

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION PUBLIC HEARING
APRIL 10, 2017
MONDAY
6:30 P.M.
AGENDA**

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

APPROVAL OF AGENDA:

CALL TO THE PUBLIC: *(Note: The Board reserves the right to not begin new business after 10:00 p.m.)*

OPEN PUBLIC HEARING #1...Review of a sketch plan for a proposed 2,000 sq.ft. storage building for Chem-Trend located at 3205 E. Grand River Howell. The request is petitioned by Lindout Associates.

Planning Commission disposition of petition:

A. Disposition of sketch plan. (2-27-17)

OPEN PUBLIC HEARING #2...Review of site plan and impact assessment for a proposed parking lot expansion for Consumer's Energy located at 1000 Grand Oaks Drive, Howell. The request is petitioned by Tyme Consulting Engineering, Inc.

Planning Commission recommendation of petition:

A. Recommendation of impact assessment. (3-21-17)

B. Disposition of site plan. (3-21-17)

OPEN PUBLIC HEARING #3...Review of site plan application and impact assessment for a proposed new 2,360 sq. ft. Lake Trust Credit Union building located on the north side of Grand River, west of Lawson Drive. The property is located within the Lorentzen PUD on parcel #11-09-100-034. The request is petitioned by Lake Trust Credit Union.

Planning Commission recommendation of petition:

A. Recommendation of Impact Assessment (3-21-17)

B. Recommendation of Site Plan (3-21-17)

ADMINISTRATIVE BUSINESS:

- *Staff Report*
- *Approval of March 13, 2017 Planning Commission meeting minutes*
- *Member discussion*
- *Adjournment*



GENOA CHARTER TOWNSHIP APPLICATION
Sketch Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION:

APPLICANT NAME & ADDRESS: Lindhout Assoc., 10465 Citation Dr., Brighton MI, 48116
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Chem-Trend LP, attn: Reid Sparks

SITE ADDRESS: 3205 E. Grand River Ave. PARCEL #(s): 4701-05-100-006

APPLICANT PHONE: (810) 227-5668 OWNER PHONE: 517 546-4520

LOCATION AND BRIEF DESCRIPTION OF SITE: 3205 E. Grand River Ave.

Total parcel = 10.37 Acre, Zoned IND. All existing buildings are
pre-engineered with metal siding.

BRIEF STATEMENT OF PROPOSED USE: New detached accessory storage
building (no hazardous materials).

THE FOLLOWING IMPROVEMENTS ARE PROPOSED: Construct a new 2,000 sq.ft.
pre-engineered metal building for storage. The building will match
the existing buildings on site.

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: John Eckstein RA#43698 Lindhout Associates Architects

ADDRESS: 10465 Citation Dr., Brighton MI 48116

Contact Information - Review Letters and Correspondence shall be forwarded to the following:		
1.) <u>John Eckstein</u>	of <u>Lindhout Associates</u>	at <u>jwe@lindhout.com</u>
Name	Business Affiliation	Email Address

FEE EXCEEDANCE AGREEMENT		
All sketch plans are allocated one (1) consultant review 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 for a Land Use Permit. By signing below, applicant indicates agreement and full understanding of this policy.		
SIGNATURE: <u>[Signature]</u>	DATE: <u>3.3.17</u>	
PRINT NAME: <u>JOHN ECKSTEIN</u>	PHONE: <u>810-227-5668</u>	

March 24, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Assistant Township Manager and Planning Director
Subject:	Chem Trend Storage Building – Sketch Plan Review #1
Location:	3205 E. Grand River Avenue – north side of Grand River, west of Latson Road
Zoning:	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the sketch plan submittal (dated 2/27/17) proposing a new storage building for the Chem Trend property, which is located at 3205 E. Grand River Avenue. The site is zoned IND Industrial District.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. Summary

1. The proposal complies with the dimensional standards of the IND.
2. We request the applicant present the Planning Commission with a building material and color sample board.
3. The proposed building exceeds the 25% limitation on the use of metal siding; however, the Planning Commission has the authority to modify this requirement.

B. Proposal/Process

The applicant requests sketch plan approval for a new storage building in the rear (northeast) corner of the subject site. In accordance with Table 18.2, non-residential accessory buildings require sketch plan review/approval by the Planning Commission.

The proposal entails a new 2,000 square foot storage building, which will replace a smaller existing building.

C. Sketch Plan Review

1. **Dimensional Requirements.** As shown in the table below, the proposal complies with the dimensional standards of the IND:

District	Lot Size		Minimum Setbacks (feet)		Lot Coverage	Max. Height
	Lot Area (acres)	Width (feet)	Side Yard	Rear Yard		
IND	1	150	50	80	40% building 85% impervious	30'
Proposal	1.36	272	115	80	19.7% building 54% impervious	18'



Aerial view of site and surroundings (looking north)

- 2. Building Materials and Design.** The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. Building elevation drawings are found on Sheet A1.00. We request the applicant be prepared to present a material and color sample board at the upcoming meeting.


The proposed building is predominantly metal – siding and roof – with a split-face CMU base around the entire building. Section 12.01.03 limits the use of metal siding to no more than 25% of any wall face visible from the road or parking lot, although the Commission has the discretion to modify this requirement.

In this instance, the Commission could allow a modification given that the main building is clad in metal siding and the proposed building will not be visible from the roadway.

- 3. Exterior Lighting.** The building elevation drawings show 3 wall mounted light fixtures. Detail sheets included with the submittal note the use of downward directed, cut-off LED fixtures, per Ordinance standards.

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 borden@lslplanning.com.

Respectfully,
LSL PLANNING, A SAFE BUILT COMPANY


Brian V. Borden, AICP
Planning Manager



March 16, 2017

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

Re: Chem Trend Sketch Plan Review

Dear Ms. Van Marter:

We have reviewed the sketch plan submittal from Lindhout Associates Architects, dated February 27, 2017. The petitioner is proposing to add a 2,000 square foot storage building in the northwest corner of the site, which is located at 3205 E. Grand River Avenue.

The additional storage building will add approximately 2,000 square feet of impervious area to the site that will need to drain to the on-site detention pond. Due to this increase in site imperviousness, the petitioner should provide updated site drainage calculations to verify their on-site stormwater management system is adequate to accommodate the changes. The grading plan should be shown to clearly indicate where gutters will discharge and how flow will make it into the stormwater management system.

Our review found no additional engineering related impacts to the existing site from the proposed storage facility.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Gary Markstrom'.

Gary J. Markstrom, P.E.
Unit Vice President

A handwritten signature in blue ink, appearing to read 'Marguerite K. Davenport'.

Marguerite Davenport
Project Engineer

Copy: John Eckstein, Lindhout Associates Architects

Tetra Tech

401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetrattech.com



BRIGHTON AREA FIRE AUTHORITY

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

March 15, 2017

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Chem Trend
3205 E. Grand River
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on March 10, 2017 and the drawings are dated February 27, 2017. The project is for the proposed construction of a new 2,000 square foot, Type IIB, S-2 storage out-building to be installed on an existing site.

The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. The minimum required fire flow of 1,500 gpm for the new structure must be achieved. Additionally, the distance from the nearest hydrant exceeds 400 feet. This will require a new fire hydrant be installed on the site. The hydrant shall be located along the north side of the drive between the new and existing building. Additionally, it will aid in achieving the required fire flow for the existing building.

IFC 507.3
IFC 507.5.1

Additional site requirements relating to access will remain in compliance with the fire code.

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.

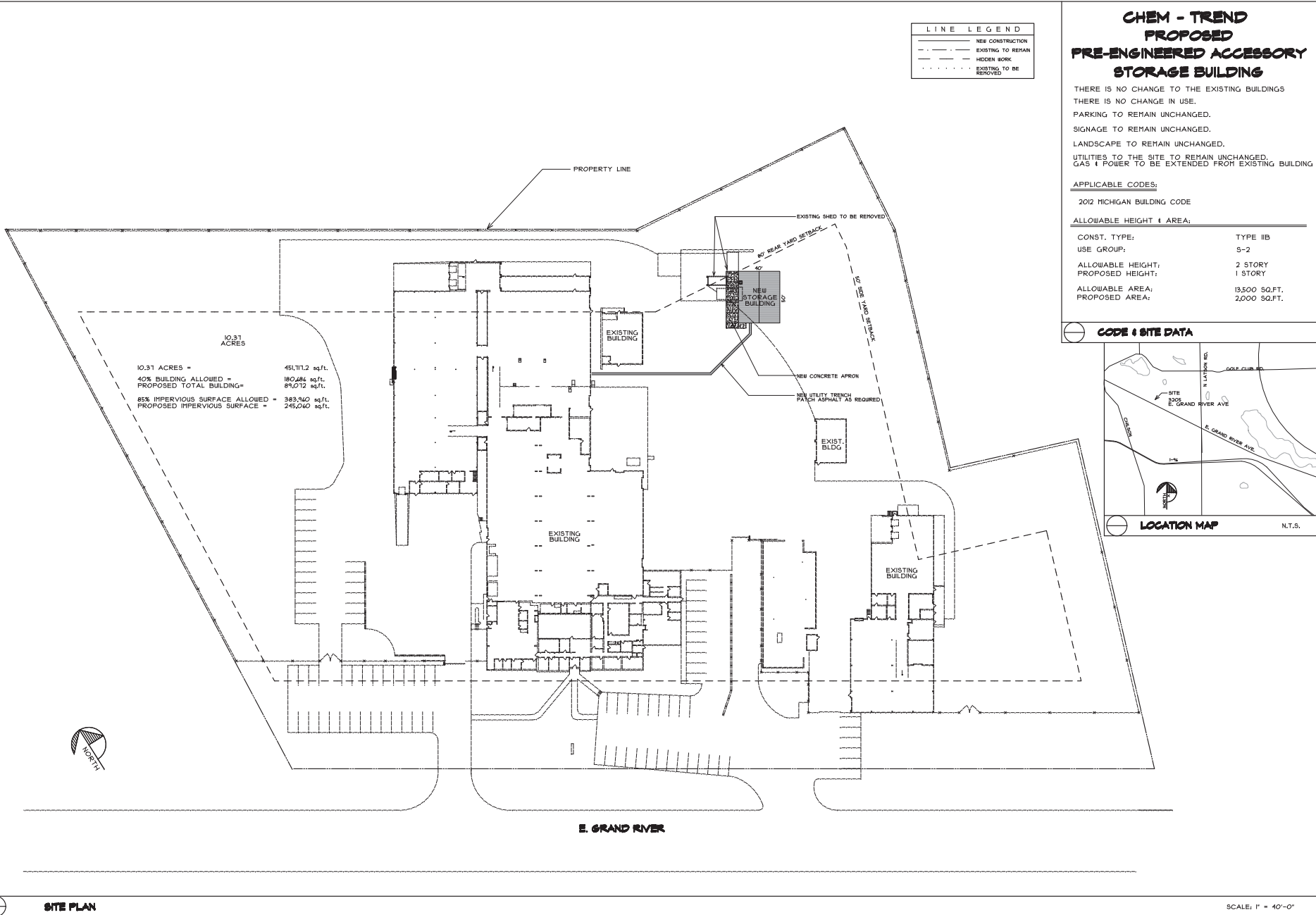
Cordially,

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

Rick Boisvert
Captain – Fire Inspector

DATE PLOTTED: 11-1-2014 11:41:20AM THE PLOTTED FILE NAME: FILE LOCATION: H:\VIZ\ChemTrend\SitePlan.dwg CONSULTANT: Lindhout Associates architects dia pc PROJECT: CHEM TREND STORAGE BUILDING

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CHEM - TREND PROPOSED PRE-ENGINEERED ACCESSORY STORAGE BUILDING

THERE IS NO CHANGE TO THE EXISTING BUILDINGS
 THERE IS NO CHANGE IN USE.
 PARKING TO REMAIN UNCHANGED.
 SIGNAGE TO REMAIN UNCHANGED.
 LANDSCAPE TO REMAIN UNCHANGED.
 UTILITIES TO THE SITE TO REMAIN UNCHANGED.
 GAS & POWER TO BE EXTENDED FROM EXISTING BUILDING

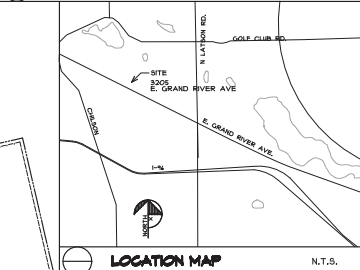
APPLICABLE CODES:

2012 MICHIGAN BUILDING CODE

ALLOWABLE HEIGHT & AREA:

CONST. TYPE:	TYPE IIB
USE GROUP:	S-2
ALLOWABLE HEIGHT:	2 STORY
PROPOSED HEIGHT:	1 STORY
ALLOWABLE AREA:	15,500 SQ.FT.
PROPOSED AREA:	2,000 SQ.FT.

CODE & SITE DATA



Lindhout Associates
architects dia pc
 10455 Station Ave. Brighton, Michigan 48116-8610
 www.lindhout.com (610)227-5668 fax: (610)227-5655

CONSULTANT

SKETCH PLAN REVIEW
DATE: 11/1/14

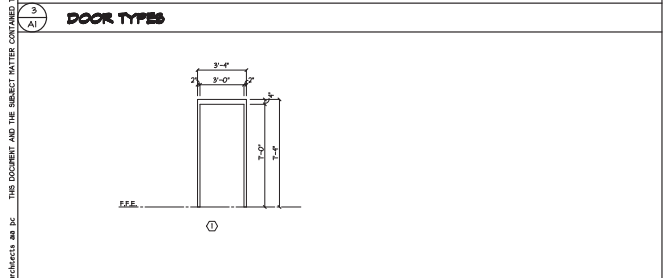
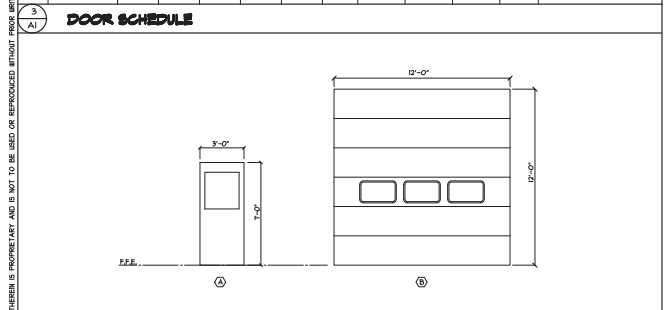
DATE: 11/1/14
 11/1/14
 11/1/14

STORAGE FOR:
Chem Trend
 GENOA TWP., MICHIGAN
SITE PLAN

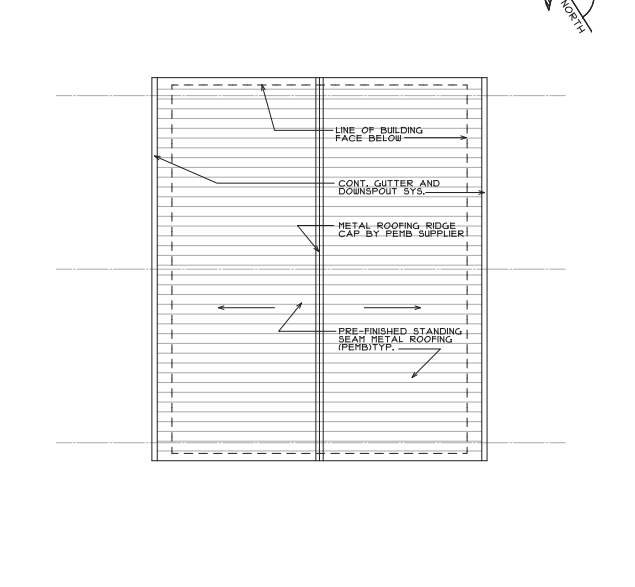
SITE PLAN

SCALE: 1" = 40'-0"

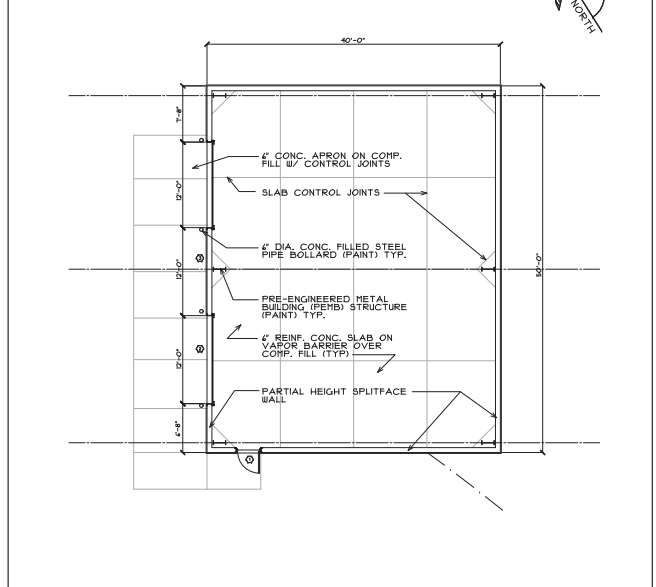
DOOR #	DOOR SIZE	DOOR			FRAME			DETAILS			HDL. SET	REMARKS
		TYPE	MAT.	FIN.	TYPE	MAT.	FIN.	HEAD	JAMB	SILL		
01	3'-0" x 7'-0"	A	SLK	FT.	1	SLK	FT.					
02	12'-0" x 12'-0"	B	STL	FACTORY								
03	12'-0" x 12'-0"	B	STL	FACTORY								



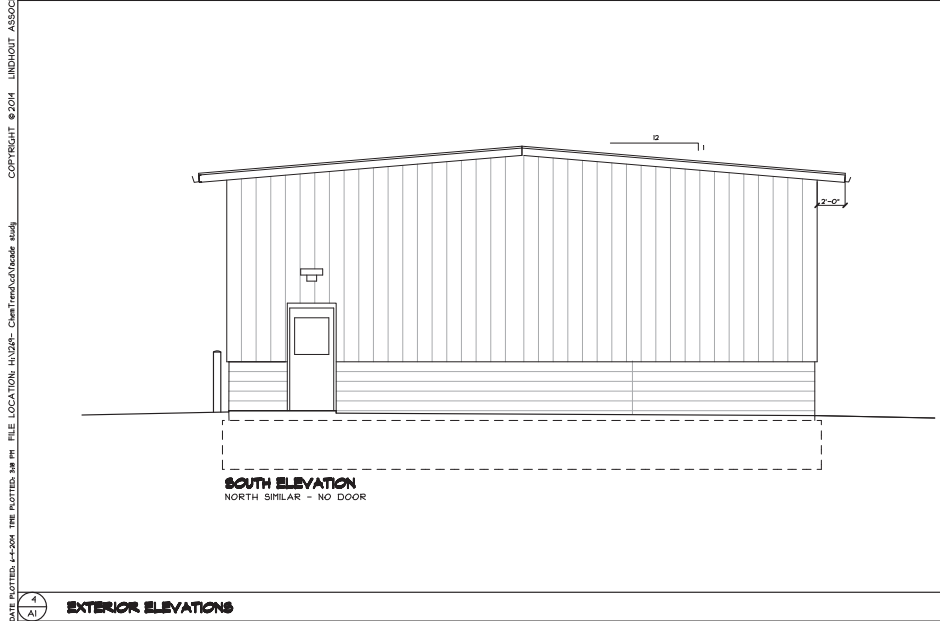
DOOR FRAME



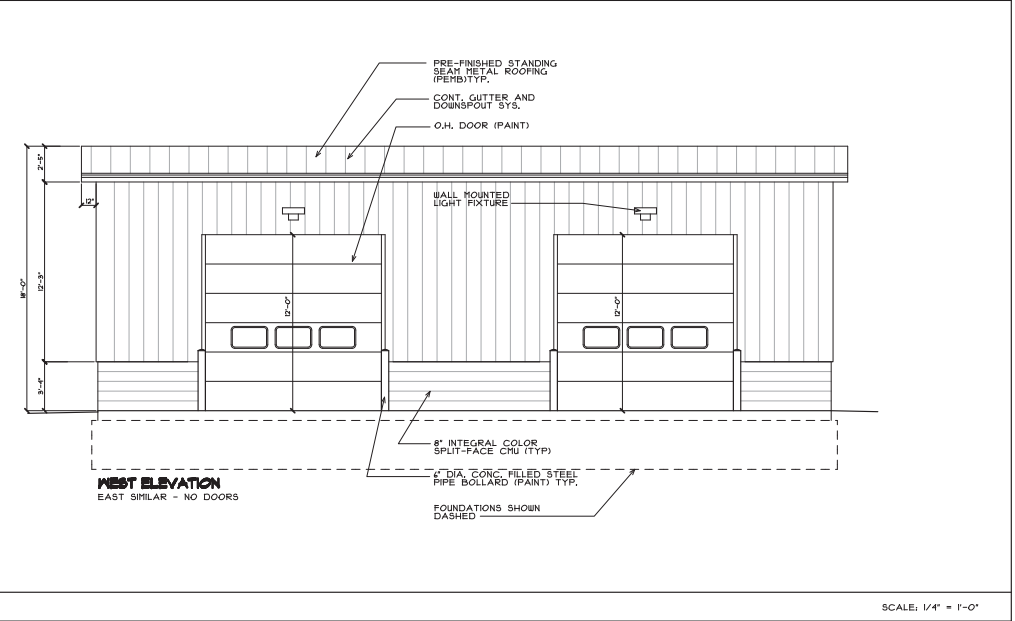
ROOF PLAN SCALE: 1/8" = 1'-0"



FLOOR PLAN SCALE: 1/8" = 1'-0"



EXTERIOR ELEVATIONS SCALE: 1/4" = 1'-0"



EXTERIOR ELEVATIONS SCALE: 1/4" = 1'-0"

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Lindhout Associates
architects aia pc
10465 station ave. birmingham, al 35214-9510
www.lindhout.com (810)227-5668 fax (810)227-5655


consultant

DESIGNED BY: [blank]
CHECKED BY: [blank]
DATE: [blank]
APP'D BY: [blank]

STORAGE BUILDING for:
Chem Trend
GENOA TWP., RICHMOND
FLR. PLAN/ ELEV. STUDY

A1.00
16075



Submitted by K/E Electric Supply Corporation		Catalog Number:	Type:
	Job Name: CHEM TREND	DSXW2 LED 30C 1000 40K TFTM 277 PE SF DBLXD	K



D-Series Size 2 LED Wall Luminaire



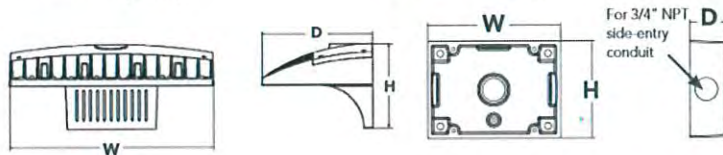
d-series

Specifications Luminaire

Width:	18-1/2" (47.0 cm)	Weight:	21 lbs (9.5 kg)
Depth:	10" (25.4 cm)		
Height:	7-5/8" (19.4 cm)		

Back Box (BBW)

Width:	5-1/2" (14.0 cm)	BBW Weight:	1 lbs (0.5 kg)
Depth:	1-1/2" (3.8 cm)		
Height:	4" (10.2 cm)		



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

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

DSXW2 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options
DSXW2 LED	20C 20 LEDs (two engines)	350 350 mA 530 530 mA 700 700 mA	30K 3000 K 40K 4000 K 50K 5000 K	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium	MVOLT ¹ 120 ¹ 208 ¹ 240 ¹ 277 ¹ 347 ² 480 ²	Shipped included (blank) Surface mounting bracket	Shipped installed PE Photoelectric cell, button type ⁴ PER NEMA twist-lock receptacle only (no controls) DMG 0-10V dimming driver (no controls) DCR Dimmable and controllable via ROAM [®] (no controls) ⁵ PIRH 180° motion/ambient light sensor, 15-30' mtg ht ⁴ PIRH1FC3V Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1ft ⁷ PIRH1FC3V Motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1ft ⁷
	30C 30 LEDs (three engines)	1000 1000 mA (1A)	AMBPC Amber phosphor converted	TFTM Forward Throw Medium ASYDF Asymmetric diffuse		Shipped separately ³ BBW Surface-mounted back box (for conduit entry)	

Other Options	Finish (required)
Shipped installed	
SF Single fuse (120, 277, 347V) ⁴	DBLXD Black
DF Double fuse (208, 240, 480V) ⁴	DNAXD Natural aluminum
HS House-side shield ³	DWHXD White
SPD Separate surge protection ⁹	DSSXD Sandstone
	DDBTXD Textured dark bronze
	DBLXD Textured black
	DNATXD Textured natural aluminum
	DWHXD Textured white
	DSSTXD Textured sandstone

Accessories

Ordered and shipped separately.

DL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ⁸
DL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ⁸
DL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ⁸
SC U	Shorting cap ¹⁰
DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXWZIG U	Wire guard accessory
DSXWVG U	Vandal guard accessory
DSXWBBW	Back box accessory
DDBXD U	(Specify finish)

NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- Available with 30 LED/700mA options only (DSXW2 LED 30C 700). DMG option not available.
- Also available as a separate accessory; see Accessories information.
- Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
- Specifies a ROAM[®] enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347V, 480V or PIRH. Additional hardware and services required for ROAM[®] deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net.
- Specifies the Sensor Switch SBGR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell) or DCR. Dimming driver standard.
- PIR and PIRH1FC3V specify the Sensor Switch SBGR-10-ODP control; PIRH and PIRH1FC3V specify the Sensor Switch SBGR-6-ODP control; see Motion Sensor Guide for details. Dimming driver standard. Not available with PERS or PER7. Ambient sensor disabled when ordered with DCR. Separate on/off required.
- Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- See the electrical section on page 2 for more details.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	3K					4K					5K					AMBER				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
(20 LEDs)	360mA	29W	T2S	2,783	1	0	1	111	2,989	1	0	1	120	3,007	1	0	1	120	1,720	1	0	1	69
			T2M	2,708	1	0	1	108	2,908	1	0	1	116	2,926	1	0	1	117	1,673	1	0	1	67
			T3S	2,748	1	0	1	110	2,951	1	0	1	118	2,970	1	0	1	119	1,688	0	0	1	68
			T3M	2,793	1	0	1	112	2,999	1	0	1	120	3,018	1	0	1	121	1,726	1	0	1	69
			T4M	2,756	1	0	1	110	2,959	1	0	1	118	2,978	1	0	1	119	1,703	0	0	1	68
			TFIM	2,754	1	0	1	110	2,957	1	0	1	118	2,975	1	0	1	119	1,701	0	0	1	68
	530mA	36W	T2S	4,029	1	0	1	112	4,327	1	0	1	120	4,354	1	0	1	121	1,698	0	0	1	68
			T2M	3,920	1	0	1	109	4,210	1	0	1	117	4,236	1	0	1	118	1,726	1	0	1	69
			T3S	3,979	1	0	1	111	4,272	1	0	1	119	4,299	1	0	1	119	1,720	1	0	1	69
			T3M	4,044	1	0	1	112	4,342	1	0	2	121	4,369	1	0	2	121	1,701	0	0	1	68
			T4M	3,980	1	0	1	111	4,284	1	0	1	119	4,311	1	0	1	120	1,703	0	0	1	68
			TFIM	3,986	1	0	1	111	4,281	1	0	1	119	4,307	1	0	1	120	1,673	1	0	1	67
	700mA	47W	T2S	5,130	1	0	1	109	5,509	1	0	1	117	5,544	1	0	1	118	2,473	1	0	1	69
			T2M	4,991	1	0	1	105	5,360	1	0	1	114	5,388	1	0	2	115	2,406	1	0	1	67
			T3S	5,066	1	0	1	108	5,440	1	0	1	116	5,474	1	0	1	116	2,442	1	0	1	68
			T3M	5,148	1	0	2	110	5,528	1	0	2	118	5,563	1	0	2	118	2,482	1	0	1	69
			T4M	5,080	1	0	1	108	5,455	1	0	1	116	5,489	1	0	2	117	2,449	1	0	1	68
			TFIM	5,076	1	0	1	108	5,450	1	0	1	116	5,484	1	0	2	117	2,447	1	0	1	68
	1000mA	74W	T2S	7,148	1	0	1	97	7,675	1	0	1	104	7,723	1	0	1	104	3,030	1	0	1	66
			T2M	6,954	1	0	2	94	7,457	1	0	2	101	7,514	2	0	2	102	2,977	1	0	1	63
			T3S	7,068	1	0	1	95	7,579	1	0	1	102	7,626	1	0	2	103	3,021	1	0	1	64
			T3M	7,173	1	0	2	97	7,702	1	0	2	104	7,750	1	0	2	105	3,070	1	0	1	65
			T4M	7,077	1	0	2	95	7,599	1	0	2	103	7,647	1	0	2	103	3,029	1	0	1	64
			TFIM	7,071	1	0	2	95	7,593	1	0	2	103	7,641	1	0	2	103	3,027	1	0	1	64
(30 LEDs)	360mA	36W	T2S	4,160	1	0	1	116	4,467	1	0	1	124	4,495	1	0	1	125	2,573	1	0	1	103
			T2M	4,047	1	0	1	112	4,346	1	0	1	121	4,373	1	0	1	121	2,503	1	0	1	100
			T3S	4,107	1	0	1	114	4,411	1	0	1	123	4,438	1	0	1	123	2,541	1	0	1	102
			T3M	4,174	1	0	1	116	4,482	1	0	2	125	4,511	1	0	2	125	2,582	1	0	1	103
			T4M	4,119	1	0	1	114	4,423	1	0	1	123	4,450	1	0	1	124	2,547	1	0	1	102
			TFIM	4,115	1	0	1	114	4,419	1	0	1	123	4,447	1	0	1	124	2,545	1	0	1	102
	530mA	54W	T2S	6,001	1	0	1	111	6,444	1	0	1	119	6,485	1	0	1	120	2,573	1	0	1	71
			T2M	5,839	1	0	1	108	6,270	1	0	2	116	6,309	1	0	2	117	2,503	1	0	1	70
			T3S	5,926	1	0	1	110	6,363	1	0	1	118	6,403	1	0	1	119	2,541	1	0	1	71
			T3M	6,022	1	0	2	112	6,467	1	0	2	120	6,507	1	0	2	121	2,582	1	0	1	72
			T4M	5,942	1	0	1	110	6,381	1	0	2	118	6,420	1	0	2	119	2,547	1	0	1	71
			TFIM	5,937	1	0	1	110	6,375	1	0	2	118	6,415	1	0	2	119	2,545	1	0	1	71
	700mA	71W	T2S	7,609	1	0	1	107	8,170	1	0	1	115	8,221	2	0	2	116	3,666	1	0	1	68
			T2M	7,402	1	0	2	104	7,949	2	0	2	112	7,999	2	0	2	113	3,596	1	0	1	67
			T3S	7,513	1	0	1	105	8,088	1	0	2	114	8,118	1	0	2	114	3,649	1	0	1	68
			T3M	7,635	1	0	2	108	8,199	1	0	2	115	8,250	2	0	3	116	3,709	1	0	2	69
			T4M	7,533	1	0	2	106	8,089	1	0	2	114	8,140	1	0	2	115	3,669	1	0	1	68
			TFIM	7,527	1	0	2	106	8,083	1	0	2	114	8,133	1	0	2	115	3,665	1	0	1	68
	1000mA	109W	T2S	10,468	2	0	2	95	11,241	2	0	2	103	11,311	2	0	2	104	4,569	1	0	1	64
			T2M	10,184	2	0	2	93	10,936	2	0	2	100	11,004	2	0	2	101	4,436	1	0	2	62
			T3S	10,336	1	0	2	95	11,069	1	0	2	102	11,169	2	0	2	102	4,502	1	0	1	63
			T3M	10,505	2	0	3	95	11,280	2	0	3	103	11,351	2	0	3	104	4,575	1	0	2	64
			T4M	10,364	1	0	2	95	11,129	1	0	2	102	11,199	2	0	2	103	4,514	1	0	2	64
			TFIM	10,365	1	0	2	95	11,120	2	0	2	102	11,190	2	0	2	103	4,510	1	0	1	64

Note:
Available with phosphor-converted amber LED's (nomenclature AMBPC). These LED's produce light with 97+% > 530 nm.
Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric UAs.



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.98

Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120V	208V	240V	277V	347V	480V
20C	360	25W	0.23	0.13	0.12	0.10	-	-
	530	36W	0.33	0.19	0.17	0.14	-	-
	700	47W	0.44	0.25	0.22	0.19	-	-
	1000	74W	0.68	0.39	0.34	0.29	-	-
30C	360	36W	0.33	0.19	0.17	0.14	-	-
	530	54W	0.50	0.29	0.25	0.22	-	-
	700	71W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109W	1.01	0.58	0.50	0.44	-	-

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the DSXW2 LED 30C 1000 platform in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

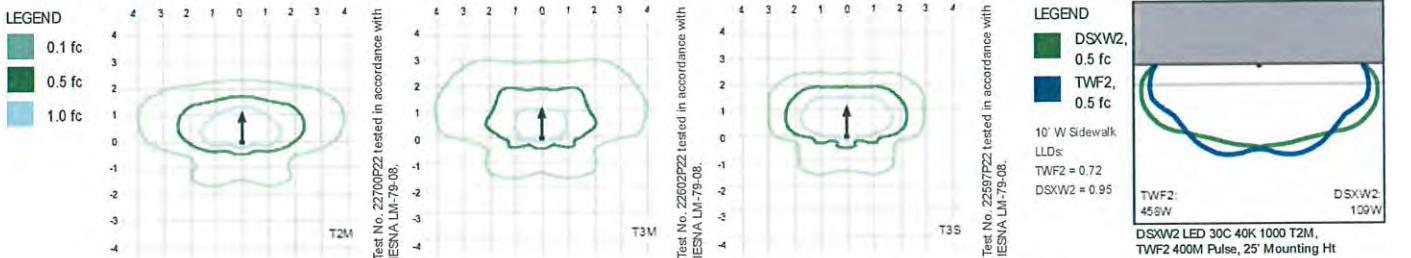
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.92	0.87

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 2 homepage.

Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65).

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000 K (70 min. CRI), 4000 K (70 min. CRI) or 5000 K (70 min. CRI) configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficiency LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 2.5kV surge rating. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.





GENOA CHARTER TOWNSHIP
Application for Site Plan Review

RECEIVED

By Kelly VanMarter at 4:09 pm, Mar 21, 2017

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Michael D. Stieler, P.E.; TYME Consulting Engineers, Inc., 32121 Schoolcraft Road, Livonia, MI 48150

If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Todd Grondin, CMS Energy, 1000 Grand Oaks Drive, Howell, MI 48843

SITE ADDRESS: 1000 Grand Oaks Drive, Howell, MI 48843 PARCEL #(s): (N/A)

APPLICANT PHONE: (734) 744-5125 OWNER PHONE: 616-485-6480

OWNER EMAIL: todd.grondin@cmsenergy.com

LOCATION AND BRIEF DESCRIPTION OF SITE: Consumers Energy Howell Service Center
1000 Grand Oaks Drive, Howell, MI 48843

This is a current Consumer's Energy Service Center.

BRIEF STATEMENT OF PROPOSED USE: Consumers Energy Service Center

THE FOLLOWING BUILDINGS ARE PROPOSED: No new buildings, the improvements are for the
addition of approximately 15 parking spaces.

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: Michael D. Stieler, P.E., TYME Consulting Engineers, Inc.

ADDRESS: 32121 Schoolcraft Road, Livonia, MI 48150

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

1.) Michael D. Stieler, P.E. of TYME Consulting Engineers, Inc. at michaels@tymeengineering.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.

