

PROPOSED AGENDA

**CHARTER TOWNSHIP OF BRIGHTON
PLANNING COMMISSION
4363 BUNO ROAD
BRIGHTON, MI 48114**

**MAY 12, 2025
REGULAR MEETING
6:30 P.M.
(810) 229.0562**

- A. CALL TO ORDER**
- B. PLEDGE OF ALLEGIANCE**
- C. ROLL CALL**
- D. CALL TO THE PUBLIC**
- E. AGENDA**
- F. MINUTES**

1. MARCH 10, 2025 REGULAR MEETING

G. BUSINESS

- 1. PRELIMINARY RESIDENTIAL SITE PLAN SP #25/03 FOR PURE ENERGY ADDRESS: 5942 WHITMORE LAKE RD; OWNER AND APPLICANT: PLATINUM DEVELOPMENT GROUP; TAX ID#'S: 12-32-300-067 AND 12-32-300-072 AND GREEN OAK ID#: 16-05-100-007; ZONING: I-1 (INDUSTRIAL) AND LI (LIMITED INDUSTRIAL – GREEN OAK TOWNSHIP)**

- H. REPORTS AND CORRESPONDENCE**
- I. CALL TO THE PUBLIC**
- J. ADJOURNMENT**

The Charter Township of Brighton will provide the necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audiotapes of printed materials being considered at the meeting to individuals with disabilities at the meeting upon 10 days' notice to the Charter Township of Brighton, Attn: Township Manager. Individuals should contact the Charter Township of Brighton by writing or contacting the following: Kelly Mathews, 4363 Buno Road, Brighton, MI 48114. Telephone: 810-229-0562 or e-mail planner@brightontwp.com.

MEMORANDUM

TO: BRIGHTON TOWNSHIP RESIDENTS
FROM: JOSEPH R. RIKER, CLERK
SUBJECT: PLANNING COMMISSION ELECTRONIC PACKETS
DATE: JANUARY 31, 2019

Packets for the Brighton Township Planning Commission meetings posted to the website contain scanned original documents. These electronic packets are subject to change based on meeting material presented to the Planning Commission throughout the course of the meeting. For a complete original packet following the Planning Commission meeting contact the Clerk's Office at 810-229-0560 or via email: clerk@brightontwp.com

PROPOSED MINUTES

**CHARTER TOWNSHIP OF BRIGHTON
PLANNING COMMISSION
4363 BUNO ROAD
BRIGHTON, MI 48114**

**MARCH 10, 2025
REGULAR MEETING
6:30 P.M.
(810) 229.0562**

Acting Chairperson J. Rose called the meeting to order at 6:30 P.M. The Pledge of Allegiance was said.

Present: C. Doughty, W. Hofsess, B. Anderson, J. Rose, L. Herzinger

Absent: S. Holden, A. Lutes

CALL TO THE PUBLIC

None.

AGENDA

L. Herzinger moved and W. Hofsess seconded **to approve the agenda.**

Motion carried.

MINUTES

B. Anderson moved and C. Doughty seconded **to approve the January 13, 2025 regular meeting minutes as presented.**

Motion carried.

PUBLIC HEARING ON SLUP SU #25/01 FOR DUPLEX ON HACKER; ADDRESS: VACANT HACKER; OWNER AND APPLICANT:1004 OLIVIA LLC; TAX ID#: 12-18-300-036; ZONING: R-5 (WATERFRONT RESIDENTIAL)

Applicant Representative Rachel Lutes overviewed the plans for a duplex and highlighted the Zoning Ordinance and Master Plan regarding duplexes. K. Mathews overviewed her report dated March 3, 2025.

PUBLIC HEARING

The public hearing opened a 6:40

No comments

The public hearing closed at 6:40 p.m.

B. Anderson moved and L. Herzinger seconded **to approve SLUP SU#25/01 for duplex on Hacker; Owner and Applicant: 1004 Olivia LLC; Tax ID#: 12-18-300-036; Zoning: R-5 contingent upon the preliminary site plan being approved.**

Motion carried.

PRELIMINARY RESIDENTIAL SITE PLAN SP #25/01 FOR DUPLEX ON HACKER; ADDRESS: VACANT HACKER; OWNER AND APPLICANT:1004 OLIVIA LLC; TAX ID#: 12-18-300-036; ZONING: R-5 (WATERFRONT RESIDENTIAL)

Applicant Representative Rachel Lutes overviewed the plans for a duplex and highlighted the Zoning Ordinance and Master Plan regarding duplexes. K. Mathews overviewed her report dated March 3, 2025. The Township Engineer's letter dated March 4, 2025 and BAFA's e-mail dated January 14, 2025 were reviewed.

B. Anderson moved and L. Herzinger seconded **to approve SP#25/01 for duplex on Hacker; Owner and Applicant: 1004 Olivia LLC; Tax ID#: 12-18-300-036; Zoning: R-5 contingent upon the conditions in the letters from the Township Engineer, Township Planner, and any other outside agencies being complied with, specifically LCRC driveway conditions and add some curb appeal for the windows on the front elevation.**

Motion carried.

REPORTS AND CORRESPONDENCE

C. Doughty - Township Board update – sewer rates; new truck; road repairs.

CALL TO THE PUBLIC

None.

ADJOURNMENT

B. Anderson moved and W. Hofsess seconded **to adjourn.**

Motion carried.

The meeting adjourned at 7:13 P.M.

Respectfully submitted,

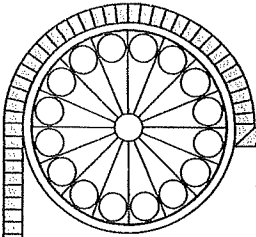
Steve Holden, Chairperson

William Hofsess, Secretary

Kelly Mathews, Recording Secretary

Pure Energy Roofing





CHARTER TOWNSHIP OF BRIGHTON

4363 Buno Rd. • Brighton, Michigan 48114-9298 • Telephone: (810) 229-0550 Fax: (810) 229-1778
www.brightontwp.com

PLANNING COMMISSION APPLICATION

1. Date Filed 4/10/25 3. PC Number _____

2. Meeting Date 5/12/25 4. Fee Paid _____ ✓

5. Applicant Information

Name Rand Construction - Neil Ganshorn APR 10 2025
Address 1270 Rickett Rd
City/State/Zip Brighton, Michigan 48116 **BRIGHTON TOWNSHIP**
Phone 810-986-6377 Email nganshorn@randconstruction.com
Interest in the
Property (e.g. fee simple, land option, etc.)
☐ Property Owner ☒ Other (Specify) _____ Contractor _____

6. Current Property Owner Information

Name Address Platinum Development Group Mathew Masters
City/State/Zip 5942 Whitmore Lake Road, Brighton, Michigan 48116
Phone 248-446-6100 Email mmasters@pureenergywindows.com
Length of
Ownership 5 years

7. Location of Property for which the Application is Requested

Address 5942 Whitmore Lake Road
Cross Streets South of Grand River Ave. - 1,800 feet
Tax I.D. # Brighton Twp. # 12-32-300-067 & 12-32-300-072
Green Oak Twp. # 16-05-100-008

8. Property Information

Zoning District I-1 Industrial
Area (Acreage) 6.15 Acres Width 458.18' Depth 585.40'
Current Use Office & Warehouse Storage

9. Type and Description of Development

Pure Energy Window and Roofing Companies are Michigan-based window & roofing replacement companies providing services to residential homeowners. The proposed expansion will provide additional office and warehouse space.

PUD _____ Subdivision _____ Site Condo _____
New Site Plan X Revised Site Plan _____ Additional Phase _____

10. Site Plan Request

Describe your Request Improvements include construction of a 12,970 square foot office and warehouse addition, loading and waste handling docks, expanded storm water management system, additional parking areas, truck parking, drive aisles, landscaping and site lighting.

I, Neil Ganshorn (applicant), do hereby swear that the above statements are true.

I, Mathew Masters (property owner), hereby give permission for the Charter Township of Brighton staff and consultants to go on the property for which the above referenced petition is proposed for purposes of verifying information provided on the submitted application.

Signature of Applicant



Date: 3/22/25

Signature of Property
Owner



Date: 3/25/2025

Brighton Township Planning Commission Action

Approved/Denied _____

Date _____

Conditions of Approval _____

SITE PLAN FOR



5942 WHITMORE LAKE ROAD "CHARTER TOWNSHIP OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN" A PART OF SW 1/4 OF SECTION 32, T.2N.-R.6E., BRIGHTON TOWNSHIP AND A PART OF NW 1/4 OF SECTION 5, T.1N.-R.6E., GREEN OAK TOWNSHIP LIVINGSTON COUNTY, MICHIGAN

LEGAL DESCRIPTION

Situated in the Townships of Brighton and Green Oak, County of Livingston and State of Michigan, and described as follows:

Parcel No. 4712-32-300-072

Part of the Southwest 1/4 of Section 32, Town 2 North, Range 6 East, Brighton Township, Livingston County, Michigan, more particularly described as follows:

Commencing at the South 1/4 Corner of said Section 32; thence along the North-South 1/4 line of said Section 32 and in Whitmore Lake Road (Old U.S. 23 Public Highway - 120 foot wide Right-of-Way) N00°56'57"E 86.55 feet to the PLACE OF BEGINNING of the parcel to be described; thence N88°54'16"W 585.34 feet; thence N00°59'30"E 294.92 feet; thence S88°54'44"E 585.12 feet; thence along said North-South 1/4 line of Section 32 and in said Whitmore Lake Road S00°56'57"W 295.00 feet to the Place of Beginning. Subject to the rights of the public over that portion thereof occupied by Whitmore Lake Road (Old U.S. 23 Public Highway), also subject to and together with all easements and restrictions affecting title to the above described premises.

Parcel No. 4712-32-300-067

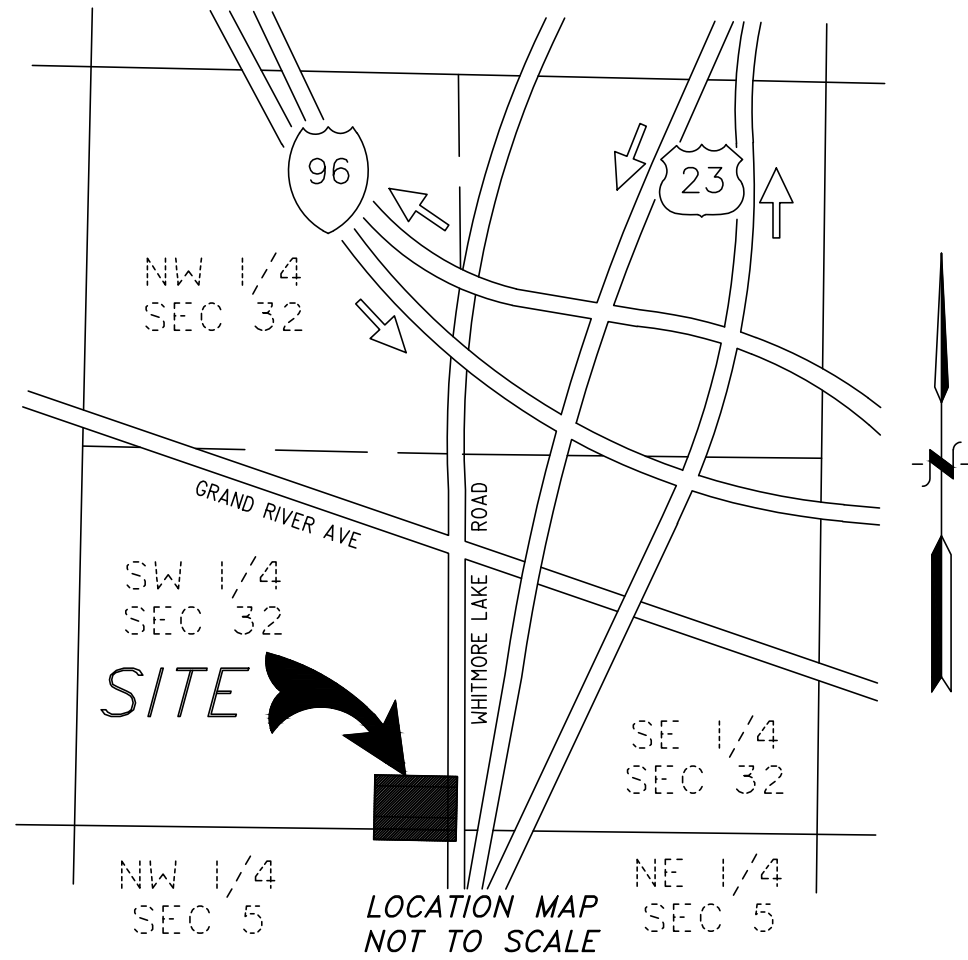
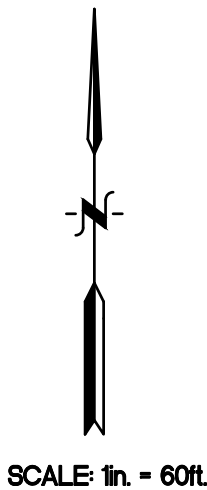
Part of the Southwest 1/4 of Section 32, Town 2 North, Range 6 East, Brighton Township, Livingston County, Michigan, more particularly described as follows:

BEGINNING at the South 1/4 Corner of said Section 32; thence N88°54'16"W 585.34 feet; thence N00°59'30"E 86.24 feet; thence S88°54'16"E 585.34 feet; thence S00°56'57"W 86.55 feet along the North-South 1/4 line of said Section 32 and in Whitmore Lake Road (Old U.S. 23 Public Highway - 120 foot wide Right-of-Way) to the Place of Beginning. Subject to the rights of the public over that portion thereof occupied by Whitmore Lake Road (Old U.S. 23 Public Highway), also subject to and together with all easements and restrictions affecting title to the above described premises.

Parcel No. 4716-05-100-008

Part of the Northwest 1/4 of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, more particularly described as follows:

BEGINNING at the North 1/4 Corner of said Section 5; thence S02°28'50"W 76.63 feet along the North-South 1/4 line of said Section 5 and in Whitmore Lake Road (Old U.S. 23 Public Highway - 120 foot wide Right-of-Way); thence N88°52'27"E 585.40 feet; thence N02°28'50"E 76.63 feet; thence S88°52'27"E 584.40 feet to the Place of Beginning. Subject to the rights of the public over that portion thereof occupied by Whitmore Lake Road (Old U.S. 23 Public Highway), also subject to and together with all easements and restrictions affecting title to the above described premises.

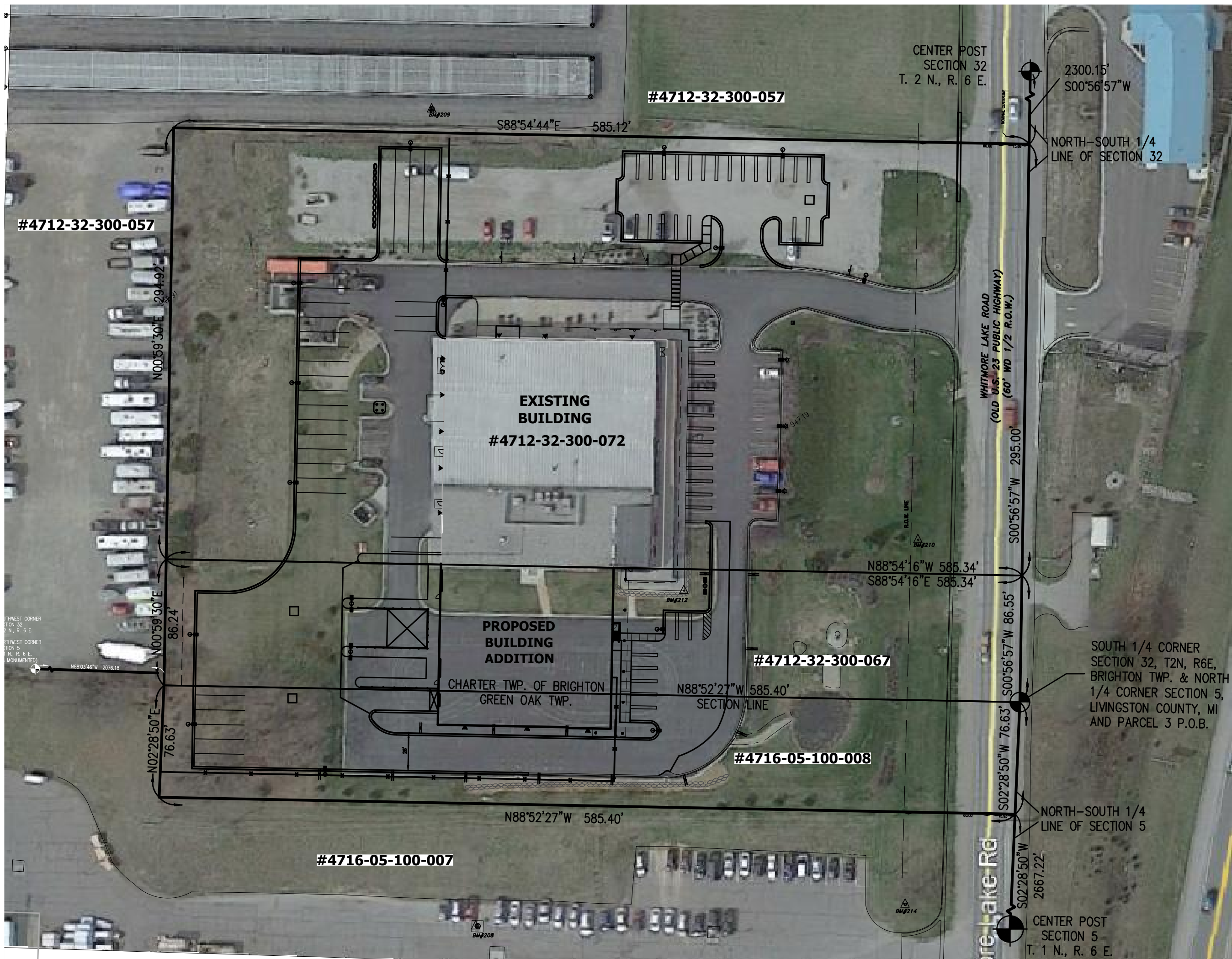


SHEET INDEX

- EX EXISTING CONDITIONS AND DEMOLITION PLAN
- SP SITE PLAN
- UT1 UTILITY PLAN
- UT2 DETENTION BASIN "A" PLAN, NOTES & DETAILS
- UT3 DETENTION BASIN "B & C" PLAN, NOTES & DETAILS
- UT4 STORM SEWER CALCULATIONS
- GR1 GRADING PLAN (SOUTH)
- GR2 GRADING PLAN (NORTH)
- AP WHITMORE LAKE ROAD CURB MODIFICATION PLAN
- SE1 SOIL EROSION AND SEDIMENTATION CONTROL PLAN
- SE2 SOIL EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS
- WS WATERSHED PLAN
- 1 OF 2 EXTERIOR PHOTOMETRIC PLAN
- 2 OF 2 EXTERIOR LIGHTING DETAILS
- LA1 LANDSCAPE PLAN
- LA2 LANDSCAPE NOTES & DETAILS
- EVC EMERGENCY VEHICLE CIRCULATION PLAN
- DT1 SITE DEVELOPMENT NOTES & DETAILS
- DT2 SITE DEVELOPMENT NOTES & DETAILS
- DT3 STORM SEWER NOTES & DETAILS
- A0 FLOOR PLAN
- A1 ADDITION FLOOR PLAN
- A2 EXTERIOR ELEVATIONS

PLAN DISTRIBUTION LIST

PLAN DATE	AGENCY	CONTACT NAME	DESCRIPTION	STATUS
Mar. 28, 2025	Brighton Twp.	Kelly Mathews	Site Plan Review	
Mar. 28, 2025	Green Oak Twp.	Debra McKenzi	Site Plan Review	
Mar. 28, 2025	Livingston County Drain Commissioner	Ken Recker	Drainage Review	
	Livingston County Road Commission	Kim Hiller	R.O.W. work	
	Livingston County Drain Commissioner		Soil Erosion Control Permit	
	EGLE		NPDES Permit	
	Livingston County Building Department		Building Permit	



TOTAL AREA OF DISTURBANCE=3.44 AC.

DISTANCE TO NEAREST OPEN WATERCOURSE = 350 FT. (UNNAMED PRIVATE POND)
A COMMERCIAL SESC & DRAIN PERMIT FROM LCDC IS REQUIRED FOR THIS PROJECT

CIVIL ENGINEER/LAND SURVEYOR

DESINE INC.
2183 PLESS DRIVE
BRIGHTON, MI. 48114
(810) 227-9533

OWNER/DEVELOPER

PLATINUM DEVELOPMENT GROUP INC.
5942 WHITMORE LAKE ROAD
BRIGHTON, MI 48116
(248) 446-6100

ARCHITECT

PUCCI + VOLLMAR ARCHITECTS, PC
508 E. GRAND RIVER AVE., STE. 100B
BRIGHTON, MI. 48116
(810) 225-2930

CONSTRUCTION MANAGEMENT

RAND CONSTRUCTION ENGINEERING INC.
1270 RICKETT ROAD
BRIGHTON, MI 48116
(810) 227-7011

CHARTER TWP. OF BRIGHTON PROJECT NUMBER:

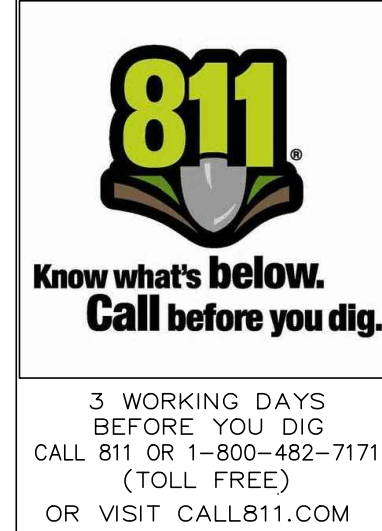
BTSP #:

F&V #:

GREEN OAK TWP. PROJECT NUMBER:

Twp.#:

CES#:



REVISED	SCALE: N/A
	PROJECT No.: 9244762
	DWG NAME: 4762 COV
	PRINT: MAR. 28, 2025

STRUCTURE INVENTORY TREE SCHEDULE

CATCH BASIN #1 RIM 946.06 NE 12" RCP 939.06 SW 12" RCP 939.11 SUMP	CATCH BASIN #2 RIM 943.60 SW 12" RCP 939.98 SUMP	CATCH BASIN #3 RIM 938.20 SE 4" CPP 935.00 (UNDERDRAIN) NW 12" RCP 934.24 (T.B.R.) E 12" RCP 934.19 SUMP	CATCH BASIN #4 RIM 937.78 W 12" RCP 933.75 NE 15" RCP 933.58 SUMP	YARD BASIN #5 RIM 943.45 E 10" PVC 939.10 NW 12" RCP 939.15	CATCH BASIN #6 RIM 942.33 NW 6" PVC 941.28 (ROOF DRAIN) S 12" RCP 938.58	STORM MANHOLE #7 RIM 941.95 N 12" RCP NOT FIELD VERIFIED NE 12" RCP 936.20	CATCH BASIN #8 RIM 937.92 N 12" RCP 934.82 SW 12" RCP 934.82	CATCH BASIN #9 RIM 937.96 S 12" RCP T/PIPE 936.11	GATE VALVE MANHOLE #10 RIM 938.33 N-S 20" T/PIPE 932.73 W 20" T/PIPE 932.28	SANITARY MANHOLE #11 RIM 938.74 N 24" CP NOT FIELD VERIFIED S 24" CP 921.46	SANITARY MANHOLE #12 RIM 924.45 S 12" SDR 916.15	SANITARY MANHOLE #13 RIM 933.37 E 27" CP 921.07 N 27" CP 920.87	SANITARY MANHOLE #15 RIM 933.79 N 8" PVC 922.19 E 24" CP 920.84 W 24" CP 920.79	CONTROL STRUCTURE #16 RIM 936.99 SE 15" RCP 934.59 HOLES (X4) 1" 934.89 HOLES (X3) 1" 935.49 HOLES (X4) 1" 935.99	CONTROL STRUCTURE #17 RIM 936.11 HOLES (X2) 1" 933.91 E 12" RCP 932.46 SUMP 930.46	CONTROL STRUCTURE #18 RIM 936.25 W 12" RCP 931.74 E 15" RCP 931.45 SUMP 929.53	CONTROL STRUCTURE #19 RIM 935.52 N 12" RCP 934.07 SUMP 932.07	CONTROL STRUCTURE #20 RIM 943.15 SE 12" RCP 937.30 HOLES (X4) 1" 938.65 HOLES (X2) 1" 939.55 HOLES (X2) 1" 940.55 HOLES (X2) 1" 941.55	YARD BASIN #21 RIM 943.15 E 12" RCP 937.03 NE 12" RCP 936.93 SUMP 934.93
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BENCHMARKS

DATUM (NAVD 88) BASED ON NGS OPUS SOLUTION REPORT, DATED JUNE 20, 2019 AT 8:55 AM.
NOTE: PREVIOUS AS-BUILT DRAWING PREPARED BY PEA, REVISED DATE MAY 19, 2015 ON ASSUMED "NGVD 29" DATUM (DESCRIBED AS U.S.C.S.).
"NGVD 29" DATUM BEING 0.74 FEET HIGHER THAN "NAVD 88" AS CURRENTLY ESTABLISHED.

