Brighton City Council Meeting

200 N First St ● City Hall Council Chambers ● Brighton, Michigan 48116
(810) 227-1911 ● www.brightoncity.org

Regular Meeting
January 19, 2023 – 6:30 p.m.

AGENDA

1. Call to order
2. Pledge of Allegiance
3. Roll call
4. Consider approval of the agenda
5. Consider approval of consent agenda items

Consent Agenda Items

a. Approval of Minutes: regular meeting of January 5, 2023

Correspondence

6. Mayoral Proclamation: Eagle Scout Conner Prahl
7. Call to the public
8. Staff updates
9. Updates from Councilmember liaisons to various boards and commissions

New Business

10. Consider approval of site plan #22-12, building for LOC Credit Union branch office, as part of a new commercial development located at 1025 E. Grand River
11. Consider approval of an appointment to the Planning Commission
12. Conduct a first read for rezoning of parcels #22-01, proposed rezoning of 8251 and 8265 Cross Street from C1 – Community Shopping Center, to C2 – General Business
13. Conduct a first reading and set a public hearing of February 16, 2023, for proposed Ordinance 601: Amendment to the Downtown Development Plan and Tax Increment Financing of the Downtown Development Authority
14. Consider Entering into Closed Session to Receive a Written Attorney-Client Privileged Communications Pursuant to MCL 15.268(1)(h) of the Open Meetings Act
15. Consider approval of a three-year contract with BioTech Agronomics for biosolids hauling services

Other Business

1. Call to the public
2. Adjournment

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MINUTES OF THE REGULAR MEETING OF THE BRIGHTON CITY COUNCIL HELD ON JANUARY 5, 2023

1. **Call to order**

Mayor Tobbe called the meeting to order at 6:30 p.m.

2. **Pledge of Allegiance**

3. **Roll call**

Present were Mayor Tobbe, Mayor Pro Tem Bohn, Councilmembers: Albert, Emaus, Gardner, Gipson, and Pettengill.

Staff Present: City Manager Gretchen Gomolka, City Clerk Tara Brown, Community Development Manager Mike Caruso, Attorney Sarah Gabis, and Chief Brent Pirochta. There were four people in the audience.

4. **Consider approval of the agenda**

Motion by Councilmember Gipson, seconded by Councilmember Pettengill to approve the consent agenda as presented. **The motion carried, 7-0.**

5. **Consider approval of consent agenda items**

Motion by Councilmember Albert, seconded by Councilmember Emaus to approve the agenda as presented. **The motion carried, 7-0.**

Consent Agenda Items

a. **Approval of Minutes: study session of December 15, 2022**
b. **Approval of Minutes: regular meeting of December 15, 2022**

Correspondence

6. **Call to the public**

Mayor Tobbe opened the call to the public at 6:32 p.m. Hearing and seeing no comment, the call to the public was closed.

7. **Staff updates**

Chief Pirochta noted that the detective car is in service, and Francie Ash will be retiring on January 13, 2023, from the police department where she served as the administrative assistant.

Director Goch recently attended a preconstruction meeting for the upcoming water main replacement scheduled to begin on January 9, 2023. Detoured routes will be posted. This work is scheduled to be completed by April 1, 2023. The gravel lot by North Street will be used for staging equipment.

City Manager Gomolka was happy to report that the City of Brighton received the Brighton Area Schools Shining Star award for the Pack of Dogs' memorial statue.

8. **Updates from Councilmember liaisons to various boards and commissions**

Mayor Pro Tem Bohn noted the Planning Commission meet on December 19, 2022 and discussed some changes that will rezone 1025 E. Grand River for LOC Credit Union that was previously an acupuncture center. Also, the Planning Commission elected its slate of officers for 2023.

Councilmember Gardner stated the Brighton Arts and Culture Commission will meet on the 23rd, rather than the 9th of January.

Councilmember Emaus stated the DDA met to discuss extending marketing money to include the water main replacement portion of the project and utilizing banners for marketing.

New Business

9. Consider approval of appointments to the Brighton Arts and Cultural Commission and the Downtown Development Authority

Motion by Councilmember Emaus, seconded by Councilmember Gipson to approve of the appointments of Paige Mahakian and Rob DeMilner to the Brighton Arts and Culture Commission. **The motion carried, 7-0.**

Motion by Councilmember Albert, seconded by Councilmember Pettengill to approve of the appointments of Steve Pilon and Ken Larscheid to the Downtown Development Authority. **The motion carried, 7-0.**

10. Consider Entering into Closed Session to Receive a Written Attorney-Client Privileged Communication Pursuant to section 8(1)(h) of the Open Meetings Act, MCL 15.268(1)(h)

Motion by Councilmember Gipson, seconded by Councilmember Pettengill to enter into closed session at 6:45 p.m. to receive a written attorney-client privileged communication pursuant to section 8(1)(h) of the Open Meetings Act. **The motion carried by roll call vote, 7-0.**

Motion by Councilmember Gipson, seconded by Councilmember Albert to come out of closed session at 7:56 p.m. **The motion carried, 7-0.**

Motion by Councilmember Gipson, seconded by Councilmember Emaus to direct city staff to proceed as discussed in closed session. **The motion carried, 7-0.**

Other Business

11. Call to the public

Mayor Tobbe opened the call to the public at 7:58 p.m.

Susan Bakhaus spoke briefly at the call to the public.

Hearing and seeing no further comment, the call to the public was closed at 7:58 p.m.

12. Adjournment

Motion by Councilmember Emaus, seconded by Councilmember Gardner to adjourn the meeting at 7:58 p.m. **The motion carried (7-0).**

_____
Tara Brown, City Clerk

City of Brighton

REPORT FROM THE CITY MANAGER TO CITY COUNCIL

January 19, 2023

SUBJECT: **CONSIDER APPROVAL OF SITE PLAN 22-12, BUILDING FOR LOC CREDIT UNION BRANCH OFFICE, AS PART OF A NEW COMMERCIAL DEVELOPMENT LOCATED AT 1025 E. GRAND RIVER.**

ADMINISTRATIVE SUMMARY

A site plan review application has been submitted by LOC Credit Union for construction of a new branch office, to be located at 1025 E. Grand River. This development is presented by Corrigan Construction, the property owner, and is in conjunction with a proposed commercial development that will include a second commercial building planned for the site. Corrigan recently completed land preparation work to the property, land balancing a wooded ravine over the past few years.

The new building for LOC Credit Union will consist of 3090 square feet and include three drive-thru banking lanes. Access to the branch will be on the west side of the proposed new entrance street. This new street aligns with Kissane Street on the other side of Grand River. Placement of this new street directly across from Kissane St. is beneficial for traffic safety.

ADMINSTRATIVE REVIEW

- The property consists of two parcels that are zoned C1 – Community Shopping. The zoning regulations for this district regarding minimum building size, parking, and minimum setbacks, are more inclusive of properties that are larger and dimensionally wider than the subject parcel.
- The property owner received a variance on the parcel containing the credit union building, for a reduction to the minimum structure size of 10,000 square feet. A variance was also granted for the second parcel of the development, which was for a reduction in the required 50-foot side yard setback, which was reduced to 40 feet.
- Livingston County Planning Department has recommended approval of the site plan, as all their comments have been addressed.
- Brighton Fire Authority has recommended approval of the site plan, as all their comments have been addressed.
- Tetra Tech recommended approval as all their comments have been addressed in the final site plan.
- Planning Commission granted a recommendation of approval at their regular meeting on December 19, 2022.

RECOMMENDATION

Staff is recommending approval of site plan 22-12 as submitted.

Prepared by: Michael Caruso, Community Development Manager

Approved by: Gretchen Gomolka, City Manager

Attachments:
1. Application
2. Site Plan – LOC Credit Union
3. Site Plan – Development Entrance and Stormwater
4. Building Renderings
5. Consultant's Final Review Letters
6. Planning Commission Minutes (unapproved)

RECEIVED
[illegible] 22 2022
CITY OF BRIGHTON

#22-12

CITY OF BRIGHTON SITE PLAN REVIEW APPLICATION

200 N. First Street - Brighton, MI 48116 - commdev@brightoncity.org - 810.844.5149

- [ ] Conceptual Site Plan – $300
- [x] New Site Plan – $3,800
- [ ] Amended Site Plan – $675
- [ ] Administrative Review - $400
- [ ] Exterior Building Review - $675
- [ ] Change of Use Review - $675

*Application fee is due at time of submittal. Payment does not include possible consulting fees.

PROJECT LOCATION

Project Address: 1025 East Grand River, Brighton, Michigan

Parcel Tax ID # 4718 - 4718-31-202-068

Current Zoning Classification: C-1 Community Shopping Center

Adjacent Property Zoning Classification: East & West is zoned C-1; South is zoned C-2; North is zoned R-4

PETITIONER

Name: Stephen Grech, President/CEO Phone: 248-919-5801

Company: LOC Credit Union

Address: 22981 Farmington Road, Farmington, Michigan 48336

Email: SGrech@loccreditunion.com

PROPOSED DEVELOPMENT DESCRIPTION: LOC Credit Union branch office on a 2.03 Ac. parcel. Proposed 3,090 sq.ft. building with drive-thru, 19 parking spaces, and related site utilities and improvements.

If Residential, Number of Units: N/A Number of Buildings: N/A

CITY OF BRIGHTON
COMMUNITY DEVELOPMENT/PLANNING DEPARTMENT

Warranty of Petitioner (MUST BE COMPLETED BY PETITIONER):

I understand that the proposed site plan will not be considered by the Planning Commission until such time that the plan contains at least the minimum amount of information required by the city, per **Section 98-6.1(D)** of the City of Brighton Zoning Ordinance.

I understand that if the Planning Commission and/or City Council approve the approved site plan, it will be effective for one (1) year following the date of final approval, and that I am bound to construct the project in strict compliance with the approved plan.

Stephen P. Grech Digitally signed by Stephen P. Grech Date: 2022.11.11 12:43:30 -05'00'
Signature of Petitioner

Stephen Grech
Printed Name of Petitioner

Date: 11-11-2022

Address: 2981 Farmington Road, Farmington, Michigan 48336

Phone: 248-919-5801

Email: SGrech@loccreditunion.com

I, the property owner, authorize the petitioner to submit this application for review by the Planning Commission.

Michael B. Corrigan
Signature of Property Owner

Michael B. Corrigan, BMH Realty
Printed Name of Property Owner

Date: 11/29/2022

Address: 775 North Second Street, Brighton, Michigan 48116

Phone: 810-229-6323

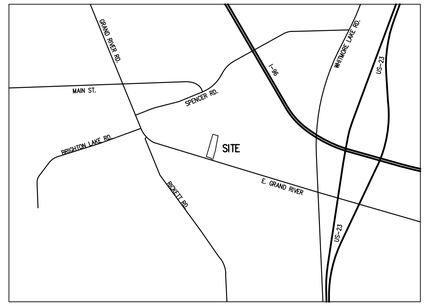
Email: Mike@Corriganoil.com

SITE PLAN FOR

LOC CREDIT UNION

1025 E. GRAND RIVER

BEING PART OF SECTION 31, T2N,R6E, CITY OF BRIGHTON
LIVINGSTON COUNTY, MICHIGAN



LOCATION MAP
SCALE: 1in. = 2000±

LEGAL DESCRIPTION

PARCEL 2 2.03± Acres

Situated in the City of Brighton, County of Livingston, and State of Michigan, and more particularly described as follows:
Lots 7, 8, 9, 16, 17, 24 and 25 of "Mrs. William McCauley's Addition to the Village (now City) of Brighton," a part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, Livingston County, Michigan, according to the plat thereof, as recorded in Liber 51 of Deeds, Page 554, Livingston County Records, also a part of the Northeast 1/4 of said Section 31, more particularly described as follows: Commencing at the East 1/4 Corner of said Section 31; thence N02°24'26"W 227.15 feet *(recorded as N01°55'00"E 228.18 feet)* along the East line of said Section 31; thence N73°39'53"W *(recorded as N69°25'00"W)* 523.98 feet along the nominal centerline of East Grand River Avenue Right-of-Way (50-foot wide 1/2 Right-of-Way) to the **POINT OF BEGINNING**; thence continuing N73°39'53"W *(recorded as N69°25'00"W)* 35.39 feet along said nominal centerline to a point on the Southerly extension of said "Mrs. William McCauley's Addition to the Village (now City) of Brighton;" thence N16°07'41"E *(recorded as N20°48'36"E)* 46.44 feet along said extension to the Southeasterly Corner of said Lot 8; thence N73°15'22"W *(recorded as N68°57'18"W)* 132.00 feet along the Southerly line of said Plat, as monumented, same being the Northerly line of said East Grand River Avenue to a point on the East line of vacated George Street (66-foot wide); thence N16°20'38"E *(recorded as N20°38'42"E)* 558.25 feet along the East line of vacated George Street (66 foot wide) as depicted in said plat to the Northwest Corner of said Lot 25; thence S73°35'57"E *(recorded as S69°17'53"E)* 129.89 feet along the Northerly line of said Lot 25 to the East Line of said Plat; thence S10°28'49"W 359.63 feet; thence S16°07'41"W 247.73 feet to the Place of Beginning, also being to a point on said nominal centerline of East Grand River Avenue. Containing 2.03 acres of land, more or less. Subject to and together with a 20-foot wide storm sewer easement as described below, also subject to and together with a storm water drainage and detention easement as described below, also subject to and together with a shared easement for ingress & egress and public utilities as described below; also subject to the rights of the public over that portion thereof as occupied by East Grand River Avenue, also subject to and together with all easements and restrictions affecting title to the above described premises.

SHEET INDEX

OWNER / DEVELOPER
LOC CREDIT UNION
22981 FARMINGTON RD.
FARMINGTON, MICHIGAN 48336
248-919-5801

PROPERTY OWNER
BMH REALTY
775 N. SECOND STREET
BRIGHTON, MICHIGAN 48116
810-229-6323

ARCHITECT
LINDHOUT ASSOCIATES
10465 CITATION DR,
BRIGHTON, MICHIGAN 48116
810-227-5668

CIVIL ENGINEER / LAND SURVEYOR
DESINE, INC.
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114
810-227-9533

STATE OF MICHIGAN
WAYNE M. PERRY
License No. 6201034036
LICENSED PROFESSIONAL ENGINEER

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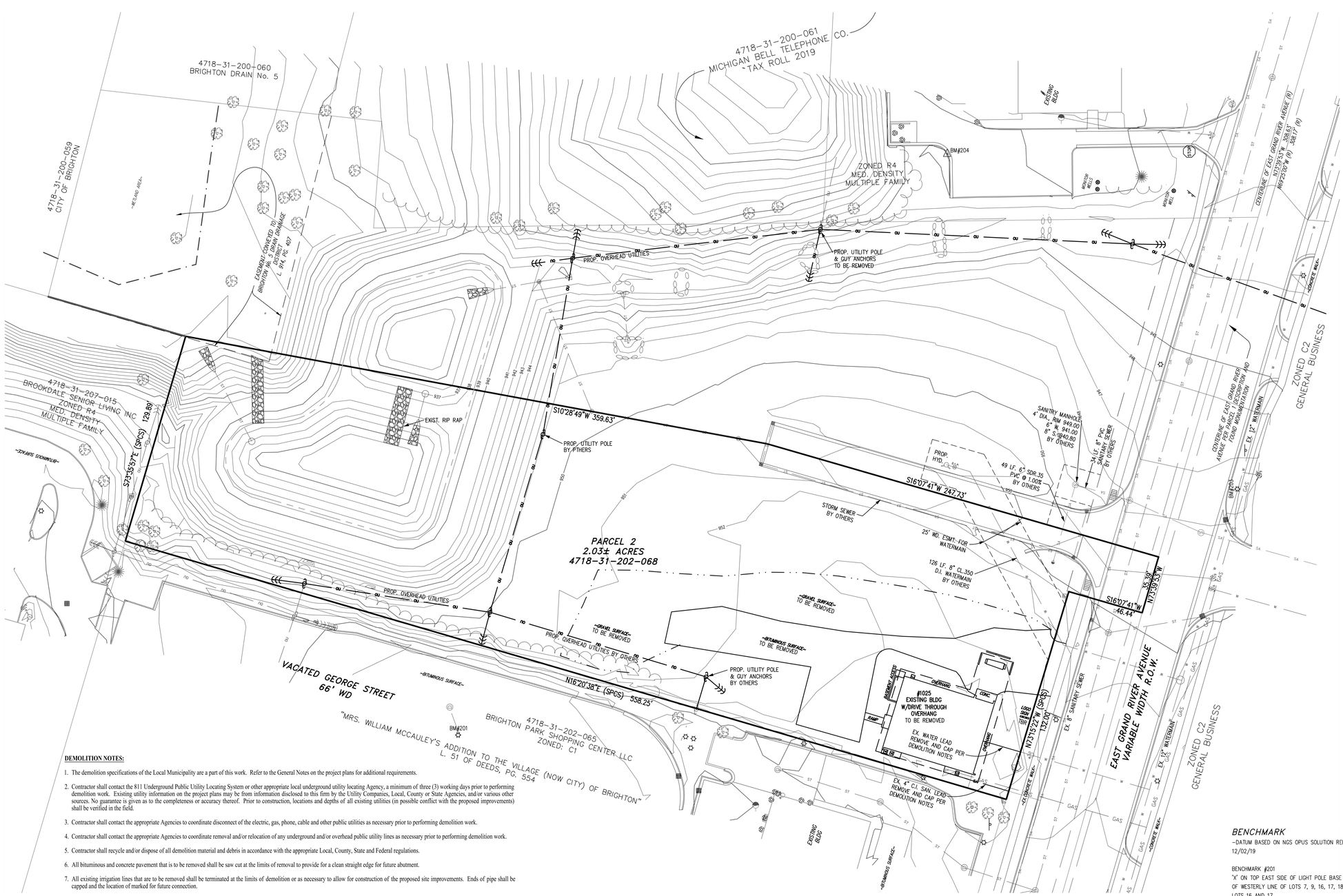
REVISED	SCALE: NONE
NOV. 16, 2022	PROJECT No.: 22.4295
	DWG NAME: 4295 COV
	PRINT: DEC. 8, 2022



DEMOLITION NOTES:

1. The demolition specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.
2. Contractor shall contact the 811 Underground Public Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to performing demolition work. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.
3. Contractor shall contact the appropriate Agencies to coordinate disconnect of the electric, gas, phone, cable and other public utilities as necessary prior to performing demolition work.
4. Contractor shall contact the appropriate Agencies to coordinate removal and/or relocation of any underground and/or overhead public utility lines as necessary prior to performing demolition work.
5. Contractor shall recycle and/or dispose of all demolition material and debris in accordance with the appropriate Local, County, State and Federal regulations.
6. All bituminous and concrete pavement that is to be removed shall be saw cut at the limits of removal to provide for a clean straight edge for future abutment.
7. All existing irrigation lines that are to be removed shall be terminated at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Ends of pipe shall be capped and the location of marked for future connection.
8. Contractor shall coordinate all water service and sanitary sewer demolition and/or termination with the City of Brighton DPW and their representatives. All existing water main and sanitary sewer that is to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent plugs shall be installed in the ends of pipe in accordance with the appropriate Agency. The Contractor shall record the location of all permanent plugs and provide the location information to the appropriate Agency.
9. All existing storm sewer that is to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent bulkheads shall be installed in the ends of pipe and/or openings in terminating structures in accordance with the appropriate Agency. The Contractor shall record the location of all permanent bulkheads and provide the location information to the appropriate Agency.
10. All existing light sources to be removed shall have their power cables removed up to the power source or properly terminated for future connection at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Removal and termination of power cables shall be performed in accordance with local electric codes.
11. All existing utility meters that are to be removed shall be properly removed to allow for reuse. Any existing utility meters that are not to be reused as a part of this project shall be returned to the appropriate Agency.
12. All trenches and/or excavations resulting from the demolition of underground utilities, building foundations, etc., that are located within the 1 on 1 influence zone of proposed structures, paved areas and/or other areas subject to vehicular traffic shall be backfilled with MDOT Class III granular material (or better) to the proposed subgrade elevation. Backfill shall be shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, Modified Proctor).

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 INCH = 30 FEET

LEGEND

- = PARCEL BOUNDRY
- = RIGHT OF WAY LINE
- = EASEMENT LINE
- = BUILDING SETBACK LINE
- = SIGN / MONUMENT SIGN
- = SOIL BORING / BENCHMARK W/IDENTIFIER
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
- = EDGE OF WOODS / TREE DRIP LINE
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = STUMP
- = ROCKS / RIP RAP
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = EDGE OF PAVEMENT
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = EDGE OF WATER
- = EDGE OF WETLANDS/SWAMP
- = SANITARY SEWER MANHOLE W/IDENTIFIER
- = SANITARY SEWER PIPE
- = CLEAN OUT
- = ROOF DRAIN
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = CONTROL STRUCTURE
- = FLARED END SECTION
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER GATE VALVE WELL / MANHOLE
- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
"X" ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK-NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

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BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
1	12-08-22	REVISED PER REVIEW COMMENTS

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

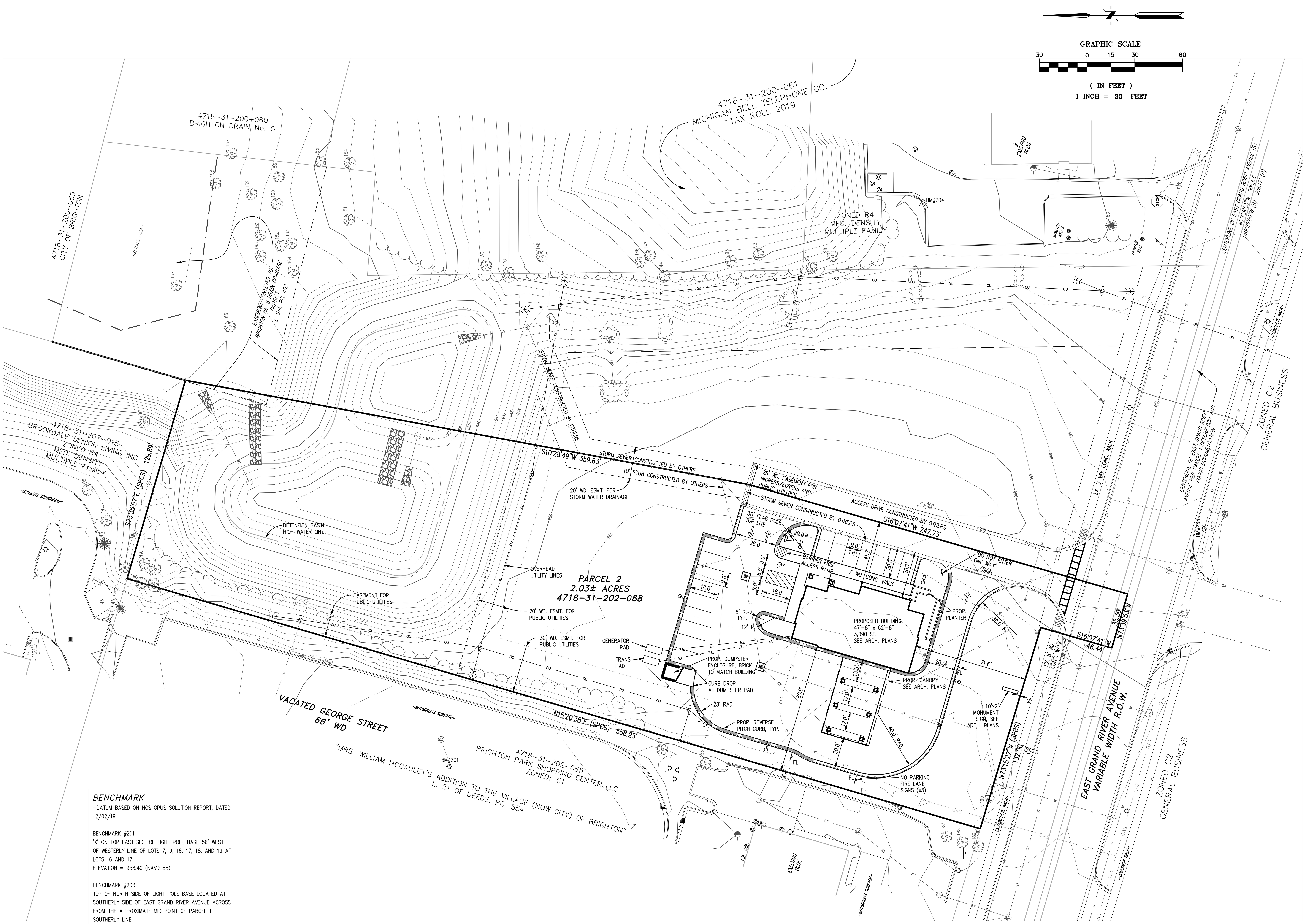
1025 E. GRAND RIVER
LOC CREDIT UNION

EXISTING CONDITIONS AND DEMOLITION PLAN

CLIENT:
LOC CREDIT UNION
22981 FARMINGTON RD.
FARMINGTON, MICHIGAN 48336

SCALE: 1in. -= 30ft.
PROJECT No.: 224295
DWG NAME: 4295 EX
ISSUED: DEC. 8, 2022

EX



LEGEND

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= WATER SHUT OFF
= WATER GATE VALVE WELL / MANHOLE
= WATER VALVE BOX
= WATER MAIN
= GAS SHUT OFF
= U/G GAS
= 1' CONTOUR
= 5' CONTOUR
= PROP. LIGHT POLE
= PROP. CONC. CURB
= PROP. STORM SEWER
= PROP. REVERSE PITCH CURB
= FIRE LINE SIGN

SITE CHARACTERISTICS

TAX ID.	4718-31-202-068	
ZONING	C-1	
AREA:	2.03 AC.	
WIDTH:	167'	
SETBACKS:	REQUIRED MIN.	PROVIDED
FRONT	0'	59.8'
SIDE	0'	41.7'
REAR	0'	421.8'
BUILDING GROSS FLOOR AREA:		3,090 SQ. FT.
BUILDING USABLE FLOOR AREA:		SQ. FT.

PARKING CALCULATIONS

BANK OR FINANCIAL INSTITUTION
ONE SPACE PER 200 SQ. FT. GFA
3,090/200 = 15.5 = 16 SPACES REQUIRED
SPACES PROVIDED = 19

NOTES

* NO EXTERIOR DUMPSTER ENCLOSURE PROPOSED.
* ALL WASTE SHALL BE STORED WITHIN THE BUILDING UNTIL PICKED UP.
* ALL WORKMANSHIP, DESIGN, CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY OF BRIGHTON AND MDOT STANDARDS.

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
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BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS			

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

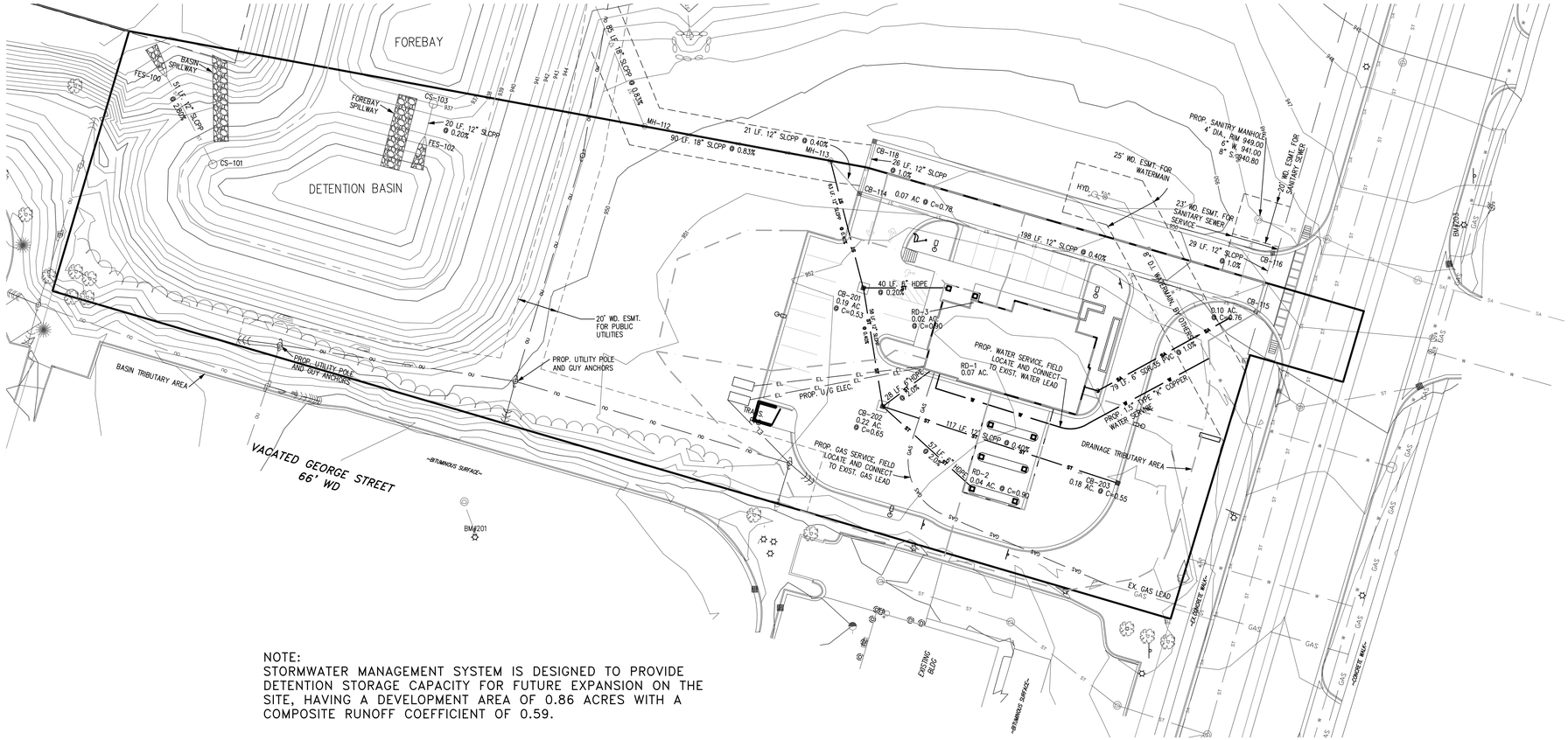
1025 E. GRAND RIVER LOC CREDIT UNION

SITE PLAN

CLIENT:
LOC CREDIT UNION
22981 FARMINGTON RD.
FARMINGTON, MICHIGAN 48336

SCALE: 1in. = 30ft.
PROJECT No.: 224295
DWG NAME: 4295 SP
ISSUED: DEC. 8, 2022

SP



NOTE:
STORMWATER MANAGEMENT SYSTEM IS DESIGNED TO PROVIDE DETENTION STORAGE CAPACITY FOR FUTURE EXPANSION ON THE SITE, HAVING A DEVELOPMENT AREA OF 0.86 ACRES WITH A COMPOSITE RUNOFF COEFFICIENT OF 0.59.

Design Criteria: **10 year event (I = 175/t + 25)** **RCP n=** 0.013 **HDPE n=** 0.010

From MH# CB# FES#	To MH# CB# FES#	Inc. Acres "A"	"C"	Eqv. Area 100% CA	Total Area 100% CA	T Time Min.	I Inch Per Hour	Q (CIA) c.f.s.	Dia. of pipe inch	Slope pipe %	Slope H.G. %	Length of line ft.	Vel. Flow full ft./sec.	Time of flow min.	Cap of pipe c.f.s.	H.G. Elev. upper end	Ground Elev. Upper end	Ground Elev. Lower end	Invert Elev. Upper end	Invert Elev. Lower end
RD-1	202	0.07	0.90	0.06	0.06	15.0	4.38	0.28	6	2.00	0.24	28	4.04	0.1	0.79	945.96	951.34	950.60	945.95	945.39
RD-2	202	0.04	0.90	0.04	0.04	15.0	4.38	0.16	6	2.00	0.08	57	4.04	0.2	0.79	946.53	951.64	950.60	946.53	945.39
203	202	0.18	0.55	0.10	0.10	15.0	4.38	0.43	12	0.40	0.01	117	2.87	0.7	2.25	946.11	950.53	950.60	945.56	945.09
202	201	0.22	0.65	0.14	0.34	15.7	4.30	1.46	12	0.40	0.17	58	2.87	0.3	2.25	945.86	950.60	950.54	944.99	944.76
RD-3	201	0.00	0.90	0.00	0.00	15.0	4.38	0.01	6	2.00	0.00	40	4.04	0.2	0.79	945.86	951.28	950.54	945.86	945.06
201	113	0.19	0.53	0.10	0.44	16.0	4.27	1.89	12	0.40	0.28	63	2.87	0.4	2.25	945.58	950.54	950.27	944.66	944.41
116	115	0.07	0.60	0.04	0.04	15.0	4.38	0.18	12	1.00	0.00	29	4.54	0.1	3.56	945.22	948.68	948.68	944.51	944.22
115	114	0.10	0.76	0.08	0.12	15.1	4.36	0.51	12	0.40	0.02	198	2.87	1.2	2.25	944.37	948.68	950.36	944.12	943.33
118	114	0.03	0.67	0.02	0.02	15.0	4.38	0.09	12	1.00	0.00	26	4.54	0.1	3.56	944.33	950.36	950.36	943.59	943.33
114	113	0.06	0.78	0.05	0.19	16.3	4.24	0.78	12	0.40	0.05	21	2.87	0.1	2.25	944.16	950.36	950.27	943.23	943.15
113	112	0.00	0.00	0.00	0.63	16.4	4.23	2.65	18	0.83	0.06	90	5.42	0.3	9.57	939.82	950.27	949.80	939.01	938.26
112	111	0.00	0.00	0.00	0.63	16.7	4.20	2.64	18	0.83	0.06	85	5.42	0.3	9.57	939.07	949.80	942.00	938.16	937.45
120	111	2.01	0.25	0.49	0.49	15.0	4.38	2.16	12	4.80	0.37	20	9.94	0.0	7.81	940.08	939.96	942.00	939.96	939.00
111	110	0.00	0.00	0.00	1.12	16.9	4.17	4.68	24	0.17	0.04	32	2.97	0.2	9.33	939.01	942.00	937.00	937.05	937.00
																938.04	**Downstream HWL**			
OUTLET PIPES DESIGNED TO CARRY THE EXTENDED DETENTION DISCHARGE RATE																				
103	102							0.07	12	0.20	0.00	20	2.64	0.1	2.07	937.70	938.09	936.70	936.74	936.70
																937.70	**Downstream Pipe Crown Elevation**			
101	100							0.07	12	2.80	0.00	51	9.87	0.1	7.75	936.93	939.00	935.50	936.93	935.50
																936.50	**Downstream Pipe Crown Elevation**			

PROPOSED STORM WATER RUN-OFF

"Area"	0.90 Pavement	0.90 Building	0.20 Lawn	1.00 Water	(ACRES) Area	"C" Factor
203	0.09	0.00	0.09	0.00	0.18	0.55
202	0.14	0.00	0.08	0.00	0.22	0.65
201	0.09	0.00	0.10	0.00	0.19	0.53
RD-1	0.00	0.07	0.00	0.00	0.07	0.90
RD-2	0.00	0.04	0.00	0.00	0.04	0.90
RD-3	0.00	0.002	0.00	0.00	0.00	0.90
120	0.13	0.00	1.88	0.00	2.01	0.25
118	0.02	0.00	0.01	0.00	0.03	0.67
116	0.04	0.00	0.03	0.00	0.07	0.60
115	0.08	0.00	0.02	0.00	0.10	0.76
114	0.05	0.00	0.01	0.00	0.06	0.78
BASIN	0.00	0.00	1.03	0.15	1.18	0.30
					4.15	ACRES
					0.36	

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 INCH = 30 FEET

LEGEND

- = PARCEL BOUNDRY
- = RIGHT OF WAY LINE
- = EASEMENT LINE
- = BUILDING SETBACK LINE
- = SIGN / MONUMENT SIGN
- = SOIL BORING / BENCHMARK W/IDENTIFIER
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
- = EDGE OF WOODS / TREE DRIP LINE
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = STUMP
- = ROCKS / RIP RAP
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = EDGE OF PAVEMENT
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = EDGE OF WATER
- = EDGE OF WETLANDS/SWAMP
- = SANITARY SEWER MANHOLE W/IDENTIFIER
- = SANITARY SEWER PIPE
- = CLEAN OUT
- = ROOF DRAIN
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = CONTROL STRUCTURE
- = FLARED END SECTION
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER GATE VALVE WELL / MANHOLE
- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. LIGHT POLE
- = PROP. CONC. CURB
- = DRAINAGE TRIBUTARY AREA

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
"X" ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK-NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

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CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

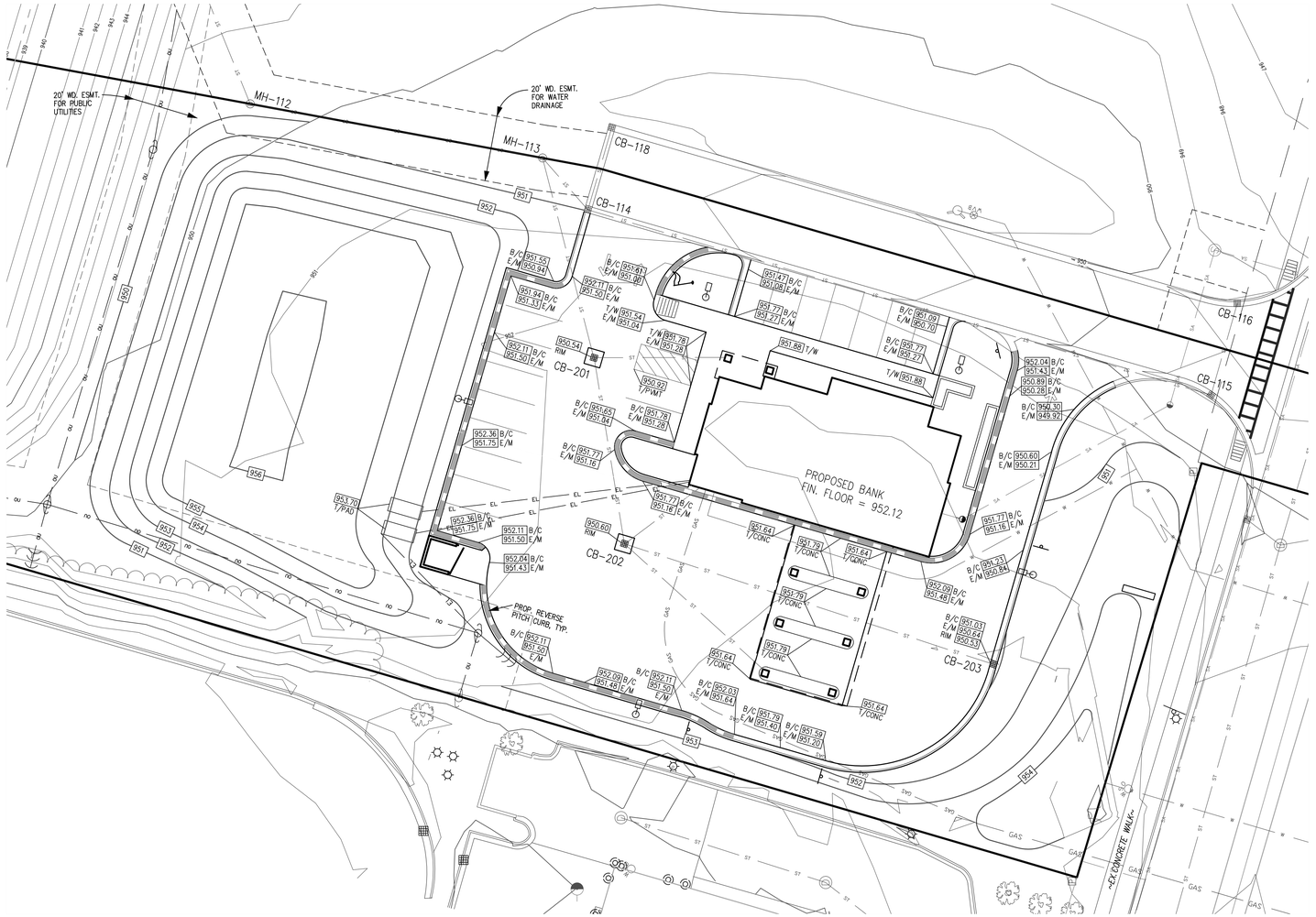
1025 E. GRAND RIVER
LOC CREDIT UNION

UTILITY PLAN

CLIENT:
LOC CREDIT UNION
22981 FARMINGTON RD.
FARMINGTON, MICHIGAN 48336

SCALE: 1in. -= 30ft.
PROJECT No.: 224295
DWG NAME: 4295 UT
ISSUED: DEC. 8, 2022

UT



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(IN FEET)

1 INCH = 30 FEET

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- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. LIGHT POLE
- = PROP. CONC. CURB
- = PROP. STORM SEWER
- = PROP. REVERSE PITCH CURB

BENCHMARK

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DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

1025 E. GRAND RIVER
LOC CREDIT UNION

GRADING PLAN

CLIENT:
LOC CREDIT UNION
22981 FARMINGTON RD.
FARMINGTON, MICHIGAN 48336

SCALE: 1in. = 30ft.
PROJECT No.: 224295
DWG NAME: 4295 GR
ISSUED: DEC. 8, 2022

GR

SOILS MAP

NOT TO SCALE

Livingston County, Michigan (MI093)

Livingston County, Michigan (MI093)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtA	Boyer-Oshtemo loamy sands, 0 to 2 percent slopes	1.6	4.0%
Cc	Carlisle muck, 0 to 2 percent slopes	7.5	19.3%
FoA	Fox sandy loam, 0 to 2 percent slopes	8.0	20.6%
FoC	Fox sandy loam, 6 to 12 percent slopes	0.8	2.0%
FrD	Fox-Boyer complex, 12 to 18 percent slopes	16.8	43.2%

SOILS LEGEND

LEGAL DESCRIPTION

PARCEL 2 2.03± Acres

Situated in the City of Brighton, County of Livingston, and State of Michigan, and more particularly described as follows:

Lots 7, 8, 9, 16, 17, 24 and 25 of "Mrs. William McCauley's Addition to the Village (now City) of Brighton," a part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, Livingston County, Michigan, according to the plat thereof, as recorded in Liber 51 of Deeds, Page 554, Livingston County Records, also a part of the Northeast 1/4 of said Section 31, more particularly described as follows: Commencing at the East 1/4 Corner of said Section 31; thence N02°24'26"W 227.15 feet *(recorded as N01°55'00"E 228.18 feet)* along the East line of said Section 31; thence N73°39'53"W *(recorded as N69°25'00"W)* 523.88 feet along the nominal centerline of East Grand River Avenue Right-of-Way (50-foot wide 1/2 Right-of-Way) to the **POINT OF BEGINNING**; thence continuing N73°39'53"W *(recorded as N69°25'00"W)* 35.39 feet along said nominal centerline to a point on the Southerly extension of said "Mrs. William McCauley's Addition to the Village (now City) of Brighton;" thence N16°07'41"E *(recorded as N20°49'36"E)* 46.44 feet along said extension to the Southeasterly Corner of said Lot 8; thence N73°15'22"W *(recorded as N68°57'18"W)* 132.00 feet along the Southerly line of said Plat, as monumented, same being the Northerly line of said East Grand River Avenue to a point on the East line of vacated George Street (66-foot wide); thence N16°20'38"E *(recorded as N20°38'42"E)* 558.25 feet along the East line of vacated George Street (66 foot wide) as depicted in said plat to the Northwest Corner of said Lot 25; thence S73°35'57"E *(recorded as S69°17'53"E)* 129.89 feet along the Northerly line of said Lot 25 to the East Line of said Plat; thence S10°28'49"W 359.63 feet; thence S16°07'41"W 247.73 feet to the Place of Beginning, also being to a point on said nominal centerline of East Grand River Avenue. Containing 2.03 acres of land, more or less. Subject to and together with a 20-foot wide storm sewer easement as described below, also subject to and together with a storm water drainage and detention easement as described below, also subject to and together with a shared easement for ingress & egress and public utilities as described below, also subject to the rights of the public over that portion thereof as occupied by East Grand River Avenue, also subject to and together with all easements and restrictions affecting title to the above described premises.