Digitaly signed by Michael D. Stieler, P.E.
DN: cn=Michael D. Stieler, P.E., o=TYME Engineering, Inc., ou=Project
Manager, email=michaels@tymeengineering.com, c=US
Date: 2017.02.22 11:17:21 -0500

SIGNATURE: Michael D. Stieler, P.E. DATE: 02/22/2017
PRINT NAME: Michael D. Stieler, P.E. PHONE: 734-74-5125
ADDRESS: TYME Consulting Engineers, Inc. 32121 Schoolcraft Road, Livonia, MI 48150



March 24, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Consumers Energy – Site Plan Review #1
Location:	1000 Grand Oaks Drive – west side of Grand Oaks, south of Grand River Avenue
Zoning:	IND Industrial District

Dear Commissioners:

At the Township’s request, we have reviewed the site plan (dated 3/9/17) proposing a parking lot expansion and new impervious surfacing for the existing Consumers Energy Howell Service Center.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance and provide the comments below for your consideration.

A. Summary

1. Given the relatively limited scope of the project, a new special land use approval is not required.
2. All dead and/or diseased plantings required as part of the 2009 site plan approval must be replaced.
3. As a result of the 2009 approval, the applicant was to combine the multiple parcels that comprise this site; however, it is our understanding that this has not yet occurred.
4. The applicant must obtain approvals for work within the water main and County drain easements.

B. Proposal/Process

The applicant requests site plan review and approval for 9 new parking spaces off the northerly drive aisle accessing the site. The project also entails new paved surfacing for “heavy duty” trucks.

The overall project received special land use and site plan approval in 2009. Given the relatively limited scope of the project, the applicant only needs site plan review (as opposed to a new special land use review).

As such, Planning Commission has review and approval authority over the site plan, although the Environmental Impact Assessment will be subject to review and approval by the Township Board (following a recommendation by the Planning Commission).



Aerial view of site and surroundings prior to Phase I development (looking north)

C. Site Plan Review

1. Dimensional Requirements. As described in the table below, the project complies with the applicable dimensional standards of the IND:

District	Lot Size		Parking Setbacks	Lot Coverage
	Lot Area (acres)	Width (feet)		
IND	1	150	20' front 10' side/rear	85% impervious
Proposal	18.5	531	50' front 45' side (N)	16.3% impervious

2. Parking. Based on our 2009 review, the project required 83 parking spaces, while 85 were provided. The additional 9 spaces proposed remain within the amount of parking allowed by Ordinance.

The proposed parking spaces, drive aisles and number of barrier free spaces all meet or exceed the requirements of Article 14.

4. Landscaping. The proposal includes 2 new canopy trees, ornamental grasses, decorative ground cover and 2 deciduous shrubs in front of the existing parking lot in between the two drive aisles.

Additionally, based on discussion with staff it is our understanding that much of the landscaping approved as part of the 2009 site plan has died. Section 12.02.11 requires that dead or diseased trees be replaced.

5. Impact Assessment. The submittal includes a new Impact Assessment (dated April 2017), which notes that the proposed project is not expected to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

6. Additional Considerations. Based on discussion with Township staff, it was brought to our attention that the 2009 approval included a condition that the multiple parcels comprising this site be combined. It is our understanding that this has not yet occurred.

The project also includes work within easements for a County drain and water main. The applicant must obtain the necessary approvals for such activities.

Genoa Township Planning Commission

Consumers Energy

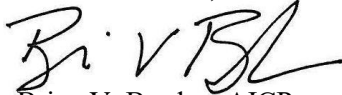
Site Plan Review #1

Page 3

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 borden@lsplanning.com.

Respectfully,

LSL PLANNING, A SAFE BUILT COMPANY

A handwritten signature in black ink, appearing to read "B. V. Borden". The signature is stylized and cursive.

Brian V. Borden, AICP

Planning Manager



April 4, 2017

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

Re: Consumers Energy Site Plan Review

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the TYME Engineering submittal dated March 9, 2017, for the Consumers Energy Howell Service Center Parking Lot Expansion. The applicant is proposing to expand/improve several parking areas on the site located at 1000 Grand Oaks Drive. Our review comments are summarized below.

SUMMARY

1. Storm detention calculations are required.
2. Proposed expansions are within public utility easements.

SITE PLAN

1. The percent of impervious area for the site is increasing in the proposed parking lot expansions. Stormwater and detention calculations should be provided to verify the existing detention ponds will meet the total storage required with the additional impervious areas.
2. Two expansion areas, 3 and 4, occur within a public easement for water main or storm sewer. The applicant should note these areas may require excavation at the discretion of the utility for maintenance and/or repair.

The petitioner should revise and resubmit the site plan to address the above comments prior to approval.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Gary Markstrom'.

Gary J. Markstrom, P.E.
Unit Vice President

A handwritten signature in blue ink, appearing to read 'Marguerite K. Davenport'.

Marguerite K. Davenport
Project Engineer

copy: Michael D. Stieler, P.E., TYME Consulting Engineers, Inc.



BRIGHTON AREA FIRE AUTHORITY

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

March 28, 2017

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Consumers Energy - Parking Lot expansion
1000 Grand Oaks Dr.

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on March 22, 2017 and the drawings are dated March 9, 2017. The project is for the installation of new parking within the parameters of the existing lot. There is no planned building construction in the scope of this project. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

The fire authority has no objection to the submitted plan. There is no effect on emergency vehicle access or fire protection within the scope of this project. The fire authority would like to remind the applicant that access roads may not be obstructed by construction materials, equipment or vehicles at any time during the the construction process.

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".

Capt. Rick Boisvert, CFPS
Fire Inspector



TYME Consulting Engineers, Inc.
32121 Schoolcraft Road
Livonia, Michigan 48150
P: 248.522.0300
F: 248.522.0308
connect@tymeengineering.com

Impact Statement

Consumers Energy

Existing Howell Service Center

Parking Lot Expansion Project

SW $\frac{1}{4}$ Section 5

Genoa Township, Livingston County, MI

Engineers Project Number 28909602

April 2017

RECEIVED

By Kelly VanMarter at 4:08 pm, Mar 21, 2017



This Impact Statement is an Amendment to the original Impact Statement submitted in 2009 for the development of the site. The original Impact Statement is attached to this document for reference.

1.0 Preparer

This Impact Assessment has been prepared by MR. Michael Stieler, P.E. of TYME Consulting Engineers, Inc. Mr. Stieler has 30 years of experience in civil engineering and is a licensed Professional Engineer in the State of Michigan.

2.0 Location

This subject site is the current Consumers Energy Howell Service Center located at 1000 Grand Oaks Drive, Howell, Michigan 48843.

3.0 Impact on Natural Features

None. The proposed parking lot expansions are adjacent to existing paved areas. Minimal disturbance will be made to the site.

4.0 Impact on Stormwater Management

None. The proposed parking lot expansions are within the limits and areas of the current stormwater systems. The small amount of added paved surface will not adversely impact the existing stormwater system.

5.0 Impact on Surrounding Land Uses

None. The proposed parking lot expansions are within the limits of the existing site; there will be no impacts on any of the surrounding land.

6.0 Impact on Public Facilities and Services

None. The proposed parking lot expansions are within the limits of the existing site, there will be no impact on public facilities and services.

7.0 Impact on Public Utilities

None. The proposed parking lot expansions are within the limits of the existing site, there will be no impact on public utilities.

8.0 Storage and Handling of Any Hazardous Materials

None. The proposed parking lot expansion work will not produce any hazardous materials.

9.0 Traffic Impact Study

Not required. The proposed parking lot expansion work will require the need for a Traffic Impact Study.

10.0 Historic and Cultural Resources

The proposed parking lot expansion work is within the existing site, no historic or cultural resources will be affected.

11.0 Special Provisions

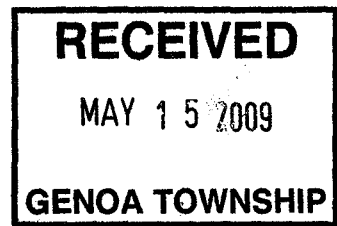
None. There are no deed restrictions or restrictive covenants on this site and it is not subject to any master deeds or association bylaws.

12.0 Sources

Original Impact Statement submitted in 2009 for the development of the site.

13.0 Previous Impact Assessments

The original Impact Statement submitted in 2009 for the development of the site (attached).



Impact Statement

Consumers Energy Proposed Howell Service Center SW ¼ Section 5 Genoa Township, Michigan

**Engineers Project No. 09037
March 2009
May 2009**



Sidock Group, Inc.

ENGINEERS • ARCHITECTS • CONSULTANTS • PROJECT MANAGERS

CONSUMERS ENERGY
PROPOSED HOWELL SERVICE CENTER
SW ¼ SECTION 5
GENOA TOWNSHIP, MICHIGAN

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Appendices

- Appendix A Figures**
- Appendix B Well Logs**
- Appendix C Endangered Species Assessment**

1.0 Preparer

This Impact Assessment has been prepared by Ms. Carrie Rivette, P.E. and Mr. Bill Frazier, P.E. of Sidock Group, Inc. Ms. Rivette has 15 years experience in civil and environmental engineering and Mr. Frazier has 32 years experience in civil and structural engineering. Both are licensed Professional Engineer in the State of Michigan.

2.0 Location

The subject site is the proposed Consumers Energy Howell Service Center. The site consists of 18.48 acres situated in the southwest ¼ of Section 5 of Genoa Township, Michigan. The site survey, prepared by Rowe, is presented in Appendix A.

As shown on the survey, the only structures located on the site are drainage structures on the eastern portion of the site. A drainage ditch extends from the central portion of the site to wetlands on the northwestern portion of the site.

An aerial photograph of the site prepared by Wetland Coastal Resources is presented in Appendix A. Site access is provided by Grand Oaks Drive to the east. Livingston County Hockey Association borders the site to the north and Burkhart Products, Inc. borders the site to the south. No structures are apparent within 100 feet of the western property boundary.

3.0 Impact on Natural Features

The Consumers Service Center site is being developed to provide minimal impact on the wetlands that are located on the site. The proposed buildings are all located near Grand Oaks Ave in order to reduce building in the large area of wetlands that are located at the west end (back area) of the site. There is currently a small area of wetland located within the building and parking area that was created when the county drain outlet was constructed. This area is approximately .29 acres and will be filled. This area will be mitigated with a new .5 acre wetland constructed at the rear of the site adjacent to the existing wetlands. Delineated and impacted wetlands and proposed mitigation area are depicted on Figure 3 in Appendix A. In addition, an application for the wetlands mitigation has been submitted to the MDEQ on behalf of Consumers Energy by King & MacGregor Environmental, Inc. of Grand Rapids, Michigan.

Approximately five (5) acres in the northwestern portion of the site are heavily wooded. Only the eastern 65 feet of the wooded area is expected to be impacted by the project as shown on Figure 3 in Appendix A. No mature trees (trunk greater than 8" in diameter) are situated in this area.

Well logs for the properties to the north and south of the subject site are included in Appendix B. As shown on the logs, groundwater in the area is situated approximately 170 to 180 feet below grade in shale. Both logs indicate layers of sand and clay above the shale. Soils at the site are depicted on the well logs in Appendix B and also shown on Figure 1 in Appendix A.

The only surface water at the site is an approximately 60-foot long channel that was created by the discharge from the county drain on the site.

According to the endangered species assessment tool on the Michigan Department of Natural Resources website, "No unique natural features are known to occur" at or near the subject site. A copy of the information is presented in Appendix C. During the site reconnaissance, only indications of typical woodland wildlife were noted.

4.0 Impact on Stormwater Management

Currently, groundwater at the site, in addition to stormwater from the area, discharges to the wetlands in the northwestern portion of the site.

Figure 3 in Appendix A depicts the proposed changes to the stormwater collection system at the site. The county drain will be relocated to run along the southern boundary of the site and then run diagonally across the site to drain into the same wetland that it currently drains. The new outlet will be approximately 500 feet south of the existing outlet.

Water, sanitary sewer and site utilities will be accessed along Grand Oaks Ave. and this construction will not impact the existing wetlands.

Site drainage has been designed in accordance with Livingston County Drain Commissioner standards. Areas adjacent to and north of the service center building will drain directly to a first flush basin. The first flush basin is sized to accommodate the first half inch of rainfall and allow the sediment, etc. to settle out. From the first flush basin the water will drain over a spillway into a detention basin. This basin has been sized to reduce the 2 and 10 year flows to below predeveloped conditions and the 100 year storm to discharge at .2 CFS per acre of drainage area.

All other areas of the developed site will be collected into a storm sewer that will discharge to a first flush basin. From this basin the storm water will flow over a spillway into a detention basin. This basin has also been sized to reduce the 2 and 10 year flows to below predeveloped conditions and the 100 year storm to discharge at .2 CFS per acre of drainage area.

During construction erosion control measures will be in place in accordance with the Drain Commissioner standards to protect the wetlands from sediment. All

disturbed areas will be seeded and sloped areas will have erosion control blankets to protect the seeded areas until vegetation has been established.

5.0 Impact on Surrounding Land Uses

The subject site is intended for use by Consumers Energy as a regional service center to service its natural gas customers in the Howell and Brighton area. The site must be relocated from its current location due to the Latson Road interchange planned by the Michigan Department of Transportation.

Site activities will consist of offices for customer inquiries and service calls, truck storage and an equipment maintenance garage. The office area will operate from 7 am to 4 pm, with indoor lighting estimated to be from 7 am to 5 pm.

The outdoor operations are 24 hours a day to provide emergency services. Outdoor lighting will be via photo cell. All outdoor lighting will be dark sky compliant.

Given that the only noise generated at the site will be from vehicle traffic and repairs inside the garage, noise levels at the property boundaries will meet the required maximum of 65 decibels.

The proposed structures will be one-story in height and will not obstruct views or sunlight from neighboring properties.

The future land use map included in Genoa Township's Master Plan is presented in Appendix A. As shown on the map, the site is currently intended for Industrial use. Current Zoning is also industrial. As such, the proposed site usage conforms to zoning and the Master Plan.

During construction, water will be utilized as need to control dust emissions at the site. During hot, dry weather conditions, site evaluation for water application will be evaluated more often. In addition, dust will be swept from paved areas where it collects to prevent additional dust emissions.

6.0 Impact on Public Facilities and Services

Site employees will consist of 24 primarily office employees and 40 employees associated with maintenance and response. An estimated 5 visitors per day are expected.

Given that the operations are moving from one area of the township to another, there will be no significant impact on schools, recreation, police, fire or emergency services.

7.0 Impact on Public Utilities

The site will be connected to municipal water and sanitary sewer. Current line sizing in the area is adequate to accommodate the site for both water and sanitary sewer.

Given the connection to municipal water, no additional water conditioning will be performed at the site.

Stormwater handling is as noted above in Section 4.0

8.0 Storage and Handling of Any Hazardous Materials

The only hazardous materials that will be utilized onsite are thermostats, AA and D batteries, used oil and anti freeze. The thermostats are encased in a Ziploc bag and then stored in 55 gallon drums until there is significant quantity for disposal. Used oil and anti-freeze is stored in a double-walled 250-gallon aboveground storage tank. The tank is pumped out by a licensed waste hauler for offsite disposal. Spent batteries are sent to a recycling facility. Storage, handling and disposal of hazardous materials at the site will meet all applicable State, Federal and local regulatory requirements.

9.0 Traffic Impact Study

Traffic at the site will consist of 24 workers and visitors that will arrive and leave during potentially peak hours (from 7 am to 5 pm). The remaining 40 maintenance and response workers and 5 visitors will be distributed throughout the day. As such, there will be less than 50 trips in any given hour, and peak hours will not generate an excess of more than 50 directional trips per hour. As such, impact on the surrounding roads will be negligible and a Traffic Impact Assessment or Statement is not required.

10.0 Historic and Cultural Resources

No structures will be demolished as a result of this project. As such, no historic or cultural resources will be affected.

11.0 Special Provisions

There are no deed restrictions or restrictive covenants on the site and it is not subject to any master deeds or association bylaws.

12.0 Sources

Figure 1 in Appendix B is the survey performed by Rowe in 2008.

Figure 2 in Appendix B was taken from the February 27, 2009 wetland report by King & MacGregor Environmental, Inc.

The Future Land Use Map in Appendix A was taken from the Master Plan, Genoa Charter Township, Livingston County, Michigan, Adopted by the Genoa Township Planning Commission, May 22, 2006, Adopted by the Genoa Township Board, June 19 2006.

13.0 Previous Impact Assessments

No previous Impact Assessment has been performed for the subject site.

LEGAL DESCRIPTIONS AS PROVIDED

THE NORTH 1/4 OF SECTION 1, TOWNSHIP 35N, RANGE 3E, SECTION 1, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY AS FOLLOWS: COMMENCED AT THE SOUTH 1/4 CORNER OF SAID SECTION 1; THENCE NORTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING.

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LEGAL DESCRIPTIONS AS SURVEYED

COMMENCED POINT:
PART OF THE SOUTHWEST 1/4 OF SECTION 1, TOWNSHIP 35N, RANGE 3E, SECTION 1, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY AS FOLLOWS: COMMENCED AT THE SOUTH 1/4 CORNER OF SAID SECTION 1; THENCE NORTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89° 00' 00" WEST 100.00 FEET TO THE POINT OF BEGINNING.

GENERAL NOTES

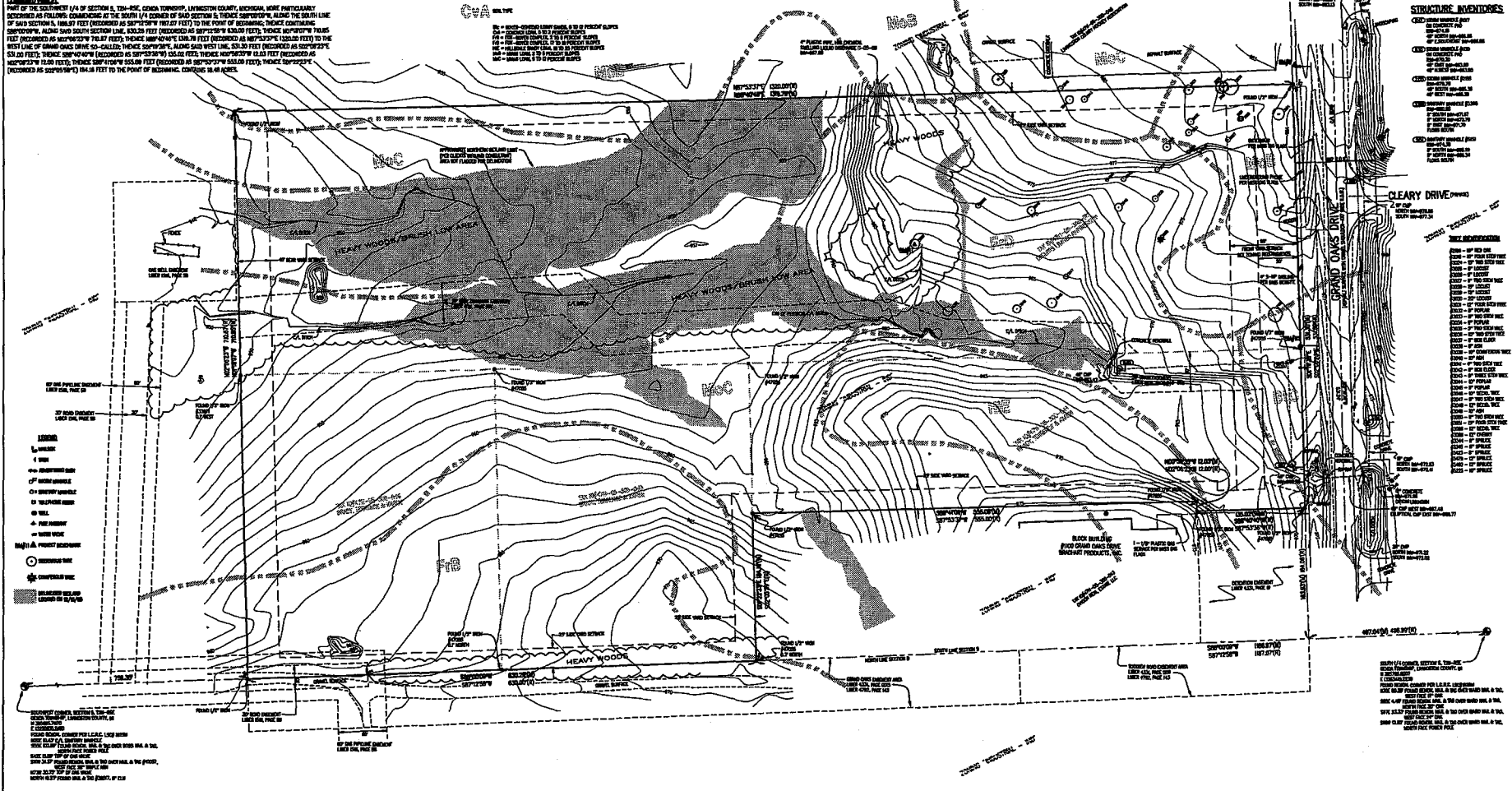
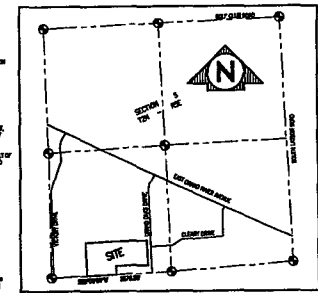
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10. THE PLANNING ENGINEER HAS CONDUCTED VISUAL INSPECTIONS OF THE PROPERTY AND HAS DETERMINED THAT THE PROPERTY IS SUITABLE FOR THE PROPOSED DEVELOPMENT.

LEGEND

- 1. 1" = 100' SCALE
- 2. 1" = 100' SCALE
- 3. 1" = 100' SCALE
- 4. 1" = 100' SCALE
- 5. 1" = 100' SCALE
- 6. 1" = 100' SCALE
- 7. 1" = 100' SCALE
- 8. 1" = 100' SCALE
- 9. 1" = 100' SCALE
- 10. 1" = 100' SCALE

GENERAL NOTES

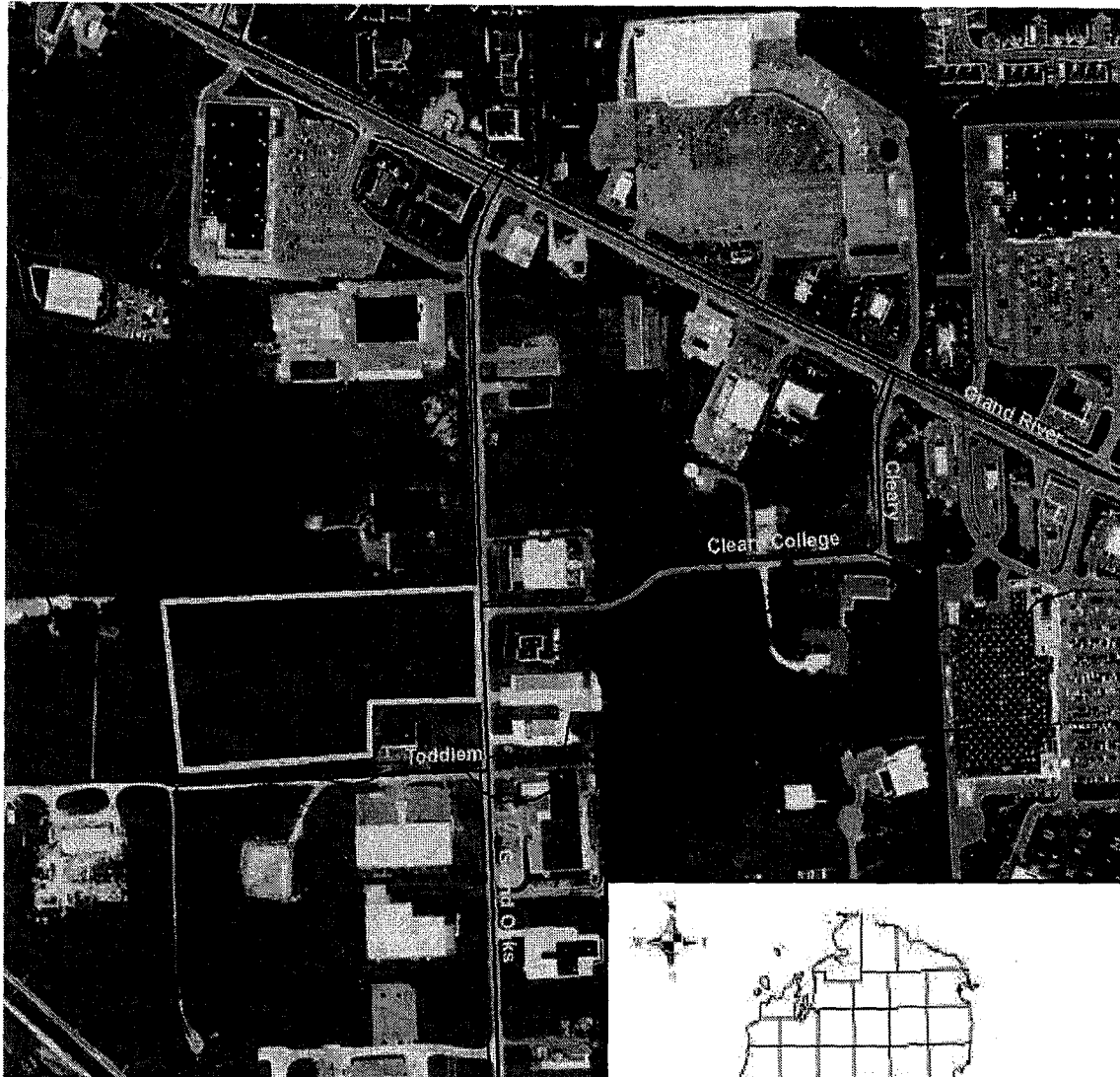
1. THE PLANNING ENGINEER HAS CONDUCTED VISUAL INSPECTIONS OF THE PROPERTY AND HAS DETERMINED THAT THE PROPERTY IS SUITABLE FOR THE PROPOSED DEVELOPMENT.
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DRAWING NO.	REFERENCE DRAWING	REV.	DATE	DESCRIPTION	BY	APP.	REV. DATE	DESCRIPTION
		A	12/19/09	ADDED EASEMENTS	J.P.			
		B	12/17/09	WOODED AREA CONTOURS AND WETLAND AREAS	J.P.			

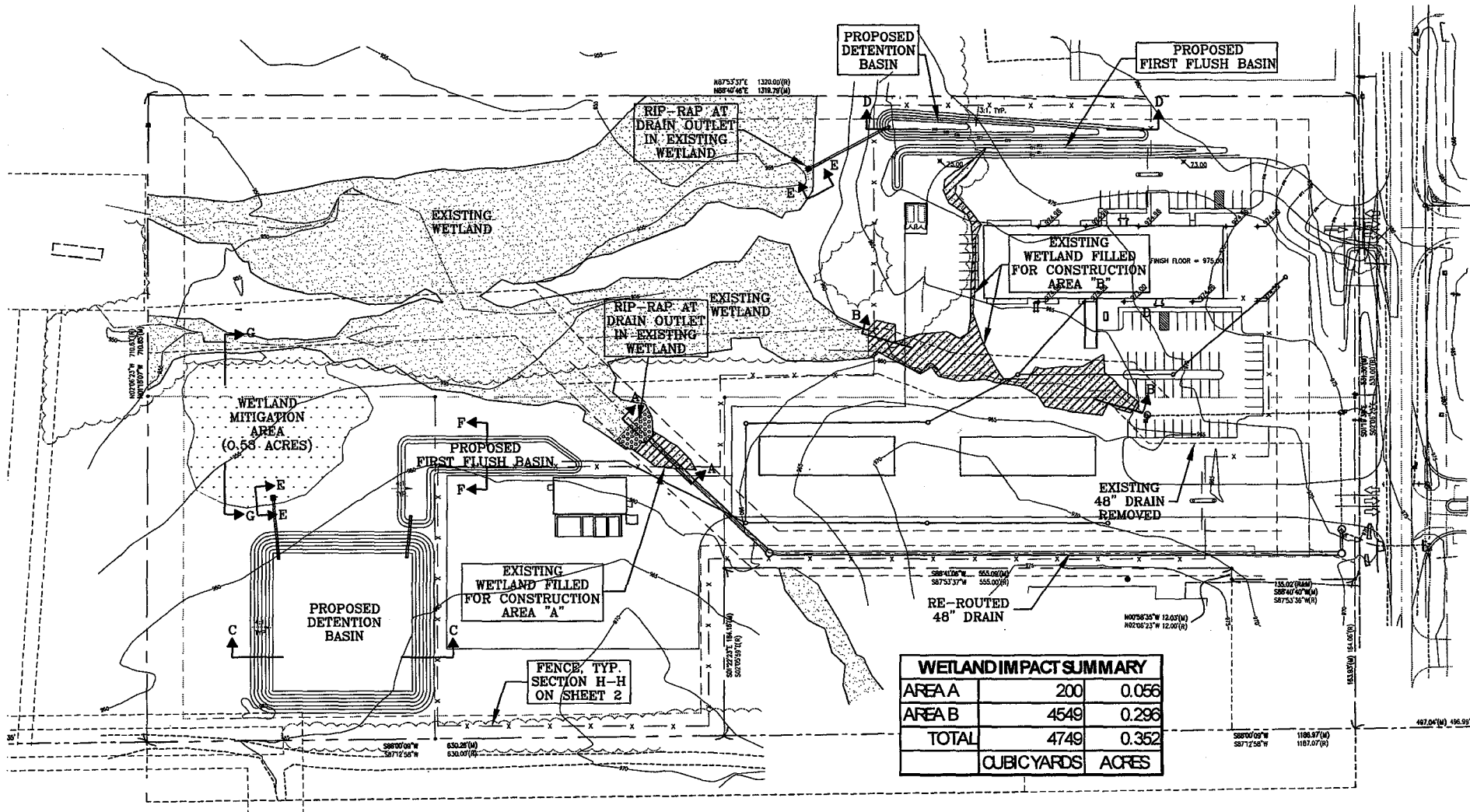
DATE: 11/17/09	BY: J. P. WOODS	APP.: [Signature]
DATE: 11/17/09	BY: J. P. WOODS	APP.: [Signature]
DATE: 12/17/09	BY: J. P. WOODS	APP.: [Signature]

LIVINGSTON COUNTY SERVICE CENTER
 WO# 1000X286
 SCALE: 1" = 50'
 SHEET 1 OF 1
 CONSUMERS ENERGY



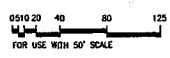
Site Location Map

	<p>Wetland and Coastal Resources, Inc. 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Consumers Energy Wetland Delineation</p>	<p>FIGURE NO 2</p>
--	---	--	-------------------------------



WETLAND IMPACT SUMMARY		
AREA A	200	0.056
AREA B	4549	0.296
TOTAL	4749	0.352
	CUBIC YARDS	ACRES

PROPOSED SITE PLAN
SCALE: 1"=50'



















Sidock Group, Inc.
DESIGNERS • ARCHITECTS • CONSULTANTS • PROJECT MANAGERS

300 W. 10th St., Suite 200 • Des Moines, IA 50319 • Phone: 515-281-1111 • Fax: 515-281-1112

Job Number 09037	File Name PLAN1	Sheet 3	Last Drawn 9/26/09	By EPJ
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Map 9 Future Land Use

Genoa Township
Livingston County, MI

-  AGRICULTURE/COUNTRY ESTATE - 5 acres per unit
-  LARGE LOT RURAL RESIDENTIAL - 2 acres per unit
-  LOW DENSITY RESIDENTIAL - 1 acre per unit
-  SMALL LOT SINGLE FAMILY RESIDENTIAL - 2 to 3 units per acre
-  MEDIUM DENSITY RESIDENTIAL - 5 units per acre
-  HIGH DENSITY RESIDENTIAL - 8 units per acre
-  MANUFACTURED HOUSING
-  NEIGHBORHOOD COMMERCIAL
-  GENERAL COMMERCIAL
-  REGIONAL COMMERCIAL
-  MIXED-USE TOWN CENTER
-  OFFICE/RESEARCH
-  INDUSTRIAL
-  PLANNED INDUSTRIAL
-  PUBLIC/QUASI PUBLIC
-  PRIVATE RECREATION

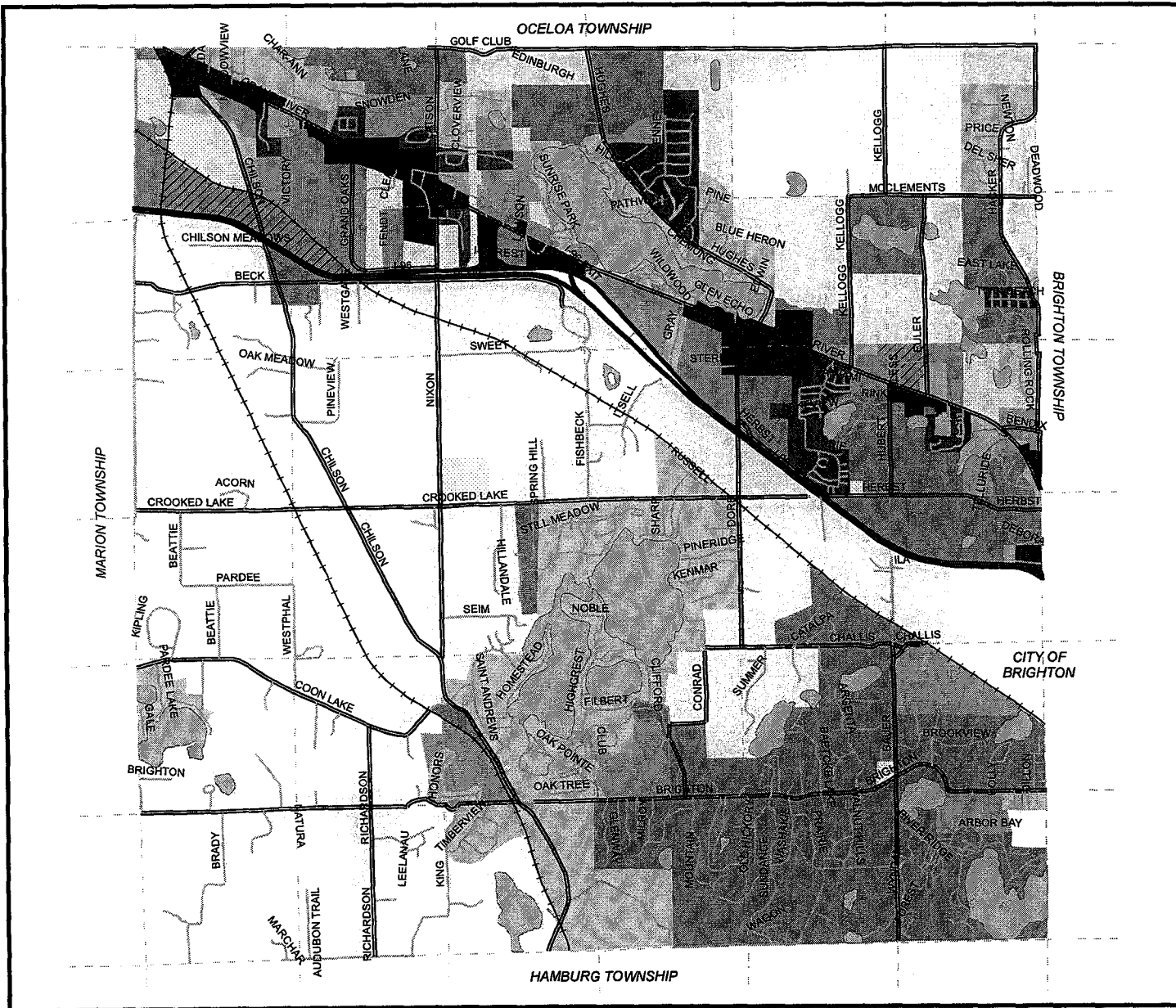
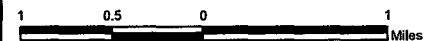
May 2006



LSL Planning, Inc.



