers Energy Franchise for Genoa Charter Township expires on November 16, 2019. The Franchise allows Consumers to serve gas to your residents and businesses. To renew the Franchise I have enclosed:

1. Possible Franchise Enactment Schedule.
2. Consumers Energy Company Gas Franchise Ordinance.

What you need to do:

1. Please have the Charter Township Board properly enact the Franchise a few months prior to expiration.
2. After enactment, please provide me with a copy of the enacted Franchise.
3. Contact either myself or the local Consumers Area Manager Kathryn Burkholder with any questions or concerns you may have.

Please let us know if there is anything we can do to help you with this process.

Thank you,

Jessah Rolstone
Community Affairs
Grand Rapids Service Center
4000 Clay Ave SW, Grand Rapids, MI 49548
WORKING TO DELIVER THE ENERGY YOU NEED, WHENEVER YOU NEED IT.
THAT'S OUR PROMISE TO MICHIGAN!



Possible Franchise Enactment Schedule
REVOCABLE GAS FRANCHISE
CHARTER TOWNSHIP OF GENOA, LIVINGSTON COUNTY, MICHIGAN

First Meeting

Meeting of Township Board

Franchise Ordinance introduced

Ordinance published (in full) and held for public inspection

Second Meeting

Meeting of Township Board

Franchise Ordinance passed

Within 15 days

Publish complete franchise ordinance (in full)

ORDINANCE NO. 190701

GENOA CHARTER TOWNSHIP
Notice of a Proposed Consumers Energy Gas Franchise Ordinance
First Reading June 17, 2019
Second Reading July 1, 2019

CONSUMERS ENERGY COMPANY GAS FRANCHISE ORDINANCE

AN ORDINANCE, granting to CONSUMERS ENERGY COMPANY, its successors and assigns, the right and authority to lay, maintain and commercially operate gas lines and facilities including but not limited to mains, pipes, services and on, under, along, and across public places including but not limited to highways, streets, alleys, bridges, and waterways, and to conduct a local gas business in the CHARTER TOWNSHIP OF GENOA, LIVINGSTON COUNTY, MICHIGAN, for a period of thirty years.

THE CHARTER TOWNSHIP OF GENOA ORDAINS:

SECTION 1. GRANT and TERM. The CHARTER TOWNSHIP OF GENOA, LIVINGSTON COUNTY, MICHIGAN, hereby grants to Consumers Energy Company, its successors and assigns, hereinafter called "Consumers" the right and authority to lay, maintain and commercially operate gas lines and facilities including but not limited to mains, pipes, services and valves on, under, along, and across public places including but not limited to highways, streets, alleys, bridges, and waterways, and to conduct a local gas business in the CHARTER TOWNSHIP OF GENOA, LIVINGSTON COUNTY, MICHIGAN, for a period of thirty years.

SECTION 2. CONDITIONS. No public place used by Consumers shall be obstructed longer than necessary during construction or repair, and shall be restored to the same order and condition as when work was commenced. All of Consumers' gas lines and related facilities shall be placed as not to unnecessarily interfere with the public's use of public places. Consumers shall have the right to trim or remove trees if necessary in the conducting of such business.

SECTION 3. HOLD HARMLESS. Consumers shall save the Charter Township free and harmless from all loss, costs and expense to which it may be subject by reason of the negligent construction and maintenance of the lines and related facilities hereby authorized. In case any action is commenced against the Charter Township on account of the permission herein given, Consumers shall, upon notice, defend the Charter Township and its representatives and hold them harmless from all loss, costs and damage arising out of such negligent construction and maintenance.

SECTION 4. EXTENSIONS. Consumers shall construct and extend its gas distribution system within said Charter Township, and shall furnish gas service to applicants residing therein in accordance with applicable laws, rules and regulations.

SECTION 5. FRANCHISE NOT EXCLUSIVE. The rights, power and authority herein granted, are not exclusive.

SECTION 6. RATES and CONDITIONS. Consumers shall be entitled to provide gas service to the inhabitants of the Charter Township at the rates and pursuant to the conditions as approved by the Michigan Public Service Commission. Such rates and conditions shall be subject to review and change upon petition to the Michigan Public Service Commission.

SECTION 7. REVOCATION. The franchise granted by this ordinance is subject to revocation upon sixty (60) days written notice by either party. Upon revocation this ordinance shall be considered repealed and of no effect past, present or future.

SECTION 8. MICHIGAN PUBLIC SERVICE COMMISSION JURISDICTION. Consumer's remains subject to the reasonable rules and regulations of the Michigan Public Service Commission applicable to gas service in the Charter Township and those rules and regulations preempt any term of any ordinance of the Charter Township to the contrary.

SECTION 9. REPEALER. This ordinance, when enacted, shall repeal and supersede the provisions of any previous gas franchise ordinance adopted by the Charter Township including any amendments.

SECTION 10. EFFECTIVE DATE. This ordinance shall take effect on July 15, 2019.

We certify that the foregoing Franchise Ordinance was duly enacted by the Genoa Charter Township Board of Genoa Charter Township, Livingston County, Michigan, on July 1, 2019

Bill Rogers, Genoa Charter Township Supervisor

Attest:

I, Paulette A Skolarus, Clerk of the Genoa Charter Township, Livingston County, Michigan, do hereby certify that the ordinance granting Consumers Energy Company, a gas franchise, was properly adopted by the Genoa , Livingston County, Michigan, and that all proceedings were regular and in accordance with all legal requirements.

Paulette A. Skolarus, Genoa Charter Township Clerk

Dated: _____, 20__

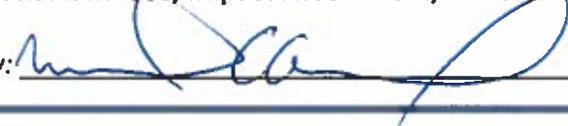
(LCP 07/08/2019)



MEMORANDUM

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

TO: Honorable Board of Trustees
FROM: Kelly VanMarter, Assistant Manager/Community Development Director
DATE: June 25, 2019
RE: Masonite – New 59,400 sq. ft. building
Special land Use, Impact Assessment, and Site Plan

Managers Review: 

Attached please find the project case file for a new 59,400 square foot industrial building involving manufacturing, storage, office, and distribution of door frames and commercial doors. The project involves 3 parcels (one with an existing building) located at the western end of Sterling Drive. The plans involve reconfiguring the parcels to create 2 parcels, one for the proposed new building and another for the existing building. The project is designed for both parcels to have shared stormwater management and emergency access. The property is within the Industrial zoning district (IND) and the request is petitioned by Schonshek, Inc.

Procedurally, the Planning Commission is to make a recommendation to the Township Board on the special land use, site plan and impact assessment. The Township Board has the final review/approval authority over the proposal. The Planning Commission recommended approval at their meeting held on June 24, 2019. Based on the action of the Planning Commission I suggest Board consideration of the following actions:

Moved by _____, Supported by _____ to APPROVE the special use permit for an industrial building over 40,000 square feet located at 5665 Sterling Drive, Brighton on parcels #4711-15-200-028, 029 & 030. This approval is granted because it has been found that the request meets the requirements of Section 19.03 of the Township Ordinance.

Moved by _____, Supported by _____ to APPROVE the Environmental Impact Assessment dated April 24, 2019 for a proposed 59,400 square foot industrial building located at 5665 Sterling Drive, Brighton on parcels #4711-15-200-028, 029 & 030.

- SUPERVISOR**
Bill Rogers
- CLERK**
Paulette A. Skolarus
- TREASURER**
Robin L. Hunt
- TRUSTEES**
Jean W. Ledford
H. James Mortensen
Terry Croft
Diana Lowe
- MANAGER**
Michael C. Archinal

June 25, 2019

Masonite – Special Land Use, Impact Assessment and Site Plan

Page 2 of 2

Moved by _____, Supported by _____ to APPROVE the site plan dated May 22, 2019 or a proposed 59,400 square foot industrial building located at 5665 Sterling Drive, Brighton on parcels #4711-15-200-028, 029 & 030 with the following conditions:

1. All existing easements conflicting with the proposed project shall be extinguished prior to issuance of a land use permit.
2. Parcel reconfiguration and easements for shared drainage and reciprocal access shall be provided prior to issuance of a Land Use Permit.
3. The discharge of the detention pond and drainage for the emergency access drive shall be addressed and approved by the Township Engineer.
4. The requirements of the Fire Department shall be complied with.
5. The corrections to the building size and landscaping plan as requested by the Township planner in the letter dated June 4, 2019 shall be made.
6. All conditions of the Township Engineer in the review letter dated June 3, 2019 shall be addressed.
7. Construction plan review and necessary utility easements shall be required prior to construction.
8. Water and sewer REU's shall be re-allocated as part of the parcel reconfiguration or payment of tap fees will be required for the proposed building.

Should you have any questions concerning this matter, please do not hesitate to contact me.

Sincerely,



Kelly VanMarter

Assistant Township Manager/Community Development Director



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Schonscheck, Inc. 50555 Pontiac Trail, Wixom, MI 48393
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Masonite Corporation

SITE ADDRESS: 5665 Sterling Drive PARCEL #(s): 4711-15-200-028 / 4711-15-200-029
4711-15-200-030

APPLICANT PHONE: (248) 669-8800 OWNER PHONE: (920) 365-2222

OWNER EMAIL: barmbruster@masonite.com

LOCATION AND BRIEF DESCRIPTION OF SITE: _____

The project is located at 5665 Sterling Drive, Howell, MI 48843. Masonite Corporation

owns the three parcels and their current facility is located on the north parcel.

This project will be built on the other two vacant parcels.

BRIEF STATEMENT OF PROPOSED USE: _____

Masonite Corporation manufactures, stores and distributes pocket door frames

and commercial architectural wood doors. Due to growth, the new facility will

accommodate expansion space needed to meet the industry demand.

THE FOLLOWING BUILDINGS ARE PROPOSED: _____

59,400 SF facility with related site work and improvements.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY:  Dave R. Haskins

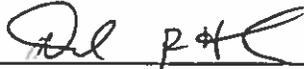
ADDRESS: 50555 Pontiac Trail Wixom, MI 48393

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Dave R. Haskins of Schonsheck, Inc. at dhaskins@schonsheck.com
Name Business Affiliation E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE  DATE 5-1-19
PRINT NAME Dave R Haskins PHONE 248-669-8800
ADDRESS 50555 Pontiac Trail Wixom, MI 48393



**GENOA CHARTER TOWNSHIP
Special Land Use Application**

This application **must** be accompanied by a site plan review application and the associated submittal requirements. (The Zoning Official may allow a less detailed sketch plan for a change in use.)

APPLICANT NAME & ADDRESS: Schonscheck, Inc. 50555 Pontiac Trail Wixom, MI 48393

Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

APPLICANT PHONE: (248) 669-8800 EMAIL: dhaskins@schonscheck.com

OWNER NAME & ADDRESS: Masonite Corporation

SITE ADDRESS: 5665 Sterling Drive PARCEL #(s): 4711-15-200-028 / 4711-15-200-029

4711-15-200-030

OWNER PHONE: (920) 365-2222 EMAIL: barnbruster@masonite.com

Location and brief description of site and surroundings:

Zoned industrial, located at the end of Sterling Drive and surrounded by other industrial uses.

Proposed Use:

New manufacturing facility

Describe how your request meets the Zoning Ordinance General Review Standards (section 19.03):

- a. Describe how the use will be compatible and in accordance with the goals, objectives, and policies of the Genoa Township Comprehensive Plan and subarea plans, and will promote the Statement of Purpose of the zoning district in which the use is proposed.

The new facility of an existing industrial (IND) use that has been in Genoa Township and in operation since 1999.

- b. Describe how the use will be designed, constructed, operated, and maintained to be compatible with, and not significantly alter, the existing or intended character of the general vicinity.

As stated above, the new facility of an existing Industrial (IND) use that has been in operation since 1999. The new facility will meet the ordinance for exterior building wall materials.

- c. How will the use be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, water and sewage facilities, refuse disposal and schools?

The new facility will be serviced by extending public utilities.

A fire protection system included for adequate protection in the event of a fire.

d. Will the use involve any uses, activities, processes, or materials potentially detrimental to the natural environment, public health, safety, or welfare by reason of excessive production of traffic, noise, vibration, smoke, fumes, odors, glare, or other such nuisance? If so, how will the impacts be mitigated?

The new facility will not impact the natural environment, public health, safety, or welfare and will not produce excessive traffic, noise, vibration, smoke, fumes, odors, or glare

e. Does the use have specific criteria as listed in the Zoning Ordinance (sections 3.03.02, 7.02.02, & 8.02.02)? If so, describe how the criteria are met.

The use (IND) does not impact section 3.03.02 & 7.02.02

The proposed use is in compliance with PERMITTED AND SPECIAL LAND USES section 8.02.02

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I AGREE TO DESIGN, CONSTRUCT AND OPERATE, AND MAINTAIN THESE PREMISES AND THE BUILDINGS, STRUCTURES, AND FACILITIES WHICH ARE GOVERNED BY THIS PERMIT IN ACCORDANCE WITH THE STATED REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORDINANCE, AND SUCH ADDITIONAL LIMITS AND SAFEGUARDS AS MAY BE MADE A PART OF THIS PERMIT.

THE UNDERSIGNED Schonscheck, Inc. STATES THAT THEY ARE THE FREE OWNER OF THE PROPERTY OF PROPERTIES DESCRIBED ABOVE AND MAKES APPLICATION FOR THIS SPECIAL LAND USE PERMIT.

BY: [Signature] Dave R. Haskins

ADDRESS: 50555 Pontiac Trail Wixom, MI 48393

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

Dave R. Haskins of Schonscheck, Inc. at dhaskins@schonscheck.com
Name Business Affiliation Email

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: [Signature] DATE: 5-1-19

PRINT NAME: Dave R. Haskins PHONE: 248-669-8800



April 26, 2019

Genoa Township
2911 Dorr Rd.
Brighton, MI 48116

To Whom It May Concern:

This letter hereby authorizes Schonscheck, Inc. to act as our designated agent, exclusively as it relates to our new proposed facility, located at 5665 Sterling Drive, Howell, MI. As such, Schonscheck, Inc. and their representatives will apply for all site plan approval and municipal permitting on behalf of Masonite Corporation.

Sincerely,

Matt Hamlin
Director of Engineering
Masonite Corporation

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION PUBLIC HEARING
SPECIAL MEETING
JUNE 24, 2019
6:30 P.M.
AGENDA**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Jeff Dhaenens, Jill Rickard, Chris Grajek and Eric Rauch. Absent were Marianne McCreary and Jim Mortensen. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Brian Borden of SafeBuilt Studio, and Gary Markstrom of Tetra Tech. There were ten audience members present.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by Commissioner Rickard, seconded by Commissioner Grajek, to approve the agenda as presented. **Motion carried unanimously.**

CALL TO THE PUBLIC: The call to the public was made at 6:32 pm with no response.

OPEN PUBLIC HEARING # 1... Review of a special use, site plan and environmental impact assessment for a proposed 60,335 sq. ft. industrial building located at 5665 Sterling Drive, Brighton. The request is petitioned by Schonscheck, Inc.

Mr. Dave Haskins with Schonscheck and Mr. Allan Pruss with Monument Engineering were present. Mr. Haskins explained that Masonite is the parent company of US Wood Door. Masonite purchased A & F Wood products in 2017. The existing building is at capacity. In addition to the parcel with the existing building they purchased 2 additional vacant parcels. They intend to reconfigure the parcel with the existing building and combining parcels 2 and 3 into one large parcel. The plans are to build a new building and eventually sell or lease the existing building. The proposed building is 59,400 square feet. There is a truck dock on the west with possible future expansion to the south. The building is proposed to be made of precast concrete for durability. Approximately 5,000 square feet is office with 55,000 being the shop comprised of warehousing and manufacturing. US Wood Door corporate colors are red and gray. They are proposing red accent colors on the east and north elevations. The majority of the building will be light gray with darker gray accents. They have also added landscaping to help break up the elevations on long building sides as requested. The north elevation has red vertical accents and red "fin" decorative accents. They are also proposing red for the canopy roof on the front elevation.

Chairman Brown indicated to the Commission that he drove the highway to check site visibility and was not able to see the existing building.

Mr. Brian Borden reviewed his letter dated June 10, 2019. This requires special land use due to the building size. There is a small correction that needs to be made to the building size and any offsite improvements will need approval from adjacent owners. Mr. Pruss responded that they own all the parcels and will ensure that shared access and stormwater agreements are provided.

Mr. Borden states that the applicant is requesting relief from the wall and/or berm requirement of the buffer zone B standard. Chairman Brown asked how far they are from I-96. Mr. Borden responded approximately 279 feet. Mr. Pruss stated that in addition to the distance, the building is over 15 feet up from the highway due to topography on the site so a wall or berm wouldn't screen the building.

Mr. Borden indicates that no signage is shown and the applicant will need sign permits for any proposed signs.

Mr. Gary Markstrom reviews his letter dated June 3, 2019. There will need to be reciprocal easements for the stormwater system. Construction plans will be required for the public watermain. The Fire Department Connection shall be relocated. There is a concern over where water from the service drive will go and where the outflow from the detention basin will go. Mr. Pruss indicates they plan to address these issues. Chairman Brown asked if this should be a condition of approval. Mr. Markstrom responds that they should be required for approval.

Chairman Brown reviewed the comments in the Fire Department letter dated June 3, 2019. Mr. Pruss indicated that they will continue to work with the Fire Department and will address their issues.

Commissioner Grajek questioned why they show 5 overhead truck doors when the impact assessment says they only get 1 to 2 truck deliveries per week. It seems that the loading needs described don't match what is shown. Mr. Haskins responds that Masonite is planning for the future and this is what they told him they needed. Ms. Judy Richardson the office manager for US Wood Door stated that they currently have 4 doors and only 3 trucks but due to timing and other logistics issues the extra doors are necessary.

Commissioner Rickard asks if the parking and drive aisles as shown are permitted in the setbacks and if the building is in an existing watermain easement. Mr. Markstrom responded that the existing easements will need to be eliminated. Mr. Borden stated that the setback requirements are met.

Commissioner Dhaenens suggested that they serve the building with multiple telecommunications providers for good planning.

The call to the public was made at 7:03pm with the following response:

Gary Mitter of 5796 E. Grand River owns the property to the north and has 5 major concerns. The first concern is that the turnaround which is needed is not big enough for a semi to turn around. This is an industrial area and semi-trucks will need to be able to turn around. The second

concern is the fire lane access to Gray Road. This access area will need to be completely fenced because there is much vandalism and theft from Gray Road on his property. If there is no solid fence it will become an access point for people. The third concern is the way this property is currently divided into three sections. The fire access road should come in on the middle of the property to serve all the parcels and future users. The last concern is related to the water in the pond and the drainage. The drainage now goes to the east and the stormwater facility should be put in the low area.

Mr. Pruss states that they are proposing a gate for the access road but it will not be fenced. Mr. Mitter responded that it will need to be fenced because they are providing access to his property and they will cut the fence and steal from him. He has been here a very long time. This should be one parcel instead of three and there must be a proper turn around. Mr. Haskins indicated that they have gone through great lengths to meet with Township staff and have spent considerable effort to comply with all standards.

The call to the public was closed at 7:10pm.

Commissioner Grajek questioned if the turnaround is big enough. Mr. Markstrom responded that it has a 50 foot radius cul-de-sac which meets standards. There isn't enough right of way to go any bigger.

A. Recommendation of Special Use Application

Moved by Commissioner Grajek to recommend to the Township Board approval of the Special Land Use for an industrial building over 40,000 square feet located at 5665 Sterling Drive, Brighton. This recommendation is made because the project complies with the standards of Section 19.03 of the Township Zoning Ordinance.

Supported by Commissioner Rauch.

Motion carried unanimously.

B. Recommendation of Environmental Impact Assessment (5-22-19)

Moved by Commissioner Grajek to recommend approval to the Township Board of the Environmental Impact Assessment dated April 24, 2019 for a proposed 59,400 square foot industrial building located at 5665 Sterling Drive, Brighton.

Supported by Commissioner Rauch.

Motion carried unanimously.

C. Recommendation of Site Plan (5-22-19)

Moved by Commissioner Grajek to recommend approval to the Township Board of the Site Plan dated May 22, 2019 for a proposed 59,400 square foot industrial building located at 5665 Sterling Drive, Brighton subject to the following:

1. The buffer zone B requirement for the berm or wall is waived due to the presence of existing vegetation, distance from the property line and topography.
2. Easements for utilities, shared drainage and reciprocal access shall be provided.

3. The discharge of the detention pond shall be addressed and approved by the Township Engineer.
4. The requirements of the Fire Department shall be complied with.
5. The corrections to the building and landscaping as requested by the Township planner shall be made.
6. All conditions of the Township Engineer and Township Planner in their respective review letters shall be addressed.
7. Construction plan review and necessary utility easements shall be required.
8. The building materials submitted this evening are acceptable and will become property of the Township.

Supported by Commissioner Rauch.

Motion carried unanimously.

OPEN PUBLIC HEARING #2... Review of an environmental impact assessment and a site plan for a proposed 358 sq. ft. building expansion and parking lot expansion for Enterprise Rental Car located at 7184 Grand River Avenue, Brighton. The request is petitioned by Enterprise Leasing Company.

Scott Inman with Enterprise and Andre Brooks the designer were present. Mr. Inman states that they are looking to expand their current car wash facility. They have a single bay and would like to have 2 wash bays to be more efficient and better serve their customers. They are proposing to come off 8 feet to the south with a building addition. They are also asking as an extra request to be able to pave the existing gravel parking lot. They initially were only going to ask for the building addition but decided to add the parking area since they were already going through the process. This request is to improve customer service.

Chairman Brown asked if the customer parking is currently in the back. Mr. Inman responded that it is.

Brian Borden presents his review letter dated June 4, 2019. Procedurally the Planning Commission recommends the impact assessment and approves the site plan. There are minor inconsistencies on the building addition size that need to be corrected in addition to lot area calculations that need to be provided. Mr. Brooks indicates that he provided a response letter to Mrs. VanMarter to address these issues. The new lot coverage amount is 54% impervious.

Mr. Borden indicates that the proposed building materials are not to current ordinance standards but they Planning Commission has discretion to allow them to match the existing building. The drive aisle is 20 feet and the ordinance standard is 24 feet. The applicant shall indicate compliance with the aisle width standard. Mr. Brooks responds that the dimensioning plan shows that it is the required 24 feet.

Mr. Borden states that they should make the small correction to the parking numbers and also he is suggesting consideration of eliminating non-conformities if possible. Non-conforming issues such as lighting or signs can be considered. Mr. Inman responds that they have upgraded to LED light fixtures and he has pictures if they are needed.

Mr. Borden suggests one additional Grand River greenbelt tree be planted to meet the ordinance requirement. In addition, more information is needed to confirm compliance with the waste receptacle standards. Mr. Brooks stated that sheet C-3 contains the waste receptacle standards. Mr. Borden reviews the details and approves.

June 4, 2019

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Masonite Corporation – Special Land Use and Site Plan Review #2
Location:	5665 Sterling Drive – westerly terminus of Sterling Drive
Zoning:	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the special land use and site plan submittal from the Masonite Corporation (revised plans dated 5/22/19) for a new industrial building and related site improvements on the vacant parcel at the westerly terminus of Sterling Drive.

A. Summary

1. The special land use standards of Section 19.03 are generally met, though any technical comments provided by the Township Engineer and/or Brighton Area Fire Authority must be addressed.
2. Minor corrections are needed to the site notes on Sheet C-1.1 with respect to the size of the building.
3. The applicant must obtain authorization from the adjacent owner to the north for site elements that overlap the common property line.
4. We request the applicant present building material and color samples to the Commission.
5. The applicant requests that the Commission waive the wall/berm requirement for the buffer zone along I-96 due to the presence of existing vegetation, wetlands and steep topography.
6. Minor corrections are needed to the landscape plan.
7. At such time as signage is proposed, the applicant must obtain a permit from the Township prior to installation.

B. Proposal/Process

The proposal includes a new 59,400 square foot industrial building for manufacturing, storage and distribution of door frames and commercial doors.

The plans also identify a future building and associated parking; however, our review is only focused on the current proposal. If/when the new building is proposed, the applicant will need to apply for a new special land use/site plan review.

Per Section 8.02 of the Township Zoning Ordinance, permitted industrial uses with more than 40,000 square feet of floor area require special land use review/approval.

Procedurally, following the required public hearing, the Planning Commission is to put forth a recommendation to the Township Board on the special land use, site plan review and Impact Assessment. The Board has the final review/approval authority over the project.



Aerial view of site and surroundings (looking north)

C. Special Land Use Review

Section 19.03 of the Zoning Ordinance identifies the review criteria for Special Land Use applications as follows:

- 1. Master Plan.** The Township Master Plan identifies the site and adjacent properties as Industrial, which is intended for “industrial uses such as research, wholesale and warehouse activities and light industrial operations which manufacture, compounding, process, package, assemble and/or treat finished or semi-finished products from previously prepared material.”

Given the nature of the request and the planned uses for the subject area, we believe the proposal is compatible with the Master Plan and Future Land Use Map.

- 2. Compatibility.** Sterling Drive contains a host of industrial uses, including several with outdoor storage (which is not proposed as part of this project).

Given the nature of the established uses in the area, including current zoning (IND) and planned uses (Industrial), the proposal is expected to be compatible with its surroundings.

- 3. Public Facilities and Services.** Given that Sterling Drive is already developed with a variety of industrial uses, we anticipate necessary public facilities and services are in place.

With that being said, the Commission should consider any comments provided by the Township Engineer and/or Brighton Area Fire Authority with respect to this standard.

- 4. Impacts.** Similar to the compatibility comment noted above, given the nature of the subject area and the proposed use, the project is not expected to adversely impact surrounding properties or uses.
- 5. Mitigation.** If any concerns arise as part of the review process, the Township may require additional efforts to mitigate potential adverse impacts.

D. Site Plan Review

- 1. General Comments.** The size of the proposed building has been slightly reduced from the original submittal; however, the zoning information and parking calculations on Sheet C-1.1 still reference the older building size. Additionally, the detention pond and some plantings are proposed on the adjacent property to the north. Authorization for these elements must be obtained.

2. **Dimensional Requirements.** The proposal has been reviewed for compliance with the dimensional standards of the IND, as follows:

	Min. Lot Req.		Minimum Yard Setbacks (feet)				Max. Lot Coverage (%)	Max. Height (feet)
	Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking Lot		
IND	1	150	85	25	40	20 front 10 side/rear	40% building 85% impervious	30
Proposed	18.4	1,325	102	65	279	20 front 58 side/rear	10.3% building 25.8% impervious	28

Given the relatively odd lot shape and access to the terminus of the roadway, we have deemed the easterly lot line to be the front, which then establishes the northerly lot line as a side and the westerly lot line as the rear.

3. **Building Materials and Design.** The proposed building elevation drawings depict the use of precast concrete wall panels with a flat roof.

There are differing colors depicted as vertical and horizontal bands to help break up the large wall faces, along with a scattering of windows.

We request the applicant present building material and color samples to the Commission for their consideration.

4. **Pedestrian Circulation.** Public sidewalks are not required for projects in the IND. The plan does include an internal sidewalk (7-foot wide, concrete) along the west side of the parking lot providing a safe pedestrian path between the parking lot and building entrances.

5. **Vehicular Circulation.** Internal parking and drives meet or exceed the dimensional standards of the Zoning Ordinance. Sheet C-2.0 provides a turning movement plan for semi-trucks, which indicates that a truck of that size can adequately maneuver around the site.

5. **Parking.** The proposed parking lot has been reviewed for compliance with the standards of Article 14, as follows:

	Required	Proposed	Comments
Parking Spaces Office (1/300 SF gross floor area) Manufacturing (1.5/1,000 SF gross floor area) Warehousing (1/1,500 SF gross floor area) TOTAL	16.5 45.3 16.8 79	79	In compliance
Barrier Free Spaces	4	4	In compliance
Dimensions Spaces (75 to 90-degree) Drive aisle width (two-way)	9' x 18' 24'	9' x 18' 26'	In compliance
Loading Between 5,000 SF and 60,000 SF	3	0	There is ample room at the rear of the site for loading/unloading of large trucks. The applicant has indicated that smaller delivery vehicles will utilize the front parking lot for short term drop-off.

- 6. Landscaping.** The revised landscape plan (Sheets L1 and L2) has been reviewed for compliance with the standards of Section 12.02, as noted in the following table:

Standard	Required	Proposed	Notes
Parking lot	8 canopy trees 790 SF landscaped area	8 canopy trees 1,959 SF landscaped area	Requirements met
Buffer zone "B" (along I-96)	20' width 40 canopy trees 40 evergreen trees 159 shrubs 6' wall or 3' berm	Existing vegetation 40 canopy trees 40 evergreen trees 159 shrubs	The notes on the landscape plan reference existing vegetation, topography and wetlands as hindrances to providing a berm or wall. PC has the authority to waive/modify this requirement.
Detention pond	18 trees 169 shrubs	18 trees 169 shrubs	Requirements met

Some of the proposed plantings are on the adjacent property to the north, including the terminus of Sterling Drive and the detention pond. Authorization must be granted to allow off-site plantings.

Additionally, there are some minor inconsistencies between the landscape plan and plant list that should be corrected: the notation for the Black Spruce trees of "PG" is incorrect (should be "PM") and we could only identify 42 "CA" and 51 "VT."

- 7. Waste Receptacle.** The cover letter included with the revised submittal notes that waste receptacle containers will be provided internal to the building within the truck docks. Containers for trash, recycling, wood and metal are also depicted on the floor plan (Sheet A-101).
- 8. Exterior Lighting.** The site lighting plan identifies 9 light poles throughout the site, as well as 14 wall-mounted fixtures. All of the lighting proposed is downward directed, shielded/cut-off LED fixtures.

Maximum lighting intensities, both on-site and along property lines, as well as pole heights (25 feet) are within that allowed by Ordinance.

- 9. Signs.** The revised submittal indicates that no signage is proposed at this time. If/when proposed, the applicant must obtain a sign permit from the Township prior to installation of any signage.
- 10. Impact Assessment.** The submittal includes an Impact Assessment dated April 24, 2019, which notes that the project is not anticipated to adversely impact natural features, public services/utilities or surrounding land uses.

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at bborden@safebuilt.com.

Respectfully,

SAFEBUILT STUDIO



Brian V. Borden, AICP
 Planning Manager



June 3, 2019

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Masonite Corporation Site Plan Review No. 2

Dear Ms. Van Marter:

Tetra Tech conducted a second site plan review of the preliminary Masonite site plans last dated May 22, 2019. The plans were prepared by Monument Engineering Group Associates, Inc. on behalf of Masonite Corporation. The development includes 18.4 acres on three separate parcels located on the south end of Gray Road and west end of Sterling Drive. There is an existing 33,000 square foot building on the site and the petitioner is proposing to reconfigure the three parcels into two separate parcels and proposing a new 60,000 square foot building. We offer the following comments:

GENERAL NOTES

1. The petitioner is proposing a shared storm sewer system that services and is located on two separate parcels. A cross access easement agreement for drainage purposes should be developed for both parcels and the easement limits should be shown on the site plans.

SANITARY AND WATER SERVICES

1. The Brighton Area Fire Authority requires that the FDC be within 100 feet of a hydrant. The closest hydrant is 130 feet away. Hydrant or FDC placement should be modified as needed.
2. The connection to the existing water main should be shown more clearly. The proposed gate valve in well is shown at the intersection of three pipes, and if a tee is going to be used to achieve this connection it should be clear on which side of the tee the gate valve will be placed.
3. After final site plan approval, the petitioner will be required to submit construction plans to MHOG Sewer and Water Authority for review and approval.

DRAINAGE AND GRADING

1. The petitioner should show where the outflow from the detention basin is ultimately going. There appears to be an existing storm sewer near ES-17. A culvert may be necessary to direct drainage across the proposed drive if the intention is to direct flow to the existing storm sewer.

Ms. Kelly Van Marter
Re: Masonite Corporation Site Plan Review No. 2
June 03, 2019
Page 2

We recommend the petitioner address the above comments and resubmit the site plan for review.

Please call or email if you have any questions.

Sincerely,



Gary J. Markstrom, P.E.
Vice President



Shelby Scherdt
Project Engineer



BRIGHTON AREA FIRE AUTHORITY

615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

June 3, 2019

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Masonite Corporation
2nd Site Plan Review
5665 Sterling Drive
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above-mentioned site plan. The plans were received for review on May 23, 2019, and previously on May 3, 2019. The revised drawings are dated May 22, 2019. The project is based on an existing 3-parcel development with an existing 36,032 square foot S-1/F-1 manufacturing and warehouse facility. The new proposed development is for a 60,335 square foot S-1/F-1 manufacturing and warehouse facility. Additionally, there is a proposed future 108,600 square foot building of similar use reflected on the drawing. The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

1. The water main location shown appears compliant with fire code, however, the size of the main and locations of isolation valves are not indicated. Provide the size of the main and location of valves. **(Main sizes and valve locations have been identified as required.)**
2. The project calls for 4-new fire hydrants to be placed in varying locations on the property. This meets the requirement for fire flow and the number of hydrants, however, the locations of the hydrants need to be revised to more appropriate tactical and accessible locations. One of the hydrants shall be located within 100' of the fire department connection. Locations of hydrants may require alteration to landscape planning. The following is descriptive of new location based on existing shown locations:
 - a. NW Location - Along the opposite curb line, 80-feet south of the southern water lead for (WSO).
 - b. NE Location - 160-feet east of the shown location on landscape island. (This hydrant is at the entrance to the drive and meets the 100-foot requirement for the FDC).
 - c. SW Location - 205-feet West and 50-feet South (on the opposite side of the curb) from current hydrant location.
 - d. SE Location - 210-feet East and 55-feet South (on landscape island) of the current hydrant location.**(Location of hydrants are not identified on the drawings as described. An image of the hand-drawn locations was emailed to the engineer to identify the exact locations of the hydrants.)**
3. The building shall be provided with an automatic sprinkler system in accordance with NFPA 13, *Standard for the Installation of Automatic Sprinkler Systems*. **(Building will be provided with automatic sprinklers as required.)**



June 3, 2019

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Masonite Corporation

5665 Sterling Drive

Site Plan Review

IFC 903

- A. The FDC shall be located on the front of the building (Sterling Dr.). East face of the NE corner of the building. **(FDC location is shown as required. If changes must be made due to architectural features, approval from the fire authority is required.)**
- B. The location, size, gate valve, and connection of the fire protection lead shall be indicated on the utility site plan. There are two water shut off valves (WSO) on the drawing and neither indicates intent for Fire protection or their size. **(Locations and sizes are shown on the Utility Plan.)**
- 4. The new building address shall be provided on future submittals. **(Once generated, will be provided.)**
- 5. The building address shall be displayed at a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified prior to installation. **(The address is noted to be provided on the building in a minimum 6" number visible from the street.)**

IFC 505.1

- 6. The access drive widths are compliant with fire code minimum. With widths of 30-feet and 26-feet, the building side of the access drives shall be marked as a fire lane. Include the location of the proposed fire lane signage on the building side of the access road (spaced every 50-feet) and include a detail of the fire lane sign in the submittal. Access roads to the site shall be provided and maintained during construction. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 84,000 pounds. **(Roadways are compliant as well as fire lane signage.)**

IFC D 103.6

IFC D 103.1

IFC D 102.1

IFC D 103.3

- 7. Access throughout the site and around the building shall provide emergency vehicles with an inside turning radius 30-feet and an outside radius of 50-feet. Provide an appropriate emergency vehicle circulation plan utilizing the specifications below. **(Vehicle circulation is compliant based on the provided drawing.)**
- 8. A minimum vertical clearance of 13½ feet shall be maintained throughout the site. **(There are no overhead obstructions located throughout the site.)**
- 9. The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box will be located adjacent to the front door of the structure. **(The knox box location is shown at the main entrance.)**

IFC 506.1

- 10. The knox box detail is for a residential style box. Please revise to be a 3200 Series box. **(Detail has been revised to the correct model.)**
- 11. Gates shall be installed at Gray Rd. and as discussed between the parcels. The gate detail



June 3, 2019

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Masonite Corporation

5665 Sterling Drive

Site Plan Review

shall be revised to match the attached detail. If an alternate type is requested, a full detail must be submitted and approved. If a Knox padlock is not capable of being used, an alternative means of securing the gate may be discussed and approved. **(Gate details have been revised and the locations updated.)**

12. No Parking Fire Lane signs shall be installed at the entrance to the secondary access drive, both sides of the parcel gate and at the Gray rd. gate. **(No parking fire lane signage is shown as requested, however, signage needs to be shown at the ungated side of the secondary access.)**
13. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor. **(To be the project progresses.)**

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department.

If you have any questions about the comments on this plan review please contact me at 810-229-6640.

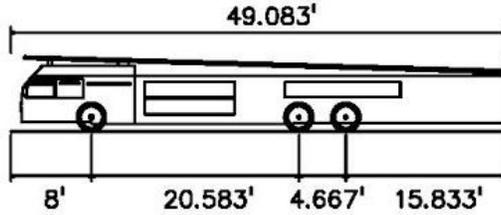
Cordially,

A handwritten signature in black ink, appearing to read "R. Boisvert".

Rick Boisvert, CFPS
Fire Marshal



June 3, 2019
Page 4
Masonite Corporation
5665 Sterling Drive
Site Plan Review



Brighton 49' Fire Truck	
Overall Length	49.083ft
Overall Width	8.167ft
Overall Body Height	7.500ft
Min Body Ground Clearance	0.750ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Steering Angle (Virtual)	45.00°

FIRE TRUCK DETAIL
NOT TO SCALE



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

MEMORANDUM

TO: Dave Haskins, Schonscheck, Inc.

FROM: Kelly VanMarter, Assistant Township Manager/Community Development Director

DATE: June 25, 2019

RE: Masonite New Building

This memo will describe the connection fees required for the proposed 59,500 sq. ft. industrial building with office, manufacturing and warehouse at 5665 Sterling Drive.

This project involves 3 parcels which were assessed as part of the Dorr Road Water and Sewer special assessment district as follows:

- Parcel 11-15-300-028 – 9 REU (Existing facility)
- Parcel 11-15-300-029 – 1 REU
- Parcel 11-15-300-030 – 1 REU

The REU Table provides the following relevant formulas:

- 0.14 REU per 1,000 sq. ft. for office
- 0.05 REU per 1,000 sq. ft. for storage
- 0.13 REU per 1,000 sq. ft. for industrial building

Existing Building (no billing history so usage is based on table):

<u>Using the REU Table the existing building is allocated the following:</u>	
33,000 sq.ft. manufacturing (.13 REU per 1,000 sq.ft.):	4.29 REU
2,560 sq.ft. office (.14 REU per 1,000 sq.ft.):	0.35 REU
Current REU's:	4.64 REU
- Assessed REU's for parcel 028	9.00 REU
BALANCE REMAINING for parcel 028	+4.36 REU

Proposed Building:

<u>Using the floor plan submitted to the Planning Commission, the proposed new building is allocated REU's as follows:</u>	
3,896 sq. ft. office (.14 per 1,000 sq. ft.):	0.55 REU
24,749 sq. ft. warehouse (.05 per 1,000 sq. ft.):	1.24 REU
30,755 sq. ft. manufacturing (.13 per 1,000 sq. ft.):	4.00 REU
Total REU's required:	5.79 REU
- Assessed REU's for parcels 029 & 030:	2.00 REU
REU's DUE for new building:	3.79 REU

SUPERVISOR

Bill Rogers

CLERK

Paulette A. Skolarus

TREASURER

Robin L. Hunt

TRUSTEES

Jean W. Ledford

H. James Mortensen

Terry Croft

Diana Lowe

MANAGER

Michael C. Archinal

Options for payment of REU's due for new building:

Option 1 – A parcel reconfiguration (Lot Split/Combine) can be used to re-allocate the REU's. A letter from the owner should be submitted as part of the application that would transfer enough remaining REU's from parcel 028 to the parcel with the new building.

Option 2 – Remit payment for the additional REU's as follows:

3.79 REU x \$15,100 per REU = \$57,229.00

Please let me know if you have any questions.

IMPACT ASSESSMENT

MASONITE

SECTION 15, GENOA TOWNSHIP

PREPARED BY:

Monument Engineering Group Associates, Inc.
298 Veterans Drive
Fowlerville, Michigan 48836

PREPARED FOR:

Schonscheck, Inc.
50555 Pontiac Trail
Wixom, Michigan 48393

April 24, 2019

IMPACT ASSESSMENT

a. Preparer

Prepared by:

Monument Engineering Group Associates, Inc.
298 Veterans Drive
Fowlerville, Michigan 48836

Prepared for:

Schonsheck, Inc.
50555 Pontiac Trail
Wixom, Michigan 48393

Monument engineering Group Associates, Inc. (MEGA) is a civil engineering, land surveying firm with extensive experience in site development. MEGA staff is experienced in writing general impact statements for various developments throughout Michigan.

b. Map(s) and written description/analysis of the project site,

The site consists of 18.4 acres (composed of 3 separate parcels) located at the south end of Gray Road and the west end of Sterling Drive. The site is bounded on the west side by I-96 Expressway. There is an existing 33,000 manufacturing / warehouse and 2,560 S.F. office facility. The company manufactures stores and distributes pocket door frames and commercial architectural flush doors. Approximately 75% of the building is storage and 25% manufacturing.

The petitioner is proposing to reconfigure the parcels into two separate parcels. On the new parcel to the south is a proposed building of +/- 60,000 S.F. with provisions for a future addition of +/- 100,000 sf. See survey of property along with general site plan figures 1 and 2.

c. Impact on natural features:

The property is mostly open meadow with a small tree and brush stand located on the west side and a group of trees in the northeast corner. The elevation slopes from 994 at the Northeast end of the site to elevation 973 at the Northwest end of the site.

The United States Department of Agriculture "Soil Survey of Livingston County, Michigan" indicates the soil type to mainly be Miami Loam (MoB & MoC) with 2 to 12% slopes. This moderate to poorly draining soil is typically located on tills and moraines.

There are two pockets of wetlands (A & B) that were delineated at the time of the survey and shown on the plans. The wetland consultant determined these pockets not to be regulated wetlands under MDEQ guidelines (see attached wetland report).

There is no known major wildlife impact from this development.

d. Impact on stormwater management:

Permanent storm water management will be designed, approved and constructed in accordance with the Livingston County Drain Commissioner's (LCDC) and Township requirements. These measures will include but are not limited to sumps in storm sewer structures, a pre-treatment (sedimentation basin) and a detention basin. The detention basin will be designed to limit the storm water discharge rate to pre-development rates. Surface runoff during construction will be controlled by proper methods set forth by LCDC, including silt fence, inlet filters, and seed and mulch. A grading permit will have to be obtained from the LCDC's office as well as a soil erosion control permit. A certified storm water operator will provide regular inspections and reports to insure erosion control measures are being maintained.

e. Impact on surrounding land used:

The property conforms to the current zoning of Industrial (IND). Industrial Zoning requires a 2 acre minimum unit size and 200 feet minimum frontage. The property is bordered on all sides by Industrial District Zoning, and will be consistent with adjacent uses.

The Masonite facility will have little effect on the surrounded parcels with the added lighting. All lighting plans will have zero-foot candles lighting at the property line. There will be no noise or air pollution emitted from the proposed use.

Pursuant to Article 9 of the Genoa Township Zoning Ordinance, the Principle use is permitted in the Industrial District under Paragraph "K," Manufacturing, Fabricating of Wood Materials.

f. Impact on public facilities and services:

Masonite currently employs 50 full-time employees. The hours of operation are from 7:30 a.m. – 3:30 p.m. Monday through Friday. Inbound freight is by common carrier normally one (1) truck every other week. Outbound freight is normally one truck four days a week.

The proposed building will have 56 full time employees operating between the hours of 7:30 a.m. – 3:30 p.m. Monday through Friday. Should the future building addition be realized the number of full-time employees would increase to 65. Additional truck traffic would increase to 2-3 trucks per day.

The facility is industrial in nature and therefore additional visitors and/or patrons are not anticipated.

There will be little to no impact on public services with this development. The development is in an industrial zoning surrounded by other industrial uses and the freeway. The original development of the property anticipated 3 users more than 20 years ago. Public sewer and water main both extend into the site to service 3 users. The final development will service only 2 users of similar nature.

As a whole, the development will have a positive impact on public services. The development will benefit emergency vehicle access to the site by providing cross access between the buildings as well as vehicular access to Gray Road. Current access is a dead end, that forces emergency vehicles to turn around in the parking lot. The development will also provide for a looped water main around the proposed building, which increases safety during a fire event. Along with better building codes, requiring a sprinkled build and improved vehicular access will benefit the fire department.

In general terms, the project as a whole will generate jobs while creating minimal burden on public services such as schools, fire department, police department, etc.

g. Impact on public utilities:

There will be little to no impact on public services with this development. The original development of the property anticipated 3 users more than 20 years ago. Public sewer and water main both extend into the site to service 3 users. The final development will service only 2 users of similar nature. A public water main will be looped around the proposed building and future addition with appropriate hydrant coverage of the building per the fire department requirements. There is a public sanitary sewer at the end of Sterling Drive. This sewer will be extended into the site enough to service the proposed and future building addition. All public utilities will be accompanied by the appropriate easement for access and maintenance in the future.