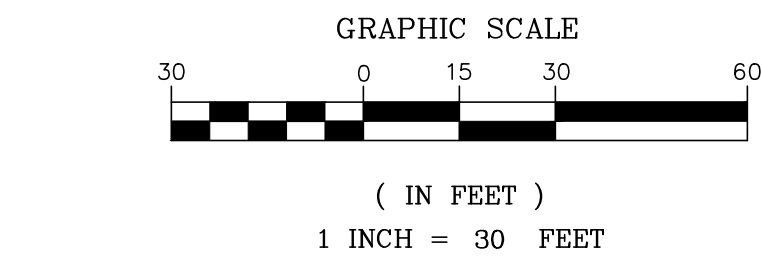
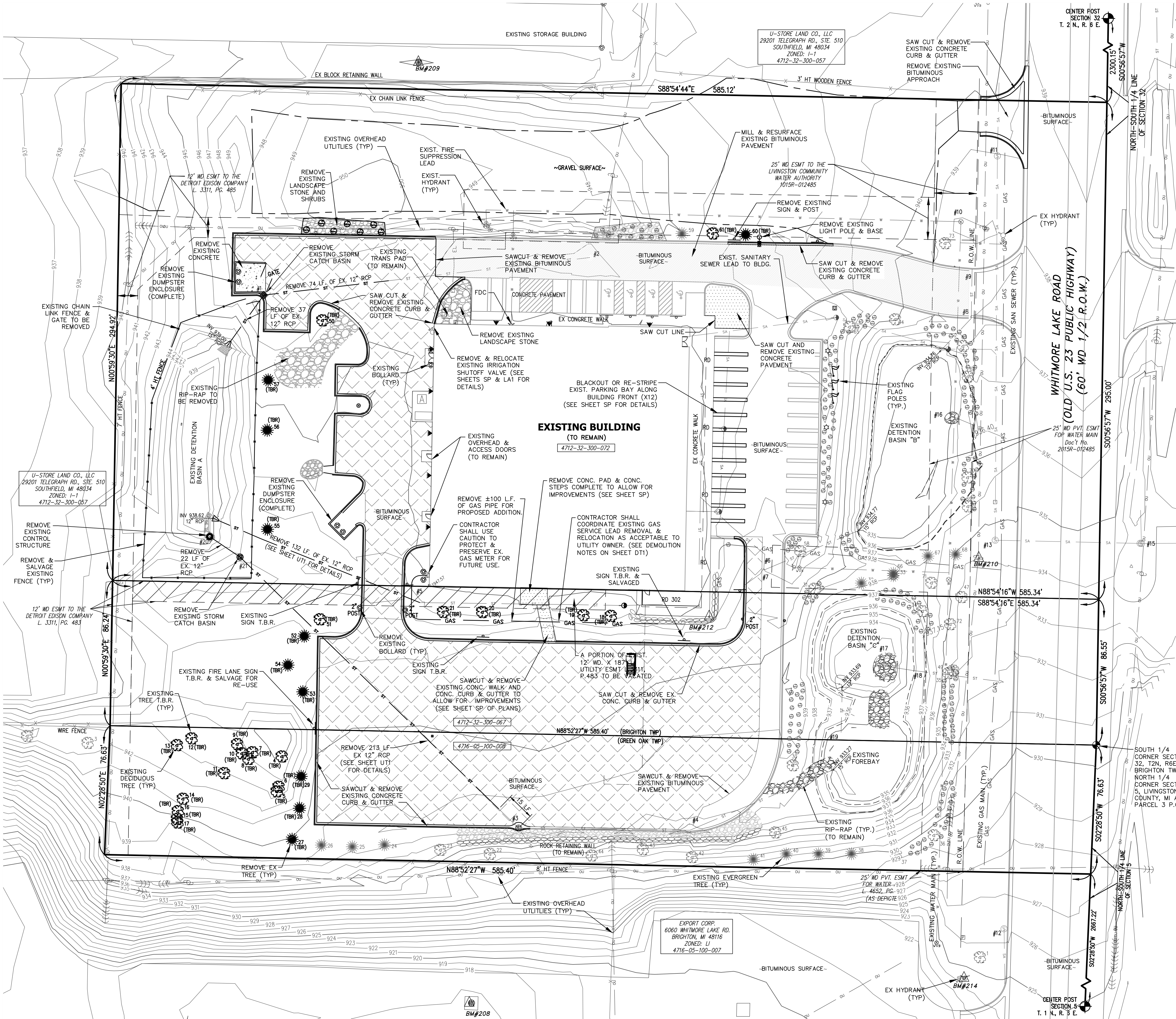
BENCHMARK #208 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 47.2 FEET NORTH OF BUILDING #6060
WHITMORE LAKE ROAD AND 53.5 FEET WEST OF ENTRANCE GATE.
ELEVATION = 916.48 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #209 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 11.50 FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY.
ELEVATION = 939.81 (NAVD 88)

BENCHMARK #210
GEAR SPIKE IN EASTERLY SIDE OF UTILITY POLE, LOCATED 53.4 FEET WEST OF CENTERLINE OF WHITMORE LAKE ROAD AND 15.51 FEET SOUTH OF ENTRANCE.
ELEVATION = 934.24 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #212
SOUTHEAST CORNER OF CONCRETE PAD, LOCATED 21.5 FEET SOUTHEAST FROM THE SOUTHEAST CORNER OF BUILDING #5942
WHITMORE LAKE ROAD.
ELEVATION = 945.00 (NAVD 88)

BENCHMARK #214 (OFF SITE)
ARROW ON HYDRANT, LOCATED 53.4 FEET WEST OF THE CENTERLINE OF WHITMORE LAKE ROAD AND 42.4 FEET NORTH OF THE CENTERLINE ENTRANCE.
ELEVATION = 926.57 (NAVD 88)

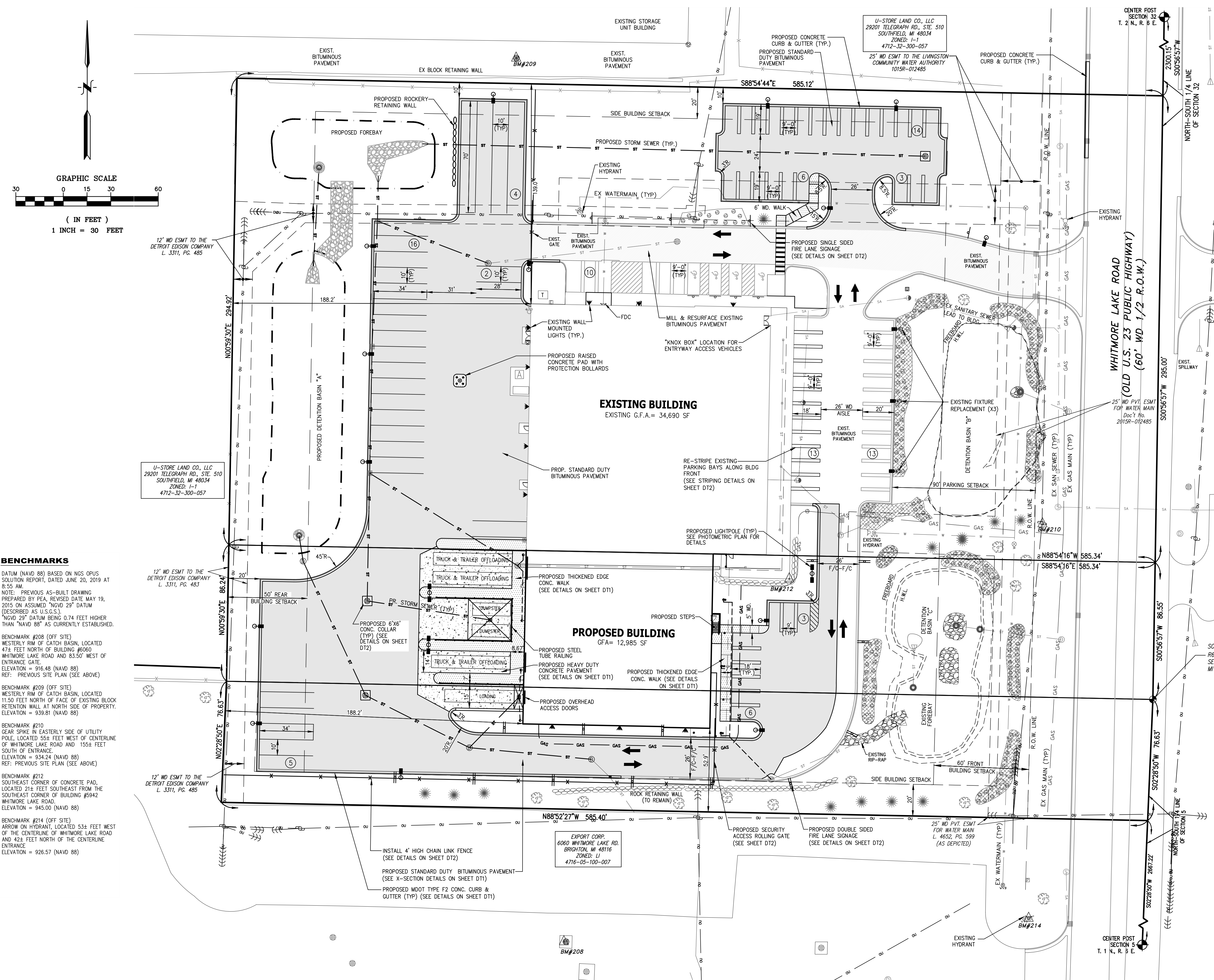


LEGEND	
	EX MISC. STRUCTURE (AS LABELED)
	EX BOLLARD
	EX SIGN
	EX LIGHT BASE
	EX UTILITY MANHOLE (AS LABELED)
	EX UTILITY POLE W/GUY WIRE
	EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
	EX U/G LINES (ELECTRIC/PHONE/CABLE)
	EX DECIDUOUS TREE W/IDENTIFIER
	EX FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
	EX CONCRETE CURB (UNLESS OTHERWISE STATED)
	EX SANITARY SEWER MANHOLE W/IDENTIFIER
	EX SANITARY SEWER PIPE
	EX CLEAN OUT
	EX STORM WATER MANHOLE W/IDENTIFIER
	EX FLARED END SECTION
	EX STORM WATER DRAINAGE PIPE
	EX HYDRANT
	EX WATER SHUT OFF
	EX WATER VALVE
	EX WATER VALVE BOX
	EX WATER MAIN
	EX GAS SHUT OFF
	EX U/G GAS
	1' CONTOUR
	5' CONTOUR
	CONCRETE WALK TO BE REMOVED
	CONCRETE PAVEMENT TO BE REMOVED
	BITUMINOUS PAVEMENT TO BE REMOVED
	GRAVEL SURFACE TO BE REMOVED
	TO BE REMOVED

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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN:SVB DRAFT: LF CHECK: WMP	REVISION # DATE REVISION-DESCRIPTION	REVISION # DATE REVISION-DESCRIPTION	PURE ENERGY 5942 WHITMORE LAKE RD	EXISTING CONDITIONS AND DEMOLITION PLAN	CLIENT: PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	SCALE: 1"=30' PROJECT No.: 9244762 DWG NAME: 4762 EX ISSUED: MAR. 28, 2025	EX
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LEGEND

EX MISC. STRUCTURE (AS LABELED)
EX BOLLARD
EX SIGN
PR SIGNS
EX LIGHT BASE
EX UTILITY MANHOLE (AS LABELED)
EX UTILITY POLE W/GUY WIRE
EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
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EX CONCRETE CURB (UNLESS OTHERWISE STATED)
PR CONCRETE CURB
PR CONCRETE REVERSE CURB
EX SANITARY SEWER MANHOLE W/IDENTIFIER
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EX CLEAN OUT
EX STORM WATER MANHOLE W/IDENTIFIER
EX CATCH BASIN W/IDENTIFIER
FLARED END SECTION
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EX WATER VALVE
EX WATER VALVE BOX
EX WATER MAIN
EX U/G GAS
1' CONTOUR
5' CONTOUR
PR CONCRETE WALK
PR HEAVY DUTY CONCRETE
PR STANDARD DUTY BITUMINOUS PAVEMENT
PR LIGHT POLES

SITE INFORMATION

PROJECT AREA: 6.15 Ac. (GROSS)/5.38 Ac. (NET)
PROPOSED USE: OFFICE/STORAGE FACILITY
CONSTRUCTION TYPE: 2B
NUMBER OF STORIES: 2
LOT WIDTH: 458.18 FT.
LOT DEPTH: 585.40 FT.
PARCEL ID(S): 4712-32-300-072 (BRIGHTON TWP.)
4712-32-300-067 (BRIGHTON TWP.)
4716-05-100-008 (GREEN OAK TWP.)

BRIGHTON TOWNSHIP:
CURRENT ZONING: I-1 (INDUSTRIAL)

	PROPOSED	ALLOWED
BUILDING HEIGHT:	24'-3"/2 STORIES	40'/5 STORIES
LOT COVERAGE:	11%	50%
BUILDING SETBACKS:		
FRONT	169.1'	60'
SIDE	63.4' (SOUTH)	50'
REAR	139.0' (NORTH)	20'
PARKING SETBACKS:		
FRONT	188.2'	50'
SIDE	90'	60'
REAR	20' (SOUTH)/86' (NORTH)	10'

GREEN OAK TOWNSHIP:
CURRENT ZONING: LI (LIMITED INDUSTRIAL)

	PROPOSED	ALLOWED
BUILDING HEIGHT:	24'-3"	50'/3 STORIES
LOT COVERAGE:	11%	50%
BUILDING SETBACKS:		
FRONT	169.1'	60'
SIDE	63.4' (SOUTH)	50'
REAR	139.0' (NORTH)	20'
PARKING SETBACKS:		
FRONT	188.2'	40'
SIDE	90'	20'
REAR	20' (SOUTH) / 86' (NORTH)	N/A

PARKING REQUIREMENTS (INDUSTRIAL OFFICE & WAREHOUSE USE):

	GROSS FLOOR AREA (GFA)	OFFICE AREA (GFA)	WAREHOUSE AREA (GFA)
5 SPACES + 1 SPACE PER EMPLOYEE @ LARGEST SHIFT	47,675 SF	27,757 SF	19,918 SF

IND. OFFICE USE:
5 SPACES + 1 SPACE PER EMPLOYEE @ LARGEST SHIFT
OR A MIN. OF 1 SPACE/500 SF GFA
5+45 EMP. (PEAK) X 1 = 50 SPACES
27,757 SF / 500 SF = 56 SPACES

IND. WAREHOUSE USE:
5 SPACES + 1 SPACE PER EMPLOYEE @ LARGEST SHIFT
OR A MIN. OF 1 SPACE/1,700 SF UFA
(SEE EMPLOYEE COUNT ABOVE)
17,926 SF / 1,700 SF = 11 SPACES
TOTAL PARKING REQ'D = 67 SPACES
PROVIDED PARKING = 68 SPACES

3 BARRIER FREE SPACES FOR 51 TO 75 PARKING SPACES
TOTAL BARRIER FREE REQ'D = 3 SPACES
BARRIER FREE PROVIDED = 4 SPACES

LOADING ZONE REQUIREMENTS:
TYPES OF USE: INDUSTRIAL
PROPOSED GFA: 39,937 SF
1 LOADING REQUIRED MIN. PLUS 1 ADDITIONAL SPACE PER ADDITIONAL 40,000 SF OR FRACTION THEREOF
REQUIRED: 3 SPACES @ 10' X 50'
PROPOSED: (X3) - 13'X50' (REAR)
(X1) - 15'X50' (REAR)

BENCHMARKS

DATUM (NAVD 88) BASED ON NGS OPUS SOLUTION REPORT, DATED JUNE 20, 2019 AT 8:55 AM.
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WESTERLY RIM OF CATCH BASIN, LOCATED 474 FEET NORTH OF BUILDING #6000 WHITMORE LAKE ROAD AND 83.50' WEST OF ENTRANCE GATE.
ELEVATION = 916.48 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #209 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 11.50 FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY.
ELEVATION = 939.81 (NAVD 88)

BENCHMARK #210
GEAR SPIKE IN EASTERLY SIDE OF UTILITY POLE, LOCATED 554 FEET WEST OF CENTERLINE OF WHITMORE LAKE ROAD AND 1554 FEET SOUTH OF ENTRANCE.
ELEVATION = 934.24 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #212
SOUTHEAST CORNER OF CONCRETE PAD, LOCATED 214 FEET SOUTHEAST FROM THE SOUTHEAST CORNER OF BUILDING #5942 WHITMORE LAKE ROAD.
ELEVATION = 945.00 (NAVD 88)

BENCHMARK #214 (OFF SITE)
ARROW ON HYDRANT, LOCATED 534 FEET WEST OF THE CENTERLINE OF WHITMORE LAKE ROAD AND 424 FEET NORTH OF THE CENTERLINE ENTRANCE.
ELEVATION = 926.57 (NAVD 88)

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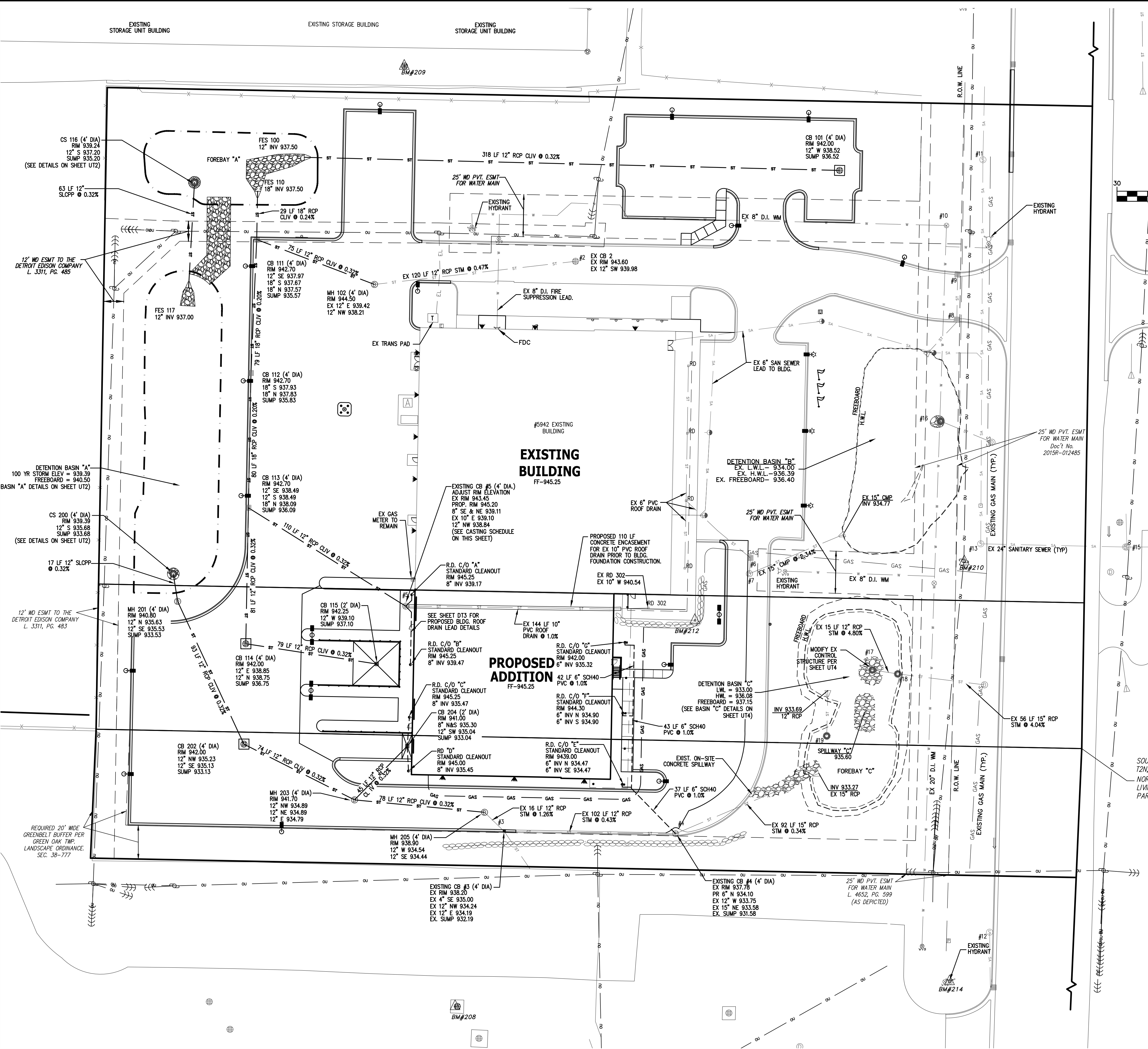
DESIGN-SVB	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION	PURE ENERGY	SITE PLAN	CLIENT:	SCALE:
DRAFT: L.F.							5942 WHITMORE LAKE RD		PLATINUM DEVELOPMENT GROUP INC.	1"=30'
CHECK: WMP									5942 WHITMORE LAKE ROAD	PROJECT No.: 244762
									BRIGHTON, MI 48116	DWG NAME: 4762 SP
									(248) 446-6100	ISSUED: MAR. 28, 2025

STRUCTURE INVENTORY

CATCH BASIN #1	RM 946.06	939.06
NE 12" RCP	939.11	
SW 12" RCP	937.11	
SUMP		
CATCH BASIN #2	RM 943.60	939.98
SW 12" RCP	939.98	
SUMP		
CATCH BASIN #3	RM 938.20	935.00 (UNDERDRAIN)
SE 4" CPP	935.00 (T.B.R.)	
NW 12" RCP	934.24	
E 12" RCP	934.19	
SUMP	932.19	
CATCH BASIN #4	RM 937.78	933.58
W 12" RCP	933.58	
NE 15" RCP	931.58	
SUMP		
YARD BASIN #5	RM 943.45	939.10
E 10" PVC	939.15	
NW 12" RCP	941.28 (ROOF DRAIN)	
S 12" RCP	938.58	
CATCH BASIN #6	RM 942.33	936.20
NW 6" PVC	936.20	
S 12" RCP	936.20	
STORM MANHOLE #7	RM 941.95	NOT FIELD VERIFIED
N 12" RCP	936.20	
NE 12" RCP	936.20	
CATCH BASIN #8	RM 937.92	934.82
N 12" RCP	934.82	
SW 12" RCP	934.82	
CATCH BASIN #9	RM 937.96	936.11
S 12" RCP	936.11	
GATE VALVE MANHOLE #10	RM 939.33	932.73
N-S 20" T/PIPE	932.73	
W 20" T/PIPE	932.28	
SANITARY MANHOLE #11	RM 938.74	921.46
N 24" CPP	921.46	
S 24" CPP	921.46	
SANITARY MANHOLE #12	RM 924.45	916.15
S 12" SDR	916.15	
SANITARY MANHOLE #13	RM 933.37	921.07
E 27" CPP	921.07	
W 27" CPP	920.87	
SANITARY MANHOLE #15	RM 936.99	922.19
N 8" PVC	922.19	
E 24" CPP	920.84	
W 24" CPP	920.79	
CONTROL STRUCTURE #16	RM 936.99	934.59
SE 15" RCP	934.59	
HOLES (X4) 1"	934.59	
HOLES (X4) 1"	935.49	
HOLES (X4) 1"	935.99	
CONTROL STRUCTURE #17	RM 936.11	933.91
HOLES (X2) 1"	933.91	
E 12" RCP	932.46	
SUMP	930.46	
CONTROL STRUCTURE #18	RM 936.28	931.74
W 12" RCP	931.74	
E 15" RCP	931.45	
SUMP	929.53	
CONTROL STRUCTURE #19	RM 935.52	934.07
N 12" RCP	934.07	
SUMP	932.07	
CONTROL STRUCTURE #20	RM 943.13	937.30
SE 12" RCP	937.30	
HOLES (X2) 1"	938.55	
HOLES (X2) 1"	939.55	
HOLES (X2) 1"	940.55	
HOLES (X2) 1"	941.55	
YARD BASIN #21	RM 943.13	937.03
E 12" RCP	937.03	
SE 12" RCP	936.93	
NW 12" RCP	936.93	
SUMP	934.93	