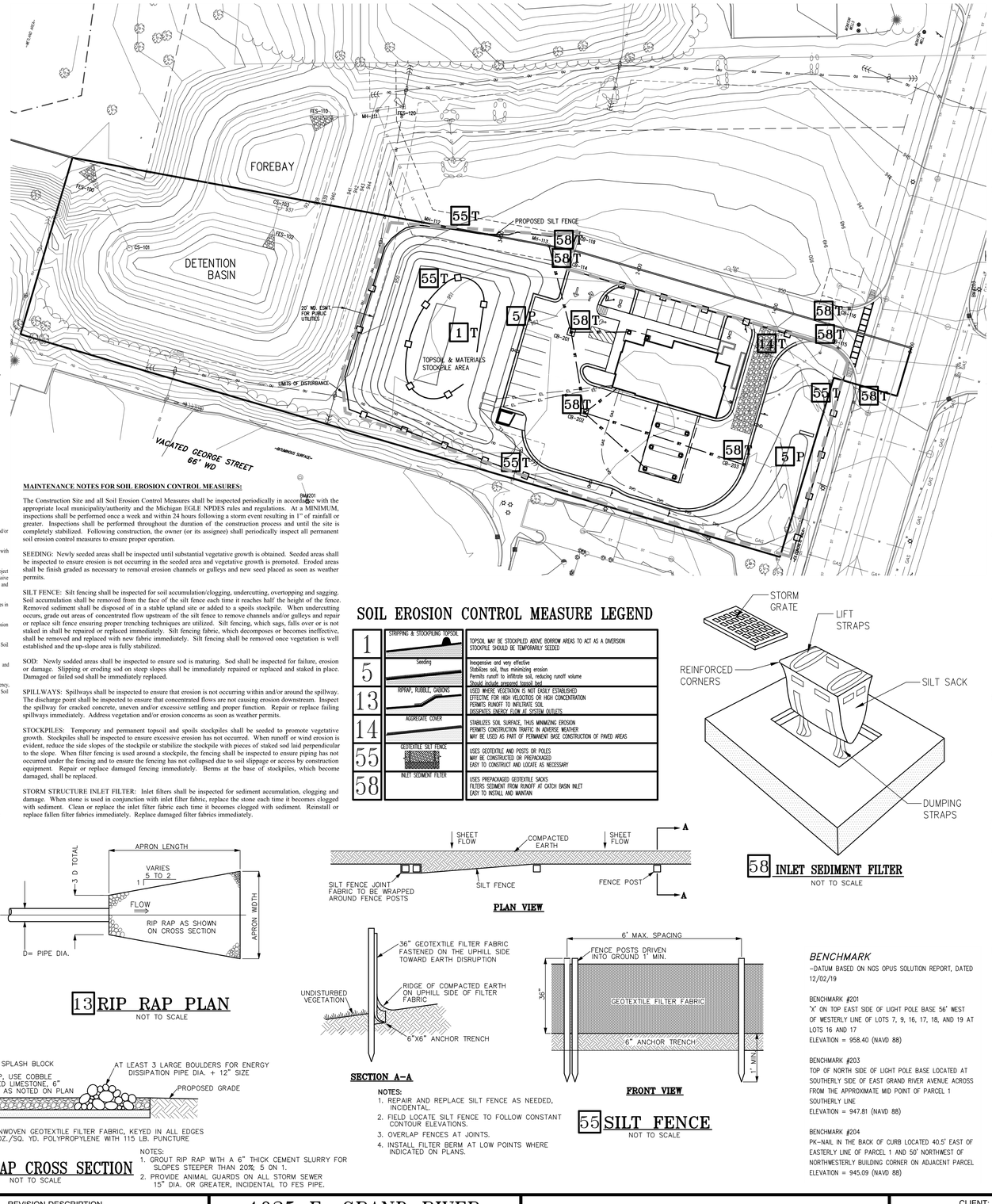
DISTANCE TO COUNTY DRAIN = 240 FT.
AREA OF DISTURBANCE = 1.01ac.
= 44,160 s.f.

TIME LINE of Construction Sequence

Item No.	Month in Construction Season								
	APR.	MAY.	JUN.	JUL.	AUG.				
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									

SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE:

1. Obtain all necessary Soil Erosion and Sedimentation Control related permits from the appropriate Local, County and/or State Agencies. Refer to the General Notes on the project plans for additional requirements.
2. Prior to commencement of any earth disruption install Silt Fence and Mud Tracking Control Device(s) in accordance with the Soil Erosion and Sedimentation Control Plan.
3. Construct Retention/Detention and Sedimentation Basins, including associated spillways, in accordance with the project plans. Finish grade and establish vegetative growth in Retention/Detention and Sedimentation Basins prior to massive earth disruption. Install temporary Soil Erosion Control Measures as necessary to stabilize Retention/Detention and Sedimentation Basins.
4. Strip and stockpile topsoil. Perform mass grading and land balancing. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
5. Install proposed underground utilities. (i.e.; storm and sanitary sewer, water main, etc.) Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
6. Construct roadways and/or parking areas. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
7. Finish grade all disturbed areas outside of pavement. Perform final restoration, including placement of topsoil and establishment of vegetative growth outside of pavement.
8. Following establishment of sufficient vegetative ground cover and receipt of approval from the Permitting Agency, remove all temporary Soil Erosion Control Measures, clean all storm sewer structures and repair all permanent Soil Erosion Control Measures.



MAINTENANCE NOTES FOR SOIL EROSION CONTROL MEASURES:

The Construction Site and all Soil Erosion Control Measures shall be inspected periodically in accordance with the appropriate local municipality/authority and the Michigan EGLE NPDES rules and regulations. At a MINIMUM, inspections shall be performed once a week and within 24 hours following a storm event resulting in 1" of rainfall or greater. Inspections shall be performed throughout the duration of the construction process and until the site is completely stabilized. Following construction, the owner (or its assignee) shall periodically inspect all permanent soil erosion control measures to ensure proper operation.

SEEDING: Newly seeded areas shall be inspected until substantial vegetative growth is obtained. Seeded areas shall be inspected to ensure erosion is not occurring in the seeded area and vegetative growth is promoted. Eroded areas shall be finish graded as necessary to removal erosion channels or gulleys and new seed placed as soon as weather permits.

SILT FENCE: Silt fencing shall be inspected for soil accumulation/clogging, undercutting, overtopping and sagging. Soil accumulation shall be removed from the face of the silt fence each time it reaches half the height of the fence. Removed sediment shall be disposed of in a stable upland site or added to a spoils stockpile. When undercutting occurs, grade out areas of concentrated flow upstream of the silt fence to remove channels and/or gulleys and repair or replace silt fence ensuring proper trenching techniques are utilized. Silt fencing, which sags, falls over or is not staked in shall be repaired or replaced immediately. Silt fencing fabric, which decomposes or becomes ineffective, shall be removed and replaced with new fabric immediately. Silt fencing shall be removed once vegetation is well established and the up-slope area is fully stabilized.

SOD: Newly sodded areas shall be inspected to ensure sod is maturing. Sod shall be inspected for failure, erosion or damage. Slipping or eroding sod on steep slopes shall be immediately repaired or replaced and staked in place. Damaged or failed sod shall be immediately replaced.

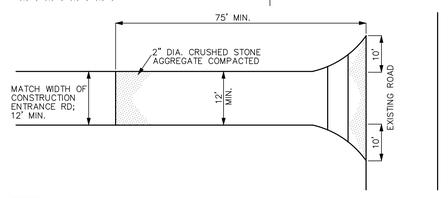
SPILLWAYS: Spillways shall be inspected to ensure that erosion is not occurring within and/or around the spillway. The discharge point shall be inspected to ensure that concentrated flows are not causing erosion downstream. Inspect the spillway for cracked concrete, uneven and/or excessive settling and proper function. Repair or replace failing spillways immediately. Address vegetation and/or erosion concerns as soon as weather permits.

STOCKPILES: Temporary and permanent topsoil and spoils stockpiles shall be seeded to promote vegetative growth. Stockpiles shall be inspected to ensure excessive erosion has not occurred. When runoff or wind erosion is evident, reduce the side slopes of the stockpile or stabilize the stockpile with pieces of staked sod laid perpendicular to the slope. When filter fencing is used around a stockpile, the fencing shall be inspected to ensure piping has not occurred under the fencing and to ensure the fencing has not collapsed due to soil slippage or access by construction equipment. Repair or replace damaged fencing immediately. Berms at the base of stockpiles, which become damaged, shall be replaced.

STORM STRUCTURE INLET FILTER: Inlet filters shall be inspected for sediment accumulation, clogging and damage. When stone is used in conjunction with inlet filter fabric, replace the stone each time it becomes clogged with sediment. Clean or replace the inlet filter fabric each time it becomes clogged with sediment. Reinstall or replace fallen filter fabrics immediately. Replace damaged filter fabrics immediately.

SOIL EROSION CONTROL MEASURE LEGEND

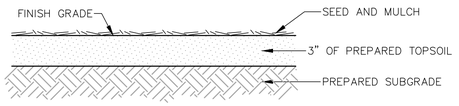
1	STRIPPING & STOCKPILING TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEEDED
5	Seeding	Inexpensive and very effective Stabilizes soil, thus minimizing erosion Permits runoff to infiltrate soil, reducing runoff volume Should include prepared topsoil bed
13	RIPRAP, RUBBLE, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATION PERMITS RUNOFF TO INFILTRATE SOIL DISSIPATES ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR POLES MAY BE CONSTRUCTED OR PREPACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58	INLET SEDIMENT FILTER	USES PREPACKAGED GEOTEXTILE SACKS FILTERS SEDIMENT FROM RUNOFF AT CATCH BASIN INLET EASY TO INSTALL AND MAINTAIN



14 MUD TRACKING CONTROL DEVICE

NOT TO SCALE

NOTE:
WHEN ACCEPTABLE TO ENGINEER, CONTRACTOR MAY INSTALL STONE BELOW THE SUBGRADE ELEVATION; THUS STONE MAY BE LEFT IN PLACE BELOW PAVEMENT.



5 P SEEDING DETAIL

NOT TO SCALE

1. Seed mixture shall consist of
   10% - Kentucky Blue Grass
   20% - Perennial Ryegrass
   30% - Hard Fescue
   40% - Creeping Red Fescue
   Seed shall be uniformly applied at a rate of 210 pounds per acre.
2. Topsoil shall be a dark, organic, natural surface soil free of clay lumps, pest or muck, subsoil, noxious weeds or other foreign matter such as roots, sticks, rocks over 1/2" in diameter and not frozen or muddy. Material shall meet with approval of the Engineer.
3. Straw mulching shall be a minimum depth of 3" applied at a rate of 1.5 to 2 tons per acre. All mulching must have a tie down, such as tackifier, net binding, etc.
4. Fertilizer shall be evenly applied at a rate which will provide 150 pounds per acre of chemical fertilizer nutrients, in equal portions, (10-10-10), of Nitrogen, Phosphoric Acid and Potash.
5. Hydroseeding is not acceptable for slopes exceeding 1%. In such cases, stabilization shall be done with seed and straw mulch with a tackifier.
6. The earthen areas to receive topsoil shall be at the required grade and properly trimmed. Topsoil shall be spread on the prepared areas to a depth of 3 inches. After spreading, any large clods and lumps of topsoil shall be broken up and pulverized. Stones and rocks over 1/2" in diameter, roots, litter, and all foreign matter shall be raked up and disposed of by the the contractor. Place topsoil only when it can be followed within a reasonable time by seeding operations.

MIN. RIP RAP DIMENSIONS

PIPE DIAMETER (inch)	APRON LENGTH (feet)	(1) APRON WIDTH (feet)	(2) ALTERNATE APRON WIDTH (feet)
12	12	8	16
15	15	10	20
18	18	12	24
21	21	14	28
24	24	16	32
30	30	20	40
36	36	24	48
42	42	28	56

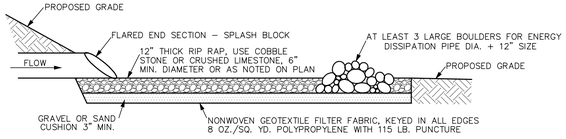
UNLESS SHOWN OTHERWISE ON PLANS. May be varied to match natural features; ie when meeting ex. ditch, apron width to match channel bottom extending up sides to a depth of 1/2 pipe dia.

(1) APRON WIDTH FOR USE IN DITCHES AND SWALES

(2) APRON WIDTH FOR USE IN FLAT AREAS WHERE SHEET FLOW DESIRED

13 RIP RAP PLAN

NOT TO SCALE



13 RIP RAP CROSS SECTION

NOT TO SCALE

NOTES:
1. GROUT RIP RAP WITH A 6" THICK CEMENT SLURRY FOR SLOPES STEEPER THAN 20%; 5 ON 1.
2. PROVIDE ANIMAL GUARDS ON ALL STORM SEWER 15" DIA. OR GREATER, INCIDENTAL TO FES PIPE.

PLAN VIEW

SECTION A-A **FRONT VIEW**

NOTES:
1. REPAIR AND REPLACE SILT FENCE AS NEEDED, INCIDENTAL.
2. FIELD LOCATE SILT FENCE TO FOLLOW CONSTANT CONTOUR ELEVATIONS.
3. OVERLAP FENCES AT JOINTS.
4. INSTALL FILTER BERM AT LOW POINTS WHERE INDICATED ON PLANS.

55 SILT FENCE

NOT TO SCALE

58 INLET SEDIMENT FILTER

NOT TO SCALE

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 INCH = 40 FEET

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

1. The Soil Erosion and Sedimentation Control Specifications of the appropriate Local, County and/or State Agencies are a part of this work. Refer to the General Notes on the Project Plans for additional requirements.
2. The Soil Erosion and Sedimentation Control (SESC) Permit Holder shall be responsible for compliance with the SESC Permit requirements for the duration of the project and until receipt of final approval from the Permitting Agency. For any site with an earth disturbance area of 1 acre or greater, the SESC Permit Holder shall retain a Certified Storm Water Operator in accordance with the SESC Permit requirements. The Certified Storm Water Operator shall perform routine inspections of the site and the SESC measures and file inspection reports in accordance with the SESC permit requirements. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a National Pollutant Discharge Elimination System (NPDES) Notice of Coverage Form with the State DEQ prior to any earth disruption.
3. The Contractor shall install the appropriate Soil Erosion Control Measures in accordance with the Project Plans prior to massive earth disruption, including but not limited to; silt fence, mud tracking control mats and sediment filters on existing storm sewer structures. Demolition work may be necessary prior to installation of some soil erosion control measures. In such cases, postpone installation of affected soil erosion control measures until immediately following demolition work. Refer to the Project Plans and the Soil Erosion Control and Construction Sequence for additional requirements.
4. The Contractor shall schedule work so as to minimize the period of time that an area is exposed and disturbed. The Contractor shall observe the grading limits and limits of disturbance in accordance with the Project Plans. The Contractor shall maintain an undisturbed vegetative buffer around the work when shown on the Project Plans.
5. The Contractor shall install and maintain Soil Erosion Control Measures in accordance with the Project Plans during the appropriate phases of construction. The Project Plans show the minimum requirements for Soil Erosion Control Measures. The Contractor shall install additional Soil Erosion Control Measures as necessary due to site conditions and as directed by the Permitting Agency and/or Engineer. The Contractor shall perform routine inspection and maintenance of all Soil Erosion Control Measures to ensure compliance with the permit requirements and proper operation of the Soil Erosion Control Measures.
6. The Contractor shall strip and stockpile topsoil from all areas of proposed disturbance. Topsoil stockpiles shall be located in accordance with the Project Plans. Topsoil stockpiles shall be stabilized with vegetative growth (or matted with straw during the non-growing season) to prevent wind and water erosion. A temporary diversion berm and/or silt fence shall encompass all earthen material stockpiles, including but not limited to topsoil, sand and gravel.
7. The Contractor shall install Soil Erosion Control Measures associated with the proposed storm sewer system during storm sewer construction. Inlet structure filters shall be installed immediately following completion of each storm inlet structure. Riprap shall be installed immediately following the installation of each flared end section with the following exception: Storm drain outlets that do NOT empty into a Retention, Detention or Sedimentation Basin shall have a temporary 5' wide x 10' long x 3' deep sump installed at the termination of the storm sewer. Upon completion of the stabilization work, the sump area shall be filled and riprap shall be installed in accordance with the Project Plans.
8. The Contractor shall install filter stone around the storm basin control structure(s) in accordance with the Project Plans immediately following installation of the control structure(s). The filter stone shall be monitored for sediment build up. The filter stone may need to be cleaned and/or replaced as site conditions require and as directed by the Permitting Agency and/or the Engineer.
9. All disturbed areas outside of paved areas shall be restored within 15 days of finish grading. Proposed vegetative areas shall be restored with a minimum of 3-inches of topsoil, then seeded and mulched, unless noted otherwise on the Project Plans. During the non-growing season, temporary stabilization shall be provided using straw matting or as directed by the Permitting Agency and/or the Engineer.

Seeding, Fertilizer and Mulch Bare Ground Ratio:
This information is provided as minimum guidance for acceptable application rates. Actual amounts depending on soil conditions and site topography shall be detailed on the construction plans.

Top-Soil 3 inches in depth.
Grass Seed 210 lbs. per acre.
Fertilizer 150 lbs. per acre.
Straw Mulch 3" in depth 1.5 to 2 tons per acre
(All mulch must have a tie down, such as tackifier, net binding, etc.)
Hydro-Seeding: Hydro-seeding is not acceptable for slopes exceeding 1%, in such cases; stabilization shall be done with seed and straw mulch with a tackifier.

10. Following complete site restoration and stabilization; sediment shall be removed from all storm sewer structures, paved areas and storm basins. The SESC Permit Holder shall contact the Permitting Agency to request closure of the SESC Permit. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a NPDES Notice of Termination Form with the State DEQ.

BENCHMARK

–DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
"X" ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK-NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

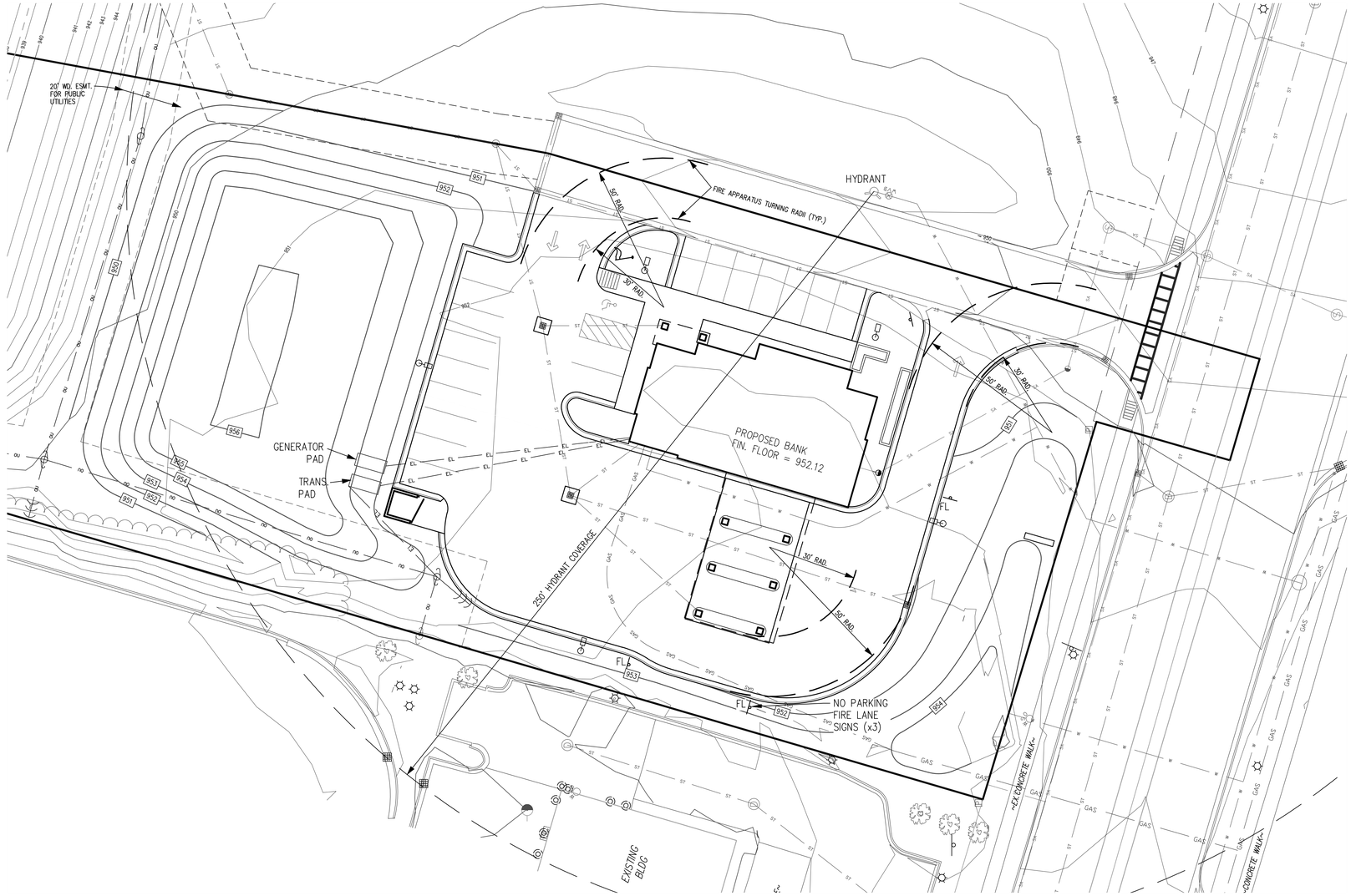
1025 E. GRAND RIVER
LOC CREDIT UNION

SOIL EROSION CONTROL PLAN

CLIENT:
LOC CREDIT UNION
22981 FARMINGTON RD.
FARMINGTON, MICHIGAN 48336

SCALE: 1in. -= 40ft.
PROJECT No.: 224295
DWG NAME: 4295 SE
ISSUED: DEC. 8, 2022

SE



GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

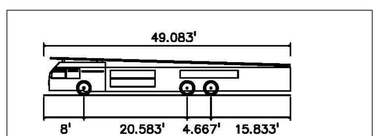
1 INCH = 30 FEET

LEGEND

- = PARCEL BOUNDRY
- = RIGHT OF WAY LINE
- = EASEMENT LINE
- = BUILDING SETBACK LINE
- = SIGN / MONUMENT SIGN
- = SOIL BORING / BENCHMARK W/IDENTIFIER
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
- = EDGE OF WOODS / TREE DRIP LINE
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = STUMP
- = ROCKS / RIP RAP
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = EDGE OF PAVEMENT
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = EDGE OF WATER
- = EDGE OF WETLANDS/SWAMP
- = SANITARY SEWER MANHOLE W/IDENTIFIER
- = SANITARY SEWER PIPE
- = CLEAN OUT
- = ROOF DRAIN
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = CONTROL STRUCTURE
- = FLARED END SECTION
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER GATE VALVE WELL / MANHOLE
- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. LIGHT POLE
- = PROP. CONC. CURB
- = PROP. STORM SEWER
- = FIRE LINE SIGN

FIRE LANE SIGN POST DETAIL

NOT TO SCALE



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

FIRE TRUCK DETAIL

NOT TO SCALE

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

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BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

1025 E. GRAND RIVER
LOC CREDIT UNION

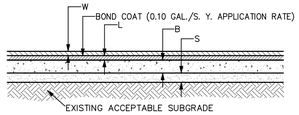
EMERGENCY VEHICLES ACCESS PLAN

CLIENT:

LOC CREDIT UNION
22981 FARMINGTON RD.
FARMINGTON, MICHIGAN 48336

SCALE: 1in. -= 30ft.
PROJECT No.: 224295
DWG NAME: 4295 EV
ISSUED: DEC. 8, 2022

EV



BITUMINOUS PAVEMENT CROSS SECTION

NOT TO SCALE

KEY	DESCRIPTION	MATERIAL SPECIFICATION	MIN. COMP. THICKNESS
W	WEARING COURSE	MDOT 36A	1.5"
L	LEVELING COURSE	MDOT 13A	1.5"
B	AGGREGATE BASE	MDOT 21AA LIMESTONE	6"
S	GRANULAR SUBBASE	MDOT CLASS II	6"

BITUMINOUS PAVEMENT CROSS SECTION NOTES:

1. The construction specifications of the Local Municipality are a part of this work. Refer to the General Notes and Bituminous Pavement Cross Section Detail on the Project Plans for additional requirements.

2. The bituminous pavement cross-section specifications are based on typical weather conditions during the June through September Construction Season. If the bituminous parking area and/or bituminous driveways are to be constructed during any other time of the year and/or if weather conditions are unseasonably wet, then modifications to the bituminous pavement cross section specifications may be necessary. If either of these conditions exists, then contact the Project Engineer for additional requirements.

3. The existing subgrade soils shall be prepared prior to placement of the granular subbase. Unsuitable soils found within the 1 on 1 influence zone of the proposed pavement areas, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced with structural fill. Structural fill shall be MDOT Class II granular material placed in accordance with the General Notes on the Project Plans.

4. The bituminous pavement subgrade shall be proof rolled as directed by the Project Engineer. The Project Engineer and/or Material Testing Engineer shall observe the subgrade proof roll. Areas of subgrade that do not pass a proof roll inspection shall be undercut in accordance with the Subgrade Undercut Notes and Details on the Project Plans.

5. The bituminous pavement granular subbase material shall be MDOT CL II sand. No granular subbase material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The granular subbase shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

6. The bituminous pavement aggregate base material shall be MDOT 21AA crushed angular limestone. MDOT 21AA crushed concrete shall NOT be utilized for the bituminous pavement aggregate base. No other aggregate base material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The aggregate base shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

7. The bituminous pavement material shall NOT be placed in a single course. The bituminous pavement material MUST be placed in two courses, a leveling course and a wearing course. The bituminous pavement leveling course material shall be MDOT 13A bituminous material placed in 1 lift. The bituminous pavement wearing course material shall be MDOT 36A bituminous material placed in 1 lift. No bituminous material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. Compaction of the leveling course shall be achieved prior to placement of the wearing course. Any sediment, soil, debris and other foreign materials that accumulate on the leveling course shall be removed prior to placement of the wearing course. The bond coat shall be sprayed on the leveling course within 24 hours of placement of the wearing course. The bituminous pavement material shall be compacted to a minimum of 95% of the 50-blow Marshall Density.

8. Bituminous mix designs shall be developed in accordance with the MDOT HMA Production Manual. The Contractor shall submit the bituminous pavement mix designs to the Material Testing Engineer, appropriate Municipal Agency and/or the Project Engineer for review and approval a minimum of 3 business days prior to use. Bituminous pavement work shall not commence without receipt of the Material Testing Engineer's, Appropriate Municipal Agency and/or Project Engineer's approval of the bituminous mix designs. The bituminous pavement mix design shall be a virgin mix. RAP mixtures shall not be utilized without prior written approval of the Material Testing Engineer and receipt of the Owner's authorization. RAP mixtures, if authorized, shall be designed and produced in accordance with MDOT Tier I or Tier II RAP Mixture Specifications. In no instance shall MDOT Tier III or non-MDOT RAP mixtures be permitted or utilized.

9. The Owner / Developer may delay placement of the bituminous wearing course, outside of the public right of way, until after construction activities are complete. Repair of the bituminous leveling course may be necessary due to any delay in placement of the bituminous wearing course. Substantial repair to the bituminous leveling course may be necessary if placement of the bituminous wearing course is delayed for more than 12 months after the placement of the bituminous leveling course. The bituminous leveling course shall be repaired as directed by the Project Engineer prior to placement of the bituminous wearing course.

CONCRETE CURB NOTES:

1. Refer to the project plans for the proposed locations of the specific curb types.

2. The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes and Curb Cross Section Details on the project plans for additional requirements.

3. Extend the base and/or subbase material of the appropriate adjacent pavement cross-section horizontally to 1 foot behind the back of curb. Concrete curb shall be constructed on no less than 6" of combined depth of compacted base/subbase material.

4. Concrete material shall meet or exceed the specification requirements of the appropriate Local Municipality. If not specified by the Local Municipality, then the concrete material shall be MDOT P1 (I-A) 6.0 sack concrete pavement mixture with a minimum 28 day design compressive strength of 4,000 PSI and 6.5% (+/-1.5%) entrained air. Contractor shall submit concrete mix design and aggregate mechanical analysis report to the Local Municipality and Engineer for review and approval prior to use.

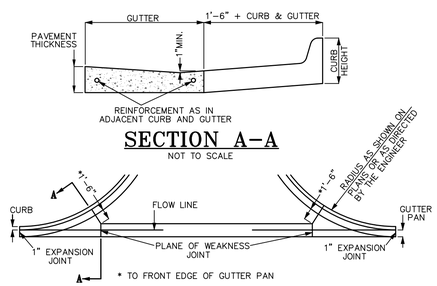
5. Install transverse contraction control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse contraction control joints in curb with 1" minimum depth at 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

6. Install transverse expansion control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse expansion control joints in curb as follows: 400' maximum on center, at spring points of intersecting streets and within 10' on each side of catch basins. Transverse expansion control joints shall be 1" thick asphalt fiber joint filler matching entire curb cross section.

7. Provide 1" asphalt fiber control joint between back of curb and all other concrete structures, such as concrete sidewalks and concrete driveways.

8. Curb Contractor shall provide final adjustment of catch basin castings in curb line. Castings shall be tuck pointed to structure water tight with concrete or mortar inside and outside of casting.

9. Install curb cuts for all existing and proposed sidewalks and pedestrian ramps in accordance with the American Disabilities Act and the Barrier Free Design requirements of the appropriate Local, County and/or State Agency. Refer to MDOT Standard Plan R-28, latest revision. Install curb cuts for all existing and proposed vehicular ramps and drives as noted on the project plans.

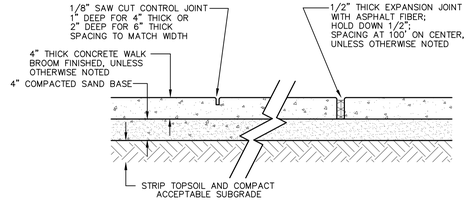


SECTION A-A

NOT TO SCALE

CONCRETE DRIVEWAY OPENING MDOT DETAIL "M"

NOT TO SCALE



SIDEWALK CROSS SECTION

NOT TO SCALE

NOTES:
1. SEE PLAN FOR WIDTH OF SIDEWALK.
2. PROVIDE CONCRETE TYPE PER LOCAL CODE. (3500 PSI AIR ENTRAINED)

SIDEWALK CROSS SECTION NOTES:

1. The construction specifications of the Local Municipality are a part of this work. Refer to the General Notes and the Sidewalk Cross Section Details on the Project Plans for additional requirements.

2. Sidewalk widths may vary. See the Project Plans for the proposed sidewalk width at each location. Increase sidewalks to 6" minimum thickness at driveways and other areas exposed to vehicular traffic.

3. The existing subgrade soils shall be prepared prior to placement of the granular subbase. Unsuitable soils found within the 1 on 1 influence zone of the proposed sidewalk areas, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced with structural fill. Structural fill shall be MDOT Class II granular material placed in accordance with the General Notes on the Project Plans.

4. The sidewalk compacted subbase material shall be MDOT CL II sand. No subbase material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The subbase shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

5. Concrete material shall be MDOT P1 (I-A) 6.0 sack concrete pavement mixture with a minimum 28 day design compressive strength of 4,000 PSI and 6.5% (+/-1.5%) entrained air. The Contractor shall submit the concrete mix design and aggregate mechanical analysis report to the Material Testing Engineer and/or Project Engineer for review and approval prior to use.

6. Install transverse contraction control joints in accordance with the Sidewalk Cross Section Detail. Space contraction control joints to match sidewalk width, but no greater than 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

7. Install transverse expansion control joints in accordance with the Sidewalk Cross Section Detail. Space expansion control joints at 50 feet on center maximum. Transverse expansion control joints shall be 1/2" thick asphalt fiber joint filler matching entire sidewalk cross section.

8. Provide 1" asphalt fiber control joint between concrete sidewalks and all other concrete structures, such as concrete building foundations, concrete curb and concrete driveways.

9. Construct all Barrier Free Sidewalk Ramps in accordance with the American Disabilities Act and the Barrier Free Design Requirements of the appropriate Local, County or State Agency with jurisdiction over the project. Refer to MDOT Standard Plan R-28, latest revision.

10. The concrete sidewalk shall not be exposed to vehicular traffic until the concrete has reached at least 75% of the design flexural strength.

GENERAL NOTES:

1. Contractor shall perform the work in accordance with the requirements of the appropriate Local, County and State Agencies and all other Government and Regulatory Agencies with jurisdiction over the project. Contractor shall notify the appropriate Agencies in advance of each stage of work in accordance with each Agency's requirements.

2. Contractor shall comply with all permit, insurance, licensing and inspection requirements associated with the work. Prior to construction, Contractor and Owner/Developer shall determine who is responsible for obtaining each required permit. Contractor shall verify that the each required permit has been obtained prior to commencement of the stage of work associated with the required permit(s).

3. Contractor shall furnish liability insurance and property damage insurance to save harmless the Owner, Developer, Architect, Engineer, Surveyor and Government Agencies for any accident occurring during the construction period. Refer to the appropriate Local, County and State Agencies for additional requirements. Copies of insurance certifications shall be made available to the Owner/Developer.

4. Contractor shall conduct and perform work in a safe and competent manner. Contractor shall perform all necessary measures to provide for traffic and pedestrian safety from the start of work and through substantial completion. Contractor shall determine procedures and provide safety equipment such as traffic controls, warning devices, temporary pavement markings and signs as needed. Contractor shall comply with the safety standards of the State Department of Labor, the occupational health standards of the State Department of Health and safety regulations of the appropriate Local, County, State and Federal Agencies. Refer to the safety specifications of the appropriate Regulatory Agencies. The Contractor shall designate a qualified employee with complete job site authority over the work and safety precautions; said designated employee shall be on site at all times during the work.

5. Contractor shall coordinate scheduling of all work in the proper sequence, including work by Subcontractors. Additional costs due to improper planning by Contractor or work done out of sequence as determined by standard acceptable construction practices, shall be Contractor's responsibility.

6. Contractor shall contact the 811 Underground Public Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to construction. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.

7. Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of work.

8. The Local Municipality, County and/or State in which the project is located may require an Engineer's Certification of construction of the proposed site improvements. Contractor shall verify the certification requirements with Engineer prior to commencement of work. Contractor shall coordinate construction staking, testing, documentation submittal and observation with the appropriate Agency, Surveyor and/or Engineer as required for Engineer's Certification and Government Agency Acceptance. All materials used and work done shall meet or exceed the requirements of certification and acceptance, the contract documents and the material specifications noted on the project plans. Any materials used or work done that does not meet said requirements, contract documents and/or specifications shall be replaced and/or redone at Contractor's expense. The Owner/Developer may wait for test results, certifications and/or Agency reviews prior to accepting work.

9. Engineer may provide subsurface soil evaluation results, if available, to Contractor upon request. Subsurface soil evaluation results, soils maps and/or any other documentation does NOT guarantee existing soil conditions or that sufficient, acceptable on-site granular material is available for use as structural fill, pipe bedding, pipe backfill, road subbase or use as any other granular material specified on the project plans. On-site granular material that meets or exceeds the material specifications noted on the project plans may be used as structural fill, pipe bedding, pipe backfill and/or road subbase material. On-site granular material shall be stockpiled and tested as acceptable to the appropriate Agency and/or Engineer prior to use.

10. During the performance of their work, Contractor shall be solely responsible for determining soil conditions and appropriate construction methods based on the actual field conditions. Contractor shall furnish, install and maintain sheeting, shoring, bracing and/or other tools and equipment and/or construction techniques as needed for the safety and protection of the workers, pedestrians and vehicular traffic and for protection of adjacent structures and site improvements.

11. Contractor shall install temporary and permanent soil erosion and sedimentation control devices at the appropriate stages of construction in accordance with the appropriate regulatory Agencies. Refer to Soil Erosion and Sedimentation Control Plans and Notes on the project plans.

12. Structural fill shall be placed as specified on the project plans and within the 1 on 1 influence zone of all structures, paved areas and other areas subject to vehicular traffic. Structural fill shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, modified proctor). Fill material shall meet or exceed the specifications noted on the project plans or as directed by Engineer when not specified on the project plans.

13. All existing monuments, property corners, ground control and benchmarks shall be protected and preserved; and if disturbed by Contractor, shall be restored at Contractor's expense. Contractor shall notify Surveyor of any conflicts between existing monuments, property corners, ground control and/or benchmarks and the proposed site improvements.

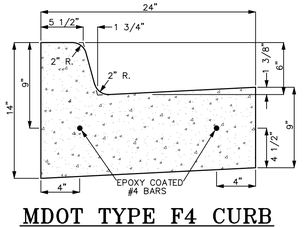
14. Contractor shall notify Owner/Developer and Engineer immediately upon encountering any field conditions, which are inconsistent with the project plans and/or specifications.

15. When noted on the project plans for demolition and/or removal, Contractor shall remove existing structures, building and debris and recycle and/or dispose of in accordance with Local, County, State and Federal regulations.

16. Contractor shall remove excess construction materials and debris from site and perform restoration in accordance with the project plans and specifications. Disposing of excess materials and debris shall be performed in accordance with Local, County, State and Federal regulations.

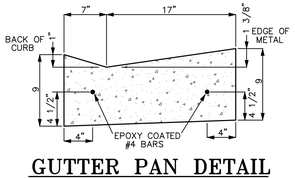
17. Construction access to the site shall be located as acceptable to the Owner/Developer and to the appropriate Local, County and/or State Agency with jurisdiction over the road(s) providing access to the site. Construction access shall be maintained and cleaned in accordance with the appropriate Local, County and/or State Agencies and as directed by Owner/Developer and/or Engineer.

18. Contractor shall take necessary precautions to protect all site improvements from heavy equipment and construction procedures. Damage resulting from Contractor actions shall be repaired at Contractor's expense.



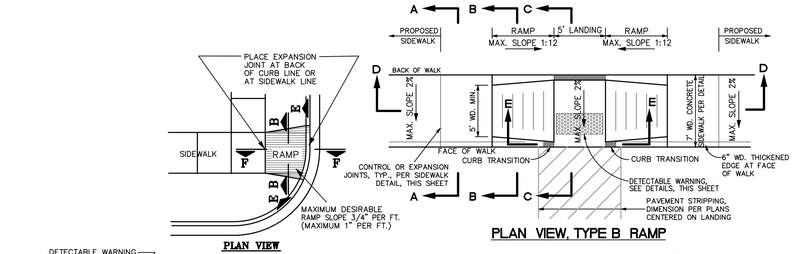
MDOT TYPE F4 CURB

NOT TO SCALE



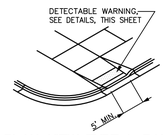
GUTTER PAN DETAIL FOR TYPE F4 CURB

NOT TO SCALE

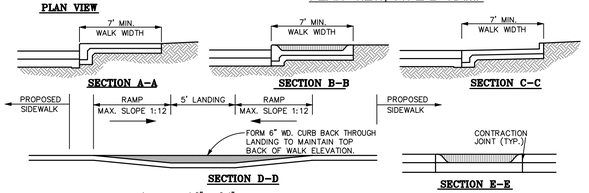


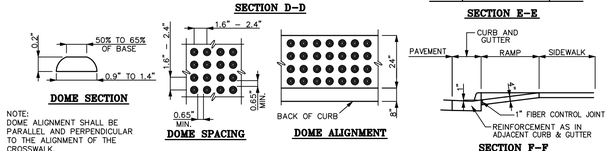
PLAN VIEW

PLAN VIEW, TYPE B RAMP



PLAN VIEW, TYPE A RAMP





BARRIER FREE RAMP AND DETECTABLE WARNING DETAILS

NOT TO SCALE

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

1025 E. GRAND RIVER
SHARED ACCESS DRIVE

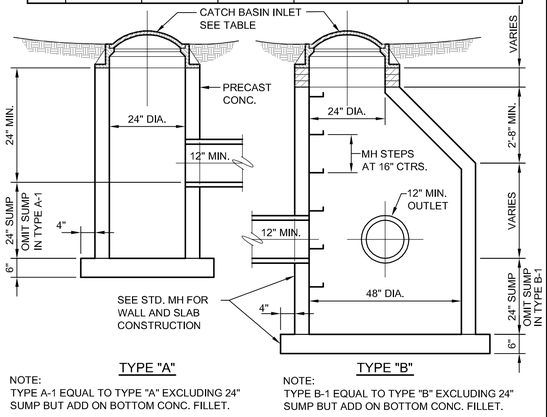
SITE DETAILS

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: AS NOTED
PROJECT No.: 193772
DWG NAME: 3772 DT
ISSUED: DEC. 8 2022

DT1

MANHOLE FRAME & COVER & CATCH BASIN INLETS					
TYPE	LOCATION	MANUFACTURER OR EQUAL		TYPE OF COVER OR INLET	MAXIMUM DRAINAGE AREA (ACRES)
		EAST JORDAN	NEENAH		
MH	ALL	1040	R-1916 F1	SANITARY-SOLID SELF-SEALING STORM-VENTED	N/A
CB	TYPE A CURB	7000-T1-M1	R-3070	FLAT GRATE WITH VERT. OPEN BACK	0.71
CB	TYPE B CURB	7065-T1-M1	R-3034-B	FLAT GRATE WITH ROLL BACK	0.87
CB	PAVEMENT/ SHOULDER	1020-M1	R-2060-D	FLAT GRATE	0.66
CB	OPEN AREA	1020-01	R-2560-D	BEEHIVE GRATE 4" HIGH	0.63
CB	GUTTER	5100	R-3238	CONCAVE INLET	0.96



TYPE "A"

NOTE:
TYPE A-1 EQUAL TO TYPE "A" EXCLUDING 24" SUMP BUT ADD ON BOTTOM CONC. FILLET.

TYPE "B"

NOTE:
TYPE B-1 EQUAL TO TYPE "B" EXCLUDING 24" SUMP BUT ADD ON BOTTOM CONC. FILLET.

CATCH BASIN

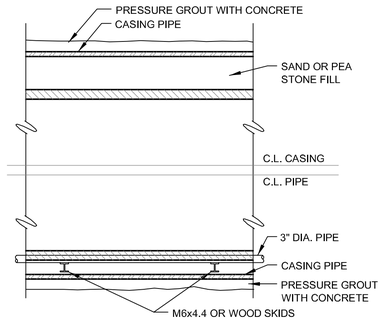
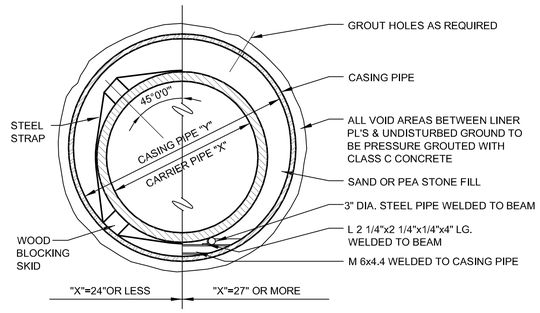


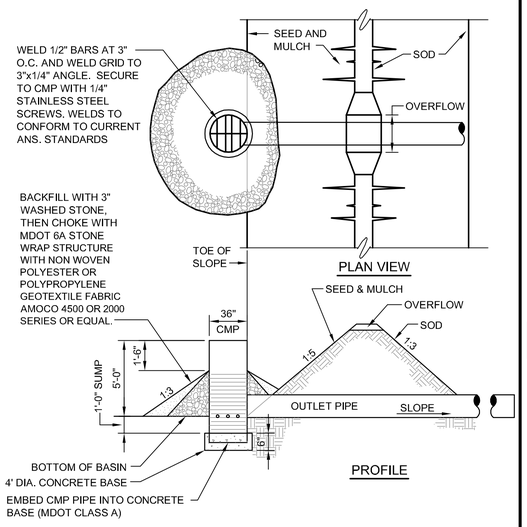
TABLE	
"X"	"Y"(MIN)
6"	20"
8"-12"	24"
14"-15"	30"
18"-21"	36"
24"	42"
27"-30"	48"
33"-36"	60"
42"	66"
48"	72"
54"	84"
60"	90"
66"	96"
72"	108"
78"	114"



NOTES:
1. SEE SPECIFICATIONS FOR ALTERNATE CONSTRUCTION METHODS.
2. BORING SHALL BE AT 90 DEGREES TO ALL CROSSINGS UNLESS OTHERWISE APPROVED. THE BORING OF THE HOLE AND INSTALLATION OF THE CASING PIPE SHALL BE SIMULTANEOUS. BORE HOLE DIAMETER SHALL ESSENTIALLY BE THE SAME AS THE OUTSIDE DIAMETER OF THE CASING PIPE TO BE INSTALLED.
3. BORING TO EXTEND A MINIMUM OF 10' OUTSIDE THE EDGE OF PAVEMENT.
4. CASING SPACERS SHALL BE RESTRAINED-TYPE BOLTED SPACERS AND SHALL HAVE A MAXIMUM SPACING AS NOTED BELOW OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS CLOSER. PIPE CASING SPACERS SHALL BE EQUIVALENT TO RANGER PLASTIC CASING SPACERS AS MANUFACTURED BY PIPELINE SEAL AND INSULATOR, INC, OR APPROVED EQUAL.
   4.1. SPACER SHALL BE PLACED MAXIMUM 1' ON EACH SIDE OF CARRIER PIPE JOINT.
   4.2. TYPICAL 6' MAXIMUM SPACING BETWEEN SPACERS.
   4.3. MINIMUM ONE CASING SPACER WITHIN 1' OF EACH END OF CASING.
5. INSTALL STEEL ASSEMBLY FOR CARRIER PIPE SUPPORT AS SHOWN IN DRAWING AND DETAILED IN SPECIFICATIONS. SKIDS ARE REQUIRED TO EXTEND TO FULL LENGTH OF THE CASING.
6. CASING END SEALS SHALL BE SYNTHETIC NEOPRENE RUBBER PULL-ON TYPE END SEALS WITH STAINLESS STEEL BANDS, AS MANUFACTURED BY PIPELINE SEAL AND INSULATOR, INC, OR APPROVED EQUAL.