Permanent storm water management will be designed, approved and constructed in accordance with the Livingston County Drain Commissioner's (LCDC) and Township requirements. These measures will include but not limited to sumps in storm sewer structures, a pre-treatment (sedimentation basin) and a detention basin. The detention basin will be designed to limit the storm water discharge rate to pre-development rates. Surface runoff during construction will be controlled by proper methods set forth by LCDC, including silt fence, inlet filters, and seed and mulch. A grading permit will have to be obtained from the LCDC's office as well as a soil erosion control permit. A certified storm water operator will provide regular inspections and reports to insure erosion control measures are being maintained.

h. Storage and handling of any hazardous materials:

Masonite uses no hazardous materials for its operations.

i. Impact on Traffic and Pedestrians:

Although the ordinance requires in excess of 100 parking spaces, it is not anticipated that there will ever be more than 65 employees on site between the two buildings. Therefore, a formal traffic study is not warranted.

j. Special Provisions:

There are no known deed restrictions.

Received 5-22-19

SITE PLAN FOR MASONITE

LEGAL DESCRIPTION (AS PROVIDED)

Parcel Tax Number: 4711-15-200-028

PARCEL 1:
SEC 15 T2N R5E, COMM NE COR, TH N88°19'39"W 1330.21 FT TH S01°38'45"W 446.49 FT TO POB TH S01°38'45"W 213.84 FT TH ON AN ARC OF A CURVE LEFT CHORD BEARING S74°54'32"W 132.57 FT TH N88°20'15"W 853.94 FT TH N38°28'54"W 76.87 FT TH N51°31'06"E 120 FT TH N38°28'54"W 145.03 FT TH N13°01'36"E 5.16 FT TH S88°20'15"E 1031.13 FT TO POB CONT. 5.66 AC.

Parcel Tax Number: 4711-15-200-029

PARCEL 2:
SEC 15 T2N R5E, COMM NE COR, TH N88°19'39"W 1330.21 FT TH S01°38'45"W 660.33 FT TH ON AN ARC OF A CURVE LEFT CHORD BEARING S74°54'32"W 132.57 FT TO POB TH CONT ON ARC OF A CURVE LEFT CHORD BEARING S49°59'52"W 65.31 FT TH S41°50'09"W 96 FT TO CENTER OF A 75 FT RADIUS CUL-DE-SAC TH S37°41'31"W 506.48 FT TH ON AN ARC OF A CURVE TO RIGHT CHORD BEARING N38°59'18"W 119.75 FT TH N38°28'54"W 569.72 FT TH S88°20'15"E 853.94 FT TO POB CONT. 5.03 AC.

Parcel Tax Number: 4711-15-200-030

PARCEL 3:
SEC 15 T2N R5E, COMM NE COR, TH N88°19'39"W 1330.21 FT TH S01°38'45"W 1111.82 FT TH ON AN ARC OF A CURVE RIGHT CHORD BEARING N42°44'12"W 765.94 FT TH N37°41'31"E 506.48 FT TO CENTER OF A 75 FT RADIUS CUL-DE-SAC TH N41°50'09"E 96 FT TH ON AN ARC OF A CURVE RIGHT CHORD BEARING N66°44'50"E 193.76 FT TO POB CONT. 7.71 AC.

BEARING REFERENCE

Bearings are based on Project Coordinate System:
Michigan State Plane Coordinate System, NAD83 (Conus) (Mol) (GRS80), South Zone 2113, International Feet, Ground
(Lat: 42-34-10, Lon: 83-50-25, Elev: 992, Scale Factor: 1.00005000).

SURVEY REFERENCES

- Boss Engineering, Job No.: 98184, Dated: 04-10-98
- (Recorded in Liber 2481, Page 669)
- Advantage Civil Engineering, Job No.: 01028, Dated: 05-30-01
- (Easements plotted and shown herein)
- (On Recorded with Genoa Township)

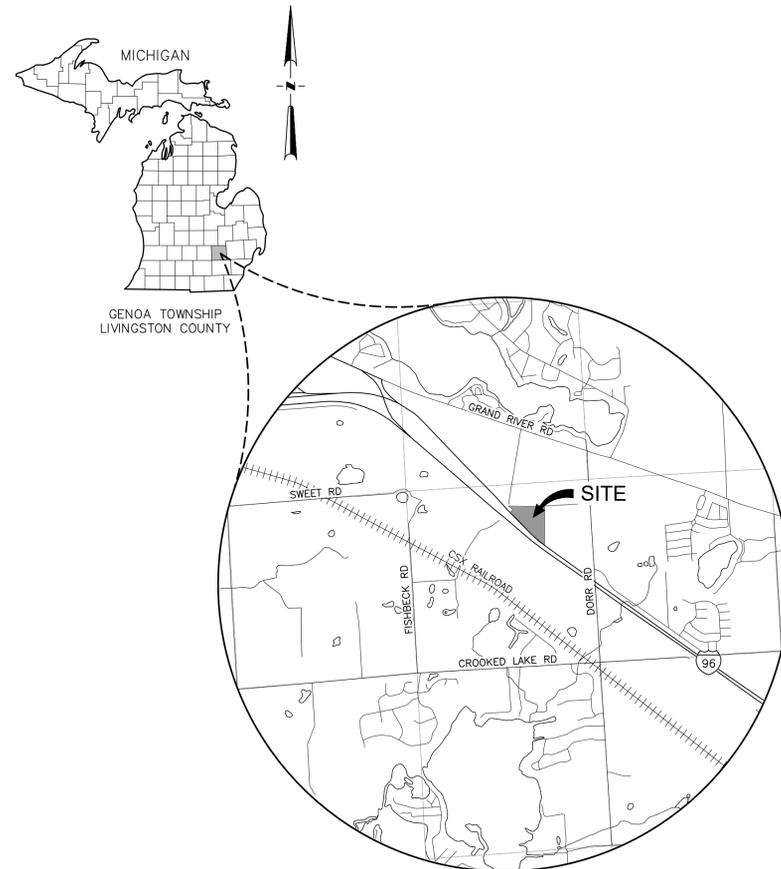
DESIGN ENGINEER



MONUMENT ENGINEERING GROUP ASSOCIATES, INC

ENGINEERS - SURVEYORS - CONSULTANTS
LANDSCAPE ARCHITECTS - LAND PLANNERS

638 S GRAND AVE.,
FOWLERVILLE, MI 48836
ALLAN W PRUSS, PE, PS
PHONE: 517-223-3512



LOCATION MAP

CLIENT



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DESIGN BUILD - CONSTRUCTION
50555 PONTIAC TRAIL, WIXOM, MI 48393
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ARCHITECT

SQUIRES
ARCHITECTURAL
GROUP, PLLC

293 W. Grand River Ave, Suite 2
Howell, MI 48843
517.518.8843
www.squiresarchitectural.com

		PLAN SUBMITTALS	
		PRELIMINARY SITE PLAN SUBMITTAL	REVISED SITE PLAN SUBMITTAL
5/01/2019			
5/22/2019			
INCLUDED SHEETS			
GENERAL			
SHEET	G-1.0	COVER	• •
SURVEY			
SHEET	V-1.0	TOPOGRAPHIC SURVEY	• •
CIVIL DEMOLITION			
SHEET	CD-1.0	DEMOLITION PLAN	• •
SITE PLAN			
SHEET	C-1.0	SITE PLAN (OVERVIEW)	• •
SHEET	C-1.1	DIMENSION & PAVING	• •
SHEET	C-1.2		
VEHICLE CIRCULATION			
SHEET	C-2.0	VEHICLE CIRCULATION PLAN	• •
UTILITY			
SHEET	C-4.0	SANITARY & WATER MAIN PLAN	• •
SHEET	C-4.1	WATER MAIN PROFILES	• •
SHEET	C-6.0	STORM SEWER PLAN	• •
SHEET	C-6.1	STORM SEWER PROFILES	• •
GRADING			
SHEET	C-7.0	GRADING PLAN	• •
SHEET	C-7.1		
SOIL EROSION & SEDIMENTATION CONTROL			
SHEET	C-8.0	SOIL EROSION & SEDIMENTATION CONTROL PLAN	• •
SHEET	C-8.1		
STORM WATER MANAGEMENT			
SHEET	C-9.0	DRAINAGE AREA PLAN & DETAILS	• •
SHEET	C-9.1	STORM WATER CALCULATIONS	• •
DETAILS			
SHEET	C-11.0	DETAILS	• •
SPECIFICATIONS			
SHEET	C-12.0	SPECIFICATIONS	• •
SHEET	C-12.1	SPECIFICATIONS	• •
LANDSCAPE			
SHEET	L-1.0	LANDSCAPE PLAN	• •
SHEET	L-1.2	LANDSCAPE PLAN	• •
GENOA TOWNSHIP ENGINEERING DETAILS			

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CLIENT:
SCHONSHECK,
DESIGN BUILD - CONSTRUCTION
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P: 248.669.8800 F: 248.669.0850
WWW.SCHONSHECK.COM

COVER
MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

DATE	PLAN SUBMITTALS / REVISIONS
5/01/2019	PRELIMINARY SITE PLAN SUBMITTAL
5/22/2019	REVISED SITE PLAN SUBMITTAL

ORIGINAL ISSUE DATE:
5/01/2019

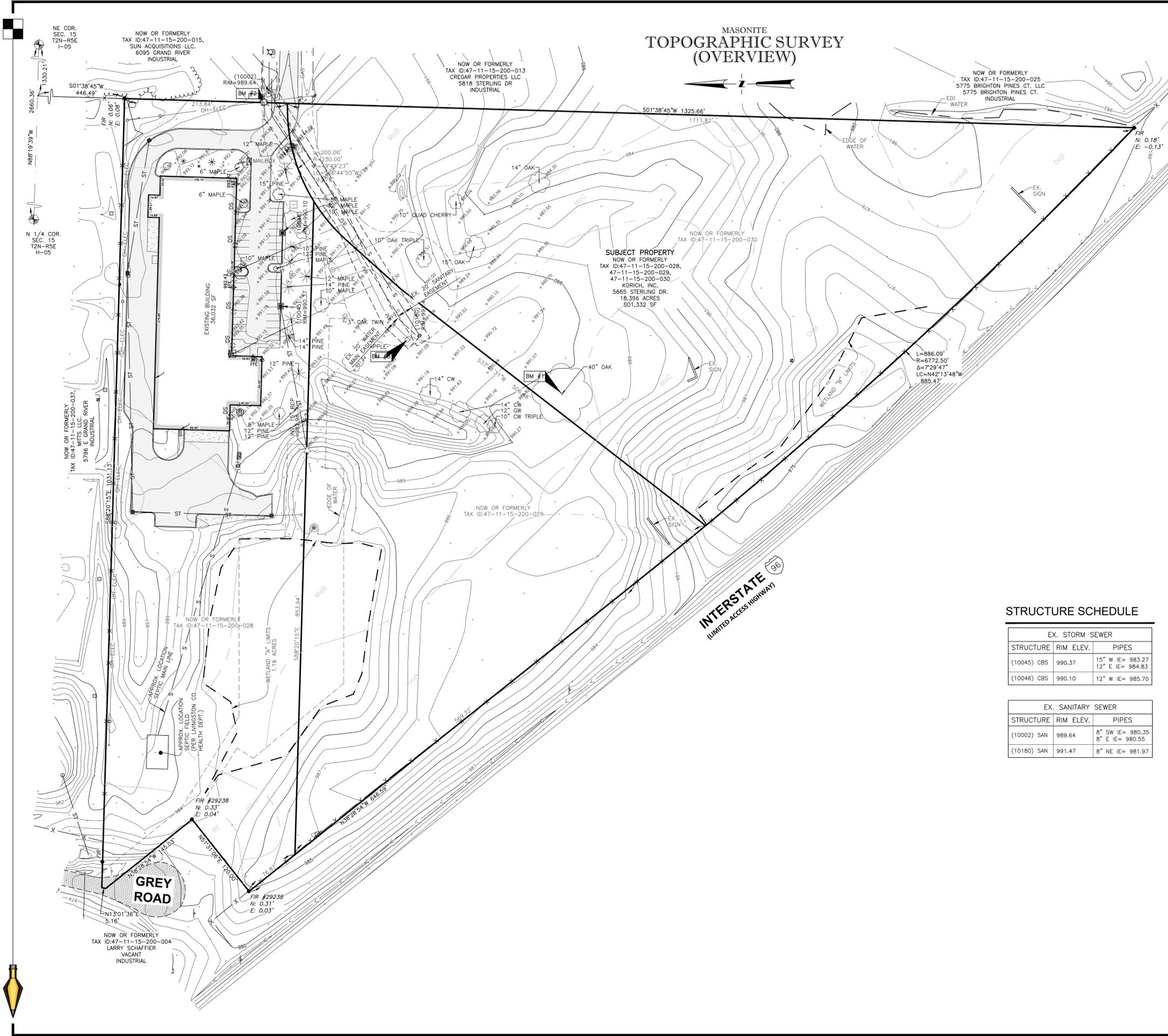
PROJECT NO: 19-018

SCALE: N/A
0 1/2" 1"

FIELD:
DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

G-10

NOT FOR CONSTRUCTION



MASONITE
TOPOGRAPHIC SURVEY
(OVERVIEW)



SUBJECT PROPERTY
NOW OR FORMERLY
TAX ID: 47-11-15-200-028,
47-11-15-200-029,
47-11-15-200-030
KORICH, INC.
5665 STERLING DR.
18.396 ACRES
801.332 SF

EXISTING LEGEND

	DECIDUOUS TREE, CONIFEROUS TREE, SHRUB
	TREE LINE/ CANOPY
	DITCH/ DRAINAGE COURSE
	UG TELE, MH, TELE PED, CABLE PED
	UG FIBER, PED, LINE MARKER, VAULT
	UG ELEC, MH, TRANSFORMER, AC UNIT, METER
	OH ELEC, UTIL POLE, GUY WIRE
	GROUND LIGHT, POLE, POLE W/ ARM LT
	LIGHT MH, LT CTRL BOX, PH. BOOTH, PARK. METER
	ELEC HAND HOLE, OUTLET, SIGNAL MH, SIGNAL BOX
	UG GAS, MH, VALVE, LINE MARKER
	GAS WELL, METER, VENT
	WATER MAIN, MH, VALVE IN BOX, HYDRANT, FDC
	WATER WELL, METER, STOP BOX, POST INDICATOR VALVE
	IRRIGATION CONTROL VALVE, SPRINKLER HEAD
	STORM SEWER, MH, CB, INLET, YARD DRAIN
	CULVERT/ END SECTION
	SANITARY SEWER, MH, CLEAN OUT
	COMBINED SEWER, MH
	STEAM LINE, MH
	MISC. MANHOLE, HAND HOLE, HAND BOX
	SIGN, FLAG POLE, GUARD POST, ROCK
	SECTION LINE, SECTION CORNER
	SURVEY CONTROL POINT, BENCHMARK
	FOUND IRON ROD (FIR), FD MON, FD PK
	SET IRON ROD (SIR), SET PK, MAG NAIL
	SPOT ELEVATION
	CONTOUR
	FENCE
	GUARD RAIL
	RAILROAD SIGNAL, SIGNAL BOX
	ROW MARKER
	SOIL BORING
	EX. ASPHALT
	EX. CONCRETE
	EX. GRAVEL
	REGULAR SPACES
	BARRIER FREE SPACES

STRUCTURE SCHEDULE

EX. STORM SEWER		
STRUCTURE	RIM ELEV.	PIPES
(10045) CBS	990.37	15" W IE= 983.27 12" E IE= 984.83
(10046) CBS	990.10	12" W IE= 985.70

EX. SANITARY SEWER		
STRUCTURE	RIM ELEV.	PIPES
(10002) SAN	989.64	8" SW IE= 980.35 8" E IE= 980.55
(10180) SAN	991.47	8" NE IE= 981.97

BENCHMARKS

- DATUM: LOCAL DATUM
- BM: #1
60D NAIL IN NORTHEAST SIDE OF 40" OAK TREE.
ELEV: 991.87
- BM: #2
60D NAIL IN NORTH SIDE UTILITY POLE.
ELEV: 991.82
- BM: #3
ARROW ON TOP OF HYDRANT, 229± SOUTH OF BUILDING.
ELEV: 993.89

REFERENCE INFO

- Per Site Plans provided by: Alpine Engineering Inc., Job No.: 04-267, Dated: 7-23-04
- Per Architectural Plans provided by: Squires Architectural Group, PLLC., Job No.: 17-366, Dated 4-27-17
- Per Site & Grading Plan provided by: Advantage Civil Engineering, Job No.: 98111, Dated: 7-07-98
- Per Water Main Plans provided by: Tetra Tech Mps, Job No.: 0144472-SW-1, Dated: 2-27-02

SOILS INFO

- Cc: Carlisle muck, 0-2% slopes
- CvraaB: Conover loam, 0-4% slopes
- HmB: Hillsdale-Miami loams, 2-6% slopes
- HmC: Hillsdale-Miami loams, 6-12% slopes
- MoB: Wawasee loam, 2-6% slopes
- MOC: Wawasee loam, 6-12% slopes
- OKB: Oakville fine sand, loamy substratum, 0-6% slopes
- Rf: Rifle muck

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CLIENT :

SCHONSHECK,
DESIGN BUILD - CONSTRUCTION
5000 PONTIAC TRAIL, SUITE 100, WARREN, MI 48093
P: 588-8888 F: 588-8889
WWW.SCHONSHECK.COM

TOPOGRAPHIC SURVEY

MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

DATE	DESCRIPTION
5/01/2019	PRELIMINARY SITE PLAN SUBMITTAL
5/22/2019	REVISED SITE PLAN SUBMITTAL

ORIGINAL ISSUE DATE:
5/01/2019

PROJECT NO: 19-018

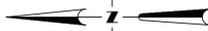
SCALE: 1" = 60'

FIELD:
DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

V-10

NOT FOR CONSTRUCTION

MASONITE PAVING & DIMENSION PLAN



NOTES

- ALL PARKING STRIPES REQUIRE THE USE OF LOOPED (DOUBLE STRIPED) SPACED PER TOWNSHIP ORDINANCES.
- SCREENING SHALL BE PROVIDED FOR ALL MECHANICAL EQUIPMENT.
- PARKING LOT ISLANDS SHALL BE FINISHED IN GRASS, GROUND COVER OR MULCH.

PAVEMENT LEGEND

	EX. ASPHALT
	EX. CONCRETE
	EX. GRAVEL
	PR. STANDARD DUTY ASPHALT
	PR. HEAVY DUTY ASPHALT
	PR. CONCRETE
	PR. GRAVEL
	STANDARD CURB AND GUTTER
	REVERSE CURB AND GUTTER

ZONING INFORMATION

THIS ZONING INFORMATION IS TAKEN FROM GENOA TOWNSHIP ZONING ORDINANCE

SUBJECT PARCEL ZONING CLASSIFICATION:
IND (INDUSTRIAL)

BUILDING SETBACKS:	REQUIRED	PROVIDED
FRONT (EAST):	85'	102'
SIDE (NORTH):	25'	65'
SIDE (WEST):	25'	279'

PARKING SETBACKS:	REQUIRED	PROVIDED
FRONT (EAST):	20'	20'
SIDE (NORTH):	10'	N/A
SIDE (WEST):	10'	N/A

SUBJECT PARCEL AREA: 18.4 ACRES

PROPOSED BUILDING:	REQUIRED	PROVIDED
BUILDING:	60,335 SF	108,600 SF
FUTURE BUILDING:		
BUILDING HEIGHT:	MAX. 30'	PROVIDED 30'

PROPOSED LOT COVERAGE:	REQUIRED	PROVIDED
BUILDING:	40%	10.3%
IMPERVIOUS:	85%	25.8%

FUTURE LOT COVERAGE:	REQUIRED	PROVIDED
BUILDING:	40%	29.0%
IMPERVIOUS:	85%	52.3%

ADJACENT ZONING:

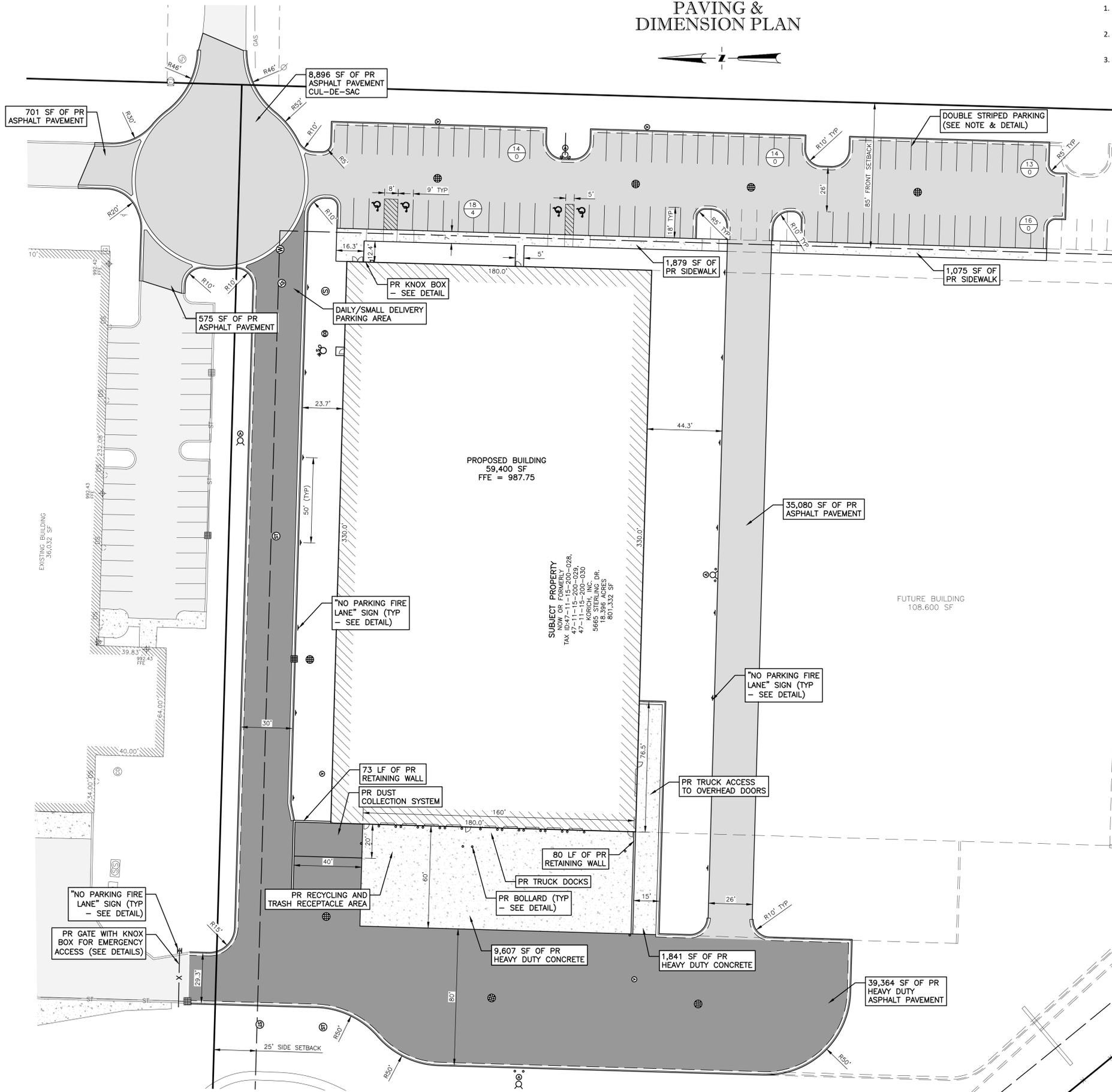
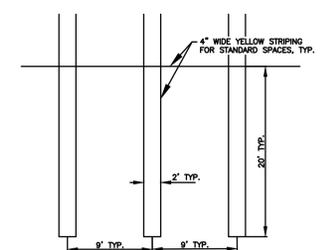
NORTH:	IND (INDUSTRIAL)
SOUTH:	N/A
EAST:	IND (INDUSTRIAL)
WEST:	SR (SUBURBAN RESIDENTIAL)

PROPOSED PARKING

1/300 SF OFFICE SPACE	
1.5/1,000 SF MANUFACTURING SPACE	
1/1,500 SF WAREHOUSE SPACE	
PROPOSED BUILDING AREA	
4,965 SF OFFICE	XX REGULAR SPACES
30,200 SF MANUFACTURING	XX BARRIER FREE SPACES
25,170 SF WAREHOUSE	
4,965/300 + (30,200/1,000)x1.5 + 25,170/1,500 = 79 SPACES	
PROPOSED PARKING REQUIRED:	79 SPACES
PARKING SPACES:	75
BARRIER FREE PARKING SPACES:	4
TOTAL PARKING PROVIDED:	79
FUTURE BUILDING AREA	
ADDITIONAL 32,580 SF MANUFACTURING	
ADDITIONAL 76,020 SF WAREHOUSE	
(32,580/1,000)x1.5 + 76,020/1,500 = 100 SPACES	
FUTURE PARKING REQUIRED:	179 SPACES
PROPOSED PARKING SPACES:	79
FUTURE PARKING SPACES:	98
FUTURE BARRIER FREE PARKING SPACES:	2
TOTAL FUTURE PARKING PROVIDED:	179

DOUBLE STRIPING DETAIL

NOT TO SCALE



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CLIENT :
PAVING & DIMENSION PLAN
MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

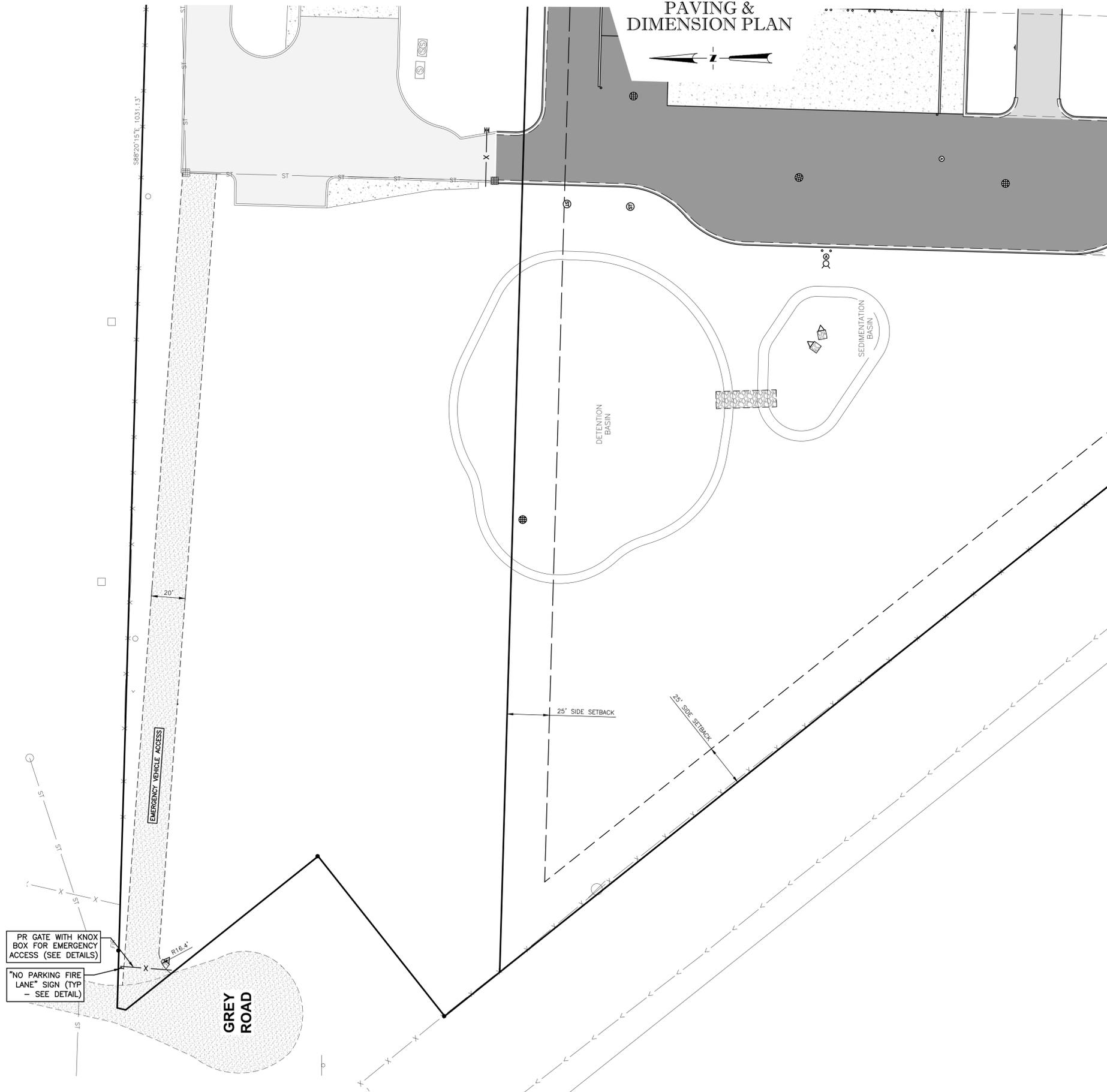
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5/22/2019	REVISED SITE PLAN SUBMITTAL

ORIGINAL ISSUE DATE: 5/01/2019
PROJECT NO: 19-018
SCALE: 1" = 30'
FIELD:
DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

C-11

NOT FOR CONSTRUCTION

MASONITE
PAVING &
DIMENSION PLAN



PR GATE WITH KNOX
BOX FOR EMERGENCY
ACCESS (SEE DETAILS)

"NO PARKING FIRE
LANE" SIGN (TYP
- SEE DETAIL)

GREY
ROAD

25' SIDE SETBACK

25' SIDE SETBACK

EMERGENCY VEHICLE ACCESS

R16.4'

5862.0' ± E, 1031.1' ± S

INNOVATIVE GEOSPATIAL
& ENGINEERING SOLUTIONS

MEGA
MONUMENT ENGINEERING GROUP ASSOCIATES, INC.

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Allan W. Pruss

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CLIENT :

SI

SCHONSHECK,

DESIGN BUILD - CONSTRUCTION
5000 PONTIAC TRAIL, SUITE 100, WOODHURST, MI 48095
P: 519-928-8200 F: 519-928-8200
WWW.SCHONSHECK.COM

PAVING & DIMENSION PLAN

MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

PLAN SUBMITTALS / REVISIONS	DATE
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REVISED SITE PLAN SUBMITTAL	5/22/2019

ORIGINAL ISSUE DATE:
5/01/2019

PROJECT NO: 19-018

SCALE: 1" = 30'

0 1/2" 1"

FIELD:
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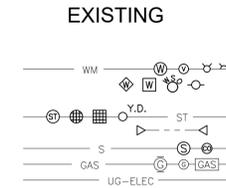
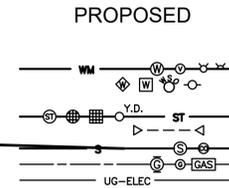
C-12

NOT FOR CONSTRUCTION

MASONITE
SANITARY &
WATER MAIN PLAN



UTILITY LEGEND

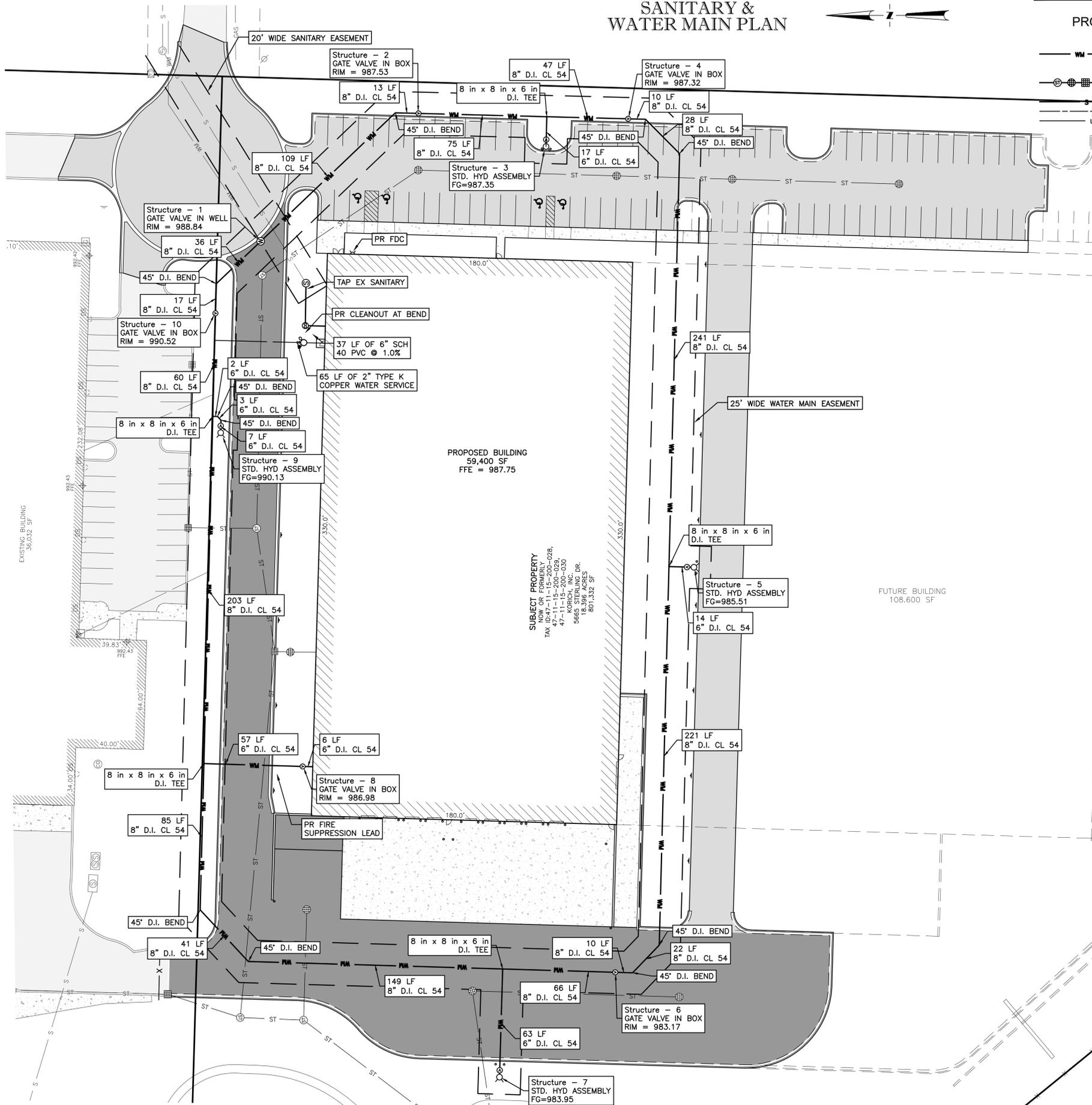


WATER MAIN, MH, VALVE IN BOX, HYDRANT, FDC
WATER WELL, METER, STOP BOX, POST INDICATOR VALVE
STORM SEWER, MH, CB, INLET, YARD DRAIN
CULVERT/ END SECTION
SANITARY SEWER, MH, CLEAN OUT
UG GAS, MH, VALVE, LINE MARKER
UG ELEC (ELEC, CABLE, FIBER)

STRUCTURE SCHEDULE

EX. STORM SEWER		
STRUCTURE	RIM ELEV.	PIPES
(10045) CBS	990.37	15" W IE= 983.27 12" E IE= 984.83
(10046) CBS	990.10	12" W IE= 985.70

EX. SANITARY SEWER		
STRUCTURE	RIM ELEV.	PIPES
(10002) SAN	989.64	8" SW IE= 980.35 8" E IE= 980.55
(10180) SAN	991.47	8" NE IE= 981.97



SUBJECT PROPERTY
NOW OR FORMERLY
TAX ID: 47-11-15-200-028,
47-11-15-200-029,
47-11-15-200-030
KORICH, INC.
5665 STERLING DR.
GENOA TOWNSHIP, MI 48030
1801.342 SF

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MONUMENTENGINEERING.COM
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SMALL BUSINESS (SDVOSB)

ALLAN W. PRUSS
ENGINEER
NO. 43168

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SANITARY & WATER MAIN PLAN
MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

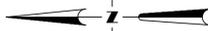
DATE	DESCRIPTION
5/01/2019	PRELIMINARY SITE PLAN SUBMITTAL
5/22/2019	REVISED SITE PLAN SUBMITTAL

ORIGINAL ISSUE DATE: 5/01/2019
PROJECT NO: 19-018
SCALE: 1" = 30'
FIELD:
DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

C-4.0

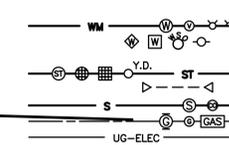
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MASONITE STORM SEWER PLAN

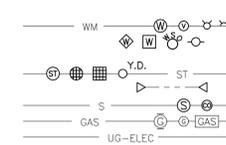


UTILITY LEGEND

PROPOSED



EXISTING



WATER MAIN, MH, VALVE IN BOX, HYDRANT, FDC
 WATER WELL, METER, STOP BOX, POST INDICATOR VALVE
 STORM SEWER, MH, CB, INLET, YARD DRAIN
 CULVERT/ END SECTION
 SANITARY SEWER, MH, CLEAN OUT
 UG GAS, MH, VALVE, LINE MARKER
 UG ELEC (ELEC, CABLE, FIBER)

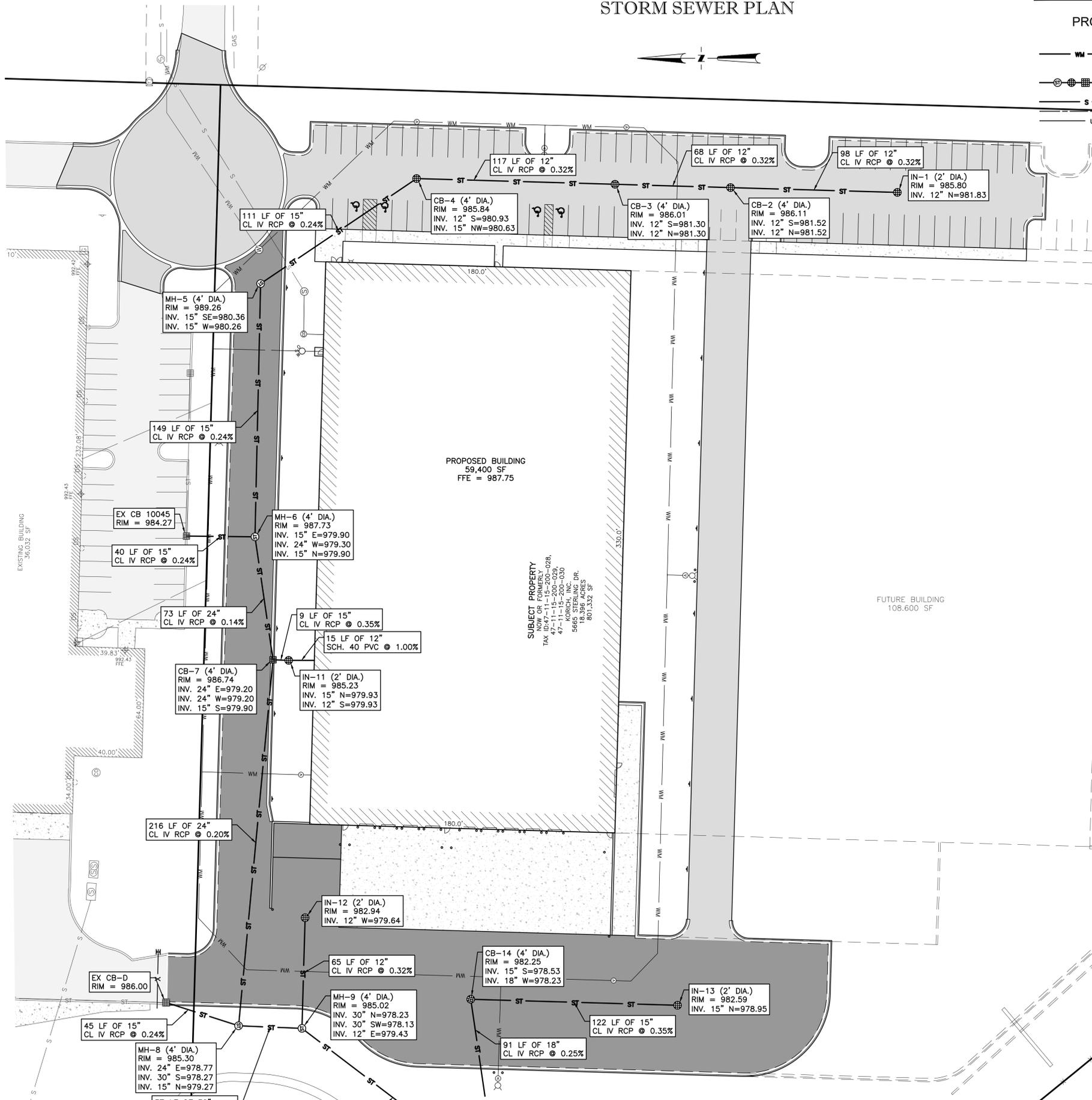
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(10002) SAN	989.64	8" SW IE= 980.35 8" E IE= 980.55
(10180) SAN	991.47	8" NE IE= 981.97

PROPOSED STORM SEWER

STRUCTURE	RIM ELEV.	PIPES
CB-2	986.11	12" S IE= 981.52 12" N IE= 981.52
CB-3	986.01	12" S IE= 981.30 12" N IE= 981.30
CB-4	985.84	12" S IE= 980.93 15" NW IE= 980.63
CB-7	986.74	24" E IE= 979.20 24" W IE= 979.20 15" S IE= 979.90
CB-14	982.25	15" S IE= 978.53 18" W IE= 978.23
ES-10		30" NE IE= 978.00
ES-15		18" E IE= 978.00
ES-17		15" SE IE= 977.00
EX CB 10045	984.27	15" S IE= 980.00
EX CB-D	986.00	15" S IE= 979.38
IN-1	985.80	12" N IE= 981.83
IN-11	985.23	15" N IE= 979.93 12" S IE= 979.93
IN-12	982.94	12" W IE= 979.64
IN-13	982.59	15" N IE= 978.95
MH-5	989.26	15" SE IE= 980.36 15" W IE= 980.26
MH-6	987.73	15" E IE= 979.90 24" W IE= 979.30 15" N IE= 979.90
MH-8	985.30	24" E IE= 978.77 30" S IE= 978.27 15" N IE= 979.27
MH-9	985.02	30" N IE= 978.23 30" SW IE= 978.13 12" E IE= 979.43
OC-16	981.98	15" NW IE= 978.00



PROPOSED BUILDING
59,400 SF
FFE = 987.75

SUBJECT PROPERTY
NOW OR FORMERLY
TAX 47-11-15-200-028,
47-11-15-200-029,
47-11-15-200-030
KORICH, INC.
5661 W. WATKINS DR.
18,396 SQ. FT.
801.332 SF

FUTURE BUILDING
108,600 SF

INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS

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ALLAN W. PRUSS
ENGINEER
NO. 43168

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WWW.SCHONSHECK.COM

STORM SEWER PLAN

MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

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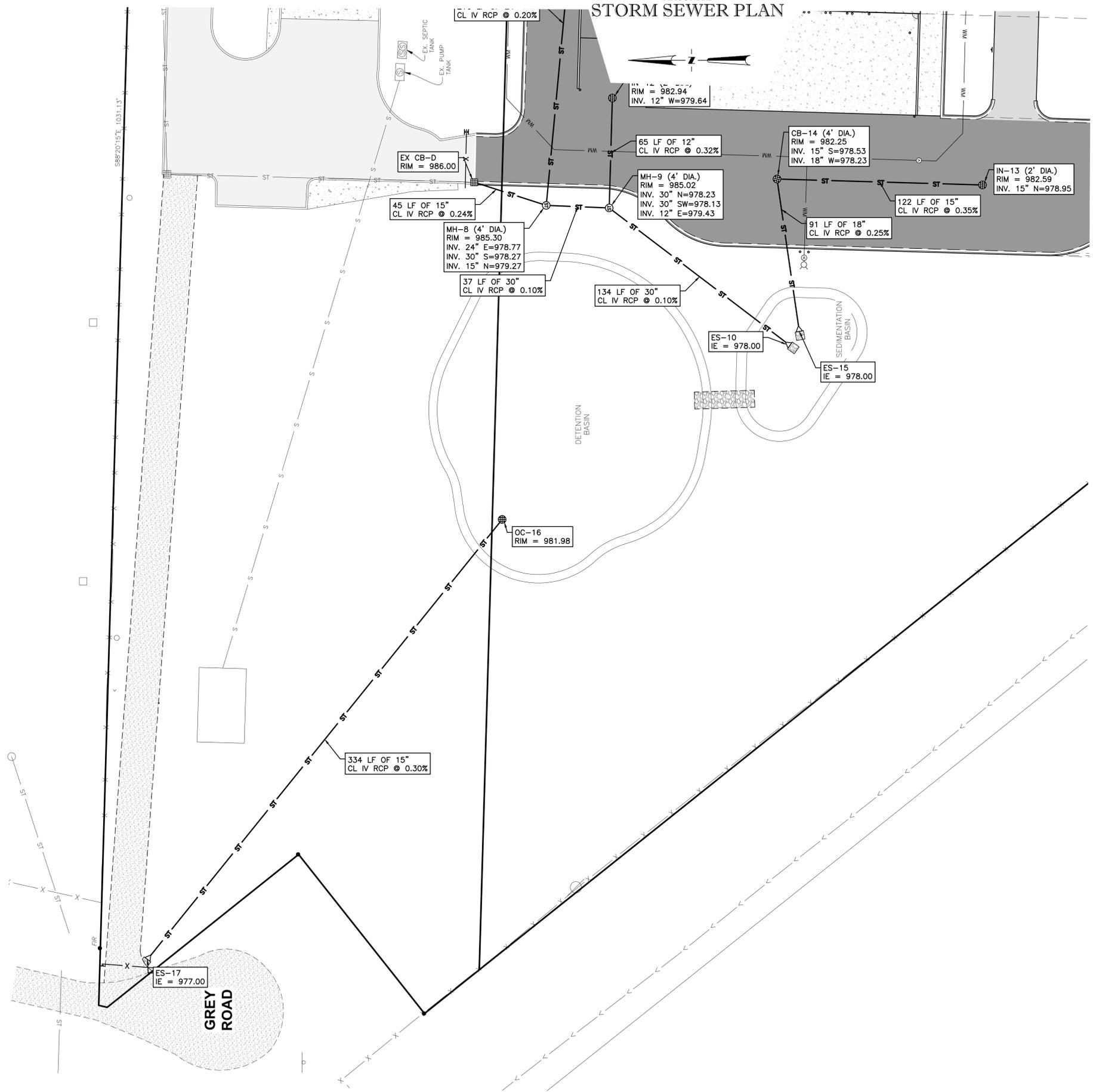
SCALE: 1" = 30'