BENCHMARKS

DATUM (NAVD 88) BASED ON NGS OPUS SOLUTION REPORT, DATED JUNE 30, 2018 AT 8:55 AM.
NOTE: PREVIOUS AS-BUILT DRAWING PREPARED BY PEA, REISED DATE MAY 19, 2015 ON ASSUMED "NGVD 29" DATUM (DESCRIBED AS U.S.S.L.S.).
"NGVD 29" DATUM BEING 0.74 FEET HIGHER THAN "NAVD 88" AS CURRENTLY ESTABLISHED.
BENCHMARK #208 (OFF SITE)
WESTERLY RM OF CATCH BASIN, LOCATED 474 FEET NORTH OF BUILDING #6060 WHITMORE LAKE ROAD AND 83.50' WEST OF ENTRANCE GATE.
ELEVATION = 916.45 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)
BENCHMARK #209 (OFF SITE)
WESTERLY RM OF CATCH BASIN, LOCATED 11.50 FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY.
ELEVATION = 939.81 (NAVD 88)
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GEAR SPIKE IN EASTERLY SIDE OF UTILITY POLE, LOCATED 554 FEET WEST OF CENTRINE OF WHITMORE LAKE ROAD AND 1554 FEET SOUTH OF ENTRANCE.
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REF: PREVIOUS SITE PLAN (SEE ABOVE)
BENCHMARK #212
SOUTHEAST CORNER OF CONCRETE PAD, LOCATED 214 FEET SOUTHEAST FROM THE SOUTHEAST CORNER OF BUILDING #5942 WHITMORE LAKE ROAD.
ELEVATION = 945.00 (NAVD 88)
BENCHMARK #214 (OFF SITE)
ARROW ON HYDRANT, LOCATED 534 FEET WEST OF THE CENTRINE OF WHITMORE LAKE ROAD AND 424 FEET NORTH OF THE CENTRINE ENTRANCE.
ELEVATION = 926.57 (NAVD 88)



LEGEND

	EX MISC. STRUCTURE (AS LABELED)
	EX BOLLARD
	EX SIGN
	PR SIGNS
	EX LIGHT BASE
	UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, EX UTILITY MANHOLE (AS LABELED))
	EX UTILITY POLE W/GUY WIRE
	EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
	EX U/G LINES (ELECTRIC/PHONE/CABLE)
	EX DECIDUOUS TREE W/IDENTIFIER
	EX FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
	EX CONCRETE CURB (UNLESS OTHERWISE STATED)
	PR CONCRETE CURB
	EX SANITARY SEWER MANHOLE W/IDENTIFIER
	EX SANITARY SEWER PIPE
	EX CLEAN OUT
	EX STORM WATER MANHOLE W/IDENTIFIER
	EX CATCH BASIN W/IDENTIFIER
	EX FLARED END SECTION
	EX STORM WATER DRAINAGE PIPE
	PR STORM WATER DRAINAGE PIPE
	EX HYDRANT
	EX WATER SHUT OFF
	EX WATER VALVE
	EX WATER VALVE BOX
	EX WATER MAIN
	EX U/G GAS
	1' CONTOUR
	5' CONTOUR
	PR LIGHT POLES

STRUCTURE / CASTING SCHEDULE

Structure	Diameter	Casting Type
Storm Sewer		
EX MH #5	N/A	EJIW 1040 TYPE A (Casting Replace)
EX CB #3	4 ft	EJIW 7000-M1-T1 (Casting Replace)
CB-100, 115 & 204	2 ft	EJIW 1040 TYPE-M1 (Flat Grate)
MH-102, 203 & 205	4 ft	EJIW 1040A (Solid Cover)
CB-114 & 202	4 ft	EJIW 1040 TYPE-M1 (Flat Grate)
CB-111, 112 & 113	4 ft	EJIW 7000-M1-T1 (Curb Inlet)
MH-201	4 ft	EJIW 1040 TYPE O2 (Beehive Grate)
CS 100	4 ft	Factory Built (See Sheet UT2)

NOTE:

- PROPOSED ON-SITE DETENTION BASIN "A" SHALL BE EXCAVATED, TOP SOILED, SEEDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.

SOUTH 1/4 CORNER SECTION 32, T2N, R6E, BRIGHTON TWP. & NORTH 1/4 SECTION 5, LIVINGSTON COUNTY, MI AND PARCEL 3 P.O.B.



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DRAFT: L.F.			
CHECK: WMP			

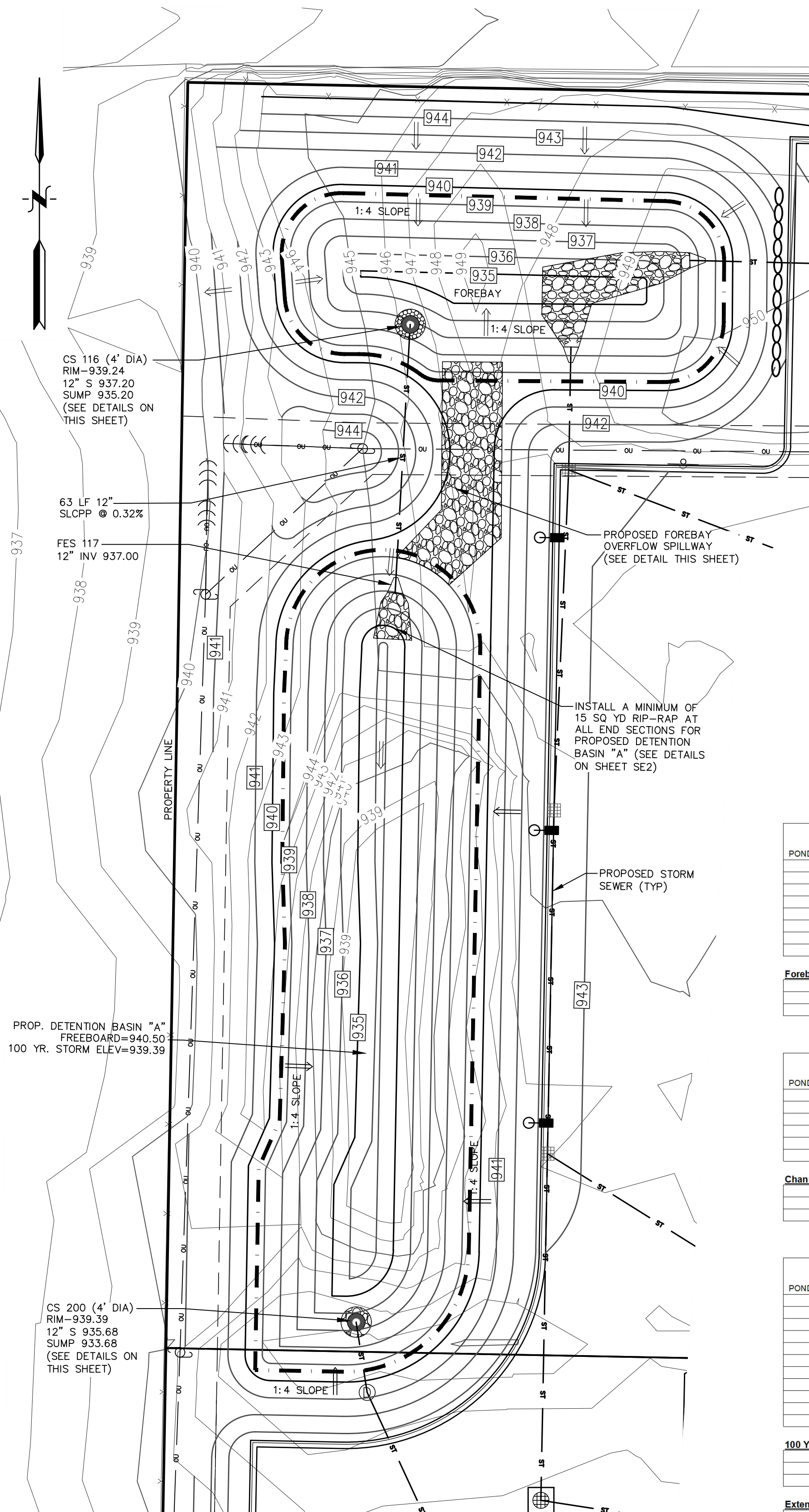
PURE ENERGY
5942 WHITMORE LAKE RD

UTILITY PLAN

CLIENT:
PLATINUM DEVELOPMENT INC.
5942 WHITMORE LAKE ROAD
BRIGHTON, MI 48116
(248) 446-6100

SCALE: 1"=30'
PROJECT No.: 9244762
DWG NAME: 4762 UT
ISSUED: MAR. 28, 2025

UT1



DETENTION BASIN "A"
SCALE 1"= 20'

NOTE:
PROPOSED STONE SURROUNDING BASIN
STANDPIPE SHALL BE REFRESHED PRIOR TO
PROJECT COMPLETION.

BASIN A
DETENTION VOLUME CALCULATION

Tributary Area (A) = 2.27 Acres
Compound Runoff Coefficient (C) = 0.63

Water Quality Control Volume: (3.630)(A)(C) = 5,191 cf

Channel Protection Volume: (4.719)(A)(C) = 6,749 cf

Extended Detention Volume: (6.897)(A)(C) = 9,863 cf

Forebay Volume:
Downstream Infiltration Provided = V_{inf} = 5,191 cf

100 Year Storm Inlet Rate calculation:

$T_c = 17.3$ (from storm sewer calculations)
 $Q_{100in} = 8.46$ cfs

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

County Drain Restricted Rate (0.20 cfs/acre) = 0.45 cfs

Variable Release Rate = Q_{vrr} = 2.13 cfs

ALLOWABLE 100 YEAR OUTLET RATE = Q_{all} = 0.35 cfs

100 Year Required Storm Detention Volume calculation:
Storage Curve Factor = R = 0.69

100 Year Storage Volume In = V_{100IN} = 27,150.45 cf

Calculated 100 Year Storage Volume = V_{100det} = 18,612 cf

REQUIRED VOLUME: $V_{100det} > V_{ed}$ = 18,612 cf

Extended Detention Discharge Rate: $V_{ed}/172,800 = 0.057$ cfs

BASIN A PROPOSED FOREBAY VOLUME			
POND DEPTH (FT)	ELEV.	FOREBAY CONTOUR AREA (SF)	FOREBAY BASIN VOLUME (CF)
0.0	934.50	120	0
0.5	935.00	366	0
1.5	936.00	982	0
2.5	937.00	1,747	0
3.0	937.50	2,159	0
3.5	938.00	2,598	1,187
4.5	939.00	3,546	4,245
5.0	939.50	4,259	6,194

Forebay Storage Elevation Calculation:			
	ELEV.	VOLUME	ELEVATION
Lower	939.00	4,245	939.24
Higher	939.50	6,194	

PROPOSED CHANNEL PROTECTION VOLUME			
POND DEPTH (FT)	ELEV.	DETENTION CONTOUR AREA (SF)	DETENTION BASIN VOLUME (CF)
0.0	934.00	350	0
1.0	935.00	1,617	906
2.0	936.00	2,987	3,174
3.0	937.00	4,464	6,975
4.0	938.00	6,048	12,111
5.0	939.00	7,739	18,987

Channel Protection Storage Elevation Calculation:			
	ELEV.	VOLUME	ELEVATION
Lower	936.00	3,174	936.97
Higher	937.00	6,875	

PROPOSED DETENTION BASIN VOLUME					
POND DEPTH (FT)	ELEV.	DETENTION CONTOUR AREA (SF)	DETENTION BASIN VOLUME (CF)	FOREBAY CONTOUR AREA (SF)	FOREBAY BASIN VOLUME (CF)
0.0	934.00	350	0		
0.5	934.50	973	0	120	0
1.0	935.00	1,617	0	366	0
2.0	936.00	2,987	0	982	0
3.0	937.00	4,464	0	1,747	0
3.5	937.50	5,243	2,424	2,159	0
4.0	938.00	6,048	6,244	2,598	1,187
5.0	939.00	7,739	12,121	3,546	4,245
5.5	939.50	8,860	16,285		
6.0	940.00	14,783	22,110		
7.0	941.00	17,844	38,448		

100 Yr. Detention Storage Elevation Calculation:			
	ELEV.	VOLUME	ELEVATION
Lower	939.00	18,366	939.39
Higher	940.00	22,110	

Extended Detention Storage Elevation Calculation:			
	ELEV.	VOLUME	ELEVATION
Lower	938.00	6,432	938.35
Higher	939.00	18,366	

KEY		
	CONTROL STRUCTURE DESIGNATION	CS-116 CS-200
A	MATERIAL TYPE, SEE NOTE 2	SLCPP SLCPP
B	STRUCTURE INSIDE DIAMETER	4' 4'
C	RIM ELEVATION WITHOUT GRATE	939.24 939.39
D	INVERT ELEVATION OUTLET PIPE	937.20 935.68
E	TOP OF STONE ELEVATION	936.7 936.6
F	OUTLET PIPE DIAMETER	12" 12"
G	OUTLET PIPE MATERIAL	SLCPP SLCPP
H	STRUCTURE HEIGHT WITHOUT GRATE	4.04' 5.71'
J	SUMP HEIGHT	2' 2'
K	ORIFICE PIPE DIA.	N/A N/A
L	FIRST ROW OF HOLES CENTERLINE ELEVATION HOLE DIAMETER NUMBER OF HOLES IN ROW	937.54 937.01 1" 1" 2 2
M	SECOND ROW OF HOLES CENTERLINE ELEVATION HOLE DIAMETER NUMBER OF HOLES IN ROW	938.40 938.40 1.25" 1" 6 6
N	THIRD ROW OF HOLES CENTERLINE ELEVATION HOLE DIAMETER NUMBER OF HOLES IN ROW	

BASIN A FOREBAY CONTROL STRUCTURE CALCULATIONS	
Tributary Area :	A = 2.27 Acres
Compound Runoff Coefficient :	C = 0.63
Orifice Flow Coefficient :	c = 0.60
Allowable Outflow Rate :	$Q_a = 0.06$ CFS
Forebay Storage Volume =	$V_f = 5,191$ CF
Low Water Level :	LWL = 937.50
Forebay Storage Elevation :	$X_f = 939.24$
Forebay Outlet Control:	
$Q_o = V_f * (1 / 24 \text{ hrs}) * (1 / 3600 \text{ sec}) =$	0.0601 CFS
$H_o = X_f - \text{LWL} =$	1.70 FT
$A_o = Q_o / (c * \text{SQRT}(2 * 32.2 * H_o)) =$	0.0096 SF
$D = \text{Orifice Diameter}$	1.000 inch dia.
$N_o = A_o / D$	1.8 Orifices
Use $N_o = 2$ Orifices at Centerline Elevation =	937.54
BASIN A CONTROL STRUCTURE CALCULATIONS (CS-200)	
Tributary Area :	A = 2.27 Acres
Compound Runoff Coefficient :	C = 0.63
Orifice Flow Coefficient :	c = 0.60
Allowable Outflow Rate :	$Q_a = 0.35$ CFS
100 Year Detention Volume =	$V_{100} = 18,612$ CF
Extended Detention Volume =	$V_{ed} = 9,863$ CF
Channel Protection Volume =	$V_{cp} = 6,749$ CF
Channel Protection Elevation :	$X_{cp} = 936.97$
Extended Detention Elevation :	$X_{ed} = 938.35$
100 Year Storage Elevation :	$X_{100} = 939.39$
Extended Detention:	
$Q_{ed} = V_{ed} * (1 / 48 \text{ hrs}) * (1 / 3600 \text{ sec}) =$	0.0571 CFS
$H_{ed} = X_{ed} - X_{cp} =$	1.38 FT
$A_{ed} = Q_{ed} / (c * \text{SQRT}(2 * 32.2 * H_{ed})) =$	0.0101 SF
$D = \text{Orifice Diameter}$	1.000 inch dia.
$N_{ed} = A_{ed} / D$	1.9 Orifices
Use $N_{ed} = 2$ Orifices at Centerline Elevation =	937.01
Approx. Extended Detention Discharge Duration =	
44.41 hours	
100-Year Detention Storage:	
$Q_{100} = [c * N_{ed} * \pi(D/2)^2 * \text{SQRT}(2 * 32.2 * (X_{100} - X_{cp}))] =$	0.0818 CFS
$Q_{100} = Q_a - Q_{ed} =$	0.2642 CFS
$H_{100} = X_{100} - X_{cp} =$	1.05 FT
$A_{100} = Q_{100} / (c * \text{SQRT}(2 * 32.2 * H_{100})) =$	0.0537 SF
$D = \text{Orifice Diameter}$	1.250 inch dia.
$N_{100} = A_{100} / D$	6.30 Orifices
Use $N_{100} = 6$ Orifices at Centerline Elevation =	938.40
$A_{100det} = N_{100} * A_{100} = 0.0511$ SF	
$Q_{detest} = Q_{ed} + (c * A_{100det} * \text{SQRT}(2 * 32.2 * H_{100})) = 0.33$ CFS	

CONTROL STRUCTURE NOTES:

- 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.
- 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.
- 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.
- Provide a watertight connection between the Control Structure and Outlet Pipe.
- Construct berm over Outlet Pipe as necessary to provide 12" minimum cover.
- 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"x3" opening size. Outside of Grate shall be wrapped with a 1/4" minimum x 3" minimum flat stock steel.

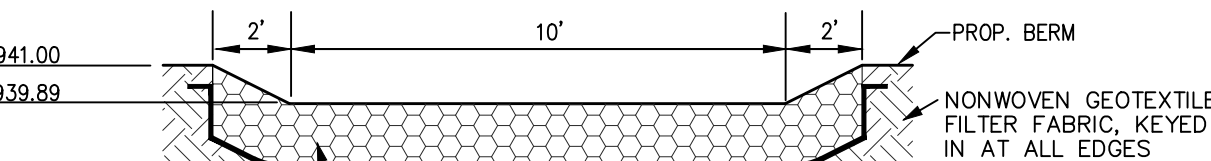
BASIN A
SEDIMENT BASIN SPILLWAY CALCULATION

Where:
 $L = 0.2H + \frac{Q}{3.33H^{1.5}}$
C = 0.63
A = 2.27 Ac.
I = 4.97 in. (10 Yr. Intensity)
Q = 7.10 cfs (Computed flow per rational method)
H = 1.28 ft (Spillway Height)
 $t_{sed} = 1.8$ ft.

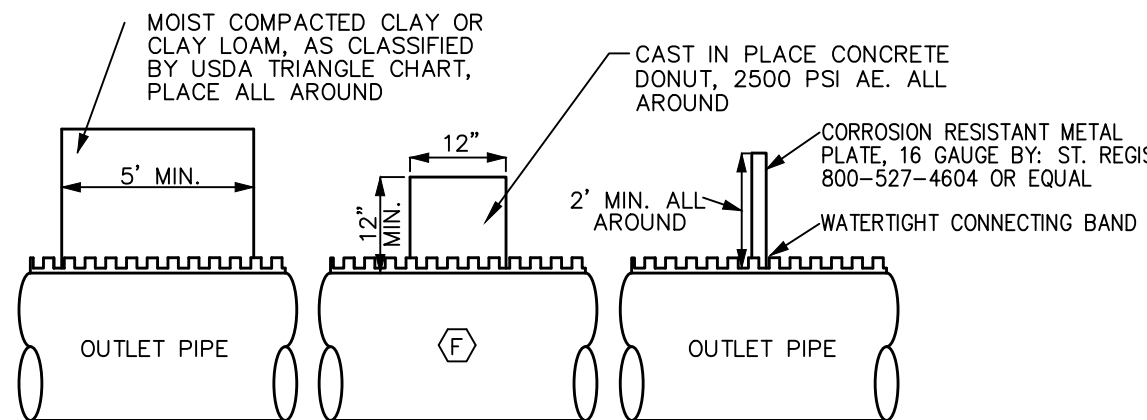
Spillway Velocity Check ($V_s \leq 1.50$ fps):

$Q_{sed} = 7.10$ cfs
Spillway L = 10.00 ft
Spillway H = 1.28 ft
Side Slope Width X = 2.00 ft
Spillway Area = 15.12 sf
Spillway Velocity = 0.47 fps

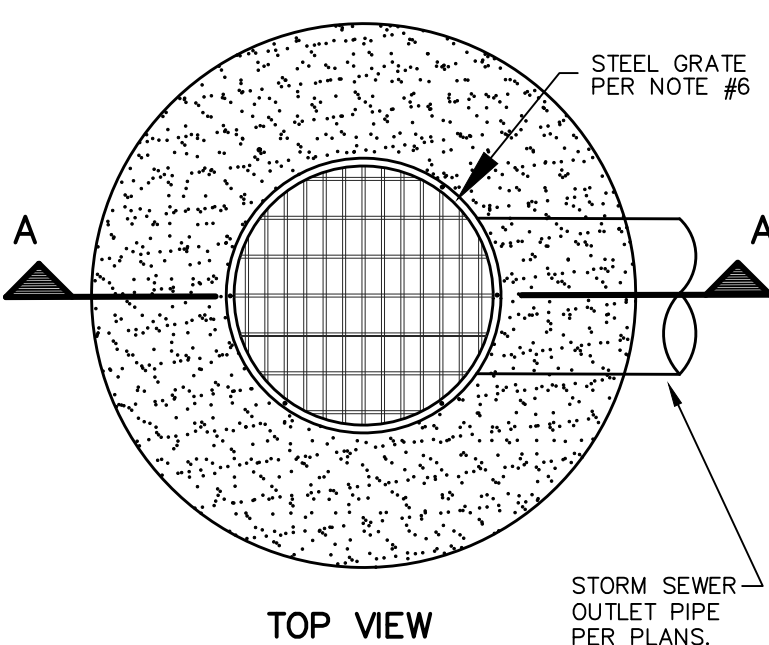
An overall spillway width of 10 ft. is being proposed for construction.