Data Sources:
Base Map: Genoa Township





WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 47000007526

Failure to comply is a misdemeanor.

Import ID: 47027505405

Tax No:	Permit No:	County: Livingston	Township: Genoa		
Well ID: 47000007526 Elevation: 997 ft Latitude: 42.58616972 Longitude: -83.88542892	Fraction: SW¼ U¼ U¼	Section: 5	Town/Range: 02N 05E	WSSN: 2023247	Source ID/Well No:
	Distance and Direction from Road Intersection: 2023247;1 GRAND OAKS ICE ARENA				
	Well Owner: Livingston Co. Hockey Ass.				
Well Address: 970 GRAND OAKS DR HOWELL MI 48843			Owner Address: 970 GRAND OAKS DR HOWELL MI 48843		

Drilling Method: Cable Tool	Pump installed: Yes	Pump Installation only: No
Well Depth: 206.00 ft.	Well Use: Other	HP:
Well Type: New	Date Completed: 10/2/1982	Pump Type: Submersible
Casing Type: Unknown	Manufacturer: Other	Pump Capacity: 0.00 GPM
Casing Joint: Welded	Model Number:	Id of Well:
Diameter: 6.00 in. to 172.00 ft. depth	Length of Drop Pipe: 147.00 ft.	
Bore Diameter 1:	Diameter of Drop Pipe:	
Bore Diameter 2:	Draw Down Seal Used: No	
Bore Diameter 3:	Pressure Tank installed: No	
Height: 1.00 ft. above grade	Pressure Tank Type:	
Casing Fitting: Drive shoe	Manufacturer:	Tank Capacity: Gallons
	Model Number:	
	Pressure Relief Valve installed: No	
Static Water Level: 49.00 ft. Below Grade(Not Flowing)	Formation Description	Thickness
Yield Test Method: Unknown		Depth to Bottom
Measurement Taken During Pump Test:	Brown Clay	8.00
87.00 ft. after 48.00 hrs. pumping at 42.00 GPM	Brown Clay & Sand	24.00
	Brown Sand Coarse	23.00
	Gray Sand Heaving/Quick	3.00
Abandoned Well Plugged: No	Blue Clay & Sand	63.00
Reason for not plugging Well:	Blue Clay	21.00
Abandoned well ID:	Blue Clay & Sand	17.00
Screen installed: No	Gravel & Clay Coarse	2.00
Well Intake: Bedrock Well	Blue Clay	11.00
Filter Packed:	Blue Shale	34.00
Screen Diameter:		
Screen Material Type:		
Slot:		
Blank:		
Fittings:		
Well Grouted: Yes	Grouting Method: Unknown	
No. of Bags:	Additives: None	
Grouting Materials:		
Other	From 0.00 ft. to 0.00 ft.	
Well Head Completion:	Pitless adapter	
Nearest source of possible contamination:	Geology Remarks: 1. [BROWN CLAY] [8] [8] 2. [BROWN CLAY & SAND] [32] [24] 3. [BROWN COARSE SAND] [55] [23] 4. [GRAY QUICK SAND] [58] [3] 5. [BLUE CLAY & SAND] [121] [63] 6. [BLUE CLAY] [142] [21] 7. [BLUE CLAY & SAND] [159] [17] 8. [COARSE GRAVEL & CLAY] [161] [2] 9. [BLUE CLAY] [172] [11] 10. [BLUE SHALE] [206] [34]	
Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		
Drilling Machine Operator Name:	Contractor Type: Unknown	
Employment: Unknown	Registration Number: 657	
	Business Name:	
	Business Address:	
	WATER WELL CONTRACTOR'S CERTIFICATION:	
	This well was drilled under my supervision and this report is true to the best of my knowledge and belief.	
	Signature of Registered Contractor	Date
General Remarks:		
OTHER REMARKS Well Use: Closed Type 2 Grouting Material 1: Listed as other in Wellkey Pump Manufacturer: F & W		

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 20:51



WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 47000007517

Failure to comply is a misdemeanor.

Import ID: 47027505006

Tax No: 011-05-300-013		Permit No:		County: Livingston		Township: Genoa	
Well ID: 47000007517		Fraction: SW¼ SE¼ SW¼		Section: 5		Town/Range: 02N 05E	
		WSSN:		Source ID/Well No:			
		Distance and Direction from Road Intersection:					
Elevation: 979 ft		Well Owner: Bradhart Products					
Latitude: 42.5853441774		Well Address: 1100 GRAND OAKS DR. HOWELL MI 48843			Owner Address: 1100 GRAND OAKS DR. HOWELL MI 48843		
Longitude: -83.8866003374							

Drilling Method: Rotary		Pump Installed: Yes		Pump Installation only: No	
Well Depth: 185.00 ft		Well Use: Other		Pump Installation date:	
Well Type: New		Date Completed: 8/10/1986		Manufacturer: Webtrol	
Casing Type: PVC plastic		Casing Joint: Unknown		Model Number:	
Diameter: 5.00 in. to 181.00 ft. depth		Length of Drop Pipe: 140.00 ft.		Diameter of Drop Pipe:	
Bore Diameter 1:		Draw Down Seal Used: No		Pressure Tank Installed: No	
Bore Diameter 2:		Pressure Tank Type:		Manufacturer:	
Bore Diameter 3:		Model Number:		Tank Capacity: Gallons	
Height: 1.00 ft. above grade		Pressure Relief Valve Installed: No			
Casing Fitting: Drive shoe					
Static Water Level: 22.00 ft. Below Grade(Not Flowing)		Formation Description		Thickness	Depth to Bottom
Yield Test Method: Unknown		Brown Clay & Sand		22.00	22.00
Measurement Taken During Pump Test:		Blue Clay		38.00	60.00
0.00 ft. after 0.00 hrs. pumping at 25.00 GPM		Gray Sand Fine		12.00	72.00
Abandoned Well Plugged: No		Blue Clay		109.00	181.00
Reason for not plugging Well:		Gravel Coarse Water Bearing		3.00	184.00
Abandoned well ID:		Blue Shale		1.00	185.00
Screen Installed: Yes		Well Intake:			
Filter Packed: No		Screen Diameter: 4.00 in.			
Screen Diameter: 4.00 in.		Length: 4.00 ft.			
Screen Material Type:		Slot: 40.00 in. Set Between 181.00 ft. and 185.00 ft.			
Blank: 1.00 ft. Above		Fittings:			
Fittings: Neoprene packer		Well Grouted: Yes		Grouting Method: Unknown	
No. of Bags:		Additives: None		Geology Remarks: 1. [BR. CLAY & SAND] [22] [22] 2. [BLUE CLAY] [60] [38]	
Grouting Materials:		Other: From 0.00 ft. to 25.00 ft.		3. [FINE GRAY SAND] [72] [12] 4. [BLUE CLAY] [181] [109] 5. [COARSE MUDDY GRAVEL WATER BEARING] [184] [3] 6. [BLUE SHALE ROCK] [185] [1]	
Well Head Completion: Pitless adapter		Contractor Type: Unknown		Registration Number: 657	
Nearest source of possible contamination:		Business Name:		Business Address:	
Type: Septic tank		Distance: 150.00 ft.		Direction: East	
Drilling Machine Operator Name: C. GOFF JR. AND MIKE SPIRL		WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my supervision and this report is true to the best of my knowledge and belief.			
Employment: Unknown					
General Remarks:		Signature of Registered Contractor		Date	
OTHER REMARKS Well Use: Listed Type 2 Unconfirmed Grouting Material 1: Listed as other in Wellkey					

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 20:51

Appendix C
Endangered Species Assessment




Department of Natural Resources michigan.gov

Michigan Gov Home Home | FAQ | Help | Contact MDNR

→ Find a Location

→ Browse the Map


→ Related Links

ENDANGERED SPECIES ASSESSMENT

Print Map | Save Map | Email Map | Clear Map | Enlarge Map

Zoom Out | Zoom In | Re-center | Identity



Street Map | Aerial Photo | Topo Map | Plat Map | Land Cover

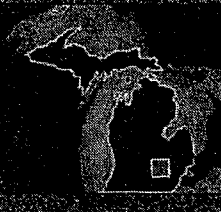
Search Results For:
 Lat: 42.588407, Lon: -83.888846 TRS: 02N, 05E, 05

No unique natural features are known to occur at or near your site of interest.

To request a formal review of your selected site please click the Request Review button below.

Request Review

Location Overview



My Points of Interest

Refresh Map

Unique Natural Features

No Listed Features

Michigan.gov | Home | Site Map | State Web Sites | Contact Michigan | FAQ | Privacy Policy | Link Policy | Accessibility Policy | Security Policy | Disclaimer
 Copyright © 2003-2005 State of Michigan

How to set-up Remote VPN access to Sidock servers (Windows Vista clients)

(Note: this should be done from a remote network.)

1. Click on Start and then click on Control Panel.
2. Double-click on Network and Sharing Center.
3. Under Tasks (left side of window), click on Create to a Network.
4. Click on Set-up a connection or network.
5. Click on Connect to a workplace and click on Next¹.
6. Click on Use my Internet connection (VPN).
7. For Internet address, type in: "mail.sidockgroup.com" (no quotes). For Destination Name, type in a descriptive name (such as Sidock or VPN to Work) and click on Next.
8. The wizard will pop-up with a windows that says "Connect to a workplace". Enter your network logon username (usually first initial followed by last name) and password. Click the box that says "Remember this password". Click on Connect.

To access the shares on the server, once connected via the VPN, do the following:

1. Click on Start.
2. Go to Run and type in: "\\acc-2.sidockgroup.local\data" (no quotes) to access the data share.
3. To see a list of shares, type in: "\\acc-2.sidockgroup.local" (no quotes) instead.

¹ If you see: "Do you want to use a connection that you already have?", click No, create a new connection and click on Next.

Consumers Energy

Howell Service Center Parking Lot Expansion GENOA TOWNSHIP, MICHIGAN

LEGAL DESCRIPTIONS AS PROVIDED

TAX ID#4711-05-300-012 – DECHRIS LIMITED PARTNERSHIP (PER FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382408)
A PART OF THE SOUTHWEST 1/4 OF SECTION 5, TOWN 2 NORTH, RANGE 5 EAST, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS: COMMENCING AT THE SOUTH 1/4 CORNER; THENCE SOUTH 87 DEGREES WEST 496.99 FEET; THENCE NORTH 02 DEGREES EAST 364.06 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 87 DEGREES WEST 1320 FEET; THENCE NORTH 02 DEGREES WEST 331 FEET; THENCE NORTH 87 DEGREES EAST 1320 FEET; THENCE SOUTH 02 DEGREES WEST 331 FEET TO THE POINT OF BEGINNING.

TAX ID#4711-05-300-044 – BRADY, TERRENCE & KAREN (PER PARCEL 2, FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382436)
PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE ALONG THE SOUTH LINE OF SAID SECTION 5, S87°12'58"W 496.98 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF GRAND OAK DRIVE (100 FOOT WIDE), N02°06'23"W 164.06 FEET TO THE POINT OF BEGINNING OF THE PARCEL TO BE DESCRIBED; THENCE S87°53'36"W 135.02 FEET; THENCE N02°06'23"W 12.00 FEET; THENCE S87°53'37"W 555.00 FEET; THENCE N02°05'59"W 188.00 FEET; THENCE N87°53'37"E 690.00 FEET; THENCE S02°06'23"E 200.00 FEET TO THE POINT OF BEGINNING.

TAX ID#4711-05-300-045 – BRADY, TERRENCE & KAREN (PER PARCEL 3, FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382436)
PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE ALONG THE SOUTH LINE OF SAID SECTION 5, S87°12'58"W 1187.07 FEET TO THE POINT OF BEGINNING OF THE PARCEL TO BE DESCRIBED; THENCE CONTINUING ALONG SAID LINE, S87°12'58"W 315.00 FEET; THENCE N02°06'11"W 375.95 FEET; THENCE N87°53'37"E 315.00 FEET; THENCE S02°05'59"E 372.22 FEET TO THE POINT OF BEGINNING.

TAX ID#4711-05-300-046 – BRADY, TERRENCE & KAREN (PER PARCEL 4, FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382436)
PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE ALONG THE SOUTH LINE OF SAID SECTION 5, S87°12'58"W 1502.07 FEET TO THE POINT OF BEGINNING OF THE PARCEL TO BE DESCRIBED; THENCE CONTINUING ALONG SAID LINE, S87°12'58"W 315.00 FEET; THENCE N02°06'23"W 379.67 FEET; THENCE N87°53'37"E 315.00 FEET; THENCE S02°06'11"E 375.95 FEET TO THE POINT OF BEGINNING.

LEGAL DESCRIPTION AS SURVEYED

COMBINED PARCEL
PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE S88°00'09"W, ALONG THE SOUTH LINE OF SAID SECTION 5, 1186.97 FEET (RECORDED AS S87°12'58"W 1187.07 FEET) TO THE POINT OF BEGINNING; THENCE CONTINUING S88°00'09"W, ALONG SAID SOUTH SECTION LINE, 630.26 FEET (RECORDED AS S87°12'58"W 630.00 FEET); THENCE N01°07'07"W 710.85 FEET (RECORDED AS N02°06'23"W 710.67 FEET); THENCE N84°04'45"E 1319.79 FEET (RECORDED AS N87°53'37"E 1320.00 FEET) TO THE WEST LINE OF GRAND OAKS DRIVE SO-CALLED; THENCE S01°19'38"E, ALONG SAID WEST LINE, 531.30 FEET (RECORDED AS S02°06'23"E 531.00 FEET); THENCE S88°40'40"W (RECORDED AS S87°53'36"W) 135.02 FEET; THENCE N00°58'35"W 12.03 FEET (RECORDED AS N02°06'23"W 12.00 FEET); THENCE S88°41'06"W 555.09 FEET (RECORDED AS S87°53'37"W 555.00 FEET); THENCE S01°22'23"E (RECORDED AS S02°05'59"E) 184.16 FEET TO THE POINT OF BEGINNING. CONTAINS 18.48 ACRES.

ZONING REQUIREMENTS:

SUBJECT PROPERTY IS ZONED INDUSTRIAL "IND"

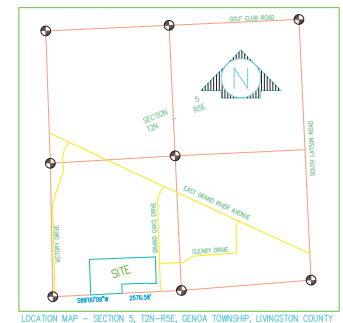
MINIMUM LOT AREA (a) – 1 ACRE
MINIMUM LOT WIDTH (b)(c) – 150 FEET
SETBACKS (d)(e)(f):
FRONT YARD (g)(h)(i)(j) – 85 FEET IF PARKING IN THE FRONT YARD, 50 FEET IF NO PARKING IN THE FRONT YARD
SIDE YARD – 25 FEET, 50 FEET IF ADJACENT TO RESIDENTIAL DISTRICT
REAR YARD – 40 FEET, 80 FEET IF ADJACENT TO RESIDENTIAL DISTRICT
PARKING LOT – 20 FEET, 10 FEET SIDE AND REAR
MAXIMUM LOT COVERAGE (k) – 40% BUILDING, 85% IMPERVIOUS SURFACE
MAXIMUM HEIGHT (l) – 30 FEET, 2 STORES

- (a) LOT AREA WITH SHARED ACCESS: THE PLANNING COMMISSION MAY ALLOW THE LOT AREA AND WIDTH TO BE REDUCED TO 20,000 SQUARE FEET AND 80 FOOT LOT WIDTH WHERE:
 - (1) THE PLANNING COMMISSION DETERMINES THAT THE USE WILL NOT ADVERSELY IMPACT SURROUNDING LAND USES AND THERE IS SUFFICIENT AREA TO PROVIDE THE BUFFERS REQUIRED BY SECTION 12.02; AND,
 - (2) THE SITE HAS SHARED DRIVEWAYS WITH ADJACENT USES, AND ALL ACCESS MANAGEMENT REQUIREMENTS OF SECTION 15.06 ARE COMPLIED WITH OR THE LOT IS WITHIN AN INDUSTRIAL PARK WITH ACCESS TO A ROAD THAT ONLY SERVES THE INDUSTRIAL PARK.
- (b) LOT WIDTH: MINIMUM LOT WIDTH IS MEASURED AT THE REQUIRED FRONT YARD SETBACK DISTANCE FROM RIGHT-OF-WAY. MEASUREMENT FOR FLAG SHAPED LOTS SHALL BE AT THE POINT WHERE THE NARROW ACCESS STRIP JOINS THE LARGER SECTION OF THE LOT, AS DETERMINED BY THE ZONING ADMINISTRATOR.
- (c) DEPTH TO WIDTH RATIO: LOT DEPTH SHALL BE NO GREATER THAN FOUR (4) TIMES THE WIDTH.
- (d) LANDSCAPE BUFFERS: SEE LANDSCAPE BUFFER ZONE AND SCREENING REQUIREMENT IN SECTION 12.02 BASED ON ADJACENT ZONING.
- (e) NATURAL FEATURES SETBACK: ALL STRUCTURES SHALL BE SETBACK A MINIMUM OF TWENTY FIVE (25) FEET FROM AN IDEO REGULATED WETLAND AND SEVENTY (70) FEET FROM THE SHORELINE OF A LAKE.
- (f) PROJECTIONS INTO YARDS: PROJECTIONS INTO REQUIRED YARDS ARE PERMITTED FOR CERTAIN ARCHITECTURAL FEATURES AS DESCRIBED IN SECTION 11.01.D4.
- (g) USE OF FRONT YARD: EXCEPT FOR NECESSARY DRIVES, WALKS AND APPROVED SIGNS, THE REQUIRED FRONT YARD SHALL NOT BE USED FOR LOADING, STORAGE OR ACCESSORY STRUCTURES.
- (h) LANDSCAPE GREENBELT: THE FRONT YARD SHALL INCLUDE A LANDSCAPED GREENBELT AS REQUIRED BY SECTION 12.02.
- (i) DETENTION PONDS: DETENTION PONDS SHALL BE PROHIBITED IN THE FRONT YARD, UNLESS THE TOWNSHIP ENGINEER DETERMINES THERE IS NO REASONABLE ALTERNATIVE DUE TO EXISTING TOPOGRAPHY AND NATURAL DRAINAGE PROBLEMS OR THE POND IS INCORPORATED INTO A NATURAL LANDSCAPED AREA AND APPROVED BY THE PLANNING COMMISSION.
- (j) FRONT YARD SETBACK REDUCTION: THE REDUCED FRONT YARD SETBACK IS ALLOWED FOR SITES THAT DO NOT HAVE PARKING IN THE FRONT YARD, THE PARKING LOT, INCLUDING PARKING SPACES AND DRIVE ANGLES MUST BE LOCATED IN THE REAR YARD OR THE SIDE YARD WHERE THE PARKING LOT IS LOCATED NO CLOSER TO THE FRONT LOT LINE THAN THE FRONT WALL OF THE BUILDING, WITH THE EXCEPTION OF DRIVEWAYS PROVIDING ACCESS FROM THE ROAD AND SERVICE DRIVES OR FRONTAGE ROADS PROVIDING CROSS-ACCESS TO ADJACENT LOTS.
- (k) IMPERVIOUS SURFACE: IMPERVIOUS SURFACE SHALL BE DETERMINED AS THE TOTAL GROUND SQUARE FOOTAGE OF THE BUILDING FOOTPRINT PLUS THE TOTAL OF ALL PAVED SURFACES.
- (l) EXCEPTIONS TO HEIGHT LIMITATIONS: SEE EXCEPTIONS TO MAXIMUM HEIGHT REQUIRED FOR MECHANICAL EQUIPMENT; CORNICES; SPIRES; CUPOLAS; FOR INSTITUTIONAL USES ETC. IN SECTION 11.01.05.

LOT COVERAGE CALCULATION:

SITE TOTAL : 18.48 ACRES
BUILDING COVERAGE = 4.6% (0.84 ACRES BUILDINGS / 18.48 ACRES SITE = 4.6%) 40% ALLOWED
BUILDING COVERAGE INCLUDES: SERVICE CENTER, VEHICLE PORT 2, AND COLD STORAGE BUILDING.
IMPERVIOUS SURFACE COVERAGE = 10.22% 1.89 ACRES IMPERVIOUS / 18.48 ACRES SITE = 10.22% 85% ALLOWED
IMPERVIOUS SURFACES INCLUDE BUILDINGS, ASPHALT PAVING, CONCRETE SIDEWALKS, CURBS, MATERIAL BINS AND DUMPSTER ENCLOSURE AREA.
IMPERVIOUS SURFACES COVERAGE (INCLUDING GRAVEL AREA) = 16.34% (3.02 ACRES IMPERVIOUS / 18.48 ACRES SITE = 16.34%)

Drawing No.	Sheet Title
9037-G001	Cover Sheet
SG-20407	Site Survey
C-01	Site Layout and Pavement
C-02	Marking Plan
C-03	Grading Plan
C-04	Utilities Plan
C-05	proposed Storm Sewer Profile
C-06	Site Details
C-07	Site Details
C-08	Soil Erosion and Sedimentation Control Details
L-01	Landscape Plan



NOT TO SCALE



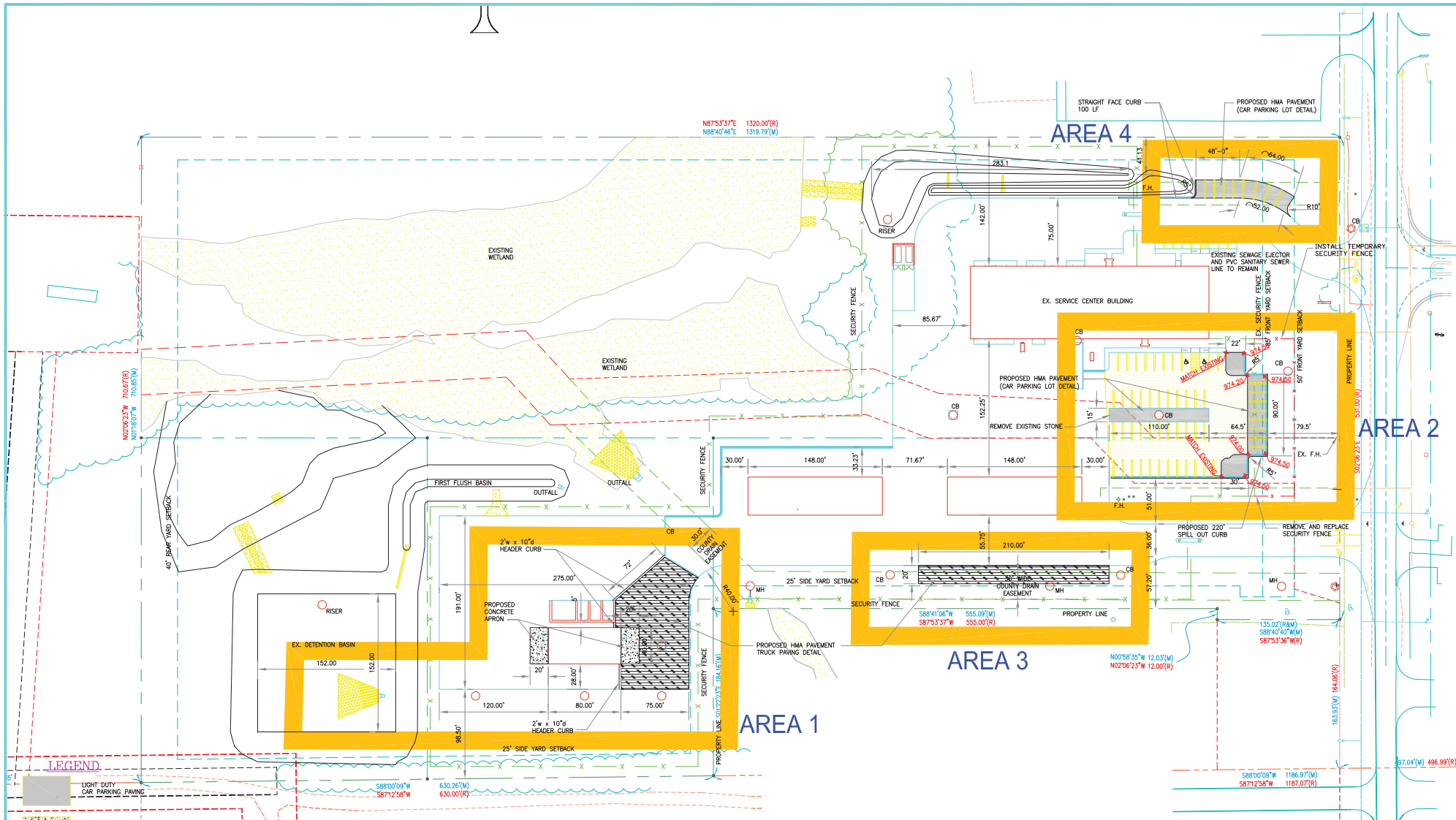
Drawing No	Reference Drawings	Rev	Date	Description	By	App	Scale	Plot Scale
			3/29/17	90% OWNER REVIEW				



Proj. Building/Location
HOWELL SERVICE CENTER PARKING LOT EXPANSION
1000 GRAND OAKS BULLEWARD
GENOA TOWNSHIP, MICHIGAN

Sheet Title
COVER SHEET

Scale: NO SCALE	Drawing Number: 9037-G001	Sheet: G001	Rev:
Work Req. # WORK ORDER: 28909602			



LEGEND

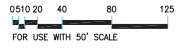
- LIGHT DUTY CAR PARKING PAVING
- CONCRETE PAVEMENT
- HEAVY DUTY TRUCK PARKING PAVING

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG
 800-482-7171
 (TOLL FREE)

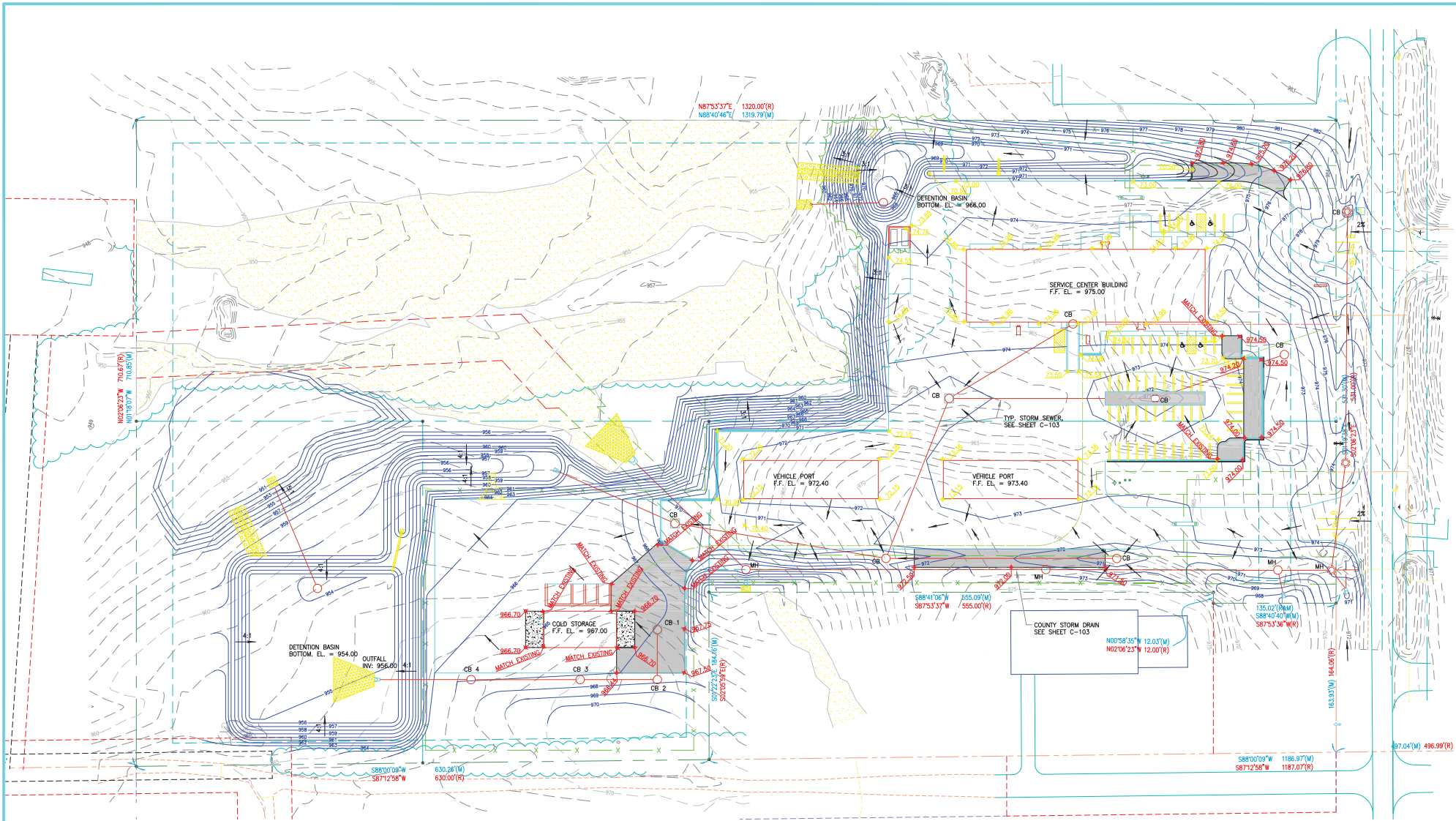
NOTE
 1. REFER TO ELECTRICAL SITE DRAWING FOR LOCATIONS AND DETAILS OF SITE LIGHT FIXTURES, TYP.



SITE LAYOUT AND PAVEMENT MARKING PLAN
 SCALE: 1"=50'



Drawing No: Reference Drawings		3/29/17 90% OWNER REVIEW	Dr. F. ISA Date: 03/29/17	 JACKSON, MICHIGAN	Proj. Building/Location HOWELL SERVICE CENTER PARKING LOT EXPANSION	Sheet Title SITE LAYOUT PLAN
Rev:	Date:	Description:	By: App: Acad Title: C-01 Proj Scale: 1:1		1000 GRAND OAKS BOULEVARD GENOA TOWNSHIP, MICHIGAN PARKING LOT UPGRADE	Scale: 1"=50' Work Req: # WORK ORDER: 28909602



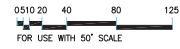
GRADING PLAN
SCALE: 1"=50'

NOTES

1. ADD 900.00 TO SPOT ELEVATIONS TO MATCH USGS CONTOURS.
2. MAINTAIN 2% CROSS SLOPE OF GRAND OAKS DRIVE THROUGH THE FIRST 12 FEET OF THE NORTH AND SOUTH ENTRY DRIVES PER THE LIVINGSTON COUNTY ROAD COMMISSION REQUIREMENTS.



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)



Drawing No	Reference Drawings	Rev	Date	Description	By	App	Acad Title	Proj Scale	Plot Scale
			5/9/17	90% OWNER REVIEW					
					Dr	F. ISA			03/09/17
					Des				
					App				
					App				

Consumers Energy
JACKSON, MICHIGAN

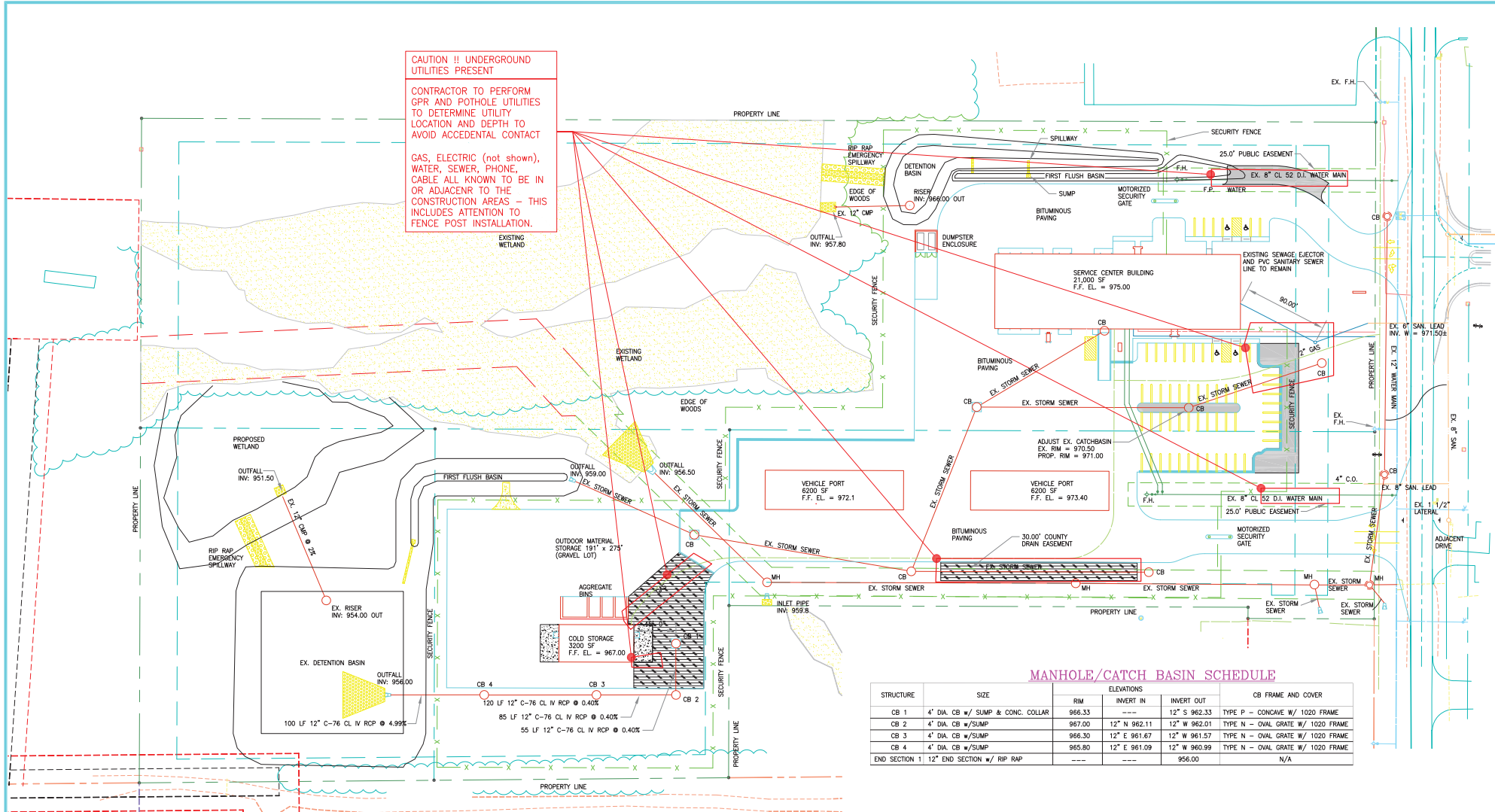
Proj. Building/Location
HOWELL SERVICE CENTER PARKING LOT EXPANSION
1000 GRAND OAKS BOULEVARD
GENOA TOWNSHIP, MICHIGAN
PARKING LOT UPGRADE

Sheet Title		Drawing Number		Sheet	Rev
GRADING PLAN		C-02		C-02	
Scale:	1"=50'	Work Pkg #	WORK ORDER: 28039602		

CAUTION !! UNDERGROUND UTILITIES PRESENT

CONTRACTOR TO PERFORM GPR AND POTHOLE UTILITIES TO DETERMINE UTILITY LOCATION AND DEPTH TO AVOID ACCIDENTAL CONTACT

GAS, ELECTRIC (not shown), WATER, SEWER, PHONE, CABLE ALL KNOWN TO BE IN OR ADJACENT TO THE CONSTRUCTION AREAS - THIS INCLUDES ATTENTION TO FENCE POST INSTALLATION.