FIELD:
DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

C-6.0



MASONITE STORM SEWER PLAN



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Allan W. Pruss

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WWW.SCHONSHECK.COM

STORM SEWER PLAN

MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

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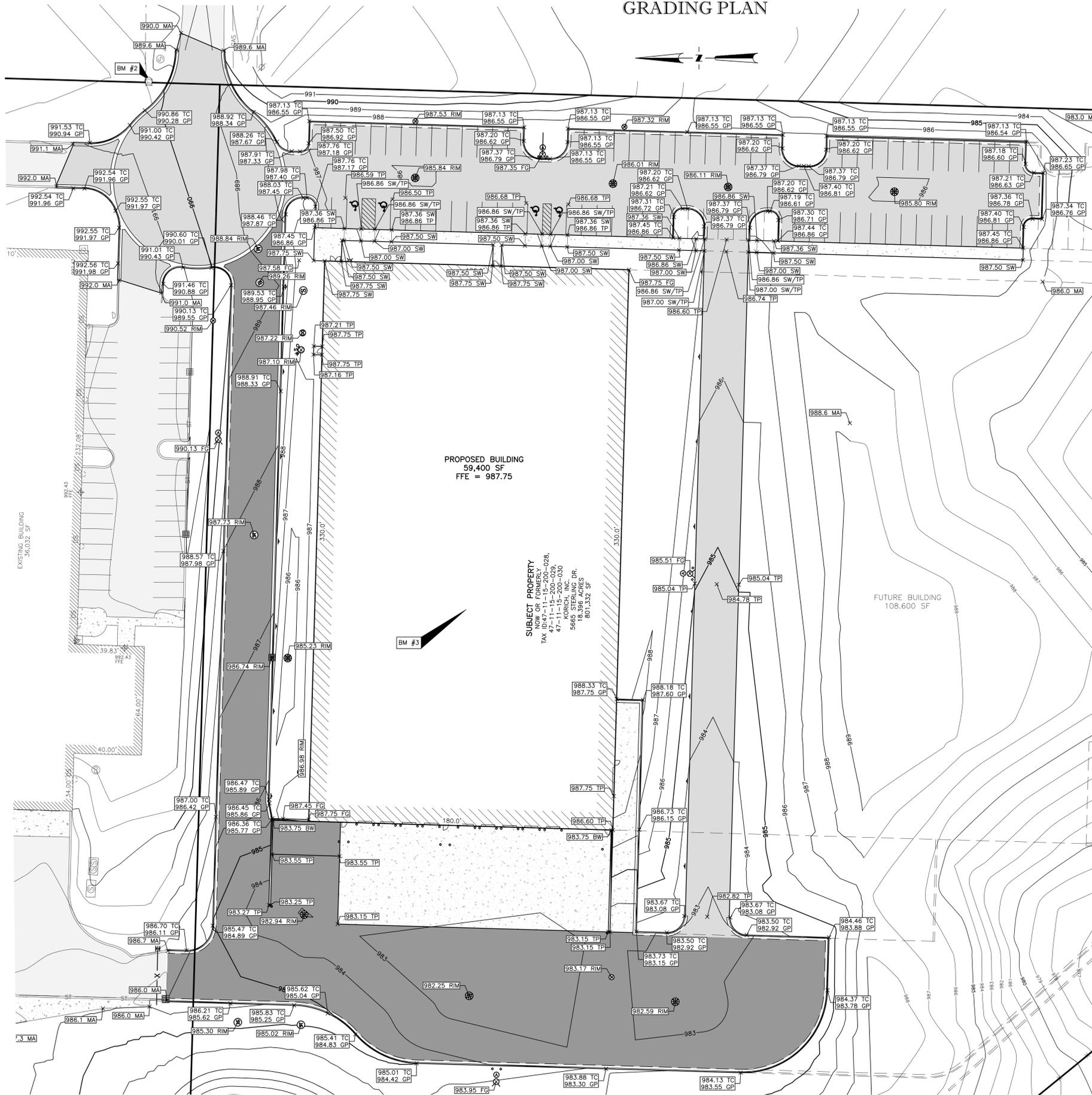
0 1/2" 1"

FIELD:
DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

C-6.1

NOT FOR CONSTRUCTION

MASONITE
GRADING PLAN



GRADING LEGEND

- X 940.00 TP PROPOSED TOP OF PAVEMENT GRADE
- X 940.00 SW PROPOSED SIDEWALK GRADE
- X 940.00 FG PROPOSED FINISH GRADE
- X 940.00 TC PROPOSED TOP CURB GRADE
- X 939.50 GP PROPOSED GUTTER PAN GRADE
- X 940.0 MA MATCH EXISTING
- X 940.0 RIM PROPOSED RIM GRADE
- X 940.00 ADJ-RIM ADJUSTED RIM GRADE
- 760.00 X EXISTING ELEVATION
- 900 EXISTING CONTOUR
- 900 PROPOSED CONTOUR
- LIMITS OF DISTURBANCE

BENCHMARKS

DATUM: LOCAL DATUM

BM: #1
60D NAIL IN NORTHEAST SIDE OF 40" OAK TREE.
ELEV: 991.87

BM: #2
60D NAIL IN NORTH SIDE UTILITY POLE.
ELEV: 991.82

BM: #3
ARROW ON TOP OF HYDRANT, 229± SOUTH OF BUILDING.
ELEV: 993.89



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GRADING PLAN

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GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

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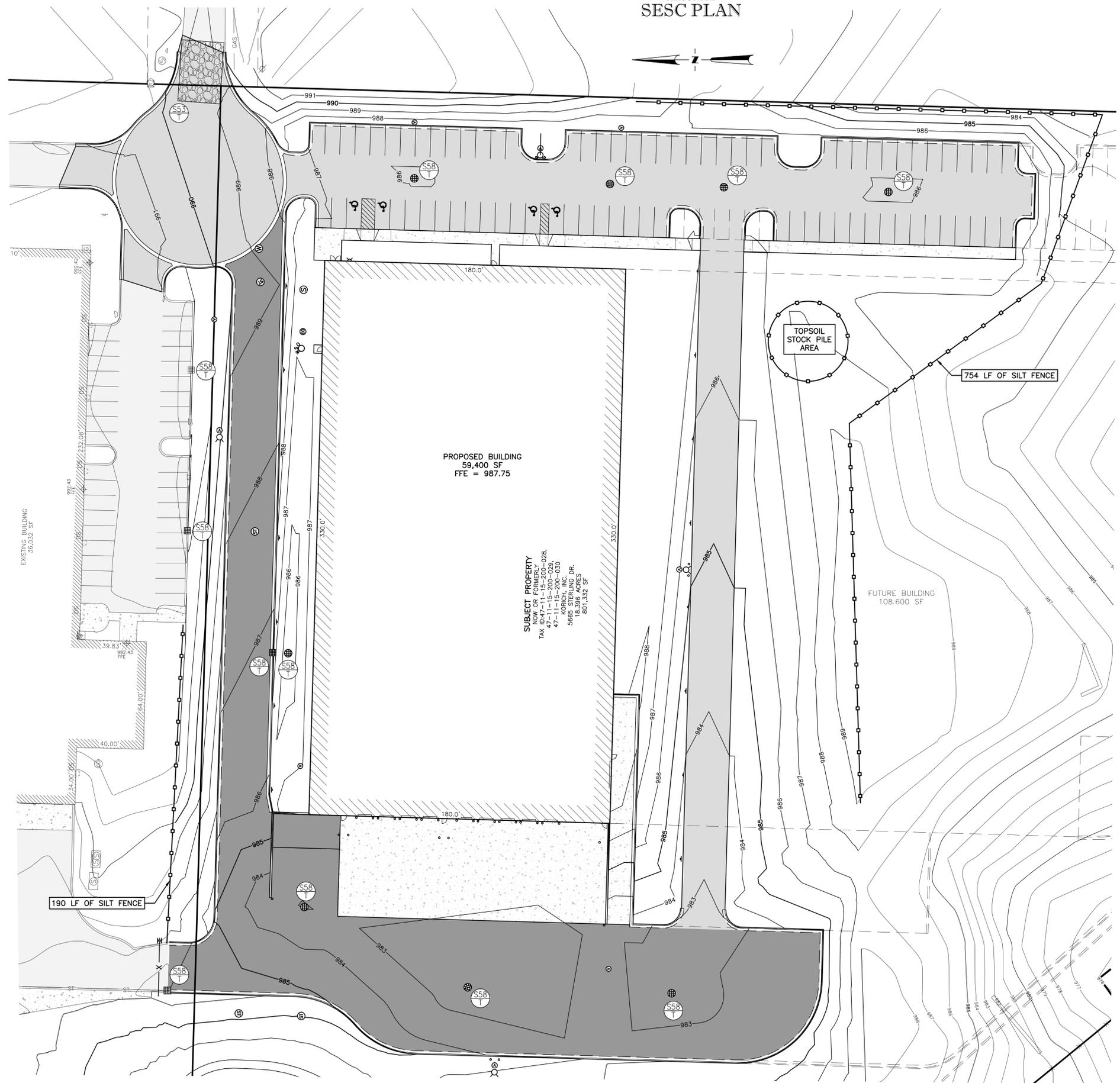
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MASONITE
SESC PLAN



PROPOSED BUILDING
59,400 SF
FFE = 987.75

SUBJECT PROPERTY
NOW OR FORMERLY
TAX ID: 47-11-15-200-028,
47-11-15-200-030,
47-11-15-200-030
KORICH, INC.
5665 STERLING DR.
18,396 ACRES
801.332 SF

FUTURE BUILDING
108,600 SF

190 LF OF SILT FENCE

754 LF OF SILT FENCE

DTMB SOIL EROSION & SEDIMENTATION
CONTROL MEASURES

MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT, AND BUDGET (DTMB)

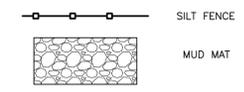
EROSION CONTROLS		
KEY	BEST MANAGEMENT PRACTICES	WHERE USED
E6	MULCH	FOR USE IN AREAS SUBJECT TO EROSION SURFACE FLOWS OR SEVERE WIND OR ON NEWLY SEEDS AREAS.
E8	PERMANENT SEEDING	STABILIZATION METHOD UTILIZED ON SITES WHERE EARTH CHANGE HAS BEEN COMPLETED (FINAL GRADING ATTAINED).

SEDIMENT CONTROLS		
KEY	BEST MANAGEMENT PRACTICES	WHERE USED
S51	SILT FENCE	USE ADJACENT TO CRITICAL AREAS, TO PREVENT SEDIMENT LOADED SHEET FLOW FROM ENTERING THESE AREAS.
S53	STABILIZED CONSTRUCTION ACCESS	USED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE.
S55	SEDIMENT BASIN	AT THE OUTLET OF DISTURBED AREAS AND AT THE LOCATION OF A PERMANENT DETENTION BASIN.
S58	INLET PROTECTION FABRIC DROP	USE AT STORMWATER INLETS, ESPECIALLY AT CONSTRUCTION SITES.

EROSION & SEDIMENT CONTROLS		
KEY	BEST MANAGEMENT PRACTICES	WHERE USED
ES31	CHECK DAM	USED TO REDUCE SURFACE FLOW VELOCITIES WITHIN CONSTRUCTED AND EXISTING FLOW CORRIDORS.

XX TEMPORARY XX PERMANENT

SESC LEGEND



EROSION CONTROL QUANTITIES

Disturbed Area: 8.9 Acres

QTY	UNIT	ITEM
1897	LF	SILT FENCE
13	EA	INLET FILTER
49	SY	RIP-RAP

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SESC PLAN

MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

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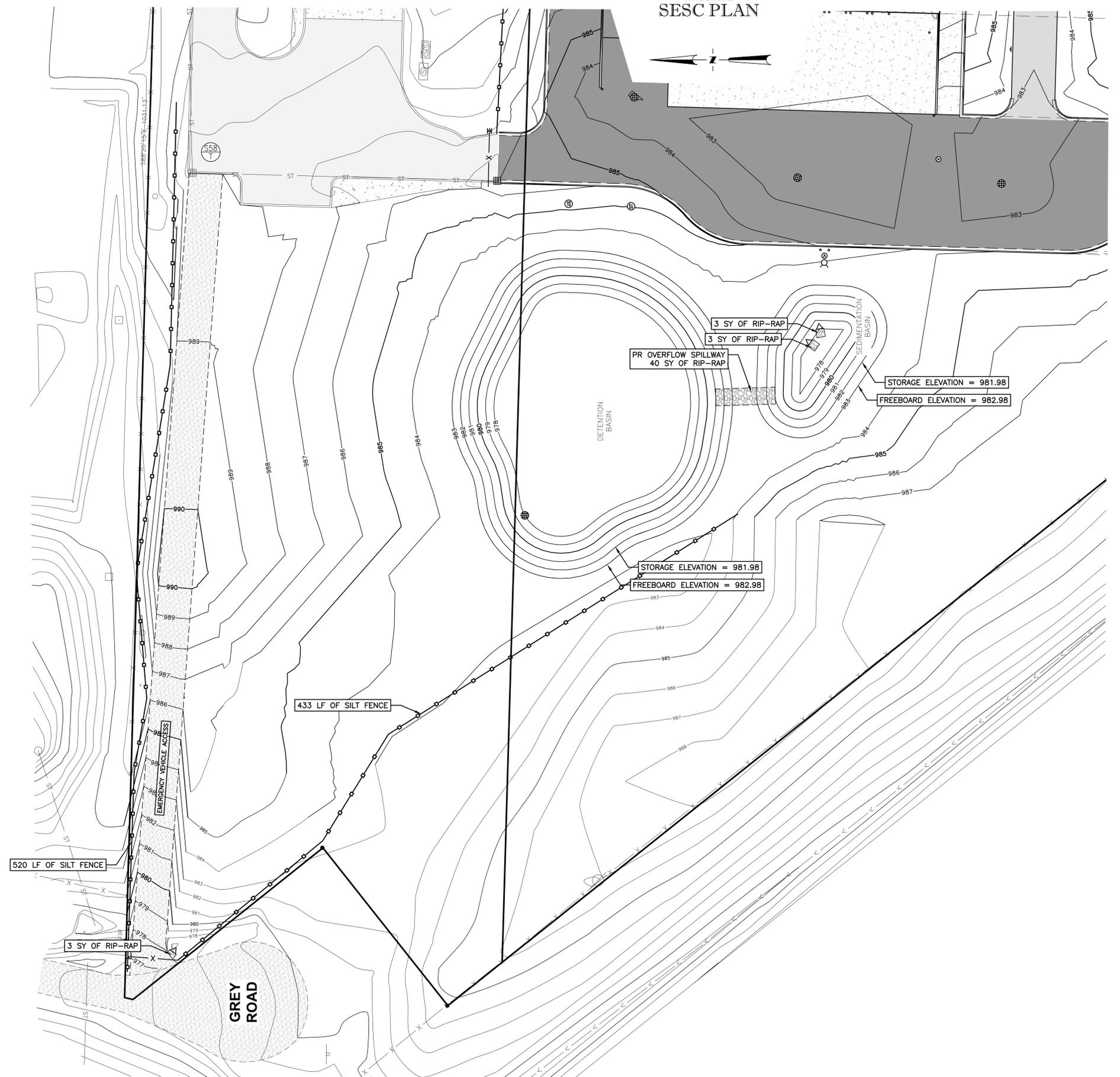
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MASONITE SESC PLAN



EROSION CONTROL STANDARDS

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF LIVINGSTON COUNTY DRAIN COMMISSION OFFICE.
2. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR FOR EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES, AND ANY 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. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
4. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THESE PLANS. CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER CHANGES HAS BEEN ACCOMPLISHED.
5. STAGING OF THE WORK WILL BE DONE BY THE CONTRACTOR AS DIRECTED IN THESE PLACES AND AS REQUIRED TO INSURE PROGRESSIVE STABILIZATION OF DISTURBED AREAS.
6. SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
7. A CERTIFIED STORM WATER OPERATOR WILL BE NAMED ON THE MDEQ NOTICE OF COVERAGE FOR NPDES AS REQUIRED.
8. ALL DISTURBED AREAS ARE TO BE TOP SOILED AND SEEDED WITH THE FOLLOWING MIN RATIO:
TOP-SOIL 3" IN DEPTH, GRASS SEED 210 LBS PER ACRE, FERTILIZER 150 LBS PER ACRE, STRAW MULCH 3" DEPTH 1.5 TO 2 TONS PER ACRE.

SOIL EROSION CONTROL MAINTENANCE SCHEDULE AND NOTES.

1. CONTRACTOR MUST OBTAIN A SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM LIVINGSTON COUNTY DRAIN COMMISSION OFFICE PRIOR TO COMMENCING WORK.
2. EARTHWORK SHALL BE LIMITED TO THE PROPOSED SITE AS SHOWN ON THE PLAN.
3. CONTRACTOR SHALL INSPECT THE SOIL EROSION/SEDIMENTATION CONTROL DEVICES ONCE A WEEK AND/OR WITHIN 24 HOURS OF A RAINFALL EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. ANY DAMAGE TO EROSION CONTROL MEASURES MUST BE REPAIRED IMMEDIATELY.
4. ALL MUD OR DEBRIS TRACKED ONTO EXISTING PUBLIC ROADS FROM THE SITE DUE TO CONSTRUCTION SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
5. SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY BUILT-UP SEDIMENT WHEN THE SEDIMENT HEIGHT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR RE-BACKFILL THE SILTATION FENCE SHOULD IT FAIL OR BE DAMAGED DURING CONSTRUCTION.
6. PERMANENT STABILIZATION MUST BE COMPLETED WITHIN 30 DAYS OF FINAL GRADING.
7. ACCESS ROADS MUST BE MAINTAINED AS NECESSARY, TO KEEP THEM EFFECTIVE, NEW LAYERS OF STONE MAY BE ADDED AS OLD LAYERS BECOME COMPACTED. STEPS SHOULD ALSO BE TAKEN TO REPAIR THE ACCESS ROADS IF RUTS OR PONDING WATER APPEARS.
8. INLET FILTERS SHOULD BE INSPECTED FOR BUILDUP OF SILT AND OTHER DEBRIS. THIS IS EVIDENT IF GEOTEXTILE/SOD STRUCTURE IS CAUSING FLOODING. MAINTENANCE WOULD CONSIST OF REMOVING OF SEDIMENTS WITH A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTER IS BEYOND THIS LEVEL OF REPAIR, IT MAY BE NECESSARY TO REPLACE BOTH THE SOD AND GEOTEXTILE FILTER.
9. IF SOIL EROSION/SEDIMENT CONTROL MEASURES ARE INADEQUATE FOR THE SITE, THE PROPER EROSION CONTROL AUTHORITY MUST BE NOTIFIED.

SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE OF CONSTRUCTION

1. THE CONTRACTOR SHALL INSTALL SILT FENCE AS SHOWN ON APPROVED PLANS.
2. REMOVE ALL TOPSOIL AND ORGANIC MATTER. TOPSOIL MAY BE STORED ON SITE IN DESIGNATED AREA TO BE USED FOR FUTURE PLANTING AND FILL AREAS. TRUCK REMAINING TOP SOIL OFFSITE AND PROPERLY DISPOSE.
3. ROUGH GRADE AND INSTALL NEW UNDERGROUND UTILITIES INCLUDING DETENTION BASIN. PLACE INLET FILTERS AT PROPOSED CATCH BASINS THROUGHOUT SITE.
4. DETENTION BASIN SHALL BE EXCAVATED, TOP SOILED, AND SEEDED IMMEDIATELY AFTER DEMOLITION WORK IS COMPLETED.
5. CONSTRUCT BUILDINGS.
6. FINISH GRADE AROUND BUILDINGS AND STABILIZE AS SOON AS POSSIBLE. STABILIZE ALL DISTURBED AREAS WITH CLASS A SEED AND MULCH. IN AREAS OF SLOPES OF 1:4 OR STEEPER, CONTRACTOR TO SEED AND INSTALL PEGGED IN PLACE EROSION CONTROL BLANKETS.
7. REPAIR/CLEAN INLET FILTERS AS REQUIRED.
8. INSTALL FINAL LANDSCAPING PER SEPARATE LANDSCAPE PLAN.
9. STONE AROUND OUTLET STANDPIPE STRUCTURE SHALL BE REFRESHED.
10. REMOVE TEMPORARY SOIL EROSION MEASURES ONCE SEEDED VEGETATION HAS ESTABLISHED. CLEAN ALL AFFECTED STORM STRUCTURES AS NECESSARY.

INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS

MEGA ENGINEERING GROUP ASSOCIATES, INC.

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CLIENT :

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WWW.SCHONSHECK.COM

SESC PLAN
MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

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0 1/2" 1"

FIELD:
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C-8.1

NOT FOR CONSTRUCTION

MASONITE
STORM WATER CALCULATIONS

STORM SEWER DESIGN										MONUMENT ENGINEERING GROUP ASSOCIATES, LLC														
Q = C I A Q = A x 1.486/n x R ^{2/3} x S ^{1/2} I = 175/(t+25)										298 VETERANS DRIVE FOWLERVILLE, MI 48836 517-223-3512														
t = 15 n1 = 0.01 HDPE & PVC n2 = 0.013 CONC.										H.G. ELEV. INVERT ELEV. RIM ELEV. DOWN STREAM														
FROM STR TO STR	AREA A	COEFF. C	A x C	AREA TOTAL At	TOTAL C x A	TIME t	INT. I	FLOW Q	PIPE CAP.	PIPE AREA	PIPE LENGTH	PIPE DIA.	PIPE SLOPE	MIN PIPE SLOPE	H.G. SLOPE	VEL. FULL	TIME FLOW	UP STREAM	DOWN STREAM	UP STREAM	DOWN STREAM	RIM ELEV. UP STREAM	DOWN STREAM	
ac.				ac.		min.	in/hr	c.f.s.	c.f.s.	sq. ft.	ft.	in.	%	%	ft/sec	min.								
MAIN RUN	IN1-CB2	0.23	0.55	0.127	0.230	0.127	15.00	4.38	0.55	2.01	0.79	98	12	0.32	0.30	0.32	2.56	0.64	982.63	982.32	981.83	981.52	985.80	986.11
	CB2-CB3	0.10	0.55	0.055	0.330	0.182	15.64	4.31	0.78	2.01	0.79	68	12	0.32	0.30	0.32	2.56	0.44	982.32	982.10	981.52	981.30	986.11	986.01
	CB3-CB4	0.21	0.55	0.116	0.540	0.297	16.08	4.26	1.27	2.01	0.79	117	12	0.32	0.30	0.32	2.56	0.76	982.10	981.73	981.30	980.93	986.01	985.84
	CB4-MH5	0.65	0.55	0.358	1.190	0.655	16.84	4.18	2.74	3.16	1.23	111	15	0.24	0.23	0.24	2.58	0.72	981.63	981.36	980.63	980.36	985.84	989.26
	MH5-MH6	0.00	0.55	0.000	1.190	0.655	17.56	4.11	2.69	3.16	1.23	149	15	0.24	0.23	0.24	2.58	0.96	981.26	980.91	980.26	979.91	989.26	987.73
	MH6-CB7	0.00	0.55	0.000	2.280	1.254	18.52	4.02	5.04	8.46	3.14	73	24	0.14	0.12	0.14	2.69	0.45	980.91	980.80	979.31	979.20	987.73	986.74
	CB7-MH8	0.24	0.55	0.132	4.060	2.233	18.97	3.98	8.89	10.11	3.14	216	24	0.20	0.12	0.20	3.22	1.12	980.80	980.37	979.20	978.77	986.74	985.30
	MH9-MH9	0.00	0.55	0.000	5.450	2.998	20.09	3.88	11.63	12.96	4.91	37	30	0.10	0.09	0.10	2.64	0.23	980.27	980.23	978.27	978.23	985.30	985.02
	MH9-ES10	0.00	0.55	0.000	5.850	3.218	20.32	3.86	12.42	12.96	4.91	134	30	0.10	0.09	0.10	2.64	0.85	980.13	980.00	978.13	978.00	985.02	978.00
LATERAL	EX A-EX B	0.37	0.55	0.204	0.370	0.204	15.00	4.38	0.89	3.56	0.79	175	12	1.00	0.30	1.00	4.53	0.64	987.11	985.36	986.31	984.56	990.72	991.20
	EX B-EX C	0.15	0.55	0.083	0.520	0.286	15.64	4.31	1.23	2.76	0.79	312	12	0.60	0.30	0.60	3.51	1.48	985.36	983.49	984.56	982.89	991.20	987.23
	EX C-EX D	0.31	0.55	0.171	0.830	0.457	17.12	4.15	1.90	4.08	1.23	182	15	0.40	0.23	0.40	3.33	0.91	983.46	982.73	982.49	981.73	987.23	986.00
	EX D-MH8	0.56	0.55	0.308	1.390	0.765	18.04	4.07	3.11	3.16	1.23	45	15	0.24	0.23	0.24	2.58	0.29	980.38	980.27	979.38	979.27	986.00	986.74
LATERAL	10046-10045	0.45	0.55	0.248	0.450	0.248	15.00	4.38	1.08	3.40	0.79	96	12	0.91	0.30	0.91	4.33	0.37	986.50	985.63	985.70	984.83	990.10	990.37
	10045-MH6	0.64	0.55	0.352	1.090	0.600	15.37	4.33	2.60	3.16	1.23	89	15	0.24	0.23	0.24	2.58	0.58	981.12	980.91	980.12	979.90	990.37	987.73
LATERAL	IN11-CB7	1.54	0.55	0.847	1.540	0.847	15.00	4.38	3.71	3.82	1.23	9	15	0.35	0.23	0.35	3.11	0.05	980.93	980.90	979.93	979.90	985.23	987.73
LATERAL	IN12-MH9	0.40	0.55	0.220	0.400	0.220	15.00	4.38	0.96	2.01	0.79	65	12	0.32	0.30	0.32	2.56	0.42	980.44	980.23	979.64	979.43	982.95	985.30
MAIN RUN	IN13-CB14	1.54	0.55	0.847	1.540	0.847	15.00	4.38	3.71	3.82	1.23	122	15	0.35	0.23	0.35	3.11	0.65	979.95	979.53	978.95	978.53	982.59	982.25
	CB14-ES15	0.53	0.55	0.292	2.070	1.139	15.65	4.30	4.90	5.25	1.77	91	18	0.25	0.18	0.25	2.97	0.51	979.43	979.20	978.23	978.00	982.25	979.00

COMPOUND RUNOFF COEFFICIENT

	AREA (SF)	AREA (AC)	C	A x C
OVERALL	498,762	11.45		
CONTRIBUTING FLOWING OFF	498,762	11.45		
	0	0.00		
EX BUILDING	36,032	0.90		32,429
EX PAVEMENT	46,545	0.90		41,891
PR BUILDING	60,335	0.90		54,302
PR PAVEMENT	103,994	0.90		93,595
GRASS	251,856	0.20		50,371
TOTALS	498,762			272,587

$$COMPOUND C = \frac{TOTAL A \times C}{CONTRIBUTING AREA} = \frac{272,587}{498,762} = 0.55$$

SITE INFO

OVERALL AREA	=	11.45 AC
CONTRIBUTING AREA (A)	=	11.45 AC
ALLOWABLE DISCHARGE RATE (Qa)	=	0.20 CFS/AC
COMPOUND RUNOFF COEFFICIENT (C)	=	0.55

PROPOSED SEDIMENTATION BASIN VOLUME

ELEVATION (FT)	AREA (FT)	AVG AREA (FT)	INC VOLUME (CF)	VOLUME (CF)
978	399		697	
979	994		1,371	697
980	1,748		2,203	2,068
981	2,658		3,192	4,271
982	3,726		3,192	7,463

VOLUME SUMMARY

FIRST FLUSH VOLUME	$V_{ff} = 1815 \times A \times C$	=	11,358 CF
BANK FULL FLOOD VOLUME	$V_{bf} = 8160 \times A \times C$	=	51,063 CF
100-YEAR VOLUME	V_{100}	=	68,962 CF
SEDIMENTATION VOLUME	$V_{sed} = 5\% \times V_{100}$	=	3,448 CF

LIVINGSTON COUNTY DETENTION METHOD

Tributary Area (A) =	11.45
Compound Runoff Coefficient (C) =	0.55
Design Constant (K1) = A X C =	6.258
Allowable Outflow Rate (Qo) = .10 cfs per acre =	2.290

1	2	3	4	5	6	7
Duration (Minutes)	Duration (Seconds)	Intensity (100-yr Storm) (In/Hr)	Col. #2 x Col. #3 (Inches)	Inflow Volume = Col. #4 x K1 (Cu. Ft.)	Outflow Volume Col. #2 x Qo (Cu. Ft.)	Storage Volume Col. 5 - Col. 6 (Cu. Ft.)
5	300	9.17	2750	17208.75	687.00	16521.75
10	600	7.86	4714	29500.71	1374.00	28126.71
15	900	6.88	6188	38719.69	2061.00	36658.69
20	1200	6.11	7333	45890.00	2748.00	43142.00
30	1800	5.00	9000	56319.55	4122.00	52197.55
60	3600	3.24	11647	72884.12	8244.00	64640.12
90	5400	2.39	12913	80806.30	12366.00	68440.30
120	7200	1.90	13655	85450.34	16488.00	68962
180	10800	1.34	14487.80	90660.73	24732.00	65928.73

PROPOSED DETENTION BASIN VOLUME

ELEVATION (FT)	AREA (FT)	AVG AREA (FT)	INC VOLUME (CF)	VOLUME (CF)
978	12,778		13,855	
979	14,931		16,086	13,855
980	17,240		18,473	29,940
981	19,706		21,018	48,413
982	22,330		23,720	69,431
983	25,110		23,720	93,151

STORAGE ELEVATIONS

FIRST FLUSH	=	978.00	VOLUME 1	0
ELEVATION 1	=	979.00	VOLUME 2	13,855
ELEVATION 2	=	979.00	VFF	11,358
FF ELEVATION (Zff)	=	978.82		
BANKFULL	=	981.00	VOLUME 1	48,413
ELEVATION 1	=	982.00	VOLUME 2	69,431
ELEVATION 2	=	982.00	Vbf	51,063
BF ELEVATION (Zbf)	=	981.13		
100-YEAR	=	981.00	VOLUME 1	48,413
ELEVATION 1	=	982.00	VOLUME 2	69,431
ELEVATION 2	=	982.00	V100	68,962
100 ELEVATION (Z100)	=	981.98		

OUTLET CONTROL STRUCTURE ORIFICE CALCULATIONS

FIRST FLUSH RUNOFF

AVERAGE ALLOWABLE RELEASE RATE FOR RUNOFF IS 0.5" OVER THE SITE IN 24 HOURS

$$Q_{ff} = \frac{V_{ff}}{T_{24}} = \frac{V_{ff}}{24 \times 3600} = 0.131 \text{ CFS}$$

OPENINGS IN BOTTOM OF BASIN

$$Z_{btm} = 978.00$$

$$H_{avg} = \frac{2}{3} \times (Z_{ff} - Z_{btm}) = 0.547 \text{ FT}$$

$$A_{ff} = \frac{Q_{ff}}{0.62 \sqrt{2 \times g \times H_{avg}}} = 0.036 \text{ SF}$$

1" DIA HOLE HAS AN AREA OF

$$1 \times 0.083 = 0.0055 \text{ SF}$$

0.75" DIA HOLE HAS AN AREA OF

$$0.75 \times 0.063 = 0.0031 \text{ SF}$$

DETENTION TIME FOR ONE (1) 0.75" DIA HOLE

$$0.75" = 0.0079 \text{ CFS}$$

$$T_{ff} = \frac{V_{ff}}{Q_{ff}} = \frac{V_{ff}}{Q_{ff} \times 3600} = 24.00 \text{ HRS}$$

DETENTION TIME OF 44 HOURS

$$= 44 \text{ HRS}$$

$$V_{rem} = V_{bf} - V_{ff} = 39705 \text{ CF}$$

$$T_{rem} = T_{tot} - T_{ff} = 20.00 \text{ HRS}$$

VOLUME THROUGH ONE (1) 0.75" DIA HOLE IN 20 HOURS

$$= 2.357 \text{ FT}$$

$$H_{ff} = \frac{2}{3} (Z_{bf} - Z_{ff}) + (Z_{ff} - Z_{btm}) = 0.273 \text{ CFS}$$

$$Q_1 = 0.62 \times A_{ff} \sqrt{2 \times g \times H_{ff}} = 19656.93 \text{ CF}$$

$$V_1 = T_{rem} \times Q_1 = 20048.35 \text{ CF}$$

$$V_2 = V_{rem} - V_1 = 0.278 \text{ CFS}$$

$$Q_2 = \frac{V_2}{T_{rem}} = 1.538 \text{ FT}$$

$$H_{bf} = \frac{2}{3} (Z_{bf} - Z_{ff}) = 0.045 \text{ SF}$$

$$A_2 = \frac{Q_2}{0.62 \sqrt{2 \times g \times H_{bf}}} = 0.005 \text{ SF}$$

1" DIA HOLE HAS AN AREA OF

$$1 \times 0.083 = 0.005 \text{ SF}$$

NUMBER OF HOLES =

$$\frac{A_2}{NOMINAL \text{ HOLE AREA}} = 8.279 \text{ EA}$$

USE EIGHT (8) 1" DIAMETER HOLE AT ELEVATION 978.82

100-YEAR FLOOD

$$Q_a (\text{ALLOWABLE}) = 0.200 \text{ CFS}$$

$$Q_{ff} + Q_{bf} = 0.079 \text{ CFS}$$

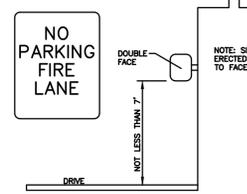
$$Q_{100} = Q_a - (Q_{ff} + Q_{bf}) = 0.121 \text{ CFS}$$

$$A_{100} = \frac{Q_{1$$

LATERAL CLEARANCE:
IN URBAN AREAS, A MINIMUM CLEARANCE OF TWO FEET BETWEEN CURB FACE AND SIGN INSTALLATION SHOULD BE MAINTAINED, BUT A CLEARANCE OF ONE FOOT FROM CURB FACE IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.



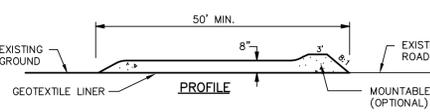
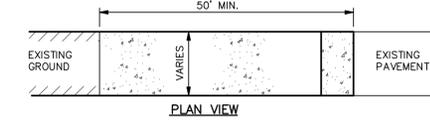
NOTE: SIGNS TO BE ERRECTED PERPENDICULAR TO DRIVE.



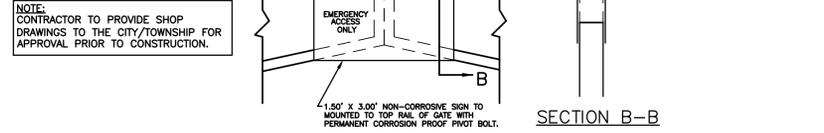
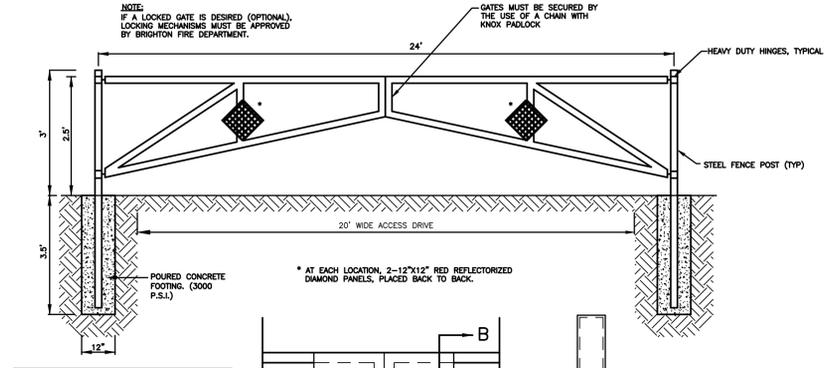
FIRE LANE SIGN PLACEMENT DETAIL
NOT TO SCALE



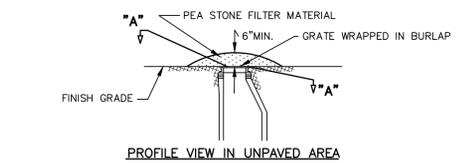
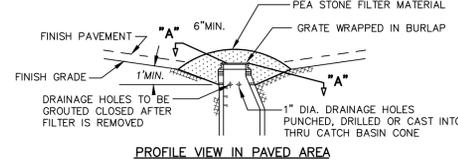
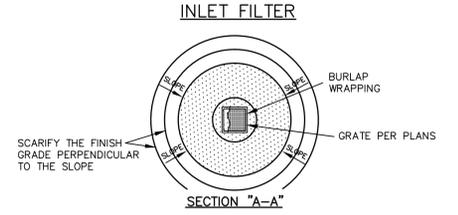
NO PARKING SIGN DETAIL
NOT TO SCALE



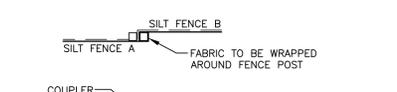
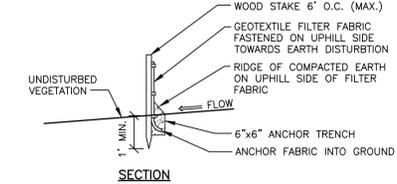
TRACKING MAT DETAIL AT CONSTRUCTION ENTRANCE
NO SCALE



EMERGENCY ACCESS GATE DETAIL
NOT TO SCALE



INLET FILTER DETAILS
FOR SOIL EROSION & SEDIMENTATION CONTROL
NO SCALE



SILT FENCE JOINT
SILT FENCE DETAIL
NO SCALE

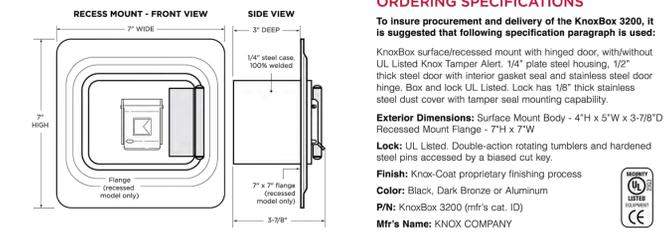
KNOXBOX[®] 3200

The KnoxBox 3200 is the number one high-security key lock box trusted by first responders and property owners. Store up to 10 keys to quickly gain rapid access to commercial properties.



WEIGHT: Surface Mount - 8 lbs
Recessed Mount - 9 lbs

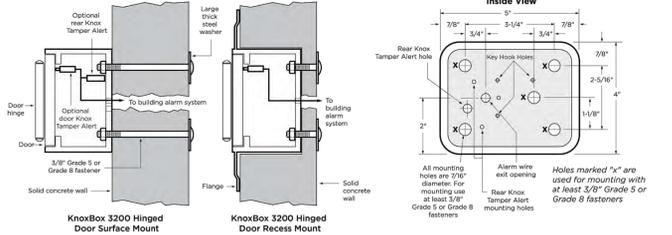
DIMENSIONS: Surface Mount Body - 4"H x 5"W x 3-7/8"D
Recessed Mount Flange - 7"H x 7"W



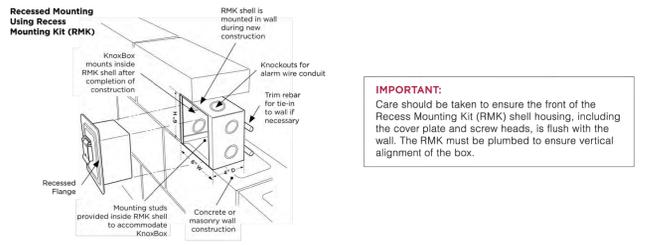
1601 W. DEER VALLEY RD. PHOENIX, AZ 85027 | T. 800-552-5669 | F. 623-687-2290 | INFO@KNOXBOX.COM | KNOXBOX.COM
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KNOXBOX[®] 3200

GENERAL MOUNTING INSTRUCTIONS
Suggested minimum mounting height, 6 feet above ground.



RECESS MOUNTING KIT AND INSTALLATION INSTRUCTIONS
The Recess Mounting Kit (RMK) includes shell housing and mounting hardware, which may only be used for recessed models to cast-in-place within new concrete or masonry construction. The KnoxBox is mounted into the shell housing after construction is completed.



ABOUT KNOX COMPANY

Over forty years ago, a unique concept in rapid access for emergency response was born. The KnoxBox[®], a high-security key lock box, was designed to provide rapid access for emergency responders to reduce response times, minimize injuries and protect property from forced entry.

Today, one revolutionary lock box has grown into a complete system providing rapid access for public safety agencies, industries, military, and property owners across the world. The Knox Company is trusted by over 14,000 fire departments, law enforcement agencies, and municipal entities.