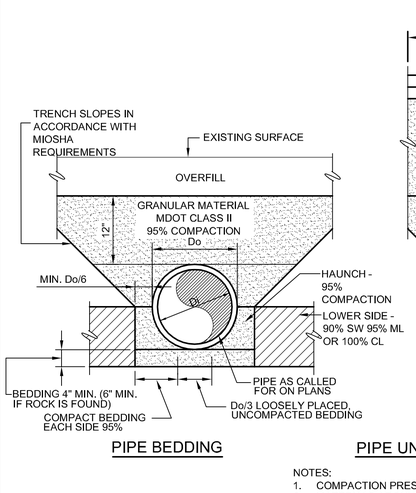
CASING PIPE AT HIGHWAY AND RAILROAD CROSSING

NO SCALE

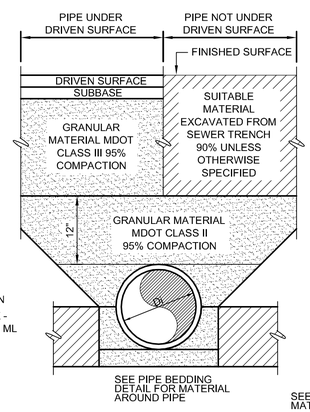


PROFILE

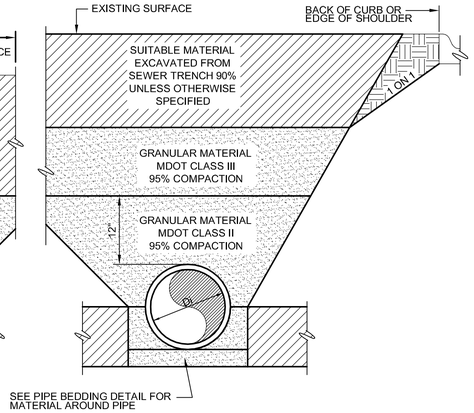
OUTLET CONTROL STRUCTURE



PIPE BEDDING



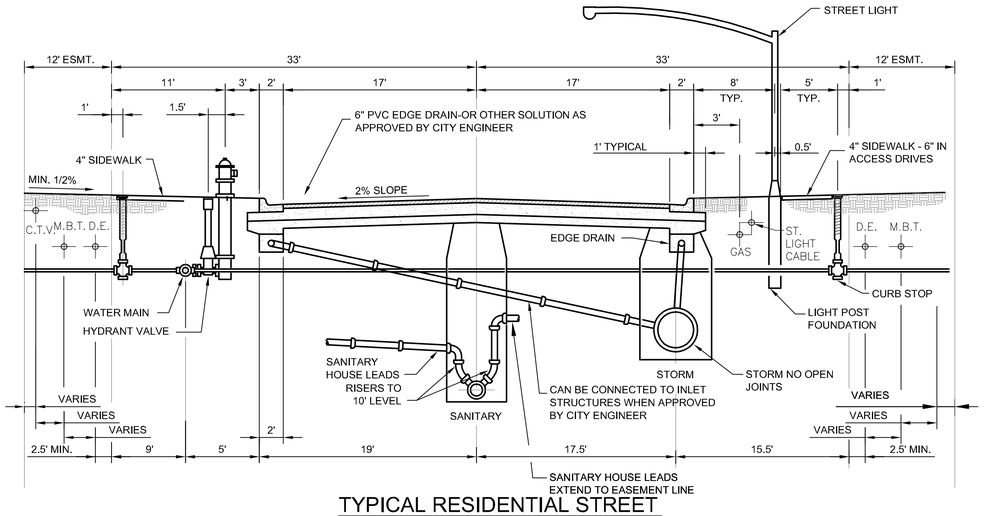
PIPE UNDER/NOT UNDER DRIVEN SURFACE



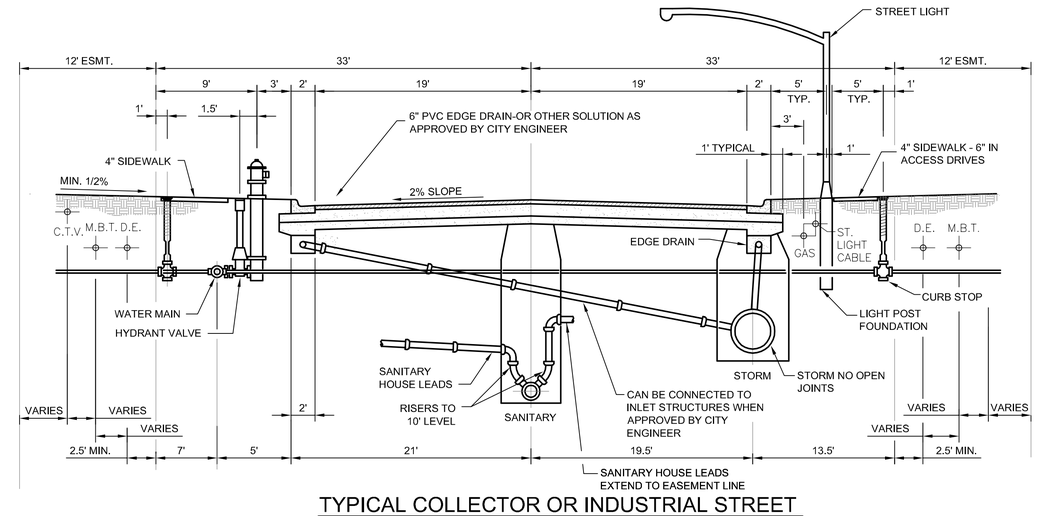
PIPE WITHIN INFLUENCE OF DRIVEN SURFACE

NOTES:
1. COMPACTION PRESENTED AS MINIMUM STANDARD PROCTOR VALUES.
2. MATERIALS AROUND THERMOPLASTIC PIPE WITH DIAMETER < 6 INCHES SHALL PASS 0.5 INCH SIEVE, MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.
3. MATERIALS AROUND HDPE PIPE TO BE MDOT 6A OR 21AA.
4. DRIVEN SURFACE IS DRIVEWAY, PARKING AREA, ROAD BED OR SHOULDER.
5. UTILITY TRENCHES LOCATED WITHIN A MDOT ROW SHALL CONFORM TO MDOT STANDARD DETAIL R-83.

TRENCH EXCAVATION & PIPE BEDDING



TYPICAL RESIDENTIAL STREET

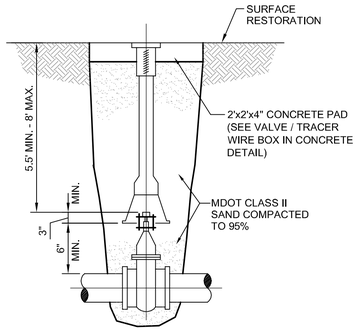


TYPICAL COLLECTOR OR INDUSTRIAL STREET

CITY OF BRIGHTON

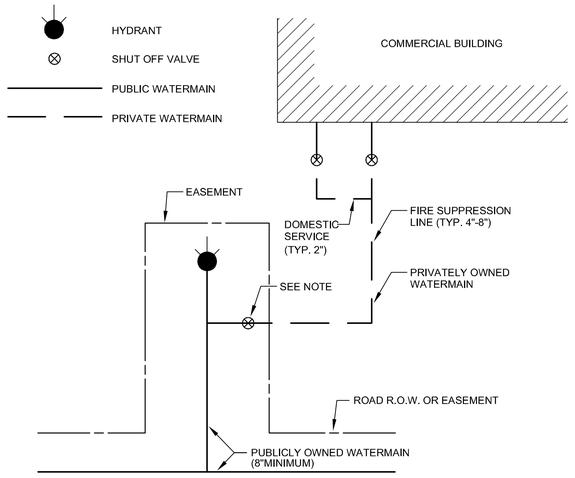
STORM SEWER & STREET DETAILS
STANDARD DETAILS

Scale:	PARKING
Issued Date	MAY - 2014



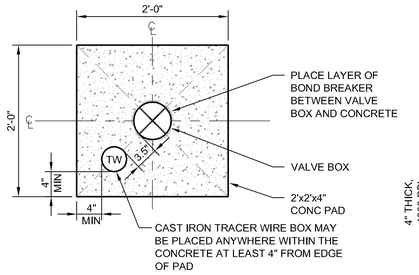
NOTES:
1. VALVE BOX SHALL NOT REST ON VALVE OR MAIN LINE PIPE.
2. A VALVE STEM EXTENSION WITH CENTERING RING IS REQUIRED FOR VALVES BURIED DEEPER THAN 6'.

GATE VALVE AND BOX



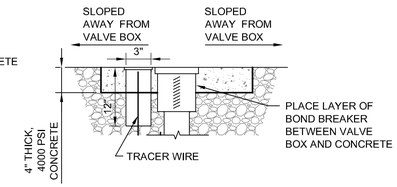
NOTE: PUBLICLY OWNED SHUT OFF VALVE TO BE LOCATED IN EASEMENT.

COMMERCIAL BUILDING WATER SERVICE LAYOUT



NOTE: ALL BOXES & ADJOINING TW BOXES SHALL BE ENCASED IN A CONC. PAD UNLESS OTHERWISE DETERMINED BY THE CITY.

PLAN

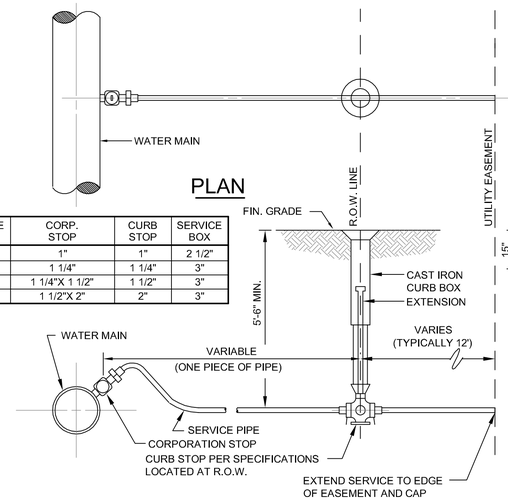


NOTE:
1. TRACER WIRE BOXES LOCATED WITHOUT A VALVE BOX ONLY REQUIRE AN 18" X 18" CONCRETE PAD.
2. TRACER WIRE BOX SHALL HAVE A LOCKING LID W/STANDARD AWWA PENTAGON KEY.

SECTION

GATE VALVE/TRACER WIRE BOX IN CONCRETE DETAIL

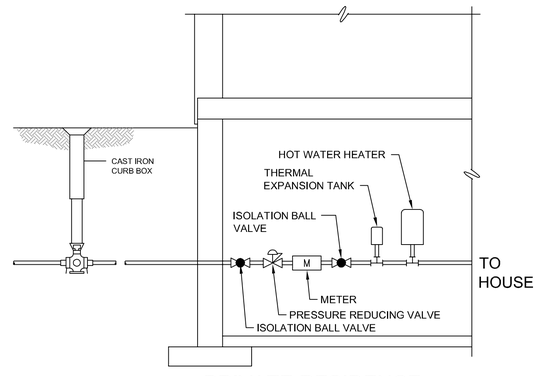
NO SCALE



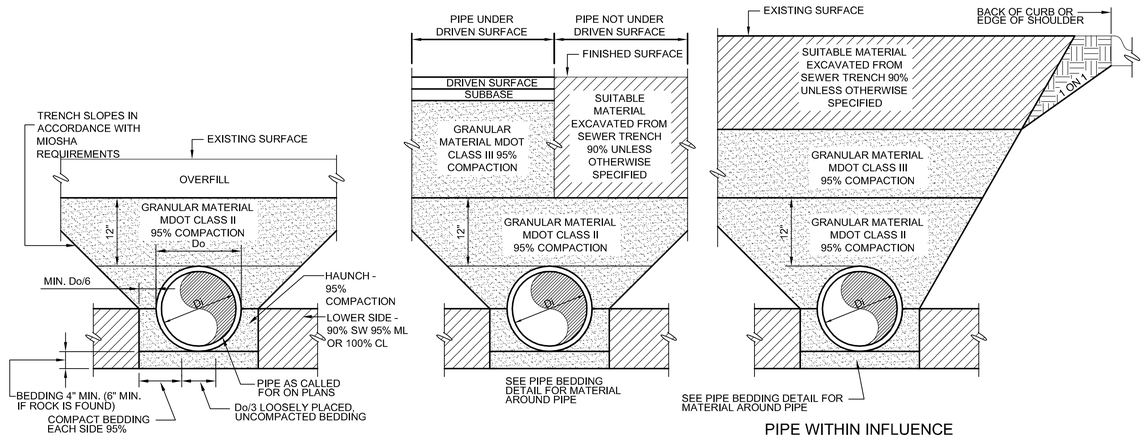
SERVICE PIPE	CORP. STOP	CURB STOP	SERVICE BOX
1"	1"	1"	2 1/2"
1 1/4"	1 1/4"	1 1/4"	3"
1 1/2"	1 1/4"X 1 1/2"	1 1/2"	3"
2"	1 1/2"X 2"	2"	3"

CURB STOP IN PAVEMENT

SECTION
WATER SERVICE LATERAL



PRIVATE RESIDENCE
PRESSURE REDUCING VALVE (PRV)



PIPE BEDDING | PIPE UNDER/NOT UNDER DRIVEN SURFACE | PIPE WITHIN INFLUENCE OF DRIVEN SURFACE

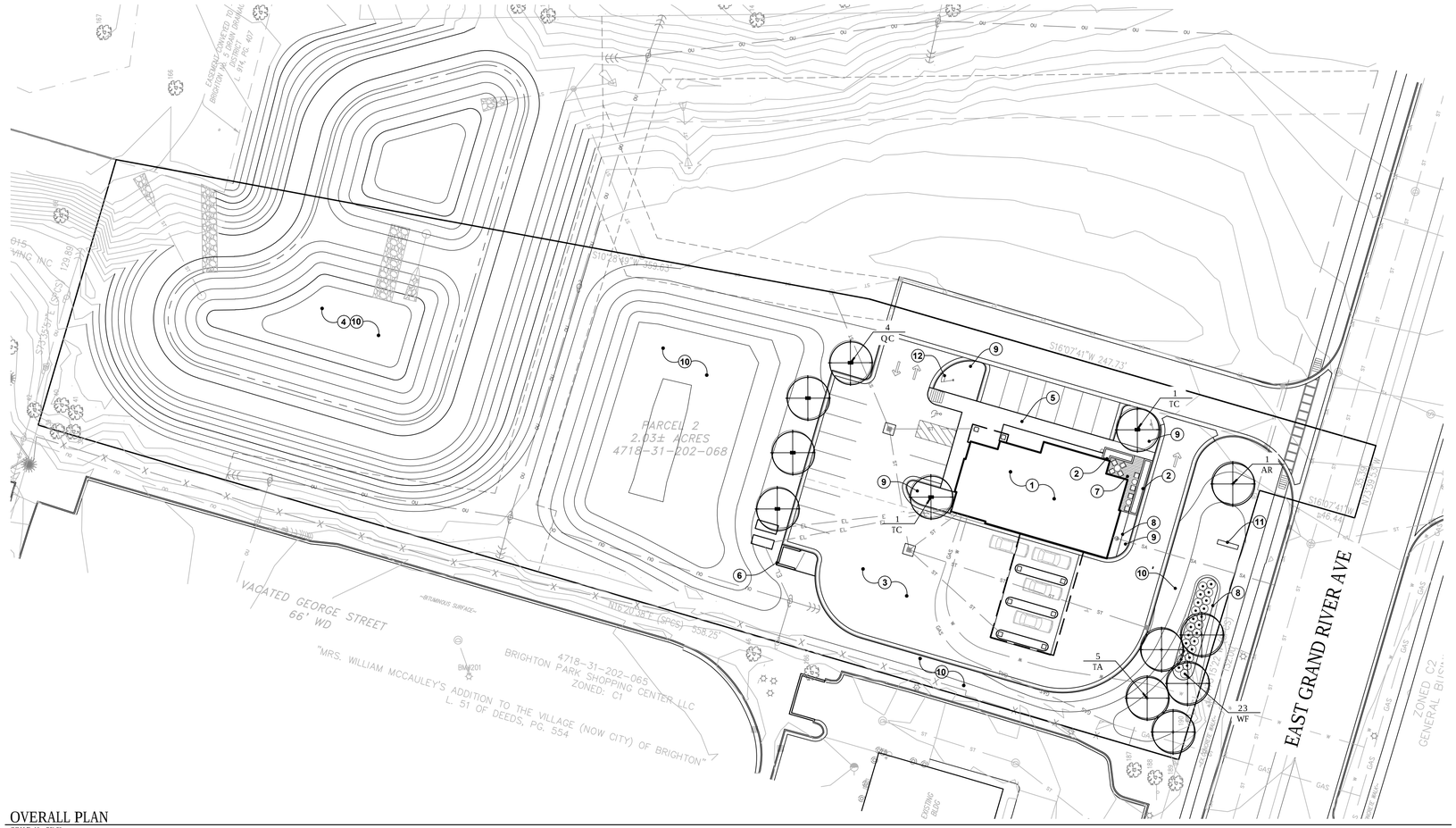
NOTES:
1. COMPACTION PRESENTED AS MINIMUM STANDARD PROCTOR VALUES.
2. MATERIALS AROUND THERMOPLASTIC PIPE WITH DIAMETER < 6 INCHES SHALL PASS 0.5 INCH SIEVE, MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.
3. MATERIALS AROUND HDPE PIPE TO BE MDOT 6A OR 21AA.
4. DRIVEN SURFACE IS DRIVEWAY, PARKING AREA, ROAD BED OR SHOULDER.
5. UTILITY TRENCHES LOCATED WITHIN A MDOT ROW SHALL CONFORM TO MDOT STANDARD DETAIL R-83.

TRENCH EXCAVATION & PIPE BEDDING

CITY OF BRIGHTON

WATER MAIN - SHEET 2 OF 2
STANDARD DETAILS

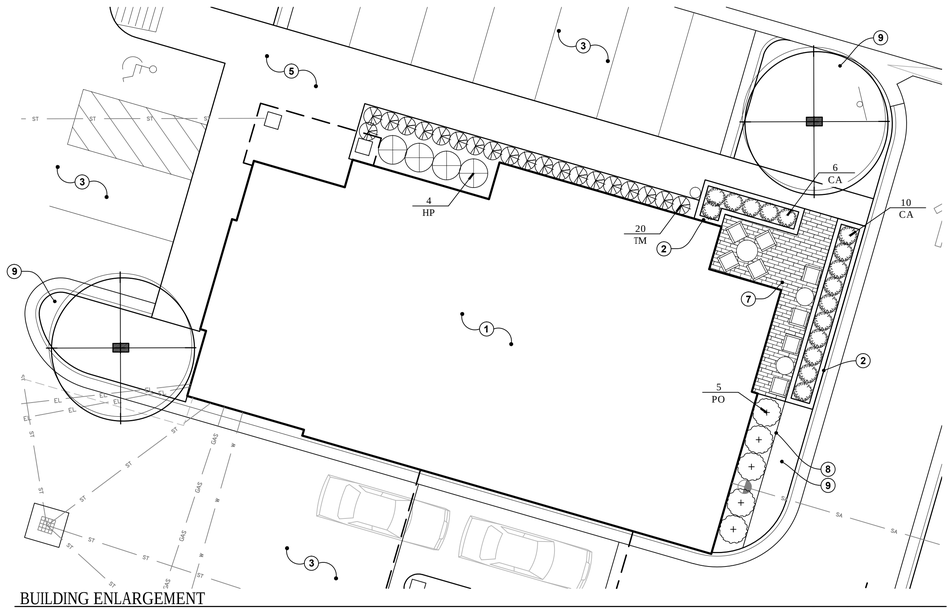
Scale: NONE
Issued Date MAY - 2014



OVERALL PLAN

SCALE: 1" = 30'-0"

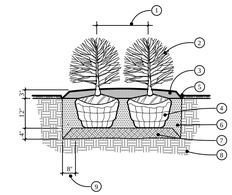
0 15 30 60



BUILDING ENLARGEMENT

SCALE: 1" = 10'-0"

0 5 10 20



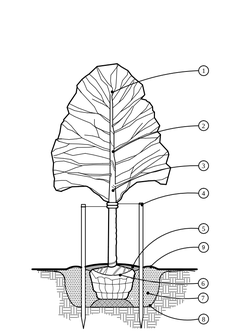
NOTES:
1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION

2. SET TOP OF ROOTBALL 2" ABOVE FINISH GRADE

1. SEE PLAN FOR SPACING
2. SHRUBS, SEE PLANT SCHEDULE
3. 3" DEPTH DOUBLE SHREDDED HARDWOOD MULCH, TYPICAL
4. REMOVE ALL NON-BIODEGRADALBE TWINE FROM ENTIRE ROOTBALL. REMOVE BURLAP FROM TOP 1/2 OF ROOTBALL.
5. SHOVEL CUT OR METAL EDGE, SEE PLAN
6. EXCAVATE EXISTING SOIL TO 12" DEPTH, REPLACE WITH PLANT MIX
7. SCARIFY TO 4" DEPTH AND RECOMPACT
8. UNDISTURBED SUBGRADE
9. MINIMUM 8" BETWEEN ROOTBALL AND EDGE OF PLANTING PIT

SHRUB PLANTING

NOT TO SCALE



1. REMOVE SECONDARY LEADERS. DO NOT PRUNE TERMINAL LEADER OR BRANCH TOPS. PRUNE ALL DEAD AND BROKEN BRANCHES.
2. REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER MATERIALS WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING.
3. STAKE TREES JUST BELOW FIRST BRANCH W/ 2-3" WIDE BELT-LIKE, FABRIC STRAPS ONLY, ARBOR TIE OR APPROVED EQUAL, CONNECT FROM TREE TO STAKE OPPOSITE FROM EACH OTHER, AND ALLOW FOR SOME 'FLEXING') DO NOT USE WIRE OR ROPE THROUGH A HOSE. REMOVE AFTER ONE YEAR.
4. (2) 2"X2" HARDWOOD STAKES OR EQUIVALENT DRIVEN 6"-8" OUTSIDE OF ROOTBALL. REMOVE AFTER ONE YEAR.
5. COVER PLANTING W/ 3" DOUBLE SHREDDED HARDWOOD BARK MULCH. MINIMUM 6' DIA, LEAVE 3" CIRCLE OF BARE SOIL AROUND THE BASE OF THE TRUNK.
6. REMOVE ALL NON-BIODEGRADABLE MATERIALS FROM THE BOOTBALL. FOLD DOWN ALL BURLAP AND REMOVE WIRE BASKET FROM THE TOP 1/3 OF THE ROOTBALL.
7. PLANT MIX
8. TREE PIT TO BE 3 TIMES WIDTH OF ROOTBALL
9. 4" TOPSOIL SAUCER

NOTE:
TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 4" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.

DECIDUOUS TREE PLANTING

NOT TO SCALE

SITE LANDSCAPE CALCULATIONS

PARKING LOT LANDSCAPE:
3% of Spaces and Drive Aisles shall be landscaped and permeable

Landscape Area Required: 435 sf (14,473 x 3%)
Landscape Area Provided: 1,060 sf

Tree Planting:
(1) Deciduous Tree per Aisle Endcap
(1) Deciduous Tree per 250 SF of landscape area required

Endcap Trees Required: 5
Endcap Trees Provided: 4 - One endcap will contain a flagpole

Trees Required: 2 (435 / 250)
Trees Provided: 2

GENERAL LANDSCAPING:
5% of the total lot area shall be open space
Total lot area: 90,457 sf (2.03 ac)
Area Required: 4,523 sf (90,457 x .05)
Area Provided: 60,723 sf (67.1%)

GREENBELT
Minimum of one (1) Tree and (4) Shrubs per 30 lf. of frontage
Road Frontage:167.39 lf.

Trees Required: 6 (167.39 /30)
Trees Provided: 6

Shrubs Required: 23 (167.39 /30)*4
Shrubs Provided: 23

NOTE KEY:

1. PROPOSED BUILDING, SEE ARCHITECTURE
2. RAISED PLANTERS, SEE ARCHITECTURE
3. ASPHALT PARKING LOT, SEE CIVIL ENGINEERING DRAWINGS
4. STORM WATER BASIN, SEE CIVIL ENGINEERING DRAWINGS
5. PROPOSED CONCRETE SIDEWALK
6. PROPOSED TRASH ENCLOSURE, SEE CIVIL ENGINEERING DRAWINGS
7. PROPOSED OUTDOOR SEATING AREA / PRECAST CONCRETE PAVERS
8. METAL EDGING BETWEEN LAWN AND LANDSCAPE BED
9. SODDED LAWN OVER MINIMUM 3" DEPTH TOPSOIL
10. SEEDED LAWN OVER MINIMUM 3" DEPTH TOPSOIL TO LIMITS OF DISTURBANCE
11. PROPOSED MONUMENT SIGN
12. PROPOSED FLAGPOLE

MAINTENANCE NOTES

ALL LANDSCAPE MATERIALS, INSTALLATION, AND MAINTENANCE SHALL COMPLY W/ ZONING ORDINANCE .

ALL PLANT MATERIAL SHALL BE LOCALLY GROWN OR OF THIS NORTH MIDWEST AMERICAN REGION AND CONFORM TO THE CURRENT AAN STANDARDS. USE NO.1 GRADE PLANT MATERIAL.

ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION FREE OF WEEDS AND DEBRIS. THE ESTABLISHMENT PERIOD SHALL BE TWO (2) YEARS FROM THE DATE OF APPROVAL OF PLANTINGS BY THE CITY. REPLACEMENT OF ANY FAILING PLANT MATERIAL, INCLUDING TREES, SHALL BE GUARANTEED DURING THE TWO (2) YEAR ESTABLISHMENT PERIOD. FAILING PLANT MATERIAL SHALL BE REPLACED WITHIN THIRTY (30) DAYS OF WRITTEN NOTICE FROM THE CITY.

ALL LANDSCAPE AREAS SHALL BE PROVIDED WITH AN UNDERGROUND IRRIGATION SYSTEM OR A READILY AVAILABLE AND ACCEPTABLE WATER SUPPLY WITH AT LEAST ONE (1) OUTLET LOCATED WITHIN ONE HUNDRED (100) FEET OF ALL PLANT MATERIAL TO BE MAINTAINED.

ALL TREE WRAP, STAKES AND GUY WIRES SHALL BE REMOVED AFTER ONE WINTER SEASON.

PLANT SCHEDULE

QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
TREES							
1	AR	*Acer r. 'October Glory'*	October Glory Red Maple	2.5" cal.	as shown	B&B	Single straight trunk
4	QC	*Quercus coccinea*	Scarlet Oak	2.5" cal.	as shown	B&B	Single straight trunk
5	TA	*Tilia americana 'Redmond'*	Redmond American Basswood	2.5" cal.	as shown	B&B	Single straight trunk
2	TC	*Tilia cordata 'Greenspire'*	Greenspire Linden	2.5" cal.	as shown	B&B	Single straight trunk
SHRUBS							
4	HP	*Hydrangea p. 'Little Quick Fire'*	Little Quick Fire Hydrangea	36" ht.	as shown	cont.	Well rooted
5	PO	*Physocarpus o. 'Summer Wine'*	Summer Wine Ninebark	30" ht.	as shown	cont.	Well rooted
20	TM	*Taxus x m. 'Brownii'*	Brown's Yew	24" ht.	as shown	cont.	
23	WF	*Weigela f. 'Wine & Roses'*	Wine & Roses Weigela	30" ht.	as shown	cont.	Well rooted
PERENNIALS							
16	CA	*Calamagrostis a. 'Overdam'*	Overdam Feather Reed Grass	#2	as shown	cont.	Well rooted

811 Know what's below Call before you dig
MISS DIG System, Inc. www.missdig.net

SURVEY PROVIDED BY:

DESINE, Inc.
2183 Pless Drive
Brighton, MI 48114
810.227.9533

DESINE JOB NUMBER: 224295
DATED: OCTOBER 28, 2022

NOT FOR CONSTRUCTION

NORTH

VVLA vert verde landscape architecture
734.249.3568 Plymouth, MI
james@vertverde.com

Issued For:
11.22.2022 Site Plan Review

Project:
LOC CREDIT UNION
1025 E. Grand River
Brighton, Michigan

Project Sponsor:
LOC Credit Union
2291 Farmington Road
Farmington, MI 48336

Sheet Name:
Landscape Plan

Seal:

STATE OF MICHIGAN
JAMES GRAY
LANDSCAPE ARCHITECT
No. 1528
REGISTERED LANDSCAPE ARCHITECT

Drawn: JG
Checked: JG
Date: 11.2022
Scale: AS NOTED

Project Number:
22.029

Sheet Number:
L-1

Schedule

Symbol	Label	QTY	Manufacturer	Description	Lamp	Mounting Height
	A	6	Lithonia Lighting	LED CANOPY LIGHT 4000K	LED	14'-6"
	R	3	Lithonia Lighting	6IN LED DOWNLIGHT 3500K	LED	9'-0"
	OA1	2	Lithonia Lighting	D-SERIES SIZE 0 AREA LUMINAIRE 4000K	LED	20'-0"
	OA2	1	Lithonia Lighting	D-SERIES SIZE 0 AREA LUMINAIRE 4000K	LED	20'-0"
	OA3	2	Lithonia Lighting	D-SERIES SIZE 0 AREA LUMINAIRE 4000K	LED	20'-0"
	P	9	Lithonia Lighting	WDGE1 LED BUILDING MOUNTED LIGHT 4000K	LED	9'-10", 10'-4" & 12'-0"

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
DRIVE-THRU CANOPY	+	8.5 fc	13.1 fc	3.9 fc	3.4:1	2.2:1	0.6:1
PARKING LOT	✳	1.0 fc	4.0 fc	0.2 fc	20.0:1	5.0:1	0.3:1
PROPERTY LINE	+	0.1 fc	0.4 fc	0.0 fc	N/A	N/A	0.3:1

Mounting Height Note

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

Alternates Note

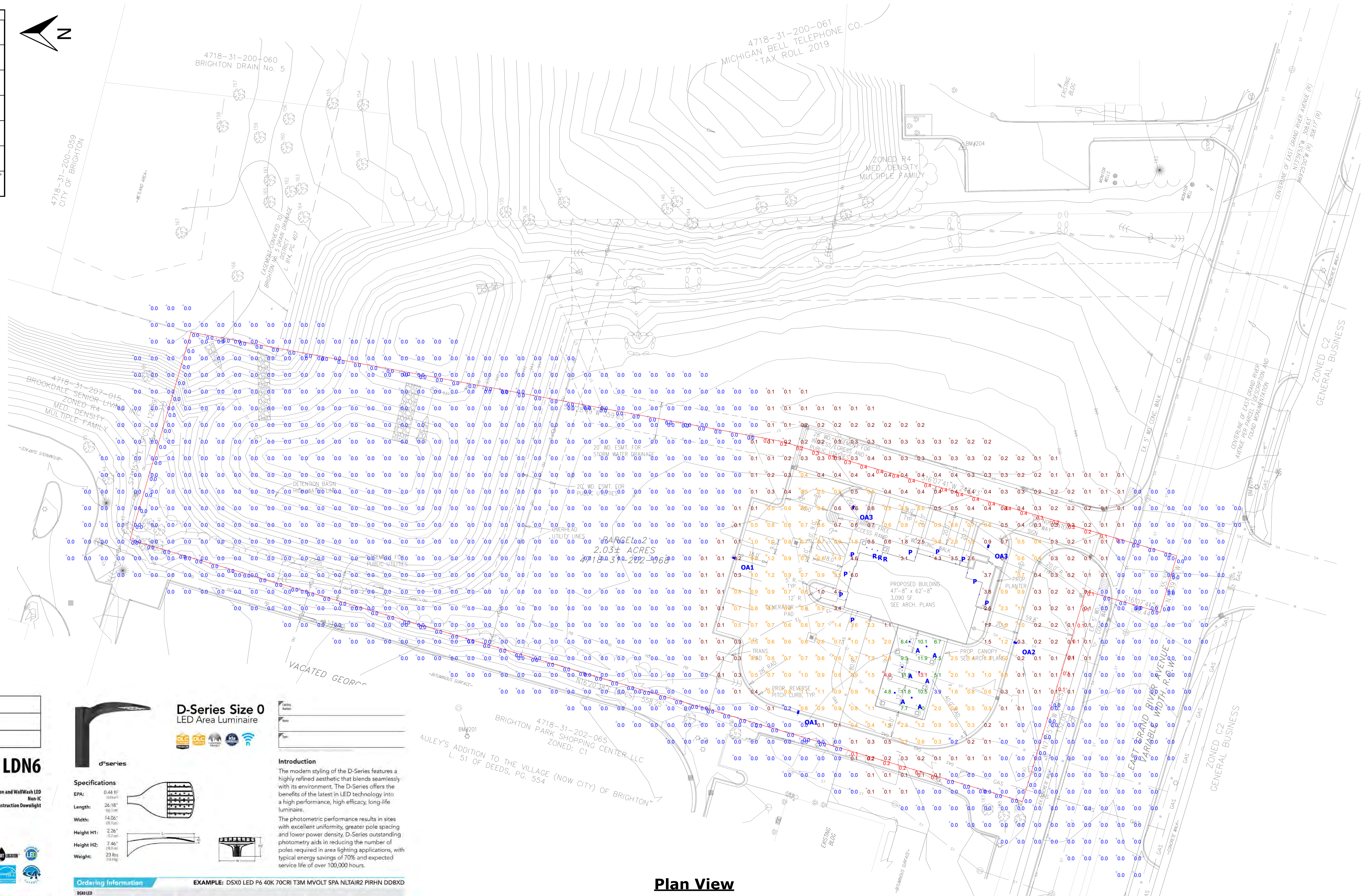
THE USE OF FIXTURE ALTERNATES MUST BE RESUBMITTED TO THE CITY FOR APPROVAL.

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

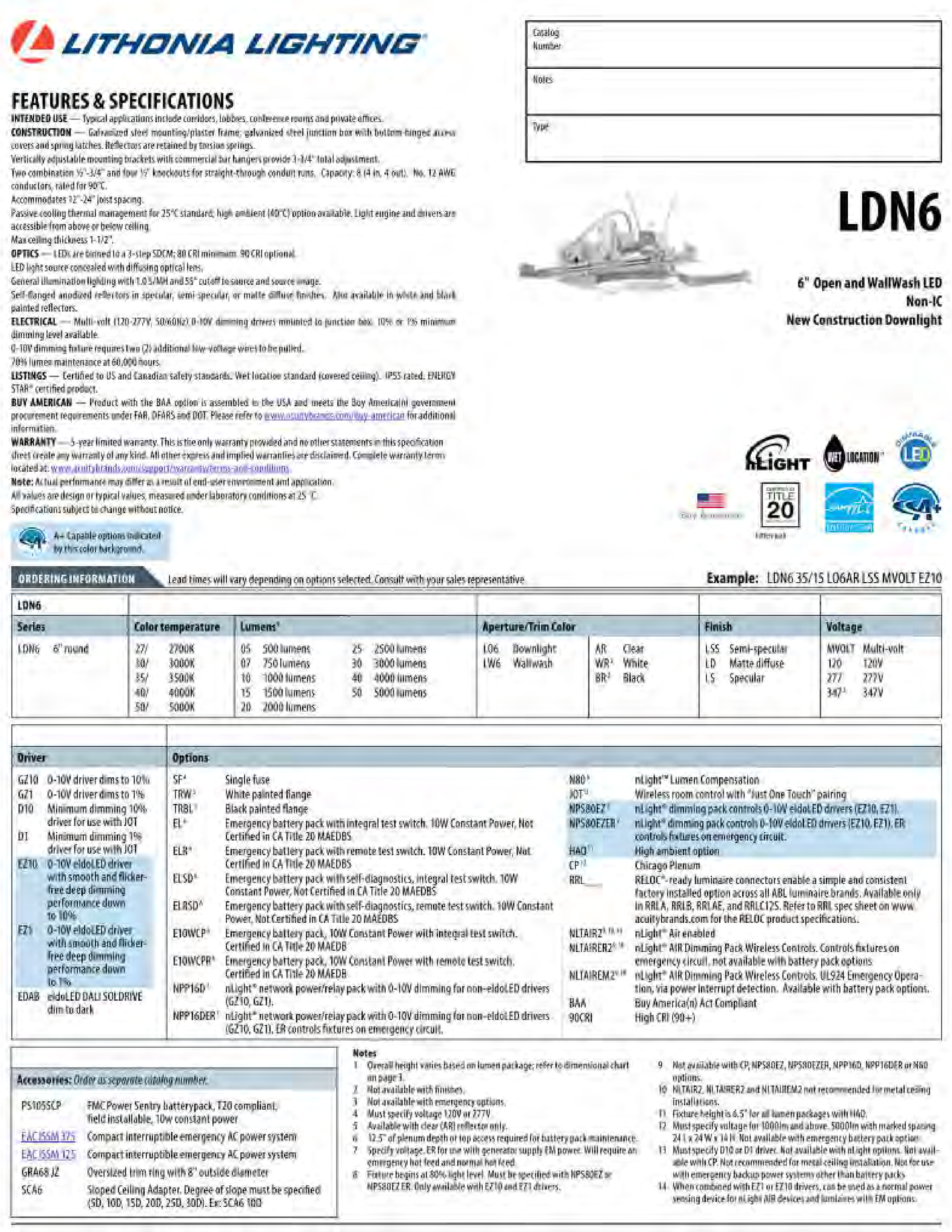
Drawing Note

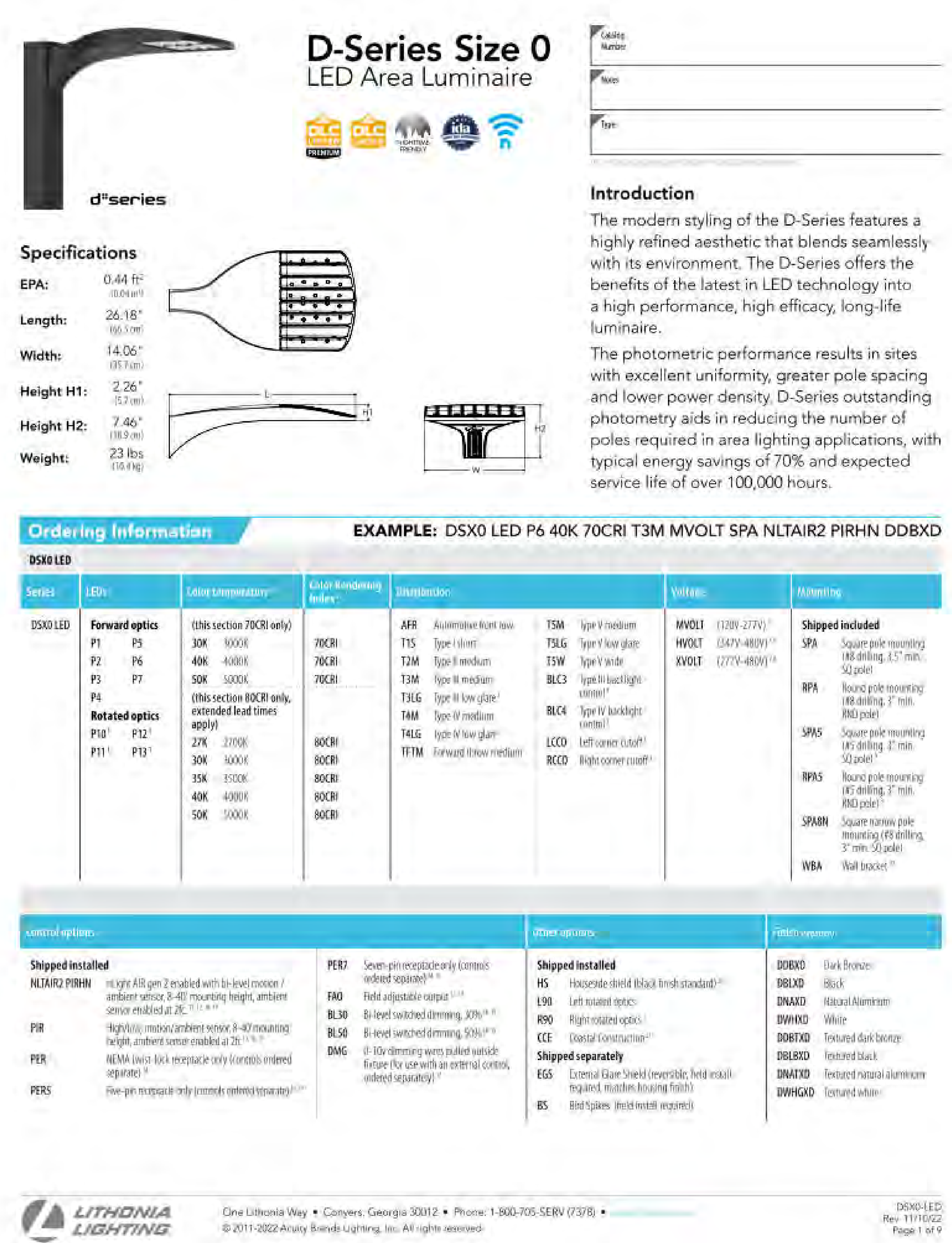
THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.