MANHOLE/CATCH BASIN SCHEDULE

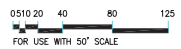
STRUCTURE	SIZE	ELEVATIONS			CB FRAME AND COVER
		RIM	INVERT IN	INVERT OUT	
CB 1	4" DIA. CB w/ SUMP & CONC. COLLAR	966.33	---	---	TYPE P - CONCAVE W/ 1020 FRAME
CB 2	4" DIA. CB w/ SUMP	967.00	12" N 962.11	12" S 962.33	TYPE N - OVAL GRATE W/ 1020 FRAME
CB 3	4" DIA. CB w/ SUMP	966.30	12" E 961.67	12" W 961.57	TYPE N - OVAL GRATE W/ 1020 FRAME
CB 4	4" DIA. CB w/ SUMP	965.80	12" E 961.09	12" W 960.99	TYPE N - OVAL GRATE W/ 1020 FRAME
END SECTION 1	12" END SECTION W/ RIP RAP	---	---	956.00	N/A

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

UTILITY WARNING
 Underground utility locations, as shown on the plan, were obtained from utility owners and were not field located. A minimum of 3 working days prior to beginning construction, the contractor shall notify MISS DIG and have all underground utilities marked before any work may begin. The contractor shall be responsible for the protection of all utilities that may interfere with construction. Protection of utilities shall be incidental to construction.

UTILITIES PLAN
 SCALE: 1"=50'

NOTE: SEE SHEET C-04 FOR STORM PROFILES



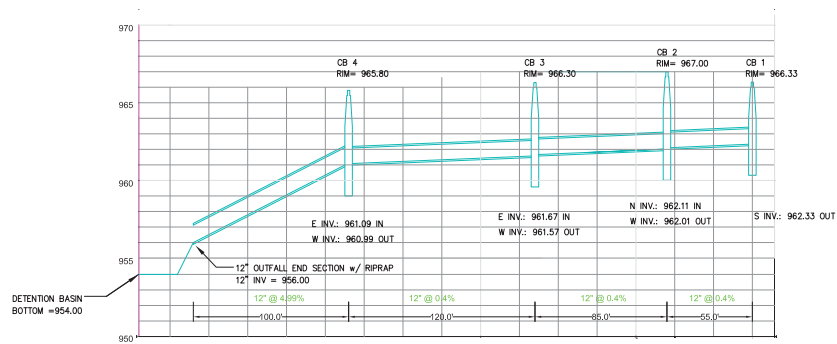
3/09/17 90% OWNER REVIEW		Dr. F. ISA	Date: 03/09/17
Drawing No	Reference Drawings	By	App
Rev	Date	Description	By
		Acad Title: C-03	Plot Scale: 1:1



Howell Service Center Parking Lot Expansion
 1000 GRAND OAKS BOULEVARD
 GENOA TOWNSHIP, MICHIGAN
 PARKING LOTS UPGRADE



Scale: 1"=50'	Sheet Title: UTILITIES PLAN
Work Req # WORK ORDER: 28939602	Drawing Number: C-03
	Sheet: C-03



PROPOSED STORMWATER SYSTEM PROFILES

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'



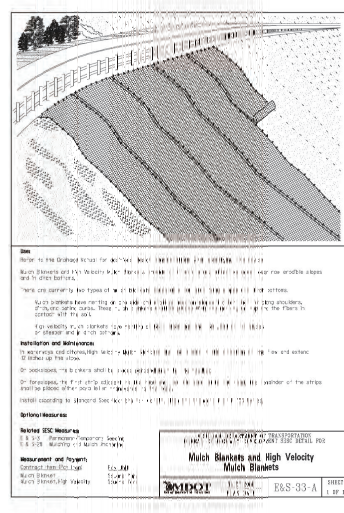
		3/09/17	90% OWNER REVIEW			Dr.	F. ISSA	Date	03/09/17	Proj. Building/Location HOWELL SERVICE CENTER PARKING LOT EXPANSION		Sheet Title PROPOSED STORMWATER SYSTEM PROFILES	
						Des.				1000 GRAND OAKS BOULEVARD GENOA TOWNSHIP, MICHIGAN		Scale: 1"= 40' Work Req. / WORK ORDER: 28909802	
						App.				PARKING LOT UPGRADE		Drawing Number C-04	
						By				JACKSON, MICHIGAN		Sheet C-04	
Drawing No		Reference Drawings		Rev	Date	Description		By	App	Acad Title	Plot Scale	Rev	



APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES									
(CONSTRUCTION SHALL COMPLY WITH SECTION 9-07) (SEE SOIL EROSION & SEDIMENTATION CONTROL MANUAL)									
<ul style="list-style-type: none"> 1 = SLOPES 2 = STREAMS AND WATERWAYS 3 = SURFACE DRAINAGE 4 = ENCLOSED DRAINAGE DITCHES & OUTFALL CONTROL 5 = GRADED FLAT EXPOSED AREAS 6 = BRUSH AND STOCKPILE AREAS 7 = DUNE PERMIT MAY BE REQUIRED 									
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
1	TORNSHIRT CURTAIN	A fabric curtain which must have water flow in necessary to stabilize sedimentation. The soil and water area contain the sediments while the construction lasts.							
2	GRASSING (MATTED)	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							
3	PERMANENT/TEMPORARY SEDING	Temporary sowing/seeded control measure to stabilize exposed sedimentation. Plants should be established, growing and forming. Permanent/Temporary Seding should be applied as soon as possible.							
4	DUNE CONTROL	Dune control is to be used for stabilizing exposed sedimentation. The dune should be suitable for use. Permanent/Temporary Seding should be applied as soon as possible.							
5	SEDING	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							
6	TORNSHIRT BUFFER STRIP	A fabric curtain which must have water flow in necessary to stabilize sedimentation. The soil and water area contain the sediments while the construction lasts.							

SOIL EROSION & SEDIMENTATION CONTROL MEASURES									
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
7	TERRAP	Used where vegetation cover is not established. Terrapin fabric is designed to prevent high velocity flows. Reusable fabric is preferred.							
8	ARMED GEOTEXTILE	Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
9	SEDING	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							
10	IMPERVIOUS	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
11	IN SIPPING	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
12	IN SIPPING WITH DRAIN	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
13	SHIELD FILTER FABRIC	Provides a barrier to sedimentation and preventing erosion. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
14	GRASS/SEDIMENTATION	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							

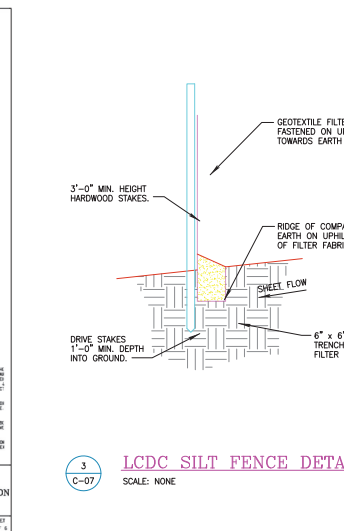
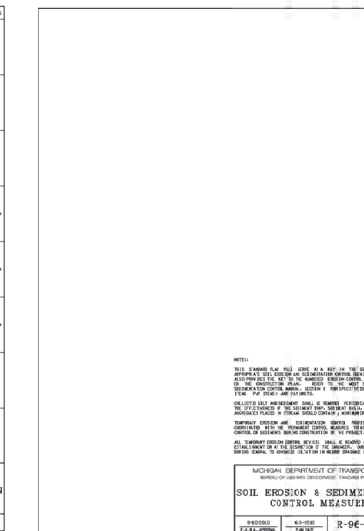
SOIL EROSION & SEDIMENTATION CONTROL MEASURES									
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
15	SLOPE DRAIN SURFACE	Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
16	TERRAPIN	Used where vegetation cover is not established. Terrapin fabric is designed to prevent high velocity flows. Reusable fabric is preferred.							
17	NPS DITCH	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
18	DESIGNING WITH FILTER BAG	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
19	ENERGY DISSIPATOR	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
20	SEDIMENT TRAP	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
21	SEDIMENT BASIN	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
22	VEGETATIVE BUFFER AT WATERWAYS	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							



SOIL EROSION & SEDIMENTATION CONTROL MEASURES									
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
23	STREAM PROTECTION	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
24	SAND AND FINE BAGS	Requires a drainage or runoff for stable sedimentation. Requires sheet for retaining sedimentation and preventing erosion. Provides a barrier to sedimentation.							
25	SEDING	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							
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SOIL EROSION & SEDIMENTATION CONTROL MEASURES									
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
31	SEDING	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							
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SOIL EROSION & SEDIMENTATION CONTROL MEASURES									
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SOIL EROSION & SEDIMENTATION CONTROL MEASURES									
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
41	SEDING	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							
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50	SEDING	Requires existing soil surface to be in a seeding stage. Apply after construction process to promote soil growth. Requires seed to be suitable growing, deep and getting. Do not use mulch which use.							

4 SESC CONTROL MEASURES
SCALE: NONE

3 CONCRETE APRON
SCALE: 1"=1'-0"

3 LCDC SILT FENCE DETAIL
SCALE: NONE

1 MDOT SLOPE PROTECTION DETAIL
SCALE: NONE

3 CONCRETE APRON
SCALE: 1"=1'-0"

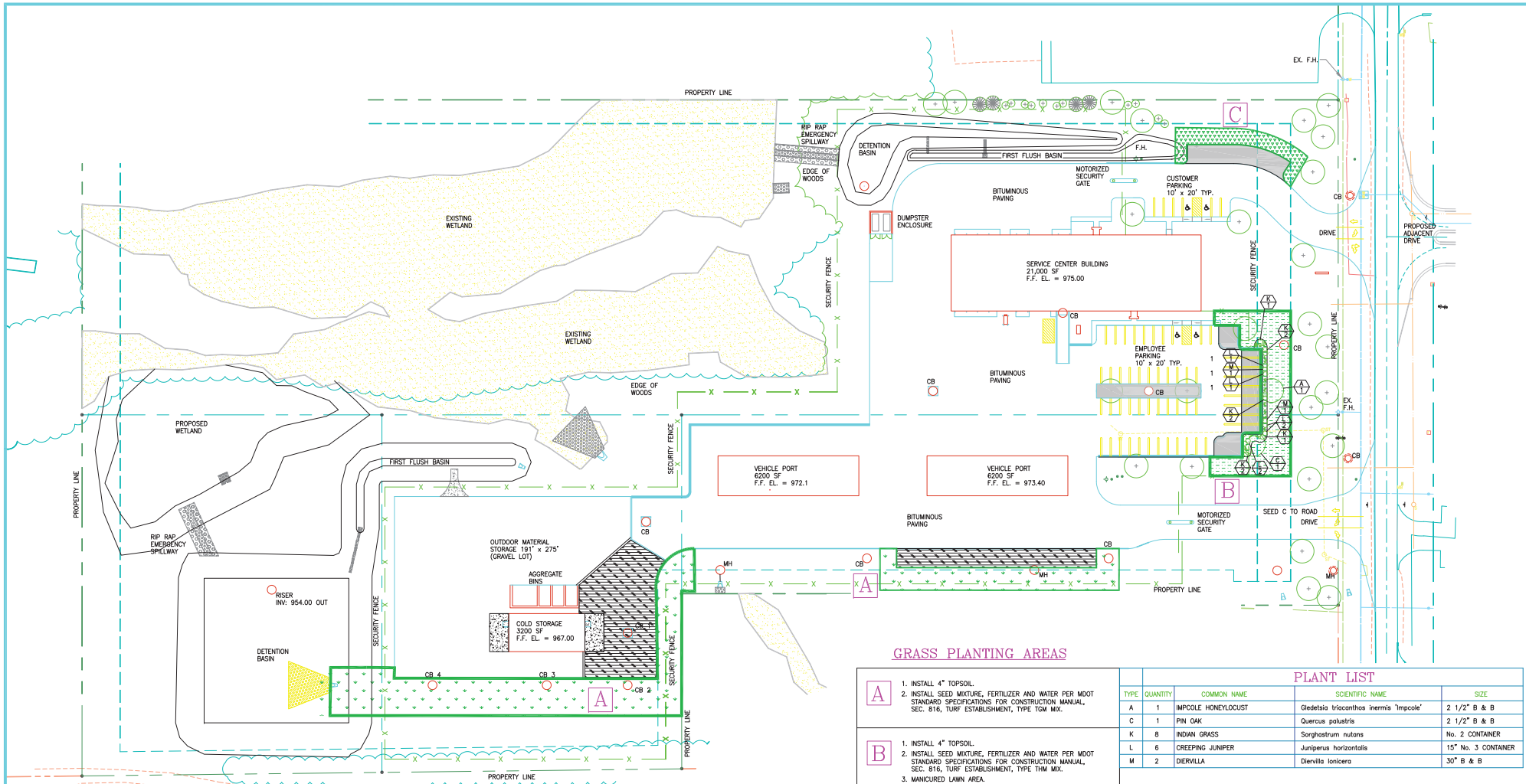
Drawing No	Reference Drawings	Rev	Date	Description	By	App	Acad Title	Plot Scale	Sheet
			3/29/17	90% OWNER REVIEW				1:1	1 of 4

Consumers Energy
JACKSON, MICHIGAN

Proj: Building/Location
HOWELL SERVICE CENTER PARKING LOT EXPANSION
1000 GRAND OAKS BOULEVARD
GENOA TOWNSHIP, MICHIGAN
PARKING LOT UPGRADE

Sheet Title
SOIL EROSION & SEDIMENTATION CONTROL DETAILS
Scale: NONE
Drawing Number: C-07
Sheet: C-07
Rev: 1 of 4





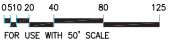
VEHICLE PORT
6200 SF
F.F. EL. = 972.1

VEHICLE PORT
6200 SF
F.F. EL. = 973.40

OUTDOOR MATERIAL STORAGE 191' x 275' (GRAVEL LOT)
AGGREGATE BIN
COLD STORAGE 3000 SF
F.F. EL. = 967.00

- LIGHT DUTY CAR PARKING PAVING
- CONCRETE PAVEMENT
- HEAVY DUTY TRUCK PARKING PAVING

LANDSCAPE PLAN
SCALE: 1"=50'



3 WORKING DAYS BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

UTILITY WARNING
Underground utility locations, as shown on the plan, were obtained from utility owners and were not field located. A minimum of 3 working days prior to beginning construction, the contractor shall notify "MISS DIG" and have all underground utilities staked before any work may begin. The contractor shall be responsible for the protection of all utilities that may interfere with construction. Protection of utilities shall be incidental to construction.

GRASS PLANTING AREAS

- A**
 - INSTALL 4" TOPSOIL.
 - INSTALL SEED MIXTURE, FERTILIZER AND WATER PER MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL, SEC. 816, TURF ESTABLISHMENT, TYPE TGM MIX.
- B**
 - INSTALL 4" TOPSOIL.
 - INSTALL SEED MIXTURE, FERTILIZER AND WATER PER MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL, SEC. 816, TURF ESTABLISHMENT, TYPE THM MIX.
 - MANICURED LAWN AREA.
- C**
 - INSTALL 4" TOPSOIL.
 - INSTALL SEED MIXTURE, FERTILIZER AND WATER PER MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL, SEC. 816, TURF ESTABLISHMENT, TYPE TGM MIX.
 - NATURALIZE PLANTING AREA WITH ADDITION OF THE FOLLOWING NATIVE GRASS SPECIES:
 - A. Bromus inermis
 - B. Carex pensylvanica
 - C. Koeleria macrantha
 - D. Panicum virgatum
 - E. Schizachyrium scoparium
 - F. Sorghastrum nutans

PLANT LIST

TYPE	QUANTITY	COMMON NAME	SCIENTIFIC NAME	SIZE
A	1	IMPCOLE HONEYLOCUST	Gleditsia triacanthos inermis 'Impcole'	2 1/2" B & B
C	1	PIN OAK	Quercus palustris	2 1/2" B & B
K	8	INDIAN GRASS	Sorghastrum nutans	No. 2 CONTAINER
L	6	CREeping JUNIPER	Juniperus horizontalis	15" No. 3 CONTAINER
M	2	DIERVILLA	Diervilla lonicera	30" B & B



3/09/17	90% OWNER REVIEW								
Dr	F. ISA	Date	03/09/17						
App									
App									



Proj. Building Location
HOWELL SERVICE CENTER PARKING LOT EXPANSION
1000 GRAND OAKS BOULEVARD
GENOA TOWNSHIP, MICHIGAN
PARKING LOT UPGRADE

Sheet Title
LANDSCAPE PLAN
Scale: 1"=50'
Drawing Number: L-01
Sheet: L-01

Drawing No	Reference Drawings	Rev	Date	Description	By	App	Acad Title	Plot Scale	Plot Scale
							L-01	1:1	1:1

Scale: 1"=50'
Work Req. # WORK ORDER: 28909602



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Terri Guzzstella, Lake Trust Credit Union
4605 S. Old US Highway 23, Brighton, MI
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Lake Trust Credit Union, 4605 S. Old US Hwy 23, Brighton, MI 48114

SITE ADDRESS: E. Grand River Ave PARCEL #(s): 4711-09-100-033

APPLICANT PHONE: (517) 372-8804 OWNER PHONE: (888) 267-7200 x 5296

OWNER EMAIL: tguastella@laketrust.org

LOCATION AND BRIEF DESCRIPTION OF SITE: 4433 E. Grand River Ave
is located between Aubree's Pizzeria and Sunoco Gas Station. The site
is currently undeveloped.

BRIEF STATEMENT OF PROPOSED USE: The undeveloped site will be used
for a new single story Credit Union branch.

THE FOLLOWING BUILDINGS ARE PROPOSED: The proposed building shall be a
single story Credit Union with 03 drive-through lanes.

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: David C. Vanderklok

ADDRESS: 114 S. Washington #100
Lansing, MI 48910

Page 1 of 9
Architect/owner rep.

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

1.) Matt Nelson of Studio [intrigue] Architects, LLC at nelson@studiointrigue.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: Terru Guastella DATE: 2.22.17
PRINT NAME: TERRI GUASTELLA PHONE: 800.267.7200 x5296
ADDRESS: 4005 S. OLD US HIGHWAY 23, BRIMTON, MI 48114



March 24, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Lake Trust Credit Union – Site Plan Review #2
Location:	Vacant property on the north side of Grand River Avenue, west of Lawson Drive
Zoning:	MU PUD Mixed Use Planned Unit Development / NSD Neighborhood Services District

Dear Commissioners:

At the Township’s request, we have reviewed the revised site plan (dated 3/21/17) proposing development of a new credit union on vacant land within the Lorentzen PUD. The site itself is located on the north side of Grand River, immediately east of the existing Aubrey’s restaurant.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance, as well as the PUD Agreement for this property.

A. Summary

1. The Planning Commission has approval authority over the building elevations, including materials and colors.
2. The amount of parking proposed (179% of the minimum requirement) exceeds the maximum allowance under the Zoning Ordinance (120% of the minimum requirement). As such, Planning Commission approval is required for the amount of parking proposed.
3. In our opinion, there is a potential vehicular conflict between the drive-through lane exit and two-way drive connecting the site to White Horse Lane.
4. We request the applicant schedule trash/recycling pick-up for non-peak times so that refuse removal vehicles do not disrupt vehicles exiting the drive-through area.
5. The proposed signage is compliant, although a sign permit will be required prior to installation.

B. Proposal

The applicant requests site plan review and approval of a new 2,360 square foot credit union with 3 drive-through lanes. Banks and credit unions with up to 3 drive-through lanes are permitted uses in this PUD. As such, site plan review is the only process needed.

However, since this is a final PUD site plan, procedurally the Planning Commission is to make a recommendation to the Township Board on both the Environmental Impact Assessment and Site Plan Review.



Aerial view of site and surroundings (looking north)

C. Site Plan Review

1. Dimensional Requirements. As shown in the table below, the proposal complies with the dimensional requirements of the Lorentzen PUD:

District	Lot Size		Minimum Setbacks (feet)				Max. Height
	Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking	
MU-PUD	1	100	70	10	40	10 front 10 side/rear	20' 1 story
Proposal	1.36	272	95 (Grand River) 133 (White Horse)	67 (E) 65 (W)	N/A	20 front 10 side	18'-10" 1 story

2. Building Materials and Design. The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. Building elevation drawings are found on Sheets A-301 and A-302. The submittal also includes color renderings, and the applicant has indicated that they intend to present material samples at the upcoming meeting.

Primary building materials include brick, wood and stone with aluminum, stone and wood accents. The building includes large windows and several decorative elements, such as wood beams projecting through the canopy.

The revised submittal includes building material calculations, which are compliant with the standards of Section 12.01.03 of the Township Zoning Ordinance.

3. Parking. The revised plan provides 25 parking spaces, including the 2 required barrier-free spaces. The Ordinance requires only 14 spaces; therefore, the proposal exceeds the maximum amount of parking allowed by Section 14.01.06.

The proposal entails 179% of the minimum parking required, while the Ordinance limitation is 120% unless otherwise approved by the Planning Commission. The applicant indicates that this branch will have 5 employees and is expected to host monthly seminars with 15 additional participants. As such, the intent of the proposed parking is to avoid disrupting patrons' use of the site or impact neighboring businesses via the shared access drive.

The parking spaces and drive aisles meet or exceed the dimensional standards of Section 14.06 and the plan shows the use of looped (double striped) spaces, as required. Additionally, the plan demonstrates compliance with the stacking space requirements for the drive-through lanes.

4. **Pedestrian Circulation.** The site plan identifies an existing concrete sidewalk along Grand River, with ramps on each side of the driveway. Sidewalks are also proposed along 3 sides of the building with a connection to the public walkway, including a striped crosswalk across the main drive aisle.
5. **Vehicular Circulation.** Primary vehicular access is proposed via a new curb cut on Grand River with a cross access drive that connects the site with the properties to the east and west. This design also entails closure of the existing curb cut on the adjacent property to the east, as well as a connection to White Horse Lane.

Internally, there are two-way drives going north/south and east/west with a one-way pattern through the drive-through. Given the revised plans, we still believe there is a potential conflict between the drive-through exit and two-way drive connecting to White Horse.

More specifically, vehicles exiting the drive-through lanes may conflict with those traveling north towards White Horse with limited visibility around the building. There is also the potential that vehicles exiting different drive-through lanes could conflict with one another – for instance, a vehicle exiting via White Horse in the lane nearest the building versus a vehicle leaving another lane that wants to exit via Grand River.

The Commission should also consider any comments provided by the Township Engineer and/or Fire Marshal with respect to vehicular access/circulation.

6. **Loading.** The Ordinance requires one loading space for the project, which is to be 500 square feet in area and located in a rear or side yard not directly visible from a public street. Sheet C-101 has been revised to provide the required space.
7. **Landscaping.** As shown in the table below, we have reviewed the landscape plan based on the conventional standards of Section 12.02:

Location	Requirements	Proposed	Comments
Greenbelt (Grand River)	20' width 7 canopy trees Hedgerow	20' width 7 canopy trees Hedgerow	Requirements met
Greenbelt (White Horse)	20' width 3 canopy trees	120' width 3 canopy trees	Requirements met
Buffer zone "C" (East)	10' width 18 canopy trees OR 18 evergreens OR 72 shrubs (OR combination thereof)	10' width (minimum) 3 existing canopy trees 1 canopy tree 4 evergreen trees 28 shrubs	Requirements met
Buffer zone "C" (West)	10' width 16 canopy trees OR 16 evergreens OR 64 shrubs (OR combination thereof)	10' width (minimum) 1 canopy tree 5 evergreen trees 42 shrubs	Requirements met
Parking lot	3 canopy trees 300 SF landscaped area	3 canopy trees 432 SF landscaped area	Requirements met
Detention pond	6 trees 60 shrubs	6 trees 60 shrubs	Requirements met

- 8. Waste Receptacle and Enclosure.** The project includes an area for trash and recycling receptacles within an enclosure northwest of the proposed building. The proposed location, concrete base pad and masonry enclosure comply with the standards of Section 12.04.

Additionally, we request the applicant schedule pick-up for non-peak times so that refuse removal vehicles do not disrupt vehicles exiting the drive-through area.

- 9. Exterior Lighting.** The submittal includes a lighting plan (Sheet C-103), which proposes the 9 light poles around the perimeter of the site, 9 wall-mounted fixtures, 3 bollard lights and 6 fixtures underneath the drive-through canopy.

Details show 6 of the parking lot fixtures as cut-off/downward directed, while there are also 3 decorative fixtures along the Grand River frontage.

The maximum on-site lighting intensity is 10 footcandles, which meets the Ordinance limit.

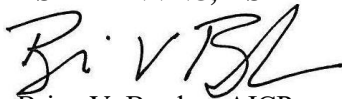
- 10. Signage.** The submittal identifies 2 wall signs, 1 ground sign and 2 directional signs with advertising. Because the site is a through lot, 2 wall signs are allowed. Additionally, the sizes and heights of each type of signage complies with current Ordinance standards; however, the applicant should be aware that a separate sign permit will be required prior to installation.

- 11. Impact Assessment.** The submittal includes an updated Impact Assessment (dated March 21, 2017). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

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 borden@lslplanning.com.

Respectfully,

LSL PLANNING, A SAFE BUILT COMPANY



Brian V. Borden, AICP
Planning Manager



April 4, 2017

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

Re: Lake Trust Credit Union – Site Plan Review #2

Dear Ms. Van Marter:

We have reviewed the revised site plans completed by KEBS, Inc. dated March 21, 2017. The plans were originally submitted in 2007 by Boss Engineering with the most recent submission from Studio [intrigue] Architects, LLC. The applicant is proposing to build a 2,360 sft single-story credit union with access from Grand River Avenue and a shared access road adjacent to Grand River that is shared with adjoining parcels. The site is located between Arundell Avenue and Lawson Drive on the north side of Grand River Avenue.

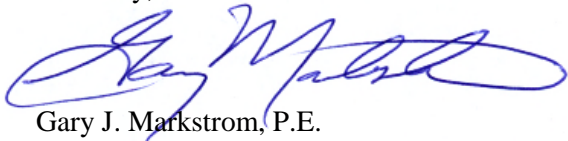
Tetra Tech has reviewed the documents and has the following comments:

1. The site plan includes a note that the existing drive entrance on the property to the east be closed off when the new entrance is complete. The applicant must supply written approval or authorization from the adjacent property owner to eliminate the existing driveway on their property.
 - a. The applicant has noted this comment in the latest submission and will provide the letter of approval at or before the scheduled Planning Commission meeting.
2. The 12” existing main and 8” line to the proposed fire hydrant should be shown on page C-101.
3. Due to the additional hydrant requirement from Brighton Area Fire, the plans will have to go through construction plan review per Section 3 of the MHOG Connection Manual. There is existing water main located on both the south side of Grand River and along Whitehorse Drive. It is recommended the petitioner meet with MHOG prior to developing construction plans to determine the best way to serve this site with a new hydrant.

The planning commission should take the above comments into consideration during their review to ensure all comments are addressed.

Ms. Kelly Van Marter
Re: Lake Trust Credit Union Site Plan Review
March 15, 2017
Page 2

Sincerely,



Gary J. Markstrom, P.E.
Unit Vice President



Marguerite K. Davenport
Project Engineer

copy: Matt Nelson, Studio [intrigue] Architects, LLC



BRIGHTON AREA FIRE AUTHORITY

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

March 28, 2017

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Lake Trust Credit Union
E. Grand River
Genoa Twp., MI

Dear Kelly,

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on March 22, 2017 and the drawings are dated December 13, 2016 with latest revisions dated March 21, 2017. The project is for a proposed new Business Occupancy (Bank) that is approximately 2,500 square feet.

This plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. A new fire hydrant must be installed on the site due to proximity of the structure to adjacent existing hydrants. The hydrant is to be located at the inside corner or the Grand River entry drive near the proposed monument sign. **(The fire hydrant has been included on teh shop drawings)**
2. The address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street (Grand River). The location and size shall be verified prior to installation. Future submittals shall include the address once assigned. **(The address is shown on the elevation drawings and is noted to be compliant with minimum sizing)**
IFC 505.1
3. The access drives shown at 24' must be widened to a minimum of 26' wide. The drive-thru bypass lane must be widened to 16' from the 14' shown. Areas with a width of 16' and 26' wide, the curbed areas along the drives shall be marked as a fire lane. Include the location of the proposed fire lane signage and include a detail of the fire lane sign in the submittal. Access roads to 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 75,000 pounds. **(Access drive widths have been revised, as well as the inclusion of fire lane signage)**
IFC D 102.1
IFC D 103.3
IFC D 103.6
IFC D 103.3
4. Access onto and through the site shall provide emergency vehicles with a turning radius of 30' inside and 50' outside. A minimum vertical clearance of 13½ feet must also be maintained. **(Turning radii have been determined to be in compliance)**
5. The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box will be located adjacent to the main entrance of the structure. **(Knox box has been added)**



March 28, 2017

Page 2

Lake Trust Credit Union

E. Grand River

Site Plan Review

to the east elevation of the architectural drawings)

IFC 506.1

6. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor. **(Provided in response letter)**

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). If applicable, 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".

Capt. Rick Boisvert, CFPS
Fire Inspector

IMPACT ASSESSMENT FOR LAKE TRUST CREDIT UNION
GENOA TOWNSHIP, LIVINGSTON COUNTY MICHIGAN

Prepared for:

**Lake Trust Credit Union
4605 S. Old US Hwy 23
Brighton, Michigan 48114
517-267-7200**

Revised by:

**Studio [intrigue] Architects
Attn: David C. VanderKlok, Architect
1114 S. Washington Ave. #100
Lansing, Michigan 48910
517-282-9954 (c)
517-372-8804 (o)
David@studiointrigue.com**

March 21, 2017

Original Prepared by:

Boss Engineering Company
3121 E. Grand River
Howell, Michigan 48843
November 14, 2007

Narrative:

This development was previously submitted for site plan review back in 2007. The original application was for a Nu-Union Credit Union (now Lake Trust) – the current application is for a new LTCU branch that is smaller than what was originally proposed.

INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development has on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements for Impact Assessment/Impact Statement* guidelines in accordance with Section 18.07 of the published Zoning Ordinance of Genoa Township, Livingston County, Michigan.

DISCUSSION ITEMS

- a. **Name(s) and address(es) of person(s) responsible for preparation** of the impact assessment and a brief statement of their qualifications.

Original Prepared by:
Boss Engineering Company
3121 E. Grand River
Howell, Michigan 48843

Revised by:
Studio [intrigue] Architects
1114 S. Washington Ave #100
Lansing, Michigan, 48910

Prepared for:
Lake Trust Credit Union
4605 S. Old US Hwy 23
Brighton, Michigan 48114

- b. **Map(s) and written description/analysis of the project site** including all existing structures, manmade facilities, and natural features. The analysis shall also include information for areas within 10 feet of the property. An aerial photograph or drawing may be used to delineate these areas.

The proposed Lake Trust Credit Union site is located on 1.36 acres on the North side of Grand River Avenue just east of Aubree's Pizzeria. The north property line also fronts White Horse Drive. The site is open with a few small trees around the perimeter of the property planted at the time of the restaurant construction.

The property is substantially 'flat' in the center with an elevation of 995.30 (USGS Datum) with minimal slopes towards the northwest and southeast. The storm water runoff flowing towards the northwest is detained in the existing detention basin on the Singh – Westbury site. The storm water flowing towards the southeast ends up in the Grand River Avenue ditch. The parcel is part of the Lorentzen PUD.

Existing utilities on-site and abutting the site include a 12" watermain along the south side of Grand River Ave., a 8" watermain along the south side of White Horse Drive, an 8" sanitary sewer along the north side of Grand River Ave., a 24" storm sewer along the east property line, overhead utility lines along the south property line adjacent to Grand River Ave., and a 24" storm sewer along the north side of Grand River Ave.

Grand River Avenue is a five (5) lane roadway under the jurisdiction of the Michigan Department of Transportation (M.D.O.T.) with a curb, gutter, and a center left turn lane.



c. **Impact on natural features:** A written description of the environmental characteristics of the site prior to development and following development, i.e., topography, soils, wildlife, woodlands, mature trees (eight-inch caliper or greater), wetlands, drainage, lakes, streams, creeks or ponds. Documentation by a qualified wetland specialist shall be required wherever the Township determines that there is a potential regulated wetland. Reduced copies of the Existing Conditions Map(s) or aerial photographs may accompany written material.

As previously mentioned, the subject site slopes gradually from the center towards the northwest and the southeast from elevation 995.30. The geotechnical report from Wolverine Engineers and Surveyors, Inc. dated February 7, 2017 indicates the soils to be as follows:

Percent of Site	Name	Percent Slopes
100%	Sandy clay with 6"-10" topsoil	2-6%

The site contains no streams, creeks, ponds, or wetlands per the National Wetland Inventory Plan prepared by the United States Department of the Interior, and site visit.

Except for a few small trees around the perimeter of the property, the subject parcel is an open manicured lawn.

- d. **Impact on stormwater management:** Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from the Livingston County Drain Commission at (517) 546-0040.

Storm runoff from approximately 1/3 of the subject site is currently detained in the existing detention basin on the Singh – Westbury property, the other 2/3 of the site sheet flows to the MDOT R.O.W.. The existing detention basin is designed to be a “dry detention basin” meaning that the pond will hold storm water for a short period of time following a rainfall. As part of the new construction, a second detention basin will be added at the north end of the property. This detention has been sized to detain for the entire parcel (1.36 acres). There is a proposed forebay with a rip rap filter that provides treatment before discharge. There is also a controlled outlet structure within the proposed basin that will allow 0.27 cfs to the existing stormwater facility. The outlet will be covered with stone/gravel to act as a secondary filter prior to storm water discharge. A small sediment area has been provided below the outlet elevation to help capture sediment.

The Livingston County Drain Commissioner must issue a Soil Erosion Control permit to ensure soil erosion control measures are used during construction. All requirements will be met including temporary drainage control, temporary dust control and runoff control. The following methods will be used as required: diversion berms, geotextile sediment control fences, diversion ditching, slope stabilization. Stone filters will be installed on catch basins, inlets, and pipe inlets. Finish grades, redistribution of top soil and lawn with shrubbery will be installed upon building and paving construction completion. Pavements, swales, basins, etc. will be cleaned after construction and properly maintained by Lake Trust Credit Union.

At the time of construction, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control and working near adjacent buildings only during daytime hours.

- e. **Impact on surrounding land used:** Description of the types of proposed uses and other man-made facilities, including any project phasing, and an indication of how the proposed use conforms or conflicts with existing and potential development patterns. A description shall be provided of any increases of light, noise or air pollution which could negatively impact adjacent properties.

The applicant is proposing to construct a 2,360 S.F. building to be used by the credit union. The building will be one (1) story and will have a three (3) lane drive-thru attached to the north side of the building. An ATM location will be integrated within the third drive-thru lane (furthest from building).

Nuisances such as fumes, vibration and smoke will not be associated with the proposed credit union and will therefore have no impact on the surrounding land uses.

All lighting, in parking areas and at the building will be directional and aimed in such a manner as to eliminate glare and contain light within the site.

- f. **Impact on public facilities and services:** Describe the number of expected residents, employees, visitors, or patrons, and the anticipated impact on public schools, police protection and fire protection. Letters from the appropriate agencies may be provided, as appropriate.