KNOX COMPANY
1601 W. DEER VALLEY RD.
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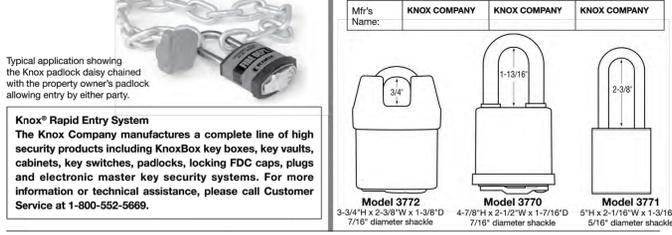
Knox Padlocks

Exterior Padlock Features and Benefits

- Rust free, all-weather stainless steel shackle
- Heavy-duty lock design and solid brass body resists pull attacks
- Lock and body cover protects padlocks from harsh weather conditions and outdoor sprinkler systems
- Medeco[®] cylinder has a UL 437 rating not offered by most padlock manufacturers
- Choice of ID label (Fire/red, EMS/white, Police/blue, Sheriff/gold, Security/white)

Interior Padlock Features and Benefits

- The Knox interior padlock (Model 3771) is designed to secure fire sprinkler control systems, hazardous chemical supplies, restricted utility areas and equipment lockers. The UL[®] listed padlock resists pull attacks.
- Hardened steel shackle; 5/16" diameter shackle fits on a wider range of interior hasps
- Heavy-duty lock design and steel body resists pull attacks
- Medeco cylinder has a UL 437 rating not offered by most padlock manufacturers
- Choice of ID label (Fire/red, EMS/white, Police/blue, Sheriff/gold, Security/white)



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THE LOCATIONS AND UTILITIES SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT :

SI

SCHONSHECK,
DESIGN-BUILD - CONSTRUCTION
5665 STERLING DRIVE, PHOENIX, AZ 85027
P. 602.955.8700 F. 602.955.8700
WWW.SCHONSHECK.COM

DETAILS

MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-R8E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

DATE	DESCRIPTION
5/01/2019	PRELIMINARY SITE PLAN SUBMITTAL
5/22/2019	REVISED SITE PLAN SUBMITTAL

ORIGINAL ISSUE DATE:
5/01/2019

PROJECT NO: 19-018

SCALE: N/A

FIELD:
DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

C-11.0

NOT FOR CONSTRUCTION

GENERAL NOTES

- ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE LOCAL MUNICIPALITY, THE COUNTY D.P.W., THE COUNTY ROAD COMMISSION, THE COUNTY WATER SEWERAGE AND SANITATION DEPARTMENT, MICHIGAN DEPARTMENT OF TRANSPORTATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, THE STATE OF MICHIGAN, AND THE COUNTY ROAD COMMISSION WHERE APPLICABLE.
- RULES, REGULATIONS OR LAWS OF ANY CONTROLLING GOVERNMENTAL AGENCY SHALL GOVERN WHEN THEY ARE MORE STRINGENT THAN THE REQUIREMENTS OF THESE SPECIFICATIONS.
- SHOULD THE CONTRACTOR ENCOUNTER A CONFLICT BETWEEN THESE PLANS AND SPECIFICATIONS, EITHER AMONG THEMSELVES OR WITH THE REQUIREMENTS OF ANY AND ALL REVIEWING AND PERMIT-ISSUING AGENCIES, HE SHALL SEEK CLARIFICATION IN WRITING FROM THE ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. FAILURE TO DO SO SHALL BE AT SOLE EXPENSE TO THE CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT TO COMPLETE THE TYPE OF WORK WHICH IS BID, IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, DETAILS AND TO THE SATISFACTION OF THE OWNER AND OWNER'S REPRESENTATIVE.
- CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE WORK ON THIS PROJECT EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.
- ANY WORK WITHIN STREET OR HIGHWAY RIGHT-OF-WAYS SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL PERMITS HAVE BEEN ISSUED BY THESE GOVERNING AUTHORITIES.
- ALL NECESSARY PERMITS, BONDS, INSURANCES, ETC., SHALL BE PAID FOR BY THE CONTRACTOR.
- ALL ELEVATIONS SHOWN ARE BASED ON BENCHMARKS PROVIDED BY THE LOCAL MUNICIPALITY UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ALL ITEMS OF WORK NOT SPECIFICALLY INDICATED AS PAY ITEMS ON THE DRAWINGS OR IN THE BID PACKAGE SHALL BE CONSIDERED INCIDENTAL ITEMS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING THE PERIODS OF CONSTRUCTION.
- AT LEAST THREE (3) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT MISS DIG (1-800-482-7171) TO VERIFY THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES AND SHALL NOTIFY REPRESENTATIVES OF OTHER UTILITIES IN THE VICINITY OF THE WORK.
- ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR DISTURBED DUE TO CONSTRUCTION SHALL BE REPLACED AND/OR RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER.
- MANHOLE, CATCH BASIN, GATE WELL RIMS AND HYDRANT FINISH GRADE ELEVATIONS MUST BE AS-BUILT AND APPROVED BY THE ENGINEER BEFORE THE CONTRACTOR'S WORK IS CONSIDERED COMPLETE. AGENCY REQUIREMENTS FOR RECORD DRAWINGS ALSO APPLY.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF OFF-SITE ANY TREES, BRUSH, STUMPS, TRASH OR OTHER UNWANTED DEBRIS, AT THE OWNER'S DIRECTION, INCLUDING OLD BUILDING FOUNDATIONS AND FLOORS. THE BURNING OR BURYING OF TRASH, STUMPS OR OTHER DEBRIS WILL NOT BE ALLOWED.
- ALL REFERENCES TO M.D.O.T. SPECIFICATIONS REFER TO THE MOST CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- ALL CONTRACTORS BIDDING THIS PROJECT SHALL HAVE VISITED THE SITE TO BECOME THOROUGHLY FAMILIAR WITH THE SITE AND THE CONDITIONS IN WHICH THEY WILL BE CONDUCTING THEIR OPERATIONS. ANY VARIANCE FOUND BETWEEN THE PLANS AND EXISTING CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.
- THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING UNDERGROUND FACILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION PROVIDED BY THE UTILITY COMPANIES AND GOVERNMENTAL AGENCIES WITHOUT UNDERMINING AND MEASURING. DESIGN ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN.
- THE OWNER MAY EMPLOY AND PAY FOR THE SERVICES OF AN ENGINEER TO PROVIDE ON-SITE INSPECTION AND VERIFY IN THE FIELD THAT ALL BACKFILL, PAVEMENTS AND CONCRETE CURB AND GUTTER HAVE BEEN PLACED AND COMPACTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. IF, IN THE OPINION OF THE ENGINEER, THE WORK DOES NOT MEET THE TECHNICAL OR DESIGN REQUIREMENTS STIPULATED FOR THE WORK, THE CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL MAKE NO DEVIATIONS FROM THE CONTRACT DOCUMENTS WITHOUT SPECIFIC WRITTEN APPROVAL OF THE OWNER.
- ALL EXCAVATED MATERIAL REMOVED FROM THE SANITARY SEWER, STORM SEWER AND WATER MAIN TRENCHES UNDER, THROUGH AND WITHIN 3 FEET OF THE 45° ZONE OF INFLUENCE LINE OF EXISTING OR PROPOSED PAVING, SIDEWALK AREAS AND PER PLANS, NOT SUITABLE FOR BACKFILL, SHALL BE REMOVED FROM THESE AREAS AND DISPOSED OF.
- THE CONTRACTOR SHALL RESTORE TO THEIR PRESENT CONDITIONS ANY PAVEMENT OR PUBLIC RIGHTS-OF-WAY THAT IS DISTURBED BY THE OPERATIONS OF THE CONTRACTOR. ALL RESTORATION WORK IN PUBLIC RIGHTS-OF-WAY SHALL BE PERFORMED TO THE SATISFACTION OF THE GOVERNMENT AGENCIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE AND LIGHTS TO PROTECT THE WORK AND SAFELY MAINTAIN TRAFFIC, IN ACCORDANCE WITH LOCAL REQUIREMENTS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- O.S.H.A. SAFETY REQUIREMENTS - ALL WORK, WORK PRACTICE, AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY, OCCUPATIONAL HEALTH AND ENVIRONMENTAL REGULATIONS AND ALSO NFPA AND ANSI CODES AS APPLICABLE. ALL WORK INSIDE A CONFINED SPACE SUCH AS MANHOLES OR UNDERGROUND STRUCTURES SHALL BE COORDINATED WITH UTILITY OWNER AND ALL WORKER SAFETY REQUIREMENTS STRICTLY ENFORCED. LAND SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY.
- CONTRACTOR SHALL PROVIDE FOR THE CONTINUOUS OPERATION OF EXISTING FACILITIES WITHOUT INTERRUPTION DURING CONSTRUCTION UNLESS SPECIFICALLY AUTHORIZED OTHERWISE BY THE RESPECTIVE AUTHORITY.
- THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES IN THE PROJECT PLANS. BACKFILL TRENCHES FOR EXISTING UTILITIES SHALL BE EXAMINED CRITICALLY. ANY TRENCH WHICH, IN THE OPINION OF THE SOILS ENGINEER ARE FOUND TO BE SOFT, UNSTABLE OR UNSUITABLE MATERIAL SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL. SAND BACKFILL SHALL BE USED UNDER PAVEMENT OR WITHIN THE 1 ON 1 LAND INFLUENCE OF PAVEMENT OR STRUCTURES.

EROSION CONTROL STANDARDS

- ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO STANDARDS AND SPECIFICATIONS OF THE JURISDICTIONAL AGENCY UNDER PART 91 OF ACT 451 OF 1994, AS AMENDED.
- UNDER "MICHIGAN'S PERMIT-BY-RULE FOR CONSTRUCTION ACTIVITIES" PROMULGATED UNDER ACT 245, PUBLIC ACTS OF 1929 AS AMENDED, AN NPDES STORM WATER DISCHARGE COVERAGE PERMIT IS REQUIRED FOR ANY CONSTRUCTION ACTIVITY THAT DISTURBS 1 ACRE OR MORE OF LAND. A CERTIFIED STORM WATER OPERATOR IS REQUIRED FOR THE SUPERVISION AND INSPECTION OF THE SOIL EROSION CONTROL MEASURES AT THE CONSTRUCTION SITE IN ACCORDANCE WITH THE PROVISIONS OF THESE RULES.
- DAILY INSPECTIONS SHALL BE MADE BY CONTRACTOR WHILE WORKING TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES. ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY. ALL SOIL EROSION CONTROL PROVISIONS SHALL BE PROPERLY MAINTAINED DURING CONSTRUCTION.
- 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. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, AND PONDS.
- CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THESE PLANS. CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER EARTH CHANGE AREAS HAVE BEEN COMPLETED.
- STAGING THE WORK WILL BE DONE BY THE CONTRACTOR AS DIRECTED IN THESE PLANS AND AS REQUIRED TO ENSURE PROGRESSIVE STABILIZATION OF DISTURBED EARTH.
- SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
- DUST SHALL BE CONTROLLED BY WATERING OR BY OTHER APPROVED MEANS THROUGHOUT ALL CONSTRUCTION OPERATIONS.
- PERMANENT SOIL EROSION CONTROL MEASURES FOR SLOPES, CHANNELS, DITCHES OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED, WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 5 CALENDAR DAYS. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED.

STORM SEWER SPECIFICATIONS

- THESE SPECIFICATIONS SHALL BE USED IN CONJUNCTION WITH THE GENERAL SPECIFICATIONS AND THE SPECIFICATIONS AND DETAIL SHEETS OF THE GOVERNING AGENCIES. IF ANY CONFLICT IS FOUND BETWEEN THE SPECIFICATIONS, THE STRICTER SPECIFICATIONS SHALL BE FOLLOWED.
- CONTRACTOR SHALL FURNISH CERTIFIED EVIDENCE THAT ALL MATERIAL TESTS AND INSPECTIONS HAVE BEEN PERFORMED AND THAT THE PRODUCT HAS BEEN MANUFACTURED IN COMPLIANCE WITH THE APPLICABLE SPECIFICATIONS.
- PROPER IMPLEMENTS, TOOLS AND FACILITIES SHALL BE PROVIDED AND USED FOR UNLOADING AND DISTRIBUTING MATERIALS ALONG THE LINE OF WORK. ANY PIPE OR FITTING DAMAGED IN TRANSPORTATION OR HANDLING SHALL BE REJECTED AND IMMEDIATELY REMOVED FROM THE JOB SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE STORAGE OF ALL MATERIAL INTENDED FOR THE WORK. HE SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO MATERIALS, EQUIPMENT AND WORK.
- PIPE BEDDING, UNLESS OTHERWISE INDICATED, SHALL BE CL. II SAND, CRUSHED STONE OR ROUNDED GRAVEL. BEDDING MATERIAL SHALL HAVE 95% PASSING A 3/4" SIEVE AND RETAINED ON A NO. 4 SIEVE.
- POROUS FILTER MATERIAL FOR PERFORATED SUBSURFACE DRAINS SHALL BE CRUSHED ROCK OR GRAVEL GRADED BETWEEN 1-1/2" AND 3/4" OR PER PLANS AND DETAILS.
- BACKFILL, UNLESS OTHERWISE NOTED, SHALL BE COARSE SAND, FINE GRAVEL OR EARTH HAVING A LOW PLASTICITY INDEX, FREE OF ROCKS, DEBRIS AND OTHER FOREIGN MATERIALS AND DEFINED AS PASSING THROUGH A 3/8" SIEVE AND NOT MORE THAN 10% BY VOLUME PASSING THROUGH A 200-MESH SIEVE.
- STORM SEWER PIPING AND FITTINGS SHALL BE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL CONFORM TO THE FOLLOWING:
 - POLYVINYL CHLORIDE (PVC) AND ACRYLONITRILE BUTADIENE STYRENE ABS FOR PIPE UP TO AND INCLUDING 10" IN DIAMETER, SHALL CONFORM TO ASTM D3034, SDR 23.5 FOR PVC PIPE AND ASTM D2751 FOR ABS PIPE WITH ELASTOMERIC GASKET JOINTS CONFORMING TO ASTM D3212 OR CHEMICALLY WELDED PIPE JOINTS CONFORMING TO ASTM F545.
 - REINFORCED CONCRETE PIPE, FOR PIPE 12" IN DIAMETER AND UP, SHALL CONFORM TO ASTM C-76. CLASS II UNLESS NOTIFIED BY THE DRAWINGS. JOINTS SHALL BE MODIFIED GROOVED TONGUE WITH RUBBER GASKET CONFORMING TO ASTM C-443.
 - PERFORATED SUBSURFACE DRAIN PIPE SHALL BE PVC CONFORMING TO ASTM D-2729 OR ADS PERFORATED, CORRUGATED POLYETHYLENE PIPE CONFORMING TO AASHTO M-294 OR CORRUGATED STEEL PIPE. JOINTS FOR PVC AND POLYETHYLENE PIPE SHALL BE PREFABRICATED COUPLING WITH SOLVENT WELD.
- MANHOLES, CATCH BASINS, AND INLETS SHALL BE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL BE CONSTRUCTED OF THE FOLLOWING:
 - REINFORCED PRE-CAST CONCRETE MANHOLE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C-478-64T.
 - BRICK SHALL BE SOUND, HARD-BURNED THROUGHOUT AND OF UNIFORM SIZE AND QUALITY AND SHALL BE IN ACCORDANCE WITH ASTM C-32, GRADE MS.
 - CONCRETE MASONRY SHALL BE SOLID PRE-CAST SEGMENTAL UNITS CONFORMING TO ASTM C-139.
- IRON CASTINGS SHALL CONFORM TO ASTM A-48, CLASS 30. BEARING SURFACES BETWEEN CAST IRON FRAMES, COVERS AND GRATES SHALL BE MACHINED, FITTED TOGETHER AND MATCHED-MARKED TO PREVENT ROKING. SYSTEM IDENTIFYING LETTERS 2" HIGH SHALL BE STAMPED OR CAST INTO ALL COVERS SO THAT THEY MAY BE EASILY VISIBLE.
- CASTINGS SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS, INC., NEENAH FOUNDRY COMPANY OR EQUAL.
- CONCRETE AND MASONRY MATERIALS FOR CONSTRUCTION OF STORM DRAINAGE STRUCTURES SHALL CONSIST OF THE FOLLOWING:
 - PORTLAND CEMENT SHALL BE STANDARD BRAND OF PORTLAND CEMENT CONFORMING TO ASTM C-150, TYPE I OR IA.
 - FINE AND COARSE AGGREGATES FOR CONCRETE SHALL BE PER ASTM C-33.
 - AGGREGATE FOR CEMENT MORTAR SHALL BE CLEAN, SHARP SAND CONFORMING TO ASTM C-144.
 - HYDRATED LIME SHALL COMPLY WITH ASTM C-207, TYPE S.
 - WATER SHALL BE CLEAN AND FREE FROM DELETERIOUS MATERIALS.
 - REINFORCING STEEL FOR CONCRETE SHALL BE INTERMEDIATE-GRADE NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 40.
- CONCRETE, UNLESS OTHERWISE NOTED, SHALL HAVE COMPRESSIVE STRENGTH AFTER 28 DAYS OF 3000 PSI MINIMUM WITH 3" MAXIMUM SLUMP.
 - CONCRETE FILL BELOW GRADE MAY BE 2500 PSI AT 28 DAYS.
 - CONCRETE, WHERE EXPOSED TO THE WEATHER, SHALL BE AIR-ENTRAINED. AIR ENTRAINMENT SHALL BE ACCOMPLISHED BY THE USE OF ADDITIVES CONFORMING TO ASTM C-260. AIR CONTENT SHALL BE AS SPECIFIED. ADDITIVE SHALL BE USED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S PRINTED DIRECTIONS.
 - READY-MIX CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-94.

STORM SEWER SPECIFICATIONS, CONTINUED

- MORTAR SHALL BE SPECIFIED HEREINAFTER. USE METHOD OF MIXING MORTAR AT JOBS SO THAT SPECIFIED PROPORTIONS OF MORTAR MATERIALS CAN BE CONTROLLED AND ACCURATELY MAINTAINED DURING WORK PROGRESS. MORTAR SHALL NOT BE MIXED IN GREATER QUANTITIES THAN REQUIRED FOR IMMEDIATE USE. AMOUNT OF WATER CONSISTENT WITH SATISFACTORY WORKABILITY.
 - MORTAR FOR LAYING BRICK OR CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C-270, TYPE M, AVERAGE COMPRESSIVE STRENGTH 2500 PSI MINIMUM AT 28 DAYS. MORTAR MIX SHALL BE PROPORTIONED BY VOLUME.
 - MORTAR FOR PLASTERING SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 2-1/2 PARTS SAND.
 - MORTAR FOR GROUTING OF RIP-RAP SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 3-1/2 PARTS SAND.
- PERFORM ALL EXCAVATING AND TRENCHING TO DIMENSIONS AND ELEVATIONS INDICATED ON DRAWINGS.
- OPEN NO MORE TRENCH IN ADVANCE OF PIPE LAYING THAN IS NECESSARY TO EXPEDITE THE WORK.
- CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED ON DRAWINGS. WHERE EXCESSIVE OR UNAUTHORIZED EXCAVATION TAKES PLACE, THE OVERDEPTH SHALL BE BACKFILLED TO THE PROPER GRADE WITH COMPACTED BEDDING MATERIAL, AT NO EXPENSE TO THE OWNER.
- WHERE UNSTABLE SOIL IS ENCOUNTERED, CONTRACTOR SHALL NOT PLACE PIPE UNTIL A SOLID BED HAS BEEN PROVIDED.
- EXCAVATION FOR DRAINAGE STRUCTURES SHALL EXTEND A SUFFICIENT DISTANCE FROM THE WALLS AND FOOTINGS TO ALLOW FOR FORMS, CONSTRUCTION OF WALLS, CONNECTIONS AND FOR INSPECTION.
- PROVIDE REQUIRED TIMBER SHEETING, BRACING AND SHORING TO PROTECT SIDES OF EXCAVATION. DO NOT BRACE SHEETING AGAINST PIPE. PROVIDE SUITABLE LADDERS FOR SAFE ENTRY TO AND EXIT FROM EXCAVATION.
- DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE PILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF TRENCHES TO AVOID OVERLOADING, AND TO PREVENT SLIDES OR CAVE-INS.
- WHEN WET EXCAVATION IS ENCOUNTERED, THE TRENCH SHALL BE DE-WATERED UNTIL THE PIPE HAS BEEN LAID AND BACKFILLED TO A POINT AT LEAST 1 FOOT ABOVE TOP OF PIPE.
- MANHOLES AND CATCH BASINS SHALL BE CONSTRUCTED OF BRICK, CONCRETE MASONRY UNITS OR PRE-CAST CONCRETE WITH CAST IRON FRAMES, COVERS AND MANHOLE STEPS.
- THE WALL THICKNESS OF MANHOLES AND CATCH BASINS CONSTRUCTED OF VARIOUS MATERIALS AND SET AT VARIOUS DEPTHS SHALL MEET THE MINIMUMS. REFER TO REQUIREMENTS OF THE GOVERNING AGENCY IF THEY EXCEED THESE THICKNESSES:

DEPTH	BRICK	CONCRETE BLOCK	PRE-CAST CONCRETE
0' - 10'	8"	6"	6"
10' - 16'	12"	8"	8"
16' - 25'	16"	12"	12"
- WHENEVER EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES 4" CENTER, TO CENTER, AROUND THE PERIPHERY OF OPENINGS TO CREATE A PLANE OF WEAKNESS JOINT BEFORE BREAKING SECTION OUT.
- MANHOLE STEPS SHALL BE BUILT INTO AND THOROUGHLY ANCHORED TO WALLS. STEPS SHALL BE FACTORY INSTALLED IN PRE-CAST STRUCTURES.
- ALL PIPING ENTERING OR LEAVING DRAINAGE STRUCTURES SHALL BE ADEQUATELY SUPPORTED BY POURED IN-PLACE CONCRETE FILL FROM PIPE CENTER TO UNDISTURBED GROUND.
- SET FRAMES IN FULL BED OF STIFF MORTAR OR BITUMINOUS MASTIC JOINTING COMPOUND AT FINAL ELEVATION.
- ALL TIMBER SHEETING BELOW A PLANE 12" ABOVE TOP OF PIPE SHALL REMAIN IN PLACE IN ORDER NOT TO DISTURB PIPE GRADING. BEFORE BACKFILLING, REMOVE ALL OTHER SHEETING BRACING AND SHORING.
- BEDDING USED FOR TRENCH BOTTOM SHALL BE EXTENDED UP THE SIDES AND CAREFULLY PLACED AROUND AND OVER PIPE IN 6" MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS PER ASTM D-1557 (MODIFIED PROCTOR) UNTIL 12" OF COVER EXISTS OVER PIPE.
- REMAINDER OF TRENCH SHALL BE BACKFILLED WITH SPECIFIED BACKFILL MATERIAL TO SPECIFIED SUBGRADE ELEVATION. BACKFILLING SHALL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY PER ASTM D-1557.
- IN STREETS, DRIVES, PARKING LOTS AND OTHER AREAS TO HAVE OR HAVING IMPROVED HARD SURFACES, BACKFILL SHALL BE MATERIAL SPECIFIED AND SHALL BE DEPOSITED IN 6" LOOSE LAYERS AT OPTIMUM MOISTURE CONTENT (±2%) COMPACTED TO 95% OF MAXIMUM DRY DENSITY PER ASTM D1557. (MODIFIED PROCTOR) SUITABLE MATERIALS FOUND ON SITE MAY BE USED.
- BEFORE BACKFILLING AROUND DRAINAGE STRUCTURES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN 8" MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL OR HAND TAMPERS.
- AFTER INSTALLATION OF PIPES AND DRAINAGE STRUCTURES, CLEAN THEM, AND ADJUST TOPS TO FINISH GRADE. PIPE SHALL BE STRAIGHT BETWEEN STRUCTURES, WITH THE FULL INSIDE DIAMETER VISIBLE WHEN SIGHTING BETWEEN STRUCTURES.
- ENDS OF HEADWALL AND END SECTIONS SHALL BE FITTED WITH A #4 ROUND MINIMUM WELDED STEEL ROD GRATING. RODS SHALL BE SPACED 6" O.C. MAXIMUM. WELD ROD AT ALL INTERSECTIONS. GRATE SHALL BE REMOVABLE FOR ACCESS AND CLEANING.
- PIP-RAP SHALL BE LAID FROM THE BOTTOM UPWARD; STONES SHALL BE LAID BY HAND WITH 8" MINIMUM DIMENSION PERPENDICULAR TO GRADE WITH WELL-BROKEN JOINTS, COMPACTED AS IT GOES, TRUE TO LINE. ALL JOINTS SHALL BE FILLED WITH CEMENT MORTAR. SURFACE STONE TO BE EXPOSED. CLEAN JOINTS WITH WIRE BRUSH.
- THE CONTRACTOR SHALL DO ALL REQUIRED EXCAVATION AND TRENCHING WORK AND THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPLETION OF THE WORKS HEREIN REGARDLESS OF THE NATURE OF MATERIALS ENCOUNTERED DURING THE COURSE OF THE WORK. THE OWNER WILL NOT BE LIABLE FOR ANY COSTS WHATSOEVER ASSOCIATED WITH, BUT NOT LIMITED TO, THE PRESENCE OF ROCK, PEAT, SUBTERRANEAN STREAMS, EXCESSIVE WATER OR OTHER DIFFICULT OR UNANTICIPATED SUB-SURFACE PHENOMENA.
- ALL CONNECTIONS TO EXISTING SEWERS SHALL BE INCIDENTAL TO THE JOB.

WATER MAIN SPECIFICATIONS

- WATER MAIN SPECIFICATIONS SHALL BE USED IN CONJUNCTION WITH THE GENERAL SPECIFICATIONS, THE WATERMAIN SPECIFICATIONS, AND THE DETAIL SHEETS OF THE GOVERNING AGENCIES. IF ANY CONFLICT IS FOUND BETWEEN THE SPECIFICATIONS, THE STRICTER SPECIFICATIONS SHALL BE FOLLOWED.
- DUCTILE IRON PIPE, 16" DIAMETER AND SMALLER, SHALL CONFORM TO ANS/AWWA SPECIFICATION C151/A21.51, CLASS 54. DUCTILE IRON FITTINGS SHALL CONFORM TO ANS/AWWA SPECIFICATION C110/A21.10 FOR STANDARD FITTINGS OR TO ANS/AWWA SPECIFICATION C153/A21.53 FOR COMPACT FITTINGS. DUCTILE IRON PIPES AND FITTINGS SHALL BE THICKNESS CEMENT MORTAR LINING CONFORMING TO ANS1 SPECIFICATION A21.4.
- JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE U.S. PIPE AND FOUNDRY COMPANY "TYTON JOINT" OR APPROVED EQUAL.
- ALL WATER MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF FIVE FEET, OR AS SPECIFIED BY THE LOCAL GOVERNING MUNICIPALITY, BELOW FINISH GRADE UNLESS OTHERWISE NOTED IN THE PLANS. WHEN WATER MAINS MUST DIP TO PASS UNDER A STORM SEWER OR SANITARY SEWER, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH BY THE USE OF VERTICAL 11-1/4 BENDS PROPERLY ANCHORED.
- SEE THE WATER MAIN STANDARD DETAIL SHEETS OF THE GOVERNING AGENCY FOR THE SPECIFIC TYPE OF HYDRANT AND GATE VALVE TO BE USED FOR THIS PROJECT. THESE DETAIL SHEETS ARE INCLUDED AS PART OF THE PLANS.
- BEFORE ANY WATER MAIN WILL BE ACCEPTED BY THE GOVERNING AGENCY, IT MUST PASS A PRESSURE TEST COMPLYING WITH THE CURRENT SPECIFICATIONS AND PROCEDURES OF THE AGENCY.
- BEFORE ANY WATER MAIN SYSTEM WILL BE ACCEPTED BY THE GOVERNING AGENCY, THE FIRE HYDRANTS MUST BE PAINTED AS INDICATED ON THE WATER MAIN STANDARD DETAIL SHEETS.
- TWO INCH (2") DIAMETER CORPORATION STOPS SHALL BE PROVIDED IN BOTH THE EXISTING WATER MAIN AND THE NEW WATER MAIN AT ALL NEW CONNECTIONS.
- ALL TEES, BENDS CONNECTIONS, ETC. ARE INCIDENTAL TO THE JOB.
- PHYSICAL CONNECTIONS SHALL NOT BE MADE BETWEEN EXISTING AND NEW WATERMANS UNTIL TESTING IS SATISFACTORILY COMPLETED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE STORAGE OF ALL MATERIAL INTENDED FOR THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO MATERIALS EQUIPMENT AND WORK.
- PIPE BEDDING, UNLESS OTHERWISE INDICATED, SHALL BE CRUSHED STONE OR ROUNDED GRAVEL. BEDDING MATERIAL SHALL HAVE 95% PASSING A 3/4" SIEVE AND RETAINED ON A NO. 4 SIEVE. LOAD FACTOR SHALL BE 1.0.
- BACKFILL, UNLESS OTHERWISE NOTED, SHALL BE COARSE SAND, FINE GRAVEL OR EARTH HAVING A LOW PLASTICITY INDEX, FREE OF ROCKS, DEBRIS AND OTHER FOREIGN MATERIALS AND DEFINED AS ALL PASSING THROUGH A 3/8" SIEVE AND NOT MORE THAN TEN PERCENT (10%) BY VOLUME PASSING THROUGH A 200 MESH SIEVE.
- GATE WELLS SHALL BE REINFORCED PRE-CAST CONCRETE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C-478.
- THRUST BLOCKS SHALL BE MADE OF 3000 PSI CONCRETE WET MIX
- THE MAXIMUM WIDTH OF TRENCH TO TOP OF PIPE SHALL BE AS FOLLOWS:

PIPE DIAMETER	TRENCH WIDTH
THROUGH 12"	36"
15" THROUGH 36"	O.D. PLUS 24"
42" THROUGH 60"	O.D. PLUS 30"
66" AND LARGER	O.D. PLUS 36"
- OPEN NO MORE TRENCH IN ADVANCE OF PIPE LAYING THAN IS NECESSARY TO EXPEDITE THE WORK.
- CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED ON DRAWINGS. WHERE EXCESSIVE OR UNAUTHORIZED EXCAVATION TAKES PLACE, THE OVERDEPTH SHALL BE BACKFILLED AT THE PROPER GRADE WITH COMPACTED BEDDING MATERIAL, AT NO EXPENSE TO THE OWNER.
- WHERE UNSTABLE SOIL IS ENCOUNTERED, CONTRACTOR SHALL NOT PLACE PIPE UNTIL A SOLID BED HAS BEEN PROVIDED.
- EXCAVATION FOR STRUCTURES SHALL EXTEND A SUFFICIENT DISTANCE FROM THE WALLS AND FOOTINGS TO ALLOW FOR FORMS, CONSTRUCTION OF WALLS, CONNECTIONS AND FOR INSPECTION.
- PRE-CAST CONCRETE SHALL BE CONSTRUCTED OF BRICK, CONCRETE MASONRY UNITS OR GATE-CAST CONCRETE WITH CAST IRON FRAMES, COVERS AND MANHOLE STEPS, AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS.
- COMPLETELY FULL JOINTS ON PRE-CAST CONCRETE SECTIONS WITH BITUMINOUS FILL JOINTING COMPOUND. JOINTS SHALL BE MADE WITH CEMENT MORTAR WITH INSIDE POINTING AND OUTSIDE RUBBER WRAP.
- BRICK SHALL BE WET WHEN LAID. LAY BRICK OR CONCRETE MASONRY UNITS IN MORTAR SO AS TO FORM FULL BED, WITH END AND SIDE JOINTS IN ONE OPERATION, WITH JOINTS NOT MORE THAN 3/8" WIDE EXCEPT WHEN BRICKS OR CONCRETE MASONRY UNITS ARE LAID RADIALLY, IN WHICH CASE THE NARROWEST PART OF JOINT SHALL NOT EXCEED 1/4". LAY IN TRUE LINE AND, WHENEVER PRACTICAL, JOINTS SHALL BE CAREFULLY STRUCK AND POINTED ON INSIDE.
- PROTECT FRESH BRICK WORK FROM FREEZING, FROM DRYING EFFECTS OF SUN AND WIND, AND FOR SUCH TIME AS DIRECTED BY THE GEOTECHNICAL ENGINEER. CARVEZING PLASTER, HEAT SUFFICIENTLY TO REMOVE ICE AND FROST FROM BRICK WORK.
- GATE WELL STEPS SHALL BE BUILT INTO AND THOROUGHLY ANCHORED TO WALLS.
- ALL PIPING ENTERING OR LEAVING GATE WELLS SHALL BE ADEQUATELY SUPPORTED BY POURED-IN-PLACE CONCRETE FILL FROM PIPE CENTER TO UNDISTURBED GROUND.
- THE OUTSIDE SURFACES OF BRICK OR CONCRETE MASONRY PORTION OF GATE WELLS SHALL BE PLASTERED AND TROWELED SMOOTH WITH 1/2" LAYERS OF CEMENT MORTAR.
- SET FRAMES IN FULL BED OF STIFF MORTAR OR BITUMINOUS MASTIC JOINTING COMPOUND AT FINAL ELEVATION.
- PLACE HORIZONTAL AND/OR VERTICAL THRUST BLOCKS AT ALL PLUGS, CAPS, TEES AND FITTINGS. THE COST OF THRUST BLOCKS SHALL BE INCLUDED IN THE PRICE BID PER FOOT FOR WATER MAIN. THRUST BLOCKS SHALL NOT BE BACKFILLED PRIOR TO OBSERVATION BY THE CONTROLLING GOVERNMENTAL AGENCY.
- IN UNSTABLE SOIL CONDITIONS, THRUST BLOCKS SHALL BE SUPPORTED BY PILING DRIVEN TO SOLID FOUNDATIONS OR BY REMOVING THE UNSTABLE SOILS AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THE THRUSTS. THE COST OF PILING OR BALLAST AT THRUST BLOCKS SHALL BE INCLUDED IN THE PRICE BID FOR WATER MAIN.
- PLACE ALL CONCRETE ANCHORAGES AND ENCASMENTS, AS CALLED FOR ON THE DRAWINGS. THE COST OF ANCHORAGE AND ENCASMENTS SHALL BE INCLUDED IN THE PRICE BID FOR WATER MAIN.
- BEDDING USED FOR TRENCH BOTTOM SHALL BE EXTENDED UP THE SIDES AND CAREFULLY PLACED AROUND AND OVER PIPE IN 6" MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS PER ASTM D-1557(MODIFIED PROCTOR) UNTIL 12" OF COVER EXISTS OVER PIPE.
- REMAINDER OF TRENCH SHALL BE BACKFILLED WITH SPECIFIED BACKFILL MATERIAL TO SPECIFIED SUBGRADE ELEVATION. BACKFILLING SHALL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY PER ASTM D-1557.
- IN STREETS, DRIVES, PARKING LOTS AND OTHER AREAS PAVED, OR AREAS PROPOSED TO BE PAVED, PLACE SAND BACKFILL IN 6" LOOSE LAYERS AT OPTIMUM MOISTURE CONTENT (±2%) AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR).
- BEFORE BACKFILLING AROUND STRUCTURES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN 8" MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL OR HAND TAMPERS.
- THE CONTRACTOR SHALL DO ALL REQUIRED EXCAVATION AND TRENCHING WORK AND THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPLETION OF THE WORKS HEREIN REGARDLESS OF THE NATURE OF MATERIALS ENCOUNTERED DURING THE COURSE OF THE WORK. THE OWNER WILL NOT BE LIABLE FOR ANY COSTS WHATSOEVER ASSOCIATED WITH, BUT NOT LIMITED TO, THE PRESENCE OF ROCK, PEAT, SUBTERRANEAN STREAMS, EXCESSIVE WATER OR OTHER DIFFICULT OR UNANTICIPATED SUB-SURFACE PHENOMENA.

SANITARY SEWER SPECIFICATIONS

- THESE SPECIFICATIONS SHALL BE USED IN CONJUNCTION WITH THE GENERAL SPECIFICATIONS AND THE SANITARY SEWER SPECIFICATIONS AND DETAIL SHEETS OF THE GOVERNING AGENCIES. IF ANY CONFLICT IS FOUND BETWEEN THE SPECIFICATIONS, THE STRICTER SPECIFICATIONS WILL BE FOLLOWED.
- THE GOVERNING AGENCY WILL INSPECT THE INSTALLATION OF ALL SANITARY SEWER PIPING.
- PROPER IMPLEMENTS, TOOLS AND FACILITIES SHALL BE PROVIDED AND USED FOR UNLOADING AND DISTRIBUTING MATERIALS ALONG THE LINE OF WORK. ANY PIPE OR FITTING DAMAGED IN TRANSPORTATION OR HANDLING SHALL BE REJECTED AND IMMEDIATELY REMOVED FROM THE JOB SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE STORAGE OF ALL MATERIAL INTENDED FOR THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO MATERIALS, EQUIPMENT AND WORK.
- THE CONTRACTOR SHALL DO ALL REQUIRED EXCAVATION AND TRENCHING WORK AND THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPLETION OF THE WORKS HEREIN REGARDLESS OF THE NATURE OF MATERIALS ENCOUNTERED DURING THE COURSE OF THE WORK. THE OWNER WILL NOT BE LIABLE FOR ANY COSTS WHATSOEVER ASSOCIATED WITH, BUT NOT LIMITED TO, THE PRESENCE OF ROCK, PEAT, SUBTERRANEAN STREAMS, EXCESSIVE WATER OR OTHER DIFFICULT OR UNANTICIPATED SUB-SURFACE PHENOMENA.
- IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE AND SCHEDULE THE SANITARY SEWER INSTALLATION WITH THE GRADING, EXCAVATION AND OTHER SITE UTILITY SUBCONTRACTORS AND THE OWNERS REPRESENTATIVE SO AS TO PROVIDE FOR A SMOOTH AND ORDERLY PROGRESSION OF THE WORK.
- SANITARY SEWER PIPING AND FITTINGS SHALL BE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL CONFORM TO THE REQUIREMENTS OF THE GOVERNING AGENCY.
- REINFORCED PRE-CAST CONCRETE MANHOLE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C-478 OR AASHTO M-199.
- OPEN NO MORE TRENCH IN ADVANCE OF PIPE LAYING THAN IS NECESSARY TO EXPEDITE THE WORK.
- CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED ON DRAWINGS. WHERE EXCESSIVE OR UNAUTHORIZED EXCAVATION TAKES PLACE, THE OVERDEPTH SHALL BE BACKFILLED AT THE PROPER GRADE WITH COMPACTED BEDDING MATERIAL, AT NO EXPENSE TO THE OWNER.
- PROVIDE REQUIRED TIMBER SHEETING, BRACING AND SHORING TO PROTECT SIDES OF EXCAVATION. DO NOT BRACE SHEETING AGAINST PIPE. PROVIDE STAGING AND SUITABLE LADDERS WHERE REQUIRED.
- DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE PILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF TRENCHES TO AVOID OVERLOADING, AND TO PREVENT CAVE-INS.
- WHEN WET EXCAVATION IS ENCOUNTERED, THE TRENCH SHALL BE DE-WATERED UNTIL THE PIPE HAS BEEN LAID AND BACKFILLED TO A POINT AT LEAST 1 FOOT ABOVE TOP OF PIPE.
- SANITARY SEWER CROSSINGS SHALL BE MADE WITH 18" OF VERTICAL CLEARANCE FROM ANOTHER UTILITY AND SHALL BE MADE WITHOUT PLACING POINT LOADS ON EITHER PIPE. CONSTRUCT SADDLES, OR PLACE PROTECTIVE CONCRETE CAP TO PREVENT DAMAGE.
- ALL CONNECTION BRANCHES IN THE SEWER PIPE SHALL BE SECURELY AND CORRECTLY CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C-478.
- EACH RISER AND/OR SERVICE LEAD SHALL BE MARKED WITH A 2 INCH X 2 INCH X 8 FOOT LONG HARDWOOD MARKER, PLACED VERTICALLY AT THE END OF THE PIPE.
- DOWNSPOUTS, WEEP TIE, FOOTING DRAINS, OR ANY CONDUIT, THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO A SANITARY SEWER.
- THE CONNECTION TO AN EXISTING SANITARY SEWER MANHOLE SHALL BE MADE IN STRICT CONFORMANCE WITH THE PLANS AND SPECIFICATIONS, WITH ALL WORK BEING DONE IN A WORKMANLIKE MANNER. THIS WORK SHALL INCLUDE THE CONSTRUCTION OF A PROPER CHANNEL IN THE EXISTING MANHOLE AT WHICH THE CONNECTION IS TO BE MADE, TO DIRECT THE FLOW OF INCOMING FLUIDS TO THE EXISTING OUTLET IN A MANNER WHICH WILL TEND TO CREATE THE LEAST AMOUNT OF TURBULENCE. ANY PORTION OF THE EXISTING CHANNEL WHICH WOULD INTERFERE WITH SUCH CONSTRUCTION SHALL BE REMOVED. THE COST OF ALL CONNECTIONS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE MAIN SEWER UNLESS OTHERWISE PROVIDED IN THE PROJECT MANUAL.
- WHEN CONNECTIONS ARE MADE WITH SEWERS OR DRAINS CARRYING FLUIDS, CARE SHALL BE TAKEN THAT NO PART OF THE PIPE BE BUILT UNDER WATER. A FLUME OR DAM MUST BE INSTALLED AND PUMPING MAINTAINED, IF NECESSARY, AND THE NEW WORK KEPT DRY UNTIL COMPLETED AND ANY CONCRETE OR MORTAR HAS SET.
- ALL TIMBER SHEETING BELOW A PLANE 12" ABOVE TOP OF PIPE SHALL REMAIN IN PLACE IN ORDER NOT TO DISTURB PIPE GRADING. BEFORE BACKFILLING, REMOVE ALL OTHER SHEETING, BRACING AND SHORING.
- BEDDING USED FOR TRENCH BOTTOM SHALL BE EXTENDED UP THE SIDES AND CAREFULLY PLACED AROUND AND OVER PIPE IN 6" MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS PER ASTM D-1557 (MODIFIED PROCTOR) UNTIL 12" OF COVER EXISTS OVER PIPE.
- REMAINDER OF TRENCH SHALL BE BACKFILLED WITH SPECIFIED BACKFILL MATERIAL AS APPROVED BY THE GEOTECHNICAL ENGINEER TO SPECIFIED SUBGRADE ELEVATION. BACKFILLING SHALL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY PER ASTM D-1557.
- IN STREETS, DRIVES, PARKING LOTS AND OTHER AREAS TO HAVE OR HAVING IMPROVED HARD SURFACES, BACKFILL SHALL BE MATERIAL SPECIFIED AND SHALL BE DEPOSITED IN 6" LOOSE LAYERS AT OPTIMUM MOISTURE CONTENT (±2%) AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR). SUITABLE MATERIALS FOUND ON SITE MAY BE USED IF APPROVED BY THE GEOTECHNICAL ENGINEER AND OWNER'S REPRESENTATIVE. WHERE SERVICE OR UTILITY LINES CROSS PAVEMENT OR SIDEWALK, BEDDING SHALL BE CARRIED TO 3 FEET BEHIND THE CURB LINE OR 3 FEET BEHIND THE SIDE OF SIDEWALK FARTHEST AWAY FROM THE PROPOSED PAVEMENT.
- BEFORE BACKFILLING AROUND MANHOLES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN 8" MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL AND HAND TAMPERS.
- SANITARY SEWER MANHOLES MUST BE WATER-TIGHT AND SHALL BE PRECAST SECTIONS WITH MODIFIED GROOVED TONGUE JOINTS WITH RUBBER GASKETS, CONFORMING TO ASTM DESIGNATION C478. CAST IRON STEPS SHALL BE CAST INTO THE MANHOLE SECTIONS AND 18" O.D. DURING MANUFACTURE AND AT 45° FROM THE CENTERLINE OF THE SEWER. MANHOLE STEPS SHALL BE NEENAH R-1980-E, EAST JORDAN IRON WORKS, 8500 OR APPROVED EQUAL.
- WHEN EXISTING REINFORCED CONCRETE MANHOLES OR SEWER PIPES ARE TO BE TAPPED, A HOLE OF THE APPROPRIATE DIAMETER, SHALL BE CORE DRILLED, THROUGH THE WALL OF THE MANHOLE OR SEWER PIPE, TO ACCEPT A RESILIENT CONNECTOR CONFORMING TO ASTM DESIGNATION C-923. RESILIENT CONNECTORS SHALL BE "KOR-N-SEAL" AS MANUFACTURED BY "THE COR AND SEAL CO." OR APPROVED EQUAL.
- ALL SEWERS SHALL BE SUBJECTED TO INFILTRATION, AIR OR EXFILTRATION TESTS OR A COMBINATION THEREOF IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS, PRIOR TO ACCEPTANCE OF THE SYSTEM AND PRIOR TO REMOVAL OF THE BULKHEADS.
 - ALL SEWERS OVER 24" DIAMETER SHALL BE SUBJECTED TO INFILTRATION TESTS. ALL SEWERS OF 24" DIAMETER OR SMALLER, WHERE GROUND WATER LEVEL ABOVE THE TOP OF SEWER IS OVER SEVEN (7) FEET, SHALL BE SUBJECTED TO AN INFILTRATION TEST.
 - ALL SEWERS OF 24" DIAMETER OF LESS, WHERE THE GROUND WATER LEVEL ABOVE THE TOP OF THE SEWER IS SEVEN (7) FEET OR LESS, SHALL BE SUBJECT TO AIR TESTS OR EXFILTRATION TESTS.
- NO SANITARY SEWER INSTALLATION OR PORTION THEREOF SHALL HAVE INFILTRATION EXCEEDING 100 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOUR PERIOD.

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THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE DRAWINGS ARE OUR BEST ESTIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS, ACCURACY, THEORETICAL, OR PRACTICAL OF THESE UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLY RESPONSIBLE FOR VERIFYING THE EXISTENCE OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.