Plan View

Scale - 1" = 30ft





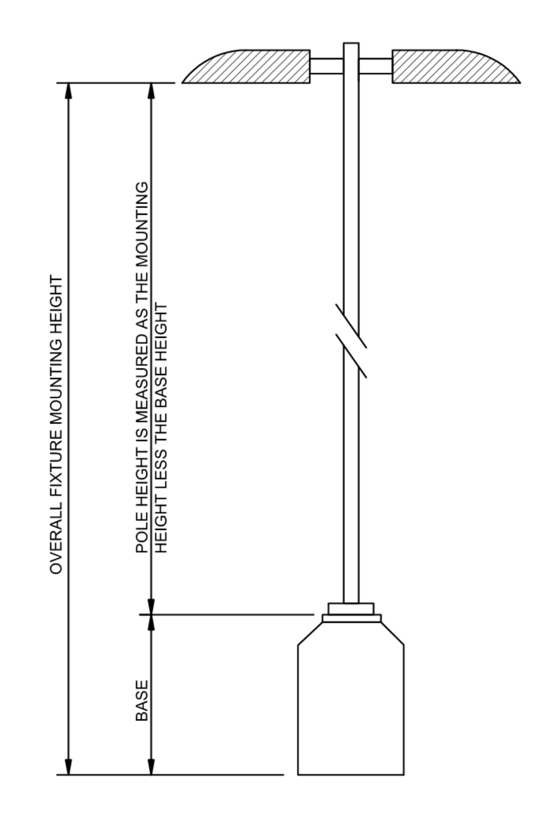
General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

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

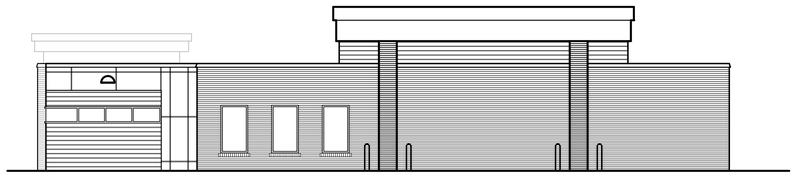


LOC CREDIT UNION
PHOTOMETRIC SITE PLAN
PREPARED FOR: DESINE INC.
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

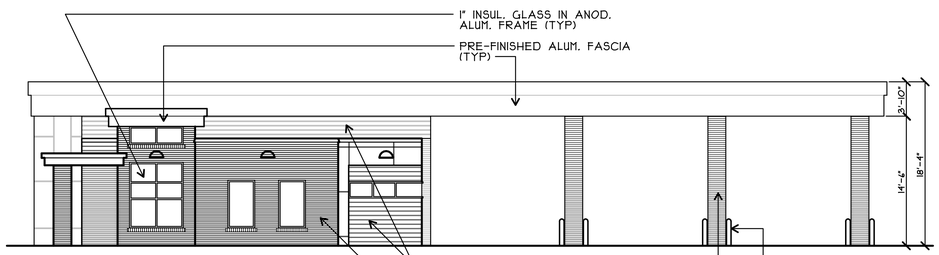
Designer
DB/KB
Date
11/22/2022
Scale
Not to Scale
Drawing No.
#22-82592-V1

1 of 1

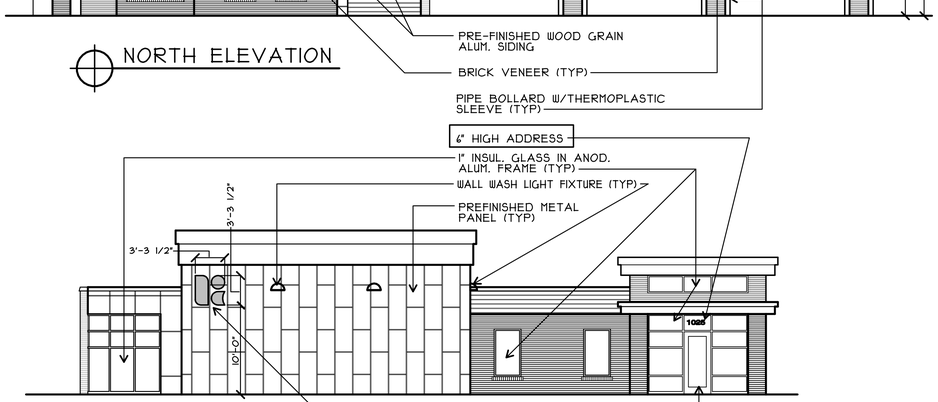
FILE LOCATION: H:\22058 - LOC Credit Union\dwg\A122058_A1
DATE PLOTTED: 12/9/2022 PLOTTED BY: Mike



WEST ELEVATION



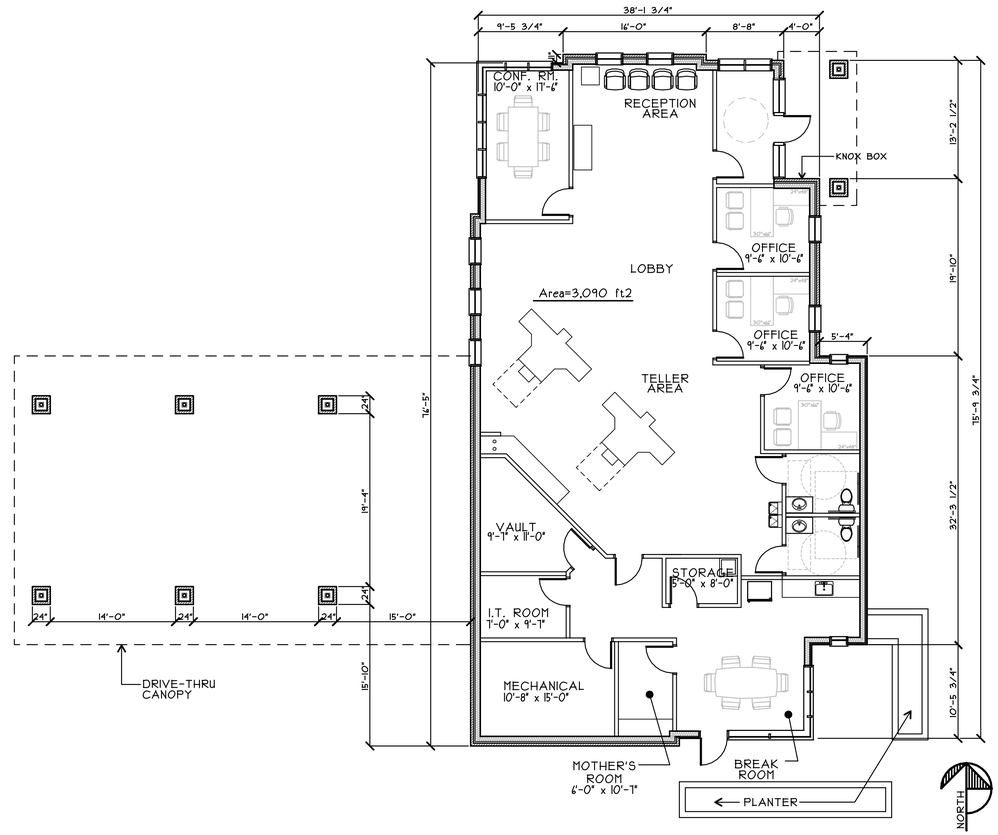
NORTH ELEVATION



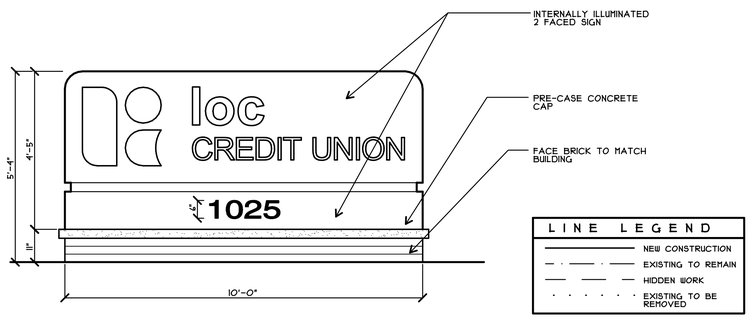
EAST ELEVATION

SOUTH ELEVATION

ELEVATIONS SCALE: 1/8" = 1'-0"



FLOOR PLAN 0' 8' 16' 24' SCALE: 1/8" = 1'-0"



GROUND SIGN ELEVATION SCALE: 1/2" = 1'-0"

Lindhout Associates architects aia pc
10465 citation drive, brighton, michigan 48116-9510
www.lindhout.com (810)227-5668 fax:(810)227-5855

consultant

REVISED FOR SITE PLAN APPROVAL
SITE PLAN APPROVAL
issued for

dr:	MJO	12-09-22
ck'd:	XXX	12-23-22
app'd:	XXX	date

NEW BRANCH OFFICE for:
LOC CREDIT UNION
BRIGHTON, MICHIGAN
PLAN/ELEVATION

A1
22058

VIEW FROM GRAND RIVER

VIEW FROM NORTHWEST

VIEW OF MAIN ENTRY (NORTH)

AERIAL VIEW FROM SOUTHEAST

Lindhout Associates
architects aia pc
10465 citation drive, brighton, michigan 48116-9510
www.lindhout.com (810)227-5668 fax:(810)227-5855

consultant

dr:	xxx		
ck'd:	xxx		
app'd:	xxx	x-xx-xx date	PLOTTING issued for

NEW BRANCH OFFICE for:
LOC CREDIT UNION
BRIGHTON, MICHIGAN
RENDERINGS

A2
22058

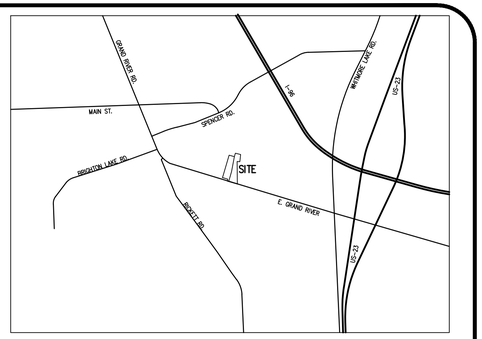
FILE LOCATION: H:\22058 - LOC Credit Union\dwg\dsh\Renderings
DATE PLOTTED: 11/8/2022 PLOTTED BY: mkz

CONSTRUCTION PLANS FOR

1025 E. GRAND RIVER

SHARED ACCESS DRIVE AND STORM WATER MANAGEMENT SYSTEM

BEING PART OF SECTION 31, T2N,R6E, CITY OF BRIGHTON
LIVINGSTON COUNTY, MICHIGAN



LOCATION MAP
SCALE: 1in. = 2000±

LEGAL DESCRIPTION

NEW PARCEL 1 2.29± Acres

Situated in the City of Brighton, County of Livingston, and State of Michigan, and more particularly described as follows:
Part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, City of Brighton, Livingston County, Michigan, more particularly described as follows: Commencing at the East 1/4 Corner of said Section 31; thence N02°24'26"W 227.15 feet *(recorded as N01°55'00"E 228.18 feet)* along the East line of said Section 31; thence N73°39'53"W 308.63 feet *(recorded as N69°25'00"W 308.17 feet)* along the nominal centerline of East Grand River Avenue Right-of-Way (50-foot wide 1/2 Right-of-Way) to the **POINT OF BEGINNING**; thence continuing N73°39'53"W *(recorded as N69°25'00"W)* 215.36 feet along said nominal centerline; thence N16°07'41"E 247.73 feet; thence N10°28'49"E 359.63 feet to the Northeasterly Corner of Lot 25 of "Mrs. William McCauley's Addition to the Village (now City) of Brighton," a part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, Livingston County, Michigan, according to the plat thereof, as recorded in Liber 51 of Deeds, Page 554, Livingston County Records; thence N16°07'41"E *(recorded as N20°48'36"E)* 87.01 feet along the Easterly line of said plat; thence S75°45'23"E 129.67 feet *(recorded as S71°15'00"E 127.59 feet)*; thence S06°23'37"W *(recorded as S10°54'00"W)* 172.01 feet; thence N85°35'23"W *(recorded as N81°05'00"W)* 65.00 feet; thence S00°41'47"E 537.96 feet *(recorded as S03°48'36"W 539.32 feet)* to the Point of Beginning. Containing 2.29 acres of land, more or less. Subject to and together with a 20-foot wide storm sewer easement as described below, also subject to and together with a storm water drainage and detention easement as described below, also subject to and together with a shared easement for ingress & egress and public utilities as described below, also subject to the rights of the public over that portion thereof as occupied by East Grand River Avenue, also subject to and together with all easements and restrictions affecting title to the above described premises.

NEW PARCEL 2 2.03± Acres

Situated in the City of Brighton, County of Livingston, and State of Michigan, and more particularly described as follows:
Lots 7, 8, 9, 16, 17, 24 and 25 of "Mrs. William McCauley's Addition to the Village (now City) of Brighton," a part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, Livingston County, Michigan, according to the plat thereof, as recorded in Liber 51 of Deeds, Page 554, Livingston County Records, also a part of the Northeast 1/4 of said Section 31, more particularly described as follows: Commencing at the East 1/4 Corner of said Section 31; thence N02°24'26"W 227.15 feet *(recorded as N01°55'00"E 228.18 feet)* along the East line of said Section 31; thence N73°39'53"W *(recorded as N69°25'00"W)* 523.98 feet along the nominal centerline of East Grand River Avenue Right-of-Way (50-foot wide 1/2 Right-of-Way) to the **POINT OF BEGINNING**; thence continuing N73°39'53"W *(recorded as N69°25'00"W)* 35.39 feet along said nominal centerline to a point on the Southerly extension of said "Mrs. William McCauley's Addition to the Village (now City) of Brighton;" thence N16°07'41"E *(recorded as N20°48'36"E)* 46.44 feet along said extension to the Southeasterly Corner of said Lot 8; thence N73°15'22"W *(recorded as N68°57'18"W)* 132.00 feet along the Southerly line of said Plat, as monumented, same being the Northerly line of said East Grand River Avenue to a point on the East line of vacated George Street (66-foot wide); thence N16°20'38"E *(recorded as N20°38'42"E)* 556.25 feet along the East line of vacated George Street (66 foot wide) as depicted in said plat to the Northwest Corner of said Lot 25; thence S73°35'57"E *(recorded as S69°17'53"E)* 129.89 feet along the Northerly line of said Lot 25 to the East Line of said Plat; thence S10°28'49"W 359.63 feet; thence S16°07'41"W 247.73 feet to the Place of Beginning, also being to a point on said nominal centerline of East Grand River Avenue. Containing 2.03 acres of land, more or less. Subject to and together with a 20-foot wide storm sewer easement as described below, also subject to and together with a storm water drainage and detention easement as described below, also subject to and together with a shared easement for ingress & egress and public utilities as described below, also subject to the rights of the public over that portion thereof as occupied by East Grand River Avenue, also subject to and together with all easements and restrictions affecting title to the above described premises.

SHEET INDEX

STATE OF MICHIGAN
WAYNE M. PERRY
License No. 6201054036
LICENSED PROFESSIONAL ENGINEER

OWNER / DEVELOPER
BMH REALITY
775 N. SECOND STREET
BRIGHTON, MICHIGAN 48116

CIVIL ENGINEER / LAND SURVEYOR
DESINE, INC.
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114
810-227-9533

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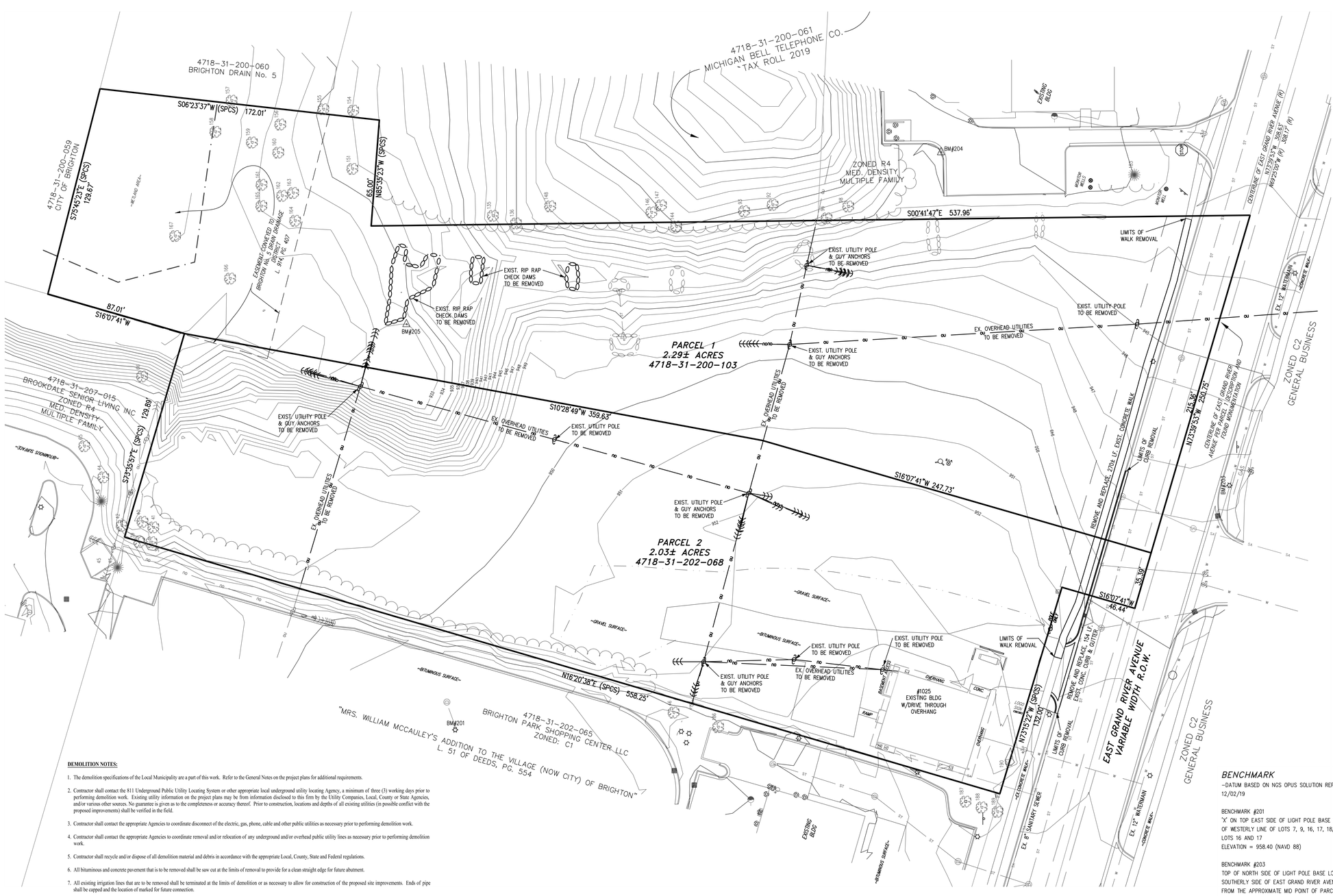
BRIGHTON, MICHIGAN 48114

REVISED	SCALE: NONE
NOV. 28, 2022	PROJECT No.: 193772
	DWG NAME: 3772 COV
	PRINT: DEC. 8, 2022



GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 INCH = 30 FEET

LEGEND

- = PARCEL BOUNDRY
- = RIGHT OF WAY LINE
- = EASEMENT LINE
- = BUILDING SETBACK LINE
- = SIGN / MONUMENT SIGN
- 00 = SOIL BORING / BENCHMARK W/IDENTIFIER
- = LIGHT BASE
- E G W P TV M U = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- A = AIR CONDITIONER UNIT
- OU = UTILITY POLE W/GUY WIRE
- OU OU = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- PH OPT EL CTV UT = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
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- 00 = DECIDUOUS TREE W/IDENTIFIER
- 00 = CONIFEROUS TREE W/IDENTIFIER
- = STUMP
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- = EDGE OF PAVEMENT
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = EDGE OF WATER
- = EDGE OF WETLANDS/SWAMP
- Ⓢ 00 = SANITARY SEWER MANHOLE W/IDENTIFIER
- SA SA = SANITARY SEWER PIPE
- = CLEAN OUT
- RD = ROOF DRAIN
- Ⓓ 00 = STORM WATER MANHOLE W/IDENTIFIER
- 00 00 = CATCH BASIN W/IDENTIFIER
- 00 = CONTROL STRUCTURE
- = FLARED END SECTION
- ST ST = STORM WATER DRAINAGE PIPE
- = HYDRANT
- WSO = WATER SHUT OFF
- ⊗ 00 = WATER GATE VALVE WELL / MANHOLE
- WVB = WATER VALVE BOX
- W W = WATER MAIN
- GV = GAS SHUT OFF
- GAS GAS = U/G GAS
- 901 = 1' CONTOUR
- 905 = 5' CONTOUR

DEMOLITION NOTES:

1. The demolition specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.
2. Contractor shall contact the 811 Underground Public Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to performing demolition work. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.
3. Contractor shall contact the appropriate Agencies to coordinate disconnect of the electric, gas, phone, cable and other public utilities as necessary prior to performing demolition work.
4. Contractor shall contact the appropriate Agencies to coordinate removal and/or relocation of any underground and/or overhead public utility lines as necessary prior to performing demolition work.
5. Contractor shall recycle and/or dispose of all demolition material and debris in accordance with the appropriate Local, County, State and Federal regulations.
6. All bituminous and concrete pavement that is to be removed shall be saw cut at the limits of removal to provide for a clean straight edge for future abutment.
7. All existing irrigation lines that are to be removed shall be terminated at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Ends of pipe shall be capped and the location of marked for future connection.
8. Contractor shall coordinate all water service and sanitary sewer demolition and/or termination with the City of Brighton DPW and their representatives. All existing water main and sanitary sewer that is to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent plugs shall be installed in the ends of pipe in accordance with the appropriate Agency. The Contractor shall record the location of all permanent plugs and provide the location information to the appropriate Agency.
9. All existing storm sewer that is to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent bulkheads shall be installed in the ends of pipe and/or openings in terminating structures in accordance with the appropriate Agency. The Contractor shall record the location of all permanent bulkheads and provide the location information to the appropriate Agency.
10. All existing light sources to be removed shall have their power cables removed up to the power source or properly terminated for future connection at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Removal and termination of power cables shall be performed in accordance with local electric codes.
11. All existing utility meters that are to be removed shall be properly removed to allow for reuse. Any existing utility meters that are not to be reused as a part of this project shall be returned to the appropriate Agency.
12. All trenches and/or excavations resulting from the demolition of underground utilities, building foundations, etc., that are located within the 1 on 1 influence zone of proposed structures, paved areas and/or other areas subject to vehicular traffic shall be backfilled with MDOT Class III granular material (or better) to the proposed subgrade elevation. Backfill shall be shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, Modified Proctor).

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
'X' ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK-NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

BENCHMARK #205
NAIL IN THE SOUTHEASTERLY SIDE OF A 20" MAPLE LOCATED 43' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOT 18
ELEVATION = 935.40 (NAVD 88)

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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS			

1025 E. GRAND RIVER
STORMWATER MANAGEMENT
PLAN & ACCESS DRIVE

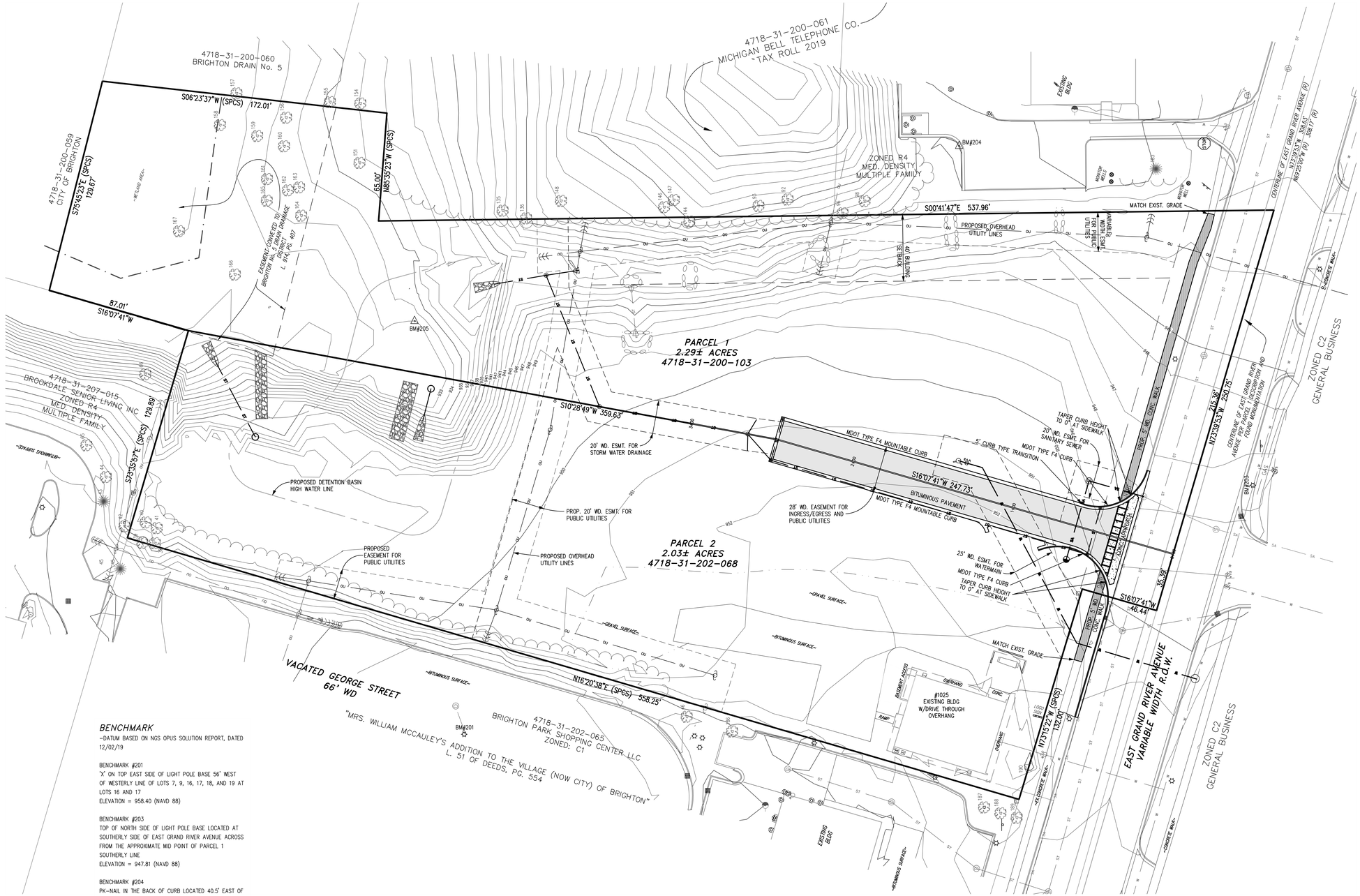
EXISTING CONDITIONS AND DEMOLITION PLAN

CLIENT:

BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. -= 30ft.
PROJECT No.: 193772
DWG NAME: 3772 EX
ISSUED: DEC. 8, 2022

EX



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ELEVATION = 935.40 (NAVD 88)

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(IN FEET)
1 INCH = 30 FEET

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- = SANITARY SEWER PIPE
- = CLEAN OUT
- = ROOF DRAIN
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- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. CONC. CURB
- = PROP. STORM SEWER
- = PROP. SANITARY SEWER
- = PROP. WATERMAIN

SITE CHARACTERISTICS

TAX ID.	4718-31-200-103	4718-31-202-068
ZONING	C-1	C-1
AREA:	2.63 AC.	1.68 AC.
WIDTH:	138'	167'
SETBACKS:		
FRONT	0'	0'
SIDE	40'*	0'
REAR	0'	0'

*ALONG EAST PROPERTY LINE ONLY, ZBA APPROVED A REDUCTION TO 40' ON NOV. 7, 2022

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CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS

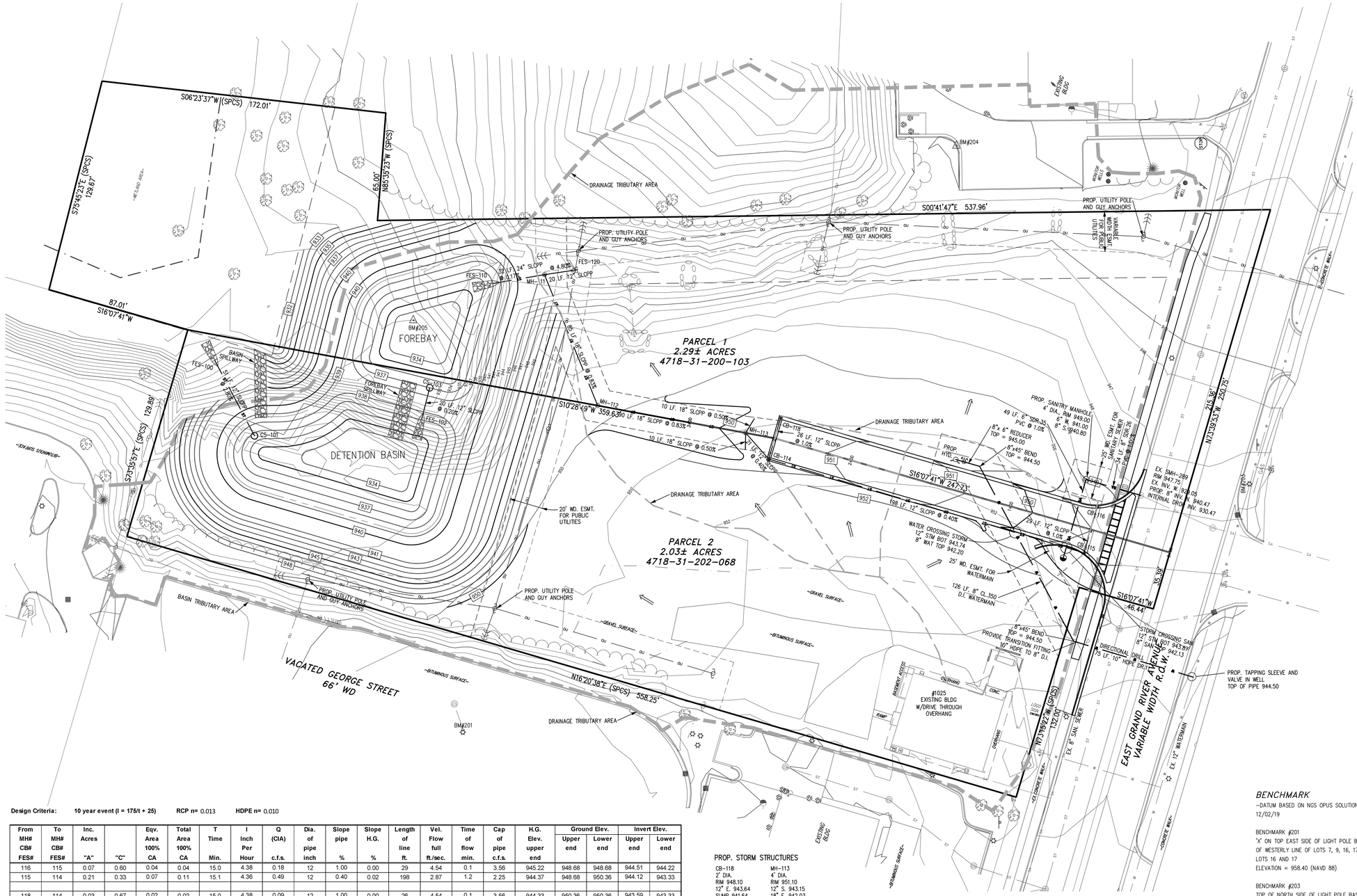
1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

SITE PLAN

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. -= 30ft.
PROJECT No.: 193772
DWG NAME: 3772 SP
ISSUED: DEC. 8, 2022

SP



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- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. CONC. CURB
- = PROP. STORM SEWER
- = PROP. SANITARY SEWER
- = PROP. WATERMAIN
- = PROP. CONTOUR LINE
- = DRAINAGE TRIBUTARY AREA LIMIT
- = FLOW ARROW

Design Criteria: 10 year event (I = 175/(t + 25)) RCP n= 0.013 HDPE n= 0.010

From MH# CB# FES#	To MH# CB# FES#	Inc. Acres "A"	"C"	Eqv. Area 100% CA	Total Area 100% CA	T Time Min.	I Inch Per Hour	Q (CIA) c.f.s.	Dia. of pipe inch	Slope pipe %	Slope H.G. %	Length of line ft.	Vel. Flow full ft./sec.	Time of flow min.	Cap of pipe c.f.s.	H.G. Elev. upper end	Ground Elev. Upper end	Ground Elev. Lower end	Invert Elev. Upper end	Invert Elev. Lower end
116	115	0.07	0.60	0.04	0.04	15.0	4.38	0.18	12	1.00	0.00	29	4.54	0.1	3.56	945.22	948.68	948.68	944.51	944.22
115	114	0.21	0.33	0.07	0.11	15.1	4.36	0.49	12	0.40	0.02	198	2.87	1.2	2.25	944.37	948.68	950.36	944.12	943.33
118	114	0.03	0.67	0.02	0.02	15.0	4.38	0.09	12	1.00	0.00	26	4.54	0.1	3.56	944.33	950.36	950.36	943.59	943.33
114	113	0.08	0.38	0.03	0.16	16.3	4.24	0.69	12	0.40	0.04	21	2.87	0.1	2.25	944.15	950.36	950.27	943.23	943.15
113	112	0.00	0.00	0.00	0.16	16.4	4.23	0.69	18	0.83	0.00	90	5.42	0.3	9.57	939.76	950.27	949.80	938.01	938.26
112	111	0.00	0.00	0.00	0.16	16.7	4.20	0.68	18	0.83	0.00	85	5.42	0.3	9.57	939.01	949.80	942.00	938.16	937.45
120	111	2.01	0.25	0.49	0.49	15.0	4.38	2.16	12	4.80	0.37	20	9.94	0.0	7.81	940.08	939.96	942.00	939.96	939.00
111	110	0.00	0.00	0.00	0.66	16.9	4.17	2.73	24	0.17	0.01	32	2.97	0.2	9.33	939.00	942.00	937.00	937.05	937.00
																938.04	**Downstream HWL**			
OUTLET PIPES DESIGNED TO CARRY THE EXTENDED DETENTION DISCHARGE RATE																				
103	102							0.07	12	0.20	0.00	20	2.64	0.1	2.07	937.96	938.09	936.96	937.00	936.96
																937.96	**Downstream Pipe Crown Elevation**			
101	100							0.07	12	2.80	0.00	51	9.87	0.1	7.75	936.93	939.00	935.50	936.93	935.50
																936.50	**Downstream Pipe Crown Elevation**			

PROP. STORM STRUCTURES

CB-118
2' DIA.
RIM 948.10
12" E. 943.64
SUMP 941.64

CB-116
2' DIA.
RIM 948.65
12" E. 944.51
SUMP 942.51

CB-115
4' DIA.
RIM 948.65
12" W. 944.22
12" N. 944.12
SUMP 942.12

CB-114
4' DIA.
RIM 948.10
12" W. 943.38
12" S. 943.38
12" N. 943.28
SUMP 941.28

MH-113
4' DIA.
RIM 951.10
12" S. 943.15
18" E. 942.03
18" W. 942.03
18" N. 939.01

MH-112
4' DIA.
RIM 949.50
18" S. 938.26
18" NE. 938.16

MH-111
4' DIA.
RIM 942.00
12" SE. 939.00
18" SW. 937.45
24" NW. 937.05

FES-120
12" INV. 939.96

FES-110
24" INV. 937.00

PROPOSED STORM WATER RUN-OFF

"Area"	0.90 Pavement	0.90 Building	0.20 Lawn	1.00 Water	(ACRES) Area	"C" Factor
120	0.13	0.00	1.88	0.00	2.01	0.25
118	0.02	0.00	0.01	0.00	0.03	0.67
116	0.04	0.00	0.03	0.00	0.07	0.60
115	0.04	0.00	0.17	0.00	0.21	0.33
114	0.02	0.00	0.06	0.00	0.08	0.38
BASIN	0.00	0.00	1.60	0.15	1.75	0.27
					4.15	ACRES
				"C" =	**0.27**	

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
"X" ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK-NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

BENCHMARK #205
NAIL IN THE SOUTHEASTERLY SIDE OF A 20" MAPLE LOCATED 4.3' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOT 18
ELEVATION = 935.40 (NAVD 88)

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BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS

1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

UTILITY PLAN

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. = 30ft.
PROJECT No.: 193772
DWG NAME: 3772 UT
ISSUED: DEC. 8, 2022

UT1

Total Drainage Area: 4.15 ac.

PARCEL 1

	Area (ac.)	C Value	CA
Building	0.11	0.90	0.10
Pavement	0.55	0.90	0.50
Lawn	0.18	0.20	0.04
Water	0.00	1.00	0.00
		CA Value:	0.63
		Avg. C Value:	0.75

PARCEL 2

	Area (ac.)	C Value	CA
Building	0.11	0.90	0.10
Pavement	0.35	0.90	0.32
Lawn	0.40	0.20	0.08
Water	0.00	1.00	0.00
		CA Value:	0.494
		Avg. C Value:	0.57

Basin Area

	Area (ac.)	C Value	CA
Building	0.00	0.90	0.00
Pavement	0.13	0.90	0.12
Lawn	2.17	0.20	0.43
Water	0.15	1.00	0.15
		CA Value:	0.701
		Avg. C Value:	0.29
		Site Avg. C Value:	0.44

(Areas represent the sites fully developed)

DETENTION VOLUME CALCULATION
100 YEAR STORM DETENTION

Tributary Area (A) = 4.15 Acres
Compound Runoff Coefficient (C) = 0.44

Water Quality Control Volume: (3,630)(A)(C) = **6,625 cf**

Channel Protection Volume: (4,719)(A)(C) = **8,612 cf**

Extended Detention Volume: (6,897)(A)(C) = **12,587 cf**

Forebay Volume:
Downstream Infiltration Provided = V_{wrq} = **6,625 cf**
Upstream Infiltration (15% of WQC Vol): = **994 cf**

100 Year Storm Inlet Rate calculation:

T_c = 17.1 (from storm sewer calculations)

Q_{100in} = **10.88 cfs**

100 Year Storm Outlet Rate calculation:
Allowed Outlet Rate is lesser of Q_{rrr} or restricted release rate for the drain

County Drain Restricted Rate = N/A cfs

Variable Release Rate = Q_{rrr} = 3.37 cfs

(Variable Release Rate capped at 1.0 cfs/acre for Area < 2 acres)
(Variable Release Rate = 0.15 cfs/acre for Area > 100 acres)

ALLOWABLE 100 YEAR OUTLET RATE = Q_{all} = 3.37 **cfs**

100 Year Required Storm Detention Volume calculation:

Storage Curve Factor = R = 0.38

100 Year Storage Volume In = V_{100N} = 34,647.63 cf

Calculated 100 Year Storage Volume = V_{100det} = 13,226 cf

REQUIRED VOLUME: $V_{100det} > V_{ed}$ = 13,226 cf

Extended Detention Discharge Rate: V_{ed}/172,800 = **0.073 cfs**

PROPOSED FOREBAY and CHANNEL PROTECTION VOLUME

POND DEPTH (FT)	ELEV.	DETENTION CONTOUR AREA (SF)	DETENTION BASIN VOLUME (CF)	FOREBAY CONTOUR AREA (SF)	FOREBAY BASIN VOLUME (CF)	TOTAL STORAGE VOLUME (CF)
	934.00	1617	0			0
1.0	935.00	2818	2,190			2,190
2.0	936.00	4,162	5,658		0	5,658
LWL	937.00	5,650	10,545	4,114	1,371	12,425
4.0	938.00	7,296	17,001	5,436	6,131	23,640
4.5	938.50			6,157	9,027	28,264
5.0	939.00	16,307	28,504	0	10,054	33,678
6.0	940.00	19,130	46,204	0	0	51,378

Forebay Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
Lower	938.00	6,131	6,625	***938.09***
Higher	938.50	9,027		

Channel Protection Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
Lower	937.00	10,545	8,612	***936.70***
Higher	938.00	17,001		

PROPOSED DETENTION BASIN VOLUME

POND DEPTH (FT)	ELEV.	DETENTION CONTOUR AREA (SF)	DETENTION BASIN VOLUME (CF)			
	936.80	5340	0	0	0	0
LWL	937.00	5,650	1,099	4,114	274	1,488
1.0	938.00	7,296	7,554	5,436	5,034	12,704
2.0	939.00	16,307	19,058	0	6,846	27,186
3.0	940.00	19,130	36,758	0	0	44,886

100 Yr. Detention Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
Lower	938.00	12,704	13,226	***938.04***
Higher	939.00	27,186		

Extended Detention Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
Lower	938.00	12,704	12,587	***937.99***
Higher	939.00	27,186		

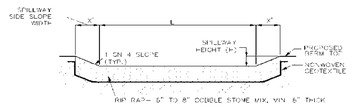
DETENTION BASIN OVERFLOW SPILLWAY CALCULATION

Where:

C= 0.27
A= 4.15 Ac.
I= 2.65 in. *(10 Yr. Intensity)*
Q= 2.97 cfs *(Computed flow per rational method)*
H= 0.5 ft. *(Spillway Height)*
L_{min}= 3 ft. *(Required Minimum Spillway cross section width)*

Therefore:

L_{min}= 3 ft.



TYPICAL SPILLWAY X-SEC
NOT TO SCALE

Spillway Velocity Check (V_s ≤ 1.50 fps):

Q_{100}= 2.97 cfs
Spillway L= 3.00 ft.
Spillway H= 0.50 ft.
Side Slope Width X= 2.00 ft.
Spillway Area= 2.50 sf.
Spillway Velocity= 1.19 fps

*An overall spillway width of 7 **ft.** is being proposed for construction.*

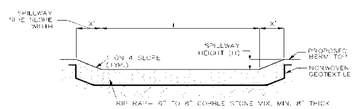
SEDIMENT BASIN SPILLWAY CALCULATION

Where:

C= 0.27
A= 2.40 Ac.
I= 4.98 in. *(10 Yr. Intensity)*
Q= 3.23 cfs *(Computed flow per rational method)*
H= 0.50 ft. *(Spillway Height)*
L_{min}= 3 ft. *(Required Minimum Spillway cross section width)*

Therefore:

L_{min}= 3 ft.



TYPICAL SPILLWAY X-SEC
NOT TO SCALE

Spillway Velocity Check (V_s ≤ 1.50 fps):

Q_{100}= 3.23 cfs
Spillway L= 2.00 ft.
Spillway H= 0.50 ft.
Side Slope Width X= 2.00 ft.
Spillway Area= 2.00 sf.
Spillway Velocity= 1.61 fps

*An overall spillway width of 7 **ft.** is being proposed for construction.*

BASIN A
CONTROL STRUCTURE CALCULATIONS

Tributary Area :	A =	4.15	Acres
Compound Runoff Coefficient :	C =	0.44	
Orifice Flow Coefficient :	c =	0.60	
Allowable Outflow Rate :	Qa =	3.37	CFS
100 Year Detention Volume =	V100 =	13,226	CF
Extended Detention Volume =	Ved =	12,587	CF
Channel Protection Volume =	Vcp =	8,612	CF
Channel Protection Elevation :	Xcp =	936.70	
Extended Detention Elevation :	Xed =	937.99	
100 Year Storage Elevation :	X100 =	938.04	
Design HWL Elevation :	HWL =	939.00	

Extended Detention:

Qed =	Ved * (1 / 48 hrs) * (1 / 3600 sec) =	0.0728	CFS
Hed =	Xed - Xcp =	1.29	FT
Aed =	Qed / (c * SQRT(2 * 32.2 * Hed)) =	0.0133	SF
D =	Orifice Diameter	1.000	inch dia.
Ned =	Aed / D	2.44	Orifices

Use Ned = 3 Orifices at Centerline Elevation = *936.74*

Approx. Extended Detention Discharge Duration = **39.05** hours

100-Year Detention Storage:

Qed =	[c * Ned * Pi(D/24)^2 * SQRT(2 * 32.2 * (X100 - Xcd))] =	0.0910	CFS
Q100 =	Qa - Qed =	3.2802	CFS

Use a rectangular weir -

	Depth (X100 - Xed) =	1.01	FT
	Width =	14.40	Inches
	Weir Flow Calculation:		
	Q = 3.33 (L-0.2H) H^1.5	3.365	CFS

BASIN A
FOREBAY CONTROL STRUCTURE CALCULATIONS

Tributary Area :	A =	4.15	Acres
Compound Runoff Coefficient :	C =	0.44	
Orifice Flow Coefficient :	c =	0.60	
Allowable Outflow Rate :	Qa =	0.07	CFS
Forebay Storage Volume =	Vf =	6,625	CF
Low Water Level :	LWL =	937.00	
Forebay Storage Elevation :	Xf =	938.09	

Forebay Outlet Control:

Qf =	Vf * (1 / 24 hrs) * (1 / 3600 sec) =	0.0767	CFS
Hf =	Xf - LWL =	1.04	FT
Af =	Qf / (c * SQRT(2 * 32.2 * Hf)) =	0.0156	SF
D =	Orifice Diameter	1.000	inch dia.
Nf =	Af / D	2.86	Orifices

Use Nf = 3 Orifices at Centerline Elevation = *937.04*

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DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

STORM WATER MANAGEMENT SYSTEM CALCULATIONS

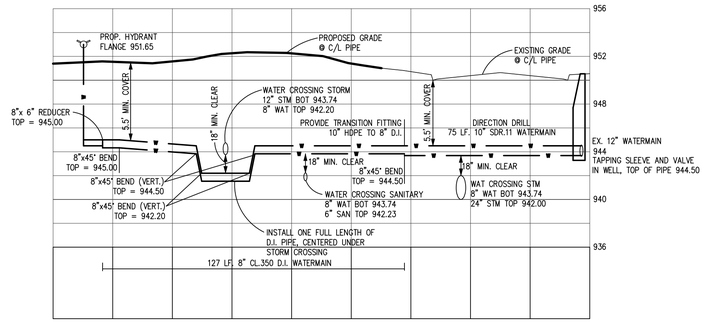
CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: NONE
PROJECT No.: 193772
DWG NAME: 3772 UT
ISSUED: DEC. 8, 2022

UT2

1025 East Grand River
Water Main Basis of Design

Tee @ V 1 to HYD-A		
Design Factors:		
Equivalent length of pipe	L =	310 feet
Hazen-Williams roughness constant	C =	110
Design flow volume	Q =	1200 gpm
Pipe diameter	Dia =	8.0 inches
Calculated Pressure Loss		
friction head loss (feet per 100 feet)	f =	3.55 ft / 100 ft
friction head loss (psi per 100 feet)	f =	1.53 psi / 100 ft
Head loss (feet of water)	h =	11.02 feet
Head loss (psi)	h =	4.74 psi
Calculated Flow Velocity		
Flow velocity	V =	7.66 ft/s
Resultant Pressures		
Pressure at Tee @ V 1	P1 =	65.0 psi
Calculated pressure at HYD-A	P2 =	60.3 psi
Min. allowable system design pressure	=	20.0 psi



WATERMAIN PROFILE

SCALE: HORIZ. 1in. = 30ft.
VERT. 1in. = 6ft.