The development will be served by public water and sewer systems adjacent to the site. Because the use is a credit union, a majority of patrons will be on the site for a very brief period of time. Therefore, the impact on the general services will be minimal.

- g. **Impact on public utilities:** Describe the method to be used to service the development with water and sanitary sewer facilities, the method to be used to control drainage on the site and from the site, including runoff control during periods of construction. For sites serviced with sanitary sewer, calculations for pre- and post-development flows shall be provided in comparison with sewer line capacity. Expected sewage rates shall be provided in equivalents to a single family home. Where septic systems are proposed, documentation or permits from the Livingston County Health Department shall be provided.

The site is located within the Genoa-Oceola Sanitary Sewer District. The applicant will work with the Township staff to determine the number of Residential Equivalent Units (R.E.U.) for the proposed use. The parcel is also within the water district along Grand River Avenue. Because of the type of use, little impact is anticipated with regards to public utilities.

As described above the storm sewer system will be designed to filter runoff. Storm water will be released at an agricultural runoff rate to the appropriate natural/designed storm water systems.

All other utilities, including gas, electric, and telephone are available at the site and are not expected to increase in size or capacity. All proposed dry utilities will be underground.

- h. **Storage and handling of any hazardous materials:** A description of any hazardous substances expected to be used, stored or disposed of on the site. The information shall describe the type of materials, location within the site and method of containment. Documentation of compliance with federal and state requirements, and a Pollution Incident Prevention Plan (PIPP) shall be submitted, as appropriate.

The proposed development will have no hazardous materials used or disposed of on this site.

- i. **Impact on Traffic and Pedestrians:** A description of the traffic volumes to be generated based on national reference documents, such as the most recent edition of the *Institute of Transportation Engineers Trip Generation Manual*, other published studies or actual counts of similar uses in Michigan. A detailed traffic impact study shall be submitted for any site over ten (10) acres in size which would be expected to generate 100 directional vehicle trips (i.e. 100 inbound or 100 outbound trips) during the peak hour of traffic of the generator or on the adjacent streets

Based on the Institute of Transportation Engineers Publication TRIP GENERATION manual for a three (3) lane drive-thru bank, the number of trips at peak hours are as follows:

AM Peak Hour

Total = 28 vehicles
Enter = 17 vehicles
Exit = 11 vehicles

PM Peak Hour

Total = 100 vehicles
Enter = 49 vehicles
Exit = 51 vehicles

Please note that this parcel is less than ten (10) acres.

j. **Special Provisions:** General description of any deed restrictions, protective covenants, master deed or association bylaws.

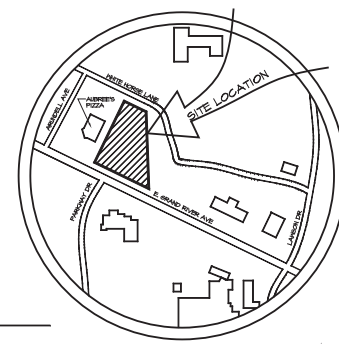
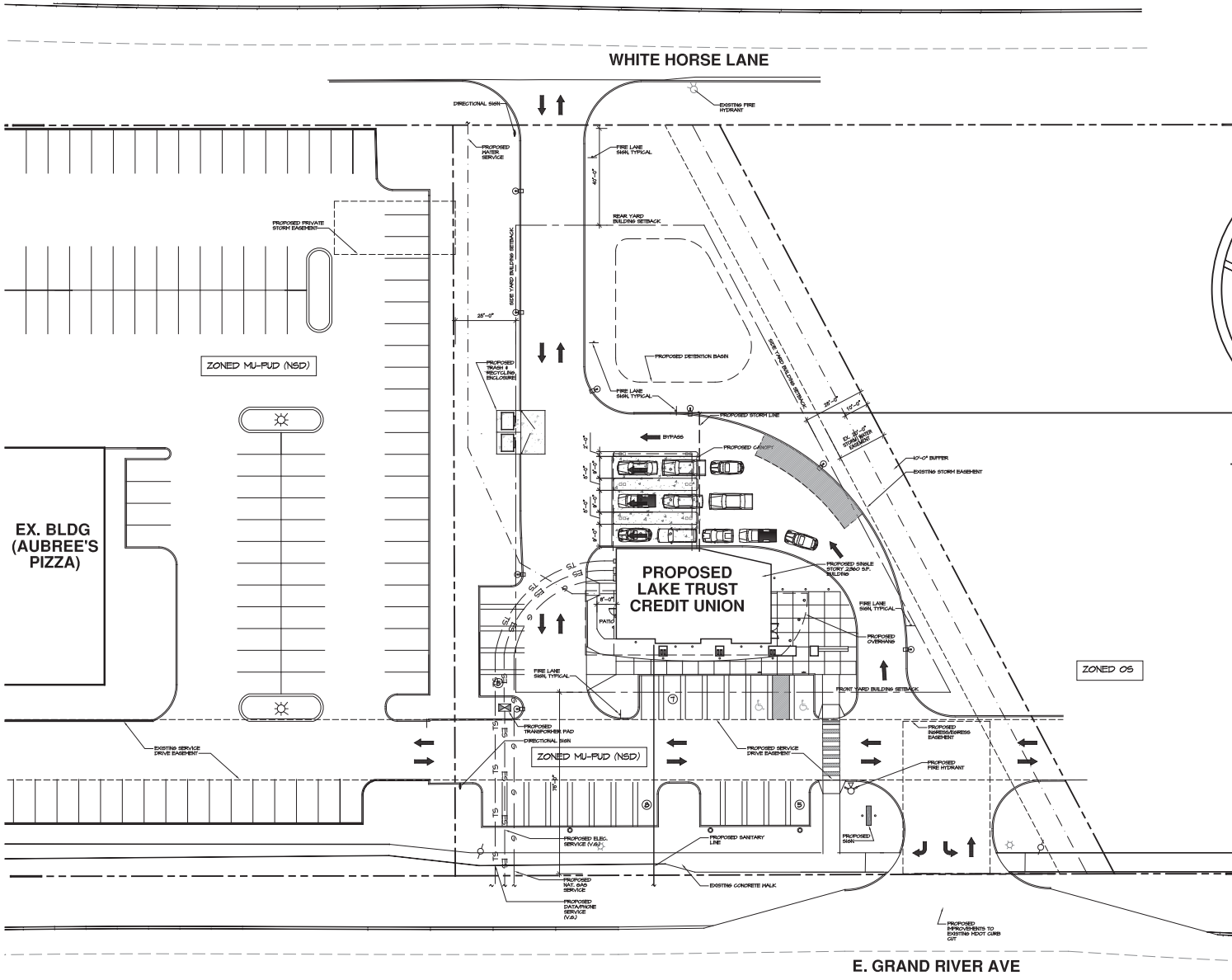
None.

k. **A list of all sources shall be provided.**

- Genoa Township's Submittal Requirement for Impact Assessment/Impact Statement
- Genoa Township Zoning Ordinances
- Trip Generation 6th Edition, Institute of Transportation Engineers
- Geotechnical Survey – Proposed Lake Trust Credit Union, Genoa Twp., Livingston Co., MI 17-0013 by Wolverine Engineers and Surveyors, Inc. dated February 7, 2017

Previously submitted environment assessments

- T.W. & Friends Site Impact Assessment
- Impact Assessment for "NuUnion Credit Union"



SITE LOCATION MAP
N.T.S.

SITE DATA	
AREA:	1.88 ACRES
ZONING:	MU-PUD (NSD) - SEE DEVELOPMENT AGREEMENT FROM 1996.
PARKING - REG'D:	01 SPACE PER 200 S.F. GROSS PLUS 02 SPACES PER ATM
	2,800 S.F./200 S.F. = 102 ATMS
	14 SPACES
PROVIDED:	25 SPACES
BUILDING COVERAGE - ALLOWED, NOT LISTED IN DEVELOPMENT AGREEMENT	05.6% PROPOSED
LOT COVERAGE (IMPERVIOUS) - ALLOWED, NOT LISTED IN DEVELOPMENT AGREEMENT	54.6% PROPOSED

GRAPHIC SITE PLAN
1" = 20'-0"

PRELIMINARY	
CONCEPT	
SCHEMATIC	
SITE PLAN REVIEW	
SITE PLAN REVIEW REVISIONS	
12/13/16	
07/06/17	
02/22/17	
03/21/17	

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Project Type: **NEW CONSTRUCTION**

Project: **LAKE TRUST CREDIT UNION**
EAST GRAND RIVER AVE.
GENOA TWP., MI 48843



4605 S. OLD US HWY 23
BRIGHTON, MI 48114

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Project Number: **16.126**

Sheet: **C-101**



12 HOURS
(3 WORKING DAYS)
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL-FREE)

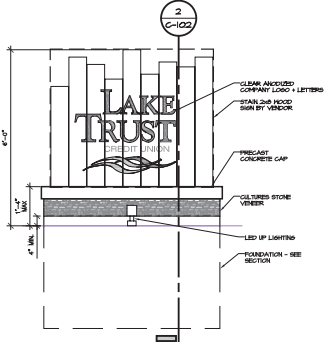
GROUND SIGNAGE

GROUND SIGN:
AREA ALLOWED: 60 SQ. FT.
HEIGHT ALLOWED: 6'-0" MAX.

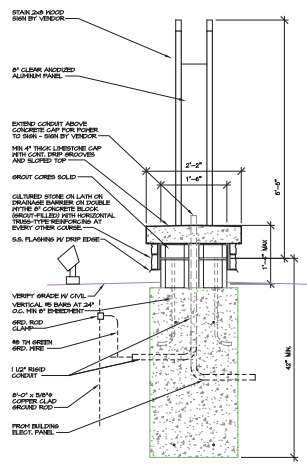
PROPOSED:
AREA PROPOSED: 26 SQ. FT.
HEIGHT PROPOSED: 6'-0"

TOTAL GROUND SIGNAGE 43 SQ. FT. (60 SQ. FT. (OK)

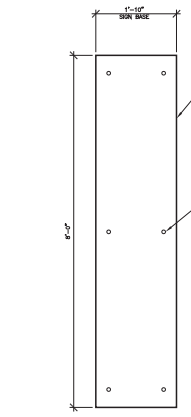
NOTE: ANY DIRECTIONAL SIGNAGE WILL GOAT TOWARDS TOTAL GROUND / MONUMENTAL SIGNAGE SQUARE FOOTAGE.



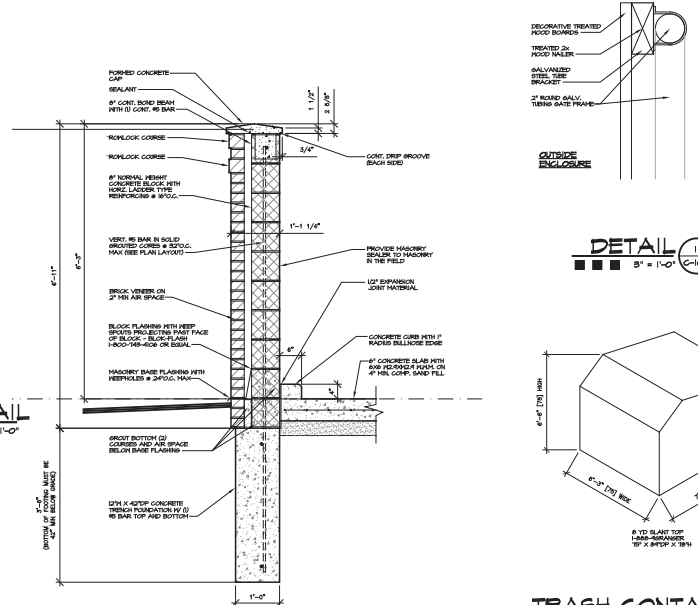
SIGN ELEVATION
1/4" = 1'-0"



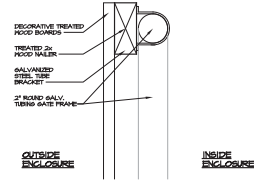
SIGN BASE DETAIL
3/4" = 1'-0"



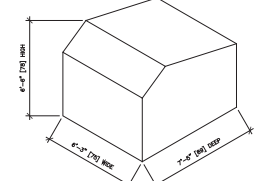
SIGN FOUNDATION DETAIL
3/4" = 1'-0"



TYPICAL WALL SECTION
3/4" = 1'-0"



DETAIL 1
3/4" = 1'-0"



TRASH CONTAINER SIZE
NOT TO SCALE

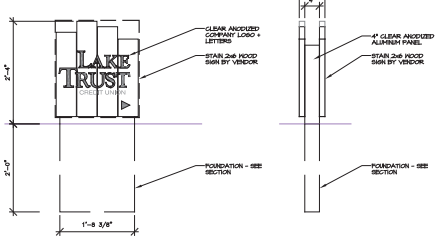
DIRECTIONAL SIGNAGE

DIRECTIONAL SIGN:
AREA ALLOWED: 4 SQ. FT.
HEIGHT ALLOWED: 5'-0" MAX.

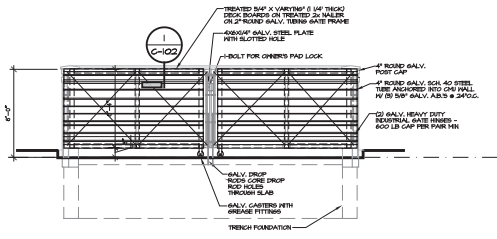
PROPOSED:
AREA PROPOSED: 4 SQ. FT.
HEIGHT PROPOSED: 2'-4"

TOTAL GROUND SIGNAGE 4 SQ. FT. = 4 SQ. FT. (OK)

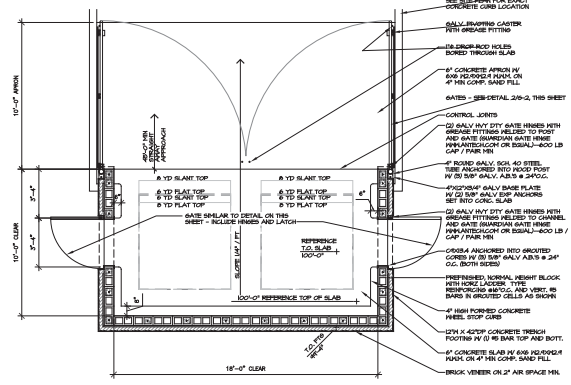
NOTE: ANY DIRECTIONAL SIGNAGE WILL GOAT TOWARDS TOTAL GROUND / MONUMENTAL SIGNAGE SQUARE FOOTAGE.



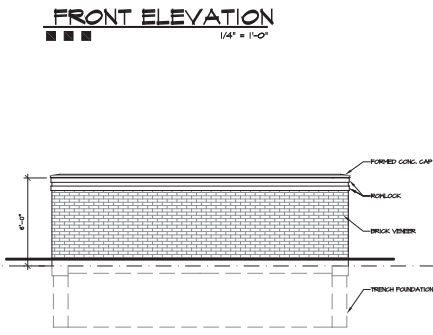
DIRECTIONAL SIGN
3/4" = 1'-0"



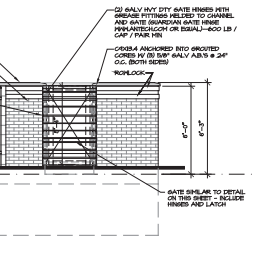
FRONT ELEVATION
1/4" = 1'-0"



FLOOR PLAN
1/4" = 1'-0"



REAR ELEVATION
1/4" = 1'-0"



SIDE ELEVATION
1/4" = 1'-0"

TRASH ENCLOSURE NOTES:

1. CEDAR TO BE NATURAL TONE COLOR. APPLY BDR PREMIUM EXTERIOR TRANSPARENT WATERPROOFING STAIN.
2. ALL ITEMS CALLED OUT TO BE PAINTED SHALL BE PAINTED BLACK UNLESS NOTED OTHERWISE.
3. DUMPSTER SIZE BASED ON UNITS USED BY GRANGER CONTAINER (LANSING, MICHIGAN 815-252-2000) 06/16.
4. VERIFY SIZES OF LOCAL CONTAINERS AVAILABLE PRIOR TO CONSTRUCTION OF TRASH ENCLOSURE.

NOTE:

ENSURE THAT ALL SUBTRADES RECEIVE A COPY OF THE TRASH ENCLOSURE DETAIL SHEET. NO ADDITIONAL PAYMENT WILL BE CONSIDERED BY THE OWNER FOR FAILURE TO INCLUDE THE TRASH ENCLOSURE IN THE BIDD.

NOTES:

1. VERIFY NORTH ORIENTATION WITH SITE PLAN.
2. DIMENSIONAL REQUIREMENTS ARE BASED ON MINIMUM REQUIREMENTS AS REQUIRED BY GRANGER CONTAINER SERVICE, INC (LANSING, MICHIGAN). 06/16.
3. VERIFY LOCAL MINIMUM REQUIREMENTS WITH OWNER'S CONTAINER SUPPLIER.
4. SOIL BEARING CAPACITY BASED ON AN ASSUMED BEARING CAPACITY OF 3000 PSF MINIMUM. VERIFY BEARING CAPACITY PRIOR TO CONSTRUCTION.
5. ALL FOUNDATIONS SHALL BE 3000 PSI.
6. ALL TRASH ENCLOSURE SLABS, INEL. STOP CABS AND APRONS SHALL BE 4000 PSI AIR-ENTRAINED CONCRETE THICKNESS AND REINFORCEMENT AS NOTED ON THE DRAWINGS.

PRELIMINARY
DESIGN REDUCTION
REVISED
SITE PLAN REVIEW
SITE PLAN REVIEW
SITE PLAN REVIEW
12/12/16
02/09/17
02/22/17
03/21/17

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Project Type: **NEW CONSTRUCTION**

Project: **LAKE TRUST CREDIT UNION**

Client: **LAKE TRUST CREDIT UNION**

Address: **EAST GRAND RIVER AVE. GENOA TWP., MI 48843**

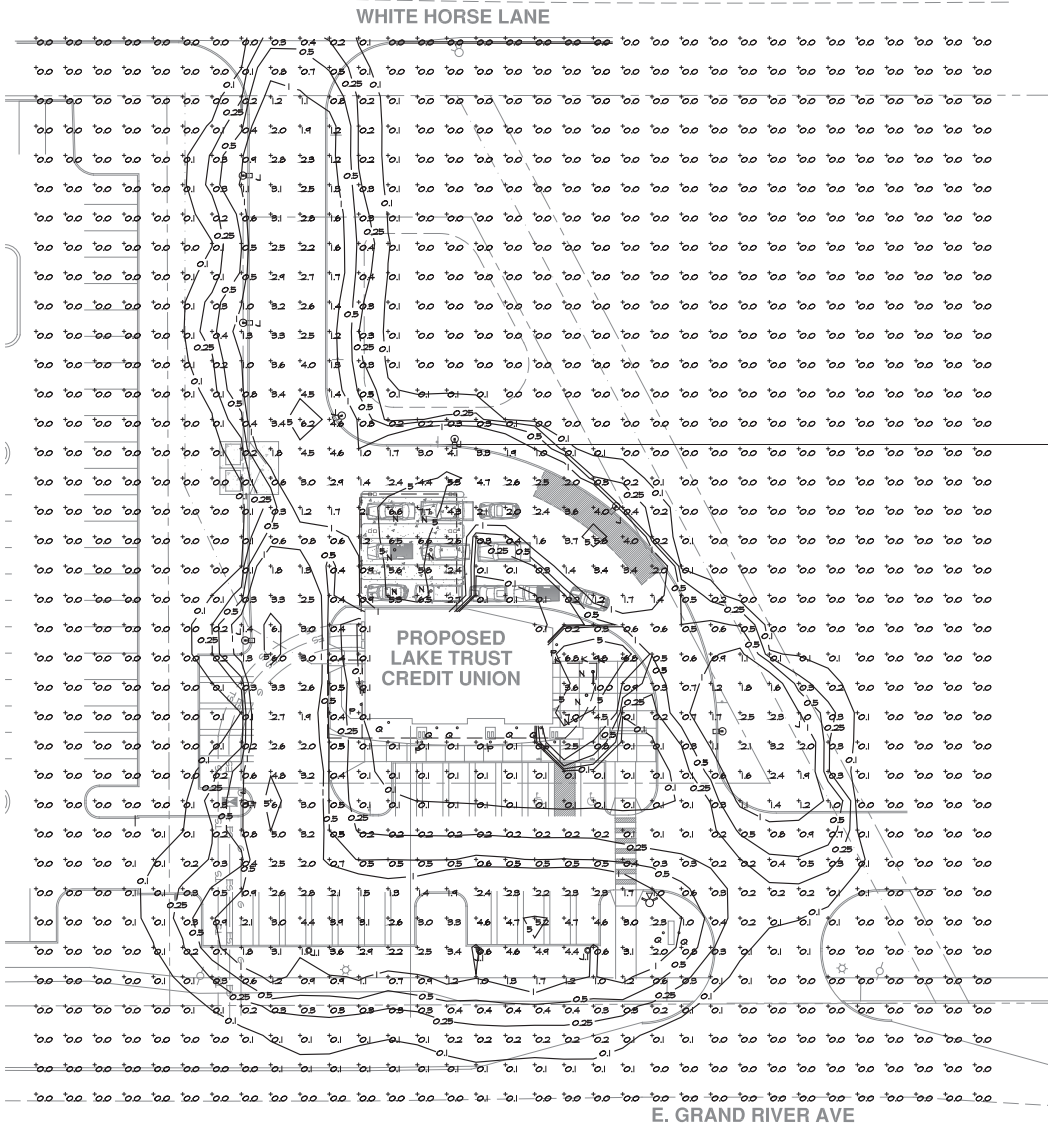
LAKE TRUST CREDIT UNION

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BRIGHTON, MI 48114

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Project Number: **16.126**

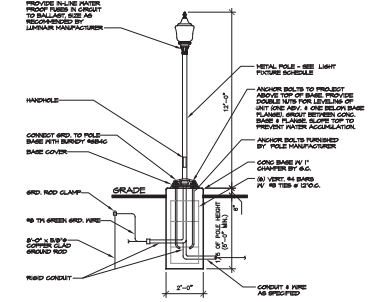
Sheet: **C-102**



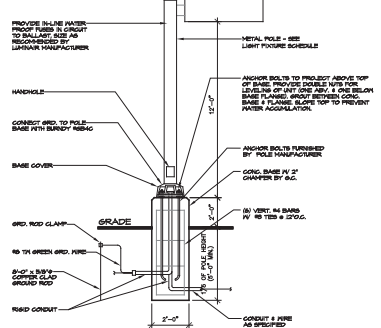
SITE PHOTOMETRIC PLAN
1" = 20'-0"

EXTERIOR LIGHT FIXTURE SCHEDULE				
MARK	MANUFACTURER	MODEL NUMBER	LAMPS	REMARKS
J	LITHONIA	DSXO LED 400 400 80K 15M MVOLT H9	LED	ONE HEAD PER POLE - 14 FOOT POLE HV PHOTOMETRIC SENSOR / TRIM
J1	STERNBERG LIGHTING	D650-XLED-12L-5078-MDL2I	LED	ONE HEAD PER POLE - 8 FOOT POLE HV PHOTOMETRIC SENSOR / TRIM
K	LITHONIA	KBC6 LED 120 850 80K 8YM MVOLT 246 DELXD	84W LED	RECYCLED CAN LIGHT FIXTURE HV PHOTOMETRIC SENSOR / TRIM
N	LITHONIA	LEP6 80/10 L06 PR L20	18W 8000K LED	EXTERIOR SURFACE MOUNT LIGHT HV PHOTOMETRIC SENSOR / TRIM
P	HYDREL	FDX10 B 22 LED WHT80K 120 5P FLC 846 LPI	22W 8000K LED	EXTERIOR SURFACE MOUNT LIGHT HV PHOTOMETRIC SENSOR / TRIM
Q	LITHONIA	OLEP 8 80K D28	10.5W 8000K LED	PHOTOMETRIC SENSOR / TRIM

SITE LIGHTING STATISTICS			
DESCRIPTION	SYMBOL	AVERAGE FOOTCANDLE	MINIMUM FOOTCANDLE
CALCULATION ZONE	±	0.5 FC	0.0 FC



LIGHT POLE AND BASE
@ LIGHT FIXTURE J1
1/4" = 1'-0"



LIGHT POLE AND BASE
@ LIGHT FIXTURE J
1/4" = 1'-0"

PRELIMINARY	12/13/16
DESIGNING/REVISION	07/09/17
REVISION	02/22/17
SITE PLAN REVIEW	02/22/17
SITE PLAN REVISIONS	03/21/17

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Project Type: **NEW CONSTRUCTION**

Project: **LAKE TRUST CREDIT UNION**

Client: **LAKE TRUST CREDIT UNION**

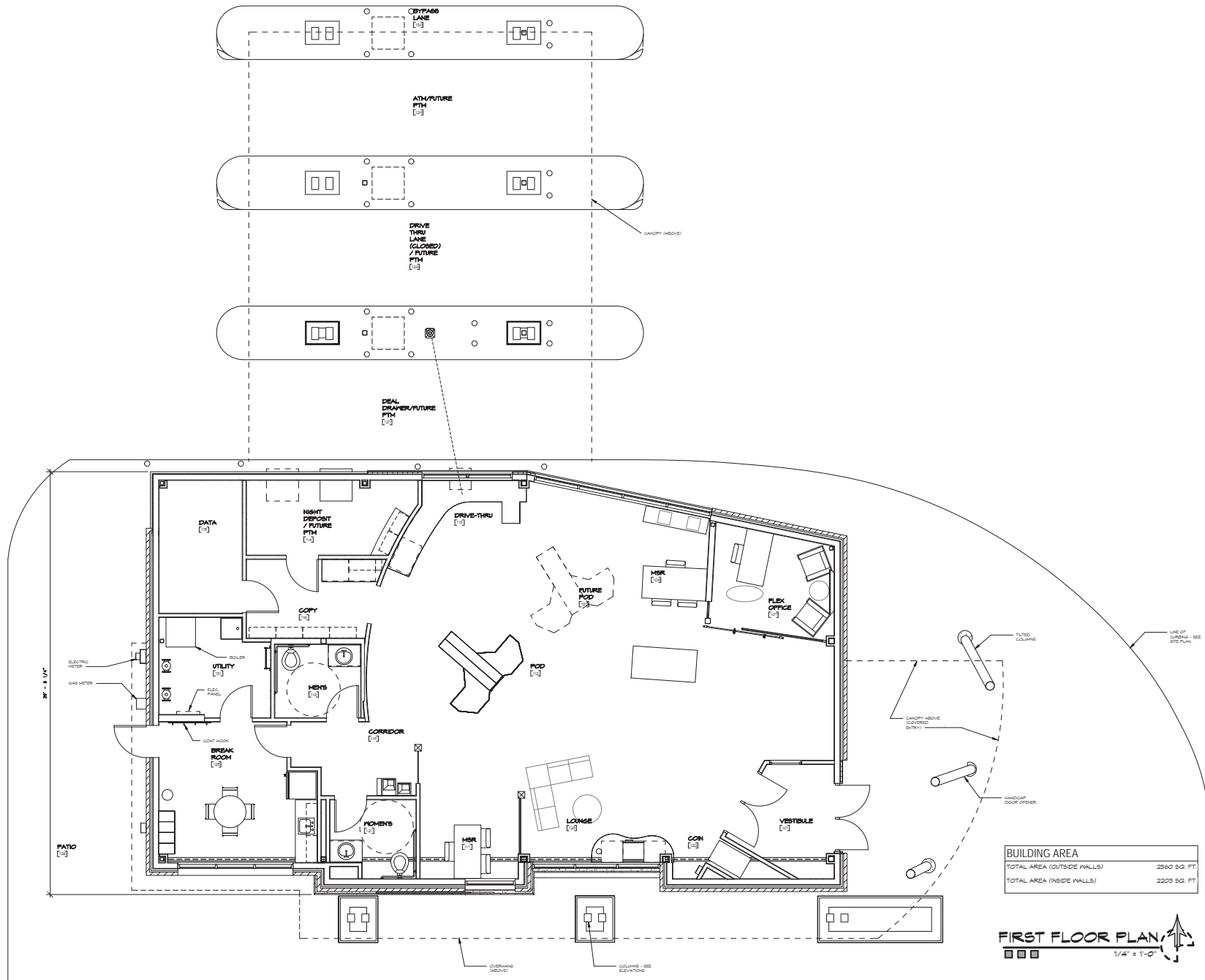
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BRIGHTON, MI 48114

EAST GRAND RIVER AVE.
GENOA TWP., MI 48843

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Project Number: **16.126**

Sheet: **C-103**



BUILDING AREA	
TOTAL AREA (OUTSIDE WALLS)	2860 SQ. FT.
TOTAL AREA (INSIDE WALLS)	2209 SQ. FT.

FIRST FLOOR PLAN
 1/4" = 1'-0"

Revision Date	Revision Description
02/27/17	SITE PLAN REVIEW
03/21/17	SITE PLAN REVIEW REV.

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Project Type:
NEW CONSTRUCTION

Client:
LAKE TRUST CREDIT UNION
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Project Number
16,126

Sheet
A-101

Revision Date:	Revision Description:
02/27/17	SITE PLAN REVIEW

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Project Type:
NEW CONSTRUCTION

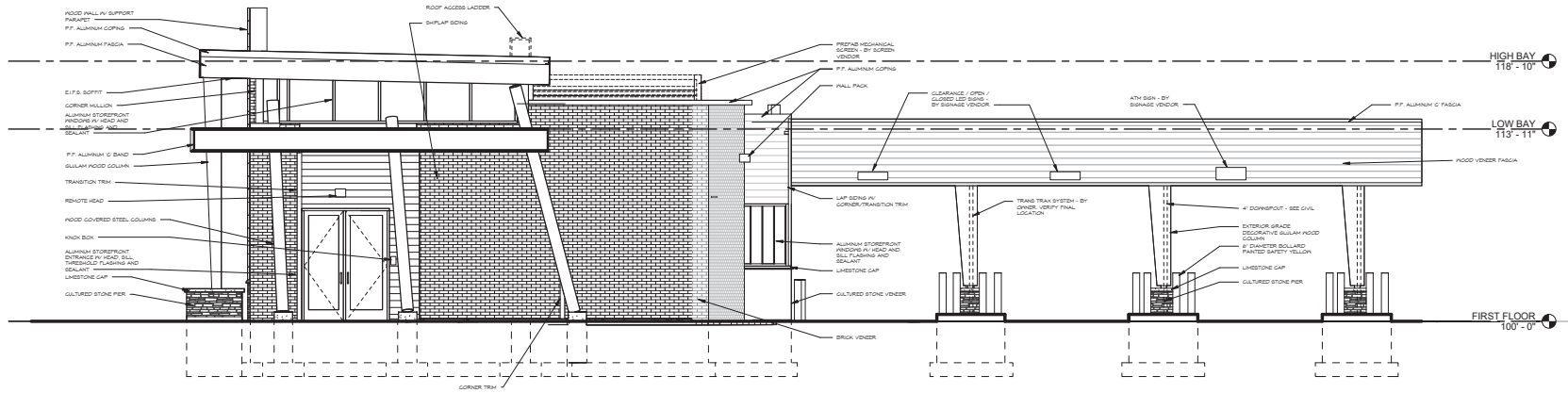
Project:
LAKE TRUST CREDIT UNION
 EAST GRAND RIVER AVE.
 GENOA TWP., MI 48834

Client:
LAKE TRUST CREDIT UNION
 4605 S. OLD US HWY 23
 BRIGHTON, MI 48114

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Project Number:
16.126

Sheet:
A-302

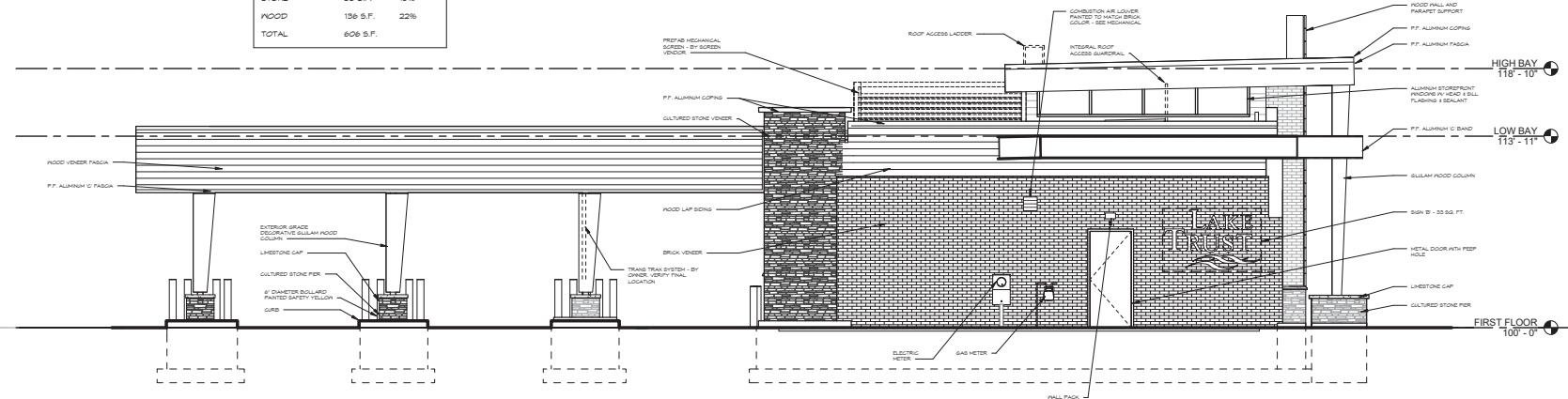


EAST ELEVATION

1/4" = 1'-0"

BUILDING MATERIALS (EAST)	
BRICK	300 S.F. 76%
WOOD	100 S.F. 24%
TOTAL	400 S.F.

BUILDING MATERIALS (WEST)	
BRICK	352 S.F. 65%
STONE	88 S.F. 15%
WOOD	136 S.F. 22%
TOTAL	576 S.F.