CLIENT :



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SPECIFICATIONS

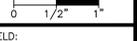
MASONITE
5665 STERLING DRIVE
PART OF NE 1/4, SEC. 15, T2N-18E
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

DATE	DESCRIPTION
5/01/2019	PRELIMINARY SITE PLAN SUBMITTAL
5/22/2019	REVISED SITE PLAN SUBMITTAL

ORIGINAL ISSUE DATE: 5/01/2019

PROJECT NO: 19-018

SCALE: N/A



FIELD: DRAWN BY: DC
DESIGN BY: BS
CHECK BY: AP

C-12.0

NOT FOR CONSTRUCTION

GRADING AND EARTHWORK SPECIFICATIONS

- ALTHOUGH A SUB-SURFACE INVESTIGATION MAY HAVE BEEN MADE BY THE OWNER, THE BIDDER AND ANY SUB-CONTRACTORS SHALL MAKE A PERSONAL INVESTIGATION OF SITE AND EXISTING SURFACE AND SUB-SURFACE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO THE UNIT PRICES BID FOR ANY ITEM TO BE MADE DUE TO VARIABLE SUB-SURFACE CONDITIONS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR, BY WELL POINTING OR DEEP WELLS WILL BE INCIDENTAL TO THE INSTALLATION COST OF THE ITEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING DETERMINED TO HIS SATISFACTION PRIOR TO THE SUBMISSION OF HIS BID THE CONFIRMATION OF THE GROUND, THE CHARACTER AND QUALITY OF THE SUBSTRATA, THE TYPES AND QUANTITIES OF MATERIALS TO BE ENCOUNTERED, THE NATURE OF THE GROUNDWATER CONDITIONS, THE PROSECUTION OF THE WORK, THE GENERAL AND LOCAL CONDITIONS INCLUDING CLIMATIC CHANGES, THE TIME OF YEAR IN WHICH CONSTRUCTION WILL TAKE PLACE AND ALL OTHER MATTERS WHICH CAN IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT.
- PRIOR TO COMMENCING THE EXCAVATION THE CONTRACTOR SHALL SUBMIT A PLAN OF HIS PROPOSED OPERATIONS AND TIME SCHEDULE TO THE OWNER & OWNERS REPRESENTATIVE FOR THEIR APPROVAL.
- THE CONTRACTOR SHALL CONSIDER, AND HIS PLAN FOR EXCAVATION SHALL REFLECT, THE EQUIPMENT AND METHODS TO BE EMPLOYED IN THE EXCAVATION AND WHAT METHODS WILL BE USED WHEN WET CONDITIONS ARE ENCOUNTERED REQUIRING GROUNDWATER CONTROL OR OTHER MOISTURE CONDITIONING. THE CONTRACTOR SHALL SUBMIT AN OUTLINE OF HIS EARTHWORK METHODS WHICH SHALL TAKE INTO ACCOUNT THE OVERALL CONSTRUCTION SCHEDULE. THE PRICES ESTABLISHED IN THE PROPOSAL FOR THE WORK TO BE DONE SHALL REFLECT ALL COSTS PERTAINING TO THE WORK. NO CLAIMS FOR EXTRAS BASED ON SUBSTRATA OR GROUNDWATER TABLE CONDITIONS OR MOISTURE CONDITIONING WILL BE ALLOWED.
- THE CONTRACTOR SHALL KEEP INFORMED AND THE OWNER'S REPRESENTATIVE INFORMED AT ALL TIMES AS TO A "FILL SURPLUS OR SHORTAGE" SITUATION. SHORTAGE OR SURPLUS OF SUITABLE MATERIAL AT THE CONCLUSION OF THE GRADING AND EARTHWORK OPERATION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT THE DEFICIENCY OR TO SUPPLY THE DEFICIENCY OR DISPOSE OF THE SURPLUS WITHOUT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL REMOVE VEGETATION, DEBRIS, UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND OTHER DELETERIOUS MATERIALS FROM GROUND SURFACE PRIOR TO CUT OR FILL OPERATIONS.
- MATERIALS FOR FILL OR BACKFILL REQUIRED TO GRADE THE SITE AND ACHIEVE DESIGN ELEVATIONS SHALL BE EITHER ON OR OFF-SITE SITES WHICH ARE FREE OF ORGANIC MATTER AND DEBRIS. NO TOPSOIL SHALL BE USED AS ENGINEERED FILL.
- NO FILL MAY BE PLACED UNTIL THE EXPOSED SURFACES HAVE BEEN APPROVED BY THE GEOTECHNICAL ENGINEER. ALL FILL MATERIALS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
- IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, THEY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND DESIGN ENGINEER PRIOR TO PROCEEDING.
- ALL FILL MATERIAL SHALL BE PLACED AND COMPACTED AT THE OPTIMUM MOISTURE CONTENT OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- NO FROZEN MATERIAL SHALL BE USED AS FILL NOR WILL ANY FILL BE PLACED ON A FROZEN BASE.
- NO ROCK OR SIMILAR MATERIAL GREATER THAN 6" DIAMETER SHALL BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BEEN SUBMITTED BY THE GEOTECHNICAL ENGINEER IN ADVANCE AND APPROVED BY THE OWNER AND OWNER'S REPRESENTATIVE.
- COMPACT FILL MATERIAL TO AT LEAST THE FOLLOWING PERCENTAGE OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR). NO DEVIATION FROM THESE CONSTRUCTION METHODS WILL BE ALLOWED UNLESS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE OWNER AND OWNER'S REPRESENTATIVE.

FILL AREAS	% OF MAXIMUM DRY DENSITY
FILL UNDER BUILDING (EXTENDING 5' BEYOND FOOTINGS AT A SLOPE OF 1 ON 1)	95%
FILL IN THE UPPER 18" UNDER PAVEMENT OR SIDEWALKS	95%
FILL PLACED UNDER OR BEHIND RETAINING WALLS	95%
ALL OTHER FILL	90%
- ALL FILL MATERIAL SHALL BE PLACED AND COMPACTED IN LIFTS, THAT WILL NOT EXCEED THE DEPTH IN WHICH THE COMPACTION EQUIPMENT CAN ACHIEVE THE MAXIMUM DENSITY REQUIRED FOR THE ENTIRE DEPTH OF THE MATERIAL PLACED IN THE LIFT.
- ALL AREAS WHERE FILL HAS BEEN PLACED OR THE EXISTING SOILS HAVE BEEN DISTURBED SHALL BE SUBJECT TO COMPACTION TESTING BY THE GEOTECHNICAL ENGINEER AND SHALL BE TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER, OWNER AND OWNER'S REPRESENTATIVE.
- FILL MATERIAL UNDER PAVEMENTS OR STRUCTURES SHALL BE FREE OF ORGANIC OR DELETERIOUS MATERIALS. IT SHALL BE SUITABLE FOR SUPPORTING PAVEMENTS AND STRUCTURES WITHOUT ADVERSE SHRINKING OR SWELLING.
- FILL MATERIAL IN BERMS AND LANDSCAPE AREAS SHALL BE SUITABLE TO SUPPORT GROWTH OF THE LANDSCAPING MATERIALS (TYPICAL FOR THE LOCAL CLIMATE) AND AS PROPOSED BY THE LANDSCAPE ARCHITECT.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF, IN A LEGAL MANNER, ALL TREES, BRUSH OR DEBRIS THAT ARE WITHIN THE DESIGNATED CUTTING AND FILLING AREAS TO BRING THE SITE TO PROPOSED GRADES.
- THE CONTRACTOR SHALL STOCKPILE EXCAVATED MATERIAL ONLY IN DESIGNATED AREAS AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- DURING THE PERFORMANCE OF SITE GRADING OPERATIONS, THE SUBGRADE SHALL BE EXAMINED CRITICALLY, AND ANY AREAS DISCOVERED WHICH, IN THE OPINION OF THE OWNER'S REPRESENTATIVE OR GEOTECHNICAL ENGINEER, ARE SOFT AND UNSTABLE, SHALL BE EXCAVATED TO SUCH DEPTHS AS MAY BE NECESSARY TO INSURE SATISFACTORY SUPPORTING PROPERTIES AS DETERMINED BY THE GEOTECHNICAL ENGINEER. THESE AREAS OF EXCAVATION SHALL BE BACKFILLED IMMEDIATELY AND SHALL BE BROUGHT BACK TO THE ELEVATION OF FILLED AND SURROUNDING AREAS WITH APPROVED FILL MATERIAL AND IN ACCORDANCE WITH THE EARTH FILL CONSTRUCTION PROCEDURE.
- NEWLY GRADED AREAS SHALL BE PROTECTED FROM THE ACTION OF THE ELEMENTS. ANY SETTLEMENT, DISPLACEMENT, PONDING OR WASHING OUT THAT MAY OCCUR PRIOR TO COMMENCING THE NEXT PHASE OF CONSTRUCTION SHALL BE REPAIRED, AND GRADES RE-ESTABLISHED TO THE REQUIRED ELEVATIONS AND SLOPES.
- THE FINISHED SUBGRADE SURFACE SHALL BE SHAPED TO INDICATED PROFILES AND SHALL BE REASONABLY SMOOTH AND FREE FROM IRREGULAR SURFACE CHANGES AND SHALL BE NO MORE THAN 1 INCH ABOVE OR BELOW THE INDICATED SUBGRADE ELEVATIONS.
- THE GRADING CONTRACTOR SHALL BACKFILL ALL PARKING LOT PLANTERS AND LAWN AREAS TO WITHIN 2 INCHES OF THE TOP ADJACENT CURB GRADES. THE TOP 4 INCHES MINIMUM SHALL BE TOPSOIL, FREE FROM DEBRIS AND STONES LARGER THAN 1 INCH IN DIAMETER.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PUMPS, DITCHING, WELL POINT SYSTEMS AND OTHER MEANS FOR REMOVING WATER FROM EXCAVATIONS, TRENCHES, SUBGRADES AND OTHER PARTS OF THE WORK. THE CONTRACTOR SHALL CONTINUE DE-WATERING OPERATIONS UNTIL THE WATER HAS BEEN REMOVED ENTIRELY. UPON COMPLETION OF WATER REMOVAL THE CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO DRY THE SOILS, REGRADE TO PROPOSED ELEVATIONS AND COMPACT SOILS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER AND OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL DISPOSE OF WATER IN A SAFE AND SANITARY WAY TO PREVENT FLOODING OR INJURY TO PUBLIC OR PRIVATE PROPERTY AND SHALL OBTAIN APPROVAL OF THE LOCAL GOVERNING AUTHORITY BEFORE DISCHARGING RUN-OFF WATER TO THEIR SYSTEM.
- THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING GRADES AND NEW GRADES.

BITUMINOUS PAVING SPECIFICATIONS

- REFERENCE SPECIFICATIONS WHERE APPLICABLE TO WORK UNDER THIS SECTION ARE REFERRED TO BY ABBREVIATION AS FOLLOWS:
 - AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).
 - THE ASPHALT INSTITUTE (TAI)
 - MICHIGAN DEPARTMENT OF TRANSPORTATION/ CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION (M.D.O.T.)
 - AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)
- CRUSHED AGGREGATE BASE COURSE (CABG) SHALL MEET THE REQUIREMENTS OF SECTION 8.02 OF THE MDOT STANDARD SPECIFICATION FOR CONSTRUCTION AND SHALL CONSIST OF 21AA CRUSHED AGGREGATE. THE USE OF SLAG IS PROHIBITED.
- TACK COAT SHALL BE EMULSIFIED ASPHALT MEETING REQUIREMENTS OF AASHTO M140 AND TAI SS-1H.
- AGGREGATE SHALL CONSIST OF CRUSHED STONE, CRUSHED GRAVEL, A MIXTURE OF UNCRUSHED GRAVEL WITH EITHER CRUSHED STONE OR CRUSHED GRAVEL, OR OTHER INERT MATERIAL HAVING SIMILAR CHARACTERISTICS. IT SHALL BE COMPOSED OF CLEAN, TOUGH, DURABLE FRAGMENTS FROM AN EXCESS OF FLAT OR ELONGATED PIECES, AND SHALL BE FREE OF ORGANIC MATTER AND DELETERIOUS SUBSTANCES AND MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATIONS, SECTION 8.02.
- FINE AGGREGATE SHALL BE WELL GRADED FROM COARSE TO FINE AND CONSIST OF NATURAL SAND, STONE SCREENINGS, OR A BLEND OF NATURAL SAND AND STONE SCREENINGS. IT SHALL BE COMPOSED OF ROUGH SURFACE AND ANGULAR GRAINS OF QUARTZ OR OTHER HARD DURABLE ROCK AND MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATIONS, SECTION 8.02.
- ASPHALT CEMENT SHALL COMPLY WITH THE REQUIREMENTS OF AASHTO M226 (ASTM 3381) FOR BITUMINOUS CONCRETE SURFACE COURSE AND SURFACE TREATMENT.
- BITUMINOUS CONCRETE SHALL COMPLY WITH MDOT SECTION 7.10 OF STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- BITUMINOUS LEVELING COURSE SHALL BE MDOT 1100L, 20AA MIX.
- BITUMINOUS WEARING COURSE SHALL BE MDOT 1100T, 20AA MIX.
- THE CONTRACTOR SHALL SUBMIT, TO THE OWNER, TWO COPIES OF MATERIALS CERTIFICATES SIGNED BY MATERIAL PRODUCER AND CONTRACTOR. CERTIFICATES SHALL STATE THAT EACH MATERIAL ITEM MEETS SPECIFIED REQUIREMENTS.
- THE CONTRACTOR SHALL SUBMIT TO THE GEOTECHNICAL ENGINEER, JOB-MIX FORMULAS FOR EACH REQUIRED ASPHALT AGGREGATE MIXTURE. MIX DESIGNS SHALL BE WITHIN ALLOWABLE TOLERANCES AS SPECIFIED FOR THE PARTICULAR APPLICATION.
- SUBGRADE PREPARATIONS SHALL CONSIST OF THE FINAL MACHINING OF THE SUBGRADE IMMEDIATELY PRIOR TO PLACING THE BITUMINOUS BASE COURSE. THE SUBGRADE SHALL BE COMPACTED PER PLANS AND DETAILS. THE SUBGRADE SHALL BE TRUE TO LINE AND GRADE.
- CRUSHED AGGREGATE BASE COURSE SHALL BE COMPACTED TO A DENSITY EQUAL TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR).
- BITUMINOUS CONCRETE PAVEMENT CONSTRUCTION METHODS SHALL CONFORM TO APPLICABLE PORTIONS OF SECTION 4.00 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- THE CONTRACTOR SHALL NOT PLACE THE AGGREGATE BASE COURSE OR THE BITUMINOUS BASE COURSE PRIOR TO THE APPROVAL OF THE SUBGRADE BY THE GEOTECHNICAL ENGINEER.
- EACH LIFT AND COURSE OF BITUMINOUS CONCRETE SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER, PRIOR TO THE PLACEMENT OF A SUCCEEDING COURSE OR LIFT.
- CONCRETE MIX SHALL BE AIR-ENTRAINED AND PROPORTIONED TO PROVIDE THE FOLLOWING:
 - COMPRESSIVE STRENGTH AT 28 DAYS: 3500 PSI MIN. OR AS INDICATED ON PLANS.
 - TOTAL AIR CONTENT BY VOLUME: 5% TO 8%.
 - SLUMP 3 INCH MAXIMUM, OR AS INDICATED ON PLANS.
- APPLY BITUMINOUS TACK COATS ONLY WHEN TEMPERATURE HAS NOT BEEN BELOW 35 DEGREES F. FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. CONSTRUCT BITUMINOUS CONCRETE WEARING COURSE ONLY WHEN ATMOSPHERIC TEMPERATURE IS ABOVE 40-DEGREES F. AND PROCEEDING COURSE OR LIFT IS CLEAN AND DRY. BASE COURSE MAY BE LAID WHEN TEMPERATURE IS ABOVE 35 DEGREES F. AND RISING AND APPROVED BY THE GEOTECHNICAL ENGINEER.
- THE BITUMINOUS CONCRETE SHALL BE TRANSPORTED FROM THE MIXING PLANT TO THE POINT OF USE IN VEHICLES COVERED BY COMPARATION THEFT. DELIVERIES SHALL BE SCHEDULED SO THAT SPREADING AND ROLLING OF ALL BITUMINOUS CONCRETE PREPARED FOR ONE DAY'S RUN CAN BE COMPLETED DURING DAYLIGHT, UNLESS ADEQUATE ARTIFICIAL LIGHTING IS PROVIDED. HAULING OVER FRESHLY PLACED BITUMINOUS MAT SHALL NOT BE PERMITTED UNTIL THE BITUMINOUS CONCRETE HAS BEEN COMPACTED, AS SPECIFIED, AND ALLOWED TO COOL TO ATMOSPHERIC TEMPERATURE.
- UPON ARRIVAL, THE BITUMINOUS CONCRETE SHALL BE SPREAD TO A THICKNESS NOT TO EXCEED 3-INCHES AND TO THE FULL WIDTH BY AN APPROVED BITUMINOUS PAYER. IT SHALL BE STRUCK OFF IN A UNIFORM LAYER OF SUCH DEPTH THAT, WHEN THE WORK IS COMPLETED, IT SHALL HAVE THE REQUIRED THICKNESS AND CONFORM TO THE GRADE AND CONTOUR INDICATED. THE SPEED OF THE PAYER SHALL BE REGULATED TO ELIMINATE PULLING AND TEARING OF THE BITUMINOUS MAT. UNLESS OTHERWISE DIRECTED, PLACEMENT OF THE BITUMINOUS CONCRETE SHALL REQUIRE ALONG THE CENTERLINE OF A CROWNED SECTION OR ON THE HIGH SIDE OF AREAS WITH A ONE-WAY SLOPE. THE BITUMINOUS CONCRETE SHALL BE PLACED IN CONJUNCTIVE ADJACENT STRIPS HAVING A MINIMUM WIDTH OF 10 FEET, EXCEPT WHERE EDGE LANES REQUIRE LESS WIDTH TO COMPLETE THE AREA. TRANSVERSE JOINTS IN ADJACENT LANES SHALL BE OFFSET A MINIMUM OF 10 FEET.
- ON AREAS WHERE IRREGULARITIES OR UNAVOIDABLE OBSTACLES MAKE THE USE OF MECHANICAL SPREADING AND FINISHING EQUIPMENT IMPRACTICAL, THE BITUMINOUS CONCRETE MAY BE SPREAD AND RAKED BY HAND TOOLS.
- THE BITUMINOUS CONCRETE SHALL BE PLACED AT A TEMPERATURE OF NOT LESS THAN 250 NOR HIGHER THAN 350 DEGREES F OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- THE BITUMINOUS CONCRETE MIXTURE SHALL BE THOROUGHLY AND UNIFORMLY COMPACTED BY ROLLING. THE SURFACE SHALL BE ROLLED WHEN THE BITUMINOUS MAT HAS ATTAINED SUFFICIENT STABILITY SO THAT THE ROLLING DOES NOT CAUSE UNDUE DISPLACEMENT, CRACKING AND SHOWING. THE SEQUENCE OF ROLLING OPERATIONS SHALL BE AT THE DISCRETION OF THE CONTRACTOR.
- THE SPEED OF THE ROLLER SHALL, AT ALL TIMES, BE SUFFICIENTLY SLOW TO AVOID DISPLACEMENT OF THE HOT BITUMINOUS CONCRETE. ANY DISPLACEMENT OCCURRING AS A RESULT OF REVERSING THE DIRECTION OF THE ROLLER, OR FROM ANY OTHER CAUSE, SHALL BE CORRECTED AT ONCE.
- SUFFICIENT ROLLERS SHALL BE FURNISHED TO HANDLE THE OUTPUT OF THE PLANT. ROLLING SHALL CONTINUE UNTIL ALL ROLLER MARKS ARE ELIMINATED, THE SURFACE IS UNIFORM AND THE FRESH WATER FOR THE BATCH, UNDER NO CIRCUMSTANCES SHALL THE APPROVED MAXIMUM WATER CONTENT BE EXCEEDED NOR SHALL THE SLUMP EXCEED THE MAXIMUM SPECIFIED.
- TACK COAT SHALL BE APPLIED TO THE SURFACE OF PREVIOUS LIFTS AND COURSES OF BITUMINOUS CONCRETE AND TO SURFACES ABUTTING OR PROJECTING INTO THE BITUMINOUS CONCRETE.
- IMMEDIATELY BEFORE PLACING A SUCCEEDING LIFT OR COURSE OF BITUMINOUS CONCRETE THE PRECEDING LIFT OR COURSE SHALL BE CLEARED OF ANY DEBRIS BY APPROPRIATE METHODS.
- TO PREVENT ADHESION OF THE BITUMINOUS CONCRETE TO THE ROLLER, THE WHEELS SHALL BE KEPT PROPERLY MOISTENED, BUT EXCESSIVE WATER WILL NOT BE PERMITTED.
- IN AREAS NOT ACCESSIBLE TO THE ROLLER, THE BITUMINOUS CONCRETE SHALL BE THOROUGHLY COMPACTED WITH HOT HAND TAMPERS.
- ANY BITUMINOUS CONCRETE THAT BECOMES LOOSE AND BROKEN, MIXED WITH DIRT, OR IN ANY WAY DEFECTIVE SHALL BE REMOVED AND REPLACED WITH FRESH HOT BITUMINOUS CONCRETE AND IMMEDIATELY COMPACTED TO CONFORM TO THE SURROUNDING AREA. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. SKIN PATCHING SHALL NOT BE ALLOWED.
- THE CONTRACTOR SHALL PROVIDE AT LEAST TWO ROLLERS FOR EACH PAYER OPERATING ON THE WORK. THE CONTRACTOR SHALL USE ADDITIONAL ROLLERS AS REQUIRED TO OBTAIN THE SPECIFIED PAVEMENT DENSITY.

BITUMINOUS PAVING SPECIFICATIONS, CONTINUED

- THE CONTRACTOR SHALL CAREFULLY MAKE JOINTS BETWEEN OLD AND NEW PAVEMENTS, OR BETWEEN SUCCESSIVE DAYS' WORK, TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING WORK. CONSTRUCTION JOINTS TO HAVE THE SAME TEXTURE, DENSITY AND SMOOTHNESS AS OTHER SECTIONS OF THE BITUMINOUS CONCRETE COURSE, THE CONTRACTOR SHALL CLEAN CONTACT SURFACES OF SAND, DIRT, OR OTHER OBJECTIONABLE MATERIAL BEFORE MAKING THE JOINT.
 - THE CONTRACTOR SHALL TEST THE FINISHED SURFACE OF EACH BITUMINOUS CONCRETE COURSE FOR SMOOTHNESS, USING A 10 FOOT STRAIGHTEDGE APPLIED PARALLEL WITH AND AT RIGHT ANGLES TO CENTERLINE OF PAVED AREA. SURFACE SHALL NOT BE ACCEPTABLE IF EXCEEDING THE FOLLOWING TOLERANCES FOR SMOOTHNESS.
 - LEVELING COURSE SURFACE: 1/4 INCH, PLUS OR MINUS 1/4 INCH.
 - SURFACE COURSE: 1/4 INCH
 - THE CONTRACTOR SHALL TEST CROWNED SURFACES WITH A CROWN TEMPLATE, CENTERED AND AT RIGHT ANGLES TO THE CROWN. SURFACES WILL NOT BE ACCEPTABLE IF THE FINISHED CROWN SURFACES VARY MORE THAN 1/4 INCH FROM THE CROWN TEMPLATE.
 - AFTER FINAL ROLLING, THE CONTRACTOR SHALL NOT PERMIT VEHICULAR TRAFFIC ON THE BITUMINOUS CONCRETE PAVEMENT UNTIL IT HAS COOLED AND HARDENED, AND IN NO CASE SOONER THAN SIX HOURS OR DIRECTED BY THE GEOTECHNICAL ENGINEER.
 - THE AGGREGATE BASE MUST EXTEND A MINIMUM OF 1' BEHIND THE BACK-OF-CURB AROUND THE PERIMETER OF THE PARKING LOT AND DRIVES.
- ## CONCRETE CURB, SIDEWALK AND PAVEMENT SPECIFICATIONS
- THESE SPECIFICATIONS SHALL GOVERN THE CONSTRUCTION OF ALL PAVEMENTS, CURB AND GUTTER, SIDEWALKS, SERVICE WALKS, DRIVEWAY APPROACHES, AND LOADING DOCK AREAS, AS INDICATED ON THE DRAWINGS.
 - REFERENCE SPECIFICATIONS WHERE APPLICABLE TO WORK UNDER THIS SECTION ARE REFERRED BY ABBREVIATION AS FOLLOWS:
 - AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).
 - AMERICAN CONCRETE INSTITUTE (ACI)
 - MICHIGAN DEPARTMENT OF TRANSPORTATION/ CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION (M.D.O.T.)
 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - THE FINE AGGREGATE SHALL MEET ALL REQUIREMENTS OF SECTION 8.02 OF MDT SPECIFICATION FOR NO. 2MS NATURAL SAND.
 - THE COARSE AGGREGATE SHALL MEET ALL REQUIREMENTS OF SECTION 8.02 OF M.D.O.T. SPECIFICATIONS FOR NO. 6AA COARSE AGGREGATE.
 - THE CONTRACTOR SHALL SUBMIT, TO THE OWNER, TWO COPIES OF MATERIALS CERTIFICATES SIGNED BY MATERIAL PRODUCER AND CONTRACTOR. CERTIFICATES SHALL STATE THAT EACH MATERIAL ITEM MEETS SPECIFIED REQUIREMENTS.
 - THE CONTRACTOR SHALL SUBMIT, TO THE GEOTECHNICAL ENGINEER, JOB MIX-FORMULAS FOR EACH REQUIRED CEMENT-AGGREGATE MIXTURE. MIX DESIGNS SHALL BE WITHIN ALLOWABLE TOLERANCES AS SPECIFIED FOR THE PARTICULAR APPLICATION.
 - CONCRETE MIX SHALL BE AIR-ENTRAINED AND PROPORTIONED TO PROVIDE THE FOLLOWING:
 - COMPRESSIVE STRENGTH AT 28 DAYS: 3500 PSI MIN. OR AS INDICATED ON PLANS.
 - TOTAL AIR CONTENT BY VOLUME: 5% TO 8%.
 - SLUMP 3 INCH MAXIMUM, OR AS INDICATED ON PLANS.
 - THE CONTRACTOR SHALL AT HIS EXPENSE FURNISH SAMPLES OF FRESH CONCRETE AND PROVIDE SAFE AND SATISFACTORY FACILITIES FOR OBTAINING THE SAMPLES.
 - CONSTRUCT CONCRETE CURBING ONLY WHEN GROUND TEMPERATURE IS ABOVE 35 DEGREES F. AND BASE IS DRY.
 - ALL CEMENT USED IN CURB CONSTRUCTION SHALL BE PORTLAND CEMENT, TYPE I OR IA ASTM C-150.
 - WATER USED IN CONCRETE SHALL BE CLEAN, FREE FROM OIL ACIDS, STRONG ALKALIS OR VEGETABLE MATTER AND POTABLE. IF MUNICIPAL WATER IS USED IN THE CONCRETE, ALL NECESSARY PERMITS SHALL BE OBTAINED FROM THE MUNICIPAL WATER DEPARTMENT.
 - AIR ENTRAINING ADMIXTURE SHALL BE IN ACCORDANCE WITH ASTM C-260.
 - ALL READY-MIXED CONCRETE SUPPLIERS MUST BE APPROVED BY THE OWNER. CONCRETE SHALL BE MANUFACTURED AND DELIVERED TO THE JOB SITE BY A READY MIXED CONCRETE MANUFACTURER THOROUGHLY EXPERIENCED IN READY-MIXED CONCRETE. IF REQUESTED BY THE OWNER, SUBMIT A WRITTEN DESCRIPTION OF PROPOSED READY-MIXED CONCRETE MANUFACTURER, GIVING QUALIFICATIONS OF PERSONAL, LOCATION OF BATCHING PLANT, LIST OF PROJECTS SIMILAR IN SCOPE OF SPECIFIED WORK, AND OTHER INFORMATION AS MAY BE REQUESTED BY THE OWNER.
 - THE CONTRACTOR SHALL SUBMIT A STATEMENT OF PURCHASE FOR READY-MIXED CONCRETE. PRIOR TO ACTUAL DELIVERY OF CONCRETE, SUBMIT TO THE GEOTECHNICAL ENGINEER FOUR COPIES OF STATEMENT OF PURCHASE, GIVING THE DRY WEIGHTS OF CEMENT AND SATURATED SURFACE DRY WEIGHTS OF FINE AND COARSE AGGREGATES AND QUANTITIES, TYPE AND NAME OF ADMIXTURES (IF ANY) AND OF WATER PER CU.YD., THAT WILL BE USED IN THE MANUFACTURE OF THE CONCRETE. THE CONTRACTOR SHALL ALSO FURNISH EVIDENCE SATISFACTORY TO THE GEOTECHNICAL ENGINEER THAT THE MATERIALS TO BE USED AND PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF THE QUALITY SPECIFIED. WATER STRENGTHS ARE OBTAINED. THE QUANTITY OF CEMENT USED SHALL NOT BE LESS THAN THE MINIMUM SPECIFIED.
 - READY-MIXED CONCRETE DELIVERY TICKETS: SUBMIT ONE COPY OF EACH DELIVERY TICKET TO THE GEOTECHNICAL ENGINEER AND CONTRACTOR IN ACCORDANCE WITH SECTION 16 OF ASTM C94.
 - READY-MIXED CONCRETE SHALL BE BATCHED, MIXED AND TRANSPORTED IN ACCORDANCE WITH ASTM C94, AND COMPLY WITH ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE," EXCEPT AS OTHERWISE SPECIFIED HEREIN.
 - READY-MIXED CONCRETE SHALL BE MIXED AND DELIVERED TO THE POINT OF DISCHARGE AT THE JOB BY MEANS OF A READY MIX CONCRETE TRUCK.
 - NO WATER FROM THE TRUCK WATER SYSTEM OR ELSEWHERE SHALL BE ADDED AFTER THE INTRODUCTION OF THE MIXING WATER FOR THE BATCH. UNDER NO CIRCUMSTANCES SHALL THE APPROVED MAXIMUM WATER CONTENT BE EXCEEDED NOR SHALL THE SLUMP EXCEED THE MAXIMUM SPECIFIED.
 - DISCHARGE OF THE CONCRETE SHALL BE COMPLETED WITHIN 1-1/2 HOURS OR BEFORE THE DRUM HAS REVOLVED 300 REVOLUTIONS, WHICHEVER COMES FIRST, AFTER THE INTRODUCTION OF THE MIXING WATER TO THE CEMENT AND AGGREGATES OR THE INTRODUCTION OF THE CEMENT TO THE AGGREGATES.
 - IN HOT WEATHER (AIR TEMPERATURE 80-DEGREES F. AND ABOVE) OR UNDER CONDITIONS CONTRIBUTING TO QUICK STIFFENING OF THE CONCRETE, THE TIME SHALL BE REDUCED TO ONE HOUR.
 - CONCRETE DELIVERED IN COLD WEATHER (AIR TEMPERATURE 45-DEGREES F. AND LOWER) SHALL HAVE A TEMPERATURE NOT LESS THAN 60-DEGREES F. AT THE POINT OF DISCHARGE AT THE JOB, AND IN COMPLIANCE WITH ACI 306R "COLD WEATHER CONCRETING", CONCRETE PLACING WILL NOT BE PERMITTED WHEN THE AIR TEMPERATURE IS 35-DEGREES F. OR LOWER.
 - CONCRETE DELIVERED UNDER HOT WEATHER CONDITIONS CONTRIBUTING TO QUICK STIFFENING OF CONCRETE, OR IN AIR TEMPERATURE OF 80-DEGREES F. AND OVER, SHALL HAVE A TEMPERATURE BETWEEN 60- AND 80-DEGREES F. AT THE POINT OF DISCHARGE AT THE JOB, AND IN ACCORDANCE WITH ACI 305R "HOT WEATHER CONCRETING".
 - IN NO CASE SHALL THE MIXER OR TRUCK BE FLUSHED OUT ONTO THE STREET PAVEMENT, IN A CATCH BASIN OR SEWER MANHOLE, OR IN ANY PUBLIC RIGHT-OF-WAY.
 - REINFORCEMENT BARS SHALL BE PER ASTM A615-84A, GRADE 60 DEFORMED BILLET - STEEL BARS.
 - THE WIRE SHALL BE BLACK, ANNEALED STEEL WIRE, NOT LESS THAN 16 GAUGE.

CONCRETE CURB, SIDEWALK AND PAVEMENT SPECIFICATIONS, CONTINUED

- BAR SUPPORTS SHALL CONFORM TO "BAR SUPPORT SPECIFICATIONS" CONTAINED IN ACI "MANUAL OF STANDARD PRACTICE." PROVIDE CHAIRS, SPACERS AND OTHER DEVICES SUITABLE FOR PROPER SPACING SUPPORTING AND FASTENING REINFORCING BARS.
- WHEN FORMS ARE USED AND THE CURB RADIUS IS LESS THAN 200 FEET, THE CURVED ALIGNMENT SHALL BE PROVIDED FOR BY EITHER STANDARD STEEL FORMS EQUIPPED WITH FLEXIBLE LINES OR BY FLEXIBLE FORMS. THE FORMS SHALL BE OF THE FULL DEPTH OF THE SECTION. CURB AND GUTTER FORMS SHALL BE SO CONSTRUCTED AS TO PERMIT THE INSIDE OF THE FORMS TO BE SECURELY FASTENED TO THE OUTSIDE FORMS.
- ALL NEW CURB SHALL BE PLACED ONLY ON A PREPARED SUBGRADE, SMOOTH AND LEVELED TO THE GRADES ESTABLISHED BY THE ENGINEER.
- COMPACT AND CUT-TO-GRADE SUBGRADE UNDER FORMS SO THAT FORMS WHEN SET WILL BE UNIFORMLY SUPPORTED FOR THE ENTIRE LENGTH. SECURELY STAKE ANCHOR OR THE FORMS TO PREVENT LEAKAGE OF WATER. BRACING WITH EARTH WILL NOT BE PERMITTED.
- COAT SURFACES OF FORMS TO BE IN CONCRETE WITH A LIGHT CLEAR PARAFFIN OIL OR PARTING COMPOUND WHICH WILL NOT STAIN THE CONCRETE.
- THE INTERIOR SURFACES OF CONCRETE CONVEYING EQUIPMENT SHALL BE MAINTAINED FREE OF HARDENED CONCRETE, DEBRIS, WATER, SNOW, ICE AND OTHER DELETERIOUS MATERIALS.
- CURBING MAY BE CONSTRUCTED EITHER BY USE OF FORMS OR BY A MECHANICAL CURB AND GUTTER PAYER, PROVIDED THE REQUIRED FINISH, AND CROSS-SECTION, ARE OBTAINED. THE CONTRACTOR SHALL PROVIDE AN OVERLAP JOINT FILLER STRIPS. PROVIDE ONE COURSE MONOLITHIC STRUCTURE WITHOUT THE USE OF MORTAR TOPPING OR SAND-CEMENT DRYER. CONCRETE SHALL BE SPADED OR VIBRATED SUFFICIENTLY TO ENSURE SATISFACTORY CONSOLIDATION.
- PROVIDE REINFORCEMENT FOR CONCRETE CURB AS SHOWN ON THE DRAWINGS. REINFORCEMENT SHALL BE KEPT CLEAN AND FREE FROM OBJECTIONABLE RUST, BENDS OR KINKS IN REINFORCING BARS SHALL BE CORRECTED BEFORE PLACING ALL REINFORCEMENT SHALL BE ACCURATELY LOCATED IN FORMS AND SECURELY HELD IN PLACE BEFORE AND DURING CONCRETE PLACING, BY SUPPORTS ADEQUATE TO PREVENT DISPLACEMENT DURING THE COURSE OF CONSTRUCTION.
- THE CONCRETE CURB SURFACE SHALL BE STRUCK OFF THE REQUIRED CROSS-SECTION AS SHOWN ON THE DRAWINGS. THE CURB HAS BEEN FLOATED TO AN EVEN SURFACE, THE CONTRACTION JOINT SHALL BE CUT AND ALL SLAB EDGES ROUNDED WITH A 1/2 INCH RADIUS EDGING TOOL THAT WILL FINISH TO A WIDTH OF 2 INCHES. AFTER THE CONCRETE HAS SLIGHTLY SET, A BROOM SHALL BE BRUSHED LIGHTLY ACROSS THE SURFACE PARALLEL TO FORMS SO AS TO IMPART A ROUGH FINISH.
- CONTRACTION JOINTS SHALL BE CUT IN CONCRETE CURBING AT 10' INTERVALS. THE JOINT SHALL BE 1/4 INCH WIDE BY 1/3 THE DEPTH OF THE CONCRETE CURB SECTION.
- ISOLATION JOINTS SHALL BE PLACED IN CURBING AT TANGENT POINTS IN CURB RETURNS AT INTERSECTIONS, AT BOTH SIDES OF STRUCTURES LOCATED IN THE LINE AND IN RUNS OF CURB AT INTERVALS NOT EXCEEDING 400 FEET. ISOLATION JOINTS SHALL BE 1/2 INCH THICK PRE-FORMED JOINT FILLER STRIPS. THE STRIPS SHALL EXTEND THE FULL DEPTH OF THE CONCRETE CURB SECTION. ISOLATION JOINTS SHALL BE PLACED IN CURB AT THE END OF EACH DAY'S POUR AND WHEN ABUTTING PREVIOUSLY POURED CURB.
- THE CURING COMPOUND SHALL BE WHITE MEMBRANE TYPE AND COMPLY WITH ASTM C-309. IT SHALL NOT ALLOW A MOISTURE LOSS OF MORE THAN 0.055 GR/SQ/CM WHEN APPLIED AT 200 SO/FT/GAL.
- ALL CONTRACTION JOINTS IN CONCRETE CURB SECTIONS SHALL BE SEALED WITH EITHER HOT APPLIED JOINT SEALER OR COLD APPLIED JOINT SEALER.
- SLIGHTLY UNDERFILL JOINT GROOVE WITH JOINT SEALER TO PREVENT EXTRUSION OF SEALER. REMOVE EXCESS JOINT SEALER MATERIALS AS SOON AFTER SEALING AS POSSIBLE.
- FRESHLY PLACED CONCRETE SHALL BE PROTECTED AS REQUIRED TO MAINTAIN THE TEMPERATURE OF THE CONCRETE AT NOT LESS THAN 50 DEGREES F. NOR MORE THAN 80 DEGREES F. AND IN A MOST CONDITION CONTINUOUSLY FOR THE PERIOD OF CURING. PROTECTION OF THE CONCRETE SHALL BE CHANGED TO MAINTAIN THE TEMPERATURE OF THE CONCRETE DURING CURING SHALL BE AS UNIFORM AS POSSIBLE AND SHALL NOT EXCEED 5 DEGREES F. IN ANY ONE HOUR, NOR 50 DEGREES F. IN ANY 24 HOUR PERIOD.
- COLD WEATHER PROTECTION: WHEN THE TEMPERATURE OF THE ATMOSPHERE IS 40-DEGREES F. AND BELOW, THE CONCRETE SHALL BE PROTECTED BY HEATING, INSULATION, COVERING, OR A COMBINATION THEREOF AS REQUIRED TO MAINTAIN THE TEMPERATURE OF THE CONCRETE AT OR ABOVE 50-DEGREES F. AND IN A MOST CONDITION CONTINUOUSLY FOR THE CONCRETE CURING PERIOD. COLD WEATHER PROTECTION SHALL MEET THE REQUIREMENTS OF ACI 306R "COLD WEATHER CONCRETING".
- HOT WEATHER PROTECTION: WHEN THE TEMPERATURE OF THE ATMOSPHERE IS 90-DEGREES F. AND ABOVE, OR DURING OTHER CLIMATIC CONDITIONS WHICH WILL CAUSE TOO RAPID DRYING OF THE CONCRETE, THE CONCRETE SHALL BE PROTECTED BY WINDBREAKS, SHADING, FOG SPRAYING LIGHT COLORED MOISTURE RETAINING COVERING, OR A COMBINATION THEREOF AS REQUIRED TO MAINTAIN THE TEMPERATURE OF THE CONCRETE BELOW 80-DEGREE F. AND IN A MOST CONDITION CONTINUOUSLY FOR THE CONCRETE CURING PERIOD. HOT WEATHER PROTECTION SHALL MEET THE REQUIREMENTS OF ACI 305R "HOT WEATHER CONCRETING".
- ALL FORMS, RAILS AND STAKES SHALL BE REMOVED WITHIN 24 HOURS AFTER PLACING THE CURB.
- AFTER COMPLETION OF CONCRETE CURBING IN AN AREA, REMOVE ALL WEATHER PROTECTION MATERIALS, RUBBISH AND DEBRIS RESULTING FROM SPECIFIED WORK, SWEEP CONCRETE CURBS CLEAN, AND SEAL JOINTS.
- ALL CEMENT USED IN SIDEWALK CONSTRUCTION SHALL BE PORTLAND CEMENT, TYPE I OR IA ASTM C-150.
- ALL NEW WALKS AND CONCRETE PAVEMENTS SHALL BE PLACED ONLY ON A PREPARED SUBGRADE, SMOOTH AND LEVELED TO THE GRADES ESTABLISHED BY THE ENGINEER. IN CLAY SOILS THE SUBGRADE SHALL BE EXCAVATED 2-INCHES BELOW THE SIDEWALK BASE AND FILLED WITH APPROVED SAND MEETING MDOT SPECIFICATION.
- CONSTRUCT CONCRETE SURFACE COURSE ONLY WHEN GROUND TEMPERATURE IS ABOVE 35 DEGREES F. AND BASE IS DRY.
- SIDEWALKS SHALL PITCH TOWARD THE STREET OR AWAY FROM BUILDINGS WITH A REQUIRED CROSS SLOPE OF 1/4-INCH PER FOOT OF WIDTH. IN SOME EXTREME CASES, AS DETERMINED BY THE ENGINEER, THE CROSS-SLOPE MAY BE INCREASED BUT IN NO CASE SHALL IT BE LESS THAN 3/16-INCH PER FOOT OF WIDTH.
- PRIOR TO PLACING THE CONCRETE, ALL DEBRIS, STONES, DIRT, ETC., SHALL BE REMOVED FROM THE SUBGRADE. THE SUBGRADE SHALL BE MOISTENED WITH WATER IN SUCH A MANNER AS TO THOROUGHLY WET THE MATERIAL WITHOUT FORMING PUZZLES OR POCKETS OF WATER. NO CONCRETE SHALL BE PLACED ON FROZEN SUBGRADE.
- FORMS SHALL BE METAL OR WOOD AND OF AN APPROVED SECTION. THEY SHALL BE STRAIGHT, FREE FROM DISTORTION AND SHALL SHOW NO VERTICAL VARIATION GREATER THAN 5/16-INCH IN 10-FOOT LENGTHS FROM THE TRUE PLANE SURFACE ON THE TOP OF THE FORMS WHEN TESTED WITH A 10-FOOT STRAIGHTEDGE, AND SHALL SHOW NO LATERAL VARIATION GREATER THAN 1/4-INCH IN 10-FEET FROM THE TRUE PLANE SURFACE OF THE LATERAL FACE OF THE FORM WHEN TESTED WITH A 10-FOOT STRAIGHTEDGE. THE INTERIOR SURFACE OF THE FORMS FOR THE SIDEWALK, OR CONCRETE PAVEMENT PER PLANE AND DETAILS, AND BE SECURELY HELD IN PLACE AND TRUE TO LINE AND GRADE.
- THE CONCRETE SHALL BE DEPOSITED CONTINUOUSLY IN THE FORMS IN SUCH A MANNER AS TO AVOID SEGREGATION AND IT SHALL BE THOROUGHLY TAMPED OR VIBRATED SO THAT THE FORMS ARE ENTIRELY FILLED AND THE CONCRETE IS THOROUGHLY CONSOLIDATED. THE SLABS SHALL BE PLACED IN SECTIONS OR BLOCKS IN ONE OPERATION AS A MONOLITH.
- THE CONCRETE SURFACE SHALL BE STRUCK OFF TO A PLANE SURFACE WITH A STRAIGHTEDGE. AFTER THE CONCRETE HAS BEEN FLOATED TO AN EVEN SURFACE, THE CONTRACTION JOINT SHALL BE CUT AND ALL SLAB EDGES ROUNDED WITH A 1/2-INCH RADIUS EDGING TOOL THAT WILL FINISH TO A WIDTH OF 2-INCHES. AFTER THE CONCRETE HAS SLIGHTLY SET, A BROOM SHALL BE BRUSHED LIGHTLY ACROSS THE SURFACE AT RIGHT ANGLES TO FORMS SO AS TO IMPART A ROUGH FINISH.
- CONTRACTION JOINTS SHALL BE PLACED AT RIGHT ANGLES TO THE EDGE OF THE SIDEWALK OR TO THE PAVEMENT AND PERPENDICULAR TO THE SURFACE AND AT A DEPTH OF AT LEAST 1/4 THE SLAB THICKNESS WITH A MINIMUM DEPTH OF 1-1/4-INCHES FOR SIDEWALKS AND 3-INCHES FOR CONCRETE PAVEMENT SLABS.
- CONTRACTION JOINTS IN SIDEWALKS SHALL BE SPACED AT A MINIMUM OF EVERY 5- FEET, OR AS SHOWN ON THE PLANS.