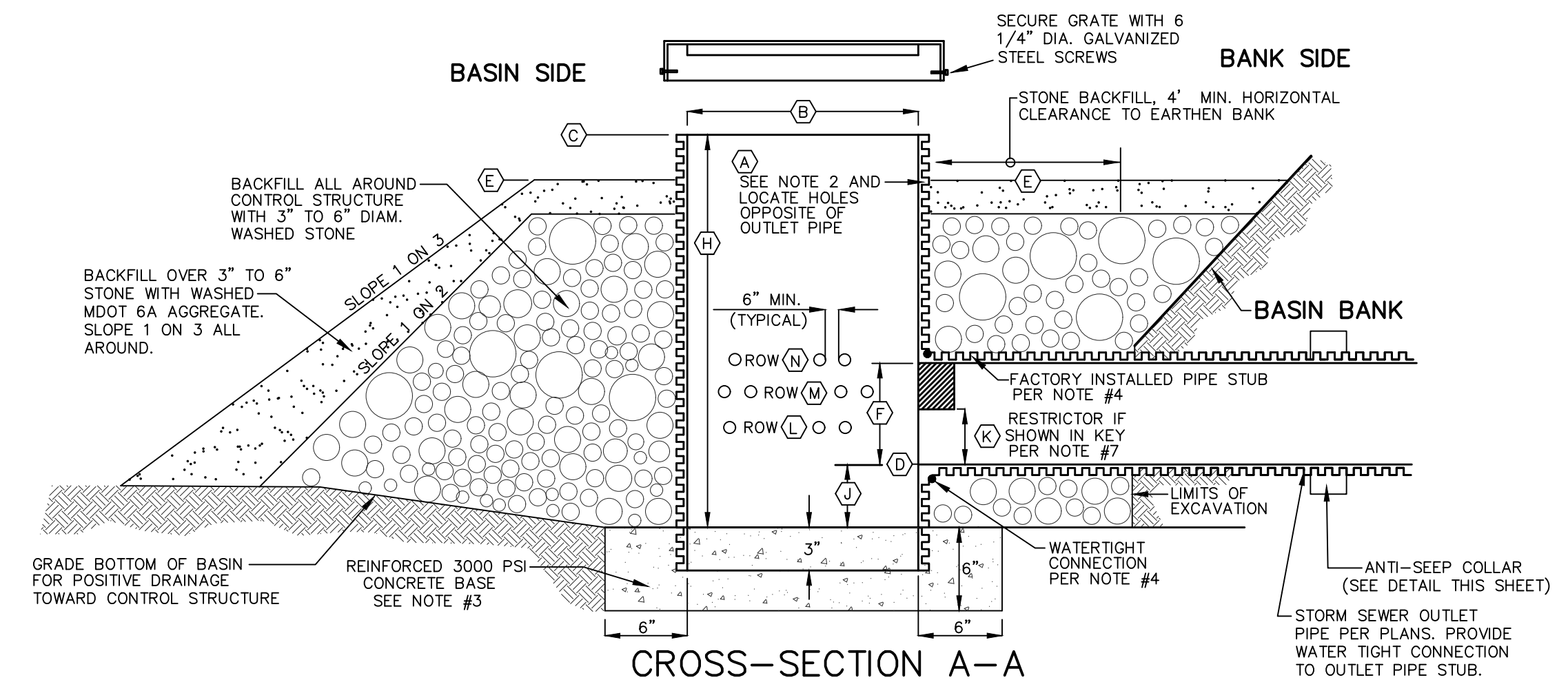
FOREBAY SPILLWAY ELEVATION
NOT TO SCALE



ANTI SEEP COLLAR
NOT TO SCALE



TOP VIEW



CROSS-SECTION A-A

CONTROL STRUCTURE DETAIL (CS100)

NOT TO SCALE

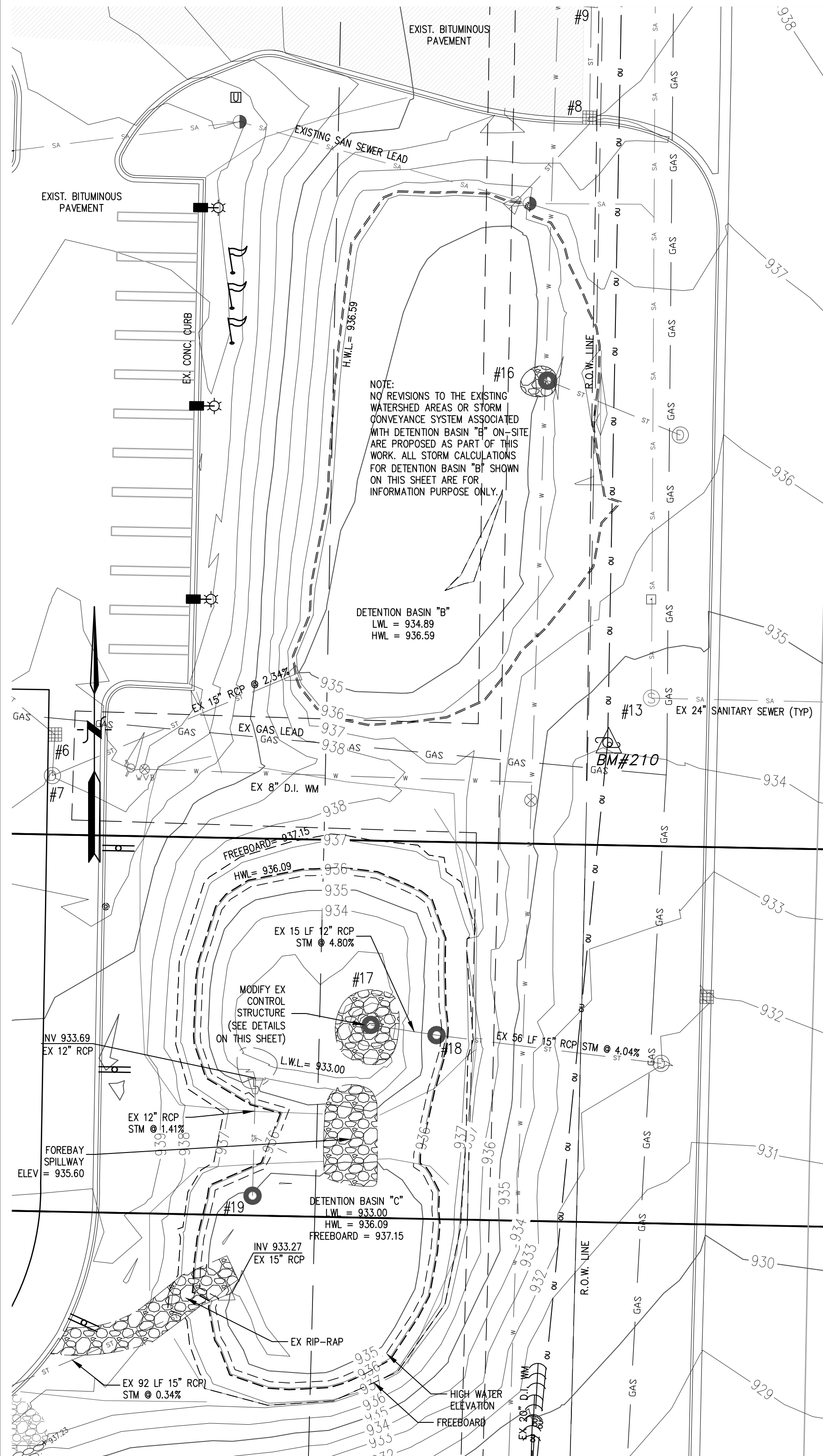
DESIGN:SVB	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

DETENTION BASIN "A" PLAN,
NOTES & DETAILS

CLIENT:	SCALE: 1"=20'
PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	PROJECT No.: 9244762 DWG NAME: 4762 UT ISSUED: MAR. 28, 2025

UT2



STRUCTURE INVENTORY

CATCH BASIN #6		CONTROL STRUCTURE #16	
RM	942.33	RM	936.99
NW	6" PVC	SE	15" RCP
S	12" RCP	SW	15" RCP
STORM MANHOLE #7		CONTROL STRUCTURE #17	
N	12" RCP	RM	936.11
NE	12" RCP	E	12" RCP
CATCH BASIN #8		CONTROL STRUCTURE #18	
RM	937.92	RM	936.28
N	12" RCP	W	12" RCP
SW	12" RCP	E	15" RCP
CATCH BASIN #9		CONTROL STRUCTURE #19	
RM	937.96	RM	935.52
S	12" RCP	N	12" RCP
STORM MANHOLE #10		CONTROL STRUCTURE #20	
N	12" RCP	RM	935.52
NE	12" RCP	E	12" RCP

BENCHMARKS

DATUM (NAVD 88) BASED ON NGS OPUS SOLUTION REPORT, DATED JUNE 20, 2019 AT 8:55 AM.
NOTE: PREVIOUS AS-BUILT DRAWING PREPARED BY PEA, REVISED DATE MAY 19, 2015 ON ASSUMED "NGVD 29" DATUM (DESCRIBED AS U.S.C.S.).
NGVD 29" DATUM BEING 0.74 FEET HIGHER THAN "NAVD 88" AS CURRENTLY ESTABLISHED.
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WESTERLY RIM OF CATCH BASIN, LOCATED 474 FEET NORTH OF BUILDING #6060 WHITMORE LAKE ROAD AND 83.50' WEST OF ENTRANCE GATE.
ELEVATION = 916.48 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #209 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 11.50 FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY.
ELEVATION = 939.81 (NAVD 88)

BENCHMARK #210
GEAR SPIKE IN EASTERLY SIDE OF UTILITY POLE, LOCATED 55+ FEET WEST OF CENTERLINE OF WHITMORE LAKE ROAD AND 155+ FEET SOUTH OF ENTRANCE.
ELEVATION = 934.24 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #212
SOUTHEAST CORNER OF CONCRETE PAD, LOCATED 21+ FEET SOUTHEAST FROM THE SOUTHEAST CORNER OF BUILDING #5942 WHITMORE LAKE ROAD.
ELEVATION = 945.00 (NAVD 88)

BENCHMARK #214 (OFF SITE)
ARROW ON HYDRANT, LOCATED 53+ FEET WEST OF THE CENTERLINE OF WHITMORE LAKE ROAD AND 42+ FEET NORTH OF THE CENTERLINE ENTRANCE.
ELEVATION = 926.57 (NAVD 88)

LEGEND

	EX MISC. STRUCTURE (AS LABELED)
	EX BOLLARD
	EX SIGN
	EX LIGHT BASE
	EX UTILITY MANHOLE (AS LABELED)
	EX UTILITY POLE W/GUY WIRE
	EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
	EX U/G LINES (ELECTRIC/PHONE/CABLE)
	EX DECIDUOUS TREE W/IDENTIFIER
	EX FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
	EX CONCRETE CURB (UNLESS OTHERWISE STATED)
	EX SANITARY SEWER MANHOLE W/IDENTIFIER
	EX SANITARY SEWER PIPE
	EX CLEAN OUT
	EX STORM WATER MANHOLE W/IDENTIFIER
	EX CATCH BASIN W/IDENTIFIER
	EX FLARED END SECTION
	EX STORM WATER DRAINAGE PIPE
	EX HYDRANT
	EX WATER SHUT OFF
	EX WATER VALVE
	EX WATER VALVE BOX
	EX WATER MAIN
	EX GAS SHUT OFF
	EX U/G GAS
	1' CONTOUR
	5' CONTOUR

PROPOSED CS #17 CALCULATIONS (BASIN C)

Tributary Area: A = 1.15 Acres
Compound Runoff Coefficient: C = 0.72
Orifice Flow Coefficient: c = 0.6
Allowable Outflow Rate: Q_o = 0.576 CFS*
* = Includes 0.346 cfs of restricted outflow from detention area "A" & passed through the upper row of orifices in the basin "C" (CS-17) and, 0.23 cfs of allowable basin "C" discharge
100 Year Flood Volume: V₁₀₀ = 9650 CF
Bankfull Flood Volume = 5160 x A x C
First Flush Volume = 1915 x A x C

Low Water Level: LWL = 932.46 (CS #17 Outlet I.E.)
First Flush Elevation: X_{ff} = 934.13
Bankfull Flood Elevation: X_{bf} = 935.05
100 Year Flood Elevation: X₁₀₀ = 936.09
(Use existing Control Structure #17 Rim for HWL)
HVL = 936.11

FIRST FLUSH:
Q_{ff} = V_{ff} * (1 / 24 hrs) * (1 / 3600 sec) = 0.0174 CFS
H_{ff} = X_{ff} - LWL = 1.67 FT
A_{ff} = Q_{ff} / (c * SQRT(2 * 32.2 * H_{ff})) = 0.0028 SF
D = Orifice Diameter = 0.750 inch dia.
N_{ff} = A_{ff} / D = 0.9 Orifices

Use N_{ff} = 1 1/2" Holes at CL Elevation = 932.49

Approx. First Flush Detention Duration = 21.85 hours

BANKFULL FLOOD:

H = X_{bf} - LWL = 2.59 FT
Q_{bf} = c * N_{bf} * D * SQRT(2 * 32.2 * h) = 0.0238 CFS
V_{provided} = Q_{bf} * 24 hrs * (3600 sec / 1 hr) = 2.053 CF
V_{needed} = V_{bf} - V_{provided} = 2.219 CF

Q_{bf} = V_{needed} * (1 / 24 hrs) * (1 / 3600 sec) = 0.0257 CFS
H_{bf} = X_{bf} - X_{ff} = 0.92 FT
A_{bf} = Q_{bf} / (c * SQRT(2 * 32.2 * H_{bf})) = 0.0056 SF
D = Orifice Diameter = 1.000 inch dia.
N_{bf} = A_{bf} / D = 1.02 Orifices

Use N_{bf} = 1 3/4" Hole at CL Elevation = 934.17

Approx. Bankfull Detention Duration = 46.38 hours

100 YEAR FLOOD:

Q_{ff} + Q_{bf} = [c * N_{ff} * D_{ff} * SQRT(2 * 32.2 * (X₁₀₀ - LWL))] + [c * N_{bf} * D_{bf} * SQRT(2 * 32.2 * (X₁₀₀ - X_{ff}))] = 0.0851 CFS
Q_{100needed} = Q_{ff} + (Q_{ff} + Q_{bf}) = 0.5109 CFS
H₁₀₀ = X₁₀₀ - X_{ff} = 1.06 FT
A_{100needed} = Q_{100needed} / (c * SQRT(2 * 32.2 * H₁₀₀)) = 0.1030 SF
D = Orifice Diameter = 1.750 inch dia.
N_{100needed} = A_{100needed} / 0.0167 = 6.16 Orifices

Use N₁₀₀ = 6 1-3/4" Holes at CL Elevation = 935.12

A₁₀₀ = ((1.75/24)/2)*3.14159 = 0.0167 SF
A_{actual} = N₁₀₀*A₁₀₀ = 0.1002 SF
Q_{actual} = Q_{ff}+Q_{bf}+(0.6*A_{actual}*SQRT(2*32.2*H₁₀₀)) = 0.562 CFS < 0.576 CFS (Q_o)

PROPOSED STORM WATER RUN-OFF (BASIN C)						
Area	Pavement	Building	Lawn	Water	Area	"C" Factor
EX 3	0.10	0.00	0.00	0.00	0.10	0.90
EX 4	0.22	0.00	0.04	0.00	0.26	0.79
202	0.23	0.00	0.00	0.00	0.23	0.90
204	0.03	0.00	0.00	0.00	0.03	0.90
205 RD C	0.00	0.07	0.00	0.00	0.07	0.90
205 RD D	0.00	0.07	0.00	0.00	0.07	0.90
BASIN C	0.09	0.00	0.26	0.04	0.39	0.44
					1.15	ACRES
					0.72	"C" =

Tributary Area (A) = 1.15 Acres
Compound Runoff Coefficient (C) = 0.72
Design Constant (K1) = A * C = 0.83
Allowable Outflow Rate (Q_o) = 0.23 cfs

1	2	3	4	5	6	7
Duration (Minutes)	Duration (Seconds)	Intensity (100-yr Storm) (in / hr)	Col. 2 * Col. 3 (Cubic Feet)	Inflow Volume = Col. 4 * K1 (Cubic Feet)	Outflow Volume = Col. 2 * Q _o (Cubic Feet)	Storage Volume = Col. 5 - Col. 6 (Cubic Feet)
5	300	9.17	2750	2277	69	2208
10	600	7.86	4714	3903	138	3765
15	900	6.88	6188	5123	207	4916
20	1200	6.11	7333	6072	276	5796
30	1800	5.00	9000	7452	414	7038
60	3600	3.24	11647	9644	828	8816
90	5400	2.39	12913	10692	1242	9450
120	7200	1.90	13655	11306	1656	9650
180	10800	1.34	14488	11996	2484	9512
240	14400	1.04	14943	12373	3312	9061

* Allowable outflow rate Q_o is computed by one of the following cases:

Case 1: Q_o = Approved Q_o Discharge rate per PEA As Built utility plans dated Dec. 06, 2013. 0.54 cfs / Acre
Case 2: Q_o = q * A where q = Permissible discharge rate per acre of tributary area = 0.20 cfs / Acre

Note: Figures in Columns (3) and (4) are computed by the formula I = 275 / (t + 25) (i.e. 100=yr Curve);

Bankfull Volume: (5160)(A)(C) = 4,272 cf

First Flush Volume: (1915)(A)(C) = 1,503 cf

Forebay Volume (8% of 100 year Volume): = 483 cf

POND DEPTH (FT)	ELEV.	CONTOUR AREA (SF)	INCREMENTAL VOLUME (CF)	TOTAL VOLUME (CF)
BOTTOM	933.00	672	0	0
934.0	934.00	1,628	1,115	1,115
935.0	935.00	4,427	2,913	4,029
936.0	936.00	5,665	5,083	9,062
937.0	937.00	7,287	6,459	15,521
937.2	937.15	7,634	1,119	16,640

Detention Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
LOWER	936.00	9,062	9,650	936.09
HIGHER	937.00	15,521		

Bankfull Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
LOWER	935.00	4,029	4,272	935.05
HIGHER	936.00	9,062		

First Flush Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
LOWER	934.00	1,115	1,503	934.13
HIGHER	935.00	4,029		

Forebay Storage Calculation:

POND DEPTH (FT)	ELEV.	CONTOUR AREA (SF)	INCREMENTAL VOLUME (CF)	TOTAL VOLUME (CF)
BOTTOM	934.00	61	0	0
935.0	935.00	1,855	751	751
935.6	935.60	2,248	1,229	1,980
	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
LOWER	934.00	0	483	934.64
HIGHER	935.00	751		

PROPOSED STORM WATER RUN-OFF (BASIN B)						
Area	Pavement	Building	Lawn	Water	Area	"C" Factor
EX 8	0.23	0.00	0.00	0.00	0.23	0.90
EX 8	0.09	0.00	0.00	0.00	0.09	0.90
EX 9	0.08	0.00	0.04	0.00	0.12	0.67
EX RD	0.00	0.37	0.00	0.00	0.37	0.90
BASIN B	0.00	0.00	0.23	0.07	0.30	0.39
					1.11	ACRES
					0.74	"C" =

Proposed Tributary Area (A) = 1.11 Acres
Proposed Compound Runoff Coefficient (C) = 0.74
Design Constant (K1) = A * C = 0.82
Allowable Outflow Rate (Q_o) = 0.22 cfs

1	2	3	4	5	6	7
Duration (Minutes)	Duration (Seconds)	Intensity (100-yr Storm) (in / hr)	Col. 2 * Col. 3 (Cubic Feet)	Inflow Volume = Col. 4 * K1 (Cubic Feet)	Outflow Volume = Col. 2 * Q _o (Cubic Feet)	Storage Volume = Col. 5 - Col. 6 (Cubic Feet)
5	300	9.17	2751	2256	66	2185
10	600	7.86	4716	3867	132	3735
15	900	6.88	6192	5077	198	4879
20	1200	6.11	7332	6012	264	5748
30	1800	5.00	9000	7380	396	6884
60	3600	3.24	11664	9864	792	8772
90	5400	2.39	12906	10583	1188	9395
120	7200	1.90	13680	11218	1584	9634
180	10800	1.34	14472	11867	2376	9491
240	14400	1.04	14976	12280	3168	9112

* Allowable outflow rate Q_o is computed by one of the following cases:

Case 1: Q_o = Approved Q_o Discharge rate per PEA As Built utility plans dated Dec. 6, 2013. 0.14 cfs / Acre
Case 2: Q_o = q * A where q = Permissible discharge rate per acre of tributary area = 0.20 cfs / Acre

Note: Figures in Columns (3) and (4) are computed by the formula I = 275 / (t + 25) (i.e. 100=yr Curve);

Bankfull Volume: (5160)(A)(C) = 4,238 cf

First Flush Volume: (1915)(A)(C) = 1,491 cf

Forebay Volume (8% of 100 year Volume): = 482 cf

POND DEPTH (FT)	ELEV.	CONTOUR AREA (SF)	INCREMENTAL VOLUME (CF)	TOTAL VOLUME (CF)
BOTTOM	934.00	46	0	0
935.0	935.00	3,685	1,381	1,381
936.0	936.00	5,823	4,620	6,001
937.0	937.00	6,728	2,467	8,468

Detention Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
LOWER	936.00	6,001	6,634	936.59
HIGHER	937.00	8,468		

Bankfull Storage Elevation Calculation:

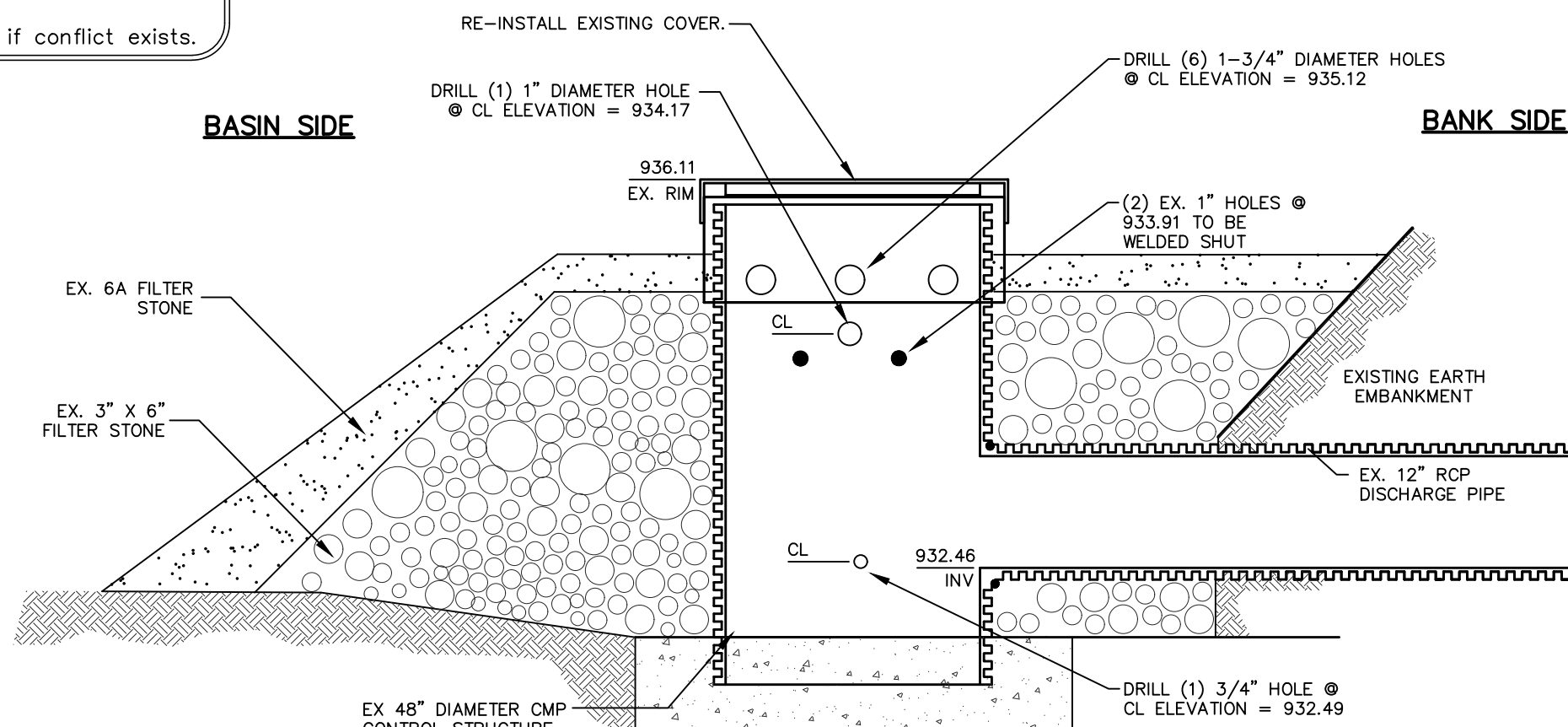
	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
LOWER	935.00	1,381	4,238	935.62
HIGHER	936.00	6,001		

First Flush Storage Elevation Calculation:

	ELEV.	VOLUME	VOLUME REQ.	ELEVATION
LOWER	934.00	0	1,491	935.06
HIGHER	935.00	1,381		

NOTES:

- PROPOSED DISTURBED AREAS ON-SITE WITHIN DETENTION BASIN "C" SHALL BE TOP SOILED, SEEDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
- PROPOSED STONE SURROUNDING BASIN STANDPIPES SHALL BE REFRESHED PRIOR TO PROJECT COMPLETION.