1025 East Grand River
SANITARY SEWER BASIS OF DESIGN
12/6/2022

Sanitary sewer between Proposed MH and Existing SMH-289:

Retail lease space (2)	3,194 sq.ft.	0.3 REU/1,000 sq.ft.	1.0 REU's
Restaurant (take out)	1,600 sq.ft.	1.5 REU/1,000 sq.ft.	2.4 REU's
LOC Credit Union	3,015 sq.ft.	0.25 REU/Emp. station	2.0 REU's
		ESTIMATED TOTAL REU's =	5.4 REU's

SANITARY SEWER

FLOW CALCULATION:

5.4 REU's (260 GPD/REU) = 1,404 GPD

PEAK FLOW CALCULATION:

(1,404 GPD) (4.23) / 24 = 248 GPH (peak)

PEAK FLOW = **0.009 CFS**

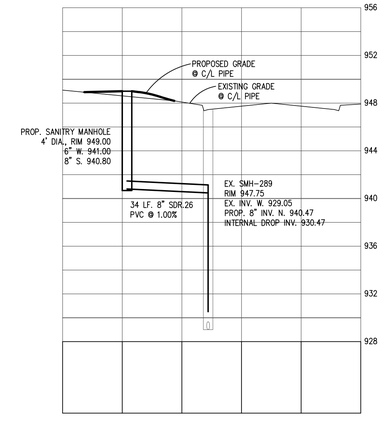
PIPE SIZE CALCULATION:

Use 8" dia. Pipe n = 0.013

$Q = (1.486/0.013)\,(0.3491)\,(0.1667)^{2/3}\,(0.010)^{1/2}$

Q = 1.202 cfs

Min. Design Pipe Slope = 1.0 %
Design Flow Rate = 1.20 cfs.
Design Flow Velocity = 3.44 fps.



SANITARY SEWER PROFILE

SCALE: HORIZ. 1in. = 30ft.
VERT. 1in. = 6ft.

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REVISION #	DATE	REVISION-DESCRIPTION

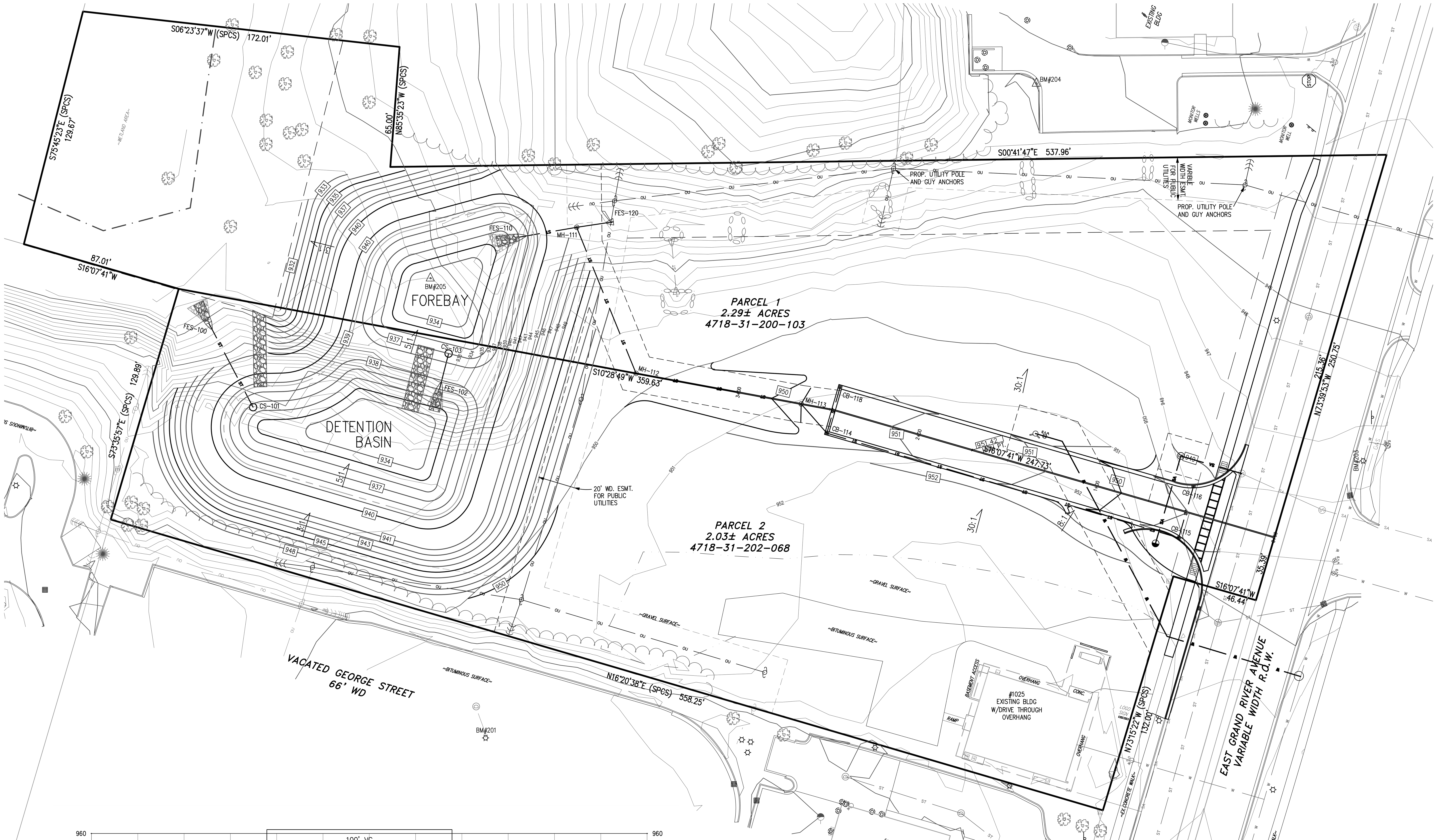
1025 E. GRAND RIVER
STORMWATER MANAGEMENT
PLAN & ACCESS DRIVE

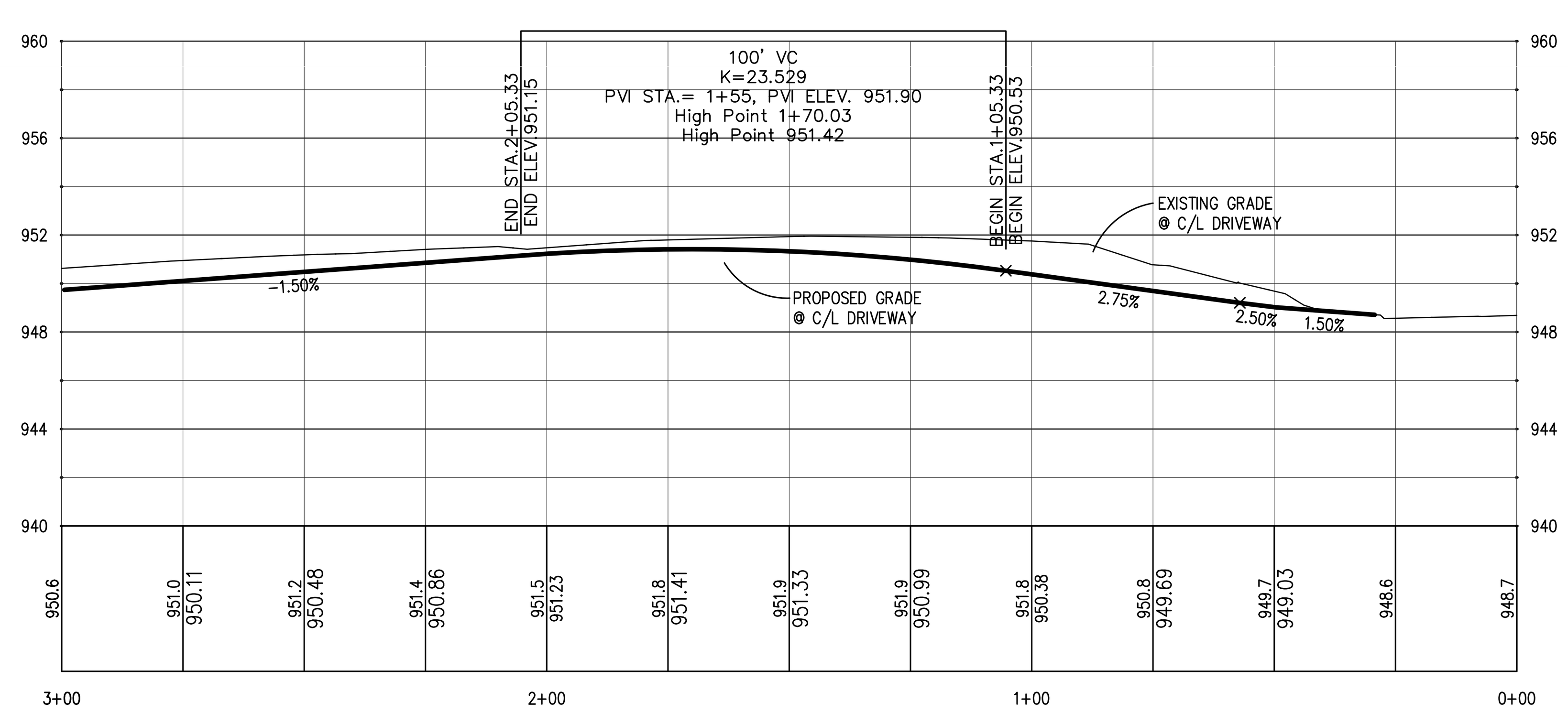
WATERMAIN & SAITARY SEWER
PROPOSED EXTENSION PROFILES
AND CALCULATIONS

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: NONE
PROJECT No.: 193772
DWG NAME: 3772 UT
ISSUED: DEC. 8, 2022

UT3





SHARED DRIVEWAY CENTERLINE PROFILE

SCALE: HORIZ. 1in. = 30ft.
VERT. 1in. = 6ft.

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 INCH = 30 FEET

LEGEND

= PARCEL BOUNDRY
= RIGHT OF WAY LINE
= EASEMENT LINE
= BUILDING SETBACK LINE
= SIGN / MONUMENT SIGN
= SOIL BORING / BENCHMARK W/IDENTIFIER
= LIGHT BASE
= UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
= AIR CONDITIONER UNIT
= UTILITY POLE W/GUY WIRE
= OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
= U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
= EDGE OF WOODS / TREE DRIP LINE
= DECIDUOUS TREE W/IDENTIFIER
= CONIFEROUS TREE W/IDENTIFIER
= STUMP
= ROCKS / RIP RAP
= FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
= EDGE OF PAVEMENT
= EDGE OF GRAVEL
= CONCRETE CURB (UNLESS OTHERWISE STATED)
= EDGE OF WATER
= EDGE OF WETLANDS/SWAMP
= SANITARY SEWER MANHOLE W/IDENTIFIER
= SANITARY SEWER PIPE
= CLEAN OUT
= ROOF DRAIN
= STORM WATER MANHOLE W/IDENTIFIER
= CATCH BASIN W/IDENTIFIER
= CONTROL STRUCTURE
= FLARED END SECTION
= STORM WATER DRAINAGE PIPE
= HYDRANT
= WATER SHUT OFF
= WATER GATE VALVE WELL / MANHOLE
= WATER VALVE BOX
= WATER MAIN
= GAS SHUT OFF
= U/G GAS
= 1' CONTOUR
= 5' CONTOUR
= PROP. CONC. CURB
= PROP. STORM SEWER
= PROP. SANITARY SEWER
= PROP. WATERMAIN
= PROP. CONTOUR LINE
= PROP. SPOT ELEV.

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
'X' ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK-NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

BENCHMARK #205
NAIL IN THE SOUTHEASTERLY SIDE OF A 20" MAPLE LOCATED 43' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOT 18
ELEVATION = 935.40 (NAVD 88)

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DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: JHG	1	12-8-22	REVISED PER REVIEW COMMENTS			
CHECK: WMP						

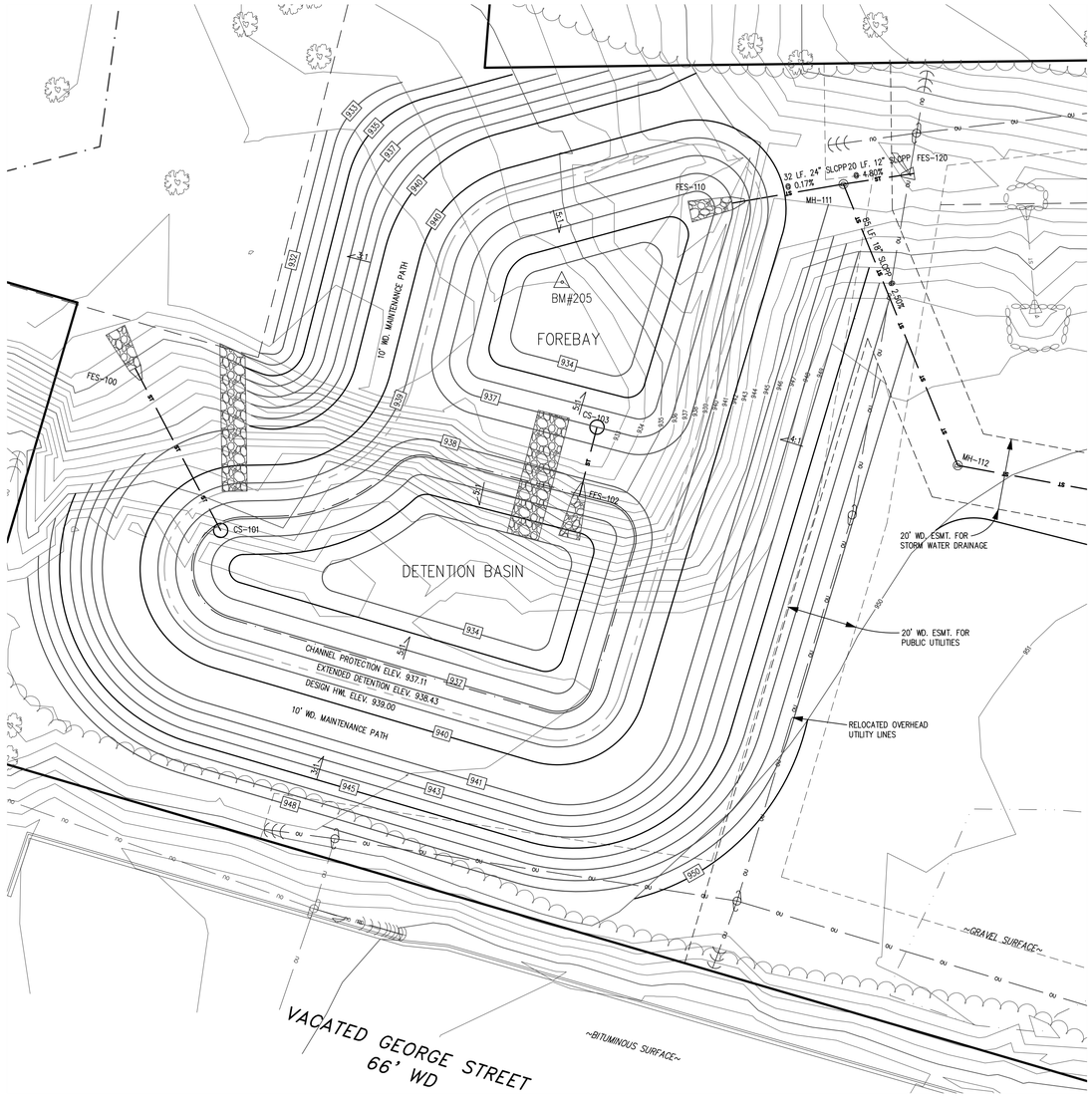
1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

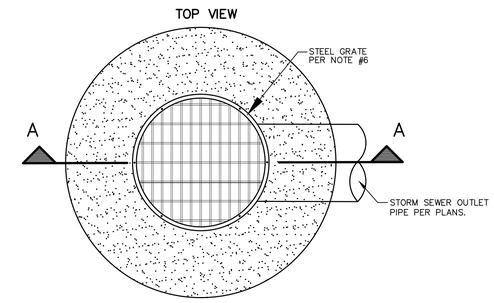
GRADING PLAN

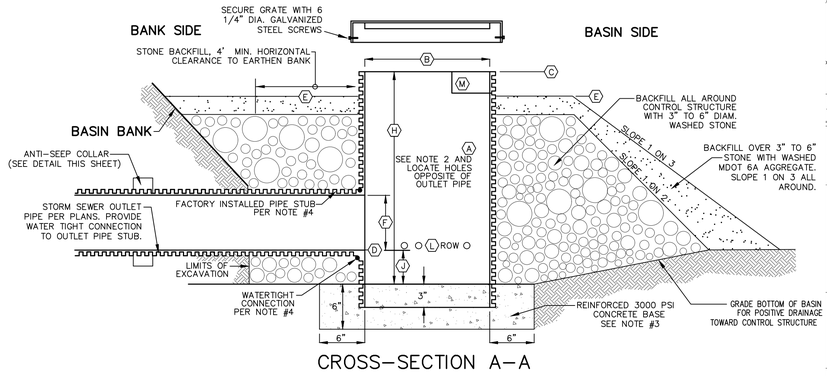
CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. = 30ft.
PROJECT No.: 193772
DWG NAME: 3772 GR
ISSUED: DEC. 8, 2022

GR1







CROSS-SECTION A-A

BASIN CONTROL STRUCTURE DETAIL (CS-101)

NOT TO SCALE

	KEY		
	CONTROL STRUCTURE DESIGNATION	CS-101	CS-103
A	MATERIAL TYPE , SEE NOTE 2	HDPE	HDPE
B	STRUCTURE INSIDE DIAMETER	4'	4'
C	RIM ELEVATION WITHOUT GRATE	938.50	938.50
D	INVERT ELEVATION OUTLET PIPE	936.93	937.00
E	TOP OF STONE ELEVATION	938.00	938.00
F	OUTLET PIPE DIAMETER	12"	12"
G	OUTLET PIPE MATERIAL	HDPE-S	HDPE-S
H	STRUCTURE HEIGHT WITHOUT GRATE	5.60'	3.46
J	SUMP HEIGHT	2'	2'
K	RESTRICTOR OPENING DIA. IN OUTLET PIPE	N/A	N/A
L	FIRST ROW OF HOLES CENTERLINE ELEVATION HOLE DIAMETER NUMBER OF HOLES IN ROW	936.70 1" 3	937.04 1" 3
M	RECTANGULAR WEIR WEIR ELEVATION WEIR WIDTH	938.04 14.4"	

CONTROL STRUCTURE NOTES:

1. Control Structure and Grate shall be factory built. Contractor shall provide Engineer with Shop Drawings for Control Structure and Grate. Contractor shall obtain Engineer's Approval of Shop Drawings prior to Control Structure installation.

2. Control Structure shall be constructed of material noted in Item A of KEY.
CMP shall be corrugated metal pipe with corrosion resistant coating and shall conform to the specifications for corrugated metal pipe per AASHTO Designation M36.
HDPE shall be high density polyethylene pipe with a smooth interior and shall conform to the specifications for high density polyethylene pipe per AASHTO Designation M294 Type S.

3. Control Structure Base shall be a reinforced 3000 PSI air entrained concrete base. Control Structure shall be embedded into the concrete base providing a full strength water tight connection as illustrated in the Basin Control Structure Detail.

4. Provide a watertight connection between the Control Structure and Outlet Pipe as follows:
For a CMP Outlet Pipe from a CMP Control Structure: Factory weld a CMP Pipe Stub to the Control Structure with full strength continuous weld all around Pipe Stub. Coat welded area with corrosion resistant paint. OR Provide a bolted CMP saddle with watertight gasket.
For an HDPE Outlet Pipe from an HDPE Control Structure: Factory weld an HDPE pipe stub to the Control Structure with full strength PE weld all around pipe both inside and outside of Control Structure. OR Provide a bolted HDPE saddle with watertight gasket.
For an RCP Outlet Pipe from a CMP or HDPE Control Structure: Seal Outlet Pipe to outside of Control Structure with an 18" minimum thickness 2500 PSI cast in place concrete donut all around Outlet Pipe. AND Seal Outlet Pipe to inside of Control Structure with a 2" minimum thickness bead of bitumastic tar all around Outlet Pipe.

5. Construct berm over Outlet Pipe as necessary to provide 12" minimum cover.

6. Grate shall be built to fit over the outside edge of the Control Structure and to be secured to the Control Structure with six (6) 1/4" minimum diameter removable galvanized screws. All joints shall be welded full strength per current AWS code. Grate shall be factory coated with bitumastic or corrosion resistant paint. Grate shall be constructed of 1/2" minimum diameter round or square steel bar creating a square grid pattern with a maximum 3"x 3" opening size. Outside of Grate shall be wrapped with a 1/4" minimum x 3" minimum flat stock steel.

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 INCH = 30 FEET

LEGEND

= PARCEL BOUNDRY
= RIGHT OF WAY LINE
= EASEMENT LINE
= BUILDING SETBACK LINE
= SIGN / MONUMENT SIGN
= SOIL BORING / BENCHMARK W/IDENTIFIER
= LIGHT BASE
= UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
= AIR CONDITIONER UNIT
= UTILITY POLE W/GUY WIRE
= OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
= U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
= EDGE OF WOODS / TREE DRIP LINE
= DECIDUOUS TREE W/IDENTIFIER
= CONIFEROUS TREE W/IDENTIFIER
= STUMP
= ROCKS / RIP RAP
= FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
= EDGE OF PAVEMENT
= EDGE OF GRAVEL
= CONCRETE CURB (UNLESS OTHERWISE STATED)
= EDGE OF WATER
= EDGE OF WETLANDS/SWAMP
= SANITARY SEWER MANHOLE W/IDENTIFIER
= SANITARY SEWER PIPE
= CLEAN OUT
= ROOF DRAIN
= STORM WATER MANHOLE W/IDENTIFIER
= CATCH BASIN W/IDENTIFIER
= CONTROL STRUCTURE
= FLARED END SECTION
= STORM WATER DRAINAGE PIPE
= HYDRANT
= WATER SHUT OFF
= WATER GATE VALVE WELL / MANHOLE
= WATER VALVE BOX
= WATER MAIN
= GAS SHUT OFF
= U/G GAS
= 1' CONTOUR
= 5' CONTOUR
= PROP. CONC. CURB
= PROP. STORM SEWER
= PROP. SANITARY SEWER

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
"X" ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK-NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

BENCHMARK #205
NAIL IN THE SOUTHEASTERLY SIDE OF A 20" MAPLE LOCATED 43' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOT 18
ELEVATION = 935.40 (NAVD 88)

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(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

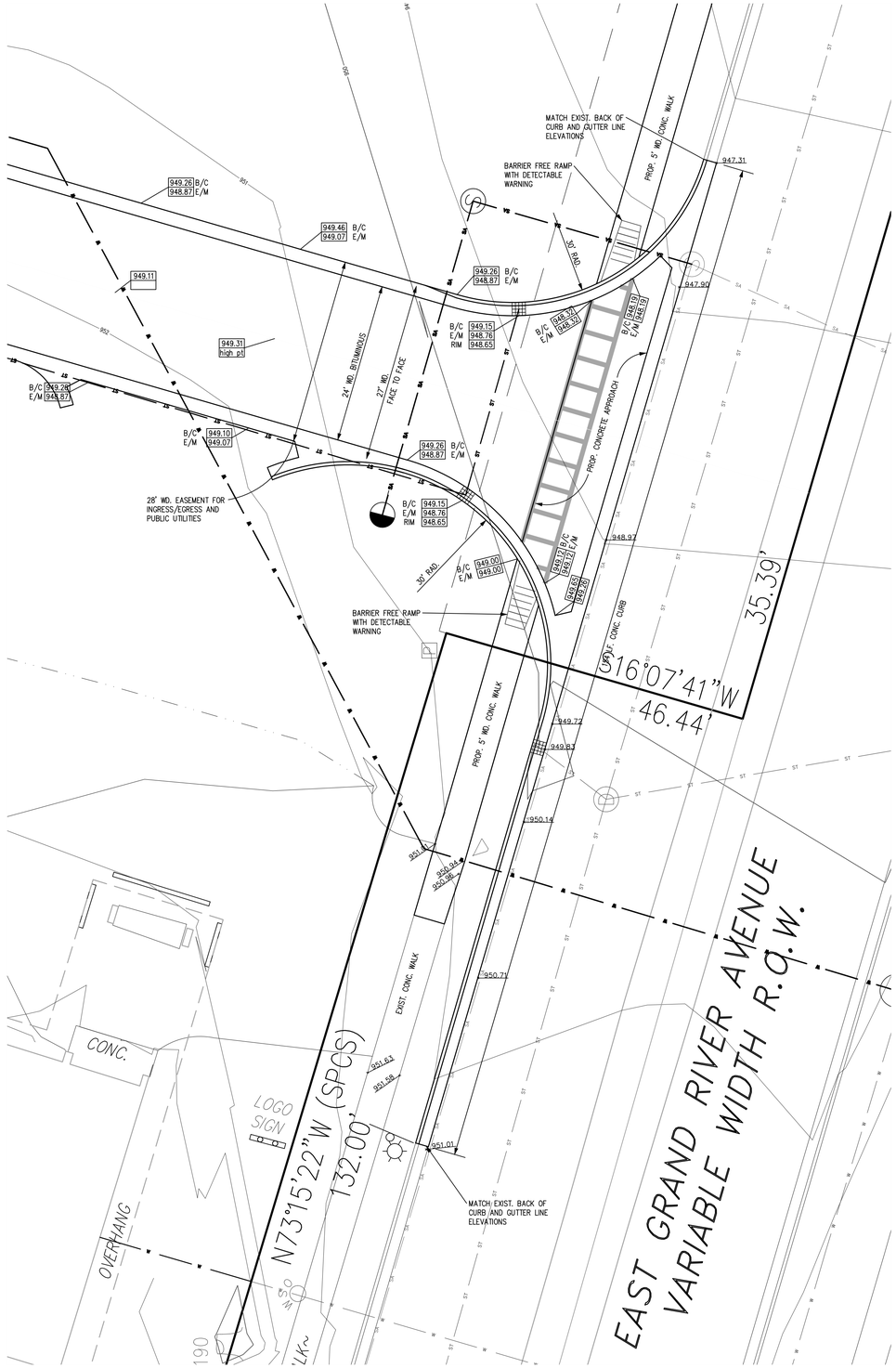
1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

DETENTION BASIN PLAN AND CONTROLLED OUTLET NOTES & DETAILS

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. -= 20ft.
PROJECT No.: 193772
DWG NAME: 3772 GR2
ISSUED: DEC. 8, 2022

GR2



GRAPHIC SCALE

10 0 5 10 20

(IN FEET)

1 INCH = 10 FEET

LEGEND

- = PARCEL BOUNDRY
- = RIGHT OF WAY LINE
- = EASEMENT LINE
- = BUILDING SETBACK LINE
- = SIGN / MONUMENT SIGN
- = SOIL BORING / BENCHMARK W/IDENTIFIER
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
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- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = STUMP
- = ROCKS / RIP RAP
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
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- = CATCH BASIN W/IDENTIFIER
- = CONTROL STRUCTURE
- = FLARED END SECTION
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- = HYDRANT
- = WATER SHUT OFF
- = WATER GATE VALVE WELL / MANHOLE
- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. CONC. CURB
- = PROP. STORM SEWER

948.54 = PROP. SPOT ELEVATION
T/PVMT = TOP OF PAVEMENT
B/C = BACK OF CURB
E/M = EDGE OF METAL

BENCHMARK

-DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
'x' ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
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ELEVATION = 935.40 (NAVD 88)

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BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
1	12-8-22	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

APPROACH PLAN

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. -= 10ft.
PROJECT No.: 193772
DWG NAME: 3772 AP
ISSUED: DEC. 8, 2022

AP

SOILS MAP
NOT TO SCALE

Livingston County, Michigan (MI093)
Livingston County, Michigan (MI093)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtA	Boyer-Oshtemo loamy sands, 0 to 2 percent slopes	1.6	4.0%
Cc	Carlisle muck, 0 to 2 percent slopes	7.5	19.3%
FoA	Fox sandy loam, 0 to 2 percent slopes	8.0	20.6%
FoC	Fox sandy loam, 6 to 12 percent slopes	0.8	2.0%
FrD	Fox-Boyer complex, 12 to 18 percent slopes	16.8	43.2%

SOILS LEGEND

LEGAL DESCRIPTION

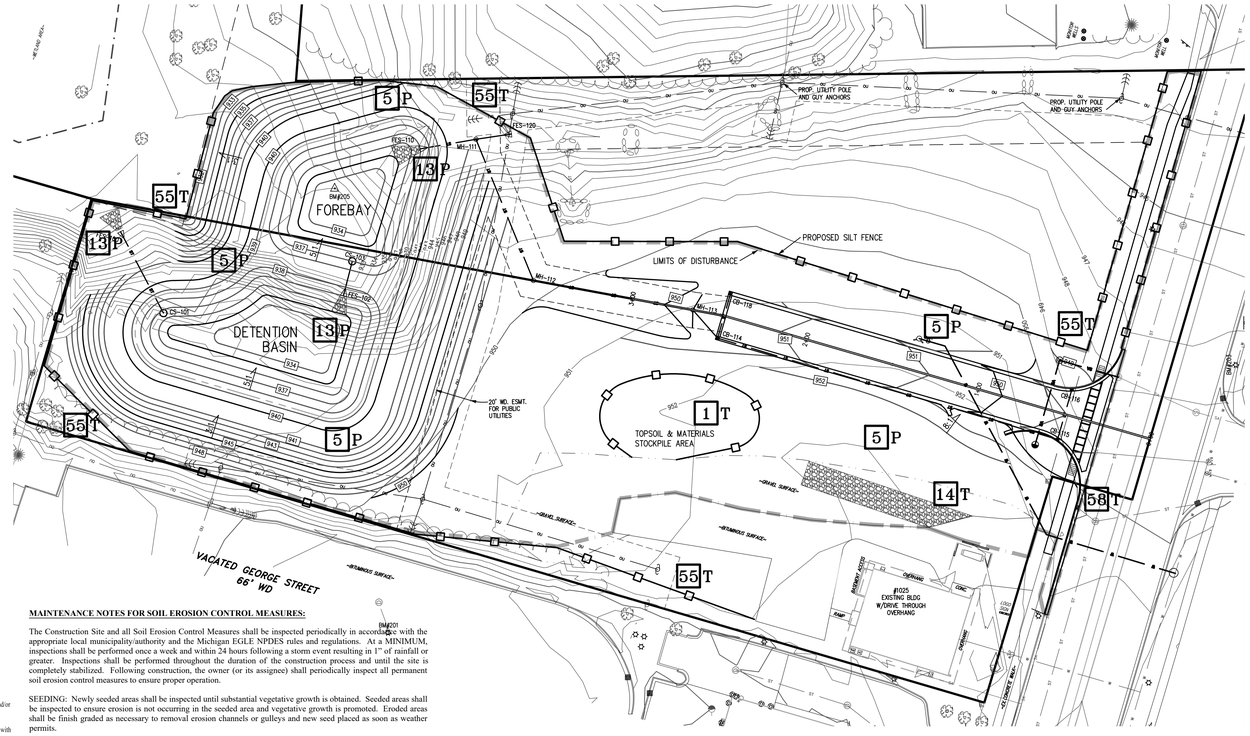
NEW PARCEL 1 2.29± Acres

Situated in the City of Brighton, County of Livingston, and State of Michigan, and more particularly described as follows:
Part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, City of Brighton, Livingston County, Michigan, more particularly described as follows: Commencing at the East 1/4 Corner of said Section 31; thence N02°24'26"W 227.15 feet *(recorded as N01°55'00"E 228.18 feet)* along the East line of said Section 31; thence N73°39'53"W 308.63 feet *(recorded as N69°25'00"W 308.17 feet)* along the nominal centerline of East Grand River Avenue Right-of-Way (50-foot wide 1/2 Right-of-Way) to the **POINT OF BEGINNING**; thence continuing N73°39'53"W *(recorded as N69°25'00"W)* 215.36 feet along said nominal centerline; thence N16°07'41"E 247.73 feet; thence N10°28'49"E 359.63 feet to the Northeasterly Corner of Lot 25 of "Mrs. William McCauley's Addition to the Village (now City) of Brighton," a part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, Livingston County, Michigan, according to the plat thereof, as recorded in Liber 51 of Deeds, Page 554, Livingston County Records; thence N16°07'41"E *(recorded as N20°45'35"E)* 87.01 feet along the Easterly line of said plat; thence S75°45'23"E 129.67 feet *(recorded as S71°15'00"E 127.59 feet)*; thence S06°23'37"W *(recorded as S10°54'00"W)* 172.01 feet; thence N85°35'23"W *(recorded as N81°05'00"W)* 65.00 feet; thence S00°41'47"E 537.96 feet *(recorded as S03°48'36"W 539.32 feet)* to the Point of Beginning. Containing 2.29 acres of land, more or less. Subject to and together with a 20-foot wide storm sewer easement as described below, also subject to and together with a storm water drainage and detention easement as described below, also subject to and together with a shared easement for ingress & egress and public utilities as described below, also subject to the rights of the public over that portion thereof as occupied by East Grand River Avenue, also subject to and together with all easements and restrictions affecting title to the above described premises.

NEW PARCEL 2 2.03± Acres

Situated in the City of Brighton, County of Livingston, and State of Michigan, and more particularly described as follows:
Lots 7, 8, 9, 16, 17, 24 and 25 of "Mrs. William McCauley's Addition to the Village (now City) of Brighton," a part of the Northeast 1/4 of Section 31, Town 2 North, Range 6 East, Livingston County, Michigan, according to the plat thereof, as recorded in Liber 51 of Deeds, Page 554, Livingston County Records, also a part of the Northeast 1/4 of said Section 31, more particularly described as follows: Commencing at the East 1/4 Corner of said Section 31; thence N02°24'26"W 227.15 feet *(recorded as N01°55'00"E 228.18 feet)* along the East line of said Section 31; thence N73°39'53"W *(recorded as N69°25'00"W)* 523.98 feet along the nominal centerline of East Grand River Avenue Right-of-Way (50-foot wide 1/2 Right-of-Way) to the **POINT OF BEGINNING**; thence continuing N73°39'53"W *(recorded as N69°25'00"W)* 35.39 feet along said nominal centerline to a point on the Southerly extension of said "Mrs. William McCauley's Addition to the Village (now City) of Brighton," thence N16°07'41"E *(recorded as N20°45'35"E)* 46.44 feet along said extension to the Southeastly Corner of said Lot 8; thence N73°14'59"W *(recorded as N69°57'40"W)* 132.00 feet along the

AREA OF DISTURBANCE = 2.30ac.
= 100247 s.f.
DISTANCE TO COUNTY DRAIN = 0 feet



MAINTENANCE NOTES FOR SOIL EROSION CONTROL MEASURES:

The Construction Site and all Soil Erosion Control Measures shall be inspected periodically in accordance with the appropriate local municipality/authority and the Michigan EGLE NPDES rules and regulations. At a MINIMUM, inspections shall be performed once a week and within 24 hours following a storm event resulting in 1" of rainfall or greater. Inspections shall be performed throughout the duration of the construction process and until the site is completely stabilized. Following construction, the owner (or its assignee) shall periodically inspect all permanent soil erosion control measures to ensure proper operation.

SEEDING: Newly seeded areas shall be inspected until substantial vegetative growth is obtained. Seeded areas shall be inspected to ensure erosion is not occurring in the seeded area and vegetative growth is promoted. Eroded areas shall be finish graded as necessary to removal erosion channels or gulleys and new seed placed as soon as weather permits.

SILT FENCE: Silt fencing shall be inspected for soil accumulation/clogging, undercutting, overtopping and sagging. Soil accumulation shall be removed from the face of the silt fence each time it reaches half the height of the fence. Removed sediment shall be disposed of in a stable upland site or added to a spoils stockpile. When undercutting occurs, grade out areas of concentrated flow upstream of the silt fence to remove channels and/or gulleys and repair or replace silt fence ensuring proper trenching techniques are utilized. Silt fencing, which sags, falls over or is not staked in shall be repaired or replaced immediately. Silt fencing fabric, which decomposes or becomes ineffective, shall be removed and replaced with new fabric immediately. Silt fencing shall be removed once vegetation is well established and the up-slope area is fully stabilized.

SOD: Newly sodded areas shall be inspected to ensure sod is maturing. Sod shall be inspected for failure, erosion or damage. Slipping or eroding sod on steep slopes shall be immediately repaired or replaced and staked in place. Damaged or failed sod shall be immediately replaced.

SPILLWAYS: Spillways shall be inspected to ensure that erosion is not occurring within and/or around the spillway. The discharge point shall be inspected to ensure that concentrated flows are not causing erosion downstream. Inspect the spillway for cracked concrete, uneven and/or excessive settling and proper function. Repair or replace failing spillways immediately. Address vegetation and/or erosion concerns as soon as weather permits.

STOCKPILES: Temporary and permanent topsoil and spoils stockpiles shall be seeded to promote vegetative growth. Stockpiles shall be inspected to ensure excessive erosion has not occurred. When runoff or wind erosion is evident, reduce the side slopes of the stockpile or stabilize the stockpile with pieces of staked sod laid perpendicular to the slope. When filter fencing is used around a stockpile, the fencing shall be inspected to ensure piping has not occurred under the fencing and to ensure the fencing has not collapsed due to soil slippage or access by construction equipment. Repair or replace damaged fencing immediately. Berms at the base of stockpiles, which become damaged, shall be replaced.

STORM STRUCTURE INLET FILTER: Inlet filters shall be inspected for sediment accumulation, clogging and damage. When stone is used in conjunction with inlet filter fabric, replace the stone each time it becomes clogged with sediment. Clean or replace the inlet filter fabric each time it becomes clogged with sediment. Reinstall or replace fallen filter fabrics immediately. Replace damaged filter fabrics immediately.

SOIL EROSION CONTROL MEASURE LEGEND

1	STRIPPING & STOCKPILING TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEEDED
5	Seeding	Inexpensive and very effective Stabilizes soil, thus minimizing erosion Permits runoff to infiltrate soil, reducing runoff volume Should include prepared topsoil bed
13	RIPRAP, RUBBEL, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATION PERMITS RUNOFF TO INFILTRATE SOIL DISSIPATES ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR POLES MAY BE CONSTRUCTED OR PREPACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58	INLET SEDIMENT FILTER	USES PREPACKAGED GEOTEXTILE SACKS FILTERS SEDIMENT FROM RUNOFF AT CATCH BASIN INLET EASY TO INSTALL AND MAINTAIN

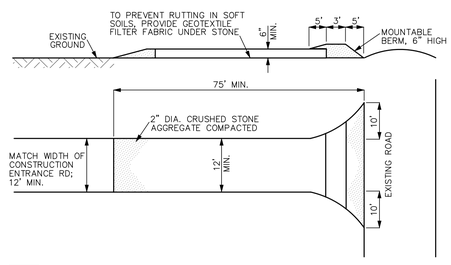
GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 INCH = 40 FEET

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

1. The Soil Erosion and Sedimentation Control Specifications of the appropriate Local, County and/or State Agencies are a part of this work. Refer to the General Notes on the Project Plans for additional requirements.
2. The Soil Erosion and Sedimentation Control (SESC) Permit Holder shall be responsible for compliance with the SESC Permit requirements for the duration of the project and until receipt of final approval from the Permitting Agency. For any site with an earth disturbance area of 1 acre or greater, the SESC Permit Holder shall retain a Certified Storm Water Operator in accordance with the SESC Permit requirements. The Certified Storm Water Operator shall perform routine inspections of the site and the SESC measures and file inspection reports in accordance with the SESC permit requirements. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a National Pollutant Discharge Elimination System (NPDES) Notice of Coverage Form with the State DEQ prior to any earth disruption.
3. The Contractor shall install the appropriate Soil Erosion Control Measures in accordance with the Project Plans prior to massive earth disruption, including but not limited to; silt fence, mud tracking control mats and sediment filters on existing storm sewer structures. Demolition work may be necessary prior to installation of some soil erosion control measures. In such cases, postpone installation of affected soil erosion control measures until immediately following demolition work. Refer to the Project Plans and the Soil Erosion Control and Construction Sequence for additional requirements.
4. The Contractor shall schedule work so as to minimize the period of time that an area is exposed and disturbed. The Contractor shall observe the grading limits and limits of disturbance in accordance with the Project Plans. The Contractor shall maintain an undisturbed vegetative buffer around the work when shown on the Project Plans.
5. The Contractor shall install and maintain Soil Erosion Control Measures in accordance with the Project Plans during the appropriate phases of construction. The Project Plans show the minimum requirements for Soil Erosion Control Measures. The Contractor shall install additional Soil Erosion Control Measures as necessary due to site conditions and as directed by the Permitting Agency and/or Engineer. The Contractor shall perform routine inspection and maintenance of all Soil Erosion Control Measures to ensure compliance with the permit requirements and proper operation of the Soil Erosion Control Measures.
6. The Contractor shall strip and stockpile topsoil from all areas of proposed disturbance. Topsoil stockpiles shall be located in accordance with the Project Plans. Topsoil stockpiles shall be stabilized with vegetative growth (or matted with straw during the non-growing season) to prevent wind and water erosion. A temporary diversion berm and/or silt fence shall encompass all earthen material stockpiles, including but not limited to topsoil, sand and gravel.
7. The Contractor shall install Soil Erosion Control Measures associated with the proposed storm sewer system during storm sewer construction. Inlet structure filters shall be installed immediately following completion of each storm inlet structure. Riprap shall be installed immediately following the installation of each flared end section with the following exception: Storm drain outlets that do NOT empty into a Retention, Detention or Sedimentation Basin shall have a temporary 5' wide x 10' long x 3' deep sump installed at the termination of the storm sewer. Upon completion of the stabilization work, the sump area shall be filled and riprap shall be installed in accordance with the Project Plans.
8. The Contractor shall install filter stone around the storm basin control structure(s) in accordance with the Project Plans immediately following installation of the control structure(s). The filter stone shall be monitored for sediment build up. The filter stone may need to be cleaned and/or replaced as site conditions require and as directed by the Permitting Agency and/or the Engineer.
9. All disturbed areas outside of paved areas shall be restored within 15 days of finish grading. Proposed vegetative areas shall be restored with a minimum of 3-inches of topsoil, then seeded and mulched, unless noted otherwise on the Project Plans. During the non-growing season, temporary stabilization shall be provided using straw matting or as directed by the Permitting Agency and/or the Engineer.

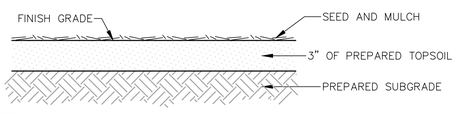
Seeding, Fertilizer and Mulch Bare Ground Ratio:
This information is provided as minimum guidance for acceptable application rates. Actual amounts depending on soil conditions and site topography shall be detailed on the construction plans.
Top-Soil 3 inches in depth.
Grass Seed 210 lbs. per acre.
Fertilizer 150 lbs. per acre.
Straw Mulch 3" in depth 1.5 to 2 tons per acre
(All mulch must have a tie down, such as tackifier, net binding, etc.)
Hydro-Seeding: Hydro-seeding is not acceptable for slopes exceeding 1%, in such cases; stabilization shall be done with seed and straw mulch with a tackifier.

10. Following complete site restoration and stabilization; sediment shall be removed from all storm sewer structures, paved areas and storm basins. The SESC Permit Holder shall contact the Permitting Agency to request closure of the SESC Permit. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a NPDES Notice of Termination Form with the State DEQ.



14 MUD TRACKING CONTROL DEVICE
NOT TO SCALE

NOTE:
WHEN ACCEPTABLE TO ENGINEER, CONTRACTOR MAY INSTALL STONE BELOW THE SUBGRADE ELEVATION; THUS STONE MAY BE LEFT IN PLACE BELOW PAVEMENT.



5 P SEEDING DETAIL
NOT TO SCALE

1. Seed mixture shall consist of
10% - Kentucky Blue Grass
20% - Perennial Ryegrass
30% - Hard Fescue
40% - Creeping Red Fescue
Seed shall be uniformly applied at a rate of 210 pounds per acre.
2. Topsoil shall be a dark, organic, natural surface soil free of clay lumps, peat or muck, subsoil, noxious weeds or other foreign matter such as roots, sticks, rocks over 1/2" in diameter and not frozen or muddy. Material shall meet with approval of the Engineer.
3. Straw mulching shall be a minimum depth of 3" applied at a rate of 1.5 to 2 tons per acre. All mulching must have a tie down, such as tackifier, net binding, etc.
4. Fertilizer shall be evenly applied at a rate which will provide 150 pounds per acre of chemical fertilizer nutrients, in equal portions, (10-10-10), of Nitrogen, Phosphoric Acid and Potash.
5. Hydroseeding is not acceptable for slopes exceeding 1%. In such cases, stabilization shall be done with seed and straw mulch with a tackifier.
6. The earthen areas to receive topsoil shall be at the required grade and properly trimmed. Topsoil shall be spread on the prepared areas to a depth of 3 inches. After spreading, any large clods and lumps of topsoil shall be broken up and pulverized. Stones and rocks over 1/2" in diameter, roots, litter, and all foreign matter shall be raked up and disposed of by the the contractor. Place topsoil only when it can be followed within a reasonable time by seeding operations.

TIME LINE of Construction Sequence
Item No. — Month in Construction Season
APR. MAY. JUN. JUL. AUG.
1.
2.
3.
4.
5.
6.
7.
8.

SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE:
1. Obtain all necessary Soil Erosion and Sedimentation Control related permits from the appropriate Local, County and/or State Agencies. Refer to the General Notes on the project plans for additional requirements.
2. Prior to commencement of any earth disruption install Silt Fence and Mud Tracking Control Device(s) in accordance with the Soil Erosion and Sedimentation Control Plan.
3. Construct Retention/Detention and Sedimentation Basins, including associated spillways, in accordance with the project plans. Finish grade and establish vegetative growth in Retention/Detention and Sedimentation Basins prior to massive earth disruption. Install temporary Soil Erosion Control Measures as necessary to stabilize Retention/Detention and Sedimentation Basins.
4. Strip and stockpile topsoil. Perform mass grading and land balancing. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
5. Install proposed underground utilities. (i.e.: storm and sanitary sewer, water main, etc.) Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
6. Construct roadways and/or parking areas. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
7. Finish grade all disturbed areas outside of pavement. Perform final restoration, including placement of topsoil and establishment of vegetative growth outside of pavement.
8. Following establishment of sufficient vegetative ground cover and receipt of approval from the Permitting Agency, remove all *temporary* Soil Erosion Control Measures, clean all storm sewer structures and repair all permanent Soil Erosion Control Measures.

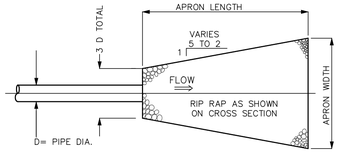
MIN. RIP RAP DIMENSIONS

PIPE DIAMETER (inch)	APRON LENGTH (feet)	(1) APRON WIDTH (feet)	(2) ALTERNATE APRON WIDTH (feet)
12	12	8	16
15	15	10	20
18	18	12	24
21	21	14	28
24	24	16	32
30	30	20	40
36	36	24	48
42	42	28	56

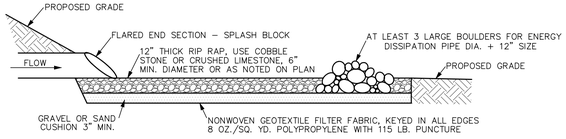
UNLESS SHOWN OTHERWISE ON PLANS. May be varied to match natural features; ie when meeting ex. ditch, apron width to match channel bottom extending up sides to a depth of 1/2 pipe dia.

(1) APRON WIDTH FOR USE IN DITCHES AND SWALES

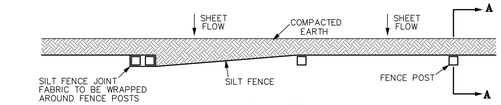
(2) APRON WIDTH FOR USE IN FLAT AREAS WHERE SHEET FLOW DESIRED



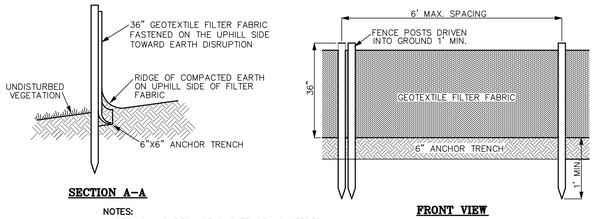
13 RIP RAP PLAN
NOT TO SCALE



13 RIP RAP CROSS SECTION
NOTES:
1. GROUT RIP RAP WITH A 6" THICK CEMENT SLURRY FOR SLOPES STEEPER THAN 20%; 5 ON 1.
2. PROVIDE ANIMAL GUARDS ON ALL STORM SEWER 15" DIA. OR GREATER, INCIDENTAL TO FES PIPE.
NOT TO SCALE



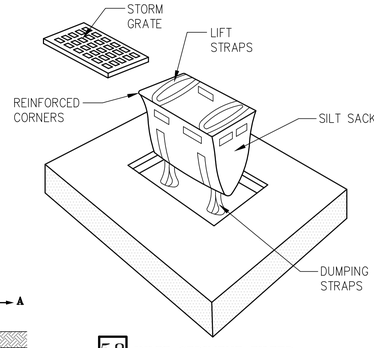
PLAN VIEW



SECTION A–A **FRONT VIEW**

NOTES:
1. REPAIR AND REPLACE SILT FENCE AS NEEDED, INCIDENTAL.
2. FIELD LOCATE SILT FENCE TO FOLLOW CONSTANT CONTOUR ELEVATIONS.
3. OVERLAP FENCES AT JOINTS.
4. INSTALL FILTER BERM AT LOW POINTS WHERE INDICATED ON PLANS.

55 SILT FENCE
NOT TO SCALE



58 INLET SEDIMENT FILTER
NOT TO SCALE

BENCHMARK
–DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED 12/02/19

BENCHMARK #201
"X" ON TOP EAST SIDE OF LIGHT POLE BASE 56' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOTS 16 AND 17
ELEVATION = 958.40 (NAVD 88)

BENCHMARK #203
TOP OF NORTH SIDE OF LIGHT POLE BASE LOCATED AT SOUTHERLY SIDE OF EAST GRAND RIVER AVENUE ACROSS FROM THE APPROXIMATE MID POINT OF PARCEL 1 SOUTHERLY LINE
ELEVATION = 947.81 (NAVD 88)

BENCHMARK #204
PK–NAIL IN THE BACK OF CURB LOCATED 40.5' EAST OF EASTERLY LINE OF PARCEL 1 AND 50' NORTHWEST OF NORTHWESTERLY BUILDING CORNER ON ADJACENT PARCEL
ELEVATION = 945.09 (NAVD 88)

BENCHMARK #205
NAIL IN THE SOUTHEASTERLY SIDE OF A 20" MAPLE LOCATED 43' WEST OF WESTERLY LINE OF LOTS 7, 9, 16, 17, 18, AND 19 AT LOT 18
ELEVATION = 935.40 (NAVD 88)

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BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
1	12–8–22	REVISED PER REVIEW COMMENTS

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

SOIL EROSION CONTROL PLAN

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. -= 40ft.
PROJECT No.: 193772
DWG NAME: 3772 SE
ISSUED: DEC. 8, 2022

SE

MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET FEET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										TAPER LENGTH "L" IN FEET
	25	30	35	40	45	50	55	60	65	70	
1	10	15	20	27	45	50	55	60	65	70	
2	21	30	41	53	90	100	110	120	130	140	
3	31	45	61	80	135	150	165	180	195	210	
4	42	60	82	107	180	200	220	240	260	280	
5	52	75	102	133	225	250	275	300	325	350	
6	63	90	123	160	270	300	330	360	390	420	
7	73	105	143	187	315	350	385	420	455	490	
8	83	120	163	213	360	400	440	480	520	560	
9	94	135	184	240	405	450	495	540	585	630	
10	104	150	204	267	450	500	550	600	650	700	
11	115	165	225	293	495	550	605	660	715	770	
12	125	180	245	320	540	600	660	720	780	840	
13	135	195	266	347	585	650	715	780	845	910	
14	146	210	286	374	630	700	770	840	910	980	
15	157	225	307	400	675	750	825	900	975	1050	

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" = $\frac{W \times S^2}{60}$ **WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS**

"L" = S x W WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER
S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA
W = WIDTH OF OFFSET

TYPES OF TAPERS	TAPER LENGTH
UPSTREAM TAPERS	
MERGING TAPER	L – MINIMUM
SHIFTING TAPER	1/2 L – MINIMUM
SHOULDER TAPER	1/3 L – MINIMUM
TWO-WAY TRAFFIC TAPER	100 ' – MAXIMUM
DOWNSTREAM TAPERS (USE IS OPTIONAL)	100 ' – MINIMUM (PER LANE)

MDOT — TRAFFIC AND SAFETY — MAINTAINING TRAFFIC TYPICAL — TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON1AE@jf	JUNE 2006	M0020a	SHEET 1 OF 2
CHECKED BY: BMM	PLAN DATE:		
FILE: K:/DGN/TSR/STGS/ENGLISH/MNTTRF/M0020a.dgn	REV. 08/21/2006		

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D" AND LENGTH OF LONGITUDINAL BUFFER SPACE ON "WHERE WORKERS PRESENT" SEQUENCES

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
D (FEET)	250	300	350	400	450	500	550	600	650	700

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE "B"

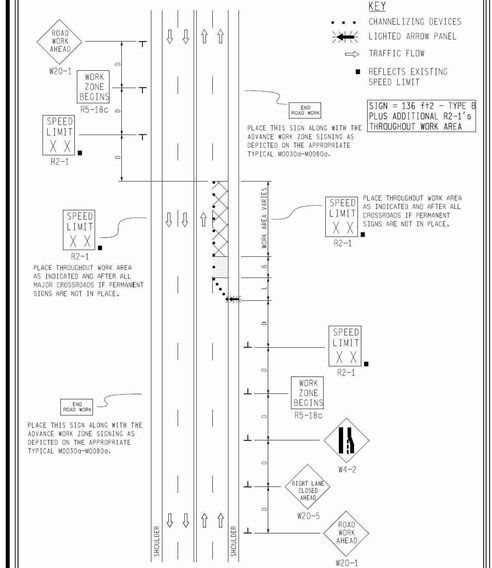
SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

* POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

1 BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS). AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.

MDOT — TRAFFIC AND SAFETY — MAINTAINING TRAFFIC TYPICAL — TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON1AE@jf	JUNE 2006	M0020a	SHEET 2 OF 2
CHECKED BY: BMM	PLAN DATE:		
FILE: K:/DGN/TSR/STGS/ENGLISH/MNTTRF/M0020a.dgn	REV. 08/21/2006		



NOT TO SCALE

MDOT — TRAFFIC AND SAFETY — MAINTANING TRAFFIC TYPICAL — TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON AN UNDIVIDED MULTI-LANE ROADWAY, NO SPEED REDUCTION

DRAWN BY: CON1AE@jf	OCTOBER 2011	M0240a	SHEET 1 OF 2
CHECKED BY: BMM+CRB	PLAN DATE:		
FILE: P:\ RD/TS/Typicals/Signs/MT NON FWY/M0240a.dgn	REV. 10/11/2011		

NOTES

1B. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
SEE M0020a FOR "D," "L," AND "B" VALUES

2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.

3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.

3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.

4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).

5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.

6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.

7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.

8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.

21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

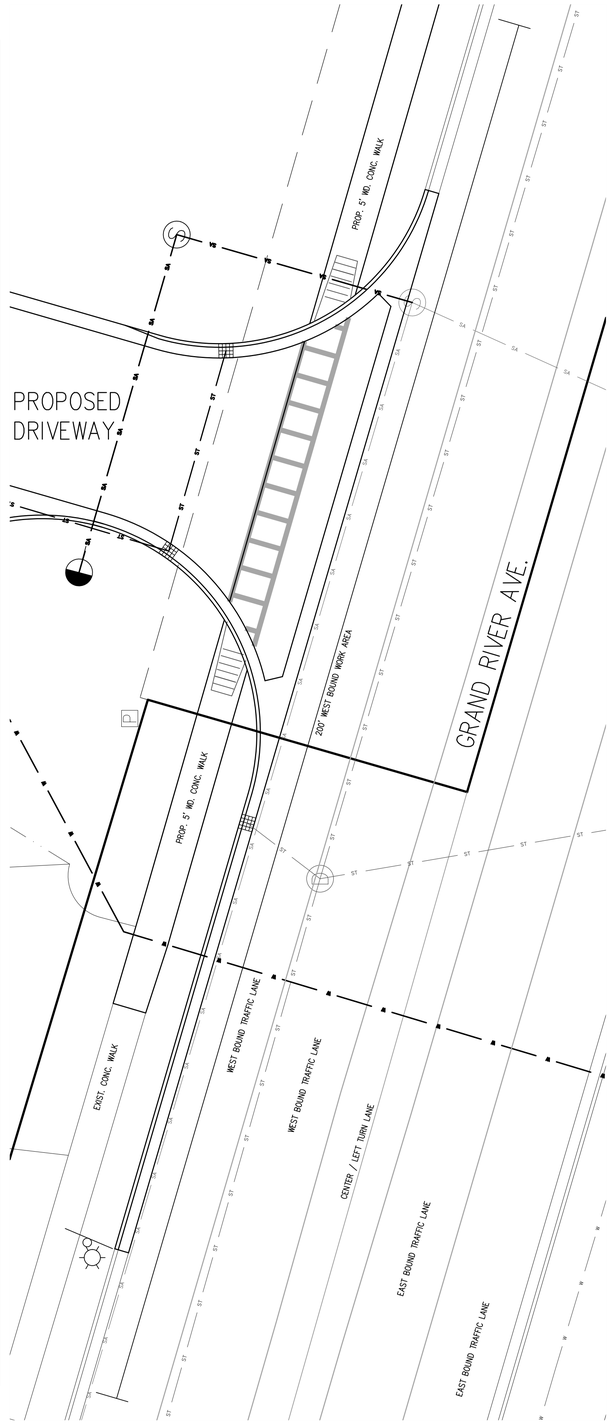
SIGN SIZES

DIAMOND WARNING – 48" x 48"
R2-1 REGULATORY – 48" x 60"
R5-18c REGULATORY – 48" x 48"

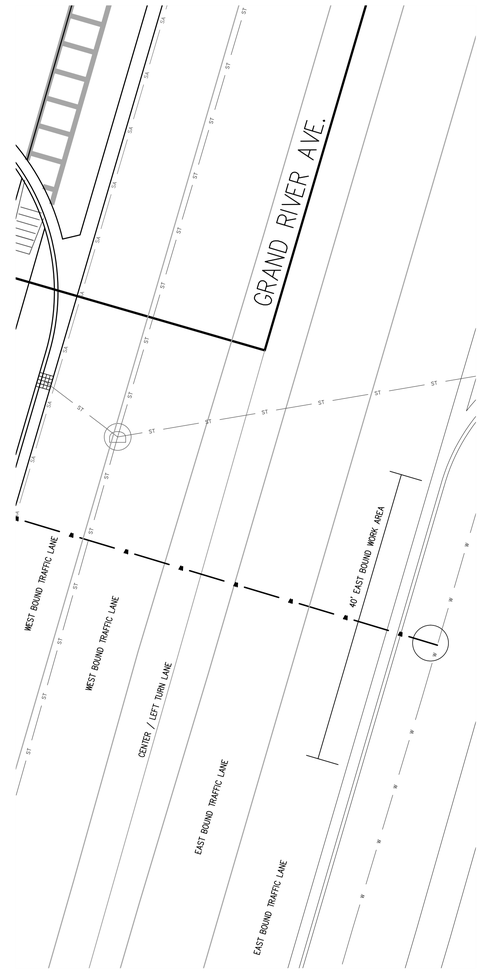
NOT TO SCALE

MDOT — TRAFFIC AND SAFETY — MAINTANING TRAFFIC TYPICAL — TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON AN UNDIVIDED MULTI-LANE ROADWAY, NO SPEED REDUCTION

DRAWN BY: CON1AE@jf	OCTOBER 2011	M0240a	SHEET 2 OF 2
CHECKED BY: BMM+CRB	PLAN DATE:		
FILE: P:\ RD/TS/Typicals/Signs/MT NON FWY/M0240a.dgn	REV. 10/11/2011		



WEST BOUND WORK AREA PLAN



EAST BOUND WORK AREA PLAN

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)
1 INCH = 10 FEET

LEGEND

- = PARCEL BOUNDRY
- = RIGHT OF WAY LINE
- = EASEMENT LINE
- = BUILDING SETBACK LINE
- = SIGN / MONUMENT SIGN
- = SOIL BORING / BENCHMARK W/IDENTIFIER
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTRIC/CABLE TV/MISC UTILITIES)
- = EDGE OF WOODS / TREE DRIP LINE
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = STUMP
- = ROCKS / RIP RAP
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = EDGE OF PAVEMENT
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = EDGE OF WATER
- = EDGE OF WETLANDS/SWAMP
- = SANITARY SEWER MANHOLE W/IDENTIFIER
- = SANITARY SEWER PIPE
- = CLEAN OUT
- = ROOF DRAIN
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = CONTROL STRUCTURE
- = FLARED END SECTION
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER GATE VALVE WELL / MANHOLE
- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. CONC. CURB
- = PROP. STORM SEWER

NOTE:
EAST BOUND LANE CLOSURE AND WEST BOUND LANE CLOSURES SHALL NOT BE DONE SIMULTANEOUSLY.

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REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

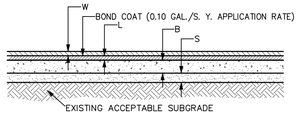
1025 E. GRAND RIVER STORMWATER MANAGEMENT PLAN & ACCESS DRIVE

TRAFFIC CONTROL PLAN

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

SCALE: 1in. -= 10ft.
PROJECT No.: 193772
DWG NAME: 3772 TC
ISSUED: DEC. 8, 2022

TC



BITUMINOUS PAVEMENT CROSS SECTION

NOT TO SCALE

KEY	DESCRIPTION	MATERIAL SPECIFICATION	MIN. COMP. THICKNESS
W	WEARING COURSE	MDOT 36A	1.5"
L	LEVELING COURSE	MDOT 13A	1.5"
B	AGGREGATE BASE	MDOT 21AA LIMESTONE	6"
S	GRANULAR SUBBASE	MDOT CLASS II	6"

BITUMINOUS PAVEMENT CROSS SECTION NOTES:

1. The construction specifications of the Local Municipality are a part of this work. Refer to the General Notes and Bituminous Pavement Cross Section Detail on the Project Plans for additional requirements.

2. The bituminous pavement cross-section specifications are based on typical weather conditions during the June through September Construction Season. If the bituminous parking area and/or bituminous driveways are to be constructed during any other time of the year and/or if weather conditions are unseasonably wet, then modifications to the bituminous pavement cross section specifications may be necessary. If either of these conditions exists, then contact the Project Engineer for additional requirements.

3. The existing subgrade soils shall be prepared prior to placement of the granular subbase. Unsuitable soils found within the 1 on 1 influence zone of the proposed pavement areas, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced with structural fill. Structural fill shall be MDOT Class II granular material placed in accordance with the General Notes on the Project Plans.

4. The bituminous pavement subgrade shall be proof rolled as directed by the Project Engineer. The Project Engineer and/or Material Testing Engineer shall observe the subgrade proof roll. Areas of subgrade that do not pass a proof roll inspection shall be undercut in accordance with the Subgrade Undercut Notes and Details on the Project Plans.

5. The bituminous pavement granular subbase material shall be MDOT CL II sand. No granular subbase material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The granular subbase shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

6. The bituminous pavement aggregate base material shall be MDOT 21AA crushed angular limestone. MDOT 21AA crushed concrete shall NOT be utilized for the bituminous pavement aggregate base. No other aggregate base material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The aggregate base shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

7. The bituminous pavement material shall NOT be placed in a single course. The bituminous pavement material MUST be placed in two courses, a leveling course and a wearing course. The bituminous pavement leveling course material shall be MDOT 13A bituminous material placed in 1 lift. The bituminous pavement wearing course material shall be MDOT 36A bituminous material placed in 1 lift. No bituminous material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. Compaction of the leveling course shall be achieved prior to placement of the wearing course. Any sediment, soil, debris and other foreign materials that accumulate on the leveling course shall be removed prior to placement of the wearing course. The bond coat shall be sprayed on the leveling course within 24 hours of placement of the wearing course. The bituminous pavement material shall be compacted to a minimum of 95% of the 50-blow Marshall Density.

8. Bituminous mix designs shall be developed in accordance with the MDOT HMA Production Manual. The Contractor shall submit the bituminous pavement mix designs to the Material Testing Engineer, appropriate Municipal Agency and/or the Project Engineer for review and approval a minimum of 3 business days prior to use. Bituminous pavement work shall not commence without receipt of the Material Testing Engineer's, Appropriate Municipal Agency and/or Project Engineer's approval of the bituminous mix designs. The bituminous pavement mix design shall be a virgin mix. RAP mixtures shall not be utilized without prior written approval of the Material Testing Engineer and receipt of the Owner's authorization. RAP mixtures, if authorized, shall be designed and produced in accordance with MDOT Tier I or Tier II RAP Mixture Specifications. In no instance shall MDOT Tier III or non-MDOT RAP mixtures be permitted or utilized.

9. The Owner / Developer may delay placement of the bituminous wearing course, outside of the public right of way, until after construction activities are complete. Repair of the bituminous leveling course may be necessary due to any delay in placement of the bituminous wearing course. Substantial repair to the bituminous leveling course may be necessary if placement of the bituminous wearing course is delayed for more than 12 months after the placement of the bituminous leveling course. The bituminous leveling course shall be repaired as directed by the Project Engineer prior to placement of the bituminous wearing course.

CONCRETE CURB NOTES:

1. Refer to the project plans for the proposed locations of the specific curb types.

2. The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes and Curb Cross Section Details on the project plans for additional requirements.

3. Extend the base and/or subbase material of the appropriate adjacent pavement cross-section horizontally to 1 foot behind the back of curb. Concrete curb shall be constructed on no less than 6" of combined depth of compacted base/subbase material.

4. Concrete material shall meet or exceed the specification requirements of the appropriate Local Municipality. If not specified by the Local Municipality, then the concrete material shall be MDOT P1 (I-A) 6.0 sack concrete pavement mixture with a minimum 28 day design compressive strength of 4,000 PSI and 6.5% (+/-1.5%) entrained air. Contractor shall submit concrete mix design and aggregate mechanical analysis report to the Local Municipality and Engineer for review and approval prior to use.

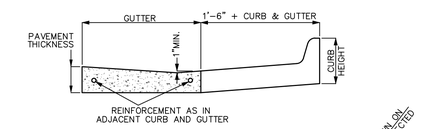
5. Install transverse contraction control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse contraction control joints in curb with 1" minimum depth at 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

6. Install transverse expansion control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse expansion control joints in curb as follows: 400' maximum on center, at spring points of intersecting streets and within 10' on each side of catch basins. Transverse expansion control joints shall be 1" thick asphalt fiber joint filler matching entire curb cross section.

7. Provide 1" asphalt fiber control joint between back of curb and all other concrete structures, such as concrete sidewalks and concrete driveways.

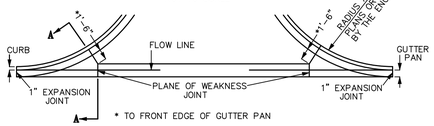
8. Curb Contractor shall provide final adjustment of catch basin castings in curb line. Castings shall be tuck pointed to structure water tight with concrete or mortar inside and outside of casting.

9. Install curb cuts for all existing and proposed sidewalks and pedestrian ramps in accordance with the American Disabilities Act and the Barrier Free Design requirements of the appropriate Local, County and/or State Agency. Refer to MDOT Standard Plan R-28, latest revision. Install curb cuts for all existing and proposed vehicular ramps and drives as noted on the project plans.



SECTION A-A

NOT TO SCALE

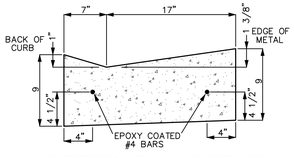


CONCRETE DRIVEWAY OPENING MDOT DETAIL "M"

NOT TO SCALE

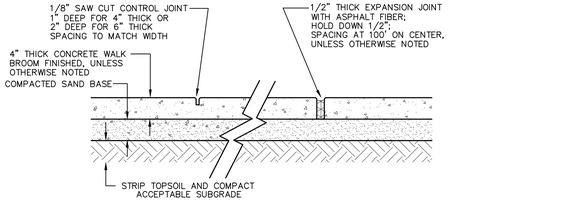
MDOT TYPE F4 CURB

NOT TO SCALE



GUTTER PAN DETAIL FOR TYPE F4 CURB

NOT TO SCALE



SIDEWALK CROSS SECTION

NOT TO SCALE

NOTES:
1. SEE PLAN FOR WIDTH OF SIDEWALK.
2. PROVIDE CONCRETE TYPE PER LOCAL CODE. (3500 PSI AIR ENTRAINED)

SIDEWALK CROSS SECTION NOTES:

1. The construction specifications of the Local Municipality are a part of this work. Refer to the General Notes and the Sidewalk Cross Section Details on the Project Plans for additional requirements.

2. Sidewalk widths may vary. See the Project Plans for the proposed sidewalk width at each location. Increase sidewalks to 6" minimum thickness at driveways and other areas exposed to vehicular traffic.

3. The existing subgrade soils shall be prepared prior to placement of the granular subbase. Unsuitable soils found within the 1 on 1 influence zone of the proposed sidewalk areas, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced with structural fill. Structural fill shall be MDOT Class II granular material placed in accordance with the General Notes on the Project Plans.

4. The sidewalk compacted subbase material shall be MDOT CL II sand. No subbase material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The subbase shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

5. Concrete material shall be MDOT P1 (I-A) 6.0 sack concrete pavement mixture with a minimum 28 day design compressive strength of 4,000 PSI and 6.5% (+/-1.5%) entrained air. The Contractor shall submit the concrete mix design and aggregate mechanical analysis report to the Material Testing Engineer and/or Project Engineer for review and approval prior to use.

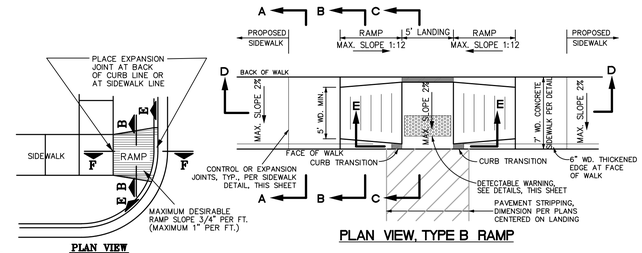
6. Install transverse contraction control joints in accordance with the Sidewalk Cross Section Detail. Space contraction control joints to match sidewalk width, but no greater than 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

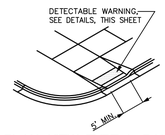
7. Install transverse expansion control joints in accordance with the Sidewalk Cross Section Detail. Space expansion control joints at 50 feet on center maximum. Transverse expansion control joints shall be 1/2" thick asphalt fiber joint filler matching entire sidewalk cross section.

8. Provide 1" asphalt fiber control joint between concrete sidewalks and all other concrete structures, such as concrete building foundations, concrete curb and concrete driveways.

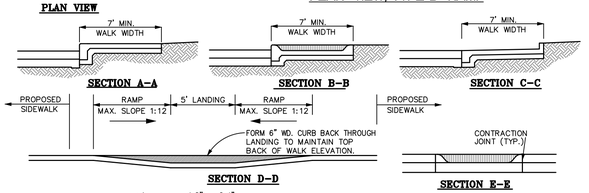
9. Construct all Barrier Free Sidewalk Ramps in accordance with the American Disabilities Act and the Barrier Free Design Requirements of the appropriate Local, County or State Agency with jurisdiction over the project. Refer to MDOT Standard Plan R-28, latest revision.

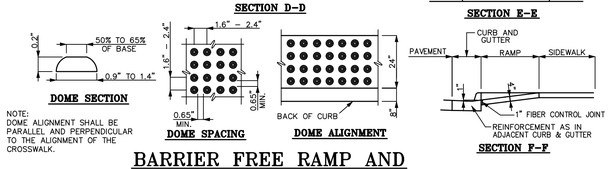
10. The concrete sidewalk shall not be exposed to vehicular traffic until the concrete has reached at least 75% of the design flexural strength.





PLAN VIEW, TYPE A RAMP





BARRIER FREE RAMP AND DETECTABLE WARNING DETAILS

NOT TO SCALE

GENERAL NOTES:

1. Contractor shall perform the work in accordance with the requirements of the appropriate Local, County and State Agencies and all other Government and Regulatory Agencies with jurisdiction over the project. Contractor shall notify the appropriate Agencies in advance of each stage of work in accordance with each Agency's requirements.

2. Contractor shall comply with all permit, insurance, licensing and inspection requirements associated with the work. Prior to construction, Contractor and Owner/Developer shall determine who is responsible for obtaining each required permit. Contractor shall verify that the each required permit has been obtained prior to commencement of the stage of work associated with the required permit(s).

3. Contractor shall furnish liability insurance and property damage insurance to save harmless the Owner, Developer, Architect, Engineer, Surveyor and Government Agencies for any accident occurring during the construction period. Refer to the appropriate Local, County and State Agencies for additional requirements. Copies of insurance certifications shall be made available to the Owner/Developer.

4. Contractor shall conduct and perform work in a safe and competent manner. Contractor shall perform all necessary measures to provide for traffic and pedestrian safety from the start of work and through substantial completion. Contractor shall determine procedures and provide safety equipment such as traffic controls, warning devices, temporary pavement markings and signs as needed. Contractor shall comply with the safety standards of the State Department of Labor, the occupational health standards of the State Department of Health and safety regulations of the appropriate Local, County, State and Federal Agencies. Refer to the safety specifications of the appropriate Regulatory Agencies. The Contractor shall designate a qualified employee with complete job site authority over the work and safety precautions; said designated employee shall be on site at all times during the work.

5. Contractor shall coordinate scheduling of all work in the proper sequence, including work by Subcontractors. Additional costs due to improper planning by Contractor or work done out of sequence as determined by standard acceptable construction practices, shall be Contractor's responsibility.

6. Contractor shall contact the 811 Underground Public Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to construction. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.

7. Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of work.

8. The Local Municipality, County and/or State in which the project is located may require an Engineer's Certification of construction of the proposed site improvements. Contractor shall verify the certification requirements with Engineer prior to commencement of work. Contractor shall coordinate construction staking, testing, documentation submittal and observation with the appropriate Agency, Surveyor and/or Engineer as required for Engineer's Certification and Government Agency Acceptance. All materials used and work done shall meet or exceed the requirements of certification and acceptance, the contract documents and the material specifications noted on the project plans. Any materials used or work done that does not meet said requirements, contract documents and/or specifications shall be replaced and/or redone at Contractor's expense. The Owner/Developer may wait for test results, certifications and/or Agency reviews prior to accepting work.

9. Engineer may provide subsurface soil evaluation results, if available, to Contractor upon request. Subsurface soil evaluation results, soils maps and/or any other documentation does NOT guarantee existing soil conditions or that sufficient, acceptable on-site granular material is available for use as structural fill, pipe bedding, pipe backfill, road subbase or use as any other granular material specified on the project plans. On-site granular material that meets or exceeds the material specifications noted on the project plans may be used as structural fill, pipe bedding, pipe backfill and/or road subbase material. On-site granular material shall be stockpiled and tested as acceptable to the appropriate Agency and/or Engineer prior to use.

10. During the performance of their work, Contractor shall be solely responsible for determining soil conditions and appropriate construction methods based on the actual field conditions. Contractor shall furnish, install and maintain sheeting, shoring, bracing and/or other tools and equipment and/or construction techniques as needed for the safety and protection of the workers, pedestrians and vehicular traffic and for protection of adjacent structures and site improvements.

11. Contractor shall install temporary and permanent soil erosion and sedimentation control devices at the appropriate stages of construction in accordance with the appropriate regulatory Agencies. Refer to Soil Erosion and Sedimentation Control Plans and Notes on the project plans.

12. Structural fill shall be placed as specified on the project plans and within the 1 on 1 influence zone of all structures, paved areas and other areas subject to vehicular traffic. Structural fill shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, modified proctor). Fill material shall meet or exceed the specifications noted on the project plans or as directed by Engineer when not specified on the project plans.

13. All existing monuments, property corners, ground control and benchmarks shall be protected and preserved; and if disturbed by Contractor, shall be restored at Contractor's expense. Contractor shall notify Surveyor of any conflicts between existing monuments, property corners, ground control and/or benchmarks and the proposed site improvements.

14. Contractor shall notify Owner/Developer and Engineer immediately upon encountering any field conditions, which are inconsistent with the project plans and/or specifications.

15. When noted on the project plans for demolition and/or removal, Contractor shall remove existing structures, building and debris and recycle and/or dispose of in accordance with Local, County, State and Federal regulations.

16. Contractor shall remove excess construction materials and debris from site and perform restoration in accordance with the project plans and specifications. Disposing of excess materials and debris shall be performed in accordance with Local, County, State and Federal regulations.

17. Construction access to the site shall be located as acceptable to the Owner/Developer and to the appropriate Local, County and/or State Agency with jurisdiction over the road(s) providing access to the site. Construction access shall be maintained and cleaned in accordance with the appropriate Local, County and/or State Agencies and as directed by Owner/Developer and/or Engineer.

18. Contractor shall take necessary precautions to protect all site improvements from heavy equipment and construction procedures. Damage resulting from Contractor actions shall be repaired at Contractor's expense.

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: JHG
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

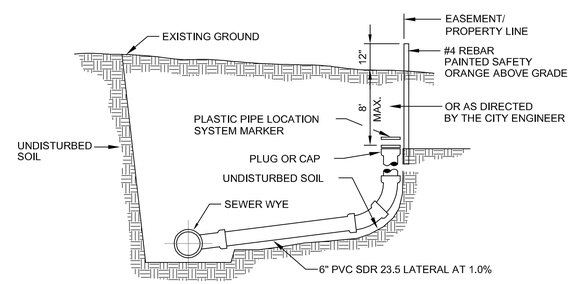
1025 E. GRAND RIVER SHARED ACCESS DRIVE

SITE DETAILS

CLIENT:
BMH REALTY
775 N. SECOND ST.
BRIGHTON, MICHIGAN 48116

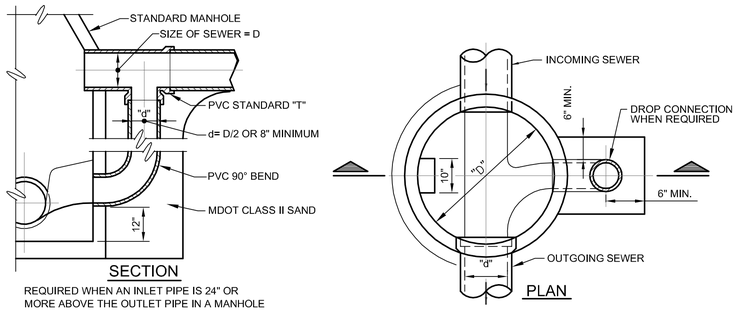
SCALE: AS NOTED
PROJECT No.: 193772
DWG NAME: 3772 DT
ISSUED: DEC. 8 2022

DT1



NOTE:
RISER PIPE MAY NOT BE REQUIRED FOR SHALLOW SEWERS AS SHOWN.

SANITARY SEWER LATERAL

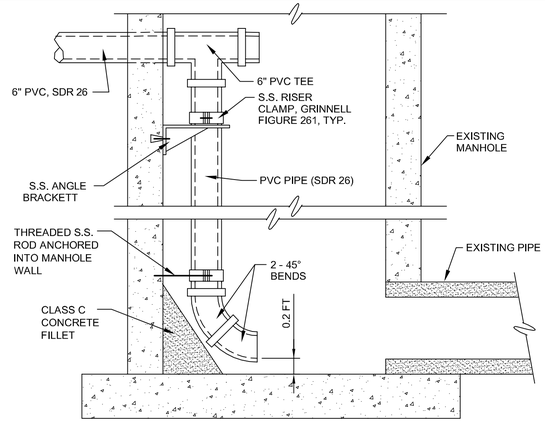


SECTION

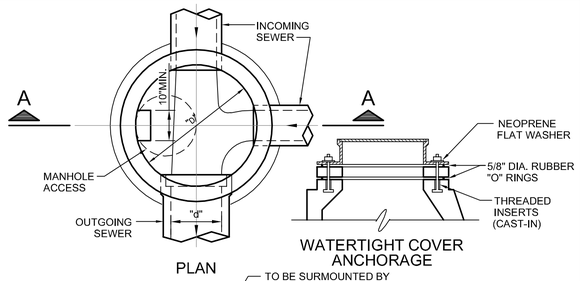
PLAN

REQUIRED WHEN AN INLET PIPE IS 24" OR MORE ABOVE THE OUTLET PIPE IN A MANHOLE

EXTERIOR DROP CONNECTION

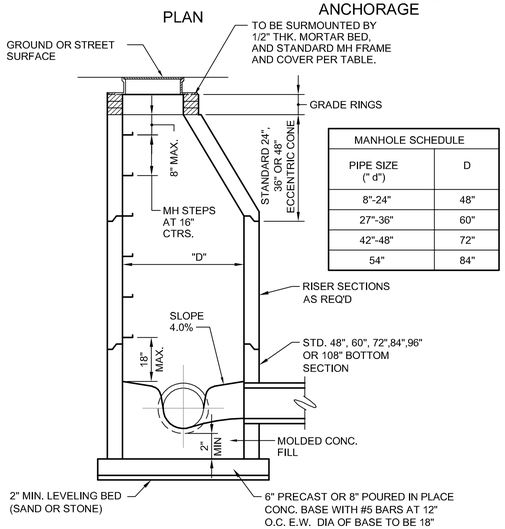


INTERIOR SEWER LATERAL DROP CONNECTION



PLAN

WATERTIGHT COVER ANCHORAGE



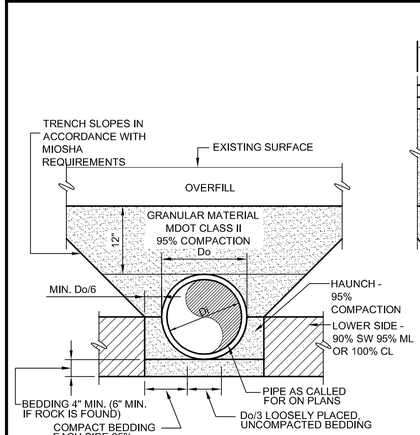
MANHOLE SCHEDULE	
PIPE SIZE (" d")	D
8"-24"	48"
27"-36"	60"
42"-48"	72"
54"	84"

SECTION A-A

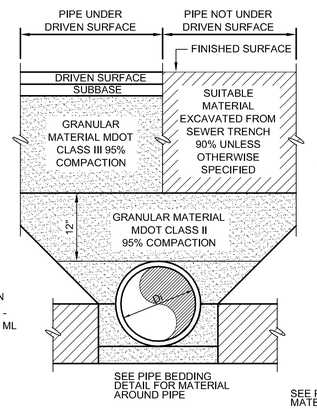
NOTES:
1. ALL SANITARY MANHOLES TO BE PRECAST REINFORCED CONCRETE WITH PREMIUM JOINTS. SEE SPECIFICATIONS FOR BASE SLAB AND PIPE OPENINGS AND CONNECTIONS.
2. MANHOLE CONES SHALL BE THE ECCENTRIC TYPE.
3. PROVIDE 6" OF COMPACTED GRANULAR MATERIAL UNDER ALL PRECAST CONCRETE BASE SLABS.
4. FORCE MAINS CONNECT DIRECTLY TO A MANHOLE SHALL BE INSTALLED SO THAT THE ELEVATION OF THE PIPE CROWNS MATCH. THE FORCE MAIN SHALL BE DIRECTED DOWNWARD INTO THE FLOW CHANNEL.
5. FOR SANITARY SEWERS ALL PIPES SHALL ENTER MANHOLE THROUGH RUBBER BOOTED CONNECTION.

FRAME & COVER FOR SANITARY SEWER MANHOLES			
		MANUFACTURER OR EQUAL	
TYPE	TYPE OF COVER	EAST JORDAN	NEENAH
MH	SANITARY - SOLID SELF-SEALING	1040.0000	R-1642
MH	SANITARY - SOLID WATERTIGHT	1040-APT	R-1916-F
CO	SOLID	1574A	R-1973-A

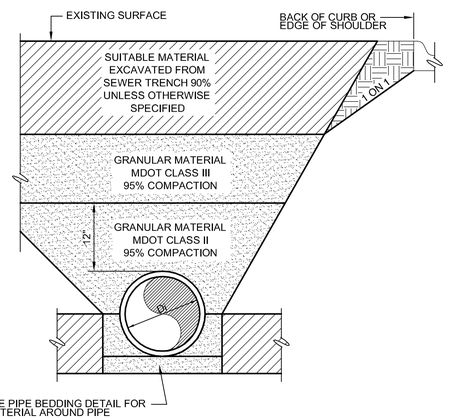
STANDARD MANHOLE



PIPE BEDDING



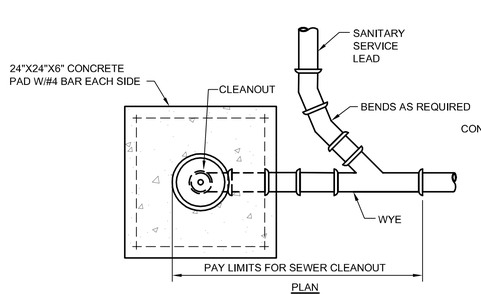
PIPE UNDER/NOT UNDER DRIVEN SURFACE



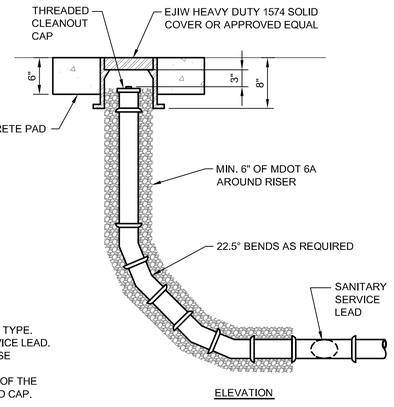
PIPE WITHIN INFLUENCE OF DRIVEN SURFACE

NOTES:
1. COMPACTION PRESENTED AS MINIMUM STANDARD PROCTOR VALUES.
2. MATERIALS AROUND THERMOPLASTIC PIPE WITH DIAMETER < 6 INCHES SHALL PASS 0.5 INCH SIEVE, MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.
3. MATERIALS AROUND HDPE PIPE TO BE MDOT 6A OR 21AA.
4. DRIVEN SURFACE IS DRIVEWAY, PARKING AREA, ROAD BED OR SHOULDER.
5. UTILITY TRENCHES LOCATED WITHIN A MDOT ROW SHALL CONFORM TO MDOT STANDARD DETAIL R-83.
6. TRACER WIRE IS REQUIRED ON FORCE MAIN ONLY AND SHALL BE BROUGHT TO GRADE AT A MINIMUM EVERY 1000 FEET IN A APPROVED CAST IRON TRACER WIRE BOX ENCASED IN CONCRETE OR WITH AN APPROVED GREEN MARKER POST.

TRENCH EXCAVATION & PIPE BEDDING



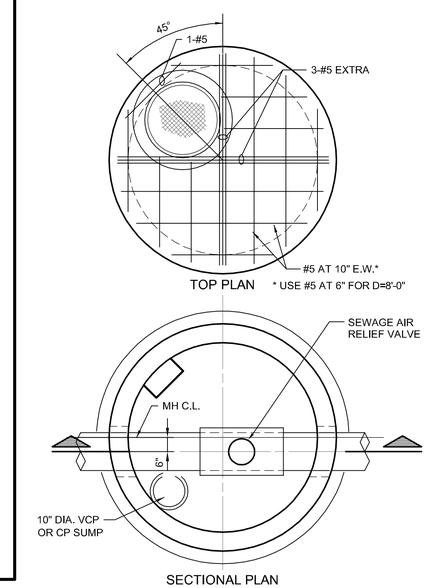
PLAN



ELEVATION

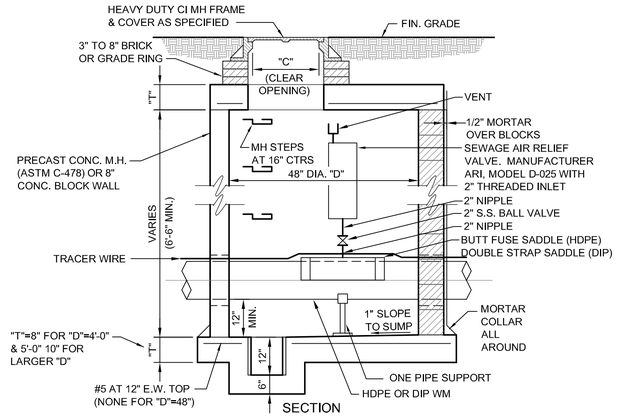
NOTES:
1. ALL CONNECTION SHALL BE BELL AND SPIGOT TYPE.
2. CLEANOUT IS TO BE SAME DIAMETER AS SERVICE LEAD.
3. CONCRETE PAD REQUIRED UNLESS OTHERWISE DETERMINED BY THE CITY.
4. THERE MUST BE A 3" GAP FROM THE BOTTOM OF THE CLEAN OUT LID TO THE TOP OF THE THREADED CAP.

SEWER CLEANOUT DETAIL



TOP PLAN * USE #5 AT 6" FOR D=8'-0"

SECTIONAL PLAN



SECTION

NOTE: ALL PLUMBING MATERIALS TO BE NON-CORROSIVE, ALL FITTINGS SHALL BE STAINLESS STEEL.