CONCRETE CURB, SIDEWALK AND PAVEMENT SPECIFICATIONS, CONTINUED

- ISOLATION PAPERS SHALL BE OF THE PRE-MOLDED, NON-EXTRUDING, ASPHALT IMPREGNATED TYPE, NOT LESS THAN 1/2-INCH THICK. THE LENGTH SHALL BE EQUAL TO THE WIDTH OF THE SLAB, AND THE DEPTH EQUAL TO THE THICKNESS OF THE SLAB PLUS 1-INCH.
 - ISOLATION JOINTS SHALL BE PLACED AT THE FOLLOWING LOCATION FOR SIDEWALKS AND CONCRETE PAVEMENTS:
 - AT THE BACK OF THE CURB AND FRONT EDGE OF THE SIDEWALKS AND PAVEMENT SLABS ADJACENT TO EACH DRIVEWAY APPROACH AND SERVICE WALK.
 - AT INTERVALS NOT TO EXCEED 50- FEET IN ALL PUBLIC SIDEWALKS.
 - AT THE BACK OF THE CURB WHERE THE RAMPS EXTEND FROM THE KEY FLAG TO THE PAVEMENT.
 - BETWEEN THE KEY FLAG AND THE RAMP IN ALL CASES, EXCEPT WHERE THERE ARE EXISTING EXPANSION JOINTS AT THE INTERSECTIONS OF THE SIDEWALKS AND THE KEY FLAG.
 - AT ANY PLACE WHERE A SIDEWALK OR CONCRETE PAVEMENT ABUTS A BUILDING OR FIXED STRUCTURE.
 - AT ANY OTHER LOCATIONS INDICATED ON THE PLAN.
 - CONTRACTION JOINTS IN THE CONCRETE PAVEMENT IN THE LOADING AREA WILL BE AS FOLLOWS:
 - TRANSVERSE JOINTS SHALL BE AT 10-FOOT INTERVALS OR AS SHOWN ON PLANS AND DETAILS.
 - LONGITUDINAL JOINTS SHALL BE AT 12-FOOT INTERVALS OR AS SHOWN ON PLANS AND DETAILS.
 - PRIOR TO APPLYING JOINT SEALER, CLEAN JOINT GROOVE OF FOREIGN MATTER AND LOOSE PARTICLES, AND DRY SURFACE.
- ## TRAFFIC LANE AND PARKING LOT MARKING
- PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, AND SERVICES NECESSARY TO COMPLETE ALL TRAFFIC LANE AND PARKING LOT MARKINGS AS INDICATED IN THE CONSTRUCTION DOCUMENTS.
 - WORK INCLUDES, BUT NOT LIMITED TO PAINTING OF LETTERS, MARKINGS, STRIPES AND ISLANDS ON THE PAVEMENT SURFACE APPLIED IN ACCORDANCE WITH THIS SPECIFICATION AND AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
 - THE PAINT SHALL MEET THE REQUIREMENTS OF FEDERAL SPECIFICATION TT-P-1150(C3), WITH OR WITHOUT REFLECTORIZED BEADS AS REQUIRED ON THE PLANS.
 - COLOR SHALL BE AS SPECIFIED ON THE PLANS OR AS FOLLOWS:
 - TRAFFIC LANE STRIPING SHALL BE WHITE OR YELLOW REFLECTORIZED, AS SHOWN ON THE PLANS.
 - TRAFFIC MARKING AND CURB FACES SHALL BE WHITE UNLESS NOTED OTHERWISE.
 - PARKING LOT STRIPING SHALL BE WHITE, UNLESS NOTED OTHERWISE.
 - HANDICAP STALL STRIPING MEETING CURRENT ADA REQUIREMENTS SHALL BE BLUE UNLESS NOTED OTHERWISE.
 - THE PAINTING SHALL BE PERFORMED ONLY WHEN THE EXISTING SURFACE IS DRY AND CLEAN, WHEN THE ATMOSPHERIC TEMPERATURE IS ABOVE 40-DEGREES F. AND WHEN THE WEATHER IS NOT EXCESSIVELY WINDY, DUSTY OR FOGGY.
 - ALL EQUIPMENT FOR THE WORK SHALL BE APPROVED BY THE CONTRACTOR AND SHALL INCLUDE THE APPARATUS NECESSARY TO PROPERLY CLEAN THE EXISTING SURFACE, A MECHANICAL MARKING MACHINE, AND SUCH AUXILIARY HAND PUMPING EQUIPMENT AS MAY BE NECESSARY TO SATISFACTORILY COMPLETE THE JOB.
 - THE MECHANICAL MARKER SHALL BE AN APPROVED ATOMIZING SPRAY-TYPE MARKING MACHINE SUITABLE FOR APPLICATION OF TRAFFIC PAINT. IT SHALL PRODUCE AN EVEN AND UNIFORM FILM THICKNESS AT THE REQUIRED COVERAGE AND SHALL BE DESIGNED SO AS TO APPLY MARKINGS OF UNIFORM CROSS-SECTIONS AND CLEAR-CUT EDGES WITHOUT RUNNING OR SPATTERING AND WITHIN THE L LIMITS FOR STRAIGHTNESS SET FORTH HEREIN. WHEN NEEDED, A DISPENSER SHALL BE FURNISHED, WHICH IS PROPERLY DESIGNED FOR ATTACHMENT TO THE MECHANICAL MARKER AND SUITABLE FOR DISPENSING THE REQUIRED QUANTITY OF REFLECTIVE BEADS.
 - SUITABLE ADJUSTMENTS SHALL BE PROVIDED ON THE SPRAYER/SPRAYERS OF A SINGLE MACHINE OR BY FURNISHING ADDITIONAL EQUIPMENT FOR PAINTING THE WIDTH REQUIRED.
 - IMMEDIATELY BEFORE APPLICATION OF THE PAINT, THE EXISTING SURFACE SHALL BE DRY AND ENTIRELY FREE FROM DIRT, GREASE, OIL ACIDS, DEBRIS, OR OTHER FOREIGN MATTER WHICH WOULD REDUCE THE BOND BETWEEN THE COAT OF PAINT AND THE PAVEMENT. THE SURFACE SHALL BE THOROUGHLY CLEANED BY SWEEPING AND BLOWING AS REQUIRED TO REMOVE ALL DIRT, DEBRIS AND LOOSE MATERIALS. AREAS WHICH CANNOT BE SATISFACTORILY CLEANED BY BROOMING OR BLOWING SHALL BE SCRUBBED AS DIRECTED WITH A WATER SOLUTION OF TRI-SODIUM PHOSPHATE (102N3P04 BY WEIGHT) OR AN APPROVED EQUAL SOLUTION. AFTER SCRUBBING, THE SOLUTION SHALL BE RINSED OFF AND THE SURFACE DRIED PRIOR TO PAINTING.
 - EXISTING MARKINGS OR STRIPES WHICH ARE TO BE ABANDONED OR REMOVED SHALL BE OBLITERATED OR OBBURED BY THE BEST METHODS SUITED FOR THE PURPOSE AND TO THE SATISFACTION OF THE OWNER OR OWNERS REPRESENTATIVE.
 - THE CONTRACTOR IS RESPONSIBLE FOR LAYING OUT A SAMPLE SECTION OF STRIPING WHICH IS TO BE APPROVED BY THE OWNER OR OWNERS REPRESENTATIVE AS TO QUALITY BEFORE THE CONTRACTOR MAY PROCEED WITH THE STRIPING. THE CONTRACTOR IS TO INSURE THAT ALL SUBSEQUENT STRIPING MEETS THE QUALITY OF THE APPROVED SAMPLE APPLICATION.
 - ON THOSE SECTIONS OF PAVEMENTS WHERE NO PREVIOUSLY APPLIED FIGURES, MARKINGS, OR STRIPES ARE AVAILABLE TO SERVE AS A GUIDE, SUITABLE LAYOUTS AND LINES OF PROPOSED STRIPES SHALL BE SPOTTED IN ADVANCE OF THE PAINT APPLICATION. CONTROL POINTS SHALL BE SPACED AT SUCH INTERVALS AS WILL ENSURE ACCURATE LOCATION OF ALL MARKINGS.
 - THE CONTRACTOR SHALL PROVIDE AN EXPERIENCED TECHNICIAN TO SUPERVISE THE LOCATION ALIGNMENT, LAYOUT, DIMENSIONS AND APPLICATION OF THE PAINT.
 - MARKINGS SHALL BE APPLIED AT THE LOCATIONS AND TO THE DIMENSIONS AND SPACING INDICATED ON THE PLANS OR AS SPECIFIED. PAINT SHALL NOT BE APPLIED UNTIL THE INDICATED ALIGNMENT IS LAID OUT AND THE CONDITIONS OF THE EXISTING SURFACE HAVE BEEN APPROVED BY THE OWNER OR OWNERS REPRESENTATIVE.
 - THE PAINT SHALL BE MIXED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE FRESH PAINT SHALL BE PROTECTED FROM HAZARD OR DAMAGE OF ANY KIND. THE CONTRACTOR SHALL BE DIRECTLY RESPONSIBLE AND SHALL ERECT OR PLACE SUITABLE WARNING SIGNS, FLARES, OR BARRICADES. PROTECTIVE SCREENS OR COVERINGS AS REQUIRED. ALL SURFACES SHALL BE PROTECTED FROM DISFIGURATION BY SPATTER, SPLASHES, SPILLAGE, DRIPPINGS OF PAINT OR OTHER MATERIAL.
 - IN THE APPLICATION OF STRAIGHT STRIPES, ANY DEVIATION IN THE EDGES EXCEEDING 1/2-INCH IN 50- FEET SHALL BE OBLITERATED, AND THE MARKING CORRECTED. THE WIDTH OF THE MARKINGS SHALL BE AS DESIGNATED WITHIN A TOLERANCE OF 5 PERCENT (5%). ALL PAINTING SHALL BE PERFORMED TO THE SATISFACTION OF THE OWNER OR OWNERS REPRESENTATIVE BY COMPETENT AND EXPERIENCED EQUIPMENT OPERATORS, LABORERS, AND ARTISANS IN A NEAT AND WORKMANLIKE MANNER.
 - PAINT SHALL BE APPLIED UNIFORMLY BY SUITABLE EQUIPMENT AT A RATE OF 0.0094 GAL./S.F. FOR STENCILS AND 0.00313 GAL./FT. FOR STRIPING. PAINT APPLICATION SHALL PRODUCE AN AVERAGE WET FILM THICKNESS OF 0.015-INCHES.
 - AFTER APPLICATIONS OF THE PAINT, ALL MARKINGS SHALL BE PROTECTED WHILE THE PAINT IS DRYING. THE FRESH PAINT SHALL BE PROTECTED FROM HAZARD OR DAMAGE OF ANY KIND. THE CONTRACTOR SHALL BE DIRECTLY RESPONSIBLE AND SHALL ERECT OR PLACE SUITABLE WARNING SIGNS, FLARES, OR BARRICADES. PROTECTIVE SCREENS OR COVERINGS AS REQUIRED. ALL SURFACES SHALL BE PROTECTED FROM DISFIGURATION BY SPATTER, SPLASHES, SPILLAGE, DRIPPINGS OF PAINT OR OTHER MATERIAL.

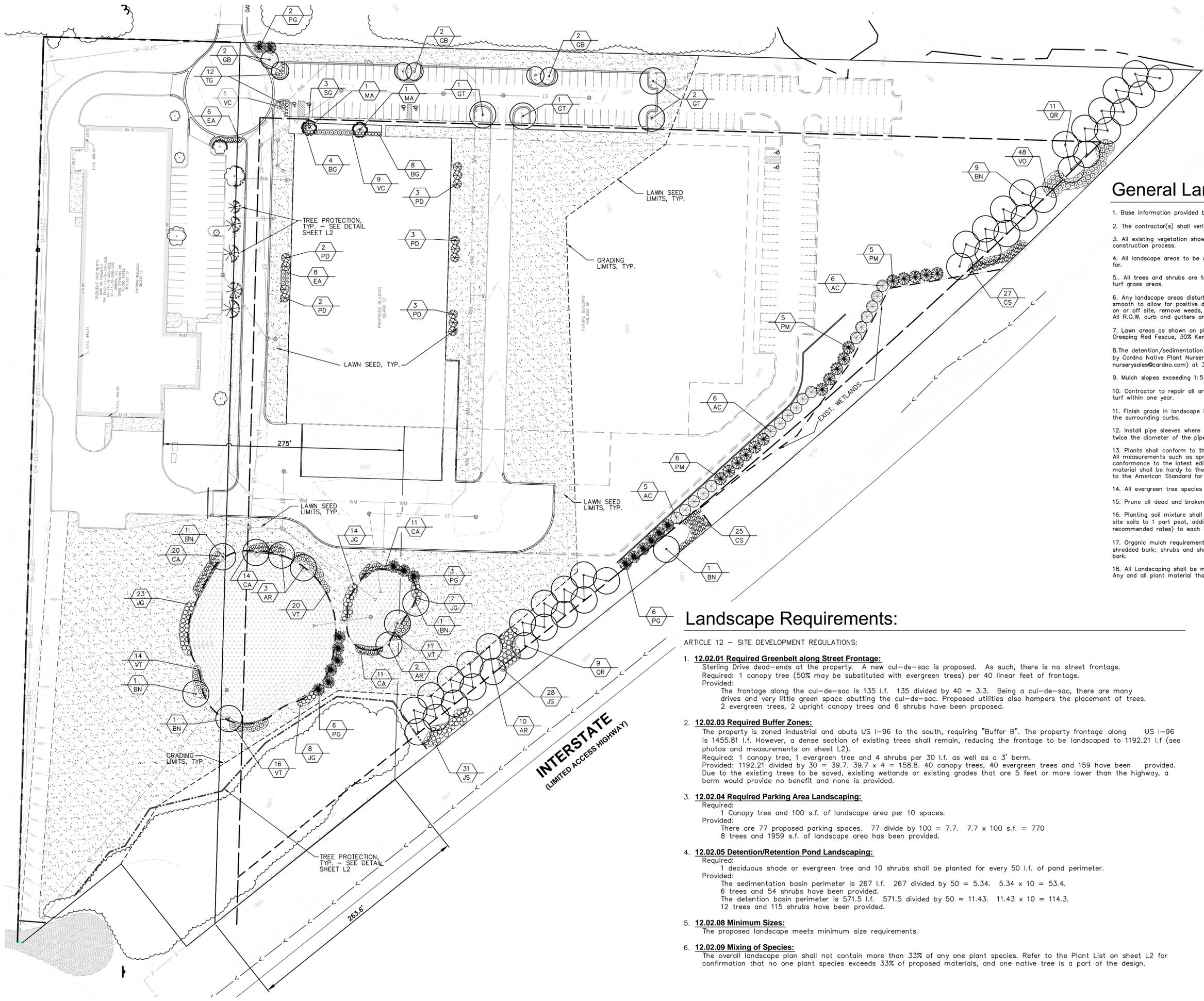
INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS



298 VETERANS DRIVE
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MICHIGAN 48836
(OFFICE) 517-223-3512
MONUMENTENGINEERING.COM
SERVICE DISABLED VETERAN OWNED
SMALL BUSINESS (SDBVSSB)



Call MISS DIG
3 full working days before you dig.



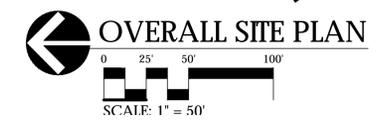
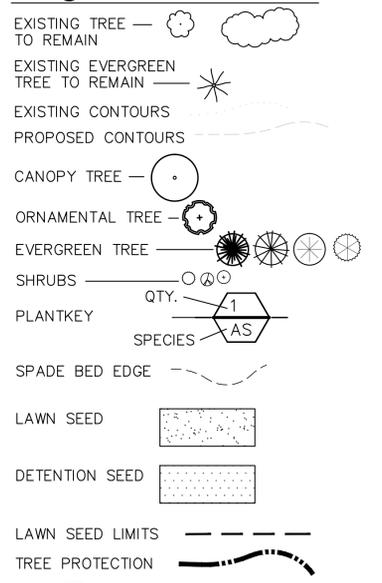
General Landscape Notes:

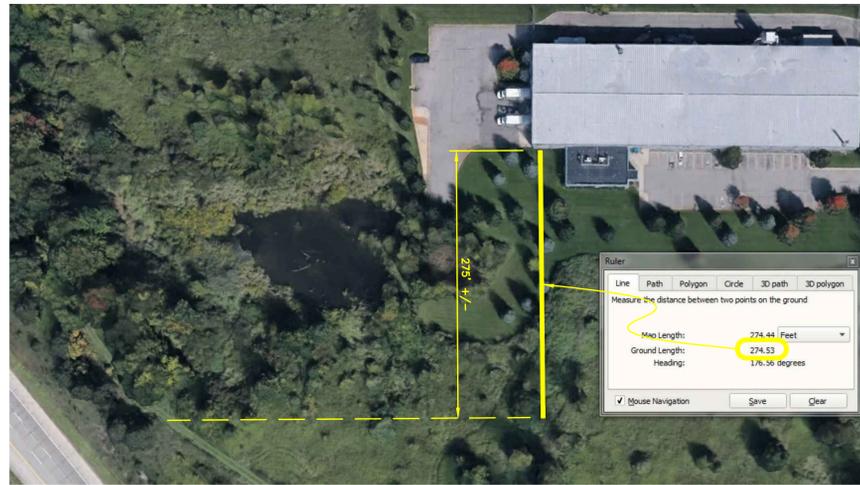
1. Base information provided by Spartan Engineering Solutions LLC.
2. The contractor(s) shall verify the location of all underground utilities prior to construction.
3. All existing vegetation shown is to be saved and protected during the demolition and construction process.
4. All landscape areas to be grass common to region except where other plant material is called for.
5. All trees and shrubs are to be planted in mulch beds with spade edge separating mulch from turf grass areas.
6. Any landscape areas disturbed by construction shall be scarified to a depth of 2", graded smooth to allow for positive drainage. For any landscape area so designated to remain whether on or off site, remove weeds, rocks construction items, etc., scarify area, re-seed and fertilize. All R.O.W. curb and gutters are to be cleaned of debris.
7. Lawn areas as shown on plan shall be seeded and mulched (or hydroseeded) as follows: 50% Creeping Red Fescue, 30% Kentucky Bluegrass and 20% Perennial Rye Grass.
8. The detention/sedimentation pond shall be seeded as shown on plan with "Stormwater Seed Mix" by Cardo Native Plant Nursery (128 Sunset Dr., Walkerton, IN 46574, 574-586-2412, nurserysales@cardo.com) at 32.6 PLS pounds/acre or approved equal.
9. Mulch slopes exceeding 1:5 with a straw mulch blanket staked in place or hydroseeded.
10. Contractor to repair all areas of erosion to satisfaction of Owner/Township to establish proper turf within one year.
11. Finish grade in landscape islands shall be installed so that they are 1" lower than the top of the surrounding curbs.
12. Install pipe sleeves where irrigation lines cross or are under pavement. All sleeves to be twice the diameter of the pipe(s) is houses.
13. Plants shall conform to the sizes as shown on the drawings and shall be of sound health. All measurements such as spread, ball size, height, caliper and quality designations shall be in conformance to the latest edition of the American Standards for Nursery Stock. All plant material shall be hardy to the Grand Traverse area, be free of disease and insects, and conform to the American Standard for Nursery Stock of the American Nurserymen.
14. All evergreen tree species are to be full, dense plants branched fully to the ground.
15. Prune all dead and broken branches from all plants immediately after installation.
16. Planting soil mixture shall be prepared on-site by mixing 3 parts topsoil to 1 part existing site soils to 1 part peat, adding phosphate free all purpose fertilizer (at manufacturers recommended rates) to each cubic yard of the mixture.
17. Organic mulch requirements: shade trees, ornamental trees and evergreen trees - 6" of shredded bark; shrubs and shrub beds - 4" of shredded bark; perennial flowers - 2" of shredded bark.
18. All Landscaping shall be maintained in a healthy, neat and orderly state following installation. Any and all plant material that dies or becomes diseased, shall be replaced within six months.

Landscape Requirements:

- ARTICLE 12 - SITE DEVELOPMENT REGULATIONS:
1. **12.02.01 Required Greenbelt along Street Frontage:**
Sterling Drive dead-ends at the property. A new cul-de-sac is proposed. As such, there is no street frontage. Required: 1 canopy tree (50% may be substituted with evergreen trees) per 40 linear feet of frontage. Provided: The frontage along the cul-de-sac is 135 l.f. 135 divided by 40 = 3.3. Being a cul-de-sac, there are many drives and very little green space abutting the cul-de-sac. Proposed utilities also hampers the placement of trees. 2 evergreen trees, 2 upright canopy trees and 6 shrubs have been provided.
 2. **12.02.03 Required Buffer Zones:**
The property is zoned industrial and abuts US I-96 to the south, requiring "Buffer B". The property frontage along US I-96 is 1455.81 l.f. However, a dense section of existing trees shall remain, reducing the frontage to be landscaped to 1192.21 l.f (see photos and measurements on sheet L2). Required: 1 canopy tree, 1 evergreen tree and 4 shrubs per 30 l.f. as well as a 3' berm. Provided: 1192.21 divided by 30 = 39.7. 39.7 x 4 = 158.8. 40 canopy trees, 40 evergreen trees and 159 shrubs have been provided. Due to the existing trees to be saved, existing wetlands or existing grades that are 5 feet or more lower than the highway, a berm would provide no benefit and none is provided.
 3. **12.02.04 Required Parking Area Landscaping:**
Required: 1 Canopy tree and 100 s.f. of landscape area per 10 spaces. Provided: There are 77 proposed parking spaces. 77 divide by 100 = 7.7. 7.7 x 100 s.f. = 770. 8 trees and 1959 s.f. of landscape area has been provided.
 4. **12.02.05 Detention/Retention Pond Landscaping:**
Required: 1 deciduous shade or evergreen tree and 10 shrubs shall be planted for every 50 l.f. of pond perimeter. Provided: The sedimentation basin perimeter is 267 l.f. 267 divided by 50 = 5.34. 5.34 x 10 = 53.4. 6 trees and 54 shrubs have been provided. The detention basin perimeter is 571.5 l.f. 571.5 divided by 50 = 11.43. 11.43 x 10 = 114.3. 12 trees and 115 shrubs have been provided.
 5. **12.02.08 Minimum Sizes:**
The proposed landscape meets minimum size requirements.
 6. **12.02.09 Mixing of Species:**
The overall landscape plan shall not contain more than 33% of any one plant species. Refer to the Plant List on sheet L2 for confirmation that no one plant species exceeds 33% of proposed materials, and one native tree is a part of the design.

Legend:

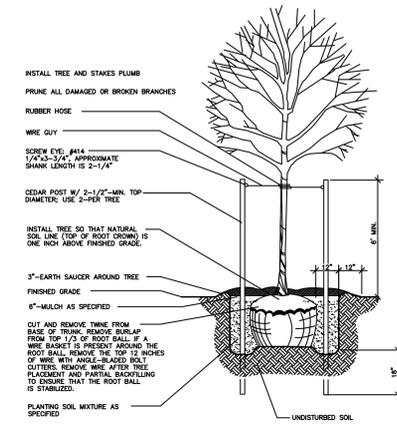




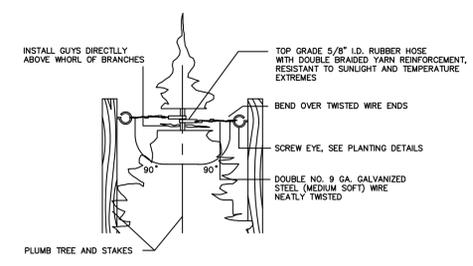
Aerial Photo of Exist Trees along I-96
From Google Earth with measurement



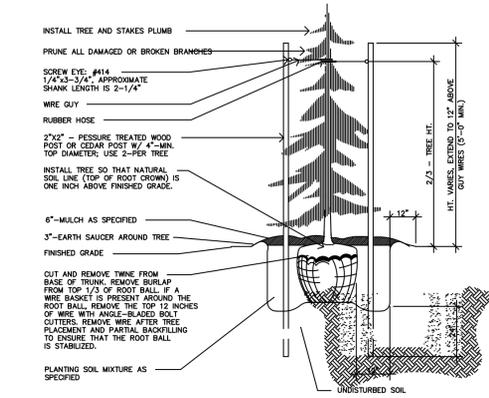
Photo of Exist Trees along I-96
From Google Earth with measurement



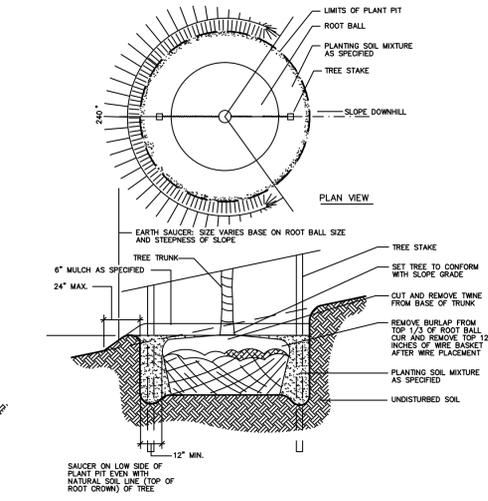
Deciduous Tree Planting/Staking



Guy Installation
FOR EVERGREEN AND DECIDUOUS TREES



Evergreen Tree Planting/Staking

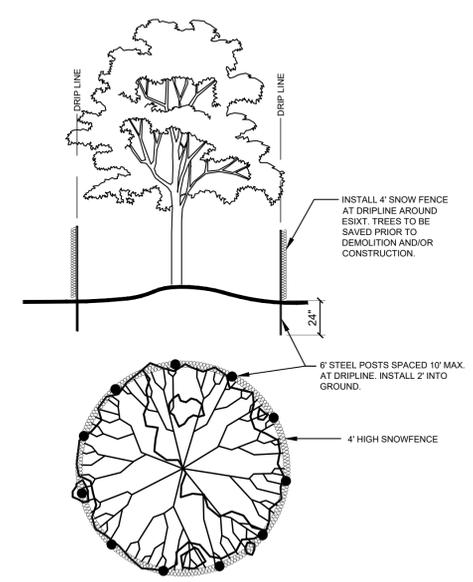


Deciduous Tree Planting/Staking
FOR SLOPE OR BERM INSTALLATION

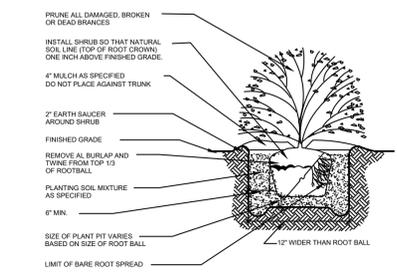
PLANT LIST

Qty.	Key	Botanical Name	Common Name	Size				Root	% of TOTAL
				Caliper	Height	Spread	Other		
Trees									
17	AC	Abies concolor	Concolor Fir		6'			B&B	3.1%
15	AR	Acer rubrum	Red Maple	2 1/2"				B&B	2.3%
14	BN	Betula nigra	River Birch	2 1/2"				B&B	3.1%
6	GB	Ginkgo biloba 'Sentry'	Sentry Ginkgo	2 1/2"				B&B	3.1%
4	GT	Gleditsia triacanthos 'Skyline'	Skyline Honeylocust	2 1/2"				B&B	3.1%
2	MA	Malus 'Adirondack'	Adirondack Crabapple	2"				B&B	2.3%
13	PD	Picea glauca var. densata	Black Hills Spruce		6'			B&B	3.1%
17	PG	Picea glauca	White Spruce		6'			B&B	3.1%
16	PG	Picea mariana	Black Spruce		6'			B&B	1.5%
20	QR	Quercus rubra	Red Oak	2 1/2"				B&B	3.9%
Shrubs									
12	BG	Buxus 'Green Gem'	Green Gem Boxwood		24"			Cont.	9.3%
56	CA	Clethra alnifolia	Summersweet		24"			Cont.	17.8%
52	CS	Cornus sericea	Redtwig Dogwood		24"			Cont.	15.5%
14	EA	Euonymus alatus 'Compactus'	Compact Burningbush		24"			Cont.	9.3%
52	JG	Juniperus 'Grey Owl'	Grey Owl Juniper			24"		Cont.	17.8%
59	JS	Juniperus 'Sea Green'	Sea Green Juniper			24"		Cont.	15.5%
3	SG	Spiraea x bumalda 'Goldflame'	Goldflame Spirea		24"			Cont.	4.6%
12	TG	Thuja 'Golden Globe'	Golden Globe Arborvitae		24"			Cont.	2.3%
10	VC	Viburnum carlesii 'Compactum'	Comp. Koreanspice Viburnum		24"			Cont.	9.3%
48	VO	Viburnum opulus	European Cranberrybush		24"			Cont.	6.9%
61	VT	Viburnum t. 'Compactum'	Comp. American Cranberrybush		24"			Cont.	17.8%

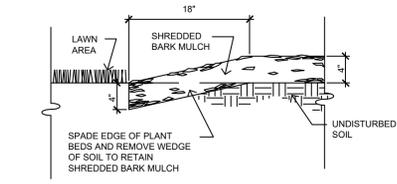
B&B = Balled & Burlapped Cont. = Container



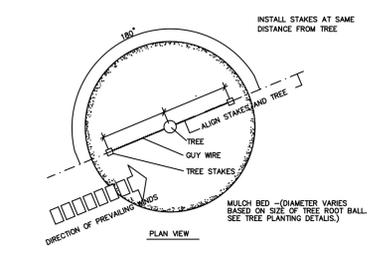
TREE PROTECTION DETAIL
SCALE: NO SCALE



Shrub Planting Detail
SCALE: NO SCALE



Spade Edge Plant Bed
SCALE: NO SCALE



Stake Placement
FOR EVERGREEN AND DECIDUOUS TREES



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LANDSCAPE DETAILS/PLANT LIST
MASONITE
5665 STERLING DRIVE
GENOA TOWNSHIP, MICHIGAN

SHEET TITLE:
PROJECT FOR:

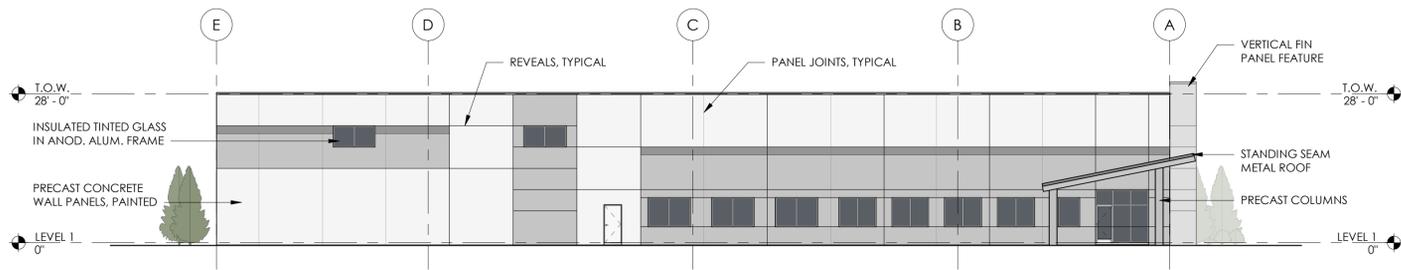
DATE:
MAY 1, 2019

REVISIONS:
1) Add landscaping per review - Grading changes - 5/22/19

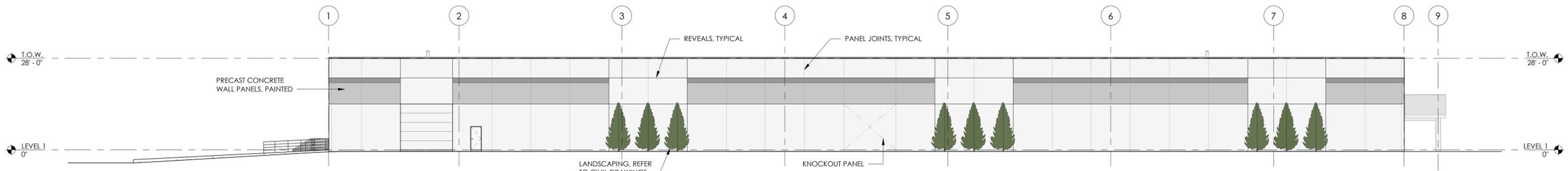
SCALE:
AS NOTED

PROJECT NO.:
19014

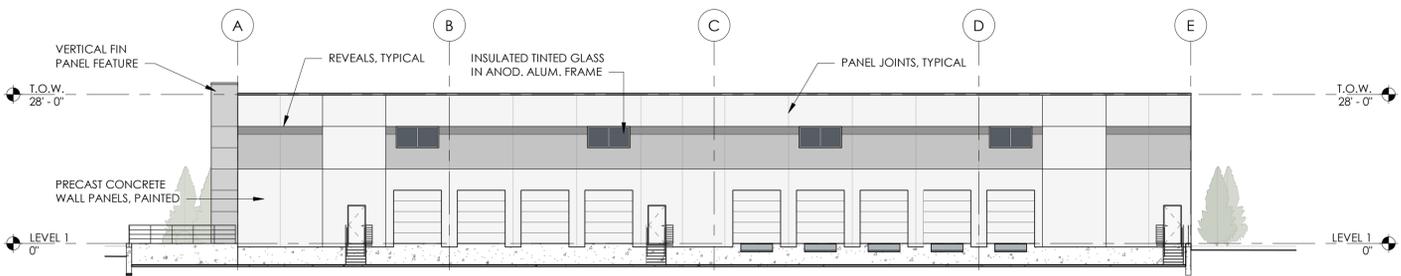
SHEET NO.:
L2 OF 2



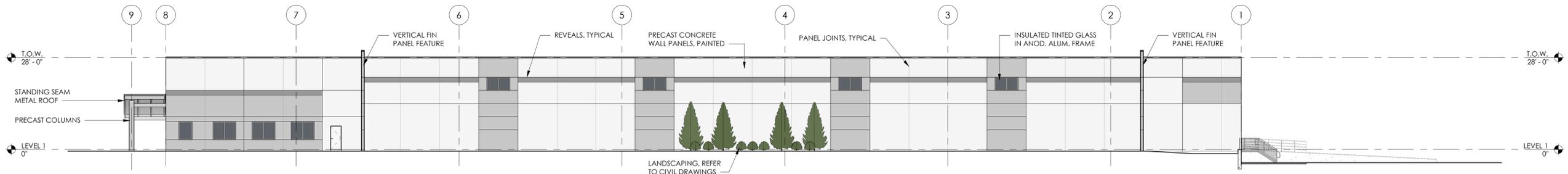
EAST ELEVATION
1/16" = 1'-0"



SOUTH ELEVATION
1/16" = 1'-0"



WEST ELEVATION
1/16" = 1'-0"



NORTH ELEVATION
1/16" = 1'-0"

SQUIRES
ARCHITECTURAL
GROUP, PLLC

223 West Grand River Avenue
Suite 2
Howell, MI 48843
517-518-8643 voice
517-518-8956 facsimile

SCHONSHECK, INC.

DESIGNERS · BUILDERS · DEVELOPERS
50555 PONTIAC TRAIL WIXOM, MI 48393
P(248) 669-8800 F(248) 669-0850
WWW.SCHONSHECK.COM



CLIENT: SCHONSHECK, INC.
PROJECT: PROPOSED BUILDING FOR:
MASONITE
GENOA TOWNSHIP, MICHIGAN

ISSUE	DATE
SPA	2019/05/01
REVISED	2019/05/21

NOT FOR CONSTRUCTION

PROJECT NUMBER: 19-479
SHEET TITLE:
BUILDING ELEVATIONS
SHEET NUMBER:
A-201

- General Note**
- SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
 - SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
 - CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: GRADE

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE 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 MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIREMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705

D-Series Size 2 LED Wall Luminaire

Specifications Luminaire

Width: 18 1/2" (468mm) | Weight: 21 lbs (9.5kg) | Depth: 10" (254mm) | Height: 7.5" (190mm)

Back Box (BBW)

Width: 5.12" (129mm) | Height: 1.12" (28mm)

CS+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency.
- This luminaire is A+ Certified when ordered with DTL+ controls marked by a shaded background. DTL+ equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability.
- This luminaire is part of an A+ Certified solution for ROAM or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background.

To learn more about A+, visit www.acuitybrands.com/aplus.

- See ordering tree for details.
- A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately. [Link to Roam](#); [Link to DTL+ DLL](#).

Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBXD

Series	LEDs	Color Correlat	Color Temperature	Distribution	Voltage	Mounting	Shipped/Included	Control Option
DSXW2 LED	30C 700 (3000K)	300	3000K	T3M	120V	Wall	Shipped/Included	None
DSXW2 LED	30C 700 (3000K)	300	3000K	T3M	120V	Wall	Shipped/Included	DTL+ (shaded)
DSXW2 LED	30C 700 (3000K)	300	3000K	T3M	120V	Wall	Shipped/Included	DTL+ (shaded) + ROAM (shaded)

LITHONIA LIGHTING
 One Lithonia Way • Conley, Georgia 30124 • Phone: 800.279.8561 • www.lithonia.com
 © 2012-2014 Acuity Brands Lighting, Inc. All rights reserved.

D-Series Size 2 LED Area Luminaire

Specifications Luminaire

Length: 40" (1016mm) | Width: 15" (381mm) | Height: 7.31" (185mm) | Weight (max): 36 lbs (16.3kg)

CS+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency.
- This luminaire is A+ Certified when ordered with DTL+ controls marked by a shaded background. DTL+ equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability.
- This luminaire is part of an A+ Certified solution for ROAM or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background.

To learn more about A+, visit www.acuitybrands.com/aplus.

- See ordering tree for details.
- A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately. [Link to Roam](#); [Link to DTL+ DLL](#).

Ordering Information

EXAMPLE: DSX2 LED P7 T3M MVOLT SPA DDBXD

Series	LEDs	Color Temperature	Distribution	Voltage	Mounting	Shipped/Included	Control Option
DSX2 LED	P7 (3000K)	3000K	T3M	120V	Surface	Shipped/Included	None
DSX2 LED	P7 (3000K)	3000K	T3M	120V	Surface	Shipped/Included	DTL+ (shaded)
DSX2 LED	P7 (3000K)	3000K	T3M	120V	Surface	Shipped/Included	DTL+ (shaded) + ROAM (shaded)

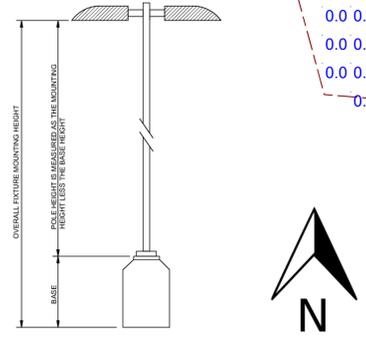
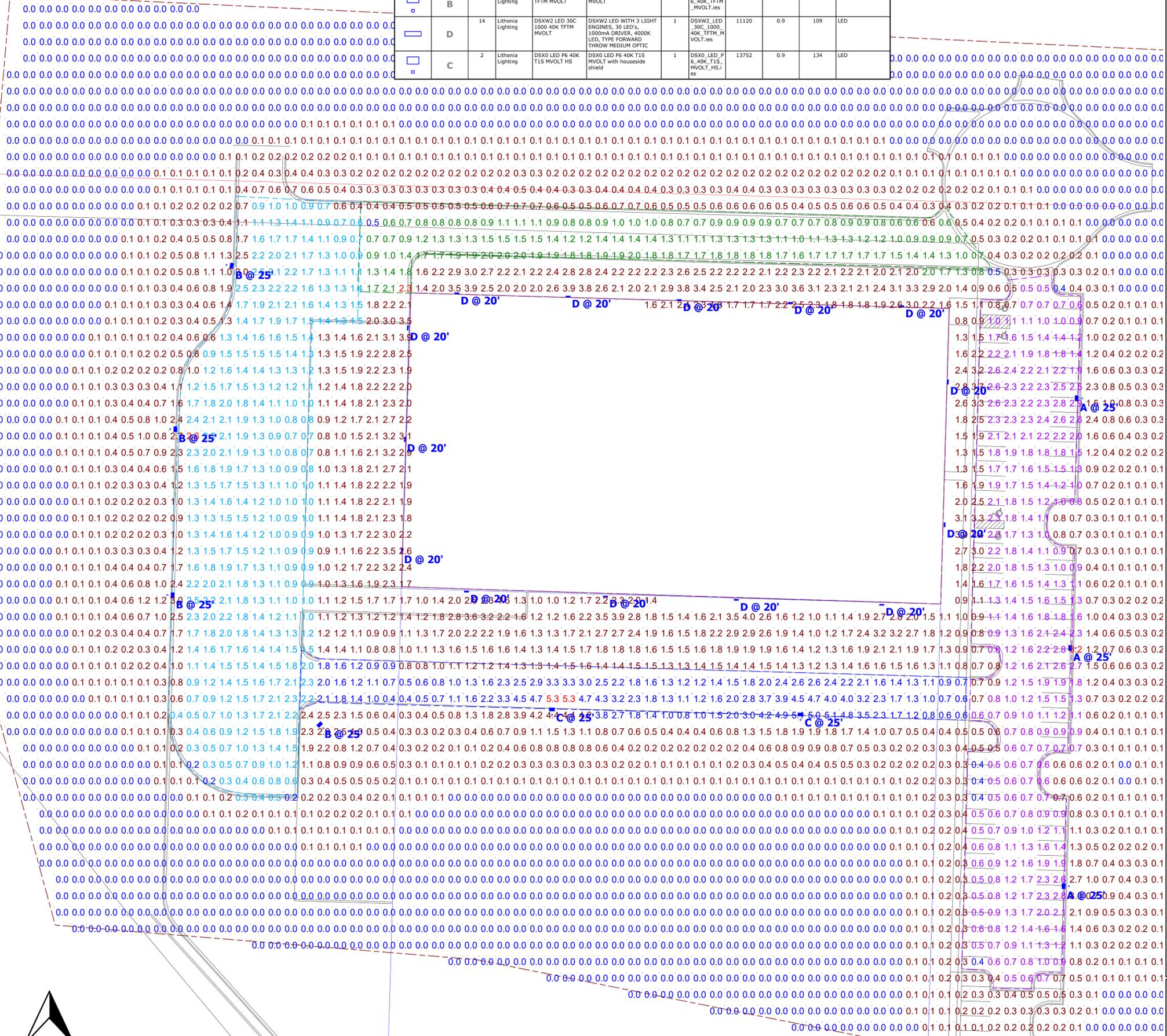
LITHONIA LIGHTING
 One Lithonia Way • Conley, Georgia 30124 • Phone: 800.279.8561 • www.lithonia.com
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Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
Bottom Drive	X	2.2 fc	5.3 fc	0.4 fc	13.3:1	5.5:1	0.4:1
East Lot	X	1.4 fc	3.2 fc	0.4 fc	8.0:1	3.5:1	0.4:1
North Lot	X	1.3 fc	2.3 fc	0.5 fc	4.6:1	2.6:1	0.6:1
West Lot	X	1.4 fc	2.6 fc	0.2 fc	13.0:1	7.0:1	0.5:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Number of Lamps	Filename	Lumens per Lamp	LLF	Wattage	Lamp
□	A	3	Lithonia Lighting	DSXO LED P6 40K T4M MVOLT	DSXO LED P6 40K T4M MVOLT	1	DSXO_LED_P6_40K_T4M_MVOLT.ies	15627	0.9	134	LED
□	B	4	Lithonia Lighting	DSXO LED P6 40K TFTM MVOLT	DSXO LED P6 40K TFTM MVOLT	1	DSXO_LED_P6_40K_TFTM_MVOLT.ies	15964	0.9	134	LED
□	D	14	Lithonia Lighting	DSXW2 LED 30C 1000 40K TFTM MVOLT	DSXW2 LED WITH 3 LIGHT ENGINES, 30 LED'S, 1000MA DRIVER, 4000K LED, TYPE FORWARD THROW MEDIUM OPTIC	1	DSXW2_LED_30C_1000_40K_TFTM_MVOLT.ies	11120	0.9	109	LED
□	C	2	Lithonia Lighting	DSXO LED P6 40K T1S MVOLT HS	DSXO LED P6 40K T1S MVOLT with houside shield	1	DSXO_LED_P6_40K_T1S_MVOLT_HS.ies	13752	0.9	134	LED



Plan View
 Scale - 1" = 30ft



19-018 MASONITE
 PHOTOMETRIC SITE PLAN
 GASSER BUSH ASSOCIATES
 WWW.GASSERBUSH.COM

Designer
 DB
 Date
 5/1/2019
 Scale
 Not to Scale
 Drawing No.
 #19-35527-V1
 1 of 1

MEMORANDUM

TO: Township Board

FROM: Michael Archinal 

DATE: 6/27/2019

RE: Fire Hall Transfer Agreements

Please find attached transfer agreement for the two Township owned fire halls. With the recent voter approved fire millage the Brighton Area Fire Authority is moving towards more of a full time department. This requires investment in the current facilities for dorms, kitchens, laundry etc. With this expenditure it is appropriate that the ownership transfer to BAFA. The transfer also gets the Township out from under the burden of large capital maintenance expenditures such as parking lots and roof replacements.

Please note that the agreements should include language that deals with future use of the buildings and the Township Hall property. If the building is not used for public safety purposes it should revert back to the Township. Likewise if the Township ceases to own the Hall property BAFA's ownership of the fire hall should remain intact. The Township Attorney and BAFA are aware of these items and have agreed to include them in the agreement.

Please consider the following action:

Moved by _____, supported by _____, to approve the transfer agreements for Stations 34 and 35 subject to review by the Township Attorney.

Mike Archinal

From: Mike Archinal
Sent: Wednesday, March 07, 2018 4:40 PM
To: 'Michael O'Brian'
Cc: bill@genoa.org
Subject: RE: Sta 34/35 Transfer Agreement

Chief,

My only concern on the language is paragraph 4. I think we would prefer a reversion clause e.g. Should BAFA cease to use the property for public safety purposes, unless agreed to by the Township the Township shall have to power to terminate the estate so created.

Station 35 is on the same property as the Township Hall. We are working on creating a new legal description that would carve out the station and provide enough room for future expansion or a training facility. The sketch I did extends south into the wetlands and notches out the walking path. The eastern property line even with the station would be about 700 feet from the center line of Dorr.

Mike

From: Michael O'Brian [<mailto:mobrian@brightonareafire.com>]
Sent: Wednesday, March 07, 2018 10:07 AM
To: Mike Archinal
Subject: Fwd: Sta 34/35 Transfer Agreement

Mike

I have these over to neal, and was going to chat through at my board meeting tomorrow

do you have any specifics on what the lot would be for Station 34

What other language are you thinking?

Michael OBrian, CFO, MIFireE
Fire Chief
Brighton Area Fire Authority
810-299-0024- Direct
mobrian@brightonareafire.com

Practice your home fire safety plan today!*

Begin forwarded message:

From: Claudette Monroe <monroe@brightonareafire.com>
Subject: Sta 34/35 Transfer Agreement
Date: March 7, 2018 at 9:46:39 AM EST

AGREEMENT FOR
TRANSFER OF FIRE STATION 34

THIS AGREEMENT is made and entered into as of _____ 2018, by and between the BRIGHTON AREA FIRE AUTHORITY (the "Authority"), a body corporate existing under the provisions of Act 57, Public Acts of Michigan, 1988, as amended ("Act 57"), and the CHARTER TOWNSHIP OF GENOA (the "Township), a Michigan home rule city.