CROSS-SECTION

CONTROL STRUCTURE CS-17 MODIFICATION DETAIL

NOT TO SCALE

DESIGN:SVB	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

DETENTION BASIN "B & C"
PLAN, NOTES & DETAILS

CLIENT: PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	SCALE: 1"=20' PROJECT NO.: 9244762 DWG NAME: 4762 UT ISSUED: MAR. 28, 2025	UT3
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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"		Eqv. Area 100% CA	Total Area 100% CA	T Time Min.	I Inch Per Hour	Q (CIA) c.f.s.	Q (add'l. flow) c.f.s.	Q (Total Flow) 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.		Invert Elev.	
																			Upper end	Lower end	Upper end	Lower end
101	100	0.24	0.75	0.18	0.18	15.0	4.38	0.79		0.79	12	0.32	0.05	318	2.57	2.1	2.02	939.95	943.85	937.50	938.52	937.50
115	114	0.05	0.90	0.05	0.05	15.0	4.38	0.22		0.22	12	0.32	0.00	79	2.57	0.5	2.02	940.00	942.25	942.00	939.10	938.85
114	113	0.18	0.90	0.16	0.21	15.5	4.32	0.91		0.91	12	0.32	0.06	81	2.57	0.5	2.02	940.00	942.00	942.70	938.75	938.49
RD 302	EX 5	0.08	0.90	0.07	0.07	15.0	4.38	0.31		0.31	10	1.00	0.01	144	5.22	0.5	2.85	940.54	945.10	945.20	940.54	939.10
RD A	EX 5	0.07	0.90	0.06	0.06	15.0	4.38	0.26		0.26	8	1.00	0.03	6	4.50	0.0	1.57	940.00	945.25	945.20	939.17	939.11
RD B	EX 5	0.07	0.90	0.06	0.06	15.0	4.38	0.26		0.26	8	1.00	0.03	36	4.50	0.1	1.57	940.01	945.25	945.20	939.47	939.11
EX 5	113	0.00	0.00	0.00	0.19	15.5	4.33	0.82		0.82	12	0.32	0.05	110	2.57	0.7	2.02	940.00	945.20	942.70	938.84	938.49
113	112	0.19	0.90	0.17	0.57	16.2	4.25	2.42		2.42	18	0.20	0.05	80	2.66	0.5	4.70	939.94	942.70	942.70	938.09	937.93
112	111	0.19	0.90	0.17	0.74	16.7	4.20	3.11		3.11	18	0.20	0.09	79	2.66	0.5	4.70	939.90	942.70	942.70	937.83	937.67
EX 2	102	0.00	0.00	0.00	0.00	15.0	4.38	0.00		0.00	12	0.47	0.00	120	3.11	0.6	2.44	940.42	943.60	944.50	939.98	939.42
102	111	0.07	0.90	0.06	0.06	15.6	4.31	0.26		0.26	12	0.32	0.01	75	2.57	0.5	2.02	939.84	944.50	942.70	938.21	937.97
111	110	0.22	0.77	0.17	0.97	17.2	4.15	4.03		4.03	18	0.24	0.15	29	2.91	0.2	5.15	939.83	942.70	937.50	937.57	937.50
116	117	0.00	0.00	0.00	0.00	15.0	4.38	0.00		0.00	12	0.32	0.00	63	3.34	0.3	2.62	939.79	939.24	937.00	937.20	937.00
200	201	0.00	0.00	0.00	0.00	15.0	4.38	0.00	0.35	0.35	12	0.32	0.01	17	3.34	0.1	2.62	936.82	939.39	940.80	935.68	935.63
201	202	0.00	0.00	0.00	0.00	15.1	4.37	0.00		0.35	12	0.32	0.01	93	2.57	0.6	2.02	936.82	940.80	942.00	935.53	935.23
202	203	0.23	0.90	0.21	0.21	15.7	4.30	0.90		1.25	12	0.32	0.12	74	2.57	0.5	2.02	936.81	942.00	941.70	935.13	934.89
RD C	204	0.07	0.90	0.06	0.06	15.0	4.38	0.26		0.26	8	1.00	0.05	17	3.46	0.1	1.21	936.74	945.25	941.00	935.47	935.30
RD D	204	0.07	0.90	0.06	0.06	15.0	4.38	0.26		0.26	8	1.00	0.05	15	3.46	0.1	1.21	936.74	945.00	941.00	935.45	935.30
204	203	0.03	0.90	0.03	0.15	15.1	4.37	0.65		0.65	12	0.32	0.03	45	2.57	0.3	2.02	936.73	941.00	941.70	935.04	934.89
203	205	0.00	0.00	0.00	0.36	16.2	4.25	1.53		1.88	12	0.32	0.28	78	2.57	0.5	2.02	936.72	941.70	938.90	934.79	934.54
205	EX 3	0.00	0.00	0.00	0.36	16.7	4.20	1.51		1.86	12	1.26	0.27	16	5.09	0.1	4.00	936.50	938.90	938.20	934.44	934.24
EX 3	EX 4	0.10	0.90	0.09	0.45	16.7	4.19	1.89		2.23	12	0.43	0.39	102	2.98	0.6	2.34	936.46	938.20	937.78	934.19	933.75
RD G	RD F	0.01	0.90	0.01	0.01	15.0	4.38	0.04		#REF!	6	1.00	0.00	42	3.72	0.2	0.73	936.08	942.00	940.30	935.32	934.90
RD F	RD E	0.01	0.90	0.01	0.02	15.2	4.35	0.09		#REF!	6	1.00	0.01	43	3.72	0.2	0.73	936.07	940.30	939.00	934.90	934.47
RD E	EX 4	0.01	0.90	0.01	0.03	15.4	4.33	0.13		#REF!	6	1.00	0.03	37	3.72	0.2	0.73	936.07	939.00	937.78	934.47	934.10
EX 4	EX 35	0.26	0.79	0.21	0.69	17.3	4.14	2.85		3.20	15	0.34	0.25	92	3.06	0.5	3.75	936.06	937.78	933.27	933.58	933.27
																		939.79	Downstream HWL (BASIN A)			
																		935.83	Downstream HWL (BASIN C)			

DESIGN:SVB
DRAFT: L.F.
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION

PURE ENERGY
5942 WHITMORE LAKE RD

STORM SEWER CALCULATIONS

CLIENT:
PLATINUM DEVELOPMENT GROUP INC.
5942 WHITMORE LAKE ROAD
BRIGHTON, MI 48116
(248) 446-6100

SCALE: N/A
PROJECT No.: 9244762
DWG NAME: 4762 UT
ISSUED: MAR. 28, 2025

UT4

811

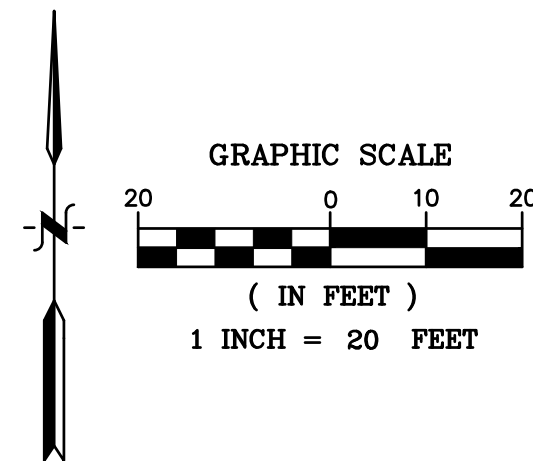
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- PR SIGNS
- EX LIGHT BASE
- EX UTILITY MANHOLE (AS LABELED)
- EX UTILITY POLE W/GUY WIRE
- EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- EX U/G LINES (ELECTRIC/PHONE/CABLE)
- EX DECIDUOUS TREE W/IDENTIFIER
- EX FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- EX CONCRETE CURB (UNLESS OTHERWISE STATED)
- PR CONCRETE CURB
- PR CONCRETE REVERSE CURB
- EX SANITARY SEWER MANHOLE W/IDENTIFIER
- EX SANITARY SEWER PIPE
- EX CLEAN OUT
- EX STORM WATER MANHOLE W/IDENTIFIER
- EX CATCH BASIN W/IDENTIFIER
- FLARED END SECTION
- EX STORM WATER DRAINAGE PIPE
- PR STORM WATER DRAINAGE PIPE
- EX HYDRANT
- EX WATER SHUT OFF
- EX WATER VALVE
- EX WATER VALVE BOX
- EX WATER MAIN
- EX U/G GAS
- 1' CONTOUR
- 5' CONTOUR
- SPOT ELEVATION
- EX SPOT ELEVATION
- DRAINAGE ARROW
- PR CONCRETE WALK
- PR HEAVY DUTY CONCRETE
- PR STANDARD DUTY BITUMINOUS PAVEMENT
- PR LIGHT POLES

BENCHMARKS

DATUM (NAVD 88) BASED ON NGS OPUS SOLUTION REPORT, DATED JUNE 20, 2019 AT 8:55 AM.
NOTE: PREVIOUS AS-BUILT DRAWING PREPARED BY PEA, REVISED DATE MAY 19, 2015 ON ASSUMED "NGVD 29" DATUM (DESCRIBED AS U.S.G.S.).
"NGVD 29" DATUM BEING 0.74 FEET HIGHER THAN "NAVD 88" AS CURRENTLY ESTABLISHED.

BENCHMARK #208 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 47± FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY. ELEVATION = 916.48 (NAVD 88). REF: PREVIOUS SITE PLAN (SEE ABOVE).

BENCHMARK #209 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 11.50 FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY. ELEVATION = 939.81 (NAVD 88). REF: PREVIOUS SITE PLAN (SEE ABOVE).

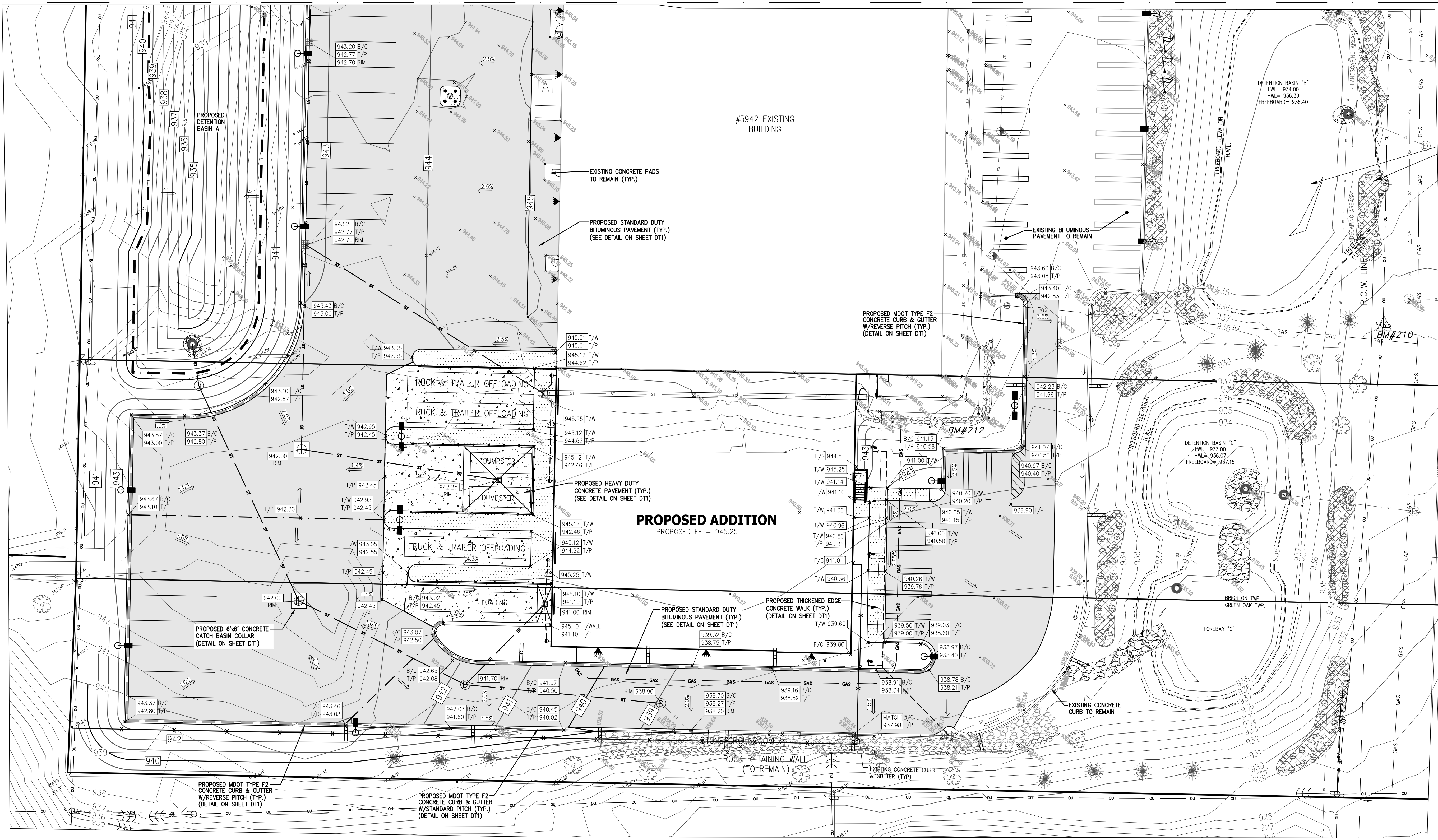
BENCHMARK #210
GEAR SPIKE IN EASTERLY SIDE OF UTILITY POLE, LOCATED 55± FEET WEST OF CENTERLINE OF WHITMORE LAKE ROAD AND 155± FEET SOUTH OF ENTRANCE. ELEVATION = 934.24 (NAVD 88). REF: PREVIOUS SITE PLAN (SEE ABOVE).

BENCHMARK #212
SOUTHEAST CORNER OF CONCRETE PAD, LOCATED 21± FEET SOUTHEAST FROM THE SOUTHEAST CORNER OF BUILDING #5942 WHITMORE LAKE ROAD. ELEVATION = 945.00 (NAVD 88).

BENCHMARK #214 (OFF SITE)
ARROW ON HYDRANT, LOCATED 53± FEET WEST OF THE CENTERLINE OF WHITMORE LAKE ROAD AND 42± FEET NORTH OF THE CENTERLINE ENTRANCE. ELEVATION = 926.57 (NAVD 88).



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DRAFT: L.F.						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

GRADING & PAVING PLAN
(SOUTH)

CLIENT:
PLATINUM DEVELOPMENT GROUP INC.
5942 WHITMORE LAKE ROAD
BRIGHTON, MI 48116
(248) 446-6100

SCALE: 1"=20'
PROJECT No.: 9244762
DWG NAME: 4762 GR
ISSUED: MAR. 28, 2025

GR1



LEGAL DESCRIPTION

Situated in the Townships of Brighton and Green Oak, County of Livingston and State of Michigan, and described as follows:

Parcel No. 4712-32-300-072

Part of the Southwest 1/4 of Section 32, Town 2 North, Range 6 East, Brighton Township, Livingston County, Michigan, more particularly described as follows:
Commencing at the South 1/4 Corner of said Section 32;
thence along the North-South 1/4 line of said Section 32 and in Whitmore Lake Road (Old U.S. 23 Public Highway - 120 foot wide Right-of-Way) N00°56'57"E 86.55 feet to the PLACE OF BEGINNING of the parcel to be described;
thence N88°54'16"W 585.34 feet;
thence N00°59'30"E 294.92 feet;
thence S88°54'44"E 585.12 feet;
thence along said North-South 1/4 line of Section 32 and in said Whitmore Lake Road S00°56'57"W 295.00 feet to the Place of Beginning.
Subject to the rights of the public over that portion thereof occupied by Whitmore Lake Road (Old U.S. 23 Public Highway), also subject to and together with all easements and restrictions affecting title to the above described premises.

Parcel No. 4712-32-300-067

Part of the Southwest 1/4 of Section 32, Town 2 North, Range 6 East, Brighton Township, Livingston County, Michigan, more particularly described as follows:
BEGINNING at the South 1/4 Corner of said Section 32;
thence N88°54'16"W 585.34 feet;
thence N00°59'30"E 86.24 feet;
thence S88°54'16"E 585.34 feet;
thence S00°56'57"W 86.55 feet along the North-South 1/4 line of said Section 32 and in Whitmore Lake Road (Old U.S. 23 Public Highway - 120 foot wide Right-of-Way) to the Place of Beginning.
Subject to the rights of the public over that portion thereof occupied by Whitmore Lake Road (Old U.S. 23 Public Highway), also subject to and together with all easements and restrictions affecting title to the above described premises.

Parcel No. 4716-05-100-008

Part of the Northwest 1/4 of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, more particularly described as follows:
BEGINNING at the North 1/4 Corner of said Section 5;
thence S02°28'50"W 76.63 feet along the North-South 1/4 line of said Section 5 and in Whitmore Lake Road (Old U.S. 23 Public Highway - 120 foot wide Right-of-Way);
thence N85°52'27"W 585.40 feet;
thence N02°28'50"E 76.63 feet;
thence S88°52'27"E 584.40 feet to the Place of Beginning.
Subject to the rights of the public over that portion thereof occupied by Whitmore Lake Road (Old U.S. 23 Public Highway), also subject to and together with all easements and restrictions affecting title to the above described premises.

TIME LINE OF SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE

CONSTRUCTION & WORK CATEGORIES*	Month Week	CONSTRUCTION PERIOD							
		1	2	3	4	5	6	7	8
1. OBTAIN PERMITS									
2. INSTALL INITIAL SESC MEASURES									
3. INSPECT & MAINTAIN SESC MEASURES									
4. DEMOLITION WORK									
5. EARTH WORK									
6. BUILDING CONSTRUCTION									
7. UNDERGROUND UTILITY WORK									
8. SITE LIGHTING WORK									
9. CURB, SIDEWALK & PAVEMENT WORK									
10. BACKFILL & FINISH GRADE WORK									
11. TOPSOIL, SEED & MULCH									
12. LANDSCAPE WORK									
13. REMOVE TEMPORARY SESC MEASURES									

*REFER TO THE MAJOR WORK ITEMS OUTLINED IN THE SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE NOTES.

SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE:

- 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.
- Prior to commencement of any earth disruption, install Silt Fence, Mud Tracking Control Devices, and Culvert Sediment Trap at the existing culvert in accordance with the Soil Erosion and Sedimentation Control Plan and the Soil Erosion and Sedimentation Control Permit.
- Inspect and maintain all Soil Erosion Control Measures daily. Maintain all Soil Erosion Control Measures as necessary and as directed by the Engineer and/or the Permitting Agency.
- Perform demolition work. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- 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 and/or as directed by the Engineer and/or the Permitting Agency.
- Construct underground utilities including sanitary sewer, water main, storm sewer, and conduit for underground public utilities. Install appropriate Soil Erosion Control Measures, including inlet sediment filters on new catch basins, in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- Install building in accordance with the Site Plan and Architectural Plans. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- Install electric risers, fixtures and underground electric. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- Construct paved parking roadway areas. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- Backfill and finish grade all disturbed areas outside of pavement areas. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- Place topsoil and hydrosed within 5 days of finish grade for establishment of vegetative ground cover outside of pavement and mulched landscape bed areas. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- Landscape site in accordance with the Project Landscape Plan. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan and/or as directed by the Engineer and/or the Permitting Agency.
- Following establishment of sufficient vegetative ground cover and receipt of approval from the Permitting Agency, remove all temporary Soil Erosion Control Measures, and repair any permanent Soil Erosion Control Measures as directed by the Engineer and/or the Permitting Agency.

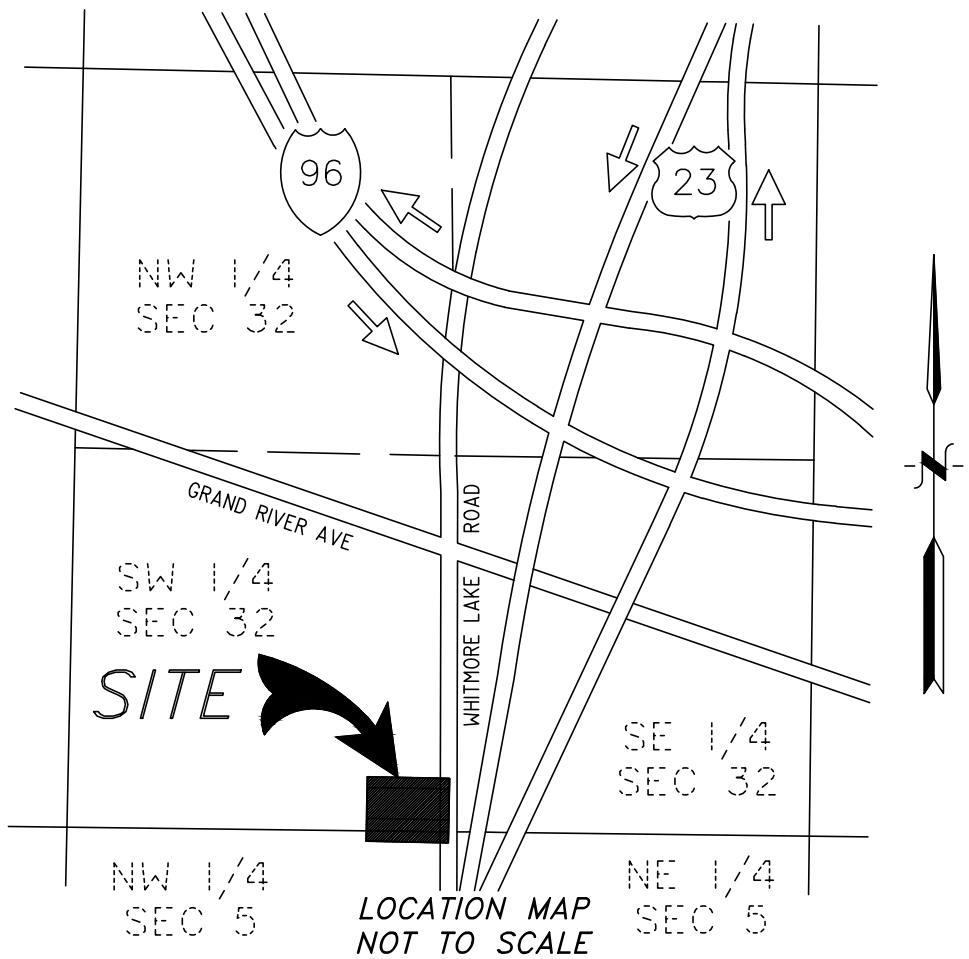


Map Unit Legend

Map Unit Symbol	Map Unit Name
BIB	Boyer-Oshetro loamy sands, 2 to 6 percent slopes
BIC	Boyer-Oshetro loamy sands, 6 to 12 percent slopes
BID	Boyer-Oshetro loamy sands, 12 to 18 percent slopes
CvA	Conover loam, 0 to 2 percent slopes
FoB	Fox sandy loam, 2 to 6 percent slopes
FoC	Fox sandy loam, 6 to 12 percent slopes
FiD	Fox-Boyer complex, 12 to 18 percent slopes
FiE	Fox-Boyer complex, 18 to 25 percent slopes
HmC	Hillsdale-Miami loams, 6 to 12 percent slopes
OkB	Oakville fine sand, loamy substratum, 0 to 6 percent slopes
SvE	Spinks-Oakville loamy sands, 18 to 25 percent slopes
Wh	Washtenaw silt loam
Totals for Area of Interest	

SOIL EROSION & SEDIMENTATION CONTROL PLAN

SCALE: 1" = 40'



SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

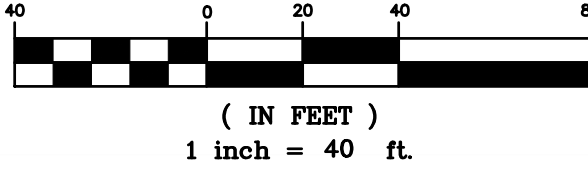
6	SEEDING WITH MULCH AND/OR WAITING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRIVeways WITH LOW VELOCITY EASILY PLACED IN SMALL QUANTITIES BY INDEPENDENT PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL SET.
9	VEGETATIVE BUFFER STRIP	SLOWS RUNOFF VELOCITY FILTERS SEDIMENT FROM RUNOFF REDUCES VOLUME OF RUNOFF ON SLOPES
13	RRPP, RUBBLE, CROCK	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATION PERMITS RUNOFF TO INFILTRATE SOIL RESISTS ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THIS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT-BASE CONSTRUCTION OF PAVED AREAS
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF, VOLUME AND VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
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

T = TEMPORARY P = PERMANENT

OVERALL AREA OF DISTURBANCE= 3.44 Ac.