WEST ELEVATION

1/4" = 1'-0"

PLANT SCHEDULE

Shade Trees	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AB	2	Acer rubrum 'Bowhall'	Bowhall Maple	2.5' Cal.	Min. 6' Branch Height	LSI, RWN	
AS	2	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	2.5' Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
CD	1	Calix occidentalis	Hackberry	2.5' Cal.	Min. 6' Branch Height	CPC, LCN, LNI, LSI, RWN	
GP	3	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5' Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
GT	4	Gleditsia triacanthos var. inermis 'Skyline'	Skyline Thornless Honeylocust	2.5' Cal.	Min. 6' Branch Height	CPC, LCN, LNI, LSI, RWN	
NS	1	Nyssa sylvatica	Black Gum	2' Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
PA	4	Platanus x acerifolia 'Morton Circle'	Exclamation Planetree	2.5' Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
QB	2	Quercus bicolor	Swamp White Oak	2.5' Cal.	Min. 6' Branch Height	CPC, LCN, LNI, LSI, RWN	

Conifer Trees	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AC	2	Abies concolor	Concolor Fir	6' Ht.	Non-sheared	CPC, LSI, RWN	
PO	6	Picea canadica	Serbian Spruce	6' Ht.	Non-sheared	CPC, LSI, RWN	
PS	2	Pinus strobus	White Pine	6' Ht.	Non-sheared	CPC, LSI	
TD	3	Taxodium distichum 'Mickelson'	Shawnee Brave Bald Cypress	2.5' Cal.		CPC, LCN, RWN	

Ornamental Trees	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
BP	1	Betula populifolia 'Whitepire'	Whitepire Birch	10' Ht.	Multi-stem, Vegetatively Propagated	CPC, LCN, LSI, RWN	

Evergreen Shrubs	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
JP	31	Juniperus x pfitzeriana 'Killey's Compact'	Killey's Compact Juniper	3 Gallon	3.5' O.C.	CPC, LSI, MGC	

Deciduous Shrubs	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AA	12	Anemone arbustiva 'Brilliantissima'	Red Chokeberry	3 Gallon	5' O.C.	CPC, LCN, LSI, MGC, RWN	
CE	12	Cephalanthus occidentalis 'Sugar Shack'	Sugar Shack Buttonbush	3 Gallon	5' O.C.	MGC, NLF	
CS	17	Cornus stolonifera 'Arctic Fire'	Arctic Fire Redtwig Dogwood	3 Gallon	4' O.C.	LNI, LSI	
HA	3	Hydrangea arborescens 'Annabelle'	Annabelle Hydrangea	3 Gallon	4' O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
HB	22	Hydrangea paniculata 'Bobo'	Bobo Hydrangea	3 Gallon	3.5' O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
MP	19	Myrica pensylvanica	Bayberry	3 Gallon	6' O.C.	CPC, LCN, LSI, MGC, NLF	
PD	23	Physocarpus opulifolius 'Little Devil'	Little Devil Ninebark	3 Gallon	4' O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
PP	24	Potentilla fruticosa 'Knapinga'	Happy Face Pink Paradise Potentilla	3 Gallon	3' O.C.	LNI, LSI, MGC, NLF	
RK	6	Rosa 'Radraz'	Knescutout Rose	3 Gallon	3' O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
RL	12	Rhus aromatica 'Gro-Low'	Gro-Low Sumac	3 Gallon	3' O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
SW	20	Spiraea japonica 'Wallbama'	Magie Carpet Spirea	3 Gallon	3' O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
WB	52	Weigela florida 'Spilled Wine'	Spilled Wine Weigela	3 Gallon	3' O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	

Perennials & Ornamental Grasses	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AI	6	Armonia 'Blue Ice'	Blue Ice Blue Star	1 Gallon	2' O.C.	HRT, MGC, RWN	
GR	52	Ceranium 'Rozanne'	Rozanne Ceranium	1 Gallon	2.5' O.C.	CPC, HRT, LNI, LSI, MGC, NLF, RWN	
HS	38	Hemerocallis x 'Strawberry Candy'	Strawberry Candy Daylily	1 Gallon	18" O.C.	CPC, HRT, LNI, RWN	
MC	21	Molinia caerulea 'Moorlanne'	Flaming Moor Grass	1 Gallon	2' O.C.	HRT, LSI, MGC	
NP	67	Nepeta x faassenii 'Pursian Blue'	Pursian Blue Catmint	1 Gallon	2' O.C.	HRT, LNI, NLF, RWN	
PH	22	Pennisetum alopecuroides 'Hamel'	Hamel Dwarf Fountain Grass	1 Gallon	3' O.C.	CPC, HRT, LCN, LNI, LSI, MGC, NLF, RWN	
SA	60	Sesleria autumnalis	Autumn Moor Grass	1 Gallon	18" O.C.	HRT, LSI, MGC, RWN	

Native Forbs	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AN	4	Anemone canadensis	Canada Anemone	Quart	18" O.C.	MGC, WTD	
HM	10	Hibiscus moscheutos	Rose-Mallow	2" Pot	18" O.C.	MGC, WTD	
SI	10	Silphium perfoliatum	Cup Plant	2" Pot	18" O.C.	MGC, WTD	

Native Studs and Forb Supplier:
Wildtype (design, native plants, & seed, 1/2 Mason, MI Telephone: 517-244-1140)

Miscellaneous Materials	Quantity	Material Type
477 L.F.	Aluminum Edging	
12.5 C.Y.	Finished Compost for Planting Beds (1" Depth)	
4,200 S.F.	Native Seed Mixture - Low Detention Basin Mix w/ S75 E.C.B.	
38.5 C.Y.	Shredded Hardwood Mulch (3" Depth)	
2,050 S.Y.	Soil	

Nursery Key	Key	Nursery	Location	Contact
CPC	Christensen's Plant Center	Plymouth, MI	(734) 454-1400	
HRT	Hortech	Spring Lake, MI	(616) 842-1392	
LCN	Lake County Nursery	Madison, OH	(440) 578-5290	
LNI	Lincoln Nurseries, Inc.	Grand Rapids, MI	(616) 453-2351	
LSI	Landscape Supply, Inc.	Taylor, MI	(734) 946-7000	
MGC	Midwest Groundcovers	St. Charles, IL	(260) 750-2197 - David Kiewer	
NLF	Northland Farms	West Olive, MI	(800) 253-1812	
RWN	Ray Wiegand's Nursery	Macomb, MI	(586) 727-3410	

Note: Nurseries listed on plant schedule are for the convenience of the Contractor and indicate typical plants carried. Contact nursery to determine actual plant availability.

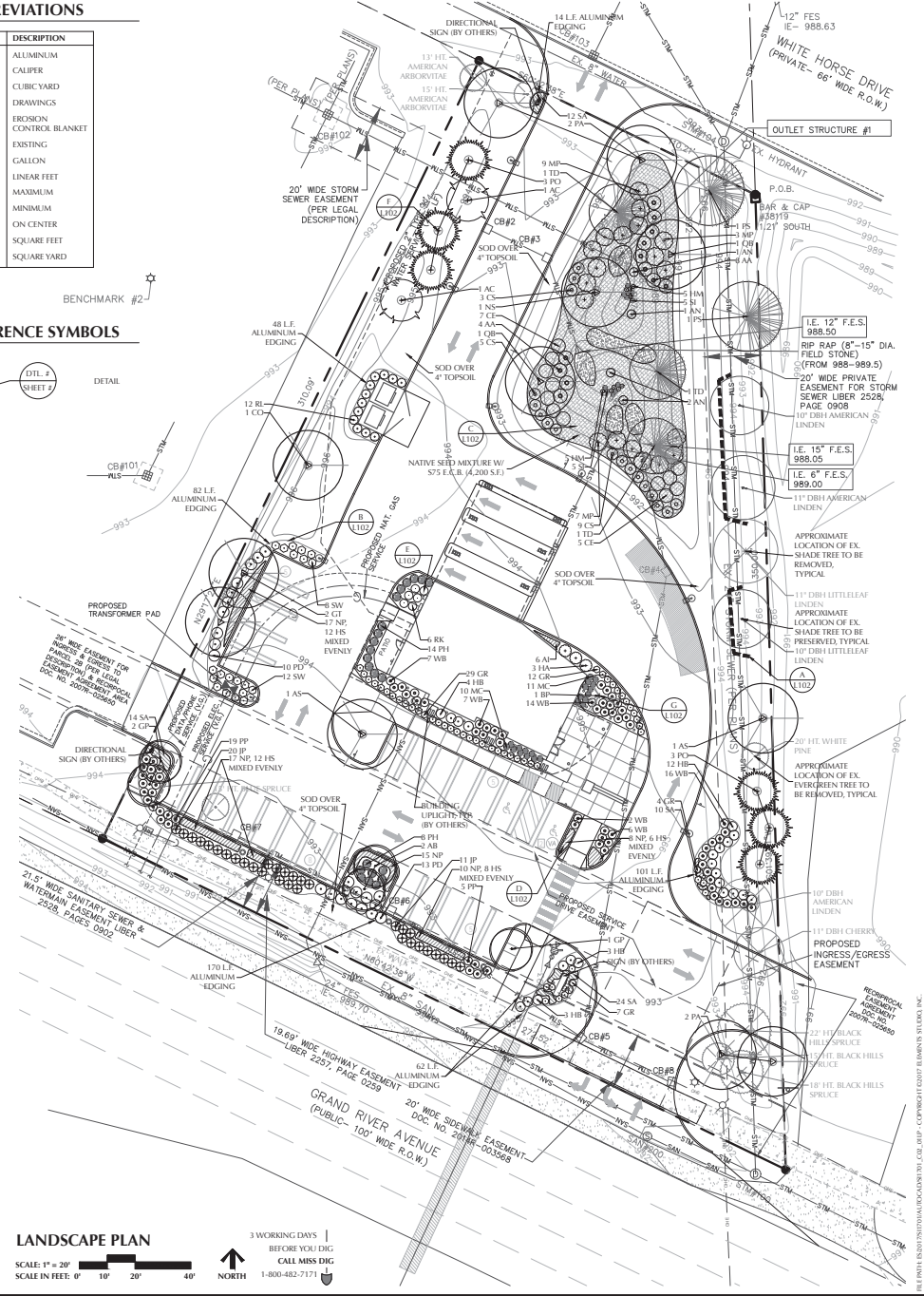
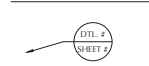
EXISTING TREE PRUNING NOTE

Prune lower branches of (3) existing trees along east property line to be a min. of 6' above the ground to facilitate mowing underneath the tree canopy.

ABBREVIATIONS

TYPE	DESCRIPTION
ALUM.	ALUMINUM
CAL.	CALIPER
C.Y.	CUBIC YARD
DWGS.	DRAWINGS
E.C.B.	EROSION CONTROL BLANKET
EX.	EXISTING
GAL.	GALLON
L.F.	LINEAR FEET
MAX.	MAXIMUM
MIN.	MINIMUM
O.C.	ON CENTER
S.F.	SQUARE FEET
S.Y.	SQUARE YARD

REFERENCE SYMBOLS



GENERAL NOTES

- Quantities shown are for the convenience of the Contractor only. Contractor is responsible for verifying quantities, and for providing sufficient materials to complete the job per plan.
- Contractor shall secure and pay for all permits, fees, and inspections necessary for the proper execution of this work and comply with all codes applicable to this work.
- Contractor shall call MISS DIG System, Inc. (800) 482-7171 three full working days before work commences to locate underground utility locations. Contractor shall avoid all existing utilities, underground and overhead where applicable, and is responsible for any damage.
- Contractor shall verify all existing conditions in the field prior to construction and shall notify Landscape Architect of any variance.
- Some field adjustments may be necessary to ensure that there are no conflicts between existing and proposed plants.
- The Contractor is responsible for protecting all existing vegetation to be preserved.
- Material quality and measurement shall conform to the most recent edition of the American Standard for Nursery Stock, ANSI Z60.1 by American hort.
- All plants shall be installed per the landscape plan. Plantings not found to be in compliance shall be replanted correctly at no additional expense to the owner.
- An approved pre-emergent herbicide shall be applied in all proposed planting beds at a rate specified by manufacturer for each plant variety. Do not apply in Native Seed Mixture area.
- Where planting area meets turf area and edging is not specified, the contractor shall provide a trench edge. Match all planting areas to the bedline shown. Do not install edging for mulch tree rings in lawn.
- Ensure positive drainage away from all structures.
- Fine grade, fertilizer and soil/seed all disturbed areas resulting from construction. All areas shall drain completely and shall not pond or puddle.
- Aerate existing turf where it has been compacted by equipment.



ELEMENTS STUDIO
907'Brien Ave., Lansing, MI 48910
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Lansing, MI 48904-1649
Phone: 517.372.8804

LAKE TRUST CREDIT UNION
EAST GRAND RIVER AVE., GENON TOWNSHIP, MI
LANDSCAPE PLAN



REVISIONS:	REVISION #	DATE
	1	12/17/17

DATE: 02/27/17 - Site Plan Review
PROJECT NUMBER: SH70
DRAWN BY: SE, JF
CHECKED BY: JF
SCALE: AS INDICATED

SHEET NUMBER:
L101

GENOA TOWNSHIP LANDSCAPE REQUIREMENT CHART

REQUIRED GREENBELT ALONG STREET FRONTAGE

	REQUIREMENT	PROVIDED
STREET FRONTAGE DISTANCE: 273 LF. SOUTH GREENBELT: GRAND RIVER AVE.	6.8 TREES	7 CANOPY TREES - TREES LOCATED NORTH OF 20' GREENBELT DUE TO OVERHEAD WIRES
STREET FRONTAGE DISTANCE: 110 LF. NORTH GREENBELT: WHITE HORSE DR.	2.8 TREES	3 CANOPY TREES

REQUIRED BUFFER ZONE C

	REQUIREMENT	PROVIDED
WEST BUFFER DISTANCE: 310 LF.	15.5 TREES -OR- 64 SHRUBS	1 CANOPY TREE 5 EVERGREEN TREES 42 SHRUBS
EAST BUFFER DISTANCE: 350 LF.	17.5 TREES -OR- 72 SHRUBS	3 EXISTING TREES OVER 8" DBH* 1 CANOPY TREE 4 EVERGREEN TREES 28 SHRUBS

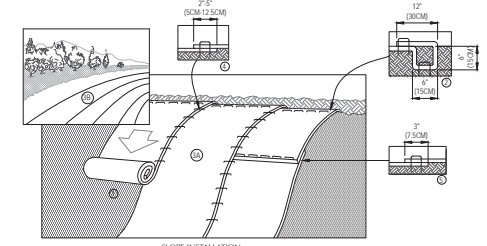
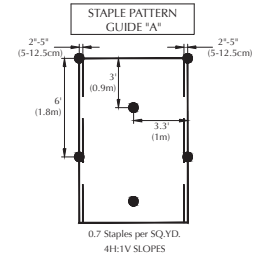
*NOTE: EX. TREES WITH A CALIPER AT LEAST EIGHT (8) IN. SHALL COUNT AS TWO (2) TREES TOWARD THE ABOVE REQUIREMENTS.

REQUIRED PARKING AREA LANDSCAPING

	REQUIREMENT	PROVIDED
PARKING SPACES: 25 SPACES	2.5 TREES 250 S.F. LANDSCAPE AREA HEDGEROW	3 CANOPY TREES 432 S.F. LANDSCAPE AREA HEDGEROW

REQUIRED DETENTION/RETENTION POND LANDSCAPING

	REQUIREMENT	PROVIDED
DETENTION BASIN POND BANK AT 990.62 ELEV. DISTANCE: 287 LF.	5.8 TREES 60 SHRUBS	6 CANOPY TREES 60 SHRUBS

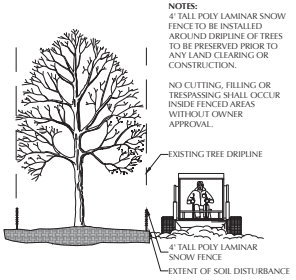
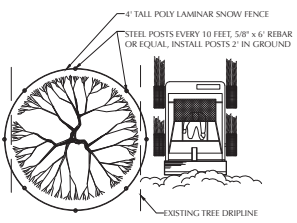


- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15CM) DEEP X 6" (15CM) WIDE TRENCH WITH APPROXIMATELY 12" (30CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL, AND FOLD REMAINING 12" (30CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30CM) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SLEEVE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAPLES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAPLES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2'-5" (5-12.5CM) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT PLACE THE EDGE OF THE OVERLAPPING BLANKET BLANKET BEING INSTALLED ON TOP. EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
- CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SINGLE STYLE) WITH AN APPROXIMATE 7" (17.5CM) OVERLAP. STAPLE THROUGH OVERLAP AREA, APPROXIMATELY 12" (30CM) APART ACROSS ENTIRE BLANKET WIDTH.

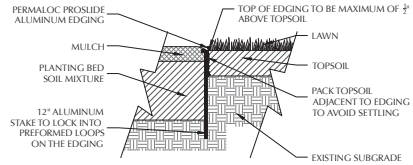
NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. IN LOOSE SOIL CONDITIONS THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

MANUFACTURER: NORTH AMERICAN GREEN, POSEYVILLE, IN (800) 522-5011
www.nagreen.com

C S75 EROSION CONTROL BLANKET DETAIL
NOT TO SCALE

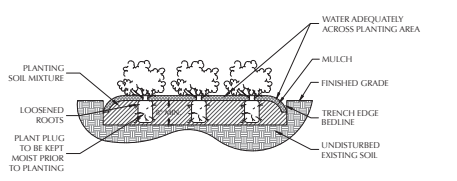


A TREE PROTECTION FENCE DETAILS
NOT TO SCALE

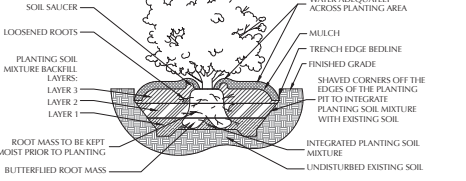


- NOTES:
1. INSTALL PER MANUFACTURER'S "INSTALLATION GUIDELINES."
2. 8'-0" SECTIONS TO INCLUDE (3) 12" ALUMINUM STAKES.
3. 16'-0" SECTIONS TO INCLUDE (5) 12" ALUMINUM STAKES.
4. CORNERS - CUT BASE OF EDGING UP HALFWAY AND FORM A CONTINUOUS CORNER.
- MANUFACTURER: PERMALOC CORPORATION, HOLLAND, MI (800) 356-9660
WWW.PERMALOC.COM
- PROSLIDE ALUMINUM EDGING - 1/8" THICK X 4" TALL, COLOR - MILL FINISH

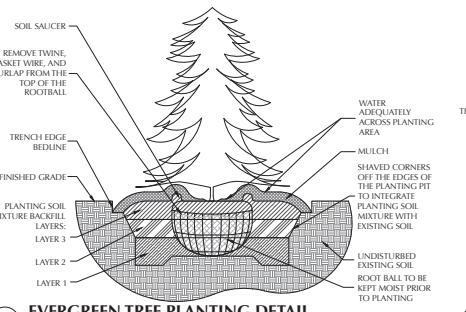
B ALUMINUM EDGING DETAIL
NOT TO SCALE



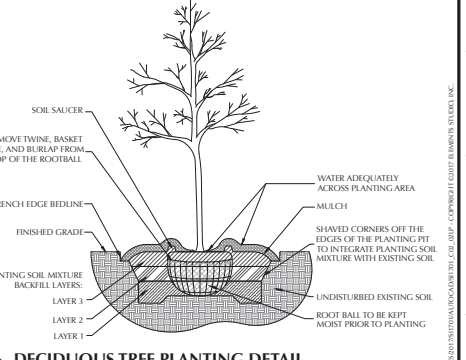
D PERENNIAL & GROUND COVER PLANTING DETAIL
NOT TO SCALE



E SHRUB PLANTING DETAIL
NOT TO SCALE



F EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



G DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



REVISIONS:	REVISION #	DATE
	1	02/21/17
	2	Rev. Site Plan Rvw

DATE: 02/27/17-Site Plan Review
PROJECT NUMBER: S17101
DRAWN BY: SE, JF
CHECKED BY: JF
SCALE: AS INDICATED

SHEET NUMBER:
L102

DATE PLOTTED: 02/27/17 10:45:00 AM; PLOTTER: HP DesignJet T1100PS; PLOT SCALE: 1/8"=1'-0"; PLOT SHEET: L102

LANDSCAPE WORK PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The work shall consist of furnishing, transporting and installing all seeds, plants and other materials required for:

- The establishment of trees, shrubs, groundcovers, perennials, annuals, lawn areas, and native seeded areas as shown on Landscape Plan;
- The provision of post-planting management as specified herein;
- Any remedial operations necessary in conformance with the plans as specified in this document;
- The design, furnishing and installation of a complete underground irrigation system.

1.2 QUALITY ASSURANCE

A. Quality Control Procedures:

- Do not make substitutions. If specified landscape material is not available, submit to Landscape Architect proof of non-availability and proposal for use of equivalent material.

1.3 SUBMITTALS

A. Maintenance Instructions

- Submit two (2) copies of typewritten instructions recommending procedures to be established by the Owner for the maintenance of all landscape work except native seeded areas, which are outlined for maintenance in section 3.1 - Initial Maintenance.
- Maintenance instructions shall include: watering, fertilizing, spraying, mulching, pruning for plant material, and mowing for lawn. Instructions shall be submitted prior to request for inspection for final acceptance.

1.4 JOB CONDITIONS

- Examine and evaluate grades, soils and water levels. Observe the conditions under which work is to be performed and notify Owner of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.
- Utilities: Review underground utility location maps and plans. Notify local utility location service. Certify acceptance of liability for the protection of utilities during course of work. Contractor shall be responsible for any damage to utilities or property.
- Excavation: When conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions or obstructions, correct conditions to be suitable for plant growth before planting.

1.5 GUARANTEES

- Guarantee seeded and sodded lawn areas until final acceptance.
- Guarantee native seeded areas for a period of one year after date of installation.
 - Year 1: 70% Vegetative Cover, primarily by species contained in the cover crop.
 - Year 2: 85% Vegetative Cover, min. 70% species planted being alive and apparent. (Alternate Bid)
 - Year 3: 95% Vegetative Cover, min. 70% species planted being alive and apparent. (Alternate Bid)
 - Years 1 + 3: There shall be no areas greater than .5 square meter which are devoid of vegetation. Where gullies form along basin side slopes or the basin shoreline becomes cut as a result of erosion, finished grade and seed shall be restored within 15 days of notice.
- Guarantee trees, shrubs, groundcovers and perennials for a period of one year after date of final acceptance against defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others or unusual phenomena or incidents which are beyond Contractor's control.

LANDSCAPE WORK PART 2 - MATERIALS AND EXECUTION

2.1 LAWN SOD

- Remove existing grass, vegetation and turf. Dispose of such material legally off-site, do not turn over into soil being prepared for lawns.
- Incorporate topsoil (stockpiled at site) into existing on-site soils while preserving existing soil structure as much as possible, so that resulting soil is not pulverized and prone to erosion. Remove high areas and fill in depressions; remove lumps, clods, stones over 1" diameter, roots and other extraneous matter. Dispose of such material legally off-site. Apply soil amendments to existing topsoil (stockpiled at site) based on soil test.
- Sodded areas shall receive an application of slow-release fertilizer at the rate of 1 lb. per 1,000 sq. ft. of lawn area. Apply phosphate and potash at rates per soil test results. Fertilizer shall be uniformly spread.
- Provide strongly rooted sod, not less than two (2) years old and free of weeds and undesirable native grasses. Provide only sod capable of growth and development when planted (viable, not dormant) and in strips not more than 18" wide x 4' long. Provide sod composed of a 5-way blend of Kentucky Bluegrass such as: Midnight, Allure, Viva, Washington, Liberty.
- Lay sod within 24 hours from time of stripping.
- Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or soil. Tamp or roll lightly to ensure contact with subgrade. Work silted soil into minor cracks between pieces of sod; remove excess sod to avoid smothering of adjacent grass.
- Water sod thoroughly with a fine spray immediately after planting.

2.2 NATIVE SEED MIXTURES

- The period for planting native seed mixtures shall be from April 1 - June 15 or September 1 - October 15. Plugs shall be planted in the spring.
- Remove existing grass, vegetation and turf. Dispose of such material legally off-site.
- Do not turn over into soil being prepared for native seed mix.
- Incorporate topsoil (stockpiled at site) into existing on-site soils while

preserving existing soil structure as much as possible, so that resulting soil is not pulverized and prone to erosion. Remove high areas and fill in depressions; remove lumps, clods, stones over 1" diameter, roots and other extraneous matter. Dispose of such material legally off-site.

- Do not fertilize native seeded areas.
- Install trees and shrubs before seeding; do not apply shredded hardwood mulch.
- Provide fresh, clean, new crop of the species and proportions as specified. Seed shall be obtained from a reputable supplier within a 200 mile radius of the project site.

1. Low Detention Basin Mix
Seed at a rate of 3 oz./1,000 SF or 6.0 lbs. per acre

Forbs		
Botanic Name	Common Name	% PIS by weight
<i>Arenaria canadensis</i>	Canada Arenaria	6.00
<i>Iris virginica</i>	Blue Flag Iris	6.00
<i>Hebeclonm autumnale</i>	Snow-crowweed	6.00
<i>Liatris spicata</i>	Blazing Star	5.00
<i>Labelia siphilitica</i>	Great Blue Lobelia	2.00
<i>Stimulus trigens</i>	Minkley Flower	5.00
<i>Rudbeckia fulgida</i>	Black-eyed Susan	6.00
<i>Solidago riddellii</i>	Riddell's Goldenrod	4.00
Total Forbs:		40.00%

Grasses		
Botanic Name	Common Name	% PIS by weight
<i>Carex crinitella</i>	Crested Sedge	5.00
<i>Carex vulpinoidea</i>	Fox Sedge	5.00
<i>Dlyma virginiana</i>	Virginia Wild Rye	45.00
<i>Scirpus atrovirens</i>	Dark Green Bulrush	5.00
Total Grasses:		60.00%

Native Seed Supplier:
Michigan Wildflower Farm - Portland, MI, Phone: (517) 647-6010.

- Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.

- Seed shall be hand broadcast. Do not seed when wind velocity exceeds five (5) miles per hour. Distribute seed evenly over entire area.
- Sow not less than specified rate.
- Water seed with a fine spray.

- After the seeding operation is completed, install erosion control blanket per manufacturer's specifications over the entire native seed area. Install plugs in soil by cutting slits in erosion control blanket.

- Native seed areas shall be planted and seed allowed to germinate (if possible), prior to flooding with significant amounts of water.

2.3 EROSION CONTROL BLANKET

A. 3H:1V Slope and/or Detention Basin: North American Green S75 or equivalent. Manufacturer: North American Green (800) 772-2040, www.namanager.com. Distributor: CSI Global (248) 887-6767.

2.4 PLANTING SOIL MIXTURE

A. Tree and shrub planting pits, groundcover, perennial, and annual areas: Provide planting soil mixture consisting of three (3) parts friable topsoil (stockpiled at site) and one part finished compost. Finished compost to have a C:N ratio in the range of 15:1 to 20:1.

2.5 PLANT MATERIAL

- All plants shall be subject to inspection and review at the place of growth or upon delivery for conformity to specification requirements and quality. Rejected plants shall be removed immediately from the site.
- The Contractor shall be wholly responsible for assuring that all trees are planted in a vertical and plumb position and remain so throughout the life of this contract and guarantee period. Trees may or may not be staked and guyed depending upon the individual preference of the Contractor; however, any bracing procedures must be approved by the Owner prior to its installation. Contractor chooses to stake and guy the trees, stakes and guy wires are to be removed one year (1) after planting.

2.6 PLANTING BED MULCH

A. Provide mulch consisting of shredded hardwood. Do not use color enriched mulch.

2.7 CLEAN UP AND PROTECTION

- During landscape work, store materials and equipment where directed. Keep pavements clean and work areas and adjoining areas in an orderly condition.
- Protect landscape work and materials from damage due to landscape operations, operations by other trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed by Owner.

2.8 INSPECTION AND ACCEPTANCE

- Supply written affidavit to Owner certifying composition of seed mixtures and integrity of plant materials with respect to species, variety and source.
- Landscape Architect or Owner will make a final inspection to determine acceptability of all seeded and sodded lawn areas, trees, shrubs, groundcovers, and perennials, excluding the native seeded areas. After final acceptance is complete, the contractor shall continue the first year maintenance of the native seeded areas and the Owner shall be responsible for the remainder of the landscape maintenance.
- When the initial maintenance of the native seeded areas is complete, the Landscape Architect or Owner will make a final inspection to determine acceptability. After inspection is complete and approved, the Owner will be responsible for maintenance of the native seeded areas.

LANDSCAPE WORK PART 3 - MAINTENANCE

3.1 INITIAL MAINTENANCE

- Begin maintenance of seeded and sodded lawn areas, trees, shrubs, groundcovers, and perennials immediately after planting, continuing until final acceptance. A minimum of thirty (30) days.
- Begin maintenance of native seeded areas immediately after planting, continuing for a period of one year after date of installation.

1. First Year: Mow/brush-cut to 6" height at the end of May or when plants reach 12" in height. Mow/brush-cut a minimum of two (2) more times throughout the season with the goal of reducing the flowering and forming of seeds by undesirable plants. DO NOT MOW/BRUSH-CUT TREES, SHRUBS, AND PLUGS ORIGINALLY INSTALLED.

- Species that should be managed if encountered:
Alliaria petiolata - Garlic Mustard
Anemone pulsatilla - Pulsatilla
Bromus inermis - Smooth Brome Grass
Butorax umbellatus - Flowering Rush
Cardenaria angustata - Bittersweet
Celastrus orbiculatus - Oriental Bittersweet
Centauria maculosa - Spotted Knipwived
Cirsium arvense - Canada Thistle
Cirsium palustre - European Marsh Thistle
Convallaria majalis - Lily of the Valley
Corvovoluta arvensis - Field Bindweed
Coronilla varia - Crown Vetch
Cynanchum latifolium - Black Swallow-wort
Cynanchum rossicum - Pale Swallow-wort
Dipsacus laciniatus - Cut-leaved Teasel
Dipsacus syriacus - Teasel
Euphorbia esula - Leaky Spurge
Festuca arvensis - Tall Fescue
Glechoma hederacea - Creeping Charlie
Cypripedium spp. - Baby's Breath
Hesperis matronalis - Dame's Rocket
Lactuca corniculata - Bird-foot Tansy
Lysimachia nummularia - Moneywort
Lytium salicaria - Purple Loosestrife
Melilotus alba - White Sweet Clover
Melilotus officinalis - Yellow Sweet Clover
Paulownia sativa - Wild Paulownia
Phalaris arundinacea - Reed Canary Grass
Phragmites australis - Common Reed Grass
Poa compressa - Canada Bluegrass
Poa pratensis - Kentucky Bluegrass
Polygonum convolvutum - Japanese Knotweed
Salix interior - Sandbar Willow

3.2 CONTINUED MAINTENANCE OF NATIVE SEEDED AREAS (ALTERNATE BID)

- Maintain native seeded areas to establish a vegetated detention basin free of erosion and undesirable plants in order to effectively filter and infiltrate stormwater runoff.
- All woody species except those originally installed are to be controlled by foliar spraying, hand wicking or cut stump and herbicide treatment. Only weed-approved herbicides and surfactants shall be used and applied by a Certified Applicator with Category 5 Certification. See 3.1-B.2 above for other species that should be managed if encountered.
- Second Year: Mow/brush-cut to 6" height at the end of May or when plants reach 12" in height. Mow/brush-cut a minimum of one (1) more time with the goal of reducing the flowering and forming of seeds by undesirable plants.
- Third Year: Mow/brush-cut to 6" height at the end of May or when plants reach 12" in height.
- During the fourth year, consult with professionals trained in prescribed burns of natural areas to determine if conducting a prescribed burn would be an appropriate management tool.

UNDERGROUND IRRIGATION SYSTEM

4.1 DESCRIPTION OF WORK

- This subcontractor shall design, furnish and install a complete underground lawn and planted area irrigation system including all necessary underground sleeves, fully automatic weather-based control systems, water pump, water meter, backflow preventer if required per code, and electrical wiring for system. Design shall be in accordance with good engineering practice.
- Provide separate irrigation zones for lawn and planting beds with minimal overlap onto hard surfaces.
- DO NOT IRRIGATE NATIVE SEED MIXTURE AREAS.
- Provide quick coupler valves as directed by Owner.

4.2 QUALITY ASSURANCE

- All materials shall be new, first class, especially designed for intended use.
- All work shall be installed with best workmanship in accordance with best practice of the trade, in accordance with all local codes, ordinances, rules and regulations, and in accordance with the system manufacturer's recommendations.
- Special provisions shall be made to adequately and properly protect the system from damage due to weather and frost conditions.

4.3 SUBMITTALS

- Irrigation system contractor shall submit the following to the Owner:
 - "As-built" drawings shall be submitted at completion of project.
 - Operation and maintenance manuals - two (2) sets.

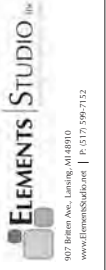
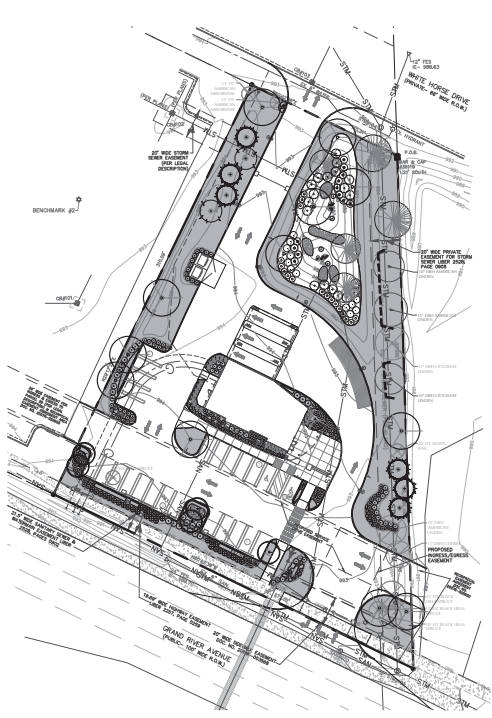
4.4 BID

- Irrigation system contractor shall include with their bid quotation information identifying the manufacturer of the proposed irrigation equipment.

4.5 GUARANTEE

- Furnish written manufacturer's and subcontractor's one (1) year unconditional guarantee against defects in material and workmanship from date of final acceptance of project by the Owner.

IRRIGATION LEGEND



CLIENT:
Studio [in]gray Architects, LLC
1114 S. Washington Ave.
Suite 100
Lansing, MI 48940-1649
Phone: 517.372.8804

LAKE TRUST CREDIT UNION
EAST GRAND RIVER AVE., GENON TOWNSHIP, MI
SPECIFICATIONS & AREAS TO IRRIGATE



REVISIONS:	REVISION #	DATE
	3/21/17	Rev. Site Plan Rvw

DATE:
02/27/17-Site Plan Review
PROJECT NUMBER:
S1701
DRAWN BY:
SE, JF
CHECKED BY:
JF
SCALE:
AS INDICATED

SHEET NUMBER:
L103



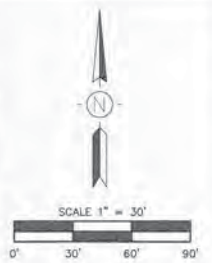
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GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

ARCHITECT:
Studio Intrique Architects, LLC
1111 S. WASHINGTON AVE., STE 100
LANSING, MI 48240-1849
PHONE: 517-256-8005
FAX: (517) 277-9825

ENGINEER/SURVEYOR:
NESE, INC.
211 E. HAZELTINE RD.
HAZELTINE, MI 48840
PHONE: 517-338-1014
FAX: (517) 338-8047



EX. SEWER INVESTIGATIONS

STORM MANHOLE #100
14" DIA. - 88.50'
24" RCP NORTH - 88.13'
24" RCP SOUTH (TYPE RECESSED)
24" RCP DIA - 88.32'

CATCH BASIN #101
18" DIA. - 88.64'
12" RCP NORTH - 88.77'
12" RCP SOUTH - 88.74'
TOP OF MANHOLE - 88.74'

CATCH BASIN #102
18" DIA. - 88.78'
TOP OF MANHOLE - 88.91'
14" VERTICAL PIPES

CATCH BASIN #103
18" DIA. - 88.83'
12" RCP NORTH - 88.97'
12" RCP SOUTH - 88.94'
TOP OF MANHOLE - 88.94'

STORM MANHOLE #104
18" DIA. - 88.84'
12" RCP NORTH - 88.97'
12" RCP SOUTH - 88.94'
TOP OF MANHOLE - 88.94'

STORM MANHOLE #105
18" DIA. - 88.87'
12" RCP NORTH - 89.01'
12" RCP SOUTH - 88.98'
TOP OF MANHOLE - 89.01'

STORM MANHOLE #106
18" DIA. - 88.91'
12" RCP NORTH - 89.05'
12" RCP SOUTH - 89.02'
TOP OF MANHOLE - 89.05'

SITE DATA

PROPOSED CREDIT UNION
TOTAL SITE AREA = 59,341 SF = 1.36 ACRES
ZONED: MUPUD (NSD)

BUILDING SETBACKS

FRONT - 75 FEET
SIDES - 25 FEET
REAR - 40 FEET

BUILDING/UNIT DATA

PROPOSED BUILDING = 2,360 S.F.
MAXIMUM BUILDING HEIGHT = 30 FT.