WHEREAS, the Authority has been created by the adoption of articles of incorporation (the "Articles") by the legislative body of each incorporating municipality thereto, including the Township, for the purpose of providing fire protection and other emergency health and safety services as set forth in the Articles; and

WHEREAS, the parties hereto desire to have the Authority provide such emergency services to the Township as provided herein and in the Articles.

NOW THEREFORE, in consideration of the premises and the covenants of each other, the parties hereto agree as follows:

1. In consideration of the Authority providing services to the residents of the Township as described in the Articles of Incorporation, the Township hereby conveys to the Authority without further compensation the property and buildings and other items listed on Exhibit A, which is attached hereto and hereby made a part hereof, together with all other equipment, items and appurtenances that are owned by the Township and currently leased by the Brighton Area Fire Authority. The Township agrees to execute such bills of sale and other documents as necessary to evidence such conveyances.
2. This Agreement may not be amended, modified or assigned without the written consent of the Township and the Authority.
3. The effective date of this Agreement shall be the date set forth in the first paragraph hereof.
4. In the event the Authority no longer utilizes the facility, the Township shall be given the first right of purchase.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and delivered by their respective duly authorized officers, all of as the day and year first above written.

BRIGHTON AREA FIRE AUTHORITY

By: _____

Its: **Chairperson**

And: _____

Its: **Secretary**

CHARLETTOWN TOWNSHIP OF GILNOA

By: _____

Its: **Supervisor**

And: _____

Its: **Clerk**

AGREEMENT FOR
TRANSFER OF FIRE STATION 35

THIS AGREEMENT is made and entered into as of _____ 2018, by and between the BRIGHTON AREA FIRE AUTHORITY (the "Authority"), a body corporate existing under the provisions of Act 57, Public Acts of Michigan, 1988, as amended ("Act 57"), and the CHARTER TOWNSHIP OF GENOA (the "Township), a Michigan home rule city.

WHEREAS, the Authority has been created by the adoption of articles of incorporation (the "Articles") by the legislative body of each incorporating municipality thereto, including the Township, for the purpose of providing fire protection and other emergency health and safety services as set forth in the Articles; and

WHEREAS, the parties hereto desire to have the Authority provide such emergency services to the Township as provided herein and in the Articles.

NOW THEREFORE, in consideration of the premises and the covenants of each other, the parties hereto agree as follows:

1. In consideration of the Authority providing services to the residents of the Township as described in the Articles of Incorporation, the Township hereby conveys to the Authority without further compensation the property and buildings and other items listed on Exhibit A, which is attached hereto and hereby made a part hereof, together with all other equipment, items and appurtenances that are owned by the Township and currently leased by the Brighton Area Fire Authority. The Township agrees to execute such bills of sale and other documents as necessary to evidence such conveyances.
2. This Agreement may not be amended, modified or assigned without the written consent of the Township and the Authority.
3. The effective date of this Agreement shall be the date set forth in the first paragraph hereof.
4. In the event the Authority no longer utilizes the facility, the Township shall be given the first right of purchase.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and delivered by their respective duly authorized officers, all of as the day and year first above written.

BRIGHTON AREA FIRE AUTHORITY

By: _____

Its: Chairperson

And: _____

Its: Secretary

CHARTER TOWNSHIP OF GENOA

By: _____

Its: Supervisor

And: _____

Its: Clerk

EXHIBIT A

LEGAL DESCRIPTION

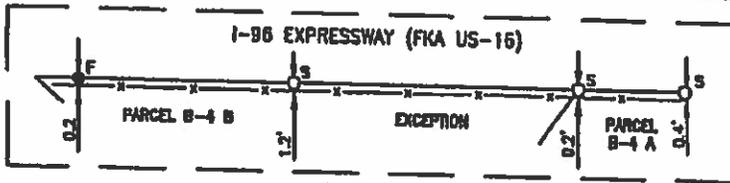
Real Property situated in the Township of Genoa, County of Livingston, and State of Michigan, more particularly described as:

PARCEL B-4 D

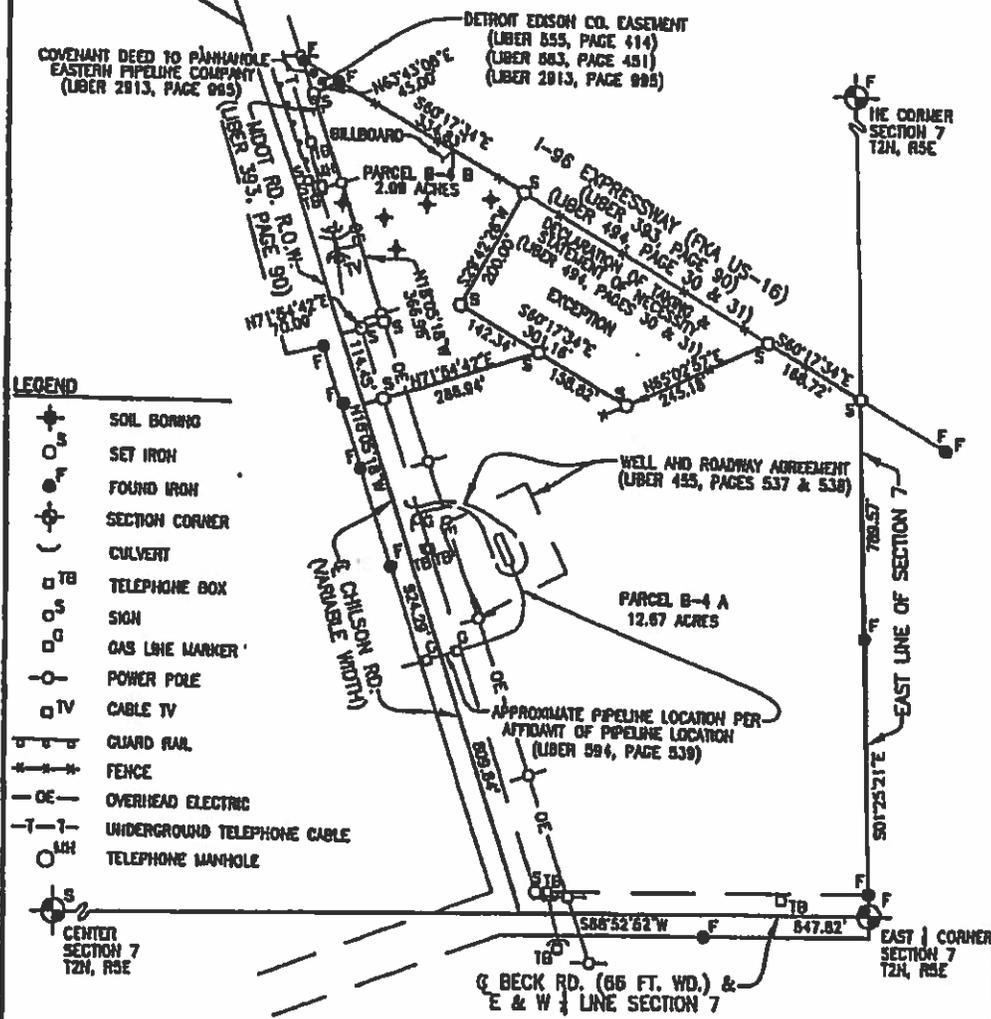
Commencing at the East 1/4 Corner of Section 7, T2N, R5E, Genoa Township, Livingston County, Michigan; Thence S88°52'52"W 547.82 feet along the east and west 1/4 line of said section and the centerline of Beck Road to a point on the centerline of Challis Road; thence N18°05'18"W 809.84 feet along the centerline of Challis Road; to the point of beginning; thence continuing N18°05'18"W 114.45 feet along said centerline thence N71°54'42"E 70.00 feet to a point on the easterly right-of-way line of Challis Road; thence N18°05'18"W 366.96 feet; thence N63°43'08"E 45.00 feet to a point of on the southerly right-of-way line of the I-96 expressway (FKA US-16); thence along said right-of-way line in the following three (3) courses; S60°17'34"E 334.83 feet, S29°42'26"W 200.00 feet; thence S60°17'34"E 142.34 feet; thence S71°54'42"W 286.94 feet to the point of beginning. Being a part of the Northeast 1/4 of section 7, T2N, R5E, Genoa Township, Livingston County, Michigan and containing 2.09 acres of land more or less. Being subject to the right of the public over the easterly 33 feet of Challis Road. Also being subject to easements and restrictions of record, if any.

CERTIFICATE OF SURVEY

SHEET 1 OF 3

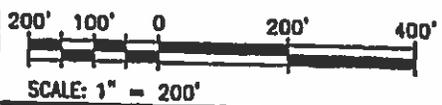


FENCE DETAIL
DISTANCES ARE MEASURED FROM R.O.W. TO FENCELINE



LEGEND

- SOIL BORING
- SET IRON
- FOUND IRON
- SECTION CORNER
- CULVERT
- TELEPHONE BOX
- SIGN
- GAS LINE MARKER
- POWER POLE
- CABLE TV
- GUARD RAIL
- FENCE
- OVERHEAD ELECTRIC
- UNDERGROUND TELEPHONE CABLE
- TELEPHONE MANHOLE



I hereby certify that I have surveyed and mapped the land above plotted and as described on 4/18/07 and that field ratio of closure on the unadjusted field observations was 1:50,000 or better and that requirements of P.A. 132, 1970, as amended have been complied with.

M.D. Snyder
PROFESSIONAL SURVEYOR No. 48888



SECTION 7, T2N, R5E,
GENOA TWP.
LIVINGSTON COUNTY, MI
GENOA TWP. FIRE HALL



Survey Job #200-12738-07-022.30 F.B. No. 881A

123 BUCHANAN LAKE ROAD, BRIGHTON, MI 48110

CERTIFICATE OF SURVEY

SHEET 2 OF 3

NOTES

- THE FOLLOWING NOTES ADDRESS THOSE ITEMS LISTED IN THE SCHEDULE B - SECTION 8 EXCEPTIONS AS PER THE ET TITLE AND FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE, COMMITMENT NUMBER 6793, BEARING A COMMITMENT DATE OF FEBRUARY 14, 2007 AT 8:00 AM.
- AS PER THE DEED RECORDED IN LIBER 168, PAGE 284, LIVINGSTON COUNTY RECORDS, THE ENTIRE SUBJECT PROPERTY IS ENCUMBERED BY A THREE-EIGHTHS INTEREST BY OTHERS IN ALL OIL, GAS AND MINERALS THAT MAY BE PRODUCED BY OR FROM THE PROPERTY.
 - PER CONVERSATION WITH TAMMY AT ET TITLE THERE IS A TYPOGRAPHIC ERROR IN ITEM "D" OF THE TITLE WORK, WHICH INCORRECTLY REFERENCES LIBER 238, PAGE 18, BUT SHOULD ACTUALLY BE PAGE 216.
 - THE MICHIGAN OIL AND GAS LEASE AS RECORDED IN LIBER 238, PAGE 38, LIVINGSTON COUNTY RECORDS, ENCUMBERS THE ENTIRE SUBJECT PROPERTY.
 - THE MICHIGAN OIL AND GAS LEASE AS RECORDED IN LIBER 228, PAGE 578, LIVINGSTON COUNTY RECORDS, ENCUMBERS THE ENTIRE SUBJECT PROPERTY.
 - THE MICHIGAN OIL AND GAS LEASE AS RECORDED IN LIBER 233, PAGE 216 (NOTED AS LIBER 238, PAGE 18 IN TITLE COMMITMENT), LIVINGSTON COUNTY RECORDS, ENCUMBERS THE ENTIRE SUBJECT PROPERTY.
 - THE ENTIRE SUBJECT PROPERTY IS ENCUMBERED BY THE GAS STORAGE AGREEMENT AND OIL AND GAS LEASE AS RECORDED IN LIBER 338, PAGE 113, LIVINGSTON COUNTY RECORDS.
 - THE NATURAL GAS CONVEYANCE AS RECORDED IN LIBER 338, PAGE 481, LIVINGSTON COUNTY RECORDS, ENCUMBERS THE ENTIRE SUBJECT PROPERTY.
 - THE RELEASE OF CHARNEL CHANGE AS RECORDED IN LIBER 393, PAGE 122, LIVINGSTON COUNTY RECORDS, DOES NOT CROSS THE SUBJECT PROPERTY.
 - THE COMMUNITY GAS AGREEMENT AS RECORDED IN LIBER 235, PAGE 132, LIVINGSTON COUNTY RECORDS, ENCUMBERS THE ENTIRE SUBJECT PROPERTY.
 - THE WELL SITE AND ROADWAY AGREEMENT AS RECORDED IN LIBER 458, PAGE 537 AND 538, LIVINGSTON COUNTY RECORDS, GRANTS THE PANHANDLE EASTERN PIPELINE COMPANY THE RIGHT TO OCCUPY AND FENCE A 150 FOOT BY 150 FOOT SQUARE TRACT OF LAND SURROUNDING EACH OF ITS WELL SITES, AND TO CONSTRUCT AND MAINTAIN A ROADWAY OF NOT MORE THAN 20 FEET IN WIDTH TO EACH OF THE WELL SITE TRACTS.
 - THE WELL, WELL SITE AND ROADWAY AGREEMENT AS RECORDED IN LIBER 479, PAGE 348, LIVINGSTON COUNTY RECORDS, DOES NOT AFFECT THE SUBJECT PROPERTY.
 - THE RIGHT-OF-WAY GRANT IN FAVOR OF PANHANDLE EASTERN PIPELINE COMPANY AS RECORDED IN LIBER 246, PAGE 236, LIVINGSTON COUNTY RECORDS, IS FOR THE INSTALLATION OF GAS PIPELINE, BUT PROVIDES NO PRECISE LOCATION, AND ENCUMBERS THE ENTIRE SUBJECT PROPERTY.
 - THE RESERVATION OF MINERAL RIGHTS AS RECORDED IN LIBER 778, PAGE 283, LIVINGSTON COUNTY RECORDS, ENCUMBERS THE ENTIRE SUBJECT PROPERTY.

DESCRIPTION - PARENT PARCEL R-4 A (BY OTHERS)

A PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 7 TOWN 2 NORTH, RANGE 5 EAST, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: BEGINNING 810 FEET SOUTH OF THE NORTHEAST CORNER OF SAID SECTION 7; THENCE SOUTH 2204.7 FEET TO THE CENTERLINE OF BECK ROAD (SO-CALLED); THENCE WEST ALONG CENTERLINE OF SAID ROAD 841.5 FEET, MORE OR LESS, TO CENTERLINE OF CHILSON ROAD (SO-CALLED) THENCE NORTH 17 DEGREES WEST ALONG CENTERLINE OF SAID ROAD 2835 FEET TO THE NORTH LINE OF SAID SECTION 7; THENCE EAST 602.5 FEET TO THE SOUTHERLY LINE PERE-MARQUETTE RAILROAD RIGHT-OF-WAY; THENCE SOUTHEASTERLY ALONG SAID RIGHT-OF-WAY 793 FEET TO THE PLACE OF BEGINNING; EXCEPT THAT PART THEREOF LYING NORTHERLY OF THE SOUTHERLY LINE OF THE I-96 EXPRESSWAY, ALSO, EXCEPT THAT PART THEREOF DEEDED TO THE STATE HIGHWAY COMMISSION AS RECORDED IN LIBER 393, PAGE 80, LIBER 393, PAGE 122, AND LIBER 484, PAGE 30, LIVINGSTON COUNTY RECORDS ALSO EXCEPT THAT PART THEREOF DEEDED TO THE DETROIT EDISON COMPANY, AS RECORDED IN LIBER 583, PAGE 451, LIVINGSTON COUNTY RECORDS, ALSO SUBJECT TO AND TOGETHER WITH THE EASEMENTS, RESTRICTIONS AND INTEREST OF THE OTHER PARTIES AFFECTIVE TITLE TO THE ABOVE DESCRIBED PREMISES.

DESCRIPTION - PARCEL R-4 A

BEGINNING AT THE EAST 1/2 CORNER OF SECTION 7, T2N, R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN; THENCE S88°22'52"W 847.82 FEET ALONG THE EAST AND WEST 1/2 LINE OF SAID SECTION AND THE CENTERLINE OF BECK ROAD TO A POINT ON THE CENTERLINE OF CHALLIS ROAD; THENCE N18°05'18"W 809.84 FEET ALONG THE CENTERLINE OF CHALLIS ROAD; THENCE N71°51'42"E 286.84 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF THE I-96 EXPRESSWAY (FKA US-16); THENCE ALONG SAID RIGHT-OF-WAY LINE IN THE FOLLOWING THREE (3) COURSES: S40°17'34"E 188.82 FEET TO A POINT ON AN EXISTING FENCELINE, SAID POINT BEING POINT "A", NORTHEASTERLY ALONG SAID FENCELINE TO A POINT WHICH BEARS N63°02'57"E 245.18 FEET FROM SAID POINT "A", AND S60°17'34"E 168.72 FEET TO A POINT ON THE EAST LINE OF SAID SECTION; THENCE S01°28'21"E 789.57 FEET ALONG SAID EAST LINE TO THE POINT OF BEGINNING, BEING A PART OF THE NORTHEAST CORNER OF SECTION 7, T2N, R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN AND CONTAINING 12.67 ACRES OF LAND, MORE OR LESS, BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE EASTERLY 33 FEET OF CHALLIS ROAD AND THE NORTHERLY 33 FEET OF BECK ROAD, ALSO BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD, IF ANY.

DESCRIPTION - PARCEL R-4 B

COMMENCING AT THE EAST 1/2 CORNER OF SECTION 7, T2N, R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN; THENCE S88°52'52"W 847.82 FEET ALONG THE EAST AND WEST 1/2 LINE OF SAID SECTION AND THE CENTERLINE OF BECK ROAD TO A POINT ON THE CENTERLINE OF CHALLIS ROAD; THENCE N18°05'18"W 809.84 FEET ALONG THE CENTERLINE OF CHALLIS ROAD; TO THE POINT OF BEGINNING; THENCE CONTINUING N18°05'18"W 114.45 FEET ALONG SAID CENTERLINE THENCE N71°51'42"E 78.80 FEET TO A POINT ON THE EASTERLY RIGHT-OF-WAY LINE OF CHALLIS ROAD; THENCE N18°05'18"W 388.88 FEET; THENCE N63°43'08"E 45.00 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF THE I-96 EXPRESSWAY (FKA US-16); THENCE ALONG SAID RIGHT-OF-WAY LINE IN THE FOLLOWING THREE (3) COURSES: S40°17'34"E 334.83 FEET, S29°42'26"W 200.00 FEET AND S60°17'34"E 142.34 FEET; THENCE S71°54'42"W 288.84 FEET TO THE POINT OF BEGINNING, BEING A PART OF THE NORTHEAST 1/2 OF SECTION 7, T2N, R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN AND CONTAINING 2.09 ACRES OF LAND, MORE OR LESS, BEING SUBJECT TO THE RIGHT OF THE PUBLIC OVER THE EASTERLY 33 FEET OF CHALLIS ROAD, ALSO BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD, IF ANY.

I hereby certify that I have surveyed and mapped the land above plotted and as described on 4/19/07 and that field notes of closure on the unadjusted field observations was 1:50,000 or better and the requirements of P.A. 132, 1970, as amended have been complied with.

PROFESSIONAL SURVEYOR No. 48688



SECTION 7, T2N, R5E,
GENOA TWP.
LIVINGSTON COUNTY, MI
GENOA TWP. FIRE HALL



TETRA TECH

Survey Job #200-12736-07-022.30 F.B. No. 681A

123 BRIGHTON LAKE ROAD, BRIGHTON, MI 48116

CERTIFICATE OF SURVEY

SHEET 3 OF 3

WITNESSES:
 CENTER SECTION 7
 FOUND 1/2" IRON ROD.
 SOUTHERLY 1.10' POWER POLE.
 SOUTHERLY 8.35' IRON PIPE.
 SOUTHERLY 37.8' IRON PIPE IN CENTER OF ROAD.

WITNESSES:
 NE CORNER SECTION 7
 FOUND LIVINGSTON COUNTY REMON BRASS CAP STAMPED #47055 ON TOP FOUND
 CONCRETE MONUMENT.
 N20'E 81.13' CENTERLINE SANITARY MH.
 S55'E 103.99' REMON WITH N&T OVER FD BOSS N&T, N/S POWER POLE.
 S42'E 15.09' TOP GAS VALVE.
 S10'W 31.37' REMON N&T OVER FD N&T #10057 W/S 28" TRIPLE ASH.
 S70'W 34.48' REMON N&T OVER TRU-COUNTY N&T 5/5 14" WILLOW IN SWAMP.
 N73'W 30.75' TOP GAS VALVE.

WITNESSES:
 EAST 1/4 CORNER OF SECTION 7
 FOUND 3/4" IRON WITH LIVINGSTON COUNTY REMON PIPE WITH 6" BREAKAWAY PIPE &
 BRASS CAP IN CENTERLINE OF BECK RD.
 S70'E 75.74' REMON N&T OVER FOUND BOSS N&T N/S 15" TWIN HICKORY.
 S50'E 19.89' REMON N&T OVER FOUND BOSS N&T E/S 28" HICKORY.
 S80'W 81.83' REMON N&T OVER FOUND BOSS N&T N/S 12" TWIN CHERRY.
 N45'W 38.07' REMON N&T OVER FOUND BOSS N&T SW/S 38" OAK.

I hereby certify that I have surveyed and mapped the
 land above plotted and or described on 4/19/07
 and that field ratio of closure on the unadjusted field
 observations was 1:50,000 or better and that all
 requirements of P.A. 132, 1870, as amended have been
 complied with.

[Signature]

PROFESSIONAL SURVEYOR No. 45828

Survey Job #200-12736-07-022.30 F.B. No. 661A

SECTION 7, T2N, R5E,
 GENOA TWP.
 LIVINGSTON COUNTY, MI
 GENOA TWP. FIRE HALL



TETRA TECH

123 BRIMCOM LAKE ROAD, BRIMCOM, MI 48118

EXHIBIT B

STATION 35

The Fire Authority is subject to the restrictions and covenants and agreements based on Quit Claim Deed #863 between Nordic Realty LLC and Genoa Charter Township dated the 3rd of August 2007.

See Attached Quit Claim Deed #863

QUIT CLAIM DEED - 863

The Grantor, Nordic Realty L.L.C., a Michigan limited liability company, whose address is 2000 Grand River Annex, Ste 200, Brighton, Michigan, 48114, quit - claim(s) to Genoa Charter Township, whose address is 2911 Dorr Road, Brighton, Michigan, 48116, the following described premises (the "Property") situated in the Township of Genoa, County of Livingston, and State of Michigan:

(SEE EXHIBIT A ATTACHED)

Subject to the following restrictions and covenants and agreements:

1. The Grantor reserves to Grantor and shall retain any and all mineral rights upon or under the surface of the Property. Grantor shall not have the right to enter the surface of the Property to conduct explorations or drilling activities.
2. The Grantor (and/or Grantor's heirs, successors or assigns) reserves and maintains the right to current billboard locations, set forth in survey by Tetra Tec April 19, 2007, Job #20012736-07-022 (a copy of which is attached to this deed), upon the Property including the unlinked and unrestricted right to maintain, change, alter, upgrade, improve and utilize the existing structures and billboards, and Grantor shall have unlimited access including, but not limited to, ingress and egress through and upon the Property to service, utilize, improve, alter, change, maintain, repair and replace the structures and billboards thereon.
3. Grantor shall, within twelve (12) months after the date of this deed, construct and commence to operate a fire emergency services station upon the Property. Thereafter, the Property shall at all times be used for an active, operational fire emergency services station, including other ancillary public safety services. The fire station shall be named the "Nielsen Fire Station", and that name shall be prominently displayed on the exterior front of the building.
4. Unencumbered fee title to the Property shall revert and return to Grantor (and/or Grantor's heirs, successors or assigns) upon the occurrence of any of the following events:
 - (a) The failure of the Grantor (and/or Grantor's heirs, successors or assigns) to have access and use of the aforesaid Property for the purposes described in Paragraph 2 above;
 - (b) The failure to initiate within twelve (12) months or the discontinuation or non-utilization of the name, Nielsen Fire Station, upon the fire station to be constructed upon the Property, as described in Paragraph 3 above;
 - (c) The failure to initiate within twelve (12) months or the discontinuation or non-utilization or non-use of the aforesaid Property for an active, operational, fire emergency services station, as described in Paragraph 3 above.

The mineral rights and the rights of reverter reserved to Grantor hereunder are reserved to Grantor and its successors or assigns.

Dated this 3rd day of August, 2007.

Signed in the presence of:

Katie Young
Neal D. Nielsen

STATE OF MICHIGAN)
) ss.
COUNTY OF LIVINGSTON)

Signed by:

Nordic Realty L.L.C., a Michigan limited liability company

Neal D. Nielsen
NEAL D. NIELSEN, its Member

The foregoing instrument was acknowledged before me this 3rd day of August, 2007, by NEAL D. NIELSEN.

Katie Young
KATIE YOUNG
Notary Public, Livingston County, Michigan
My commission expires: 4/3/11

when recorded return to: grantee	send subsequent Tax Bills to: grantee	Drafted by: Edward F. Kickham, Esq. Kickham Hanley PC 32121 Woodward, #300 Royal Oak, MI 48073 (248) 334-6100
-------------------------------------	--	--

Recording Fee \$ _____ Transfer Tax Group pursuant to MCLA 207.524(a) and MCLA 207.503(a)

LEASE FOR 2755 DORR ROAD

1. PARTIES

This lease, dated this 9th day of ~~September~~ ^{December} 2010, is made by and between GENOA CHARTER TOWNSHIP, a municipal corporation, whose address is 2911 Dorr Road, Brighton, MI 48116, (hereinafter called "Lessor"), and the BRIGHTON AREA FIRE AUTHORITY, whose address is 615 West Grand River, Brighton, MI 48114, (hereinafter called "Lessee").

WITNESSETH:

2. PREMISES

In consideration of the mutual covenants and agreements set forth herein, Lessor hereby leases to Lessee Lessee hereby leases from Lessor, certain real property situated in the Township of Genoa, County of Livingston, State of Michigan, with the address 2755 Dorr Road, Brighton, Michigan, known as Station 34 more particularly described on Exhibit A, subject to easements, restrictions of record and Genoa township ordinances, to be used as a fire station and related uses. Said real property, including the land and all easements, tenements, improvements and appurtenances therein, is herein called "the Premises."

3. TERM

A. The term of this lease shall be for five (5) years, commencing on ~~October~~ ^{January} 1, 2010 ("commencement date"), and ending on September 30, 2015, ("termination date") unless terminated sooner by either party under the terms of this lease.

B. Provided Lessee is not in default hereof, Lessee and Lessor may by agreement, extend the lease for an additional term as the parties shall so agree (the "Renewal Term"). All terms and conditions contained in this Lease shall apply during such Renewal Term. All references to "term" throughout this Agreement shall include the Initial Term and Renewal Term.

4. USE

Lessee shall not occupy or use, or permit any portion of the premises to be occupied or used, for any business or purpose other than the use as set out in Section 2. Lessee shall not create any nuisance, or commit waste.

5. RENT

Lessee's rent for the Premises shall be one dollar (\$1.00) and Lessee's portion of the maintenance of the Premises as set forth in Section 3 for the Lease Term (and the Renewal Term, if applicable). Lessee shall pay the \$1.00 rent at the beginning of the

Term and again at the beginning of the Renewal Term, if applicable, at Lessor's address as set forth above and shall pay the maintenance expenses as they become due as provided herein.

6. QUIET ENJOYMENT

Lessor hereby warrants that Lessor has the right to lease the premises to Lessee and that the individuals executing this lease are fully authorized to and legally capable of executing this lease on behalf of Lessor. Lessor covenants that Lessee shall, while Lessee is not in default of the terms of this lease, peaceably and quietly hold and enjoy the premises for the lease term, subject to easements, restrictions of record and Genoa Township ordinances, without interference or hindrance from Lessor or persons claiming by or through Lessor.

7. LESSOR'S ACCESS TO THE PREMISES

Provided that the exercise of such rights does not unreasonably interfere with Lessee's use or occupancy of the premises, Lessor shall have the right to enter the premises at reasonable times during normal business hours and upon reasonable advance notice to Lessee (except in the case of an emergency) for the purpose of making alterations, repairs or improvements to the premises, or to show the premises to prospective lessees, and for other reasonably related and lawful purposes.

8. COMPLIANCE WITH LAWS

Lessee shall, at Lessee's expense, perform, or cause to be performed, any alterations, repairs, improvements or replacements related to the use, condition or occupancy of the premises, including, but not limited to, laws relating to design, construction, energy conservation, environmental, fire, health, and safety laws.

Should Lessee fail to comply with any such laws, rules or regulations, Lessor may, at its option, make any such repairs, alterations or replacements and charge the costs incurred to Lessee as additional rent which shall become due and payable upon receipt of written notice by Lessee.

9. ALTERATIONS AND FIXTURES

Lessee and Lessor acknowledge that the Leased Premises is currently configured to accommodate the use intended by Lessee.

A. Installation by Lessee. Lessee may improve the Leased Premises as is reasonably necessary to conduct its operations in the Leased Premises, provided, however, that no such alterations or improvements shall be made unless and until Lessee submits plans and specifications for such improvements/alterations to Lessor and Lessor approves such improvements/alterations in writing at least twenty (20) days prior to the commencement of any such construction. Lessee shall be responsible for

obtaining all necessary governmental permits and approvals (including building permits and certificates of occupancy) required for such construction. For purposes of this Section, alterations and/or improvements shall include, but not be limited to, carpentry work, installation of cabinetry, counter tops, exterior signs, floor covering, interior or exterior lighting, plumbing fixtures, shades, canopies or awnings, changes to the building exterior, mechanical, electrical or sprinkler systems or any other change in the structure or appearance of the Leased Premises. At least twenty (20) days prior to the commencement of any such Alterations, additions or improvements pursuant to this Section, Lessee shall notify Lessor so that Lessor may record and post notices of non-responsibility. Notwithstanding the foregoing, Lessee may, without Lessor's consent, make interior non-structural Alterations in and to the Leased Premises which are consistent in quality, color and decor to any plans and specifications previously approved by Lessor; provided that (a) the cost thereof does not exceed Five Thousand Dollars (\$5,000) during any lease year, and (b) electrical, plumbing and HVAC systems and the building exterior shall be deemed structural for purposes of the foregoing.

B. Removal by Lessee. All Alterations decorations, additions and improvements made by Lessee shall be deemed to have attached to the leasehold and to have become the property of Lessor upon such attachment, and upon expiration of this Lease or any renewal term thereof, Lessee shall not remove any of such alterations, decorations, additions and improvements (hereinafter collectively referred to for purposes of this Section as "Alterations"), except trade fixtures and signs installed by Lessee and personal property of Lessee installed and/or purchased by Lessee after the effective date of this Lease (hereinafter collectively referred to as "Lessee's Property"). All trade fixtures and/or personal property existing on the Premises prior to the effective date of this lease shall be deemed property of Lessor. Lessor, at the expiration of the term, may elect to require Lessee to remove all or any part of Lessee's Property and/or the Alterations made by Lessee, and, in such event, or in the event Lessee elects to remove Lessee's Property, such removal shall be done at Lessee's cost and expense, and Lessee shall, at its cost and expense, repair any damage to the Leased Premises caused by such removal, provided that Lessor may remove such Lessee's Property and/or Alterations, and Lessee shall pay to Lessor Lessor's cost of removal within ten (10) days after the receipt of a bill therefore. In the event Lessor does not so elect or Lessee vacates the Leased Premises without so removing Lessee's Property, such Lessee's Property and/or Alterations, as the case may be, shall become Lessor's property.

10. END OF TERM HOLDOVER

If Lessee remains in possession of the premises at the expiration of the term, or any renewal thereof, Lessee shall be deemed to be occupying the premises as a Lessee from month to month, at the same monthly rental that applied during the last month of the term or any renewal term. In the event of a holdover, Lessee's occupancy of the premises shall be subject to all other provisions of this lease, but only as they are applicable to a month-to-month tenancy.

11. SERVICES

During the term of this Lease, Lessee shall, at its sole cost and expense, supply or arrange for the supply of electricity, heat, water, refuse disposal, telephone, sewer service and other utilities to the Leased Premises and shall pay for the same when due. Lessor shall not be liable to Lessee in damages or otherwise (i) if any utility shall become unavailable from any public utility company, public authority or any other person or entity, (ii) if either the quantity or character of such utility is changed or is no longer suitable for Lessee's requirements, or (iii) for any interruption or failure in a utility service (including, without limitation, any heating, ventilation or air conditioning) caused by the making of any necessary repairs or improvements or by any cause beyond Lessor's reasonable control, and the same shall not constitute a termination of this Lease or an eviction of Lessee, nor shall the Rent abate to any extent whatsoever as a result thereof.

12. MAINTENANCE AND REPAIRS

A. Lessor's Obligations. Lessor shall, at its cost, maintain, repair or replace structural elements and equipment, including exterior and interior walls, roof and roofing, foundation, glass doors, heating, plumbing, (including the computerized components of mechanical, electrical and engineering systems) sidewalks, parking lots, driveways, and like structural elements and equipment.

B. Lessee's Obligations. Lessee shall maintain the premises in a clean, orderly and sanitary condition. Lessee shall, throughout the term, take good care of the premises and fixtures and appurtenances therein, and make all minor and nonstructural repairs thereto as and when needed to preserve the premises in good order and condition. Lessee shall also perform snow removal and maintain the landscaping of the Premises including but not limited to lawn mowing, weeding, mulching of landscape beds, planting of annuals and replacement of dead trees, shrubs and perennials so that the landscaping of the Premises is maintained in its condition at the time of the effective date of this lease. At the expiration or other termination of this lease, Lessee will surrender peaceable possession of the Premises in as good condition as they were at the commencement date, excepting reasonable wear and tear, and damage by fire or other casualty. Lessee shall give Lessor prompt notice of any accident or needed repairs or replacements.

Notwithstanding the above, Lessee shall contract for, in its own name, and shall pay for a qualified service contractor to inspect, adjust, clean and repair heating, ventilating and air conditioning equipment (the "HVAC system"), including changing filters on a quarterly basis (the "quarterly maintenance"). Lessee shall deliver to Lessor a copy of Lessee's current service contract from time to time during the term of this Lease. The service contract must include all services suggested by the equipment manufacturer within the operation/maintenance manual. Lessee shall from time to time upon Lessor's request furnish proof reasonably satisfactory to Lessor that all such

systems and equipment are being serviced in accordance with the maintenance/service contract. So long as Lessee performs its quarterly maintenance obligations of the HVAC system, Lessor shall be responsible for all maintenance and repairs to the HVAC system (other than the quarterly maintenance). If, however, Lessee does not perform its quarterly maintenance obligation as specified above, then upon such failure, all repair and maintenance for the HVAC system shall become Lessee's obligation.

13. ASSIGNMENTS AND SUBLEASES

Lessee agrees not to assign or sublet all or any part of the premises without Lessor's prior written consent, which shall not be unreasonably withheld or delayed. Any unauthorized assignment or subletting of this Lease shall be null and void.

14. INDEMNIFICATION AND HOLD HARMLESS

Lessor and Lessee shall indemnify and save each other harmless from and against any and all liabilities, claims and costs (including reasonable attorney fees, penalties and fines) for death, injury or damages to persons, or property during the term of this lease, arising from (a) any default by each in the performance of its obligations under this lease, or (b) any acts, omissions, or negligence of each party or its agents and employees. If any action or proceeding is brought against the other based upon any such claim, the party at fault shall cause such action to be defended, at its expense, by counsel reasonably satisfactory to the other party. This hold harmless and indemnity shall survive termination of this lease.

15. FORCE MAJEURE

In the event Lessor or Lessee is delayed, hindered or prevented from performing any act or thing required hereunder by reason of strikes, lockouts, labor troubles, casualties, failure or lack of utilities, governmental laws or regulations, riots, insurrection, war, acts of God, or other causes beyond the reasonable control of Lessor or Lessee, neither party shall be liable for the delay, and the period for the performance by either party shall be extended for a period equivalent to the period of such delay. The foregoing shall be inapplicable to the payment of rent by Lessee and to the delivery of the premises by Lessor.

16. HAZARDOUS MATERIALS

Lessee warrants that neither Lessee, nor to Lessee's knowledge, has any third party used, generated, managed, treated or disposed of any regulated or environmentally hazardous substance on, under or about the premises or transported any regulated or environmentally hazardous substance to or from the premises in violation of any state or federal environmental statutes or regulations.

Lessee shall not introduce or cause to be introduced into the Leased Premises or the building located thereon any material or substance that is now or in the future

defined, listed or classified by the Environmental Protection Agency, the Occupational Safety and Health Administration or the National Institute of Safety and Health or any federal, state or local agency having jurisdiction over work place safety or environmental protection or any of their successor agencies or authorities, as a hazardous substance, hazardous waste, toxic substance, toxic waste, pollutant or contaminant (collectively "Hazardous Material"); except, such Hazardous Material as is reasonably necessary for the conduct of Lessee's operations, and in such amounts and in such manner as is in compliance with all applicable federal, state and local statutes and regulations. If, however, Lessee shall introduce or cause to be introduced any Hazardous Material into the Leased Premises or the building, Lessee shall, upon notice of such condition, immediately disclose in person or by telephone and confirm in writing the presence of the Hazardous Material to Lessor and Lessee shall have the duty to remove the Hazardous Material promptly and, any failure of Lessee to immediately remove such hazardous materials shall be a material breach of this Agreement. Lessee shall indemnify and defend Lessor for and hold Lessor harmless from any and all claims, liability, damage or injury in any way relating to or arising out of the Hazardous Material or exposure thereto. The words "claims", "liability", "damage" or "injury" shall include, but not be limited to, any and all liabilities, judgments or costs to comply with injunctive relief or any order of any court or governmental agency or authority, investigation costs, response costs, clean-up costs, remediation costs, costs to defend (including costs of appeal) any claim or proceeding in any way relating to or arising out of the Hazardous Material or exposure thereto and all costs incurred to establish Lessor's right in indemnification and to recover any sums due from Lessee. Lessee's obligation to indemnify, defend and hold Lessor harmless pursuant to this Section 16 shall survive the expiration or earlier termination of this Lease.

17. DESTRUCTION OF THE PREMISES

If during the term of this lease, the premises are destroyed or damaged in whole or in part by fire or other casualty (even if only part of the building other than the premises is damaged), Lessor shall promptly and diligently repair the premises unless the lease is terminated as hereinafter provided.

Within thirty (30) days of the date of such damage, Lessor shall notify Lessee whether or not Lessor will restore the premises, and provide Lessee with Lessor's anticipated time frame for the restoration or that the restoration cannot be completed within a four (4) month period. If the damage renders the premises untenantable for Lessee's intended purposes in whole or in part, and is so extensive that Lessor cannot restore or repair the premises to pre-casualty condition within a period of four (4) months from the date of such fire or other casualty, either party shall have the right to terminate this lease by notice to the other party. In the event the damage, in Lessor's reasonable opinion, can be restored to pre-casualty condition within a period of four (4) months from the date of such fire or other casualty, Lessor shall undertake to restore the premises and the building in a prompt and diligent manner.

18. EMINENT DOMAIN

If any part of the premises shall be taken or condemned by eminent domain or sale in anticipation thereof and renders the premises unsuitable for the business of Lessee, the term of this lease shall cease and terminate as of the date title to the premises vests in the condemning authority. All compensation awarded for any taking under the power of eminent domain, whether for the whole or a part of the premises, shall be the property of the Lessor, whether awarded compensation for diminution in the value of the leasehold or to the fee of the premises or otherwise, and Lessee hereby assigns to Lessor all of the Lessee's right, title and interest in and to any and all such compensation; provided, however, that Lessor shall not be entitled to any award properly belonging to Lessee, including, but not limited to, the taking of Lessee's trade fixtures, furniture or for an award for moving expenses.

19. DEFAULT

Lessor:

If Lessor defaults in the performance of any term, covenant, or condition required to be performed under this lease, Lessee may elect either one of the following:

(a) After not less than thirty (30) days written notice (or such lesser notice as is reasonable in the event of emergency repairs) to Lessor, Lessee may remedy such default by any necessary action, and in connection with such remedy may pay expenses and employ counsel and all sums expended or obligations incurred by Lessee in connection therewith shall be paid by Lessor to Lessee on demand; or

(b) Elect to terminate this lease on giving at least forty-five (45) days notice to Lessor, thereby terminating this lease on the date designated in such notice, unless Lessor shall have cured such default prior to expiration of the forty-five (45) day period.

Lessee:

Upon the nonpayment of the whole or any portion of rent at the time same becomes due and payable, Lessor may declare this lease at an end and recover possession of the premises as if the same were held by forcible detainer, and Lessee does hereby waive notice of such election, or of any demand for the possession of the premises.

If suit is brought to recover possession of the Premises, to recover any rent or any other amount due under the provisions of this Lease, or because of the breach of any other covenant to be performed by Lessee, and a breach is established, then Lessee shall pay to Lessor all expenses incurred in the action, including reasonable attorney fees, which shall be deemed to have been incurred on the commencement of the action and shall be enforceable whether or not the action is prosecuted to judgment.

20. SIGNS

Lessee will be allowed to maintain the sign or letters on the outside of the building that are present at the time of the effective date of this lease. Lessee may add additional or different signs with Lessor approval.

21. RULES AND REGULATIONS

Lessor shall have the right from time to time to prescribe reasonable rules and regulations for Lessee's use of the premises and common areas upon written advance notice to Lessee, and Lessee shall observe and comply with such rules, if any, provided, however, that any such rules and regulations are consistent with the terms and provisions of this lease.

22. NO JOINT VENTURE

Nothing contained herein nor the acts of the parties shall be deemed or construed to create the relationship of principal and agent, partnership, joint venture, or similar relationship or arrangement, it being understood that the relationship between the parties is solely that of Lessor and Lessee.

23. INSURANCE AND WAIVER OF SUBROGATION

A. Lessee's Insurance. Lessee shall, at its sole cost and expense, during the entire term hereof, keep in full force and effect: (i) a policy of commercial general liability and property damage insurance with respect to the Leased Premises, and the operations of Lessee, in which the limits of commercial general liability shall be not less than One Million Dollars (\$1,000,000.00) per occurrence, and in which the limit of property damage liability shall be not less than One Million Dollars (\$1,000,000.00); and (ii) workers' compensation coverage as required by law. From time to time during the term of this Lease, if the limits of such insurance became inadequate due to changes in the cost of living or the size or number of claims being experienced, Lessor and Lessee shall negotiate in good faith for new limits based on industry practice for comparable properties. The policy shall name Lessor, Lessor's lender and Lessee as additional insureds.

B. Property Insurance.

(i) Lessor agrees, during the term hereof, to carry insurance against fire, vandalism, malicious mischief and such other perils as are from time to time included in a standard extended coverage endorsement and, at Lessor's option, special extended coverage endorsements insuring the improvements to the Leased Premises in an amount reasonably determined by Lessor.

(ii) Lessee agrees to carry, at its expense, insurance against fire, vandalism, windstorm, explosion, smoke damage, malicious mischief, and such other perils as are from time to time included in a standard extended coverage endorsement, insuring Lessee's trade fixtures, furnishings, equipment and all

other items of personal property of Tenant located on or within the Leased Premises, in an amount equal to not less than the actual replacement cost thereof and to furnish Landlord with a certificate evidencing such coverage.

C. **Policy Requirements.** The company or companies writing any insurance which Lessee is required to take out and maintain or cause to be taken out or maintained pursuant to this Lease, as well as the form of such insurance shall at all times be subject to Lessor's approval and any such company or companies shall be licensed to do business in the State of Michigan. Each policy evidencing such insurance shall name Lessor as an additional insured and shall also contain a provision by which the insurer agrees that this policy shall not be cancelled except after thirty (30) days' written notice to Lessor. A copy of each paid up policy evidencing such insurance or a certificate of insurance certifying to the issuance of such policy shall be delivered to Lessor prior to commencement of this Lease and upon renewals not less than thirty (30) days prior to the expiration of such coverage.

24. SUCCESSORS AND ASSIGNS

Each of the provisions of this lease shall extend to and shall, as the case may require, bind or inure to the benefit of Lessor and Lessee, and their respective affiliates, legal representatives, successors and assigns.

25. HEADINGS

The titles and headings of this lease are for convenience of reference only and shall not in any way be deemed a part of this lease for the purpose of construing or interpreting the meaning thereof, or for any other purpose.

26. GOVERNING LAW

This lease shall be governed by and construed in accordance with the laws of the State of Michigan.

27. ENTIRE AGREEMENT

This lease contains the entire agreement and understanding between Lessor and Lessee relating to the leasing of the premises and obligations of Lessors and Lessee. This lease supersedes any and all prior or contemporaneous agreements and understandings between Lessor and Lessee, and shall not be modified or amended unless both Lessor and Lessee agree in writing.