DISTANCE TO NEAREST WATERCOURSE= 350 FT. (UNNAMED PRIVATE POND)
A COMMERCIAL SESC PERMIT FROM THE LCDC IS REQUIRED FOR THIS PROJECT

GRAPHIC SCALE



LEGEND

EX MISC. STRUCTURE (AS LABELED)	EX BOLLARD
EX SIGN	PR SIGNS
EX LIGHT BASE	EX UTILITY METER & BOXES (ELECTRIC METER, GAS METER, EX UTILITY MANHOLE (AS LABELED)
EX UTILITY POLE W/GUY WIRE	EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
EX U/G LINES (ELECTRIC/PHONE/CABLE)	EX DEODOROUS TREE W/IDENTIFIER
EX FENCE (CHAIN LINK UNLESS OTHERWISE STATED)	EX CONCRETE CURB (UNLESS OTHERWISE STATED)
PR CONCRETE CURB	EX SANITARY SEWER MANHOLE W/IDENTIFIER
EX SANITARY SEWER PIPE	EX SANITARY SEWER PIPE
EX CLEAN OUT	EX STORM WATER MANHOLE W/IDENTIFIER
EX CATCH BASIN W/IDENTIFIER	EX FLARED END SECTION
EX STORM WATER DRAINAGE PIPE	PR STORM WATER DRAINAGE PIPE
EX HYDRANT	EX WATER SHUT OFF
EX WATER VALVE	EX WATER VALVE BOX
EX WATER MAIN	EX U/G GAS
1' CONTOUR	5' CONTOUR

BENCHMARKS

DATUM (NAVD 88) BASED ON NGS OPUS SOLUTION REPORT, DATED JUNE 20, 2019 AT 8:55 AM
NOTE: PREVIOUS AS-BUILT DRAWING PREPARED BY PEI, REVISED DATE MAY 19, 2015 ON ASSUMED "NAVD 29" DATUM (DESCRIBED AS U.S.G.S.).
"NAVD 29" DATUM BEING 0.74 FEET HIGHER THAN "NAVD 88" AS CURRENTLY ESTABLISHED.

BENCHMARK #208 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 47.4 FEET NORTH OF BUILDING #6000 WHITMORE LAKE ROAD AND 83.50' WEST OF ENTRANCE GATE.
ELEVATION = 916.48 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)
BENCHMARK #209 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 11.50 FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY. ELEVATION = 939.81 (NAVD 88)
BENCHMARK #210
GEAR SPIKE IN EASTERLY SIDE OF UTILITY POLE, LOCATED 55.4 FEET WEST OF CENTERLINE OF WHITMORE LAKE ROAD AND 155.4 FEET SOUTH OF ENTRANCE.
ELEVATION = 934.24 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)
BENCHMARK #212
SOUTHEAST CORNER OF CONCRETE PAD, LOCATED 21.4 FEET SOUTHWEST FROM THE SOUTHEAST CORNER OF BUILDING #5942 WHITMORE LAKE ROAD.
ELEVATION = 845.00 (NAVD 88)
BENCHMARK #214 (OFF SITE)
ARROW ON HYDRANT, LOCATED 53.4 FEET WEST OF THE CENTERLINE OF WHITMORE LAKE ROAD AND 42.4 FEET NORTH OF THE CENTERLINE ENTRANCE.
ELEVATION = 926.57 (NAVD 88)

NOTES:

- PROPOSED ON-SITE DETENTION BASINS SHALL BE EXCAVATED, TOP SOILED, SEED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
- PROPOSED STONE SURROUNDING BASIN STANDPIPES SHALL BE REFRESHED PRIOR TO PROJECT COMPLETION.
- SESC MEASURES SHALL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT.
- SEE SHEETS SE2 FOR SOIL EROSION AND SEDIMENTATION CONTROL PLAN NOTES & DETAILS.



3 WORKING DAYS BEFORE YOU DIG
CALL 811 OR 1-800-482-2171 (TOLL FREE)
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(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN:SVB	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: LF						
CHECK: WMP						

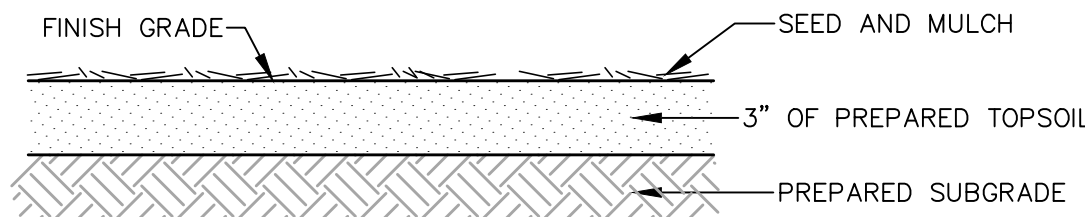
PURE ENERGY
5942 WHITMORE LAKE RD

SOIL EROSION & SEDIMENTAION CONTROL PLAN

CLIENT:
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5942 WHITMORE LAKE ROAD
BRIGHTON, MI 48116
(248) 446-6100

SCALE: 1"=40'
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SE1



6 SEEDING DETAIL

- 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.
- 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.
- 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.
- 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.
- Hydroseeding is not acceptable for slopes exceeding 1%. In such cases, stabilization shall be done with seed and straw mulch with a tackifier.
- 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 contractor. Place topsoil only when it can be followed within a reasonable time by seeding operations.

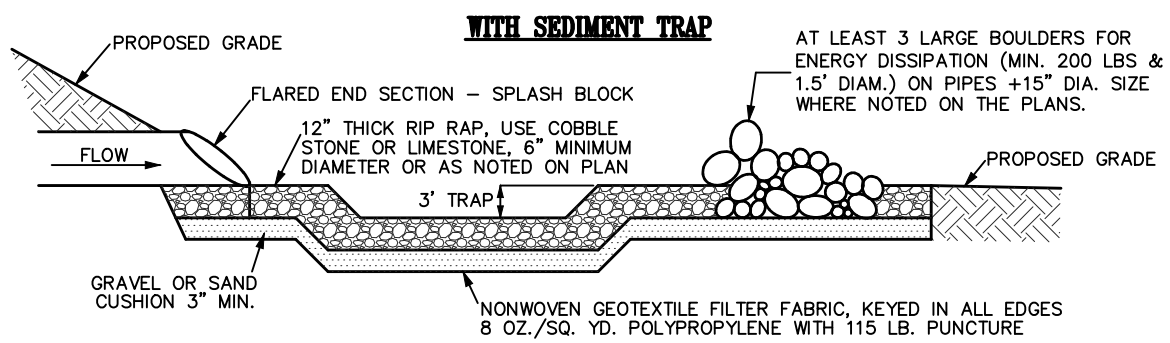
MIN. RIP RAP DIMENSIONS

PIPE DIAMETER (inch)	APRON LENGTH (feet)	(1) APRON WIDTH (feet)	(2) ALTERNATE APRON WIDTH (feet)
12	15	15	16
15	15	15	20
18	18	15	24
21	21	15	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

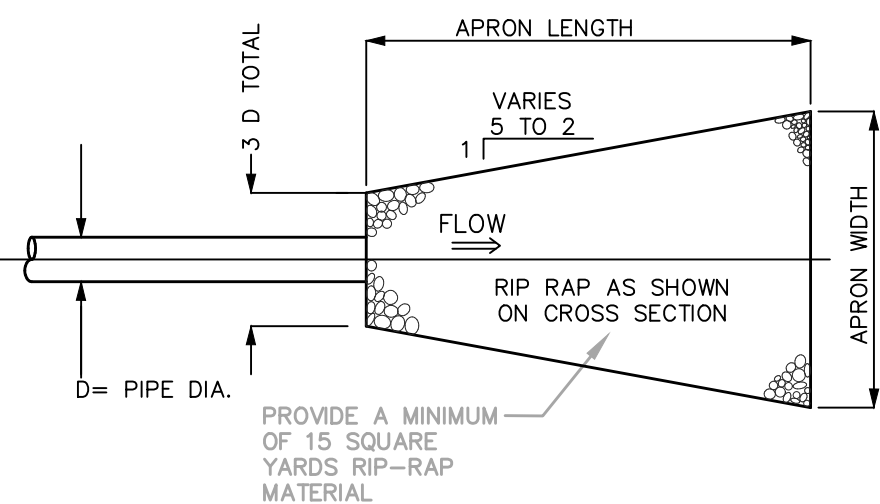
(2) APRON WIDTH FOR USE IN FLAT AREAS WHERE SHEET FLOW DESIRED



13 RIP RAP CROSS SECTION

NOTES:

- GROUT RIP-RAP WITH A 6" THICK CEMENT SLURRY FOR SLOPES STEEPER THAN 20% 5 ON 1.
- PROVIDE ANIMAL GUARDS ON ALL STORM SEWER 15" DIA. OR GREATER, INCIDENTAL TO FES PIPE.
- STORM DRAIN OUTLETS THAT DO NOT EMPTY INTO THE DETENTION BASIN SHALL HAVE INSTALLED A TEMPORARY SEDIMENT TRAP AT THE TERMINATION OF THE STORM SEWER (5'x10'x3' TYP.). UPON COMPLETION OF THE STABILIZATION WORK, THE SUMP AREA SHALL BE FILLED AND RIP-RAPPED.



13 RIP RAP PLAN

NOT TO SCALE

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 EOLE 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.

BASIN PERFORATED STANDPIPES / CONTROL STRUCTURES: Standpipes shall be inspected for soil accumulation, soil caking and mechanical failure/damage. The filter stone around the standpipe shall be removed and replaced each time it becomes clogged with sediment. All mechanical failure/damage shall be repaired immediately.

CATCH BASINS: Catch basins shall be inspected for accumulation of solids and sediment. Solids and sediment shall be removed from the catch basins by vacuum or aductor cleaning. Cleaning should be performed before the catch basin sumps are half full.

MUD TRACKING CONTROL DEVICE / CONSTRUCTION ACCESS: Mud tracking control devices shall be inspected for significant mud accumulation and to ensure the access is not eroding into public rights of way or drainage features. Add additional layers of stone or remove and replace stone each time the stone becomes covered with mud. All sediment dropped or eroded onto public rights of way shall be removed immediately. Sweeping of the public rights of way and/or paved access route shall be performed as necessary to maintain the access route free of sediment and debris.

DETENTION BASIN (DRY BOTTOM): Dry bottom detention basins shall be inspected to ensure erosion is not occurring along the inlet locations, banks and/or bottom of the basin and for sediment accumulation. Regular maintenance of the basin includes routine mowing of the buffer/filter strip, side slopes and basin floor and removal of litter and debris accumulation. Address vegetation and/or erosion concerns as soon as weather permits. Remove sediment from basin every 5 to 10 years or sooner if sediment accumulation adversely affects the operation of the basin. Sediment that is removed shall be disposed of offsite or at an upland area and stabilized so that it does not re-enter the drainage course.

RIPRAP: Inspect riprap immediately following the first rainfall event following installation of the riprap. Continue to perform inspections of the riprap at each periodic site inspection. Riprap shall be inspected to ensure erosion is not occurring within and/or around the riprap. The discharge point shall be inspected to ensure that concentrated flows are not causing erosion downstream. Displaced riprap shall be removed from downstream locations and the riprap beds shall be repaired or replaced. Significant sediment buildup shall be removed from riprap beds. Repair or replace failing or displaced riprap immediately. Address vegetation and/or erosion concerns as soon as weather permits.

SEDIMENTATION BASINS: Sedimentation basins shall be inspected to ensure erosion is not occurring along the inlet locations, banks and/or bottom of the basin and for piping, seepage, sediment accumulation and/or other mechanical damage. Regular maintenance of the basin includes routine mowing of the buffer/filter strip, side slopes and basin floor and removal of litter and debris accumulation. Address vegetation and/or erosion concerns as soon as weather permits. Sediment shall be removed before it accumulates to 50% of the design depth of the basin. Sediment that is removed shall be disposed of offsite or at an upland area and stabilized so that it does not re-enter the drainage course.

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 place 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.

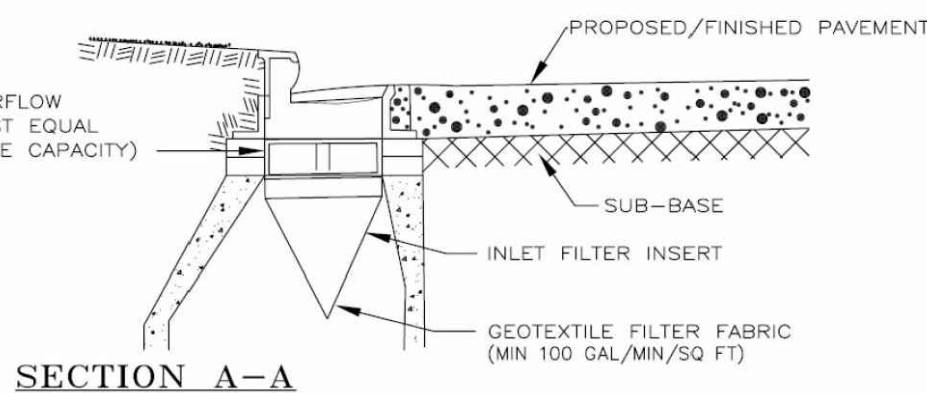
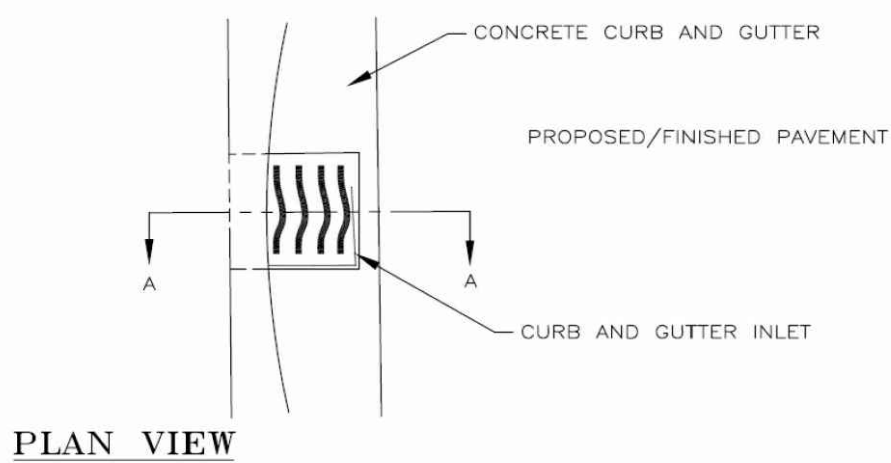
STOCKPILES: Temporary and permanent topsoil and spoils stockpiles shall be seeded to promote vegetative growth. Stockpiles shall be inspected to ensure excessive erosion has not occurred. When runoff or wind erosion is evident, reduce the side slopes of the stockpile or stabilize the stockpile with pieces 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 failed filter fabrics immediately. Replace damaged filter fabrics immediately.

58 SILT SACK OR APPROVED EQUAL CURB AND GUTTER INLET FILTER

STANDARD CONTROL YEAR ROUND OR WINTER USE

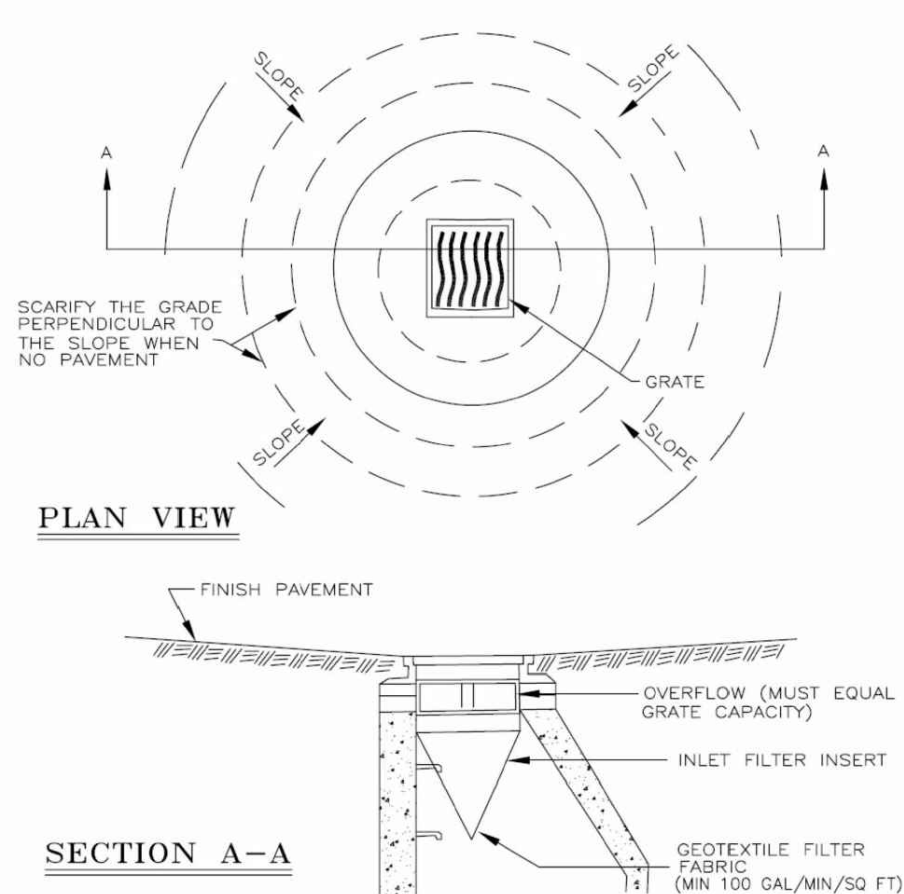
APPROVED FOR USE DURING WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



58 SILT SACK OR APPROVED EQUAL LOW POINT/YARD INLET FILTER

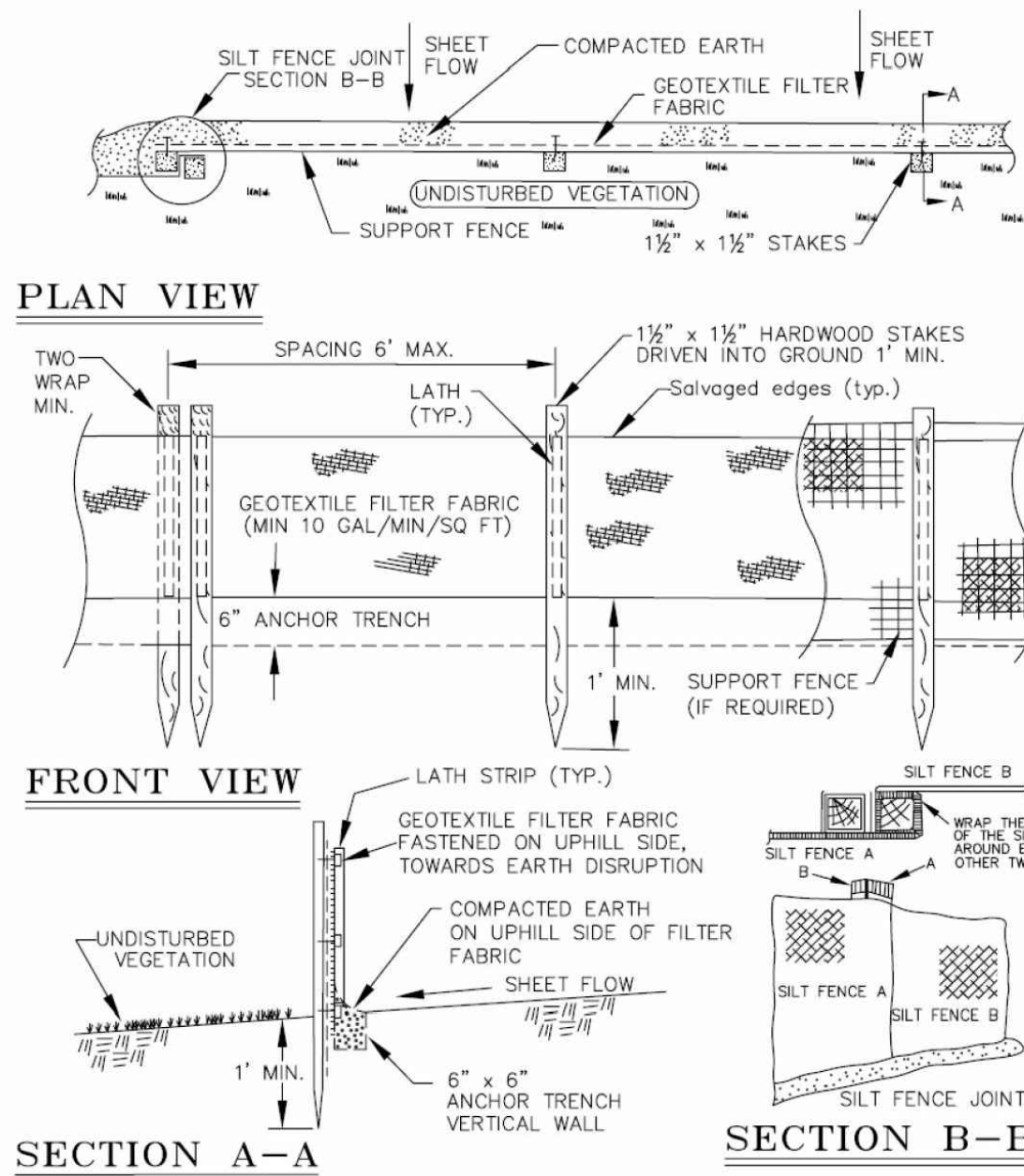
STANDARD CONTROL YEAR ROUND OR WINTER USE

APPROVED FOR USE DURING WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



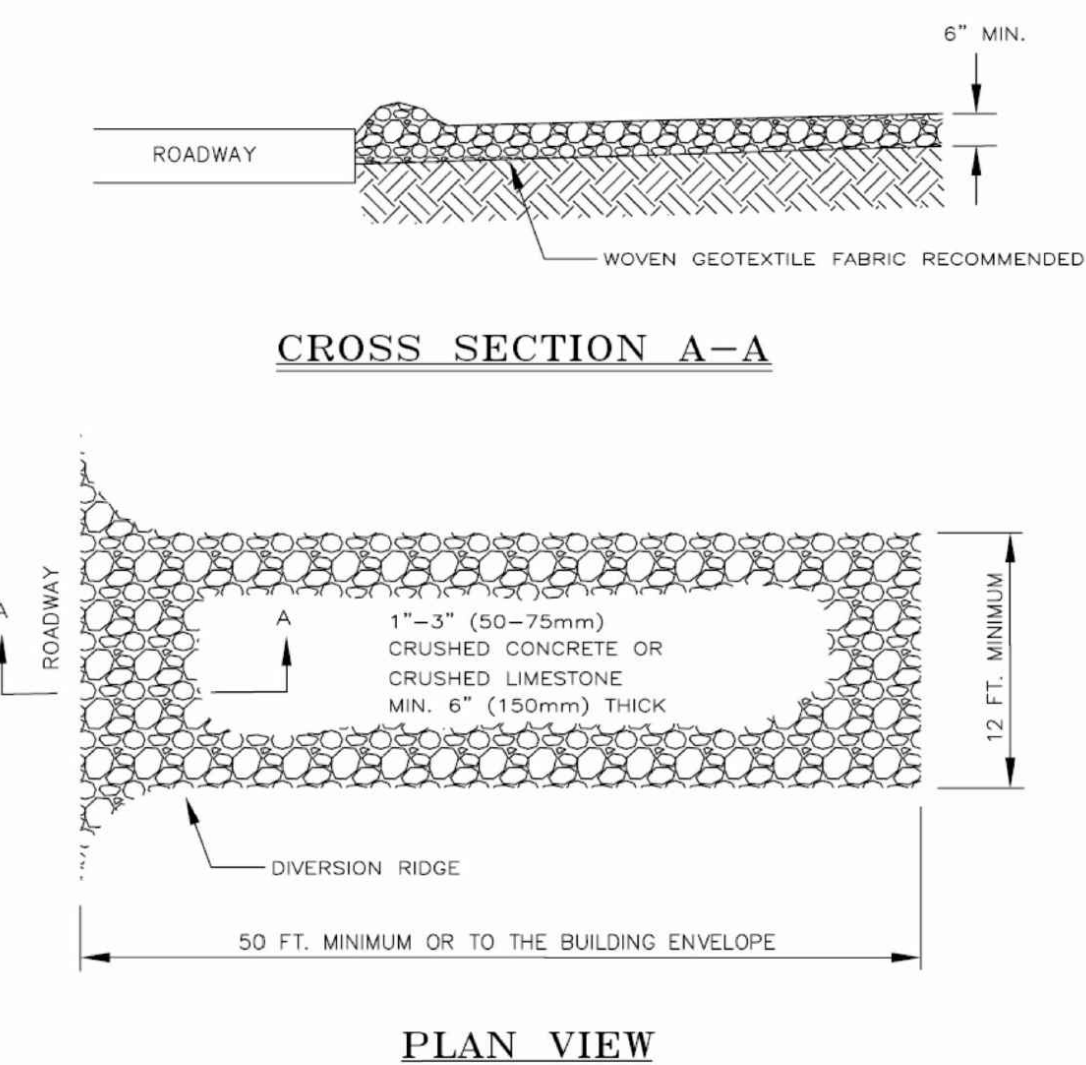
55 36" SILT FENCE

STANDARD CONTROL



14 TRACKING MAT

STANDARD CONTROL



PLAN VIEW

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

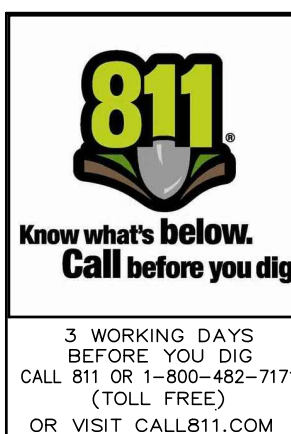
- Following complete site restoration and stabilization; sediment shall be removed from all storm sewer structures, paved areas and storm basins. The SESC Permit Holder shall contact the Permitting Agency to request closure of the SESC Permit. For any site with an earth disturbance area of 5 acres or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

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

6	SEEDING WITH MULCH AND/OR NUTRIENT	ACCELERATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY EASILY PLACED IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL AND
9	VEGETATIVE BUFFER STRIP	SLOWS RUNOFF VELOCITY FILTERS SEDIMENT FROM RUNOFF REDUCES VOLUME OF RUNOFF ON SLOPES
13	RIPRAP, RUBBLE, CARBONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATION PERMITS RUNOFF TO INFILTRATE SOIL DISIPATES 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
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VOLUME AND VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR PILES MAY BE CONSTRUCTED OR PREPARED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58	INLET SEDIMENT FILTER	USES PREPARED GEOTEXTILE SACKS FILTERS SEDIMENT FROM RUNOFF AT CATCH BASIN INLET EASY TO INSTALL AND MAINTAIN

T = TEMPORARY P = PERMANENT
TOTAL DISTURBED AREA 2.58 AC.