PARKING

REQUIRED: (SEE ARCHITECTURAL PLAN)
TOTAL PROVIDED = 30 SPACES (INCL. 2 B/F)

UTILITIES

WATER - CITY PUBLIC WATER MAIN
SANITARY - CITY PUBLIC SANITARY
STORM - ON-SITE DETENTION BASIN

NOTES

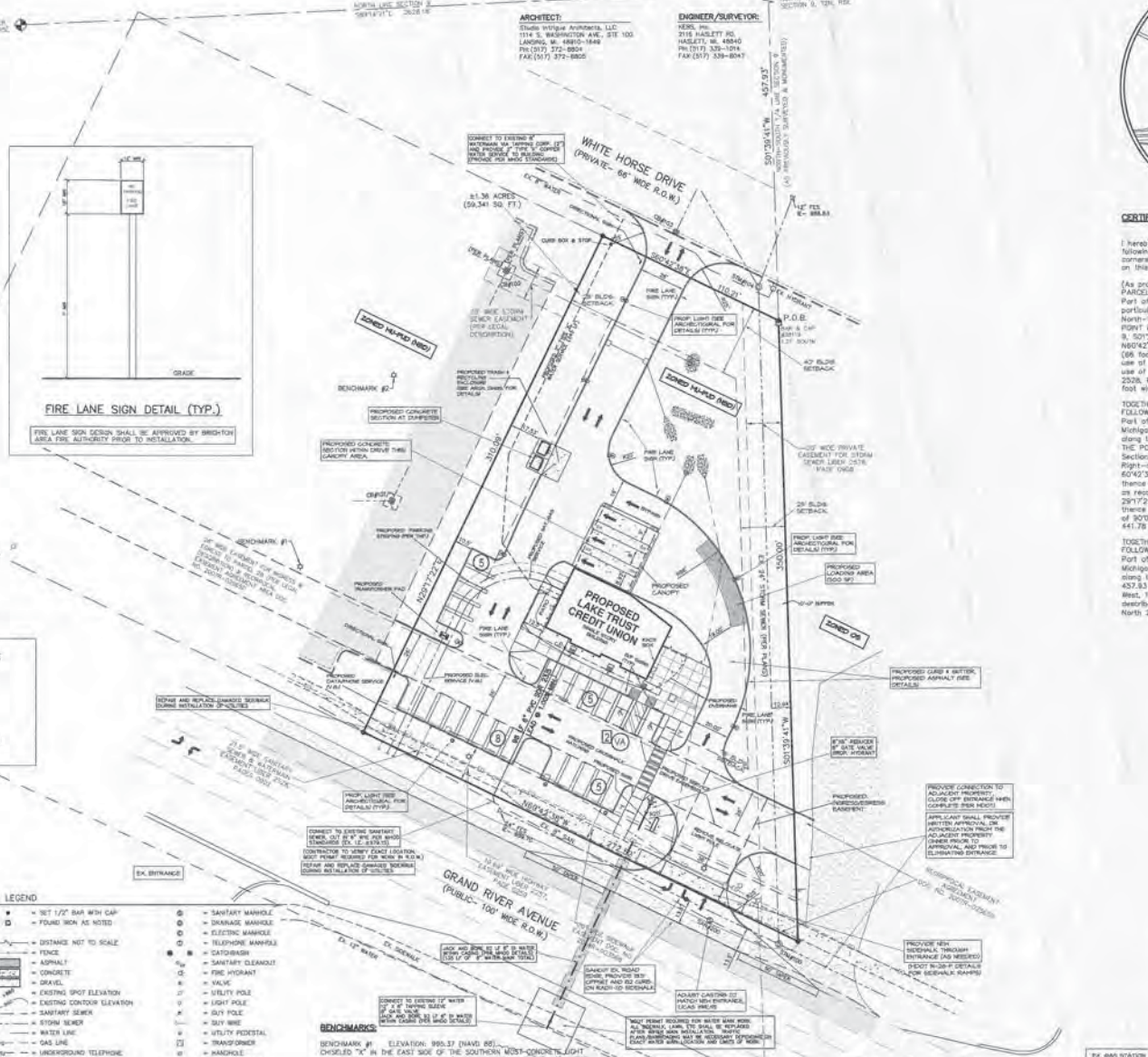
1. LOCATE UTILITIES PRIOR TO INSTALLATION (COORDINATE W/ ENGINEER)

FIRE DEPARTMENT NOTES:

1. THE ADDRESS SHALL BE A MINIMUM OF 6" HIGH LETTERS OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET (GRAND RIVER). THE LOCATION AND SIZE SHALL BE VERIFIED PRIOR TO INSTALLATION.

2. A KNOX BOX SHALL BE INCLUDED. IT SHALL BE LOCATED ADJACENT TO THE MAIN ENTRANCE TO THE BUILDING.

3. OWNER SHALL PROVIDE NAMES, ADDRESSES, PHONE NUMBERS AND EMAILS OF OWNER AND OWNER'S AGENTS, CONTRACTOR, ARCHITECT AND PROJECT SUPERVISOR PRIOR TO CONSTRUCTION.



CERTIFICATE OF SURVEY:

I hereby certify only to the parties named herein that we have surveyed, at the direction of said parties, the following described parcel of land, and that we have found as set, or noted herein, permanent markers to all corners of said parcel and that all visible encroachments of a permanent nature upon said parcel are as shown on this survey.

(As provided by Warranty Deed as recorded in Document No. 20079-02849, recorded 7/25/2007)

Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9, thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, S01°39'41"W, 427.03 feet, to the POINT OF BEGINNING of the Parcel to be described; thence continuing along the North-South 1/4 line of Section 9, S01°39'41"W, 250.00 feet, thence along the westerly line of Grand River Avenue (100 foot wide Right of Way), N80°42'38"W, 272.52 feet, thence N29°17'22"E, 310.09 feet, thence along the southerly line of White Horse Drive (88 foot wide Right of Way - Private), S60°42'38"E, 110.21 feet, to the POINT OF BEGINNING, and including the use of a 28 foot wide Easement for ingress and egress over Parcel 2A, as described below. Also including the use of Easement "A", a 96 foot wide Easement for ingress, egress and Public Utilities as recorded in Liber 2328, Pages 688-800, Livingston County Records (now known as Arundel Drive). Also including the use of a 20 foot wide Private Easement for Storm Sewer, as described below.

TOGETHER WITH AND SUBJECT TO A RECIPROCAL EASEMENT AGREEMENT FOR INGRESS AND EGRESS DESCRIBED AS FOLLOWS:

Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9, thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, South 01°39'41"W, 137.01 feet to the POINT OF BEGINNING of the easement to be described; thence continuing along the North-South 1/4 line of Section 9, South 01°39'41"W, 70.92 feet, thence along the northerly line of Grand River Avenue (100 foot wide Right-of-Way), North 80°42'38"W, 272.52 feet, thence North 29°17'22"E, East, 38.83 feet, thence North 60°42'38"W, 250.15 feet, thence North 29°17'22"E, East, 155.60 feet, thence North 60°42'38"W, West, 38.00 feet, thence along the easterly line of Easement "A", a 88 foot wide Easement for ingress, egress and Public Utilities, as recorded in Liber 2328, Pages 688-800, Livingston County Records (now known as Arundel Drive), North 29°17'22"E, East, 38.00 feet, thence South 60°42'38"E, 64.00 feet, thence South 29°17'22"E, West, 150.80 feet, thence Southerly on an arc to the left, having a length of 59.27 feet, to a radius of 28.00 feet, a central angle of 90°00'00" and a long chord which bears South 15°42'38"E, East, 35.36 feet, thence South 60°42'38"E, East, 44.78 feet to the POINT OF BEGINNING.

TOGETHER WITH AND SUBJECT TO AN EASEMENT FOR STORM WATER AND DIVERSION AND SEWER DESCRIBED AS FOLLOWS:

Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9, thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, South 01°39'41"W, West, 427.03 feet, thence along the southerly line of White Horse Drive (88 foot wide Right of Way), North 60°42'38"E, West, 110.21 feet, thence South 29°17'22"E, West, 31.00 feet, to the POINT OF BEGINNING of the Easement to be described; thence continuing, South 29°17'22"E, West, 20.00 feet, thence North 60°42'38"E, West, 50.00 feet, thence North 29°17'22"E, East, 20.00 feet, thence South 60°42'38"E, 50.00 feet to the POINT OF BEGINNING.

EX. LEGEND

- = 3/8" 1/2" BAR WITH CAP
- = FOUND SIGN AS NOTED
- = DISTANCE NOT TO SCALE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- = VALVE
- = EXISTING SPOT ELEVATION
- = EXISTING CONTOUR ELEVATION
- = WATER LINE
- = STORM SEWER
- = UTILITY FOOTCULT
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS
- = HORIZONTAL TREE
- = CONIFEROUS TREE
- = BUSH

LEGEND

- = PROPOSED WATER MAIN
- = PROPOSED SANITARY SEWER
- = PROPOSED STORM SEWER
- = PROPOSED HYDRANT
- = PROPOSED GATE VALVE
- = PROPOSED SAN. MAN.
- = PROPOSED STORM MAN.
- = PROPOSED C.B.
- = PROPOSED GRADES
- = PROPOSED FIRST FLOOR ELEV.
- = PROPOSED TOP OF CURB ELEV.
- = PROPOSED TOP OF FINISH FLOOR
- = PROPOSED TOP OF PAV'T ELEV.
- = PROPOSED TOP OF WALK ELEV.
- = PROPOSED TOP OF WALK ELEV.
- = DOTTED S.E.C. KEYING SYSTEM

BENCHMARKS:

BENCHMARK #1 - ELEVATION: 980.57 (NAVD 85)
CHISELED "X" IN THE EAST SIDE OF THE SOUTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "LAUREN'S PIZZA & GREEK, 124 WEST & 68' NORTH OF THE SOUTHWEST CORNER OF THE PROPERTY AND 83' SOUTHWEST OF CENTERLINE OF GRAND RIVER AVENUE.

BENCHMARK #2 - ELEVATION: 955.11 (NAVD 85)
CHISELED "X" IN THE EAST SIDE OF THE NORTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "LAUREN'S PIZZA & GREEK, 27' WESTERN OF THE EDGE OF ASPHALT, 80' SOUTHWEST OF CURB AND 70' NORTHWEST OF CENTERLINE.

SHEET INDEX

1. SITE & UTILITY PLAN
2. STORM & GRADING PLAN
3. EXISTING CONDITIONS PLAN
4. DETAILS

ATTACHMENTS:
LANDSCAPING PLAN
MISC. STANDARD DETAILS

EX. BAS STATION ENTRANCE

EX. LEGEND

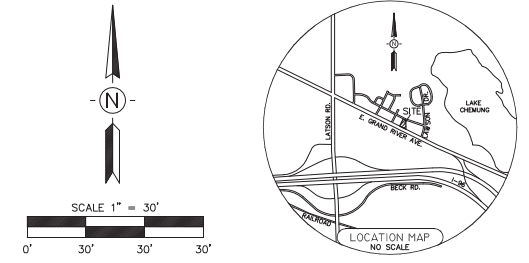
- 1 = DENOTES NUMBER OF B/F SPACES
- VA = DENOTES VAN ACCESS B/F SPACES
- 0 = DENOTES PROPOSED NUMBER OF 9' x 18' PARKING SPACES

SITE ADDRESS: E. GRAND RIVER AVENUE, HOWELL, MI 48843

	REVISIONS 2-12-17 SUBMITTAL 3-11-17 REVISIONS	KEYS, INC. 2118 HAZELTINE ROAD, HAZELTINE, MI 48840 PH: 517-338-1014 FAX: 517-338-8047 Michigan Office PH: 269-780-8800
	APPROVED BY: DATE: 1-20-17 AUTHORIZED BY:	DESIGNER: PROJECT NO: SHEET 1 OF 4 JOB #: 91554

EXISTING CONDITIONS PLAN

"E. GRAND RIVER AVENUE, HOWELL, MI 48843"



SEWER INVENTORIES

STORM MANHOLE #100
 RM- 991.92
 24" RCP NORTH- 987.31
 24" SE- 987.24 (PIPE RECESSED)
 24" RCP NW- 987.32

CATCH BASIN #101
 RM- 992.65
 12" RCP NE- 988.6± (NOT VISIBLE)
 12" RCP WEST- 988.77
 TOP OF WATER- 990.0±

CATCH BASIN #102
 RM- 991.78
 TOP OF WATER- 990.1±
 NO VISIBLE PIPES

CATCH BASIN #103
 RM- 992.59
 12" RCP NE- 989.11
 TOP OF WATER- 990.0±

STORM MANHOLE #104
 RM- 992.45
 12" RCP NE- 988.33
 24" RCP SOUTH- 988.21
 24" RCP 988.31

SANITARY MANHOLE #200
 RM 992.90
 8" PVC SE- 978.47
 8" PVC NW- 978.49

SURVEYOR'S NOTES:

- This plan was made at the direction of the parties named hereon and is intended solely for their immediate use. Survey prepared from fieldwork performed in January 2017.
- All bearings and distances on the survey are record and measured unless otherwise noted. Bearings are based on Boss Engineering Proposed Land Division Survey, Job No. 06427, dated 05-04-07. Elevations based on NAVD 88.
- All dimensions are in feet and decimals thereof.
- No building tie dimensions are to be used for establishing the property lines.
- By scaled map location and graphic plotting only, this property lies entirely within Flood Zone "X", areas outside the 0.2% annual chance floodplain, according to the National Flood Insurance Program, Flood Insurance Rate Map for the Township of Genoa, Livingston County, Michigan, Community Panel No. 260843 0330 D, dated September 17, 2008.
- Utility information as shown was obtained from available public records and from supporting field observations, where possible, and is subject to verification in the field by the appropriate authorities prior to use for construction.
- All plottable easements per documentation provided are shown. No independent easement research was completed by KEBS, Inc. All easements may not be shown.

EX. SOILS INFORMATION:

MoB: Miami Loam, 2-6% Slopes.
 MoC: Miami Loam, 6-12% Slopes.

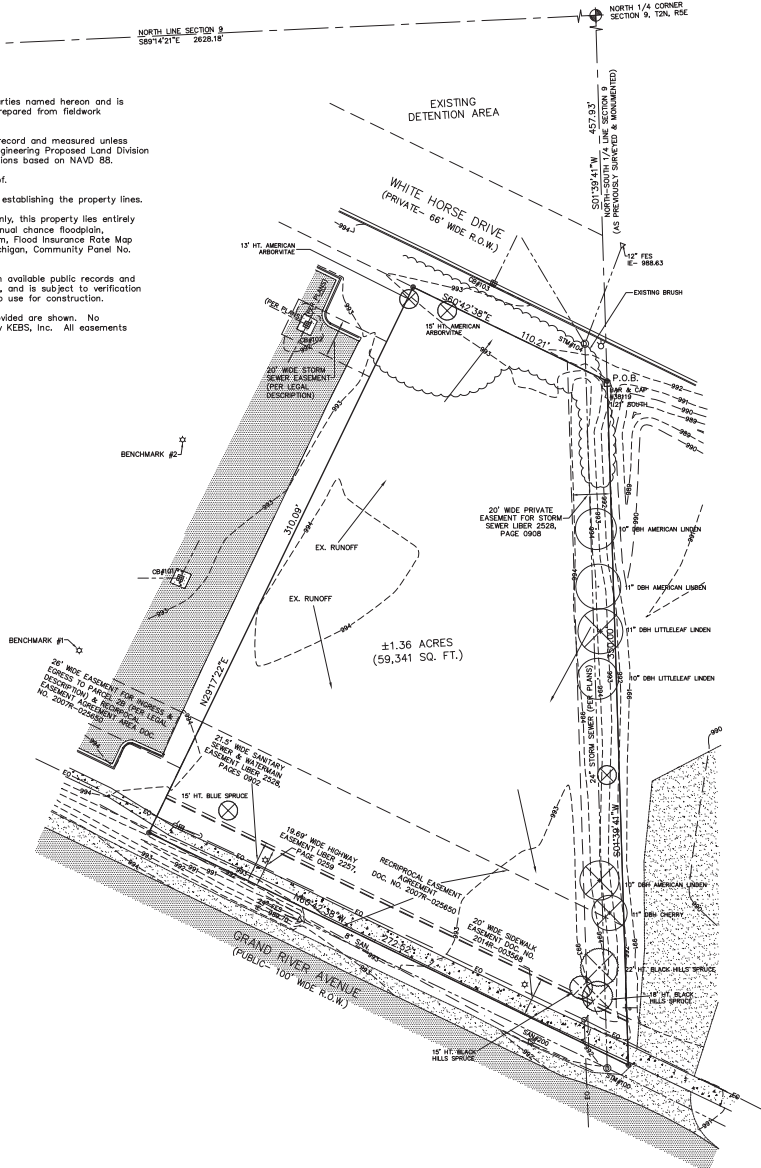
BENCHMARKS:

BENCHMARK #1 ELEVATION: 995.37 (NAVD 88)
 CHISELED "M" IN THE EAST SIDE OF THE SOUTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 72± WEST & 68± NORTH OF THE SOUTHWEST CORNER OF THE PROPERTY AND 63± SOUTHWEST OF CB#101.

BENCHMARK #2 ELEVATION: 995.11 (NAVD 88)
 CHISELED "M" IN THE EAST SIDE OF THE NORTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 57± WESTERLY OF THE EDGE OF ASPHALT, 86± SOUTHWEST OF CB#102 AND 70± NORTHWEST OF CB#101.

LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DEED LINE
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- = EXISTING SPOT ELEVATION
- = EXISTING CONTOUR ELEVATION
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS/BRUSH
- = EX. TREE (LABELED ON PLAN)
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = GUY POLE
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SOIL BORING
- = SIGN
- = POST
- = AIR CONDITIONING UNIT



CERTIFICATE OF SURVEY:

I hereby certify only to the parties named hereon that we have surveyed, at the direction of said parties, the following described parcel of land, and that we have found or set, as noted hereon, permanent markers to all corners of said parcel and that all visible encroachments of a permanent nature upon said parcel are as shown on this survey.

(As provided by Warranty Deed as recorded in Document No. 2007R-025649, recorded 7/25/2007)

PARCEL 2B:
 Part of the Northwest 1/4 of Section 9, T2N, R5E, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9, thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, S01°39'41" W, 457.93 feet, to the POINT OF BEGINNING of the Parcel to be described; thence continuing along the North-South 1/4 line of Section 9, S01°39'41" W, 389.00 feet; thence along the Northernly line of Grand River Avenue (100 foot wide Right of Way), N60°42'38" W, 272.52 feet; thence along the Southerly line of White Horse Drive (66 foot wide Right of Way - Private), S60°42'38" E, 110.21 feet, to the POINT OF BEGINNING, and including the use of a 26 foot wide Easement for Ingress and Egress over Parcel 2A, as described below. Also including the use of Easement "A", a 66 foot wide Easement for Ingress, Egress and Public Utilities as recorded in Liber 2528, Pages 886-901, Livingston County Records (now known as Arundel Drive). Also including the use of a 20 foot wide Private Easement for Storm Sewer, as described below.

TOGETHER WITH AND SUBJECT TO A RECIPROCAL EASEMENT AGREEMENT FOR INGRESS AND EGRESS DESCRIBED AS FOLLOWS:
 Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9, thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, South 01°39'41" West, 737.01 feet to the POINT OF BEGINNING of the easement to be described; thence continuing along the North-South 1/4 line of Section 9, South 01°39'41" W, 70.92 feet; thence along the Northernly line of Grand River Avenue (100 foot wide Right-of-Way), North 60°42'38" West, 272.52 feet; thence North 29°17'22" East, 36.63 feet; thence North 60°42'38" West, 253.15 feet; thence North 29°17'22" East, 155.60 feet; thence North 60°42'38" West, 38.00 feet; thence along the Easterly line of Easement "A", a 66 foot wide Easement for Ingress, Egress and Public Utilities, as recorded in Liber 2528, Pages 886-901, Livingston County Records (now known as Arundel Drive), North 29°17'22" East, 26.00 feet; thence South 60°42'38" E, 64.00 feet; thence South 29°17'22" West, 130.60 feet; thence Southerly on an arc to the left, having a length of 39.27 feet, a radius of 25.00 feet, a central angle of 90°00'00" and a long chord which bears South 15°42'38" East, 35.36 feet; thence South 60°42'38" East, 441.78 feet to the POINT OF BEGINNING.

TOGETHER WITH AND SUBJECT TO AN EASEMENT FOR STORM WATER AND DIVERSION AND SEWER DESCRIBED AS FOLLOWS:
 Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9, thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, South 01°39'41" West, 457.93 feet; thence along the Southerly line of White Horse Drive (66 foot wide Right of Way), North 60°42'38" West, 110.21 feet; thence South 29°17'22" West, 31.00 feet, to the POINT OF BEGINNING of the Easement to be described; thence continuing, South 29°17'22" West, 20.00 feet; thence North 60°42'38" West, 50.00 feet; thence North 29°17'22" East, 20.00 feet; thence South 60°42'38" E, 50.00 feet to the POINT OF BEGINNING.

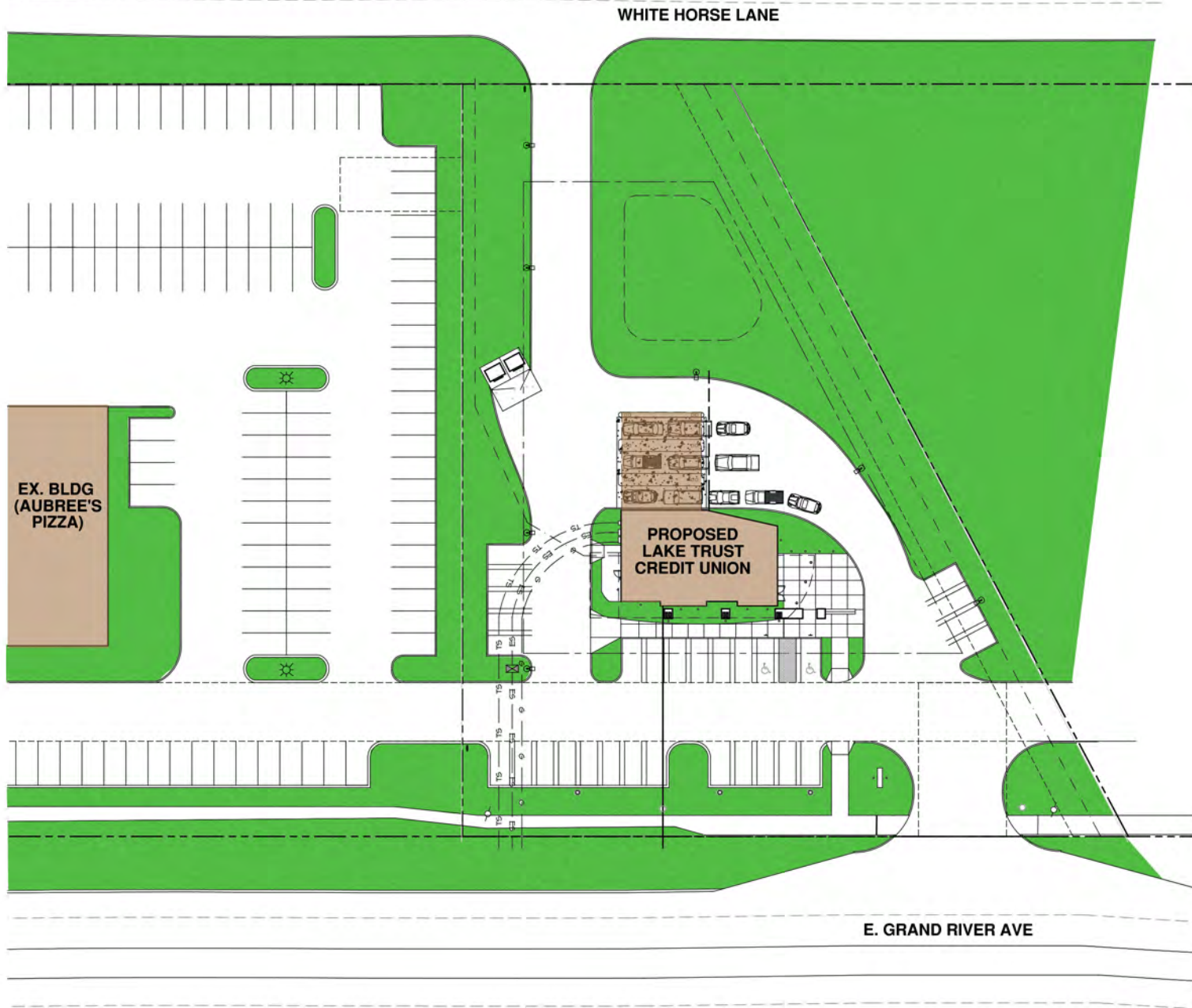
WITNESSES TO SECTION CORNERS:
 North 1/4 Corner, Section 9, T2N, R5E, LSC#1720M
 Found Livingston County Remon. bar & cap
 Found remon. nail & tag in West side of 10" Hickory, South, 28.18'
 Found remon. nail & tag in West side of 36" Oak, North, 88.30'
 Northwest side of 40" Oak, N30°E, 4.35'
 Northwest corner of building, S45°E, 55.84

Northwest Corner Section 9, T2N, R5E, LSC#1718M
 Found Livingston County Remon. bar & cap
 Found remon. nail & tag in Northwest side of utility pole, N65°E, 62.26'
 Found remon. nail & tag in North side of 24" Oak, S50°E, 33.38'
 Found remon. nail & tag in West side of utility pole, S30°E, 93.83'
 Found remon. nail & tag in West side of 24" Oak, S10°E, 113.34'

REVISIONS	COMMENTS	DATE
01/26/17	ORIGINAL	

KEBS, INC. ENGINEERING AND SURVEYING
 2116 HASLETT ROAD, HASLETT, MI 48840
 PH. 817-339-1014 FAX 817-339-8047
 WWW.KEBS.COM

Marshall Office Ph. 269-781-9900
 DRAWN BY SLH SECTION 9, T2N, R5E
 FIELD WORK BY NAW JOB NUMBER 91554
 SHEET 3 OF 4



LAKE TRUSTSM

CREDIT UNION



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DATE: 02.05.15 PROJ: 15.013

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DATE: 03.05.15 PROJ: 15_013



KBC8 LED

LED Specification Bollard

Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

8" Round
(20.3 cm)

Height: 42"
(106.7 cm)

Weight (max): 27lbs
(12.25 kg)



Introduction

The KBC8 Bollard is a stylish, fully integrated LED solution for walkways. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 70% in energy savings over comparable 100W metal halide luminaires, the KBC8 Bollard is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: KBC8 LED 16C 700 40K SYM MVOLT DDBXD

KBC8 LED												
Series	LEDs	Drive current		Color temperature		Distribution		Voltage	Control options	Other options	Finish <i>(required)</i>	
KBC8 LED	Asymmetric 12C 12 LEDs ¹	350	350 mA	30K	3000 K	ASY	Asym- metric ¹	MVOLT ⁵	Shipped installed PE Photoelec- tric cell, button type	Shipped installed SF Single fuse (120, 277, 347V) ^{4,7}	DWHXD White	
		450	450 mA ^{3,4}	40K	4000 K							DNAXD Natural aluminum
	Symmetric 16C 16 LEDs ²	530	530 mA	50K	5000 K	SYM	Sym- metric ²	240 ⁵	DMG 0-10V dimming driver (no controls)	DF Double fuse (208, 240V) ^{4,7}	DDBXD Dark bronze	
		700	700 mA	AMBPC	Amber phosphor converted							H24 24" overall height
				AMBLW	Amber limited wavelength ^{3,4}			277 ⁵	ELCW Emergency battery backup ⁶	H30 30" overall height	DDBTXD Textured dark bronze	
								347 ⁴				H36 36" overall height
									L/AB Without anchor bolts (3 bolt base)	H30 30" overall height	DNATXD Textured natural aluminum	
												L/AB4 4 bolt retrofit base without anchor bolts ⁸

Accessories

Ordered and shipped separately.

MRAB U Anchor bolts for KBC8 LED⁸

NOTES

- 1 Only available in the 12C, ASY version.
- 2 Only available in the 16C, SYM version.
- 3 Only available with 450 AMBLW version.
- 4 Not available with ELCW.
- 5 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- 6 Not available with 347V. Not available with fusing. Not available with 450 AMBLW.
- 7 Single fuse (SF) requires 120, 277, or 347 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
- 8 MRAB U not available with L/AB4 option.
- 9 Striping is available only in the colors listed.



Performance Data

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%.

Light Engines	Drive Current	System Watts	3000 K					4000 K					5000 K					Limited Wavelength Amber					
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	
Asymmetric 3 Engines (12 LEDs)	350	16	641	40	1	1	1	809	51	1	1	1	870	54	1	1	1						
	530	22	947	43	1	1	1	1,191	54	1	1	1	1,282	58	1	1	1						
	700	31	1,214	40	1	1	1	1,527	51	1	1	1	1,646	55	1	1	1						
	Amber 450	16																324	20	0	1	0	
Symmetric 4 Engines (16 LEDs)	350	20	888	44	1	0	0	1,116	56	1	0	0	1,203	60	1	0	0						
	530	28	1,254	45	1	0	0	1,598	57	1	0	1	1,719	61	1	0	1						
	700	39	1,608	41	1	0	1	2,022	52	1	0	1	2,180	56	2	0	1						
	Amber 450	20																374	19	0	0	0	

Note: Available with phosphor-converted amber LED's (nomenclature AMBPC). These LED's produce light with 97+% >530 nm. Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric files.

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.00	0.98	0.97	0.95

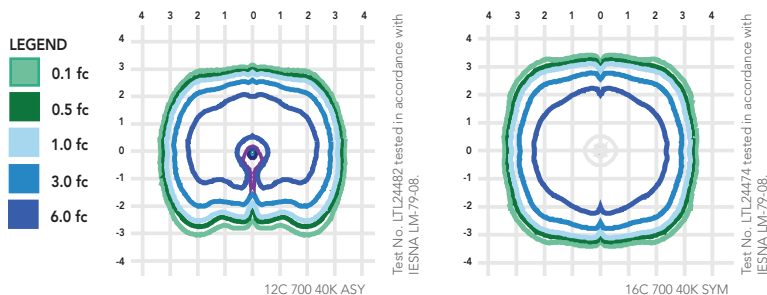
Electrical Load

Light Engines	Drive Current (mA)	System Watts	Current (A)				
			120	208	240	277	347
12C	350	16W	0.158	0.118	0.114	0.109	0.105
	530	22W	0.217	0.146	0.136	0.128	0.118
	700	31W	0.296	0.185	0.168	0.153	0.139
	Amber 450	16W	0.161	0.120	0.115	0.110	0.106
16C	350	20W	0.197	0.137	0.128	0.121	0.114
	530	28W	0.282	0.178	0.162	0.148	0.135
	700	39W	0.385	0.231	0.207	0.185	0.163
	Amber 450	20W	0.199	0.139	0.130	0.123	0.116

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [KBC8 Bollard homepage](#).

Isofootcandle plots for the KB LED Bollards. Distances are in units of mounting height (3').



FEATURES & SPECIFICATIONS

INTENDED USE

The rugged construction and clean lines of the KBA bollard is ideal for illuminating building entryways, walking paths, and pedestrian plazas, as well as any other location requiring a low mounting height light source with fully cutoff illumination.

CONSTRUCTION

One-piece 8-inch round extruded aluminum shaft with thick side walls for extreme durability, a high-impact clear acrylic lens and welded top cap. Die-cast aluminum mounting ring allows for easy leveling even in sloped locations and a full 360-degree rotation for precise alignment during installation. Three 1/2" x 11" anchor bolts with double nuts and washers and 3/4" bolt circle template ensure stability. Overall height is 42" standard.

FINISH

Exterior parts are protected by a zinc-infused super durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering for maximum retention of gloss and luster. A tightly controlled multi-stage process ensures a minimum 3-mil thickness for a finish that can withstand the elements without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Two fully cutoff optical distributions are available: symmetrical and asymmetrical. IP66 sealed LED light engine provides smoothly graduated illumination without any uplight. Light engines are available in standard 4000 K (>70 CRI) or optional 3000 K (>80 CRI) or 5000 K (67 CRI). Limited-wavelength amber LEDs are also available.

ELECTRICAL

Light engines consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (L95/100,000 hours at 700mA at 25°C). Class 2 electronic drivers are designed for an expected life of 100,000 hours with < 1% failure rate. Electrical components are mounted on a removable power tray.

LISTINGS

CSA certified to U.S. and Canadian standards. Light engines are IP66 rated. Rated for -40°C minimum ambient. Cold-weather emergency battery backup rated for -20°C minimum ambient.

WARRANTY

Five-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.



FEATURES & SPECIFICATIONS

INTENDED USE — Typical applications include corridors, lobbies, conference rooms and private offices.
CONSTRUCTION — 16-gauge galvanized steel mounting/plaster frame with trim clips to mount open conical shape reflector.

Vertically adjustable mounting brackets that use 16-gauge flat bar hangers (included), 1/2" conduit or C channel T-bar fasteners. Provides 3-3/4" total adjustment.

Post installation adjustment possible from above or below the ceiling.

Galvanized steel junction box with bottom-hinged access covers and spring latches. Two combination 1/2"-3/4" and three 1/2" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out) No. 12 AWG conductors, rated for 90°C.

Secondary housing adjustment system for precise, final ceiling-to-flange alignment.

Maximum 1-1/2" ceiling thickness.

OPTICS — LED light source with diffused lens, recessed in a deep reflector with a 55-degree cutoff. Aluminum full reflectors are optically designed to maximize lumen output and to provide superior glare control.

Anodized trim colors for open and wallwash reflectors are available in clear, pewter, wheat or gold. White polyester powder coat also available.

Minimum CRI of 80.

ELECTRICAL — High-efficiency, eldoLED 0-10V dimming driver mounted to the junction box, dims luminaire to 10% of its light output. 1% dimming option available (see EZ1 ordering options below).

Dimming fixture requires two (2) additional low-voltage wires to be pulled.

For compatible dimmers and dimming range, refer to Dimmer Compatibility Chart on page 4.

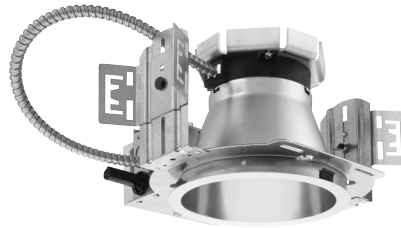
The system maintains 70% lumen output for more than 50,000 hours.

LISTINGS — CSA certified to US and Canadian safety standards. Open downlight (LO6): Wet location listed. Wallwash downlight (LW6): Rated for damp and dry locations only. ENERGY STAR® certified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.

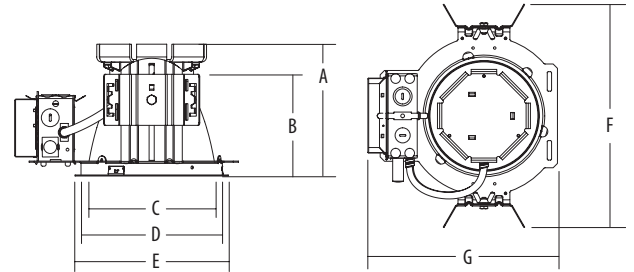
Catalog Number
Notes
Type



LDN6 35/15 L06AR 120

LDN6

6" OPEN and WALLWASH LED Non-IC New Construction Downlight



Overall height varies by lumen package. Reference dimension chart for details.