AIR RELIEF STRUCTURE

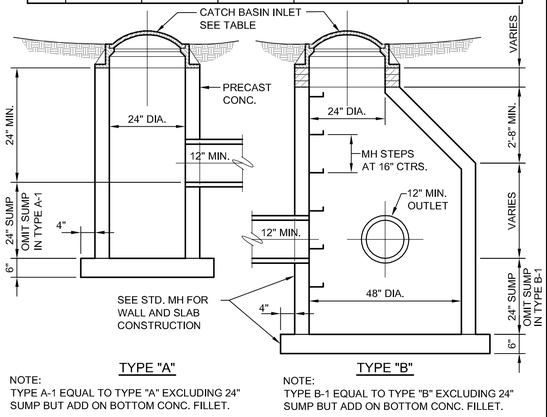
CITY OF BRIGHTON

SANITARY SEWER
STANDARD DETAILS

Scale: NONE
Issued Date MAY - 2014

Thursday, October 02, 2014 10:33:13 AM DRAWING: O:\Projects\Lansing\IER\12766\200-12766-00-000\CAD\SheetFiles\Standards\Brighton-std.DWG

MANHOLE FRAME & COVER & CATCH BASIN INLETS					
TYPE	LOCATION	MANUFACTURER OR EQUAL		TYPE OF COVER OR INLET	MAXIMUM DRAINAGE AREA (ACRES)
		EAST JORDAN	NEENAH		
MH	ALL	1040	R-1916 F1	SANITARY-SOLID SELF-SEALING STORM-VENTED	N/A
CB	TYPE A CURB	7000-T1-M1	R-3070	FLAT GRATE WITH VERT. OPEN BACK	0.71
CB	TYPE B CURB	7065-T1-M1	R-3034-B	FLAT GRATE WITH ROLL BACK	0.87
CB	PAVEMENT/ SHOULDER	1020-M1	R-2060-D	FLAT GRATE	0.66
CB	OPEN AREA	1020-01	R-2560-D	BEEHIVE GRATE 4" HIGH	0.63
CB	GUTTER	5100	R-3238	CONCAVE INLET	0.96



TYPE "A"

NOTE:
TYPE A-1 EQUAL TO TYPE "A" EXCLUDING 24" SUMP BUT ADD ON BOTTOM CONC. FILLET.

TYPE "B"

NOTE:
TYPE B-1 EQUAL TO TYPE "B" EXCLUDING 24" SUMP BUT ADD ON BOTTOM CONC. FILLET.

CATCH BASIN

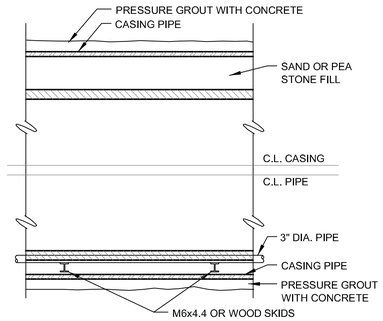
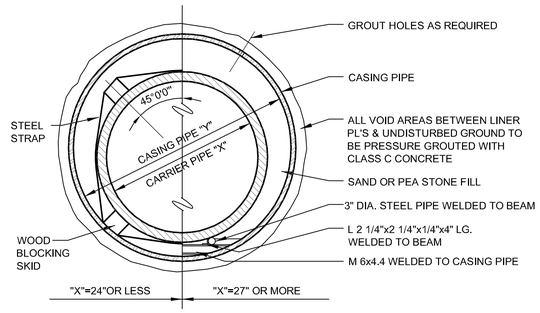


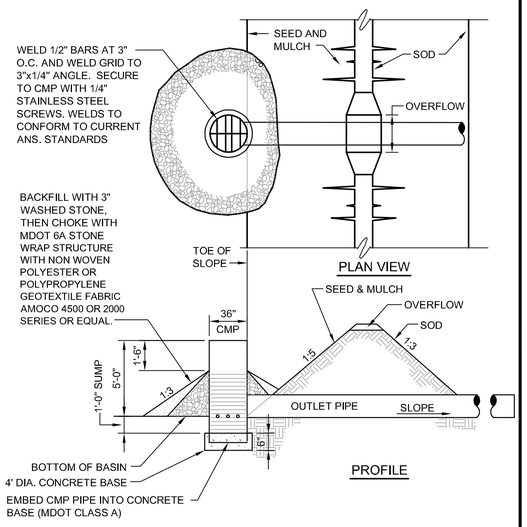
TABLE	
"X"	"Y"(MIN)
6"	20"
8"-12"	24"
14"-15"	30"
18"-21"	36"
24"	42"
27"-30"	48"
33"-36"	60"
42"	66"
48"	72"
54"	84"
60"	90"
66"	96"
72"	108"
78"	114"



NOTES:
1. SEE SPECIFICATIONS FOR ALTERNATE CONSTRUCTION METHODS.
2. BORING SHALL BE AT 90 DEGREES TO ALL CROSSINGS UNLESS OTHERWISE APPROVED. THE BORING OF THE HOLE AND INSTALLATION OF THE CASING PIPE SHALL BE SIMULTANEOUS. BORE HOLE DIAMETER SHALL ESSENTIALLY BE THE SAME AS THE OUTSIDE DIAMETER OF THE CASING PIPE TO BE INSTALLED.
3. BORING TO EXTEND A MINIMUM OF 10' OUTSIDE THE EDGE OF PAVEMENT.
4. CASING SPACERS SHALL BE RESTRAINED-TYPE BOLTED SPACERS AND SHALL HAVE A MAXIMUM SPACING AS NOTED BELOW OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS CLOSER. PIPE CASING SPACERS SHALL BE EQUIVALENT TO RANGER PLASTIC CASING SPACERS AS MANUFACTURED BY PIPELINE SEAL AND INSULATOR, INC, OR APPROVED EQUAL.
   4.1. SPACER SHALL BE PLACED MAXIMUM 1' ON EACH SIDE OF CARRIER PIPE JOINT.
   4.2. TYPICAL 6' MAXIMUM SPACING BETWEEN SPACERS.
   4.3. MINIMUM ONE CASING SPACER WITHIN 1' OF EACH END OF CASING.
5. INSTALL STEEL ASSEMBLY FOR CARRIER PIPE SUPPORT AS SHOWN IN DRAWING AND DETAILED IN SPECIFICATIONS. SKIDS ARE REQUIRED TO EXTEND TO FULL LENGTH OF THE CASING.
6. CASING END SEALS SHALL BE SYNTHETIC NEOPRENE RUBBER PULL-ON TYPE END SEALS WITH STAINLESS STEEL BANDS, AS MANUFACTURED BY PIPELINE SEAL AND INSULATOR, INC, OR APPROVED EQUAL.

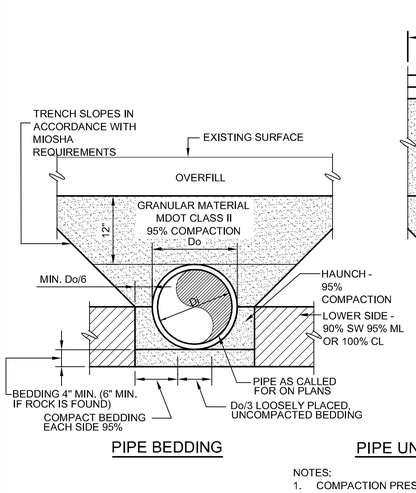
CASING PIPE AT HIGHWAY AND RAILROAD CROSSING

NO SCALE

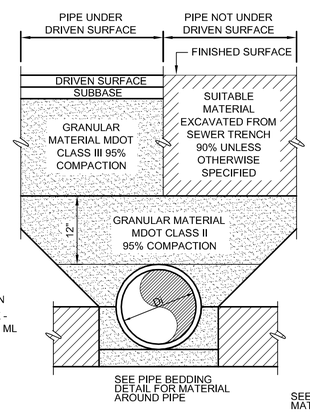


PROFILE

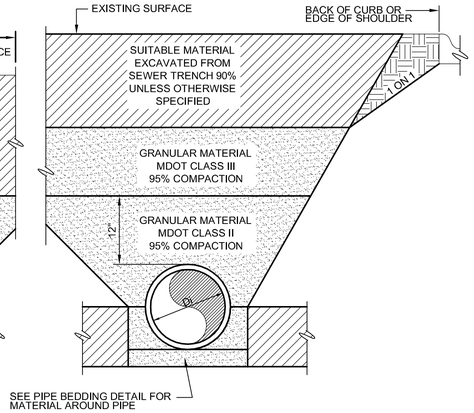
OUTLET CONTROL STRUCTURE



PIPE BEDDING



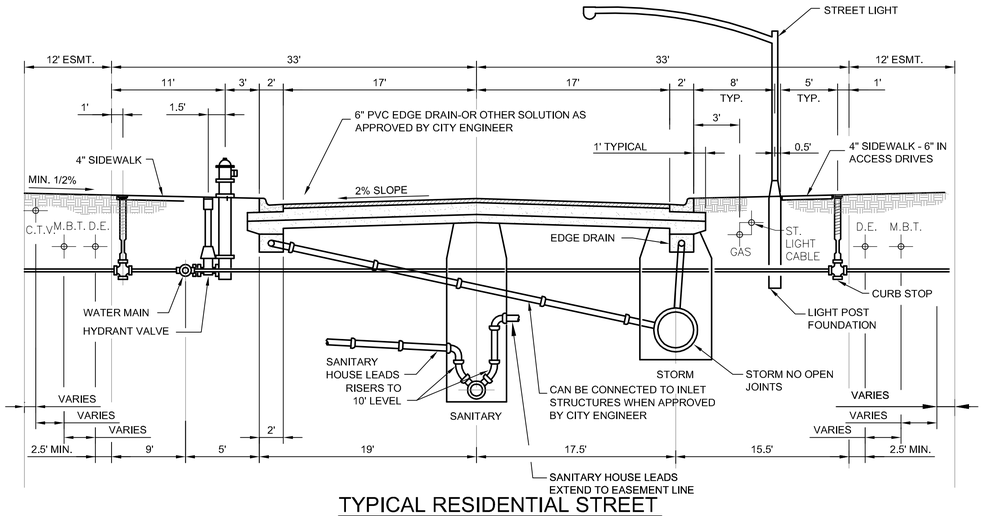
PIPE UNDER/NOT UNDER DRIVEN SURFACE



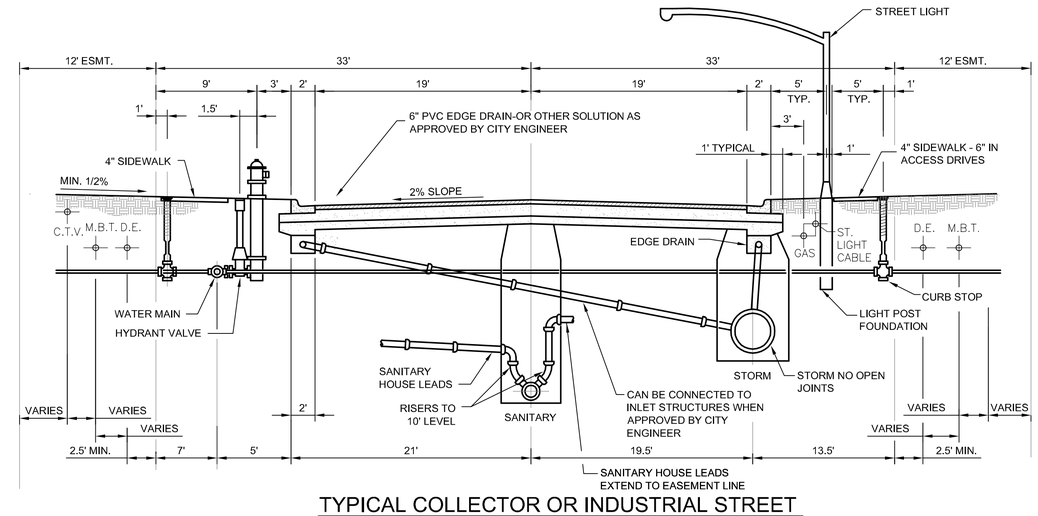
PIPE WITHIN INFLUENCE OF DRIVEN SURFACE

NOTES:
1. COMPACTION PRESENTED AS MINIMUM STANDARD PROCTOR VALUES.
2. MATERIALS AROUND THERMOPLASTIC PIPE WITH DIAMETER < 6 INCHES SHALL PASS 0.5 INCH SIEVE, MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.
3. MATERIALS AROUND HDPE PIPE TO BE MDOT 6A OR 21AA.
4. DRIVEN SURFACE IS DRIVEWAY, PARKING AREA, ROAD BED OR SHOULDER.
5. UTILITY TRENCHES LOCATED WITHIN A MDOT ROW SHALL CONFORM TO MDOT STANDARD DETAIL R-83.

TRENCH EXCAVATION & PIPE BEDDING



TYPICAL RESIDENTIAL STREET



TYPICAL COLLECTOR OR INDUSTRIAL STREET

CITY OF BRIGHTON

STORM SEWER & STREET DETAILS
STANDARD DETAILS

Scale:	PARKING
Issued Date	MAY - 2014

PIPE RESTRAINT SCHEDULE

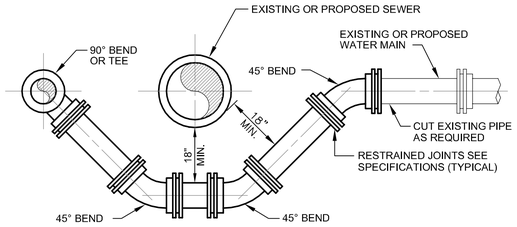
GROUND BURIED PRESSURE PIPE - POLYETHYLENE ENCASED DUCTILE IRON PIPE

PIPE DIAMETER	TEES, 90° BENDS	45° BENDS	22-1/2° BENDS	11-1/4° BENDS	DEAD ENDS	REDUCERS (ONE SIZE REDUCTION)*	REDUCERS (TWO SIZE REDUCTIION)*
4	13	5	3	1	40	--	--
6	19	8	4	2	58	31	--
8	24	10	5	2	75	30	70
12	34	14	7	3	107	57	116
16	43	18	9	4	139	59	137
20	52	22	10	5	169	59	134
24	61	25	12	6	199	60	132
30	73	30	15	7	242	85	168
36	84	35	17	8	281	84	168

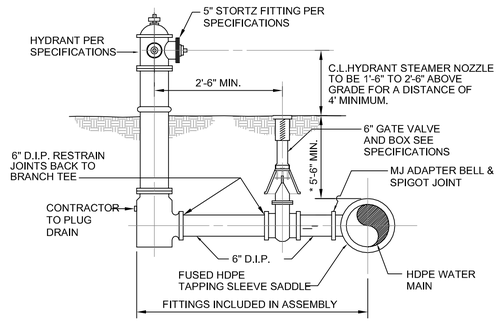
1. LENGTHS OF PIPE RESTRAINT ARE GIVEN IN FEET.
2. IF REQUIRED PIPE DIAMETER IS NOT LISTED IN THIS TABLE, THE NEXT LARGEST PIPE DIAMETER SHALL BE USED.
3. THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER. FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY.
4. THE VALUES PROVIDED OF RESTRAINT LENGTH ARE IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FOR TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM.
5. IF TIE RODS ARE USED, USE FOUR RODS MINIMUM AND ADD 1/8-INCH TO BAR DIAMETER AS CORROSION ALLOWANCE.

* SIZE REDUCTION IS BASED UPON THE PIPE DIAMETER SHOWN IN THIS TABLE.

BASED UPON:
INTERNAL PRESSURE: 180
PIPE DEPTH: 5
BEDDING CLASS: TYPE 4
SOIL TYPE: GOOD SAND
SAFETY FACTOR: 2

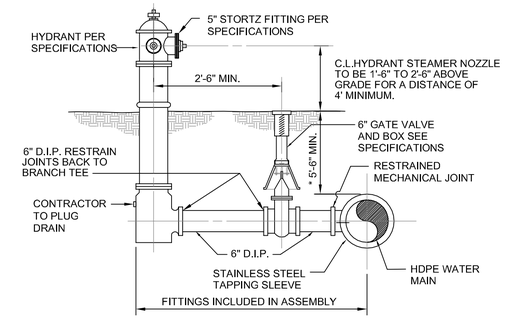


WATER MAIN UTILITY OFFSET



* SEE WATER MAIN PROFILE FOR DEPTH

WITH FUSED HDPE SADDLE



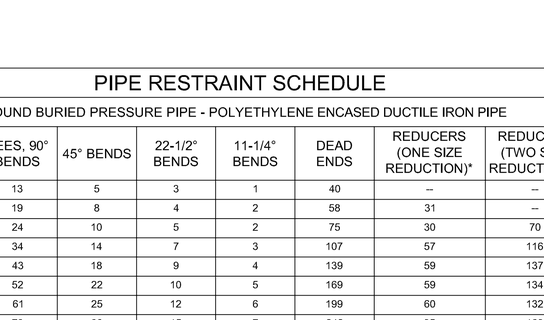
* SEE WATER MAIN PROFILE FOR DEPTH

WITH STAINLESS STEEL SADDLE

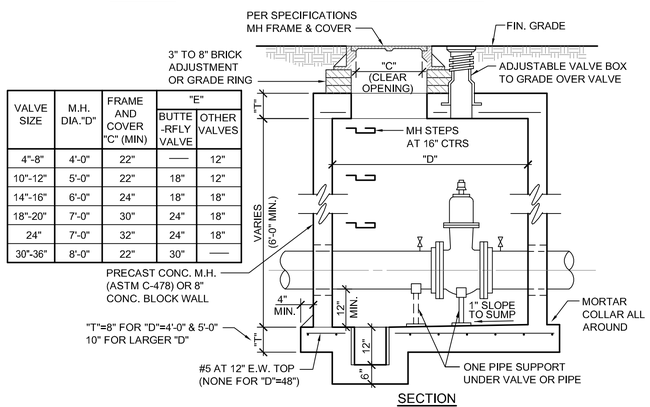
NOTE: USE OF HDPE FOR WATER MAIN APPLICATION REQUIRES SPECIAL APPROVAL FROM THE CITY OF BRIGHTON.

FIRE HYDRANT ASSEMBLY CONNECTION TO HDPE WATER MAIN

NO SCALE



TOP PLAN SECTIONAL PLAN

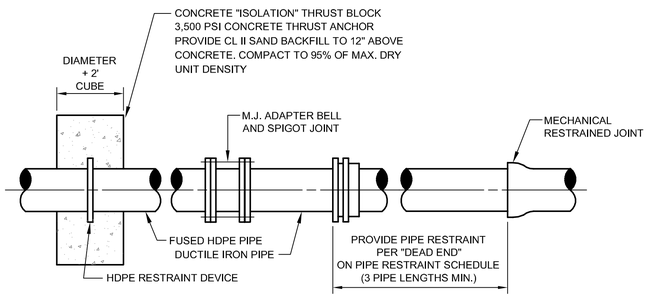


VALVE SIZE	M.H. DIA."D"	FRAME AND COVER "C" (MIN)	"E" BUTTE -RFLY VALVE	"E" OTHER VALVES
4"-8"	4'-0"	22"	——	12"
10"-12"	5'-0"	22"	18"	12"
14"-16"	6'-0"	24"	18"	18"
18"-20"	7'-0"	30"	24"	18"
24"	7'-0"	32"	24"	18"
30"-36"	8'-0"	22"	30"	——

SECTION

VALVE MANHOLE

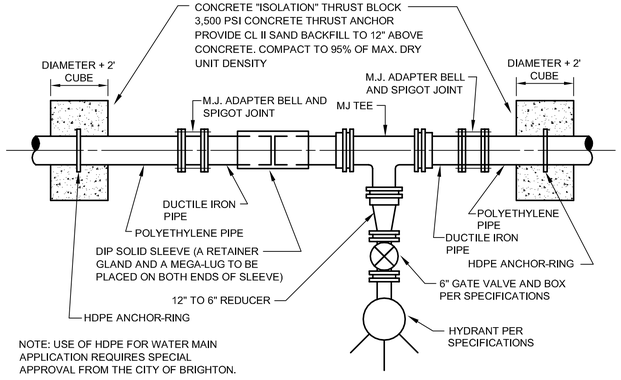
NO SCALE



NOTE: USE OF HDPE FOR WATER MAIN APPLICATION REQUIRES SPECIAL APPROVAL FROM THE CITY OF BRIGHTON.

HDPE TO DIP PIPE CONNECTION DETAIL

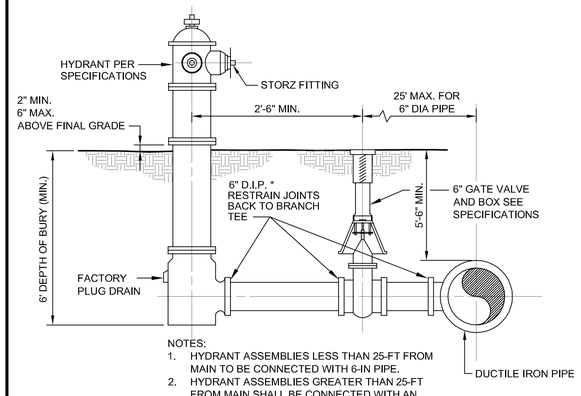
NO SCALE



NOTE: USE OF HDPE FOR WATER MAIN APPLICATION REQUIRES SPECIAL APPROVAL FROM THE CITY OF BRIGHTON.

FIRE HYDRANT ASSEMBLY DIP TEE CONNECTION TO HDPE WATER MAIN

NO SCALE



NOTES:
1. HYDRANT ASSEMBLIES LESS THAN 25-FT FROM MAIN TO BE CONNECTED WITH 6-IN PIPE.
2. HYDRANT ASSEMBLIES GREATER THAN 25-FT FROM MAIN SHALL BE CONNECTED WITH AN 8-IN PIPE. THIS 8-IN PIPE MAY BE REDUCED TO 6-IN PIPE WITHIN 25-FT FROM THE HYDRANT.

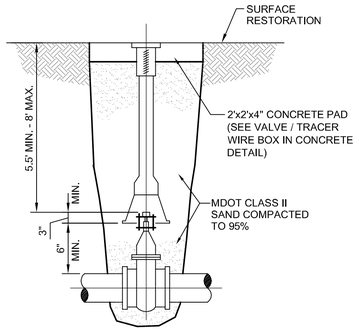
FIRE HYDRANT ASSEMBLY

NO SCALE

CITY OF BRIGHTON

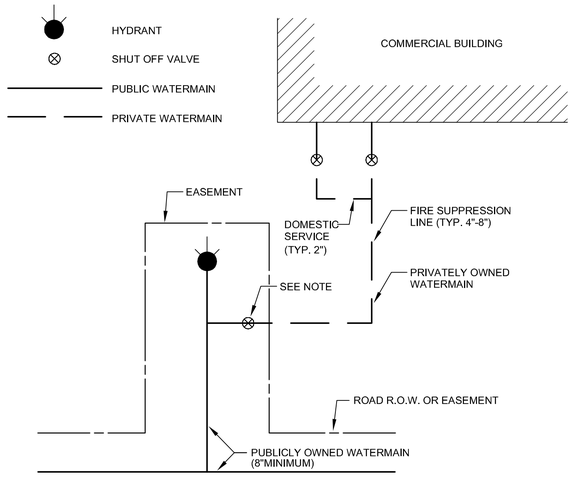
WATER MAIN - SHEET 1 OF 2
STANDARD DETAILS

Scale: NONE
Issued Date MAY - 2014



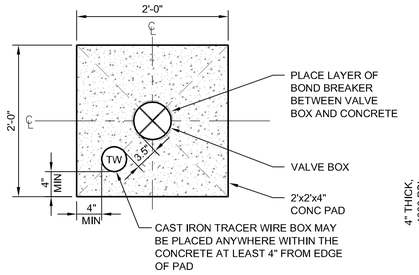
NOTES:
1. VALVE BOX SHALL NOT REST ON VALVE OR MAIN LINE PIPE.
2. A VALVE STEM EXTENSION WITH CENTERING RING IS REQUIRED FOR VALVES BURIED DEEPER THAN 6'.

GATE VALVE AND BOX



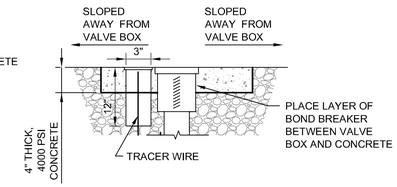
NOTE: PUBLICLY OWNED SHUT OFF VALVE TO BE LOCATED IN EASEMENT.

COMMERCIAL BUILDING WATER SERVICE LAYOUT



NOTE: ALL BOXES & ADJOINING TW BOXES SHALL BE ENCASED IN A CONC. PAD UNLESS OTHERWISE DETERMINED BY THE CITY.

PLAN

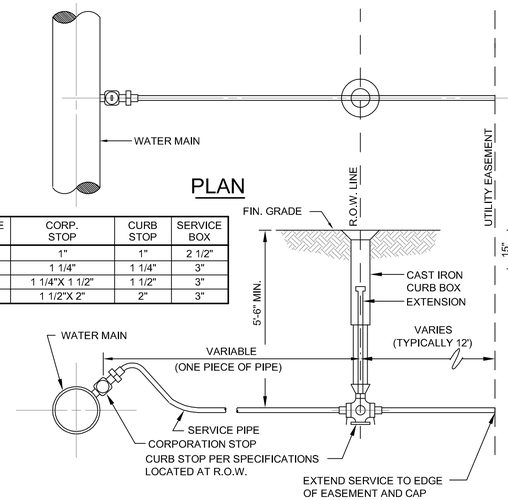


NOTE:
1. TRACER WIRE BOXES LOCATED WITHOUT A VALVE BOX ONLY REQUIRE AN 18" X 18" CONCRETE PAD.
2. TRACER WIRE BOX SHALL HAVE A LOCKING LID W/STANDARD AWWA PENTAGON KEY.

SECTION

GATE VALVE/TRACER WIRE BOX IN CONCRETE DETAIL

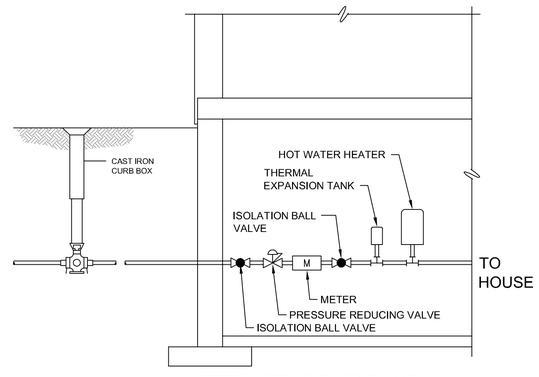
NO SCALE



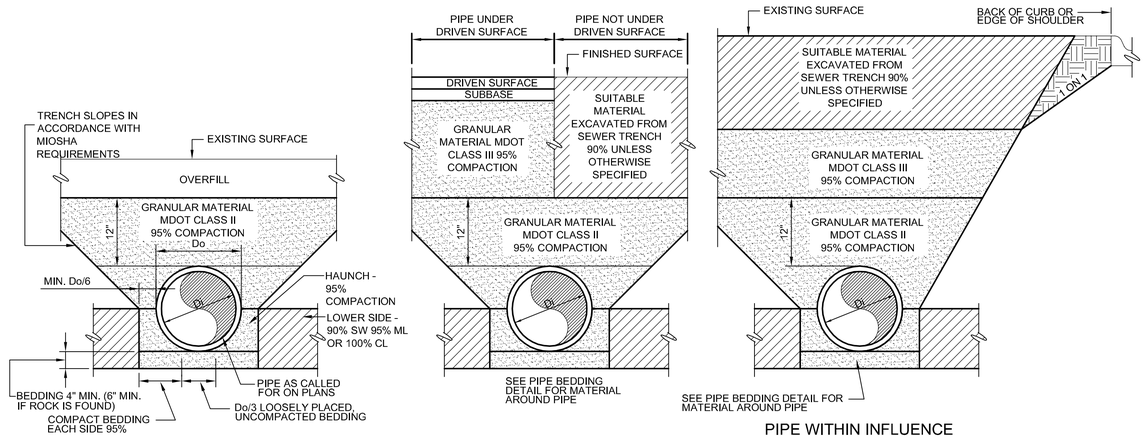
SERVICE PIPE	CORP. STOP	CURB STOP	SERVICE BOX
1"	1"	1"	2 1/2"
1 1/4"	1 1/4"	1 1/4"	3"
1 1/2"	1 1/4"X 1 1/2"	1 1/2"	3"
2"	1 1/2"X 2"	2"	3"

CURB STOP IN PAVEMENT

SECTION
WATER SERVICE LATERAL



PRIVATE RESIDENCE
PRESSURE REDUCING VALVE (PRV)



PIPE BEDDING | PIPE UNDER/NOT UNDER DRIVEN SURFACE | PIPE WITHIN INFLUENCE OF DRIVEN SURFACE

NOTES:
1. COMPACTION PRESENTED AS MINIMUM STANDARD PROCTOR VALUES.
2. MATERIALS AROUND THERMOPLASTIC PIPE WITH DIAMETER < 6 INCHES SHALL PASS 0.5 INCH SIEVE, MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.
3. MATERIALS AROUND HDPE PIPE TO BE MDOT 6A OR 21AA.
4. DRIVEN SURFACE IS DRIVEWAY, PARKING AREA, ROAD BED OR SHOULDER.
5. UTILITY TRENCHES LOCATED WITHIN A MDOT ROW SHALL CONFORM TO MDOT STANDARD DETAIL R-83.

TRENCH EXCAVATION & PIPE BEDDING

CITY OF BRIGHTON

WATER MAIN - SHEET 2 OF 2
STANDARD DETAILS

Scale: NONE
Issued Date MAY - 2014

VIEW FROM GRAND RIVER

VIEW FROM NORTHWEST

VIEW OF MAIN ENTRY (NORTH)

AERIAL VIEW FROM SOUTHEAST

Lindhout Associates
architects aia pc
10465 citation drive, brighton, michigan 48116-9510
www.lindhout.com (810)227-5668 fax:(810)227-5855

consultant

dr:	xxx		
ck'd:	xxx		
app'd:	xxx	x-xx-xx date	PLOTTING issued for

NEW BRANCH OFFICE for:
LOC CREDIT UNION
BRIGHTON, MICHIGAN
RENDERINGS

A2
22058

FILE LOCATION: H:\22058 - LOC Credit Union\dwg\dsh\Renderings
DATE PLOTTED: 11/8/2022 PLOTTED BY: mkz

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

December 14, 2022

Mike Caruso
Building/Zoning Dept.
City of Brighton
200 North First Street
Brighton, MI 48116

RE: LOC Credit Union
1025 E. Grand River
Site Plan Review

Dear Mike:

The Brighton Area Fire Department has reviewed the above-mentioned site plan. The plans were received for review on December 8, 2022 and the drawings are dated December 8, 2022. The project is based on the proposed demolition of an existing B-use medical office buidling and development of a new 3,090 square foot, Type VB, Business Occupancy Credit Union. The plan review is based on the requirements of the International Fire Code (IFC) 2021 edition.

1. The existing fire hydrant on the South side of Grand River does not provide for proper hydrant coverqage. Provide a new hydrant to be located on the East side of the new driveway approach. **(The new hydrant has been added to the east side of eth access drive.)**

2. The building shall include the building address on the building. The address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified prior to installation.

   IFC 505.1

3. The outside drive-thru passing lane is shown as 16-feet wide. This shall be revised to be a minimum of 20-feet wide. With a width of 20-feet, both sides of the drive shall be marked as a fire lane. Include the location of the proposed fire lane signage and a detail of the fire lane sign in the submittal. Access roads to the site shall be provided and maintained during construction. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 84,000 pounds. **(The drive width has been revised and the HD concrete is noted, and fire lane signage indicated.)**

   IFC D 103.6
   IFC D 103.1
   IFC D 102.1
   IFC D 103.3

4. Access around the building shall provide emergency vehicles with a turning radius of 50-feet outside and 30-feet inside. Vehicle circulation shall account for non-emergency traffic and maintain the vehicle within the boundary of lanes of travel. Provide a vehicle circulation plan. **(Acceess has been revised and is compliant.)**

   IFC 503.2.4

5. The location of a Knox Box shall be indicated on future submittals. The Knox box shall be located adjacent to the main entrance of the structure, in a location coordinated with the fire authority. **(To be provided prior to final occupancy.)**

6. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor.

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,

Rick Boisvert, FM, CFPS
Fire Marshal

cc: Sbarb@livgov.com
kari.jozwik@tetratech.com

Livingston County Department of Planning

MEMORANDUM

Kathleen J. Kline-Hudson
AICP, PEM
Director

Robert A. Stanford
AICP, PEM
Principal Planner

Scott Barb
AICP, PEM
Principal Planner

TO: City of Brighton Planning Commission

FROM: Scott Barb, Principal Planner

DATE: December 13, 2022

SUBJECT: LOC Credit Union – Site Plan Review #2

A revised site plan has been submitted for your consideration by Desine, Inc. for the construction of a new 3,090 SF building that will host a new LOC Credit Union at 1025 E. Grand River in the City of Brighton. The proposed credit union is zoned C-1 (Community Shopping Center) and includes a drive-through canopy for banking customers with parking, landscaping, and other site amenities.

We have reviewed the revised plan and offer the following comments for your consideration:

1. The access width between the drive-through canopy and edge of curb on the west side of the site has been increased to twenty (20) feet per our request. This satisfies our outstanding comments on the previous site plan.

We are recommending approval of the LOC Credit Union revised site plan at this time. Should you have any comments or concerns regarding our review, please do not hesitate to contact me at any time, and at your convenience.

Respectfully,

Scott Barb, AICP, PEM

Department Information

Administration Building
04 E. Grand River Avenue
Suite 206
Howell, MI 48843-2323

(517) 546-7555
Fax (517) 552-2347

Web Site
www.livgov.com

TETRA TECH

December 14, 2022

Mr. Michael Caruso
City of Brighton
200 North First Street
Brighton, MI 48116

Re: LOC Credit Union
Site Plan Review No. 2

Dear Mr. Caruso:

Tetra Tech has reviewed the revised site plan for the proposed LOC Credit Union located at 1025 E. Grand River Avenue. The development consists of a 3,090-square-foot building for the LOC Credit Union in the Community Shopping Center District (C-1). The proposed site includes drive-thru banking, a parking lot, and building sewer and water leads. The shared access drive and stormwater detention basin will be constructed independently of the LOC Credit Union, which is currently being reviewed by the City of Brighton.

The revised site plan, dated December 8, 2022, was prepared by Desine Inc and submitted in response to our December 2, 2022, review letter. The following comment remains for your consideration.

1. The curb stop for the 1.5-inch water service is not shown on the drawings. The curb stop is required to be located within the 25-foot wide public watermain easement.

RECOMMENDATION

The applicant has satisfactorily addressed our previous concerns. Therefore, we have no engineering objection to the approval of the site plan dated December 8, 2022, subject to the above comment being addressed to the City's satisfaction. Please call me at 810.225.8439 if you have any questions or comments.

Sincerely,

Kari Jozwik, P.E.,
Project Engineer

Tetra Tech
7927 Nemco Way, Suite 100, Brighton, MI 48116
Tel 810.220.2112 Fax 810.220.0094 www.tetratech.com

December 14, 2022

Mr. Michael Caruso
City of Brighton
200 North First Street
Brighton, MI 48116

Re: 1025 E. Grand River Access Drive
Site Plan Review No. 2

Dear Mr. Caruso:

Tetra Tech has reviewed the revised site plan for the proposed shared commercial access drive and stormwater management improvements at 1025 E. Grand River Avenue. The access drive will provide access to parcel 471831-200-103 (2.29 acres) and parcel 4718-31-202-068 (3.03 acres). The improvements include a stormwater detention basin that has been designed to accommodate the anticipated full build-out of each parcel, and extensions of the municipal sanitary sewer and water systems. The revised site plan, dated December 8, 2022, was prepared by Desine and submitted in response to our December 2, 2022, review letter. The following comments remains for your consideration.

1. The proposed sanitary sewer and water system improvements will require construction permits from Michigan Department of Environment, Great Lakes and Energy (EGLE). Upon site plan approval, the applicant will be required to submit construction drawings to the City for review and approval. Once the construction drawings have been approved for general compliancy to the City of Brighton Engineering Design Standards, Tetra Tech will assist the City obtain the Act 399 Permit for the extension of the public water supply system and Act Part 41 construction permit for wastewater systems.
2. The demolition and pavement restoration details for the sanitary sewer connection to SMH-289.
3. Site plan sheet SP notes the width of the sanitary sewer easement as 20-feet. The easement on the utility plan sheet UT1 is noted as 25-feet wide. It is recommended sheet SP be updated to reflect the easement width shown on the utility plan.
4. The following items will need to be added and/or revised for the construction plan submittal:
    a. The material for the 6-inch sanitary sewer needs to be revised to PVC SDR 26.
    b. The interior sewer lateral drop connection detail on the sanitary sewer standard details shows 6-inch piping. We recommend applicant add notes or modify the detail to indicate 8-inch piping will be utilized.
    c. The following construction notes will need to be included on the construction drawings:
        i. The contractor shall furnish as-built drawings indicating all changes and deviations. Buffalo valve box stabilizers shall be installed with all the water valve boxes.

Tetra Tech
7927 Nemco Way, Suite 100, Brighton, MI 48116
Tel 810.220.2112 Fax 810.220.0094 www.tetratech.com

ii. Tracing wire shall be provided on all water main distribution lines and service leads. Materials and installation shall be per the City's Engineering Design Standards Specification Section 22113. Tracing wire shall be brought up to all valve boxes on fire hydrants.

iii. All nuts, bolts and washers for installation on sleeves, couplings and mechanical joint connections shall be Cor-Blue.

iv. All nuts, bolts, and washers used by manufacturer to fabricate and assemble gate valves shall be #316 stainless steel and exposed portions shall be field coated with pipe mastic or an approved corrosion protective spray.

d. A construction detail for the tapping sleeve/valve and gate well is needed.

RECOMMENDATION

The above-mentioned remaining comments can be addressed during the subsequent construction plan review process, we therefore have no engineering objection to the approval of the site plan dated December 8, 2022. Please call me at 810.225.8439 if you have any questions or comments.

Sincerely,

Kari Jozwik, P.E.,

Project Engineer

City of Brighton
City Hall Council Chambers
200 N. First St. Brighton, MI 48116
Planning Commission
Regular Meeting Minutes
December 19, 2022

1. **Call to Order/Roll Call**

Commissioner Smith called the meeting to order at 7:00 p.m.

Commissioners Present: Ken Schmenk, Susan Gardner, Dave Petrak, Jim Bohn, Matt Smith, Chris Passeri, Chuck Hundley, and Steve Monet.

Commissioners Absent: Mike Schutz

Others present: Michael Caruso, Community Development Manager; Kelly Haataja, Executive Assistant to Community Development; and an audience of six (6) persons.

Motion by Commissioner Gardner, seconded by Commissioner Hundley to excuse Commissioner Schutz for personal reasons. **The motion carried without objection.**

2. **Consider Approval of Consent Agenda Items**

Consent Agenda Items

a. **Approval of the November 21, 2022, Regular Meeting Minutes**
b. **Approval of the December 19, 2022, Agenda**

Motion by Commissioner Passeri, seconded by Commissioner Petrak to approve the Consent Agenda as presented**. The motion carried without objection.**

3. **Call to the Public**

Commissioner Smith opened the Call to the Public at 7:01 p.m. Hearing and seeing no comments, the Call to the Public closed at 7:01 p.m.

Public Hearing

4. **Rezoning 22-01, Consider Recommendation of Approval 8251 and 8265 Cross Street**

Mr. Caruso offered an overview of the current parcels, noting the C-1 zoning is not favorable for these sites as they do not meet the development regulations and the landscape is not conducive to a larger shopping center or strip mall. The request to rezone the parcels would be a step in facilitating parcel combinations with an adjacent C-2 lot, and future development of the site. Mr. Caruso mentioned these parcels have been on the radar for rezoning, and prior to learning of a potential development.

The Commissioners discussed concerns with ingress and egress at the Meijer private drive and gas station entrance on Grand River.

Commissioner Gardner commented that a traffic study should help in addressing those concerns, and a development would be an opportunity to improve the area.

Commissioner Petrak commented the rezoning would create continuity with the surrounding zones.

Commissioner Smith opened the Public Hearing at 7:25 p.m.

Susan Walters spoke about the green space near Meijer.

Hearing and seeing no further comments, Commissioner Smith closed the Public Hearing at 7:27 p.m.

Mr. Caruso clarified that the greenspace mentioned in the Public Hearing did have a home on it, which has been demolished.

Mr. Mitchell Harvey, Stonefield Engineering; stated the proposed development is a permitted use in both C1 and C2 zoning districts, it fits the City Masterplan, and a traffic study is underway.

The Commissioners discussed Meijer's private drive, ingress and egress, parking calculations, and traffic concerns.

Motion by Commissioner Gardner, seconded by Commissioner Schmenk to recommend approval of Rezoning 22-01, 8251 and 8265 Cross Street. **The motion carried without objection.**

Unfinished Business
None

New Business
5. Site Plan 22-12, Consider Recommendation of Approval for LOC Credit Union, 1025 E. Grand River

Mr. Caruso provided a history of the parcel and adjacent parcel.

Mr. Wayne Perry, Desine Inc.; spoke about shared access and stormwater management for the future developments, and stated that the Zoning Board of Appeals granted a variance from the required 10,000 square foot building and minimum of three tenants.

Mr. Mike O'Leary, Lindhout & Associates; presented the layout of the proposed building, including the floor plan, drive-thru, brick and metal panels, and the LOC Credit Union logo and colors.

Ms. Jozwik spoke about fire hydrant access, and the storm, sanitary sewer, and water which will be shared with the adjacent property will also be included with a future site plan.

Motion by Commissioner Passeri, seconded by Commissioner Schmenk to approve Site Plan 22-12, contingent of Tetra Techs comments being satisfied. **The motion carried without objection.**

Other Business
6. Election of Officers: Chairperson, Vice-Chairperson, Secretary

Motion by Commissioner Bohn, seconded by Commissioner Schmenk to nominate Commissioner Smith to serve as Chairperson. **The motion carried without objection.**

Motion by Commissioner Schmenk, seconded by Commissioner Hundley to nominate Commissioner Petrak to serve as Vice-Chairperson. **The motion carried without objection**.

Motion by Commissioner Gardner, seconded by Commissioner Bohn to nominate Commissioner Hundley to serve as Secretary. **The motion carried without objection.**

7. **Staff Updates**
Mr. Caruso provided an update regarding the Vista at Uptown project; and reported the Brownfield plan for the SR Jacobson project at the Lindbom site is in review with the State.

8. Commissioner Report

The Commissioners discussed the liaison to the Zoning Board of Appeals position.

Motion by Commissioner Gardner, seconded by Commissioner Monet to appoint Commissioner Schmenk to serve as the liaison to the Zoning Board of Appeals. **The motion carried without objection.**

9. Call to the Public

Commissioner Smith opened the Call to the Public at 8:21 p.m.

Susan Walters spoke about a future development.

Hearing and seeing no further comments, the Call to the Public closed at 8:23 p.m.

10. Adjournment

Motion by Commissioner Bohn, seconded by Commissioner Monet to adjourn the meeting. **The motion carried 8-1, with Commissioner Petrak voting no. The meeting adjourned at 8:23 p.m.**

Drafted by:
Kelly Haataja, Executive Assistant to Community Development

City of Brighton

REPORT FROM THE CITY MANAGER TO CITY COUNCIL
JANUARY 19, 2023

SUBJECT: CONSIDER APPROVAL OF APPOINTMENT TO THE CITY OF BRIGHTON PLANNING COMMISSION

ADMINSTRATIVE SUMMARY

The City of Brighton Planning Commission consists of nine members including one City Council liaison. Council member Susan Gardner serves on the commission as a city resident and not a council liaison. Her term expires in January 2023. An opening for a 3-year term in the planning commission was posted on the City's website. The only application received was from Susan Gardner, seeking reappointment to the commission as a city resident. Her letter of interest and resume are attached for review.

Prepared by: Gretchen Gomolka, City Manager

Attachments: Letter of Interest
Resume

Jan 01, 2023

Michelle Miller
City of Brighton
200 N. First Street
Brighton, MI 48116

Re: Letter of interest, Brighton City Planning Commission

Dear Michelle,
I am writing to express my sincere desire and interest for appointment to another term on the Planning Commission.

My nearly ten years of service on the PC has equipped me with a long history and dedication to the great City of Brighton. My tenure provides a solid platform of expertise and knowledge and spans the terms of three City Managers and two leaders of the city's Planning Department. In addition, I have excellent meeting attendance, take time to visit proposed construction sites, become educated on the proposed site plans, meet one-on-one with city leadership as required, and work to learn of any fine print and legal ramifications.

My resume is attached. Note I have created a very simple, one-page resume spanning 25 years of public/private employment. If desired, I can provide added detail of my employment and also various sub-committee and volunteer efforts.