DISTANCE TO NEAREST WATERCOURSE= 350 FT. (UNNAMED PRIVATE POND)
A COMMERCIAL SESC PERMIT FROM THE LCDC IS REQUIRED FOR THIS PROJECT



DESIGN:SVB	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.						
CHECK: WMP						

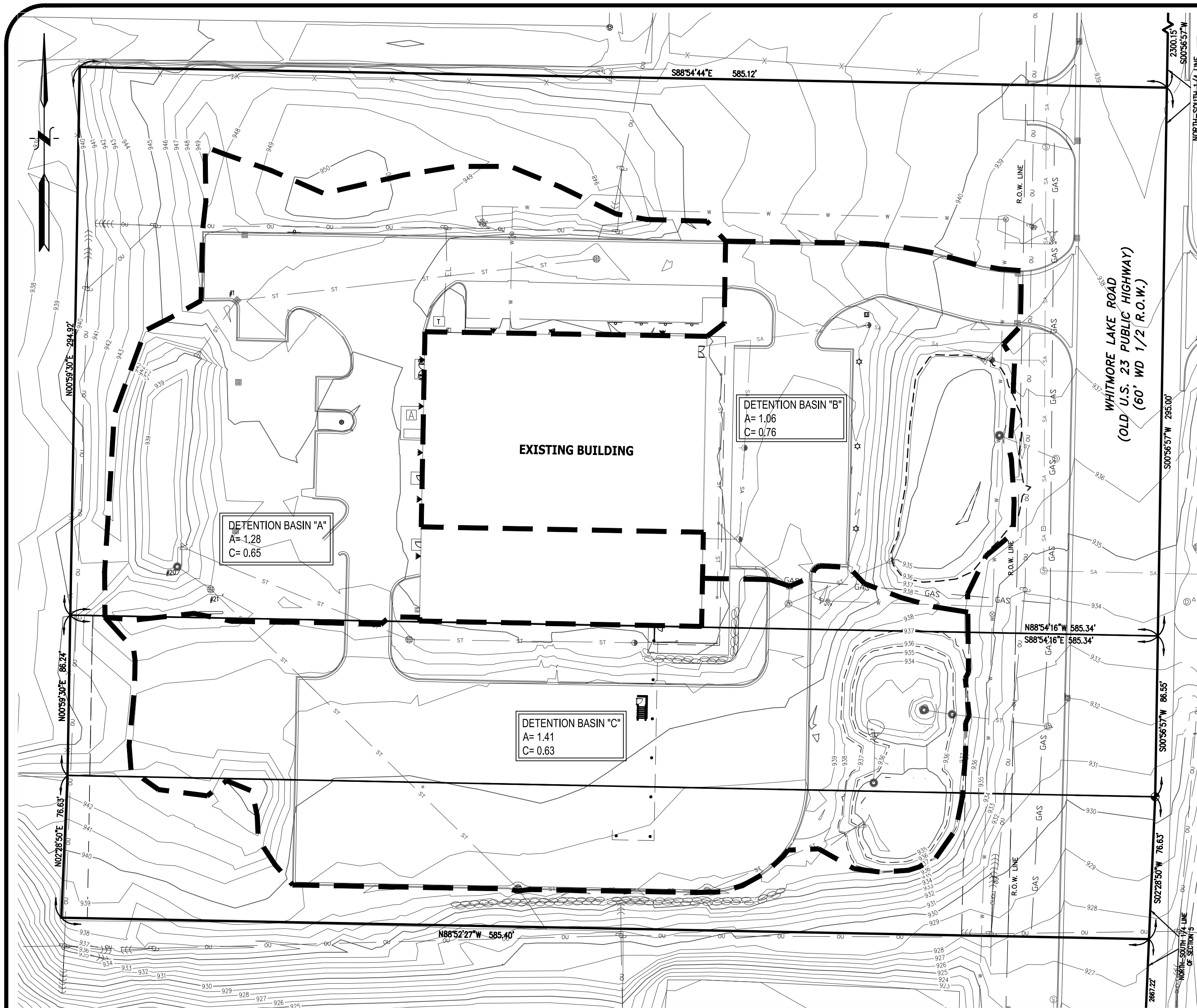
PURE ENERGY
5942 WHITMORE LAKE RD

SOIL EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS

CLIENT:
PLATINUM DEVELOPMENT GROUP INC.
5942 WHITMORE LAKE ROAD
BRIGHTON, MNI 48116
(248) 446-6100

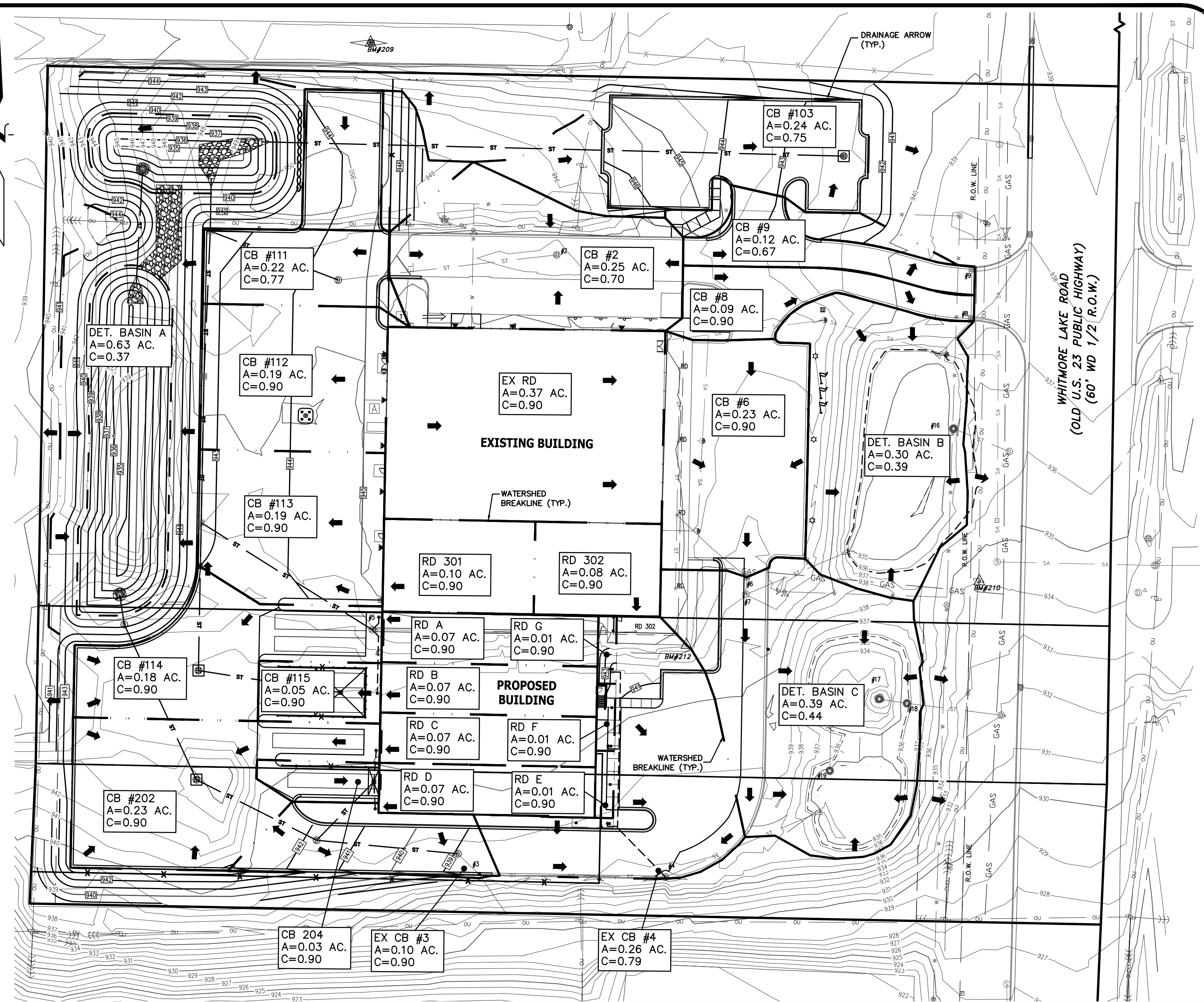
SCALE: AS NOTED
PROJECT No.: 9244762
DWG NAME: 4762 SE
ISSUED: MAR. 28, 2025

SE2



EXISTING WATERSHED AREAS

SCALE: 1" = 40'



PROPOSED WATERSHED AREAS

SCALE: 1" = 40'

EXISTING RUN-OFF COEFFICIENT CALCULATION

ON-SITE DETENTION BASINS (OVERALL)

Structure	0.90 Pavement	0.80 Gravel	0.90 Building	0.20 Lawn	1.00 Pond	(ACRES) Area	"C"
DET. BASIN 'A'	0.49	0.12	0.18	0.45	0.04	1.28	0.65
DET. BASIN 'B'	0.40	0.00	0.37	0.22	0.07	1.06	0.76
DET. BASIN 'C'	0.80	0.02	0.00	0.55	0.04	1.41	0.63

TOTAL AREA = 3.75 Ac.
RUN-OFF COEFFICIENT = 0.67

LEGEND

- EX UTILITY POLE W/ GUY WIRE
- EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- EX U/G LINES (ELECTRIC/PHONE/CABLE)
- EX DECIDUOUS TREE W/ IDENTIFIER
- EX FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- EX CONCRETE CURB (UNLESS OTHERWISE STATED)
- PR CONCRETE CURB
- EX SANITARY SEWER MANHOLE W/ IDENTIFIER
- EX SANITARY SEWER PIPE
- EX CLEAN OUT
- EX STORM WATER MANHOLE W/ IDENTIFIER
- EX CATCH BASIN W/ IDENTIFIER
- EX FLARED END SECTION
- EX STORM WATER DRAINAGE PIPE
- PR STORM WATER DRAINAGE PIPE
- EX HYDRANT
- EX WATER SHUT OFF
- EX WATER VALVE
- EX WATER VALVE BOX
- EX WATER MAIN
- EX U/G GAS
- 1" CONTOUR
- 5' CONTOUR
- PR LIGHT POLES
- EX DRAINAGE AREA
- PR DRAINAGE AREA
- FLOW ARROW

PROPOSED STORM WATER RUN-OFF (BASIN A)

Area	0.90 Pavement	0.90 Building	0.20 Lawn	1.00 Water	(ACRES) Area	"C" Factor
EX 2	0.18	0.00	0.07	0.00	0.25	0.70
101	0.00	0.00	0.00	0.00	0.00	0.00
103	0.19	0.00	0.05	0.00	0.24	0.75
111	0.18	0.00	0.04	0.00	0.22	0.77
112	0.19	0.00	0.00	0.00	0.19	0.90
113	0.19	0.00	0.00	0.00	0.19	0.90
114	0.18	0.00	0.00	0.00	0.18	0.90
115	0.05	0.00	0.00	0.00	0.05	0.90
RD 301	0.00	0.10	0.00	0.00	0.10	0.90
RD 302	0.00	0.08	0.00	0.00	0.08	0.90
5 RD A	0.00	0.07	0.00	0.00	0.07	0.90
5 RD B	0.00	0.07	0.00	0.00	0.07	0.90
BASIN A	0.00	0.00	0.50	0.13	0.63	0.37

"C" = 0.63

PROPOSED STORM WATER RUN-OFF (BASIN C)

Area	0.90 Pavement	0.90 Building	0.20 Lawn	1.00 Water	(ACRES) Area	"C" Factor
EX 3	0.10	0.00	0.00	0.00	0.10	0.90
EX 4	0.19	0.00	0.04	0.00	0.23	0.78
202	0.23	0.00	0.00	0.00	0.23	0.90
204	0.03	0.00	0.00	0.00	0.03	0.90
205 RD C	0.00	0.07	0.00	0.00	0.07	0.90
205 RD D	0.00	0.07	0.00	0.00	0.07	0.90
RD E	0.00	0.01	0.00	0.00	0.01	0.90
RD F	0.00	0.01	0.00	0.00	0.01	0.90
RD G	0.00	0.01	0.00	0.00	0.01	0.90
BASIN C	0.09	0.00	0.26	0.04	0.39	0.44

"C" = 0.70

PROPOSED STORM WATER RUN-OFF (BASIN B)

Area	0.90 Pavement	0.90 Building	0.20 Lawn	1.00 Water	(ACRES) Area	"C" Factor
EX 6	0.23	0.00	0.00	0.00	0.23	0.90
EX 8	0.09	0.00	0.00	0.00	0.09	0.90
EX 9	0.08	0.00	0.04	0.00	0.12	0.67
EX RD	0.00	0.37	0.00	0.00	0.37	0.90
BASIN B	0.00	0.00	0.23	0.07	0.30	0.39

"C" = 0.74



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DRAFT: L.F.						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

WATERSHED PLAN

CLIENT:	SCALE: AS NOTED
PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	PROJECT No.: 9244762 DWG NAME: 4762 WS ISSUED: MAR. 28, 2025

WS

General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"
3. LIGHTING ALTERNATES REQUIRE NEW PHOTOMETRIC CALCULATION AND RESUBMISSION TO CITY FOR APPROVAL.
4. EXISTING FIXTURES NEED TO BE FIELD VERIFIED BY ENGINEER. GBA WILL NOT BE RESPONSIBLE FOR ACTUAL CALCULATIONS IN FIELD.

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 ASC@GASSERBUSH.COM OR 734-266-6705.

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

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

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

Drawing Note

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

Mounting Height Note

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

Ordering Note

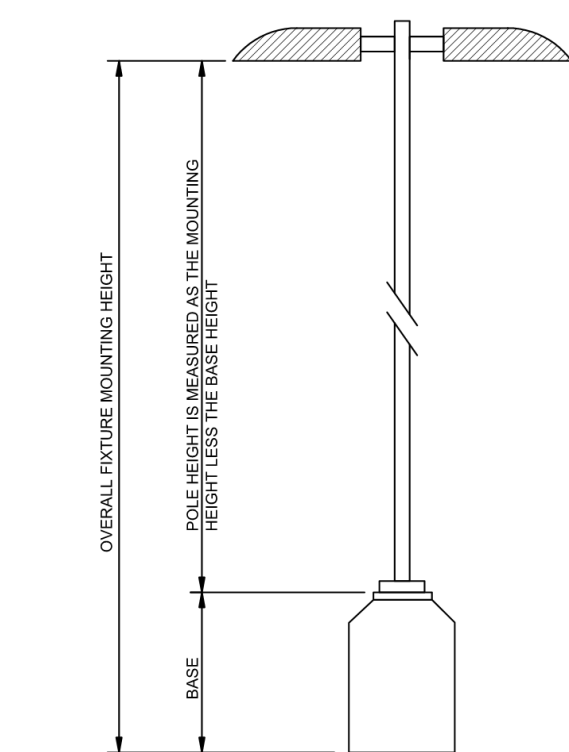
FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Dark Sky Note

ALL FIXTURES INCLUDED ON THIS DESIGN ARE IN COMPLIANCE WITH INTERNATIONAL DARK SKY ASSOCIATION REGULATIONS FOR DARK SKY FRIENDLY FIXTURE(S).

Alternates Note

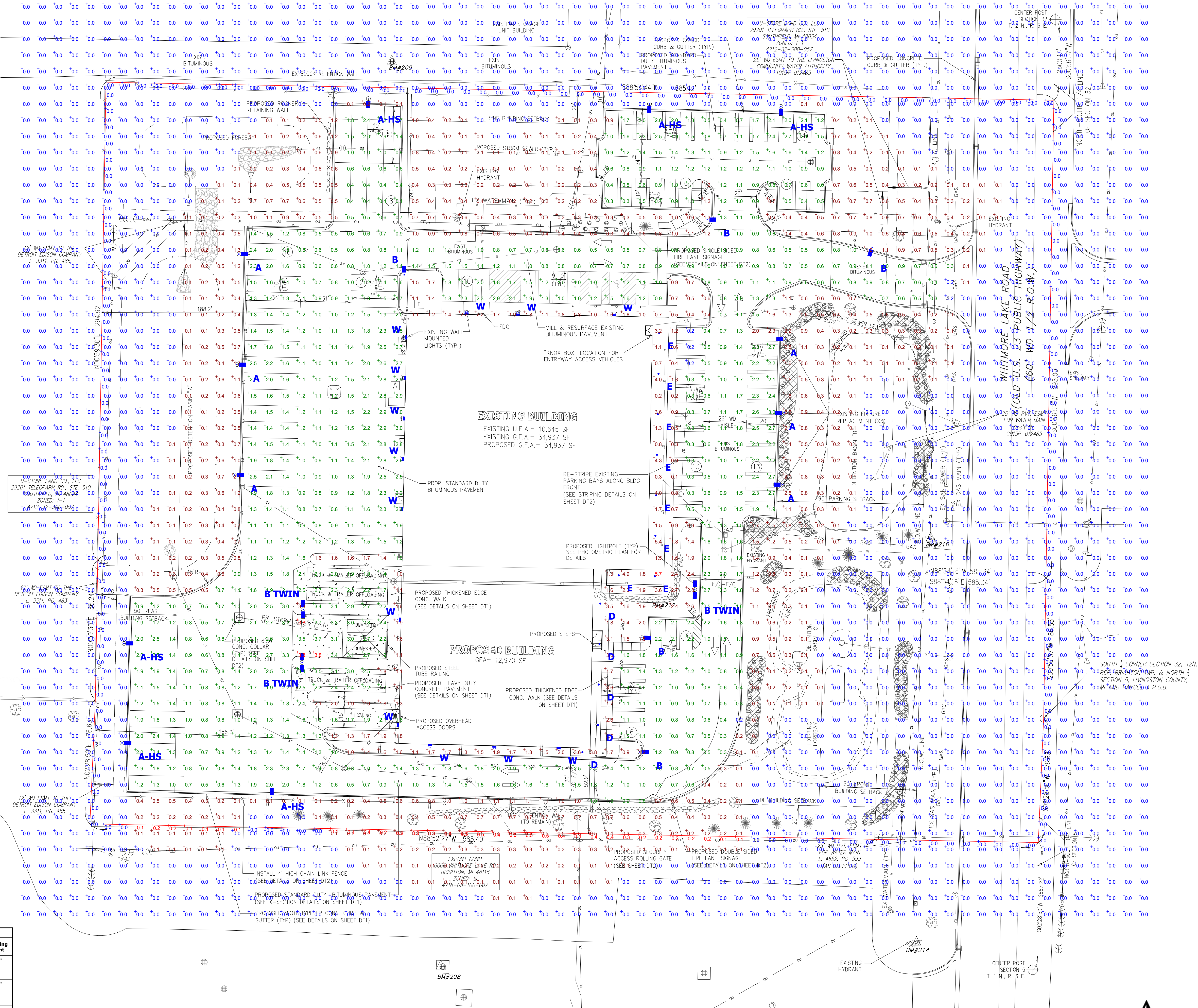
ALTERNATE LIGHTING FIXTURES WILL NOT MEET CITY ORDINANCE COMPLIANCE DUE TO THE PRECISE OPTICAL AND OUTPUT PERFORMANCE SELECTED FOR THESE FIXTURES. ALTERNATE LIGHTING PROPOSALS MUST BE RECALCULATED AND RESUBMITTED TO THE CITY FOR APPROVAL. CONTACT LAYOUTS@GASSERBUSH.COM FOR ASSISTANCE WITH ALTERNATE OPTIONS IF NEEDED.



Energize with confidence!
Contact our EV Charging Team to
source and specify industry leading
hardware and software solutions.