Maximum Overall Dimensions — All dimensions are inches (centimeters) unless otherwise indicated.							
Lumen package	(A) Height	(B) Frame height	(C) Aperture	(D) Ceiling opening	(E) Outside diameter	(F) Width	(G) Length
600 lm	6-7/16 (16.4)	5-3/4 (14.6)	6-15/16 (17.6)	7-1/8 (18.1)	7-1/2 (19.1)	12-15/16 (32.8)	10-15/16 (27.8)
1000 lm							
1500 lm							
2000 lm	7-13/16 (19.9)						

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: LDN6 35/15 L06AR 120

Series	Color temperature	Lumens ^{1,2}	Reflector	Trim color	Finish	Voltage	Options
LDN6	27/ 2700 K	06 600 lumens	L06 Open downlight	AR Clear	(blank) Semi-specular	120	EL Emergency battery pack with integral test switch ⁶
	30/ 3000 K			PR Pewter	LD Matte-diffuse	277	ELR Emergency battery pack with remote test switch ⁶
	35/ 3500 K	10 1000 lumens	LW6 Wallwash downlight ³	WTR Wheat	LS Specular	347 ⁵	SF Single fuse
	40/ 4000 K			GR Gold			TRW White painted flange ⁷
	15 1500 lumens		WR White ⁴		TRBL Black painted flange		
	20 2000 lumens				NPS80EZ nLight® dimming pack controls 0-10V eldoLED drivers. Refer to TN-633 .		
					NPS80EZER nLight® dimming pack controls 0-10V eldoLED drivers. ER controls fixtures on emergency circuit. Refer to TN-633 . ⁸		
					RRL___ RELOC®-ready luminaire connectors enables a simple and consistent factory installed option across all ABL luminaire brands. Refer to RRL for complete nomenclature.		
					EZ1 eldoLED dims to 1%		
					CP Chicago plenum ^{5,9}		

Accessories: Order as separate catalog number.	
EAC ISSM 375	Compact interruptible emergency AC power system
EAC ISSM 125	Compact interruptible emergency AC power system
GRA68 JZ	Oversized trim ring with 8" outside diameter ¹⁰
SCA6	Sloped ceiling adapter. Refer to TECH-SCA for more options.

Notes

- Approximate lumen output.
- Overall height varies by lumen package. Reference dimension chart on page 1.
- Rated for damp and dry locations only.
- Not available with finishes.
- Not available with emergency options.
- For dimensional changes, refer to chart on page 4. Not available with CP option.
- Not available with WR (white trim color).
- For use with generator supply EM power. Will require an emergency hot feed and normal hot feed.
- 277 volt CP products require marked spacing. Install with minimal spacing between: (a) Center-to-center of adjacent luminaires: 2 ft.; (b) Top of luminaire to overhead building member: 3 in.; (c) Luminaire center to side of building member: 1 ft.
- Refer to [TECH-GOOF RINGS](#) for more options.

LDN6

PHOTOMETRY

Distribution Curve

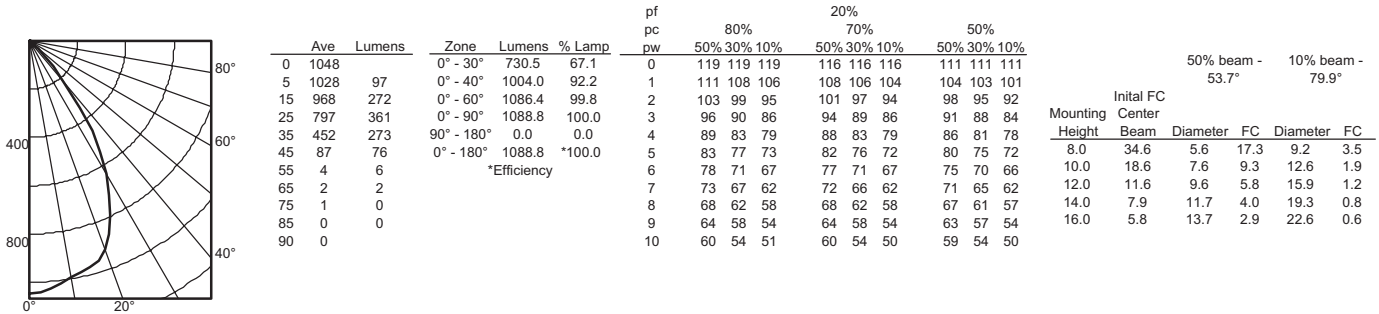
Distribution Data

Output Data

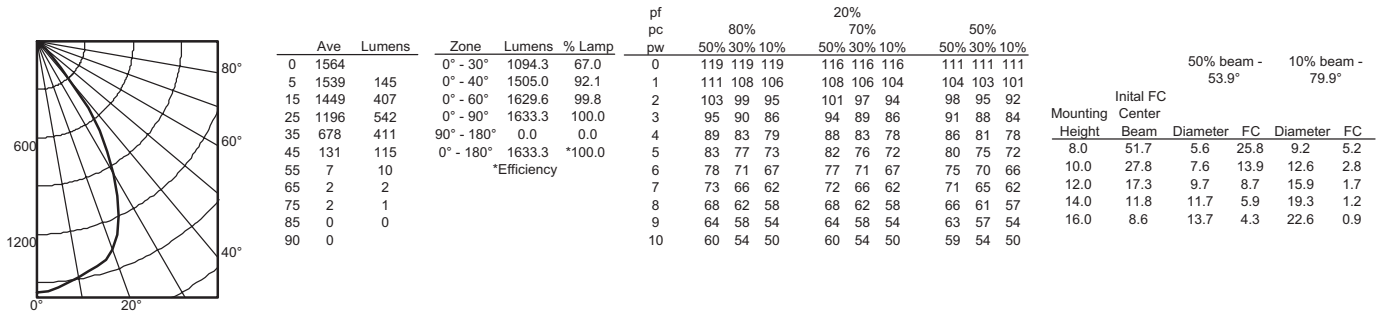
Coefficient of Utilization

Illuminance Data at 30" Above Floor for a Single Luminaire

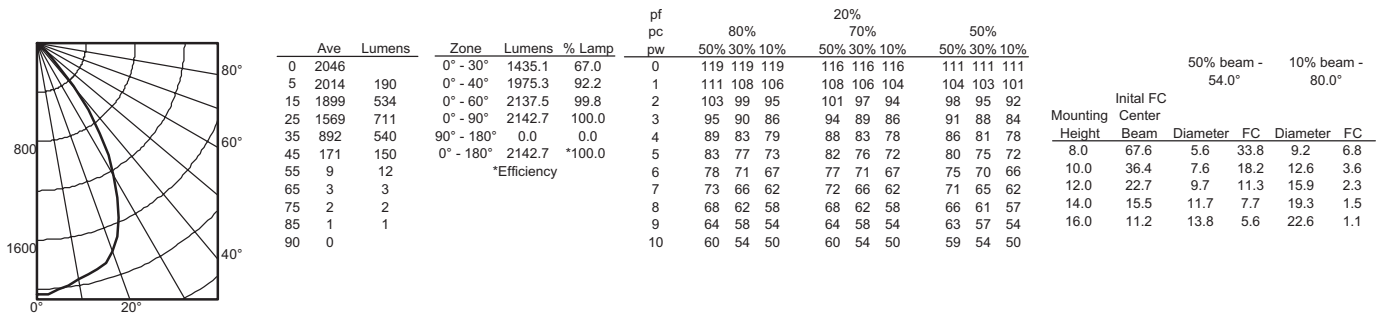
LDN6 35/10 L06AR 120, input watts: 18, delivered lumens: 1089, LM/W = 61, spacing criterion at 0 = 1.03, test no. LTL25148SL.



LDN6 35/15 L06AR 120, input watts: 26, delivered lumens: 1633, LM/W = 63, spacing criterion at 0 = 1.03, test no. LTL25146.



LDN6 35/20 L06AR 120, input watts: 35, delivered lumens: 2143, LM/W = 61, spacing criterion at 0 = 1.04, test no. LTL25144.

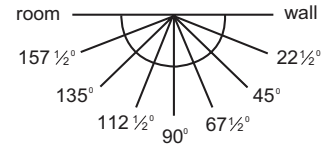


Notes

- Tested in accordance with IESNA LM-79-08.
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- Actual performance may differ as a result of end-user environment and application.
- Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%.
- CRI: 80 typical.

TECHNICAL INFORMATION

Footcandle values are initial and tables are based on minimum of six units. For fixture-to-wall distance other than those shown, use maximum of one-to-one spacing (distance between fixtures not more than distance to wall) for best results.



Candlepower Data

Footcandle values

LDN6 35/10 LW6AR 120, input watts: 18, delivered lumens: 1090, LM/W = 61, test no. LTL25147.

Vertical Angle	Plane angle							
	Wall	22.5	45	67.5	90	112.5	135	157.5
0	888	888	888	888	888	888	888	888
5	813	811	824	854	875	902	922	926
15	652	675	728	803	862	905	930	935
25	488	524	601	678	723	748	749	741
35	319	355	387	414	409	407	409	403
45	241	229	190	139	87	76	76	74
55	181	172	114	40	9	5	7	8
65	139	117	57	11	1	2	3	4
75	74	57	19	3	2	2	3	2
85	19	13	0	0	0	0	0	0
90	5	6	0	0	0	0	0	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
	3	3.5	4	3	3.5	4	3	3.5	4
1	10	8	10	9	5	9	9	2	9
2	15	15	15	13	10	13	12	6	12
3	15	14	15	12	10	12	10	7	10
4	13	14	13	10	11	10	8	8	8
5	12	13	12	9	10	9	7	8	7
6	12	12	12	8	9	8	7	7	7
7	10	10	10	8	8	8	6	6	6
8	9	9	9	7	7	7	5	5	5
9	8	8	8	6	6	6	5	5	5
10	6	6	6	5	5	5	4	4	4

LDN6 35/15 LW6AR 120, input watts: 26, delivered lumens: 1639, LM/W = 63, test no. LTL25145.

Vertical Angle	Plane angle							
	Wall	22.5	45	67.5	90	112.5	135	157.5
0	1312	1312	1312	1312	1312	1312	1312	1312
5	1198	1187	1202	1244	1285	1326	1371	1409
15	956	976	1052	1153	1246	1333	1403	1438
25	697	720	837	953	1028	1082	1109	1126
35	442	482	548	586	583	590	612	623
45	348	336	303	222	132	105	112	115
55	283	269	196	80	19	8	10	11
65	230	191	102	22	3	2	3	6
75	121	88	30	1	1	1	1	4
85	30	18	1	1	0	0	0	0
90	5	6	0	2	1	1	1	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
	3	3.5	4	3	3.5	4	3	3.5	4
1	17	13	17	16	7	16	15	4	15
2	24	24	24	20	16	20	19	10	19
3	22	22	22	17	16	17	15	11	15
4	20	21	20	14	16	14	12	12	12
5	18	19	18	13	15	13	10	12	10
6	17	17	17	12	13	12	9	11	9
7	15	15	15	11	11	11	9	9	9
8	13	13	13	10	10	10	8	8	8
9	11	11	11	8	8	8	7	7	7
10	9	9	9	7	7	7	6	6	6

LDN6 35/20 LW6AR 120, input watts: 35, delivered lumens: 2137, LM/W = 61, test no. LTL25143.

Vertical Angle	Plane angle							
	Wall	22.5	45	67.5	90	112.5	135	157.5
0	1712	1712	1712	1712	1712	1712	1712	1712
5	1566	1544	1598	1633	1710	1739	1783	1806
15	1254	1276	1394	1533	1658	1755	1811	1834
25	913	956	1140	1307	1420	1489	1512	1521
35	592	654	766	839	851	852	855	861
45	446	425	402	325	215	170	167	167
55	335	317	248	115	32	13	12	14
65	251	213	129	35	5	4	5	5
75	121	92	39	4	1	1	1	3
85	24	14	2	0	1	0	0	0
90	1	1	1	0	1	1	1	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
	3	3.5	4	3	3.5	4	3	3.5	4
1	17	13	17	16	7	16	16	4	16
2	28	27	28	23	18	23	22	11	22
3	28	27	28	22	19	22	19	14	19
4	26	27	26	19	20	19	16	15	16
5	24	25	24	17	20	17	13	16	13
6	22	22	22	16	17	16	12	15	12
7	20	20	20	15	15	15	11	13	11
8	17	17	17	13	13	13	10	11	10
9	15	15	15	11	11	11	9	9	9
10	13	13	12	10	10	10	8	8	8

Notes

- Tested in accordance with IESNA LM-79-08.
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- Actual performance may differ as a result of end-user environment and application.
- Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%.
- CRI: 80 typical.



ADDITIONAL DATA

DIMMER COMPATIBILITY CHART	
Manufacturer	Model/Series
600 & 1000 Lumen products	
Leviton	IllumaTech - IP710-DLX
Lutron	Nova T - NTFTV-WH <i>For on/off control, this switch requires a power pack. Consult Lutron for more information.</i>
Sensor Switch	nPODM DX
Synergy	ISD BC 120/277
1500 & 2000 Lumen products	
Busch-Jaeger	2112U-101
Jung	240-10
Leviton Lighting Controls	IllumaTech - IP710-DLX
Lightolier Controls	ZP600FAM120
Lutron Electronics	Nova T - NTFTV
	Diva - DDTV
	Diva - NFTV
	GraphicEye - GRX-TVI w GRX3503
	Energy Savr Node - QSN-4T16-S
TVM2 Module	
Merten	5729
Pass & Seymour	CD4FB-W
Sensor Switch	nPODM DX
Synergy	ISD BC 120/277
The Watt Stopper	DCLV1

EL/ELR DIMENSIONAL CHANGES	
Add to overall housing length for EL/ELR option	Overall housing width with EL/ELR option
4-1/2	16-1/2

EL/ELR AVAILABILITY/COMPATIBILITY - INITIAL LUMENS			
Lumen package	Watts	Initial lumens EL/ELR	Emergency LED driver
600	12	500	PS1030
1000	18	575	PS1030
1500	26	640	Bodine BSL17C-C2
2000	35	690	Bodine BSL17C-C2

KEY SPECIFICATION SUMMARY				
Product Description	Watts (W)	Delivered lumens (lm)	Efficacy (lm/W)	Spacing criteria (s/mh)
LDN6 35/06 L06AR	12	670	56	1.03
LDN6 35/10 L06AR	18	1090	61	1.03
LDN6 35/15 L06AR	26	1640	63	1.03
LDN6 35/20 L06AR	35	2140	61	1.04

Choose Wall Controls.

nLIGHT offers multiple styles of wall controls – each with varying features and user experience.



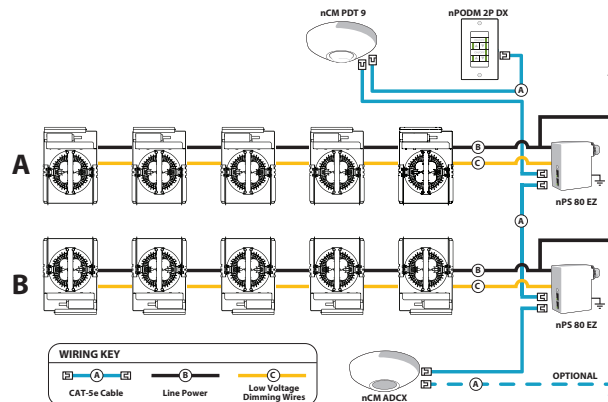
Push-Button WallPod
Traditional tactile buttons and LED user feedback



Touch WallPod
Contemporary capacitive touch style buttons with audible clicker for user feedback



Graphic WallPod
Full color touch screen provides a sophisticated look and feel



EXAMPLE

Group Fixture Control*

*Application diagram applies for fixtures with eldoLED drivers only.

nPS 80 EZ Dimming/Control Pack (qty 2 required)

nPODM 2P DX Dual On/Off/Dim Push-Button WallPod

nCM ADCX Daylight Sensor with Automatic Dimming Control

nCM PDT 9 Dual Technology Occupancy Sensor

Description: This design provides a dual on/off/dim wall station that enables manual control of the fixtures in Row A and Row B separately. Additionally, a daylight harvesting sensor is provided so the lights in row B can be configured to dim automatically when daylight is available. An occupancy sensor turns off all lights when the space is vacant.



An Acuity Brands Company

SUITABLE FOR WET LOCATIONS IP68



PARADOX 10

22W LED MONOCHROMATIC

10" ARCHITECTURAL IN-GRADE

DESCRIPTION:

Hydrel's Paradox Series sealed modular in-grade luminaires are multi-purpose units designed for up lighting architectural and landscape features. These units can be flush mounted into a variety of substrates including concrete or tile, or landscape materials, and are ideal when aperture size or luminaire depth is a priority.

SPECIFICATIONS:

DOOR MATERIAL: Die cast bronze or stainless steel.

HOUSING: Compression molded polyester with patent pending internal direct access junction box for through-branch wiring. Internal junction box provides 44in³ volume to ensure proper seal during installation. The housing is U.V. stabilized, impact and corrosion resistant for use in all types of environments. The housing has a side-car configuration and houses the lamp and power module components as well as the lens/door finishing section.

LED TYPE: Monochromatic LEDs, 22W.

VOLTAGE: See Ordering Guide.

LIGHT DISTRIBUTION: See Ordering Guide. LED module has 15° of internal tilt.

LENS/SEAL: Tempered clear flat borosilicate glass. The patent pending door/lens seal uses proprietary knife edge technology to secure the assembly to the housing. Four captive screws hold the assembly in place. The lens is notched to provide maximum aperture opening.

CONDUIT ENTRIES: Two molded 3/4" NPT side entries standard, bottom hubs are molded with a 3/4" NPT membrane knockout.

POWER MODULE: Integrally mounted modular LED driver, prewired with quick connectors for easy installation and maintenance.

ACCESSORIES: See Ordering Guide.

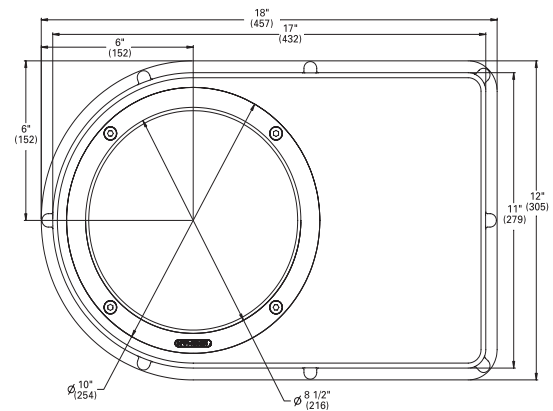
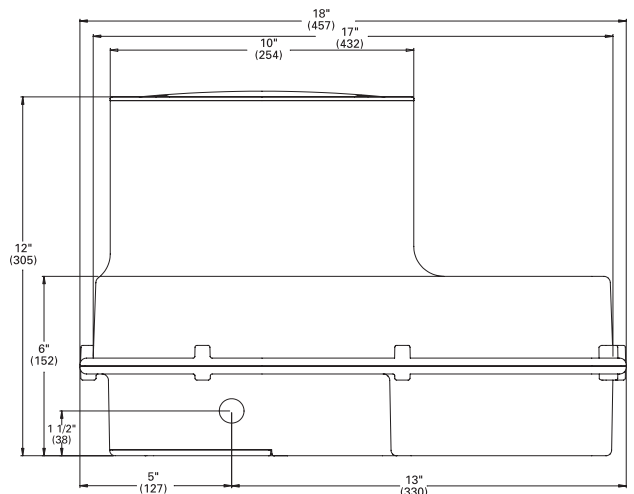
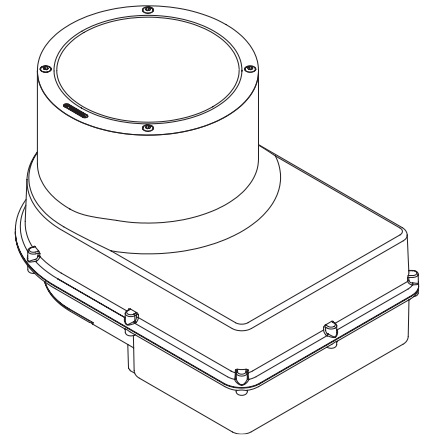
FINISH: Natural bronze, stainless steel or stainless steel with a brushed finish.

LISTING: U.L., C.U.L

NOTE: HYDREL RESERVES THE RIGHT TO MODIFY SPECIFICATION WITHOUT NOTICE. Any dimension on this sheet is to be assumed as a reference dimension: "Used for information purposes only. It does not govern manufacturing or inspection requirements." (ANSI Y14.5-1973)

TYPE			JOB NAME		
------	--	--	----------	--	--

PART NO.					
Model	Material	LED Type	LED Color	Voltage	Distribution
Lens	Conduit	Accessories	Options	Lamp	Listing



APPROVALS

PDX10 LED MONOCHROMATIC ORDERING INFORMATION

60 Hz Application

Choose the boldface catalog nomenclature that best suits your needs.

PART NO.

EXAMPLE:

PDX10	B	22LED	RED	120	SP	FLC	34S	LPI	
*Model		*LED Type		*LED Color		*Light Distribution		*Conduit Entries	
<input type="checkbox"/> PDX10		<input type="checkbox"/> 22LED 22 Watts	<input type="checkbox"/> WHT30K White <input type="checkbox"/> WHT41K White <input type="checkbox"/> WHT53K White <input type="checkbox"/> AMB Amber <input type="checkbox"/> BLU Blue <input type="checkbox"/> GRN Green <input type="checkbox"/> RED Red <input type="checkbox"/> RBL Royal Blue		<input type="checkbox"/> SP Spot, clear flat lens <input type="checkbox"/> MFL Medium flood, clear flat lens <input type="checkbox"/> WFL Wide flood, clear flat lens <input type="checkbox"/> LSD Linear Spread Distribution, clear flat lens		<input type="checkbox"/> 34S Two 3/4" NPT Side (Standard)		
*Door Material				*Voltage				*Lamp	
<input type="checkbox"/> SS Stainless Steel <input type="checkbox"/> BSS¹ Brushed Stainless Steel <input type="checkbox"/> B Bronze				<input type="checkbox"/> MVOLT <input type="checkbox"/> 120²				<input type="checkbox"/> LPI Lamp Included	
						Accessories		Options	
						Internal <input type="checkbox"/> IHL Internal honeycomb louver External <input type="checkbox"/> RG Decorative Rock guard		<input type="checkbox"/> LDIM³ 0-10V Dimming	
						*Lens			
						<input type="checkbox"/> FLC Flat lens clear <input type="checkbox"/> FLCAS¹ Flat Lens Clear, Anti-Slip <input type="checkbox"/> FLCSR¹ Flat Lens Frosted, Slip Resistant			

***Required Categories**

Notes:

- ¹ Not available with Decorative Rock Guard.
- ² Only valid if LDIM chosen.
- ³ LDIM only valid with 120 volt.

Catalog Number
Notes
Type

FEATURES & SPECIFICATIONS

INTENDED USE

The OLB LED Bullet Floodlight is a long-lasting energy-efficient landscape flood light. Available with spot or flood optics making it ideal for many commercial and residential outdoor applications such lighting of landscapes, building details and flag poles.

CONSTRUCTION

Die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. The LED driver is mounted in the lower housing promoting a low operating temperature and long life. Housing is sealed against moisture and environmental contaminants (IP65).

Finish: Exterior parts are protected by a thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS

Optics are engineered for superior field-to-beam ratios, uniformity and spacing. Available with 5H x 4V flood optics for illuminating larger objects or 2H x 2V spot optics for illuminating targets up to 50 feet away. Light engines are available in 3000K (80 CRI min.) or 5000K (66 CRI min.) configurations.

ELECTRICAL

MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).

Light engine consists of four (4) discrete LEDs directly mounted directly to the heat sink to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L82).

Driver is thermally isolated in base to promote long-life.

Operating temperature -30°C to 40°C.

INSTALLATION

Integral adjustable knuckle with 1/2-14 NPS threaded pipe facilitates quick and easy installation in a variety of mounting methods.

LISTINGS

UL Listed to U.S. and Canadian safety standards for wet locations within four feet of the ground.

Tested in accordance with IESNA LM-79 and LM-80 standards.

WARRANTY

5-year limited warranty. Complete warranty terms located at

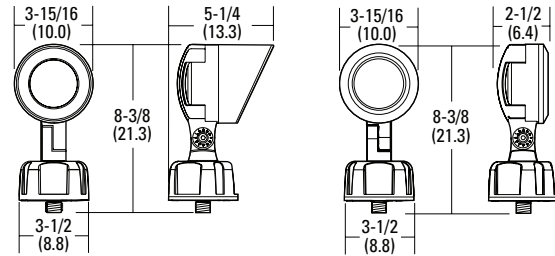
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

OLB

LED Bullet Flood Light



All dimensions are inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION

For shortest lead times, configure product using **bolded options**.

Example: OLBF 8 30K DDB

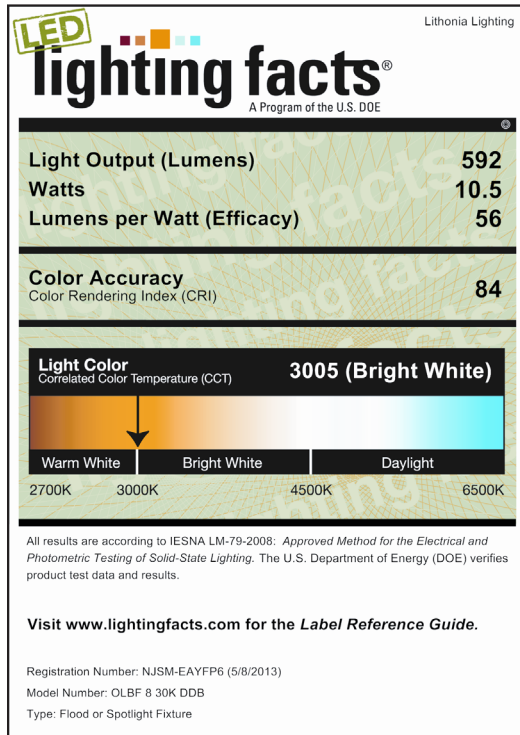
Series	Light engine	Color temperature (CCT)	Voltage	Finish
OLBF	5x4 flood optics	8	30K 3000K	DDB
OLBS	2x2 spot optics	8	50K 5000K	DDB Dark bronze
			(blank) MVOLT	

OLB LED Bullet Flood Light

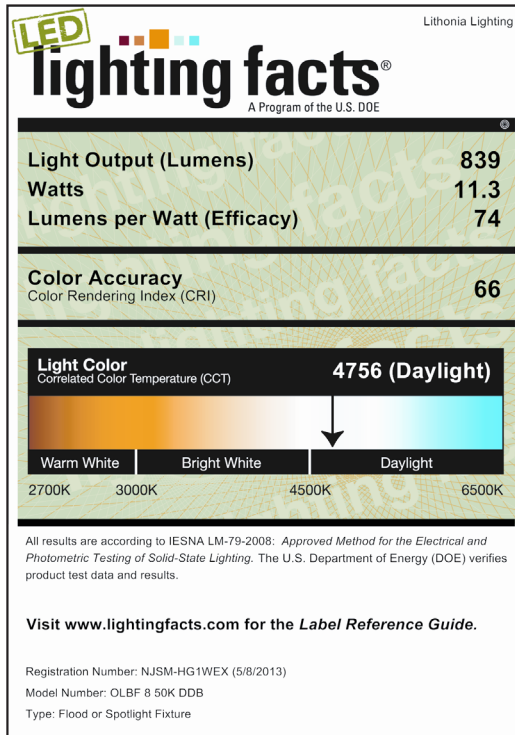
LIGHTING FACTS

To see complete photometric reports or download .ies files for this product, visit www.lithonialighting.com. Actual wattage may differ by +/- 8% when operating at 120V or 277V +/- 10%.

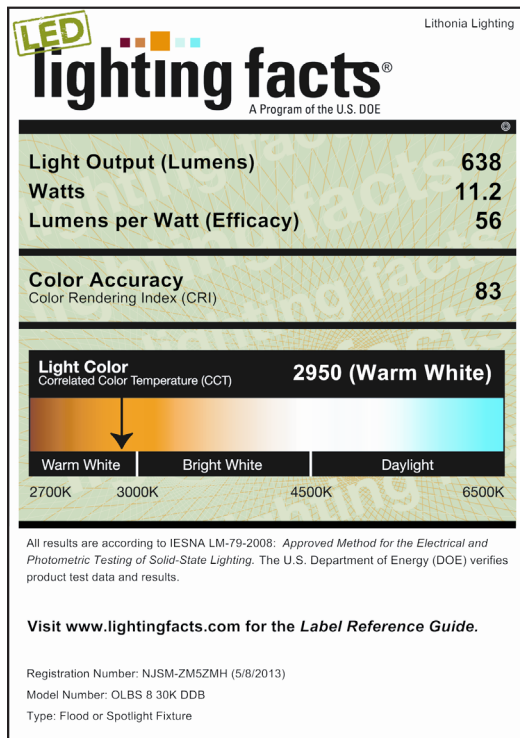
OLBF 8 30K DDB



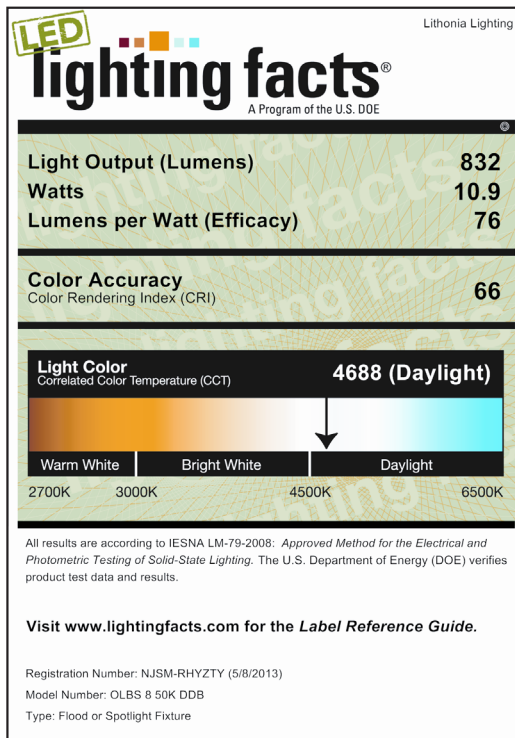
OLBF 8 50K DDB



OLBS 8 30K DDB



OLBS 8 50K DDB



**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
MARCH 13, 2017
6:30 P.M.
MINUTES**

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, James Mortensen, Chris Grajek, John McManus, Eric Rach and Jill Rickard. Absent was Barbara Figurski. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom of Tetra Tech, Brian Borden of LSL Planning and an audience of 1.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

ELECTION OF OFFICERS:

Ms. VanMarter stated that the Planning Commission must elect a Chairperson, Vice-Chairperson, and Secretary.

Moved by Commissioner Mortensen, seconded by Commissioner Grajek to elect Doug Brown as Chairman, Eric Rauch as Vice-Chairman, and Barbara Figurski as Secretary. **The motion carried unanimously.**

APPROVAL OF AGENDA: **Moved** by Commissioner McManus, seconded by Commissioner Mortensen, to approve the agenda as presented. **The motion carried unanimously.**

CALL TO THE PUBLIC: The call to the public was made at 6:33 pm with no response.

OPEN PUBLIC HEARING #1...Review of Site Plan Application and Impact Assessment for a proposed 101 room, 4 story "Hampton Inn and Suites" hotel located southwest of the Grand Oaks Drive and Latson Road intersection. The property is located within the Livingston Commons Phase 2 PUD on Parcel #11-08-200-020. The request is petitioned by Howell Hospitality, Inc.

Planning Commission Recommendation of Petition

- A. Recommendation of Impact Assessment (2-21-17)
- B. Recommendation of Site Plant (2-21-17)

Andy Andre of Bud Design & Engineering and Chris Abbo, a representative for the owner and applicant, were present.

Mr. Andre gave a review of the proposed project. It is a four-story, 101-room hotel situated in the center of the PUD property. It is proposed to be a Hampton Inn and Suites. He showed colored renderings and material samples.

There would be a shared drive throughout the PUD property off of Grand Oaks Drive. They are proposing a secondary means of ingress and egress further down Grand Oaks, directly across from the driveway of the existing preschool. They will be connecting to the existing water and sewer.

In order to meet the requirements outlined in the planner's review letter, they will be replacing the CMU with more stone and brick.

Mr. Borden reviewed his letter of March 7, 2017. He reiterated the concerns regarding the amount of CMU and advised that the Planning Commission can approve what is proposed on the plans. After a brief discussion, it was agreed to replace the current CMU with brick on the columns on all sides.

The applicant must provide details of the proposed storage building. Mr. Andre agreed to provide this information.

Mr. Borden is concerned with the future vehicular circulation patterns due to the odd lot shapes and the remaining vacant land on the site. He would like the applicant to evaluate alternative circulation patterns. Commissioner Mortensen agrees. He feels a conceptual plan of the interior roadway should be presented before this is sent to the Township Board. He also feels that the developer of the PUD should be involved in the planning of the roadway. Commissioner Rauch agrees. Chairman Brown agrees and would like it to show the boundary lines of the outlots. Mr. Andre stated he will need to work with the owner of the property.

The proposed lighting underneath the entrance canopy exceeds the maximum on-site lighting intensity; however, it does not spill out onto the property or onto adjacent ones. Mr. Andre stated they will meet the ordinance requirements.

Portions of the southerly buffer zone is deficient in width and does not include the wall or berm; however, due to the width of the greenspace a wall or berm will not be possible. The Township can waive or modify these requirements.

Mr. Markstrom reviewed his letter of March 7, 2017. He reiterated the concerns of Mr. Borden regarding the interior roadway. He is also concerned with the design of the shared driveway off of Grand Oaks and how it relates to access to the remaining outlots. Mr. Andre stated that the access road and the roadway around their building were designed based on the Fire Department's requirements for adequate turning radii for emergency vehicles. He does agree there are changes that may be able to be made.

Chairman Brown stated that the Brighton Area Fire Authority's latest review letter advised the applicant has met all of their requirements.

Chairman Brown noted some changes that need to be made to the Environmental Impact Assessment.

Commissioner Grajek agrees with Commissioner Mortensen that the developer of the PUD should be involved in the discussion regarding the design of the vehicular circulation on the site. Commissioner McManus agrees also.

It was suggested that this item be tabled until the next Planning Commission meeting or a special meeting can be held.

The call to the public was made at 7:48 pm with no response.

Moved by Mortensen, seconded by Grajek, to table Agenda Item #1, a request by Howell Hospitality, Inc., as requested by the petitioner. **The motion carried unanimously.**

Administrative Business:

- Staff Report

Ms. VanMarter stated there will be three items on the April Planning Commission meeting agenda.

Staff is continuing to work with LSL Planning on the zoning code update.

- Approval of the November 14, 2016 Planning Commission meeting minutes

Moved by Commissioner McManus, seconded by Commissioner Rauch, to approve the minutes of the November 14, 2016 Planning Commission Meeting as presented. **The motion carried unanimously.**

- Annual Report – 2016

Ms. VanMarter stated this report is required by State law to be presented to the Township Board. She has provided it to the Planning Commission for their information.

- Member Discussion

Chairman Brown welcomed Jill Rickard to the Planning Commission.

- Adjournment

Moved by Commissioner McManus, seconded by Commissioner Mortensen, to adjourn the meeting at 8:02 pm. **The motion carried unanimously.**