Sincerely,

Susan Gardner
205 Madison Street
Brighton, MI 48116

gardners@brightoncity.org
810-360-3686

SUSAN GARDNER

CONTACT

gardners@brightoncity.org

810-360-3686

205 Madison Street
Brighton, MI 48116

INTERESTS

Volunteer service
Project management
Community engagement
Continuing education
Public recreation

Active listening
Assistance to others
Social outreach
Friendship & Fellowship
Family

EXPERIENCE

Department of the Army – Logistics Management Specialist
Army Tank-Automotive & Armaments Command (TACOM)
JUN 2009 – DEC 2021

- Procured non-tactical vehicles (NTV) for U.S. Army continental and global operations.
- Army's lead for soldier training and input of Federal Automotive Statistical (FAST) software.
- Chaired the overhaul and publication of the M142 HIMARS Technical Manuals including Operation, Maintenance, and Spare Parts (RPSTL).
- Approval authority for M1117 ASV engineering changes relative to a soldier's ability to implement change.
- Trained soldiers at the fielding of armored vehicles.

Thomson Reuters – Account Representative
JAN 2009 – JUN 2009

- Provided real-time support of income tax software to Certified Public Accountants in rapid-paced environment.
- Authored user instructions to obtain desired outcomes on various federal and state tax documents.

Checker Motors Corporation – Vice President Sales
JAN 1998 – DEC 2008

- Corporate front-line interface to automotive OEMs.
- Lead for technical reviews with OEM purchasing, engineering, quality, and manufacturing personnel across life-cycle planning.
- Authored and published product proposals, technical review materials; oversaw creation of Checker's website.

BOARDS & COMMISSIONS

- Brighton City Council – 2015 to Present
- Brighton Planning Commission – 2013 to Present
- Brighton Arts and Culture Commission – 2021 to Present*
- Main Street Crossing HOA President – 2018 to 2020
- SELCRA – 2015 to 2016*

*Liaison position

EDUCATION

Central Michigan University
BS – Organizational Administration
Magna Cum Laude

City of Brighton

REPORT FROM THE CITY MANAGER TO CITY COUNCIL
JANUARY 19, 2023

SUBJECT: **FIRST READING AND SETTING OF A PUBLIC HEARING FOR REZONING #22-01.**

PROPOSED REZONING OF 8251 AND 8265 CROSS STREET FROM C1 - COMMUNITY SHOPPING CENTER, TO C2 - GENERAL BUSINESS.

ADMINISTRATIVE REVIEW

An application for a rezoning request was submitted by Alrig-USA Development. The request is to amend the zoning of the subject parcels, as a step towards facilitating a parcel combination and future development of the site. A site plan application has also been submitted by Alrig-USA for the proposed development of an auto wash facility and is tentatively scheduled for review by the Planning Commission on January 23, 2023. (www.alrigusa.com)

Alrig-USA owns the parcel located at 8680 W. Grand River, which is zoned C2 - General Business and is adjacent to two Cross Street parcels currently owned by Meijer. They have a purchase agreement with Meijer to obtain the two parcels and wished to combine them with the parcel they own, creating one new parcel for the proposed development. **(See attached GIS location map)**

STAFF SUMMARY

The Community Development staff periodically reviews the city's zoning districts to determine if any areas or properties need adjustment. Prior to the Alrig-USA development submittal, the Cross Street Parcels had already been flagged by staff for review due to the following:

- The current and future development landscape is not conducive to larger shopping centers and strip malls that are typically found and described within the C1 zoning designation.

- It appears the subject parcels were originally zoned C1 with the thought of adjacent properties along Grand River being combined. This could create a larger C1 parcel that would eventually encompass the northwest corner of Cross Street and Grand River. Although a larger corner development may have been envisioned at the time, the chance of this occurring today is unlikely due to Meijer's restrictive non-compete clauses.

- The current zoning of C1 incorporates development regulations that are better suited for much larger parcels than the two subject properties, such as the following:
    - C1 requires a minimum building size of 10,000 square feet and a minimum of three tenant spaces in a structure.
    - A minimum building setback of 50 feet is required on any C1 zoned property line which is the edge of the district (adjacent to another zoning district).
    - The parking requirements for a 10,000 square-foot building potentially cannot be met on parcels of this size.

Rezoning the subject parcels to the C2 designation, makes this proposed development or any other future developments for this site, more manageable from a zoning perspective. The planned lot combination is not based on the use factor, as the proposed development for the site is a permitted use within both the C1 and C2 zoning districts.

City of Brighton

REPORT FROM THE CITY MANAGER TO CITY COUNCIL
JANUARY 19, 2023

RECOMMENDATION

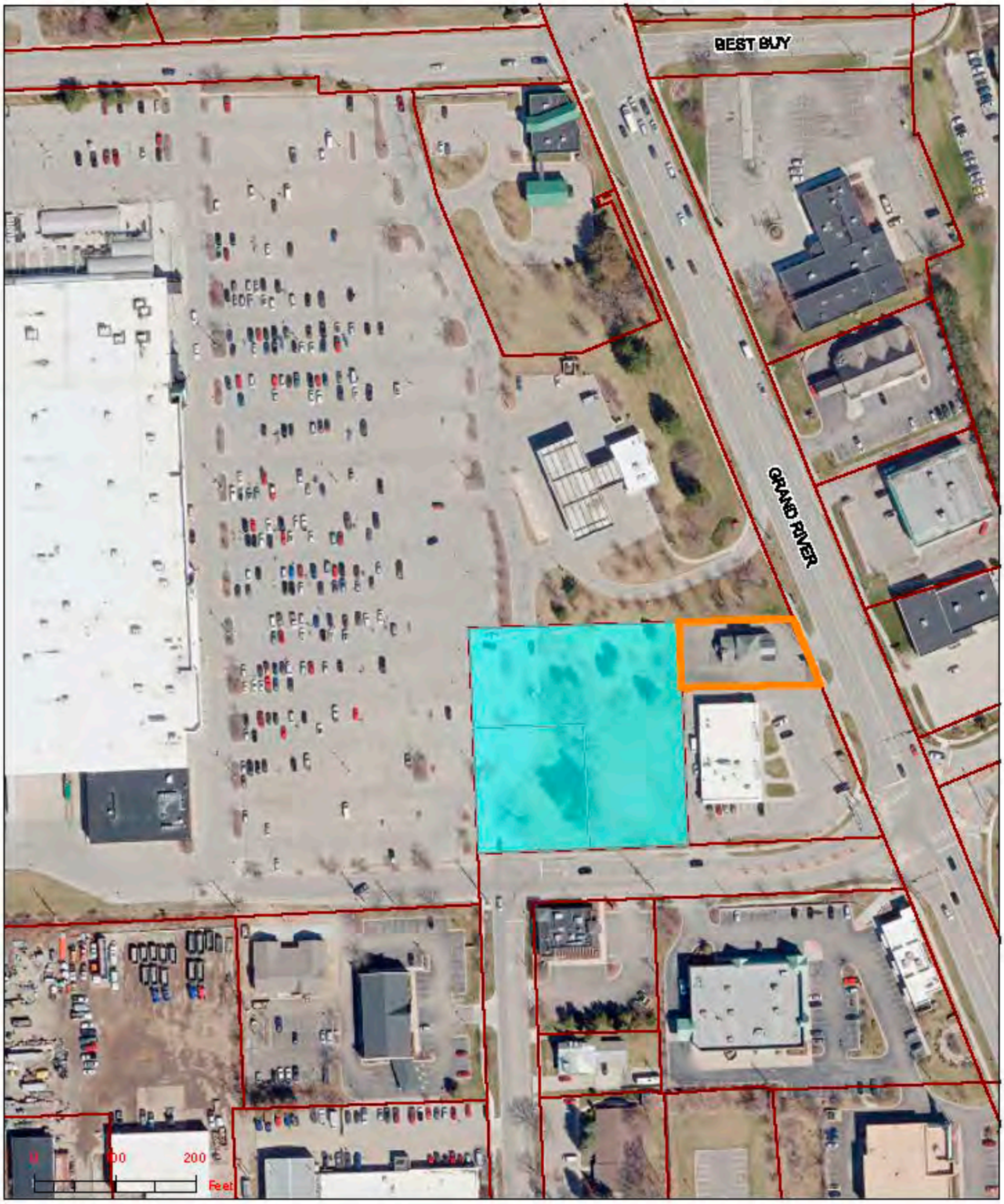
The Planning Commission gave their recommendation of approval at the regular meeting held on December 19, 2022. Staff recommends that City Council consider setting a public hearing on February 16, 2023, regarding the proposed rezoning of 8251 and 8265 Cross Street from C1 – Community Shopping, to C2 General Business

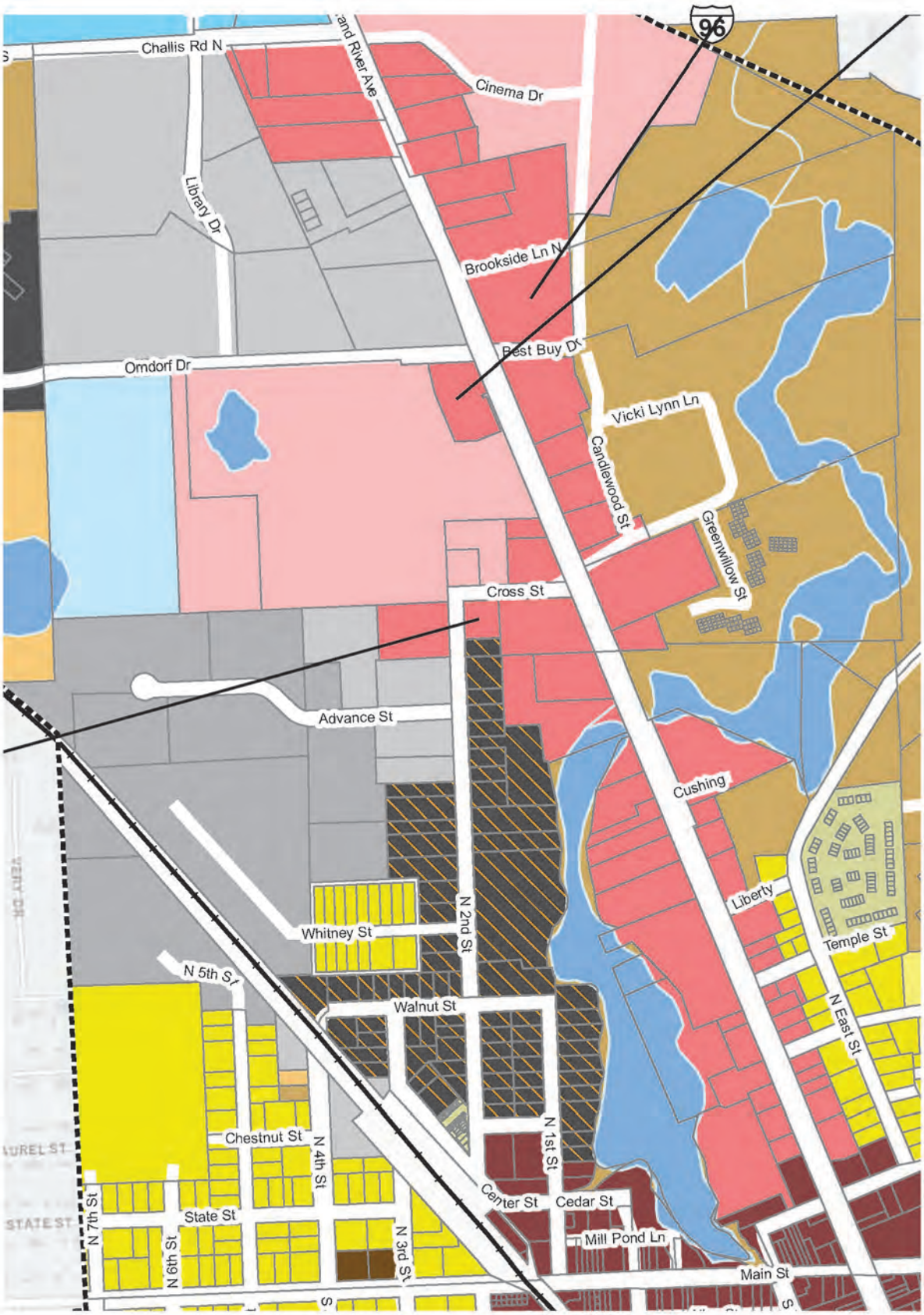
Prepared by: Michael Caruso, Community Development Manager

Approved by: Gretchen Gomolka, City Manager

Attachments:
1. GIS Location Map
2. Area Zoning Designations
3. Planning Commission Minutes (unapproved) 12.19.2022

8251 and 8265 Cross Street: C1 Zoning (Blue Highlight)
8680 W Grand River: C2 Zoning (Orange Boundary)




96
Challis Rd N
Cinema Dr
Library Dr
Brookside Ln N
Best Buy Dr
Omdorf Dr
Vicki Lynn Ln
Candlewood St
Greenwillow St
Cross St
Advance St
Cushing
Liberty
Temple St
N East St
Whitney St
N 2nd St
N 5th St
Walnut St
Chestnut St
N 4th St
N 1st St
N 7th St
State St
N 6th St
N 3rd St
Center St
Cedar St
Mill Pond Ln
Main St

City of Brighton
City Hall Council Chambers
200 N. First St. Brighton, MI 48116
Planning Commission
Regular Meeting Minutes
December 19, 2022

1. **Call to Order/Roll Call**

Commissioner Smith called the meeting to order at 7:00 p.m.

Commissioners Present: Ken Schmenk, Susan Gardner, Dave Petrak, Jim Bohn, Matt Smith, Chris Passeri, Chuck Hundley, and Steve Monet.

Commissioners Absent: Mike Schutz

Others present: Michael Caruso, Community Development Manager; Kelly Haataja, Executive Assistant to Community Development; and an audience of six (6) persons.

Motion by Commissioner Gardner, seconded by Commissioner Hundley to excuse Commissioner Schutz for personal reasons. **The motion carried without objection.**

2. **Consider Approval of Consent Agenda Items**

Consent Agenda Items

a. **Approval of the November 21, 2022, Regular Meeting Minutes**
b. **Approval of the December 19, 2022, Agenda**

Motion by Commissioner Passeri, seconded by Commissioner Petrak to approve the Consent Agenda as presented**. The motion carried without objection.**

3. **Call to the Public**

Commissioner Smith opened the Call to the Public at 7:01 p.m. Hearing and seeing no comments, the Call to the Public closed at 7:01 p.m.

Public Hearing

4. **Rezoning 22-01, Consider Recommendation of Approval 8251 and 8265 Cross Street**

Mr. Caruso offered an overview of the current parcels, noting the C-1 zoning is not favorable for these sites as they do not meet the development regulations and the landscape is not conducive to a larger shopping center or strip mall. The request to rezone the parcels would be a step in facilitating parcel combinations with an adjacent C-2 lot, and future development of the site. Mr. Caruso mentioned these parcels have been on the radar for rezoning, and prior to learning of a potential development.

The Commissioners discussed concerns with ingress and egress at the Meijer private drive and gas station entrance on Grand River.

Commissioner Gardner commented that a traffic study should help in addressing those concerns, and a development would be an opportunity to improve the area.

Commissioner Petrak commented the rezoning would create continuity with the surrounding zones.

Commissioner Smith opened the Public Hearing at 7:25 p.m.

Susan Walters spoke about the green space near Meijer.

Hearing and seeing no further comments, Commissioner Smith closed the Public Hearing at 7:27 p.m.

Mr. Caruso clarified that the greenspace mentioned in the Public Hearing did have a home on it, which has been demolished.

Mr. Mitchell Harvey, Stonefield Engineering; stated the proposed development is a permitted use in both C1 and C2 zoning districts, it fits the City Masterplan, and a traffic study is underway.

The Commissioners discussed Meijer's private drive, ingress and egress, parking calculations, and traffic concerns.

Motion by Commissioner Gardner, seconded by Commissioner Schmenk to recommend approval of Rezoning 22-01, 8251 and 8265 Cross Street. **The motion carried without objection.**

Unfinished Business
None

New Business
5. Site Plan 22-12, Consider Recommendation of Approval for LOC Credit Union, 1025 E. Grand River

Mr. Caruso provided a history of the parcel and adjacent parcel.

Mr. Wayne Perry, Desine Inc.; spoke about shared access and stormwater management for the future developments, and stated that the Zoning Board of Appeals granted a variance from the required 10,000 square foot building and minimum of three tenants.

Mr. Mike O'Leary, Lindhout & Associates; presented the layout of the proposed building, including the floor plan, drive-thru, brick and metal panels, and the LOC Credit Union logo and colors.

Ms. Jozwik spoke about fire hydrant access, and the storm, sanitary sewer, and water which will be shared with the adjacent property will also be included with a future site plan.

Motion by Commissioner Passeri, seconded by Commissioner Schmenk to approve Site Plan 22-12, contingent of Tetra Techs comments being satisfied. **The motion carried without objection.**

Other Business
6. Election of Officers: Chairperson, Vice-Chairperson, Secretary

Motion by Commissioner Bohn, seconded by Commissioner Schmenk to nominate Commissioner Smith to serve as Chairperson. **The motion carried without objection.**

Motion by Commissioner Schmenk, seconded by Commissioner Hundley to nominate Commissioner Petrak to serve as Vice-Chairperson. **The motion carried without objection**.

Motion by Commissioner Gardner, seconded by Commissioner Bohn to nominate Commissioner Hundley to serve as Secretary. **The motion carried without objection.**

7. **Staff Updates**
Mr. Caruso provided an update regarding the Vista at Uptown project; and reported the Brownfield plan for the SR Jacobson project at the Lindbom site is in review with the State.

8. Commissioner Report

The Commissioners discussed the liaison to the Zoning Board of Appeals position.

Motion by Commissioner Gardner, seconded by Commissioner Monet to appoint Commissioner Schmenk to serve as the liaison to the Zoning Board of Appeals. **The motion carried without objection.**

9. Call to the Public

Commissioner Smith opened the Call to the Public at 8:21 p.m.

Susan Walters spoke about a future development.

Hearing and seeing no further comments, the Call to the Public closed at 8:23 p.m.

10. Adjournment

Motion by Commissioner Bohn, seconded by Commissioner Monet to adjourn the meeting. **The motion carried 8-1, with Commissioner Petrak voting no. The meeting adjourned at 8:23 p.m.**

Drafted by:
Kelly Haataja, Executive Assistant to Community Development

City of Brighton

REPORT FROM THE CITY MANAGER TO CITY COUNCIL
JANUARY 19, 2023

SUBJECT: **FIRST READING AND SETTING OF A PUBLIC HEARING FOR PROPOSED ORDINANCE NUMBER 601. AMENDMENT TO THE DEVELOPMENT PLAN AND TAX INCREMENT FINANCING OF THE DOWNTOWN DEVELOPMENT AUTHORITY (DDA)**

ADMINISTRATIVE REVIEW

- The city has received a site plan review application that proposes a new development to be located at the property known as 8680 W. Grand River. The commercial building at this location is vacant, in a state of blight, and will be demolished.
- This proposal if approved, would combine the two adjacent vacant lots known as 8251 and 8265 Cross Street, creating a larger site for the development.
- The DDA has three development districts within their plan. Districts 1 and 2 have tax Increment revenue capture, while District 3 is a non-capture area.
- The subject parcel is located within the DDA development District 2, which captures tax increment revenues.
- The two vacant parcels proposed for lot combination are located within the DDA development District 3, the non-capture district.
- The proposed ordinance amendment will change the DDA Development Plan and Tax Increment Financing, moving the two vacant parcels out of the DDA District 3 into DDA District 2.
- This will allow the DDA to capture tax increment revenues from the entire proposed development. Additionally, it is necessary from an administrative standpoint for calculating the annual tax capture.

STAFF SUMMARY

The DDA continues to assist the city by directing funds to upgrade and repair deteriorating infrastructure, constructing quality public spaces, secure public parking for the downtown, and promote growth and development that helps halt property value deterioration while increasing property tax valuation. At their meeting on January 17, 2023, the DDA will have considered approval of a resolution that recommends City Council amend the DDA Development and Tax Increment Plan as stated above.

RECOMMENDATION

Staff recommends that City Council consider setting a public hearing on February 16, 2023, regarding the proposed amendments of ordinance 601.

Prepared by: Michael Caruso, Community Development Manager

Approved by: Gretchen Gomolka, City Manager

Attachments: 1. Ordinance No. 601 (Draft)
2. GIS Location Map (showing subject properties)
3. DDA Tax Capture & District Map (describing the proposed changes)

ORDINANCE NO. 601

AMENDMENT TO THE
DEVELOPMENT PLAN AND TAX INCREMENT FINANCING OF THE
DOWNTOWN DEVELOPMENT AUTHORITY OF THE CITY OF BRIGHTON

WHEREAS, pursuant to Act 197, Public Acts of Michigan, 1975, as amended, the City Council of the City of Brighton, County of Livingston, Michigan (the "City") has previously established the Downtown Development Authority of the City of Brighton (the "Authority"); and

WHEREAS, the Authority has previously prepared and recommended for approval a Development Plan and Tax Increment Financing Plan (the "Original Plan") which was approved by the City Council of the City of Brighton (the "City") pursuant to Ordinance 327 adopted on December 15, 1988; and

WHEREAS, the City Council has approved amendments to the Original Plan pursuant to Ordinance No. 379 adopted on May 5, 1994, Ordinance No. 536 adopted on December 6, 2007 and Ordinance No. ___ adopted on February 4, 2010 (together with the Original Plan, the "Amended Plan"); and

WHEREAS, in accordance with the provisions of Act 57, Public Acts of Michigan, 2018, as amended (the "Act"), the Authority has prepared and recommended for approval further amendments to the Amended Plan for the Development Area in the Downtown District within the City and has filed said amendments with the City Clerk, a copy of which is attached hereto as Exhibit A (the "Plan Amendment"); and

WHEREAS, on February 16, 2023, the City Council held a public hearing on the Plan Amendment pursuant to the Act; and

WHEREAS, the City Council has given the taxing jurisdictions in which the Development Area is located an opportunity to meet with the City Council and to express their views and recommendations regarding the Plan Amendment, as required by the Act; and

WHEREAS, after consideration of the Plan Amendment, the City Council has determined to approve the Plan Amendment.

NOW, THEREFORE, THE CITY OF BRIGHTON ORDAINS:

1. Findings.

(a) The Plan Amendment meets the requirements set forth in Part 2 of the Act.

(b) The proposed method of financing the development is feasible and the Authority has the ability to arrange the financing.

(c) The development is reasonable and necessary to carry out the purposes of Part 2 of the Act.

(d) The land included within the Development Area to be acquired, if any, is reasonably necessary to carry out the purposes of the Plan Amendment and the purposes of Part 2 of the Act in an efficient and economically satisfactory manner.

(e) The development Plan is in reasonable accord with the master plan of the City.

(f) Public services, such as fire and police protection and utilities, are or will be adequate to service the project area.

(g) Changes in zoning, streets, street levels, intersections, and utilities, to the extent required by the Plan Amendment, are reasonably necessary for the project and for the City.

2. Public Purpose. The City Council hereby determines that the Plan Amendment constitutes a public purpose.

3. Best Interest of the Public. The City Council hereby determines that it is in the best interests of the public to proceed with the Plan Amendment in order to halt property value deterioration, to increase property tax valuation, to eliminate the causes of the deterioration in property values, and to promote growth in the Downtown District.

4. Approval and Adoption of Plan Amendment. The Plan Amendment is hereby approved and adopted. A copy of the Plan Amendment and all later amendments thereto shall be maintained on file in the City Clerk's office.

5. Amendment to Ordinance Nos. 327, 379, 536 and 548. Conflict and Severability. Ordinance Nos. 327, 379, 536 and 548 are hereby amended by this Ordinance. All ordinances, resolutions and orders or parts thereof in conflict with the provisions of the Ordinance are to the extent of such conflict hereby repealed, and each section of the Ordinance and each subdivision of any section thereof is hereby declared to be independent, and the finding or holding of any section or subdivision thereof to be invalid or void shall not be deemed or held to affect the validity of any other section or subdivision of the Ordinance.

6. Paragraph Headings. The paragraph headings in this Ordinance are furnished for convenience of reference only and shall not be considered to be a part of the Ordinance.

7. Publication and Recordation. The Ordinance shall be published in full promptly after its adoption in a newspaper of general circulation in the City, qualified under State law to publish legal notices, and shall be recorded in the Ordinance Book of the City, which recording shall be authenticated by the signature of the City Clerk.

8. Effective Date. The Ordinance is hereby determined by the City Council to be immediately necessary for the interests of the City and shall be in full force and effect from and after its passage and publication.

CERTIFICATES

I hereby certify that the foregoing is a true and complete copy of Ordinance No. 601, duly adopted by the City Council of the City of Brighton, County of Livingston, State of Michigan, at a regular meeting held on _____, 2023, and that said meeting was conducted and public notice of said meeting was given pursuant to and in full compliance with the Open Meetings Act, being Act 267, Public Acts of Michigan, 1976, as amended, and that the minutes of said meeting were kept and will be or have been made available as required by such Act.

I further certify that the following Members were present at said meeting;

_____,

and that the following Members were absent;

_____.

I further certify that Member _____ moved adoption of said Ordinance

and Member _____ supported said motion.

I further certify that the following Members voted for adoption of said Ordinance;

_____,

And that the following Members voted against adoption of said Ordinance;

_____.

I further certify that the following publications were made;

First Reading: _____

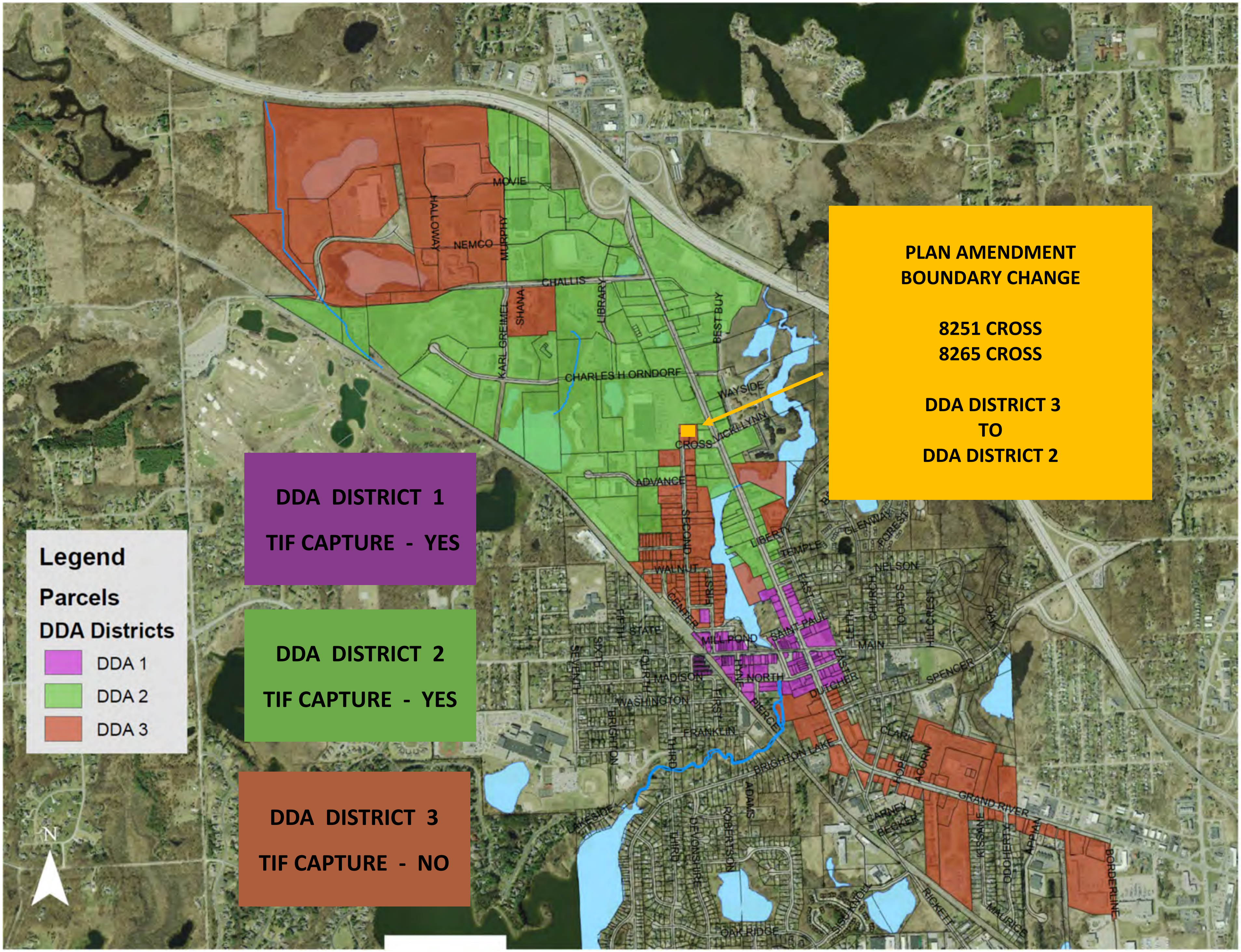
Brief Publication: _____

Public Hearing: _____

Adoption: _____

Full Publication: _____

_____
Tara Brown


PLAN AMENDMENT
BOUNDARY CHANGE
8251 CROSS
8265 CROSS
DDA DISTRICT 3
TO
DDA DISTRICT 2
DDA DISTRICT 1
TIF CAPTURE - YES
DDA DISTRICT 2
TIF CAPTURE - YES
DDA DISTRICT 3
TIF CAPTURE - NO
Legend
Parcels
DDA Districts
DDA 1
DDA 2
DDA 3
N
MOVIE
HALLOWAY
NEMCO
MURPHY
CHALLIS
SHANA
KARL GREIMEL
LIBRARY
BEST BUY
CHARLES H ORNDORF
WAYSIDE
VICKI LYNN
CROSS
ADVANCE
SECOND
WALNUT
FIRST
CENTER
LIBERTY
TEMPLE
GLENWAY
FOREST
NELSON
CHURCH
SCHOOL
HILLCREST
EAST
SAINT PAUL
MILL POND
MAIN
NORTH
DUTCHER
SPENCER
STATE
FIFTH
SIXTH
SEVENTH
FOURTH
MADISON
WASHINGTON
BRIGHTON
FRANKLIN
PIERCE
THIRD
BRIGHTON LAKE
CLARK
HOPE
ACORN
GRAND RIVER
ADAMS
DEVONSHIRE
ROBERTSON
LAKESIDE
CARNEY
BECKER
KISSANE
DOHERTY
BORDERLINE
RICKETT
MAURICE
OAK RIDGE

8251 CROSS STREET - 4718-30-100-023

8265 CROSS STREET - 4718-30-100-024

City of Brighton

REPORT FROM THE CITY MANAGER TO CITY COUNCIL
JANUARY 19, 2023

SUBJECT: **CONSIDER APPROVAL OF A THREE-YEAR CONTRACT WITH BIOTECH ARGONOMICS FOR BIOSOLIDS HAULING SERVICES**

BACKGROUND

Biotech Argonomics has provided Biosolids Management services to the City of Brighton since 2009. Biosolids is the technical term of the sludge that is produced after the wastewater treatment process has been completed. Biotech's services include collecting annual samples of our Biosolids, providing reports and documents to be used in our annual report to the Michigan Department of Environment, Great Lakes and Energy (EGLE), and the loading and transporting of Biosolids to State of Michigan and federally approved application sites. Biotech has secured land that we have been using for many years that is solely for the use of the City of Brighton. These sites are large tracts of farmland that are in various locations in Livingston County. Biotech speaks to farmers on the City's behalf and provides them information on the benefits of using Biosolids as a fertilizer source for the crops on their farms.

ADMINISTRATIVE SUMMARY

In the past, the City of Brighton has contracted with several Biosolids hauling contractors with varying results. Some of the contractors were not reliable and would not arrive to the plant as scheduled. This is challenging when storage has reached capacity and we need to continue to process material. There have also been issues with cleanliness at the Wastewater Treatment Plant (WWTP) and in the farmers' fields with these other companies. With the strict rules set in place by the Environmental Protection Agency (EPA) and EGLE for safely hauling Biosolids, this can be a problem.

For the last 13 years, the City of Brighton has been working with Biotech Agronomics who acquired the company we were working with at that time, Merrill Brothers, Inc. Since then, Biotech has been a great company to work with. They have competitive pricing, communicate well, and have provided excellent service.

In the last two years EGLE has begun to require testing on Biosolids for 28 different PFAS chemicals. Recently it was in the news that a local farmer's land in the Brighton area was contaminated with PFAS chemicals by a nearby community's Biosolids. Therefore, we feel it is more important than ever to keep and maintain the relationships we have with our current farmers. If we were to switch to a different Biosolids Management company, there is no guarantee that the farmers we work with now would agree to work with them. This could force us to look for new land in which to apply Biosolids and would require research and testing of the soil to determine what has been applied to that land in the past. We don't want to risk being liable for other community's PFAS issues.

Each year we hire Biotech to transport approximately 1,000,000 gallons of Biosolids at the current rate of $0.0396 per gallon, which totals $39,600. With rising costs of the trucking industry, Biotech has proposed a new three-year contract starting at $0.0429 per gallon with an annual price increase of approximately 5.3 percent (see Table #1 below). Additionally, they are adding a fuel surcharge for when the price of fuel exceeds $4.00 per gallon. The fuel surcharge is determined by the United States Department of Energy's Energy Information Administration Publication of Retail Prices for the Midwest United States in the On-Highway Diesel Fuel Price Table. Each time the price of diesel fuel rises over $4.00 per gallon, a tiered surcharge will be applied to the invoice. An example would be If fuel is at $4.50 per gallon, then there would be a six percent surcharge. (See Table #2 below)

Table #1 – Cost of Services

Year	Hauling & Application (per gallon)	Metals and Nutrients Testing (per sample)	Fecal Coliform Testing (per set of seven)	Tank Cleaning Services (per hour)
2023	$0.0429	$432	$422	$510
2024	$0.0452	$442	$432	$520
2025	$0.0476	$452	$442	$525

Table #2 – Fuel Surcharge

Diesel Price $/Gallon	% Increase to Contract Price
Below $4.00	No Increase
$4.00 - $4.099	1%
$4.10 - $4.199	2%
$4.20 -$4.299	3%
$4.30 -$4.399	4%
$4.40 -$4.499	5%
$4.50 - $4.599	6%
$4.60 - $4.699	7%
$4.70 - $4.799	8%
$4.80 - $4.899	9%
$4.90 - $4.999	10%

After researching other communities' contracts and speaking with several neighboring cities, Staff believes that the contract amount proposed by Biotech is competitive and it is in The City's best interest to continue our relationship with our current service provider. Pending the City's general counsel review and approval, Staff recommends moving forward with the Biotech contract.

BUDGET INFORMATION

Funding for biosolids hauling services is currently paid by the Utilities Operating Fund with future

anticipated costs being added through the current budget process for the next fiscal year.

RECOMMENDATION

Approve the three-year contract with Biotech Argonomics for Biosolids Hauling Services pending City Attorney review and approval.

Prepared by: Corey Brooks, Deputy DPS Director

Reviewed by: Marcel Goch, DPS Director

Elizabeth Gaines, Finance Director

☒ Within Budget

☐ Budget Amendment Necessary and In Proper Form

☐ Other _____

Reviewed &
Approved by: Gretchen Gomolka, City Manager

Attachments: Biotech Contract

BioTech Agronomics, Inc.

Residual Management Company
1651 Beulah Highway · Beulah · Michigan · 49617

November 16, 2022

CONTRACT FOR TESTING, REMOVAL AND LAND APPLICATION OF BIOSOLIDS FROM THE CITY OF BRIGHTON WASTEWATER TREATMENT PLANT

Mr. Corey Brooks
City of Brighton
200 N. First Street
Brighton, Michigan 48116

Proposal

BIOTECH AGRONOMICS, INC. is pleased to present this proposal to define proposed work associated with the removal and land application of Biosolids generated by the City of Brighton WWTP physically located at 6570 Hamburg Rd., Brighton, MI.

Biosolids Loading and Transport

BIOTECH AGRONOMICS, INC. will furnish the necessary labor and equipment to efficiently and safely provide Biosolids Management services for the City of Brighton WWTP. BIOTECH AGRONOMICS, INC. will pump and load Biosolids into transport vehicles, transport the Biosolids to EGLE and federally approved application sites, and finally to land apply the Biosolids to suitable local farmland sites. All work performed will be under Michigan Part 24, Federal 503 and local regulations.

Land Application of Biosolids

BIOTECH AGRONOMICS, INC. will provide the labor and equipment to properly apply the Biosolids to suitable local application sites at agronomic rates in accordance with Michigan State University recommendations and applicable federal, state and local regulations. The Biosolids will be subsurface injected or surface applied according to a EGLE approved Residuals Management Plan using sewage sludge applicators equipped with a pressure/vacuum application system.

Determination of Quantity Removed

BIOTECH AGRONOMICS, INC. shall provide the Plant Superintendent a duplicate copy of load sheets, which detail the following items:

- Date of removal
- Time the applicator loaded in the field
- Applicator identification number
- Operator name
- Gallons of Biosolids on the applicator
- Farmer name and approved field identification number and the number of acres acceptable for use in the field
- Number of acres accepting Biosolids

One copy of the load sheet(s) will stay with the plant superintendent and the other will remain with BIOTECH AGRONOMICS, INC. The quantity of Biosolids loaded on and transported by the vehicle will be recorded as the certified capacity of the vehicle. All billed quantities will be invoiced by the gallon capacity of each vehicle transporting the material.

Agronomic Services

BIOTECH AGRONOMICS, INC. will provide agronomic management services that include the location of suitable local farmland application sites. Application sites will meet the requirements for land application in accordance with applicable federal, state and local regulations for the use and disposal of Biosolids. Proposed farmland application sites shall be properly documented In accordance with Michigan Part 24 requirements. Records at a minimum shall include the following:

- Landowner agreement and permission form
- Soil analyses
- EGLE site I.D. information
- Plat maps indicating location and ownership of property
- SCS or equivalent soil survey map indicating soil types, slope and drainage class
- Relative sludge analyses, soil analyses or cropping information
- Proof of notification to local governing bodies as per EGLE requirements

Regulatory Reports

BIOTECH AGRONOMICS, INC. shall complete all required federal or state reports applicable to the Biosolids land application program including yearend requirements. These records shall be maintained by BIOTECH AGRONOMICS, INC. as required by federal, state and local regulations and shall be provided to the Owner.

Laboratory Analyses and Permits

BIOTECH AGRONOMICS, INC. will be provided a EGLE approved Residuals Management Plan (RMP) by the facility. BIOTECH AGRONOMICS, INC. will provide laboratory analyses for total metals and nutrients and fecal coliform testing as needed on the Biosolids prior to removal from the facility. BIOTECH AGRONOMICS, INC. will be responsible for all routine soil fertility analyses associated with land application of the Owner's Biosolids during the term of this Agreement. BIOTECH AGRONOMICS, INC. shall not be responsible for any additional analytical testing that federal, state or local regulatory agencies may require.

Health and Safety

BIOTECH AGRONOMICS, INC. shall comply with the federal, state and local laws and regulations and take any needed actions to protect the life and health of employees on the job and the safety of the public and to protect property during the performance of the Agreement.

Insurance

BIOTECH AGRONOMICS, INC. shall provide and maintain at all times during the term of this Agreement the following minimum insurance coverage:

a) Workers Compensation Insurance in compliance with the statues of the State of Michigan which has jurisdiction of BIOTECH AGRONOMICS, INC. employees engaged in the performance of services hereunder with a limit of FIVE HUNDRED THOUSAND DOLLARS ($500,000)

b) General Liability Insurance with a minimum combined single limit of THREE MILLION DOLLARS ($3,000,000), including the broad form property damage endorsement

c) Automobile Liability Insurance (owned, non-owned or hired units) with a minimum combined single coverage limit of ONE MILLION DOLLARS ($1,000,000)

d) Pollution Liability Insurance with a minimum combined single limit of FIVE MILLION DOLLARS ($5,000,000), including the broad form property endorsement

A certificate of insurance will be presented if requested, upon award of contract.

Digester or Tank Cleaning
If requested, BIOTECH AGRONOMICS, INC. will provide confined space Digester or Tank cleaning services to remove accumulated Biosolids and or related mater for subsequent land application. Under these conditions, the WWTP shall provide for all required cleaning water at no cost to BIOTECH AGRONOMICS, INC. Any material removed under this confined space option shall be billed at the appropriate hourly rate plus the unit rate per gallon for land application of the Biosolids.

Biosolids Tender
The City shall tender all biosolids generated to BIOTECH AGRONOMICS, INC. that are suitable for land application on agricultural land as specified in the scope of this Agreement.

Notification
BIOTECH AGRONOMICS, INC. will be provided with adequate advance notice of when the WWTP desires for BIOTECH AGRONOMICS, INC. to remove biosolids from the WWTP. Depending on weather, seasonal weight restrictions, and farm land cropping cycles, additional notification may be required.

Cost of Services

Year 2023 - $0.0429 per gallon for Biosolids hauling and land application.
Standard metals & nutrients testing - $432.00 per sample.
Fecal coliform testing - $422.00 per set of seven.
Optional Tank cleaning services - $510.00 per hour.

Year 2024 - $0.0452 per gallon for Biosolids hauling and land application.
Standard metals & nutrients testing - $442.00 per sample.
Fecal coliform testing - $432.00 per set of seven.
Optional Tank cleaning services - $520.00 per hour.

Year 2025 - $0.0476 per gallon for Biosolids hauling and land application.
Standard metals & nutrients testing - $452.00 per sample.
Fecal coliform testing - $442.00 per set of seven.
Optional Tank cleaning services - $525.00 per hour.

Good Faith
In the event BIOTECH AGRONOMICS, INC. is unable to remove and land apply the biosolids because (i) changes in the biosolids make it unfit for utilization on agricultural land as defined or interpreted by federal, state or local regulatory agencies, or (ii) changes in law prohibit providing the services or increase the cost of providing the services, or (iii) if unfavorable climatic or agronomic conditions have impeded efforts by BIOTECH AGRONOMICS, INC. to faithfully dispose of the biosolids as contemplated by this proposal, or (iv) as the result of flood, fire, strikes, acts of God, act of war or terrorism, civil disturbance, force majeure, or other occurrences not reasonable within the province and control of BIOTECH AGRONOMICS, INC. performance is hindered or halted, BIOTECH AGRONOMICS, INC. shall not be liable for any additional costs incurred by the City, and BIOTECH AGRONOMICS, INC. will not be deemed in default under this proposal unless thirty (30) days after the impediment has been resolved or eliminated BIOTECH AGRONOMICS, INC. fails or refuses to remove biosolids tendered to it.

BIOTECH AGRONOMICS INC work schedule is highly controlled by weather, soil conditions, permits and the availability of suitable farmland due to cropping cycles. As such we cannot liable for any losses either directly or indirectly associated with any weather related delays. BIOTECH AGRONOMICS, INC will not accept responsibility for any assessment of liquidated damages.

Spill Plan and Protocol

BIOTECH AGRONOMICS, INC. has a strict protocol to be followed in the untimely event of a spill. If such an event occurs the person in charge of the load, the operator of the application equipment, load stand operator or truck driver, must contact their immediate supervisor after making a visual assessment of the action and if possible taking action to contain or correct the problem. The supervisor is to contact the BIOTECH AGRONOMICS, INC. Operations Manager and the chain of contacts begins. The plant personnel are informed and an assessment will be done by personnel from both entities. At this time the decisions will be made to contact local authorities, EGLE representative, additional emergency services and so on depending upon severity. All the above continues while the containment efforts are addressed. All assets and efforts of BIOTECH AGRONOMICS, INC. will be focused on cleanup and rectifying the problem to protect the health and safety of the public.

Fuel Cost and Adjustment

BIOTECH AGRONOMICS, INC. shall adjust the cost of services for each hauling event should fuel costs exceed $4.00 per gallon. The fuel adjustment schedule will be the fixed document used for such purpose throughout the duration of this contract.

The unit price for biosolids management beneficial use services for any given removal operation will be subject to the adjustment below depending on the weekly fuel price (based on the week biosolids removal commences) determined by the United States Department of Energy's Energy Information Administration publication of Retail Prices for the Midwest United States in the On-Highway Diesel Fuel Price Table.

Diesel Price $/Gallon	**% Increase to Contract Price**
Below $4.00	None
$4.00 - $4.099	1.0%
$4.10 - $4.199	2.0%
$4.20 and above = 1% increase per each $0.10 increase in price/gallon.	

(This information is available at the website http://www.eia.doe.gov).

(On-Highway Diesel Prices Table – Midwest Column)

Terms

Payment terms shall be net 30 days from the date of invoice. Overdue payments will be assessed a finance charge of 1.5% per month on the unpaid balance.

Contract Duration

This Agreement shall remain in full force and effect from 1/1/2023 through 12/31/2025.

Extensions

The term of this Agreement may be extended at any time upon written mutual agreement of both parties.

BIOTECH AGRONOMICS, INC.

Submitted by: *Don Popma*

Printed Name: Don Popma

Its: General Manager

Date: 11/16/2022

CITY OF BRIGHTON, MICHIGAN

Accepted By: _____

Printed Name: _____

Its: _____

Date: _____

This proposal is valid for 45 days.

This document is representative of a complete contract. Upon award the document can be signed by both parties to become binding.