28. NOTICES

All notices which are required to be given pursuant to this Agreement shall be in writing and shall be delivered by certified mail, return receipt requested, sent by overnight express or similarly recognized overnight delivery with receipt acknowledged or by

facsimile, with a copy thereof sent by first class mail, postage prepaid, or one of the other means. Notices shall be deemed to have been given at the time delivered and shall be addressed as follows or to such other address as a party may designate by proper notice hereunder:

Lessor:

Genoa Charter Township
2911 Dorr Road
Brighton, MI 48116
Attn: Supervisor

With a copy to:

Frank J. Mancuso, Jr., Esq.
Mancuso & Cameron, P.C.
317 W. Main Street
Brighton, MI 48116

Lessee:

Brighton Area Fire Authority
615 West Grand River
Brighton, MI 48114
Attn: Chief

With a copy to:

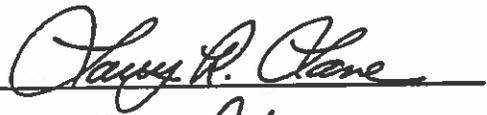
Neal Nielson, Esq.
Neal Nielson & Associates
2000 Grand River Annex
Suite 200
Brighton, MI 48114-3800

IN WITNESS WHEREOF, the parties have executed this lease as of the day and year first above written pursuant to authority granted by their respective Board of Trustees.

LESSOR: Genoa Charter Township

LESSEE: Brighton Area Fire Authority

By: 

By: 

Title: Manager

Title: FIRE CHIEF

Date: 12/7/10

Date: 12-9-10

**EXHIBIT A
Legal Description**

Section 14 T2N R5E beginning SW corner, then North 02 degrees West 1,327.31 feet then North 87 degrees East 50 feet then North 02 degrees West 400 feet then North 87 degrees East 15 feet then North 02 degrees West 315.66 feet then SE'LY along the South row I-96 to the West 1/8th line then South 02 degrees East 1,031 feet then South 87 degrees West 582.39 feet then North 02 degrees West 208.71 feet then South 87 degrees West 208.71 feet then South 02 degrees East 208.71 feet then South 87 degrees West 538.28 feet to point of beginning. Cont. 45.73 AC M/L split 5/94 from 006 & 010.

Tax ID #4711-14-300-022

Commonly known as 2755 Dorr Road, Brighton, MI 48116

LEASE OF 1315 CHILSON ROAD

1. PARTIES

This lease, dated this 9th day of ~~September~~ ^{December}, 2010, is made by and between GENOA CHARTER TOWNSHIP, a municipal corporation, whose address is 2911 Dorr Road, Brighton, MI 48116, (hereinafter called "Lessor"), and the BRIGHTON AREA FIRE AUTHORITY, whose address is 615 West Grand River, Brighton, MI 48114, (hereinafter called "Lessee").

WITNESSETH:

2. PREMISES

In consideration of the mutual covenants and agreements set forth herein, Lessor hereby leases to Lessee and Lessee hereby leases from Lessor certain real property situated in the Township of Genoa, County of Livingston, State of Michigan, with the address 1315 Chilson Road, Howell, MI known as Station 35 more particularly described on Exhibit A, subject to easements, restrictions of record and Genoa township ordinances, to be used as a fire station and related uses. Said real property, including the land and all easements, tenements, improvements and appurtenances therein, is herein called "the Premises."

3. TERM

A. The term of this lease shall be for five (5) years, commencing on ~~October~~ ^{January} 1, 2010 ("commencement date"), and ending on September 30, 2015, ("termination date") unless terminated sooner by either party under the terms of this lease.

B. Provided Lessee is not in default hereof, Lessee and Lessor may by agreement, extend the lease for an additional term as the parties shall so agree (the "Renewal Term"). All terms and conditions contained in this Lease shall apply during any such Renewal Term. All references to "term" throughout this Agreement shall include the Initial Term and Renewal Term, if any.

4. USE

Lessee shall not occupy or use, or permit any portion of the premises to be occupied or used, for any business or purpose other than the use as set out in Section 2. Lessee shall not create any nuisance, or commit waste.

5. RENT

Lessee's rent for the Premises shall be one dollar (\$1.00) and Lessee's portion of the maintenance of the Premises as set forth in Section 3 for the Lease Term (and the Renewal Term, if applicable). Lessee shall pay the \$1.00 rent at the beginning of the

Term and again at the beginning of the Renewal Term, if applicable, at Lessor's address as set forth above and shall pay the maintenance expenses as they become due as provided herein.

6. QUIET ENJOYMENT

Lessor hereby warrants that Lessor has the right to lease the premises to Lessee and that the individuals executing this lease are fully authorized to and legally capable of executing this lease on behalf of Lessor. Lessor covenants that Lessee shall, while Lessee is not in default of the terms of this lease, peaceably and quietly hold and enjoy the premises for the lease term, subject to easements, restrictions of record and Genoa Township ordinances, without interference or hindrance from Lessor or persons claiming by or through Lessor.

7. LESSOR'S ACCESS TO THE PREMISES

Provided that the exercise of such rights does not unreasonably interfere with Lessee's use or occupancy of the premises, Lessor shall have the right to enter the premises at reasonable times during normal business hours and upon reasonable advance notice to Lessee (except in the case of an emergency) for the purpose of making alterations, repairs or improvements to the premises, or to show the premises to prospective lessees, and for other reasonably related and lawful purposes.

8. COMPLIANCE WITH LAWS

Lessee shall, at Lessee's expense, perform, or cause to be performed, any alterations, repairs, improvements or replacements related to the use, condition or occupancy of the premises, including, but not limited to, laws relating to design, construction, energy conservation, environmental, fire, health, and safety laws.

Should Lessee fail to comply with any such laws, rules or regulations, Lessor may, at its option, make any such repairs, alterations or replacements and then charge the costs incurred to Lessee as additional rent which shall become due and payable upon receipt of written notice by Lessee.

9. ALTERATIONS AND FIXTURES

Lessee and Lessor acknowledge that the Leased Premises is currently configured to accommodate the use intended by Lessee.

A. Installation by Lessee. Lessee may improve the Leased Premises as is reasonably necessary to conduct its operations in the Leased Premises, provided, however, that no such alterations or improvements shall be made unless and until Lessee submits plans and specifications for such improvements/alterations to Lessor and Lessor approves such improvements/alterations in writing at least twenty (20) days prior to the commencement of any such construction. Lessee shall be responsible for

obtaining all necessary governmental permits and approvals (including building permits and certificates of occupancy) required for such construction. For purposes of this Section, alterations and/or improvements shall include, but not be limited to, carpentry work, installation of cabinetry, counter tops, exterior signs, floor covering, interior or exterior lighting, plumbing fixtures, shades, canopies or awnings, changes to the building exterior, mechanical, electrical or sprinkler systems or any other change in the structure or appearance of the Leased Premises. At least twenty (20) days prior to the commencement of any such Alterations, additions or improvements pursuant to this Section, Lessee shall notify Lessor so that Lessor may record and post notices of non-responsibility. Notwithstanding the foregoing, Lessee may, without Lessor's consent, make interior non-structural Alterations in and to the Leased Premises which are consistent in quality, color and decor to any plans and specifications previously approved by Lessor; provided that (a) the cost thereof does not exceed Five Thousand Dollars (\$5,000) during any lease year, and (b) electrical, plumbing and HVAC systems and the building exterior shall be deemed structural for purposes of the foregoing.

B. Removal by Lessee. All Alterations decorations, additions and improvements made by Lessee shall be deemed to have attached to the leasehold and to have become the property of Lessor upon such attachment, and upon expiration of this Lease or any renewal term thereof, Lessee shall not remove any of such alterations, decorations, additions and improvements (hereinafter collectively referred to for purposes of this Section as "Alterations"), except trade fixtures and signs installed by Lessee and personal property of Lessee installed and/or purchased by Lessee after the effective date of this Lease (hereinafter collectively referred to as "Lessee's Property"). All trade fixtures and/or personal property existing on the Premises prior to the effective date of this lease shall be deemed property of Lessor. Lessor, at the expiration of the term, may elect to require Lessee to remove all or any part of Lessee's Property and/or the Alterations made by Lessee, and, in such event, or in the event Lessee elects to remove Lessee's Property, such removal shall be done at Lessee's cost and expense, and Lessee shall, at its cost and expense, repair any damage to the Leased Premises caused by such removal, provided that Lessor may remove such Lessee's Property and/or Alterations, and Lessee shall pay to Lessor Lessor's cost of removal within ten (10) days after the receipt of a bill therefore. In the event Lessor does not so elect or Lessee vacates the Leased Premises without so removing Lessee's Property, such Lessee's Property and/or Alterations, as the case may be, shall become Lessor's property.

10. END OF TERM HOLDOVER

If Lessee remains in possession of the premises at the expiration of the term, or any renewal thereof, Lessee shall be deemed to be occupying the premises as a Lessee from month to month, at the same monthly rental that applied during the last month of the term or any renewal term. In the event of a holdover, Lessee's occupancy of the premises shall be subject to all other provisions of this lease, but only as they are applicable to a month-to-month tenancy.

11. SERVICES

During the term of this Lease, Lessee shall, at its sole cost and expense, supply or arrange for the supply of electricity, heat, water, refuse disposal, telephone, sewer service and other utilities to the Leased Premises and shall pay for the same when due. Lessor shall not be liable to Lessee in damages or otherwise (i) if any utility shall become unavailable from any public utility company, public authority or any other person or entity, (ii) if either the quantity or character of such utility is changed or is no longer suitable for Lessee's requirements, or (iii) for any interruption or failure in a utility service (including, without limitation, any heating, ventilation or air conditioning) caused by the making of any necessary repairs or improvements or by any cause beyond Lessor's reasonable control, and the same shall not constitute a termination of this Lease or an eviction of Lessee, nor shall the Rent abate to any extent whatsoever as a result thereof.

12. MAINTENANCE AND REPAIRS

A. Lessor's Obligations. Lessor shall, at its cost, maintain, repair or replace structural elements and equipment, including exterior and interior walls, roof and roofing, foundation, glass doors, heating, plumbing, (including the computerized components of mechanical, electrical and engineering systems) sidewalks, parking lots, driveways, and like structural elements and equipment.

B. Lessee's Obligations. Lessee shall maintain the premises in a clean, orderly and sanitary condition. Lessee shall, throughout the term, take good care of the premises and fixtures and appurtenances therein, and make all minor and nonstructural repairs thereto as and when needed to preserve the premises in good order and condition. Lessee shall also perform snow removal and maintain the landscaping of the Premises including but not limited to lawn mowing, weeding, mulching of landscape beds, planting of annuals and replacement of dead trees, shrubs and perennials so that the landscaping of the Premises is maintained in its condition at the time of the effective date of this lease. At the expiration or other termination of this lease, Lessee will surrender peaceable possession of the Premises in as good condition as they were at the commencement date, excepting reasonable wear and tear, and damage by fire or other casualty. Lessee shall give Lessor prompt notice of any accident or needed repairs or replacements.

Notwithstanding the above, Lessee shall contract for, in its own name, and shall pay for a qualified service contractor to inspect, adjust, clean and repair heating, ventilating and air conditioning equipment (the "HVAC system"), including changing filters on a quarterly basis (the "quarterly maintenance"). Lessee shall deliver to Lessor a copy of Lessee's current service contract from time to time during the term of this Lease. The service contract must include all services suggested by the equipment manufacturer within the operation/maintenance manual. Lessee shall from time to time upon Lessor's request furnish proof reasonably satisfactory to Lessor that all such

systems and equipment are being serviced in accordance with the maintenance/service contract. So long as Lessee performs its quarterly maintenance obligations of the HVAC system, Lessor shall be responsible for all maintenance and repairs to the HVAC system (other than the quarterly maintenance). If, however, Lessee does not perform its quarterly maintenance obligation as specified above, then upon such failure, all repair and maintenance for the HVAC system shall become Lessee's obligation.

13. ASSIGNMENTS AND SUBLEASES

Lessee agrees not to assign or sublet all or any part of the premises without Lessor's prior written consent, which shall not be unreasonably withheld or delayed. Any unauthorized assignment or subletting of this Lease shall be null and void.

14. INDEMNIFICATION AND HOLD HARMLESS

Lessor and Lessee shall indemnify and save each other harmless from and against any and all liabilities, claims and costs (including reasonable attorney fees, penalties and fines) for death, injury or damages to persons, or property during the term of this lease, arising from (a) any default by each in the performance of its obligations under this lease, or (b) any acts, omissions, or negligence of each party or its agents and employees. If any action or proceeding is brought against the other based upon any such claim, the party at fault shall cause such action to be defended, at its expense, by counsel reasonably satisfactory to the other party. This hold harmless and indemnity shall survive termination of this lease.

15. FORCE MAJEURE

In the event Lessor or Lessee is delayed, hindered or prevented from performing any act or thing required hereunder by reason of strikes, lockouts, labor troubles, casualties, failure or lack of utilities, governmental laws or regulations, riots, insurrection, war, acts of God, or other causes beyond the reasonable control of Lessor or Lessee, neither party shall be liable for the delay, and the period for the performance by either party shall be extended for a period equivalent to the period of such delay. The foregoing shall be inapplicable to the payment of rent by Lessee and to the delivery of the premises by Lessor.

16. HAZARDOUS MATERIALS

Lessee warrants that neither Lessee, nor to Lessee's knowledge, has any third party used, generated, managed, treated or disposed of any regulated or environmentally hazardous substance on, under or about the premises or transported any regulated or environmentally hazardous substance to or from the premises in violation of any state or federal environmental statutes or regulations.

Lessee shall not introduce or cause to be introduced into the Leased Premises or the building located thereon any material or substance that is now or in the future

defined, listed or classified by the Environmental Protection Agency, the Occupational Safety and Health Administration or the National Institute of Safety and Health or any federal, state or local agency having jurisdiction over work place safety or environmental protection or any of their successor agencies or authorities, as a hazardous substance, hazardous waste, toxic substance, toxic waste, pollutant or contaminant (collectively "Hazardous Material"); except, such Hazardous Material as is reasonably necessary for the conduct of Lessee's operations, and in such amounts and in such manner as is in compliance with all applicable federal, state and local statutes and regulations. If, however, Lessee shall introduce or cause to be introduced any Hazardous Material into the Leased Premises or the building, Lessee shall, upon notice of such condition, immediately disclose in person or by telephone and confirm in writing the presence of the Hazardous Material to Lessor and Lessee shall have the duty to remove the Hazardous Material promptly and, any failure of Lessee to immediately remove such hazardous materials shall be a material breach of this Agreement. Lessee shall indemnify and defend Lessor for and hold Lessor harmless from any and all claims, liability, damage or injury in any way relating to or arising out of the Hazardous Material or exposure thereto. The words "claims", "liability", "damage" or "injury" shall include, but not be limited to, any and all liabilities, judgments or costs to comply with injunctive relief or any order of any court or governmental agency or authority, investigation costs, response costs, clean-up costs, remediation costs, costs to defend (including costs of appeal) any claim or proceeding in any way relating to or arising out of the Hazardous Material or exposure thereto and all costs incurred to establish Lessor's right in indemnification and to recover any sums due from Lessee. Lessee's obligation to indemnify, defend and hold Lessor harmless pursuant to this Section 16 shall survive the expiration or earlier termination of this Lease.

17. DESTRUCTION OF THE PREMISES

If during the term of this lease, the premises are destroyed or damaged in whole or in part by fire or other casualty (even if only part of the building other than the premises is damaged), Lessor shall promptly and diligently repair the premises unless the lease is terminated as hereinafter provided.

Within thirty (30) days of the date of such damage, Lessor shall notify Lessee whether or not Lessor will restore the premises, and provide Lessee with Lessor's anticipated time frame for the restoration or that the restoration cannot be completed within a four (4) month period. If the damage renders the premises untenable for Lessee's intended purposes in whole or in part, and is so extensive that Lessor cannot restore or repair the premises to pre-casualty condition within a period of four (4) months from the date of such fire or other casualty, either party shall have the right to terminate this lease by notice to the other party. In the event the damage, in Lessor's reasonable opinion, can be restored to pre-casualty condition within a period of four (4) months from the date of such fire or other casualty, Lessor shall undertake to restore the premises and the building in a prompt and diligent manner.

18. EMINENT DOMAIN

If any part of the premises shall be taken or condemned by eminent domain or sale in anticipation thereof and renders the premises unsuitable for the business of Lessee, the term of this lease shall cease and terminate as of the date title to the premises vests in the condemning authority. All compensation awarded for any taking under the power of eminent domain, whether for the whole or a part of the premises, shall be the property of the Lessor, whether awarded compensation for diminution in the value of the leasehold or to the fee of the premises or otherwise, and Lessee hereby assigns to Lessor all of the Lessee's right, title and interest in and to any and all such compensation; provided, however, that Lessor shall not be entitled to any award properly belonging to Lessee, including, but not limited to, the taking of Lessee's trade fixtures, furniture or for an award for moving expenses.

19. DEFAULT

Lessor:

If Lessor defaults in the performance of any term, covenant, or condition required to be performed under this lease, Lessee may elect either one of the following:

(a) After not less than thirty (30) days written notice (or such lesser notice as is reasonable in the event of emergency repairs) to Lessor, Lessee may remedy such default by any necessary action, and in connection with such remedy may pay expenses and employ counsel and all sums expended or obligations incurred by Lessee in connection therewith shall be paid by Lessor to Lessee on demand; or

(b) Elect to terminate this lease on giving at least forty-five (45) days notice to Lessor, thereby terminating this lease on the date designated in such notice, unless Lessor shall have cured such default prior to expiration of the forty-five (45) day period.

Lessee:

Upon the nonpayment of the whole or any portion of rent at the time same becomes due and payable, Lessor may declare this lease at an end and recover possession of the premises as if the same were held by forcible detainer, and Lessee does hereby waive notice of such election, or of any demand for the possession of the premises.

If suit is brought to recover possession of the Premises, to recover any rent or any other amount due under the provisions of this Lease, or because of the breach of any other covenant to be performed by Lessee, and a breach is established, then Lessee shall pay to Lessor all expenses incurred in the action, including reasonable attorney fees, which shall be deemed to have been incurred on the commencement of the action and shall be enforceable whether or not the action is prosecuted to judgment.

20. SIGNS

Lessee will be allowed to maintain the sign or letters on the outside of the building that are present at the time of the effective date of this lease. Lessee may add additional or different signs with Lessor approval.

21. RULES AND REGULATIONS

Lessor shall have the right from time to time to prescribe reasonable rules and regulations for Lessee's use of the premises and common areas upon written advance notice to Lessee, and Lessee shall observe and comply with such rules, if any, provided, however, that any such rules and regulations are consistent with the terms and provisions of this lease.

22. NO JOINT VENTURE

Nothing contained herein nor the acts of the parties shall be deemed or construed to create the relationship of principal and agent, partnership, joint venture, or similar relationship or arrangement, it being understood that the relationship between the parties is solely that of Lessor and Lessee.

23. INSURANCE AND WAIVER OF SUBROGATION

A. Lessee's Insurance. Lessee shall, at its sole cost and expense, during the entire term hereof, keep in full force and effect: (i) a policy of commercial general liability and property damage insurance with respect to the Leased Premises, and the operations of Lessee, in which the limits of commercial general liability shall be not less than One Million Dollars (\$1,000,000.00) per occurrence, and in which the limit of property damage liability shall be not less than One Million Dollars (\$1,000,000.00); and (ii) workers' compensation coverage as required by law. From time to time during the term of this Lease, if the limits of such insurance became inadequate due to changes in the cost of living or the size or number of claims being experienced, Lessor and Lessee shall negotiate in good faith for new limits based on industry practice for comparable properties. The policy shall name Lessor, Lessor's lender and Lessee as additional insureds.

B. Property Insurance.

(i) Lessor agrees, during the term hereof, to carry insurance against fire, vandalism, malicious mischief and such other perils as are from time to time included in a standard extended coverage endorsement and, at Lessor's option, special extended coverage endorsements insuring the improvements to the Leased Premises in an amount reasonably determined by Lessor.

(ii) Lessee agrees to carry, at its expense, insurance against fire, vandalism, windstorm, explosion, smoke damage, malicious mischief, and such other perils as are from time to time included in a standard extended coverage endorsement, insuring Lessee's trade fixtures, furnishings, equipment and all

other items of personal property of Tenant located on or within the Leased Premises, in an amount equal to not less than the actual replacement cost thereof and to furnish Landlord with a certificate evidencing such coverage.

C. **Policy Requirements.** The company or companies writing any insurance which Lessee is required to take out and maintain or cause to be taken out or maintained pursuant to this Lease, as well as the form of such insurance shall at all times be subject to Lessor's approval and any such company or companies shall be licensed to do business in the State of Michigan. Each policy evidencing such insurance shall name Lessor as an additional insured and shall also contain a provision by which the insurer agrees that this policy shall not be cancelled except after thirty (30) days' written notice to Lessor. A copy of each paid up policy evidencing such insurance or a certificate of insurance certifying to the issuance of such policy shall be delivered to Lessor prior to commencement of this Lease and upon renewals not less than thirty (30) days prior to the expiration of such coverage.

24. SUCCESSORS AND ASSIGNS

Each of the provisions of this lease shall extend to and shall, as the case may require, bind or inure to the benefit of Lessor and Lessee, and their respective affiliates, legal representatives, successors and assigns.

25. HEADINGS

The titles and headings of this lease are for convenience of reference only and shall not in any way be deemed a part of this lease for the purpose of construing or interpreting the meaning thereof, or for any other purpose.

26. GOVERNING LAW

This lease shall be governed by and construed in accordance with the laws of the State of Michigan.

27. ENTIRE AGREEMENT

This lease contains the entire agreement and understanding between Lessor and Lessee relating to the leasing of the premises and obligations of Lessors and Lessee. This lease supersedes any and all prior or contemporaneous agreements and understandings between Lessor and Lessee, and shall not be modified or amended unless both Lessor and Lessee agree in writing.

28. NOTICES

All notices which are required to be given pursuant to this Agreement shall be in writing and shall be delivered by certified mail, return receipt requested, sent by overnight express or similarly recognized overnight delivery with receipt acknowledged or by

facsimile, with a copy thereof sent by first class mail, postage prepaid, or one of the other means. Notices shall be deemed to have been given at the time delivered and shall be addressed as follows or to such other address as a party may designate by proper notice hereunder:

Lessor:
Genoa Charter Township
2911 Dorr Road
Brighton, MI 48116
Attn: Supervisor

With a copy to:
Frank J. Mancuso, Jr., Esq.
Mancuso & Cameron, P.C.
317 W. Main Street
Brighton, MI 48116

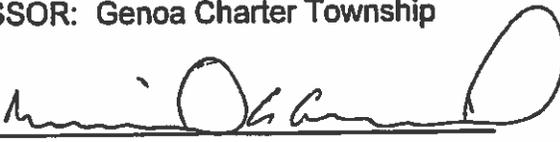
Lessee:
Brighton Area Fire Authority
615 West Grand River
Brighton, MI 48114
Attn: Chief

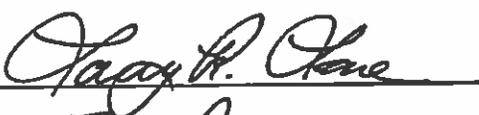
With a copy to:
Neal Nielson, Esq.
Neal Nielson & Associates
2000 Grand River Annex
Suite 200
Brighton, MI 48114-3800

IN WITNESS WHEREOF, the parties have executed this lease as of the day and year first above written pursuant to authority granted by their respective Board of Trustees.

LESSOR: Genoa Charter Township

LESSEE: Brighton Area Fire Authority

By: 

By: 

Title: Manager

Title: FIRE CHIEF

Date: 12/7/10

Date: 12-9-10

EXHIBIT A
Legal Description

Section 7 T2N R5E beginning South 88 degrees 52 minutes 52 seconds West 547.82 feet from East ¼ corner then North 18 degrees, 05 minutes 18 seconds West 809.84 feet to point of beginning then North 18 degrees 05 minutes 18 seconds West 114.45 feet then North 71 degrees 54 minutes 42 seconds East 70 feet then North 18 degrees 05 minutes 18 seconds West 366.96 feet then North 63 degrees 43 minutes 08 seconds East 45 feet then South 60 degrees 17 minutes 34 seconds East 334.83 feet then South 29 degrees 42 minutes 26 seconds West 200 feet then South 60 degrees 17 minutes 34 seconds East 142.34 feet then South 71 degrees 54 minutes 42 seconds West 286.94 feet to point of beginning cont. 2.09 AC split on 08/15/2007 from 4711-07-200-043.

Tax ID #4711-07-200-046

Commonly known as 1315 Chilson Road, Howell, MI 48843

ARTICLES OF INCORPORATION
OF THE
BRIGHTON AREA FIRE AUTHORITY

THESE ARTICLES OF INCORPORATION are adopted by the City of Brighton, the Township of Genoa and the Township of Brighton, each a municipal corporation located in the County of Livingston, State of Michigan, for the purpose of creating, establishing and incorporating an authority under and pursuant to the provisions of Act 57, Public Acts of Michigan, 1988, as amended.

ARTICLE I

NAME AND OFFICE

The name of this Authority shall be and is the "Brighton Area Fire Authority," hereinafter sometimes referred to as the "Authority." The principal office of the Authority shall be located at 615 West Grand River, Brighton, Michigan, or at such other location as may be designated by the Board (as defined in Article VIII herein).

ARTICLE II

DEFINITIONS

The terms "authority," "emergency services," "incorporating municipality," "municipal emergency services," and "municipality," as used in these Articles of Incorporation shall be as now or hereafter defined in Section 1 of Act 57.

Other terms shall have such meaning as may be specified in the various provisions of these Articles of Incorporation.

ARTICLE III

INCORPORATING MUNICIPALITIES

The incorporating and creating municipalities of this Authority are the City of Brighton, the Township of Genoa and the Township of Brighton in the County of Livingston, Michigan, which are hereby designated as the "incorporating municipalities."

ARTICLE IV

PURPOSE

The purpose of this Authority shall be and is to provide fire protection and other emergency health and safety services in accordance with the authorization contained in Act 57, Public Acts of Michigan, 1988, as amended ("Act 57"). The Authority may provide such services within or without its jurisdiction described in Article V hereof as may be authorized pursuant to contract with the Authority by any municipality in accordance with Act 57.

ARTICLE V

POWERS

This Authority shall be a body corporate with power to sue or to be sued in any court in the State of Michigan. Its jurisdiction shall include all of the total territory embraced within the corporate boundaries of its incorporating municipalities as now constituted or as hereafter expanded through annexation, consolidation or change of municipal identity. The Authority shall possess all of the powers now or hereafter granted by Act 57, or by any other applicable statute of the State of Michigan and by these Articles, and those incident thereto. In addition, it shall possess all powers necessary to carry out its purposes and those incident thereto. The enumeration of any powers herein shall not be construed as a limitation upon its general powers unless the context shall clearly indicate otherwise. The Authority may adopt a corporate seal,

and may alter the seal, and use it by causing it or a facsimile thereof to be affixed, impressed, or reproduced in any other manner.

ARTICLE VI

TERM

This Authority shall continue in existence perpetually or until dissolved pursuant to Article XX hereof.

ARTICLE VII

FISCAL YEAR

The fiscal year of the Authority shall commence on the first day of July in each year and shall end on the 30th day of June of the next year.

ARTICLE VIII

GOVERNING BOARD

The Authority shall be directed and governed by a seven-member Board of Trustees, known as the "Brighton Area Fire Authority Board," and hereinafter sometimes referred to as the "Board," which shall be made up of two members selected by the governing body of each incorporating municipality (for a total of six members), each of whom at the time of selection shall be a qualified elector residing within the territorial boundaries of his or her respective incorporating municipality; and one member selected by the other six members who at the time of selection shall be a resident of the territorial area of the Authority at large, which member shall serve as the at-large member of the Board. Except for the at-large member, each member after the first Board shall serve for a full term of four years, beginning with the first day of January next following his or her respective appointment. The at-large member shall serve for a full term of two years, beginning with the first day of January next following his or her

appointment. Each member of the Board shall qualify by taking the constitutional oath of office and filing it with the clerk of his or her respective incorporating municipality or, in the case of the at-large member, with the clerk of the City of Brighton. The members of the first Board shall be selected within twenty (20) days after the effective date of the incorporation of this Authority and the terms thereof shall be staggered as follows: the members selected by the governing body of the City of Brighton shall serve for initial terms of office expiring December 31, 2001; the members selected by the governing body of the Township of Brighton shall serve for initial terms of office expiring December 31, 2002; the members selected by the governing body of the Township of Genoa shall serve for initial terms of office expiring December 31, 2003; and the at-large member shall serve for an initial term of office expiring December 31, 2001. Successor Board members shall be selected on or before the 15th day of December of each year that a term of office expires.

A member of the Board shall not be a member of an emergency services entity of any incorporating municipality at the time the duties of said entity are transferred to or assumed by the Authority. A member of the Board shall not be a member or employee of any emergency service operated by the Authority.

Within thirty (30) days after the effective date of the incorporation of the Authority, the members of the first Board shall qualify by taking the constitutional oath of office and shall meet for the purpose of organization. At such organizational meeting, the Board shall select a Chairperson, a Vice Chairperson and a Secretary, each of whom shall be a member of the Board, and a Treasurer, who may or may not be a member of the Board. At such organization meeting, the Board may also select an Assistant Secretary and an Assistant Treasurer, each of whom shall not be a member of the Board. Such officers shall serve until the organizational meeting of the following year, which shall be held annually on the second Monday of January of each year, or until their respective successors shall be selected and qualify. No selection to the Board and no

selection of an officer of the Board shall be deemed to be invalid because it was not made within or at the time specified in these Articles. Any Board member may be removed at any time for cause or without cause by action of the governing body of the incorporating municipality that such Board member represents; provided, however, that the at-large member may be removed at any time for cause or without cause by action of the other six Board members.

ARTICLE IX

COMPENSATION

The members of the Board shall be compensated at the rate provided in the budget for the Authority for each fiscal year. Each member of the Board shall be entitled to reimbursement for all expenditures made by him or her in carrying out official duties as may be approved by the Board and to the extent authorized by the budget for the Authority for each fiscal year. The Assistant Secretary or the Assistant Treasurer, if any, shall be construed to be a member of the Board even though he or she may not in fact be a member of the Board, for purposes of this Article.

ARTICLE X

VACANCY

In the event of a vacancy on the Board other than the at-large member, the governing body of the incorporating municipality selecting such representative shall fill the vacancy for the unexpired term as expeditiously as possible and in no event to exceed ninety (90) days from the date such vacancy occurs. In the event of a vacancy in the office of the at-large member, the other six members of the Board shall fill the vacancy for the unexpired term as expeditiously as possible and in no event to exceed ninety (90) days from the date such vacancy occurs. In the event of a vacancy in any office of the Board, such vacancy shall be filled by the Board for the unexpired term. In the case of the temporary absence or disability of any officer, the Board may

appoint some person temporarily to act in his or her stead except that in the event of the temporary absence or disability of the Chairperson, the Vice Chairperson shall so act.

ARTICLE XI

MEETINGS

Meetings of the Board shall be held as required and at least quarterly at such time and place as shall be prescribed by resolution of the Board. Each member of the Board shall have one vote. Special meetings of the Board may be called by the Chairperson or any four members thereof, by serving written notice of the time, place and purpose thereof, upon each member of the Board, personally, or by leaving it at his or her place of residence at least twenty-four (24) hours prior to the time of such meeting, or by depositing the same in a United States Post Office or mail box within the limits of the Authority, at least seventy-two (72) hours prior to the time of such meeting, enclosed in a sealed envelope properly addressed to such member at his or her home or office address with postage fully prepaid. Any meeting of the Board shall be held, and any notice therefor shall be given, in accordance with the provisions of Act 267, Public Acts of Michigan, 1976, as amended. Any member may waive notice of any special meeting either before or after the holding thereof. At least a majority of the members of the Board shall be required for a quorum. The Board shall act by motion, resolution or ordinance. A vote of the majority of the members of the Board who are present at any meeting at which a quorum is present and who are authorized to vote on such matters shall be sufficient for passage.

The Board shall have the right to adopt rules governing its procedure which are not in conflict with the terms of any statute of the State of Michigan or of these Articles of Incorporation. The Board shall keep a journal of its proceedings, which journal shall be signed by the Chairperson and open to the public. All votes shall be "Yes" and "No," provided that where the vote is unanimous, it shall only be necessary to so state.

ARTICLE XII

BOARD AND OFFICER DUTIES

The Chairperson of the Board shall be the presiding officer thereof. Except as herein otherwise provided, the Chairperson shall not have any executive or administrative functions other than as a member of the Board. In the absence or disability of the Chairperson, the Vice Chairperson shall perform the duties of the Chairperson. The Secretary shall be the recording officer of the Board. The Treasurer shall be custodian of the funds of the Authority and shall give to it a bond conditioned upon the faithful performance of the duties of his or her office. All moneys shall be deposited in a bank or banks, to be designated by the Board, and all checks or other forms of withdrawal therefrom shall be signed by two persons, which persons shall be the Secretary, the Treasurer or the chief administrative employee of the Authority, or their respective written designees. All authorized signatories shall give a bond conditioned upon the faithful performance of the prescribed duties. The cost of such bonds shall be paid by the Authority. The officers of the Board shall have such other powers and duties as may be conferred upon them by the Board and Act 57.

The Board shall prepare a proposed annual operating and capital budget reflecting the projected revenues and projected expenditures of the Authority for the next fiscal year beginning July 1. The Board shall adopt the proposed budget by a majority vote of the members of the Board in such a manner as to assure submission of the adopted tentative budget to the incorporating municipalities by no later than January 1 of each year. After the submission of the proposed budget to the governing body of each incorporating municipality, the Board shall give final approval to the Authority budget for the next fiscal year; provided, however, that the approval of not less than five Board members shall be required for any budget that reflects a total budget amount that is 10% or more greater than the total amount of the then-current budget.

The accounting and budgeting practices of the Authority shall conform with standard accounting practices, the Uniform Budgeting and Accounting Act, Act 2, Public Acts of Michigan, 1968, as amended, and all other applicable provisions of law. Not later than January 1 of each year, commencing January 1, 2001, the Authority shall prepare and submit to each incorporating municipality a five-year capital improvement plan for the five-year period commencing with the July 1 immediately succeeding each such January 1.

ARTICLE XIII

PROPERTY

The Authority shall possess all the powers necessary to carry out the purposes thereof and those incident thereto. It may acquire property by purchase, lease, gift, devise or condemnation, either within or without its corporate limits, and may hold, manage, control, sell, exchange or lease such property. For the purpose of condemnation, it may proceed under the provisions of Act 149, Public Acts of Michigan, 1911, as now or hereafter amended, Act 87, Public Acts of Michigan, 1980, as now or hereafter amended, or any other appropriate statute.

ARTICLE XIV

CONTRACTS TO PROVIDE EMERGENCY SERVICES

The Authority may enter into a contract with any incorporating municipality for the provision of emergency services in the incorporating municipality, as authorized and provided in Act 57. The Authority may also enter into contracts with a city, village or township that is not an incorporating municipality for the provision of emergency services, as authorized and provided in Act 57. No contracts shall be for a period exceeding thirty (30) years.

ARTICLE XV

TRANSFER OF MUNICIPAL EMERGENCY SERVICES

An incorporating municipality may transfer any municipal emergency service to the Authority by contract.

ARTICLE XVI

FINANCING THE AUTHORITY

A. Financial Contribution From Each Incorporating Municipality.

The incorporating municipalities shall be responsible for the payment of the Authority's total budget amount, excluding projected revenues received or to be received from sources other than the incorporating municipalities, in the following percentages:

City of Brighton	40%
Township of Brighton	40%
Township of Genoa	20%

Each incorporating municipality shall pay to the Authority not less than ¼th of its total calculated financial contribution for each fiscal year on the first day of July, October, January and April of such fiscal year.

The formula set forth in this Article may be changed if approved by resolution of the governing bodies of the incorporating municipalities and the Board.

B. Property Tax Levy by Authority.

Subject to the terms and conditions provided in Section 12 of Act 57, the Authority may levy a tax on all of the taxable property within the limits of the Authority for the purposes provided in Act 57. Such tax, however, shall not be levied without the approval of a majority of

the registered electors residing within the limits of the Authority and qualified to vote and voting on such tax at a general or special election conducted in accordance with the provisions of Act 57.

C. Property Tax Levy by Incorporating Municipality or Municipality Granted Taxing Authority Under State Law.

Any incorporating municipality or a municipality otherwise granted taxing authority under the laws of the State of Michigan may levy a tax on all of the taxable property within the limits of the political subdivision, and appropriate, grant, or contribute the proceeds of the tax to the Authority for the purposes of Act 57 or to provide sufficient money to fulfill its contractual obligation to the Authority.

D. Other Sources of Revenue.

The sources of revenue for financing the Authority specified herein are nonexclusive. The Authority, the incorporating municipalities and any nonincorporating municipalities may provide for their respective financial contributions to the Authority from all other sources of revenue authorized by law.

ARTICLE XVII

COOPERATIVE AGREEMENTS

The Authority may enter into other agreements with any incorporating municipalities and nonincorporating municipalities, pursuant to the Urban Cooperation Act, Act 7, Public Acts of Michigan, 1967, as amended, and Act 33, Public Acts of Michigan, 1951, as amended, for purposes of, among other things, providing emergency services to such incorporating municipalities and nonincorporating municipalities and their residents and raising funds to pay for such services.

ARTICLE XVIII

FINANCING IMPROVEMENTS

The Authority may acquire, construct, purchase, improve, enlarge or extend buildings for the provision of emergency services, and the necessary sites therefor, together with appurtenant properties and facilities necessary or convenient for the effective use thereof, and furnish and equip the same.

The incorporating municipalities and nonincorporating municipalities, if any, shall take whatever action is legally necessary for the purpose of obtaining funds to finance the cost of acquiring, constructing, purchasing, improving, enlarging or extending buildings for the provision of emergency services, and the necessary sites therefor, together with appurtenant properties and facilities necessary or convenient for the effective use thereof, or furnishing or equipping the same, including, but not limited to, any and all action required to establish a joint building authority pursuant to Act 31, Public Acts of Michigan, 1948, as amended. The incorporating municipalities and nonincorporating municipalities, if any, may pledge their full faith and credit toward the repayment of any obligations incurred to obtain funds to finance the cost of the improvements described in this Article.

ARTICLE XIX

WITHDRAWAL OF INCORPORATING MUNICIPALITY

An incorporating municipality may withdraw from the Authority by resolution of the municipality's legislative body approving the withdrawal, a certified copy of which resolution shall be provided to the Board at least 12 months prior to the beginning of a new fiscal year for the Authority. Such new fiscal year shall serve as the effective date for the withdrawal.

A municipality that withdraws from the Authority shall continue to be subject to any tax levied in its jurisdiction under Section 12 of Act 57 for the duration of the period of that tax as determined pursuant to Section 12(3) of Act 57.

A municipality that withdraws from the Authority shall remain liable for a proportion of the debts and liabilities of the Authority incurred while the municipality was a part of the Authority. The proportion of the Authority's debts for which a municipality remains liable as a result of its withdrawal from the Authority shall be determined by dividing the state equalized value of the real property in the municipality by the state equalized value of all real property in the Authority on the effective date of the withdrawal.

Any property owned by the Authority, which is in the possession of the withdrawing municipality or in the possession of personnel who will no longer remain with the Authority as a result of the municipality's withdrawal from the Authority, shall be returned to the Authority before the effective date of the withdrawal. The withdrawing municipality shall not be entitled to the return of any credit for any property or money it transferred to or paid to the Authority prior to the withdrawal.

ARTICLE XX

DISSOLUTION OF AUTHORITY

The Authority may be dissolved by the concurring resolution of the governing body of each incorporating municipality of the Authority at the time of such dissolution. Prior to dissolution of the Authority any outstanding indebtedness of the Authority shall be paid. Any assets of the Authority remaining after the payment of any such outstanding indebtedness shall be distributed to the incorporating municipalities of the Authority at the time of the dissolution based upon each incorporating municipality's most recent financing contribution to the Authority, calculated pursuant to the cost-weighted formula provided in Article XVI herein.

Notwithstanding the foregoing, the Authority shall not be dissolved if such dissolution could or would operate as an impairment in any respect of any of its contractual obligations; provided, however, that the Authority may be dissolved where the outstanding indebtedness of the Authority exceeds the assets of the Authority, if the net indebtedness is assumed and paid by the incorporating municipalities then participating in the Authority based upon each incorporating municipality's most recent financing contribution to the Authority, calculated pursuant to the cost-weighted formula provided in Article XVI herein.

ARTICLE XXI

EMPLOYEES

Subject to the terms and conditions provided in Section 10 of Act 57, the Authority may employ such personnel and employees as it may consider desirable and may retain from time to time the services of attorneys, accountants, and other consultants as the Authority considers necessary to carry out the purpose of the Authority.

Employees of a municipal emergency service whose duties are transferred to the Authority shall be given comparable positions of employment with the emergency service established by the Authority, and shall maintain their seniority status and all benefit rights of the position held with the municipal emergency service before such transfer, subject to the exceptions and provisions of Section 10 of Act 57. The Authority shall have all of the powers provided by Section 10 of Act 57, and be subject to all of the provisions, restrictions, and limitations therein with respect to employment.

ARTICLE XXII

AUDIT

The Board shall cause an annual audit to be made of the books, records and financial transactions of the Authority by a certified public accountant. Three copies of the audit report prepared by the certified public accountant shall be furnished to each incorporating municipality. The books and records of the Authority shall be open for inspection by any incorporating municipality at all reasonable times.

ARTICLE XXIII

FEDERAL OR STATE GRANTS IN AID

The Authority shall have the power to apply for and accept grants, loans, or contributions from the United States of America or any agency or instrumentality thereof, the State of Michigan or other public or private agencies; and to do any and all things necessary or desirable to secure such financial or other aid or cooperation in carrying out any of the purposes of Act 57.

ARTICLE XXIV

INVESTMENT

The Treasurer of the Authority when authorized by resolution of the Board may invest general funds of the Authority. Such investment by the Treasurer shall be made in compliance with the laws of the State of Michigan.

ARTICLE XXV

EXEMPTION FROM TAXATION

The property of the Authority shall be exempt from all taxation and assessment and no writ of attachment or writ of execution shall be levied upon the property of the Authority.

ARTICLE XXVI

PUBLICATION

These Articles shall be published once in the *Livingston County Press*, which newspaper circulates within the territory of the Authority, and in the *Brighton Argus*. One printed copy of such Articles of Incorporation, certified as a true copy thereof, with the dates and places of publication, shall be filed with the Secretary of State within thirty (30) days after the execution thereof has been completed.

The clerk of the City of Brighton, Livingston County, Michigan, is hereby designated as the person to cause these Articles to be published, certified and filed as aforesaid. In the event he or she shall be unable to act or shall neglect to act, then the clerk of any of the other incorporating municipalities shall act in his or her stead.

ARTICLE XXVII

EFFECTIVE DATE

The Authority shall become effective upon the filing of certified copies of these Articles with the Secretary of State, as provided in the preceding Article.

ARTICLE XXVIII

AMENDMENT

These Articles of Incorporation may be amended at any time so as to permit any county, city, village or township to become an incorporating municipality of the Authority, if such amendment to and the Articles of Incorporation are adopted by the legislative body of such county, city, village or township proposing to become a member, and if such amendment is adopted by the legislative body of each incorporating municipality of which the Authority is composed. Other amendments may be made to these Articles of Incorporation at any time if

adopted by the legislative body of each incorporating municipality of which the Authority is composed. Any such amendment shall be endorsed, published, and certified and printed copies thereof filed in the same manner as the original Articles of Incorporation, except that the filed and printed copies shall be certified by the recording officer of the Authority.

ARTICLE XXIX

MISCELLANEOUS

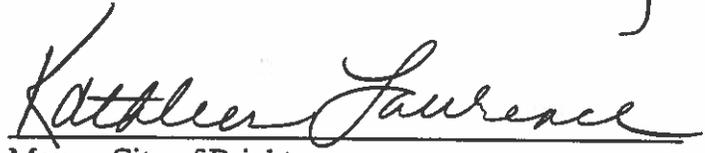
These Articles of Incorporation may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

The captions in these Articles of Incorporation are for convenience only and shall not be considered as part of these Articles of Incorporation or in any way limiting or amplifying the terms and provisions hereof.

These Articles have been adopted by the City of Brighton, the Township of Genoa and the Township of Brighton, as set forth in the following endorsements, and in witness whereof the Mayor and the City Clerk of the City of Brighton, the Supervisor and the Township Clerk of the Township of Genoa and the Supervisor and the Township Clerk of the Township of Brighton have endorsed thereon the statement of such adoption.

ORIGINAL

The foregoing Articles of Incorporation were adopted by city council of the City of Brighton, Livingston County, Michigan, at a meeting duly held on the 4 day of May, 2000.

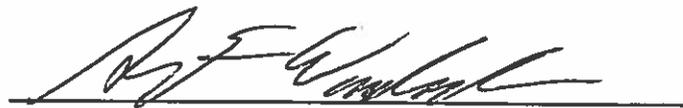


Mayor, City of Brighton



Clerk, City of Brighton

The foregoing Articles of Incorporation were adopted by the township board of the Township of Brighton, Livingston County, Michigan, at a meeting duly held on the day of May 2, 2000.



Supervisor, Township of Brighton



Clerk, Township of Brighton

The foregoing Articles of Incorporation were adopted by the township board of the Township of Genoa, Livingston County, Michigan, at a meeting duly held on the day of May 1, 2000.



Supervisor, Township of Genoa



Clerk, Township of Genoa