Chris Aina
caina@gasserbush.com
734-460-4036
www.gasserbush.com

Schedule											
Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Mounting Height
	A	6	Lithonia Lighting	DSXO LED P2 40K 70CRI T4H	D-Series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Type 4 Medium	LED	1	6272	0.9	45.14	15'-0"
	A-HS	6	Lithonia Lighting	DSXO LED P2 40K 70CRI BLC4	D-Series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Type 4 Extreme Backlight Control	LED	1	4643	0.9	45.14	15'-0"
	B	5	Lithonia Lighting	DSXO LED P2 40K 70CRI TSW	D-Series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Type 5 Wide	LED	1	6558	0.9	45.14	15'-0"
	B TWIN	3	Lithonia Lighting	DSXO LED P2 40K 70CRI TSW	D-Series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Type 5 Wide	LED	1	6558	0.9	90.28	15'-0"
	D	5	Lithonia Lighting	LDN6 40/10 LOGAR LD	6IN LDN, 4000K, 1000LM, CLEAR, MATTE DIFFUSE REFLECTOR, CR180	LED	1	851	0.9	10.44	16'-6"
	E	8	Lithonia Lighting	LDN6 40/07 LOGAR LD	6IN LDN, 4000K, 750LM, CLEAR, MATTE DIFFUSE REFLECTOR, CR180	LED	1	679	0.9	8.91	11'-6"
	W	13	Lithonia Lighting	DSXW1 P4 40K TTFM	5000 4000K 70CRI Forward Throw Medium	LED	1	4214	0.9	28.68	16'-0"



Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
PARKING AND DRIVES	+	1.4 fc	3.8 fc	0.2 fc	19.0:1	7.0:1	0.4:1
PROPERTY LINE	+	0.0 fc	0.5 fc	0.0 fc	N/A	N/A	0.0:1
OVERALL	+	0.5 fc	5.7 fc	0.0 fc	N/A	N/A	0.1:1

Plan View

Scale - 1" = 30ft



Designer
DB/KB
Date
6/15/2020
rev. 5/17/2021
rev. 3/27/2025
Scale
Not to Scale
Drawing No.
#20-51008 V4
1 of 2

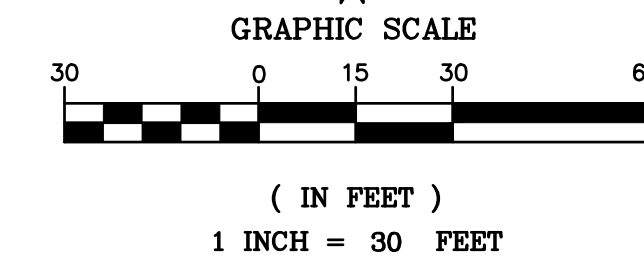
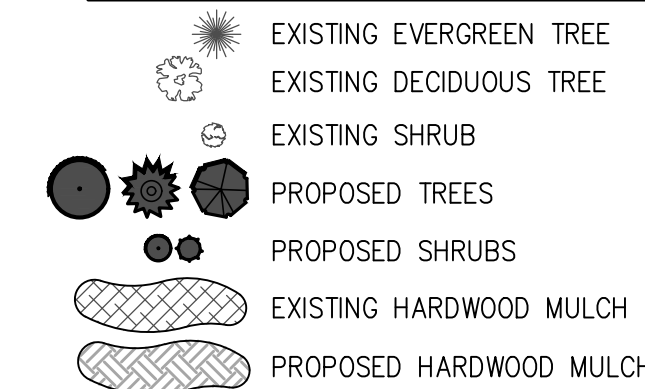
PURE ENERGY
EXTERIOR PHOTOMETRIC SITE PLAN
PREPARED FOR: DESINE INC
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM



TREE SCHEDULE

No.	DESCRIPTION
1	OAK 22"
2	OAK 40"
3	OAK 30"
4	OAK 18" (TBR)
5	OAK 20" (TBR)
6	OAK 10" (TBR)
7	OAK 24" TWIN (TBR)
8	OAK 15" (TBR)
9	OAK 24" (TBR)
10	OAK 20" (TBR)
11	OAK 24" TWIN (TBR)
12	OAK 36" (TBR)
13	OAK 36" (TBR)
14	OAK 10" X3 (TBR)
15	OAK 36" TWIN (TBR)
16	OAK 48" (TBR)
17	OAK 24" (TBR)
18	HONEYLOCUST 4" (TBR)
19	HONEYLOCUST 4" (TBR)
20	HONEYLOCUST 4" (TBR)
21	HONEYLOCUST 4" (TBR)
22	MAPLE 5"
23	MULBERRY 6"
24	PINE 6"
25	PINE 6"
26	PINE 6"
27	PINE 6" (TBR)
28	PINE 6" (TBR)
29	PINE 6" (TBR)
30	MAPLE 6"
31	MAPLE 5"
32	PINE 12"
33	PINE 6"
34	PEAR 4"
35	PEAR 4"
36	PEAR 6"
37	MAPLE 5"
38	PINE 6"
39	PINE 6"
40	PINE 6"
41	PINE 6"
42	MAPLE 4"
43	MULBERRY 6"
44	MAPLE 6"
45	MAPLE 5"
46	MAPLE 5"
47	MAPLE 5"
48	MAPLE 5"
49	PEAR 5"
50	CHERRY 4" (TBR)
51	HONEYLOCUST 4" (TBR)
52	PINE 6"
53	PINE 6" (TBR)
54	PINE 4" (TBR)
55	PINE 6" (TBR)
56	PINE 6" (TBR)
57	PINE 6" (TBR)
58	PEAR 9" (TBR)
59	PINE 8"
60	PINE 10" (TBR)
61	PEAR 10" (TBR)
62	PEAR 6"
63	PEAR 6"
64	CHERRY 12"
65	MAPLE 4"
66	PINE 6"
67	PINE 12"
68	PEAR 6"
69	PEAR 5"
70	PEAR 5"
71	MAPLE 6"
72	MAPLE 6"
73	HONEYLOCUST 6"

LANDSCAPE LEGEND



PURE ENERGY LANDSCAPING CALCULATIONS

CATEGORY / CALCULATION	BRIGHTON TOWNSHIP			GREEN OAK TOWNSHIP		
	REQUIRED TREES	EXISTING PRESERVED TREES	PROPOSED TREES	REQUIRED TREES	EXISTING PRESERVED TREES	PROPOSED TREES
WHITMORE LAKE RD. FRONT GREENBELT (20' WD. MINIMUM)						
1 DEC. / EVERGREEN TREE PER 30 LF. OF FRONTAGE (381.55 / 30) = Brighton Twp. Requirement (76.63 / 30) = Green Oak Twp. Requirement	13	0	9	0	4	0
1 ORN. TREE PER 10 LF. OF FRONTAGE (76.63 / 100) =	N/A	N/A	0	0	0	0
5 SHRUBS PER 50 LF. OF FRONTAGE (76.63 / 30) =	N/A	N/A	0	0	0	0
SIDE GREENBELT (20' WD. MINIMUM)						
1 DEC. / EVERGREEN TREE PER 30 LF. (469 / 30) =	N/A	N/A	0	21	4	0
15 SHRUBS PER TREE MAY SUBSTITUTE (76.63 / 30) =	N/A	N/A	0	0	0	0
REAR GREENBELT (20' WD. MINIMUM)						
1 DEC. / EVERGREEN TREE PER 30 LF. (76.63 / 30) =	N/A	N/A	0	0	0	0
15 SHRUBS PER TREE MAY SUBSTITUTE (76.63 / 30) =	N/A	N/A	0	0	0	0
PARKING LOT						
1 CANOPY TREE PER 30 PARKING STALLS (68 / 10) =	7	N/A	2	74	5	0
DETENTION BASIN "A"						
1 TREE PER 50 LF. OF BASIN PERIMETER (717 / 50) =	14	0	0	0	14	0
10 SHRUBS PER 50 LF. OF BASIN PERIMETER (717 / 50) X (10) =	0	140	0	0	0	140
ORNAMENTAL FENCE IS REQUIRED WHEN BASIN SLOPE IS GREATER THAN 1:5 (4" FENCE IS PROPOSED)	YES	YES	YES	N/A	N/A	N/A
DETENTION BASIN "B"						
1 TREE PER 50 LF. OF BASIN PERIMETER (325 / 50) =	7	0	4	0	3	0
10 SHRUBS PER 50 LF. OF BASIN PERIMETER (325 / 50) X (10) =	0	66	0	66	0	0
ORNAMENTAL FENCE IS REQUIRED WHEN BASIN SLOPE IS GREATER THAN 1:5	N/A	N/A	N/A	N/A	N/A	N/A
DETENTION BASIN "C"						
1 TREE PER 50 LF. OF BASIN PERIMETER (360 / 50) =	7	0	7	0	2	0
10 SHRUBS PER 50 LF. OF BASIN PERIMETER (360 / 50) X (10) =	0	72	0	76	0	0
ORNAMENTAL FENCE IS REQUIRED WHEN BASIN SLOPE IS GREATER THAN 1:5	N/A	N/A	N/A	N/A	N/A	N/A
LANDMARK PRESERVATION TREES (GREEN OAK TWP.)						
1" OF REPLACEMENT TREE FOR EA. DBH INCH OF LANDMARK TREE REMOVED (36" DBH) X (3) = 36 TREES 3" IN DIAMETER	N/A	N/A	N/A	N/A	30	N/A
EXISTING PRESERVED & PROPOSED TOTALS =	22	237	48	140	14	13

PROPOSED LANDSCAPE PLANTING LEGEND

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE	ROOT
DECIDUOUS TREES					
RM	13	<i>Acer rubrum</i>	Red maple	3" Caliper	B & B
SH	16	<i>Gleditsia triacanthos 'Sunburst'</i>	Sunburst Honey Locust	3" Caliper	B & B
LL	7	<i>Tilia Cordata</i>	Little Leaf Linden	3" Caliper	B & B
RO	9	<i>Quercus Rubra</i>	American Red Oak	3" Caliper	B & B
AM	9	<i>Acer "Americana"</i>	American Red Maple	3" Caliper	B & B
EVERGREEN TREES					
NS	7	<i>Picea Abies</i>	Norway Spruce	4' Height	B & B
CF	9	<i>Abies Concolor</i>	Concolor Fir	4' Height	B & B
ORNAMENTAL TREES					
PF	5	<i>Malus "Prairifire"</i>	Prairifire Flowering Crabapple	4' Height	B & B
DECIDUOUS SHRUBS					
BB	48	<i>Euonymus alata 'Compacta'</i>	Dwarf Burning Bush	24" Height	Container
NF	46	<i>Spiraea Japonica 'Neon Flash'</i>	Neon Flash Spirea	24" Height	Container
EVERGREEN SHRUBS					
GA	46	<i>Thuja occidentalis "Little Giant"</i>	Little Giant Globe Arborvitae	24" Height	Container

NOTE: ALL LAWN & LANDSCAPED AREA WITHIN PROPOSED "LIMITS OF IRRIGATION" SHALL BE IRRIGATED. SEE LANDSCAPE NOTES 20 ON SHEET LA2 FOR IRRIGATION SYSTEM & METERING REQUIREMENTS.

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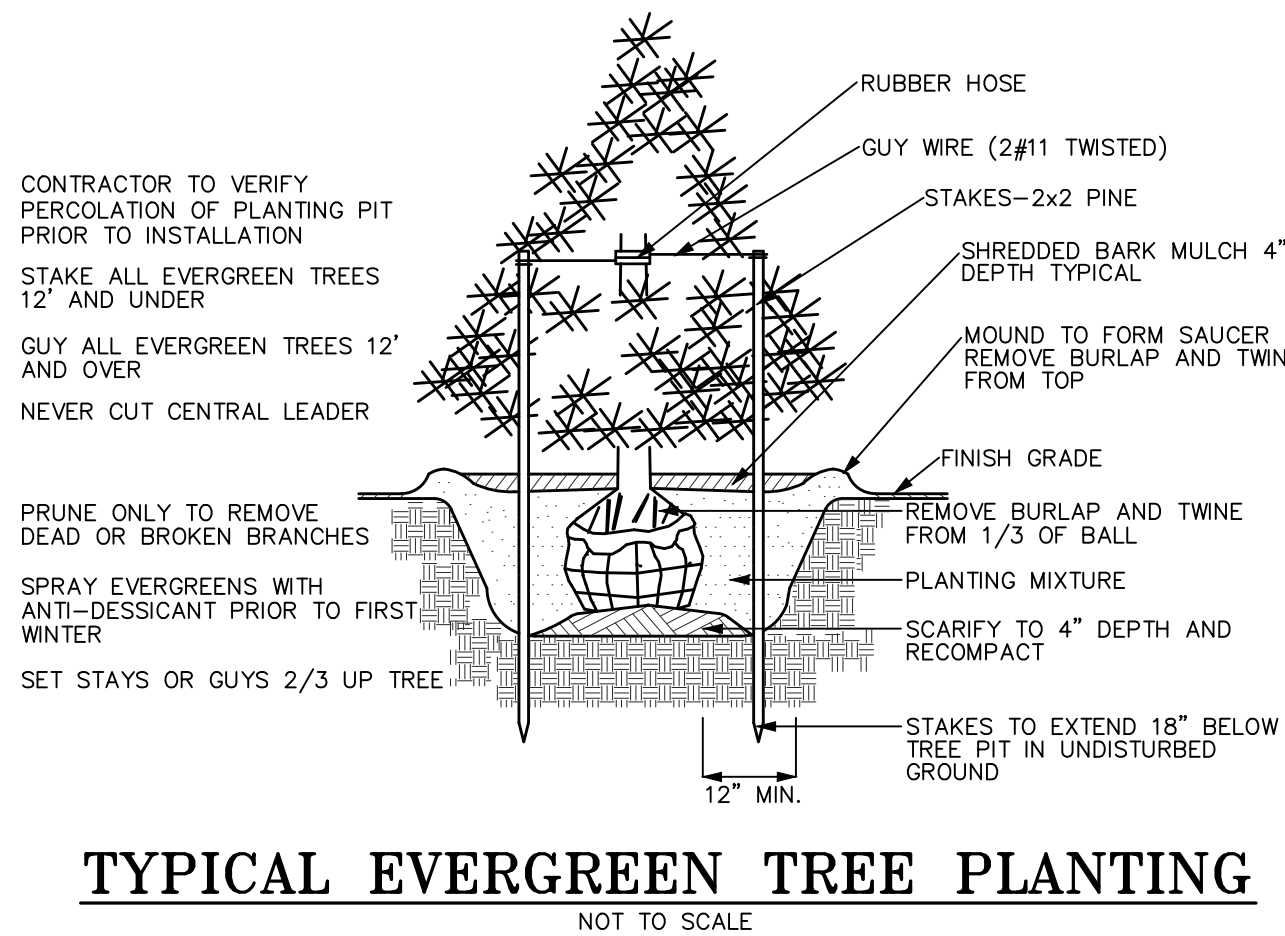
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DRAFT: L.F.						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

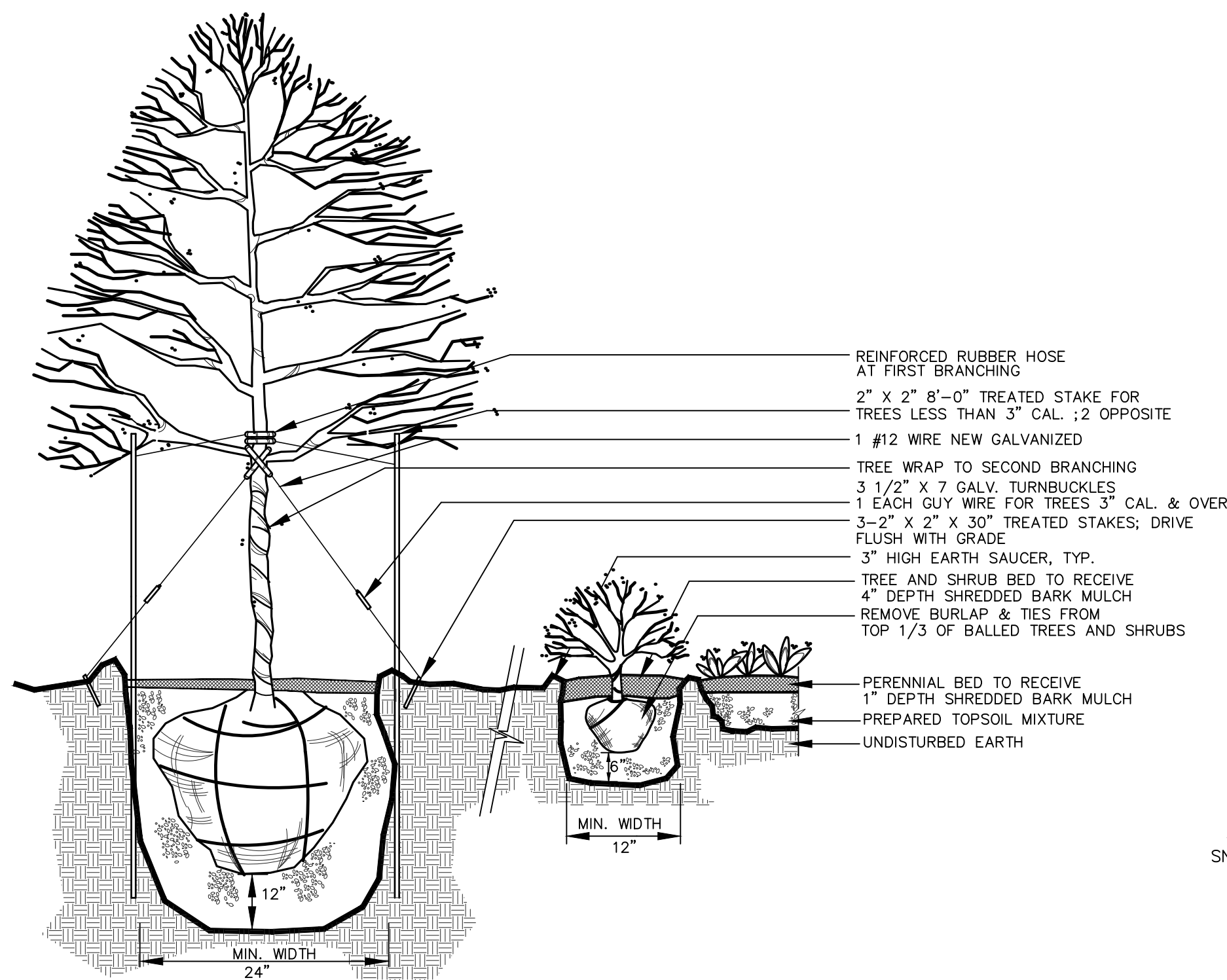
LANDSCAPE PLAN

CLIENT:	SCALE: 1" = 30'
PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	PROJECT No.: 9244762 DWG NAME: 4762 LA ISSUED: MAR. 28, 2025

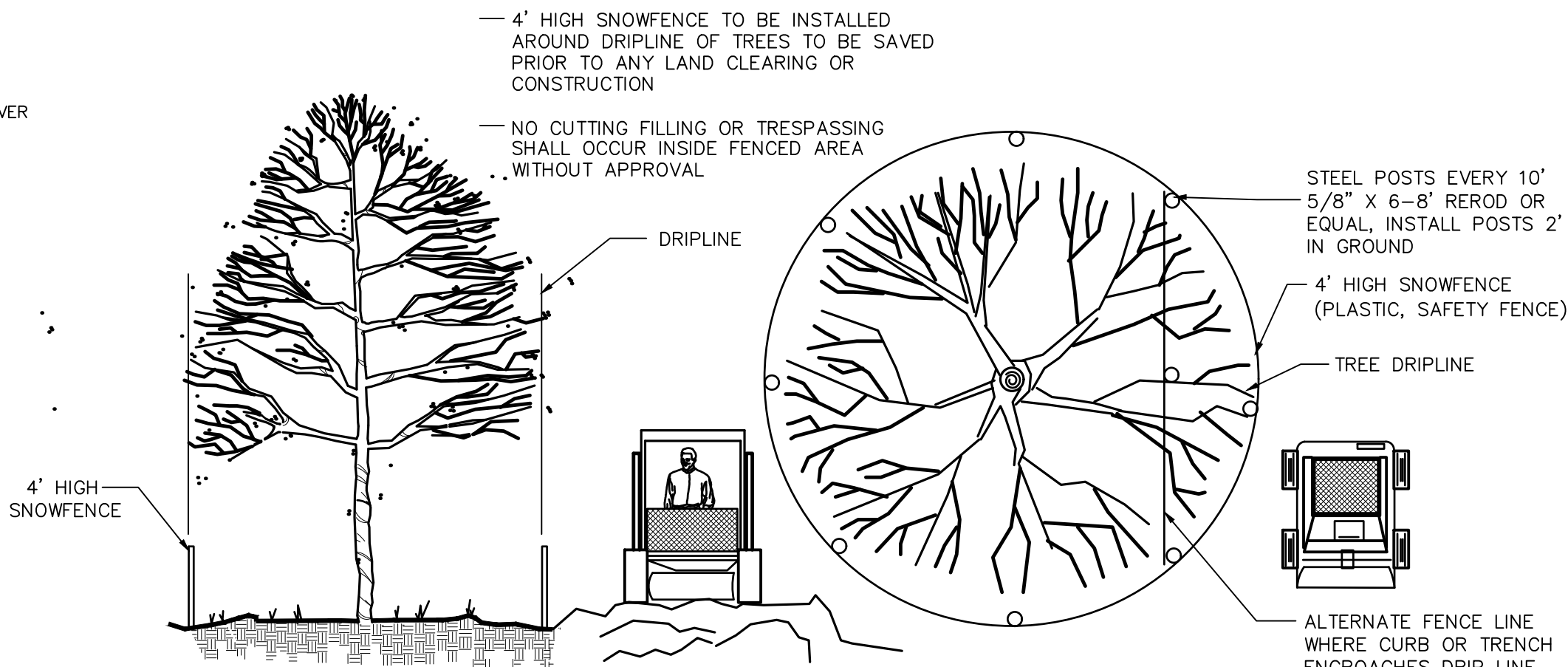
LA1



TYPICAL EVERGREEN TREE PLANTING



TYPICAL TREE/SHRUB/PERENNIAL PLANTING



TREE PROTECTION DETAIL

LANDSCAPING NOTES:

1. All minimum planting sizes specified on the Project Plans shall be at the time of planting.
2. All landscape materials shall be as specified on the Project Plans or approved equal. Substitutions shall not be made without prior written approval from the Project Engineer and receipt of the Owner's Authorization.
3. All plant material shall be free of disease and insects and shall conform to the American Standard of Nursery Stock of the American Association of Nurserymen.
4. All landscape plantings shall be planted and maintained in a healthy condition and shall be guaranteed by the Landscape Contractor and/or Supplier for a minimum period of 1 year from the time of planting. Any plantings that die or become diseased during the guarantee period shall be removed and replaced by the Landscape Contractor and/or Supplier at no cost to the Owner.
5. Excavations for container or balled plantings shall be no deeper than the root ball or container and shall be at least twice the diameter of the root ball or container.
6. Excavations for bare root plantings shall be no deeper than the longest roots and shall be at least twice the diameter of the root spread.
7. The sides of planting excavations in heavy and/or wet soils shall be scarified with a fork, pick or shovel to eliminate glazing.
8. Landscape planting backfill shall consist of a prepared mixture of peat moss, composted manure and topsoil or suitable excavated native soil material mixed with the appropriate soil conditioners that are compatible with the native soil and plant species. The type and mixture ratio of soil conditioners shall be in accordance with the Landscape Supplier's recommendations.
9. The Landscape Contractor shall stake and reinforce all trees to prevent wind damage. The Landscape Contractor shall remove all tree reinforcement and stakes upon expiration of the guarantee period.
10. Perennials shall be planted on a 3" minimum bed of prepared peat moss, composted manure and topsoil mixture.
11. Landscape beds shall be separated from lawn areas with landscape edging. Landscape edging shall be black heavy-duty polyethylene type with UV protection and a double V-tip bottom edge to prevent frost heave. Landscape edging shall be staked in accordance with the Manufacturer's recommendations to prevent frost heave. Landscape edging shall be installed in strict accordance with the Manufacturer's specifications and recommendations.
12. Ground cover within landscape beds shall be placed over a landscape fabric weed barrier. Landscape fabric shall be non-woven, 4 oz. per sq. yd. minimum weight, with UV protection. Landscape fabric shall be installed in strict accordance with the Manufacturer's specifications and recommendations. Landscape fabric shall not be installed over or within 12 inches of perennial plantings.
13. Lawn areas shall be established with 3" minimum depth of prepared topsoil and hydroseed. The Landscape Contractor shall guarantee all lawn areas for a minimum period of 1 year from time of seeding. All lawn areas that do not take root or die during the guarantee period shall be re-hydroseeded as appropriate by the Landscape Contractor at no cost to the Owner. All lawn areas that become diseased during the guarantee period shall be removed and re-hydroseeded as appropriate by the Landscape Contractor at no cost to the Owner.
14. Topsoil shall be a dark, organic, natural surface soil free of clay lumps, peat, muck, subsoil, noxious weeds and other foreign material such as roots, sticks and rocks over 1/2" diameter. Topsoil shall not be frozen or muddy. All earthen areas to receive topsoil shall be finish graded 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 Landscape Contractor. Seed and mulch shall be placed within 5 days of topsoil placement.
15. Seed mixture for lawn areas shall consist of 10% Kentucky Blue Grass, 20% Perennial Rye Grass, 30% Hard Fescue and 40% Creeping Red Fescue. Hydroseed shall be placed within 5 days of topsoil placement and shall be placed to provide complete and uniform coverage. Fertilizer shall be placed at 80 pounds per acre, hydro mulch at 1,200 pounds per acre and water at 500 gallons per acre unless otherwise specified by the Seed Distributor/Manufacturer. All over spray areas shall be properly cleaned and restored at no expense to the contract.
16. Seed and mulch may be substituted for hydroseed when authorized by the Owner. Seed mixtures shall meet the requirements for lawn areas as outlined above. Seed shall be uniformly applied at a rate of 220 lbs per acre unless otherwise recommended by the seed Distributor/Manufacturer. Seed mixture shall be fertilized. Fertilizer shall be uniformly applied at of 240 pounds per acre of chemical fertilizer nutrients in equal portions (10-10-10) of Nitrogen, Phosphoric Acid and Potash.
17. All seeded areas with a slope less than 1:4 shall be stabilized with straw mulch placed at 2 tons per acre unless otherwise recommended by the seed Distributor/Manufacturer. Erosion control blankets shall be substituted for straw mulch in roadway greenbelts, lawn areas adjacent to heavy traffic, lawn areas subject to high winds, slopes of 1:4 or greater and within ditches, swales and other areas exposed to concentrated overland storm water flow. Erosion control blankets shall consist of 100% straw fiber matrix with photodegradable polypropylene netting and have a 12-month minimum longevity rating. Erosion control blankets shall be pinned with biodegradable pins and shall be installed in accordance with the Manufacturer's recommendations.
18. Sod shall only be utilized where specified on the project plans. (Sod may be substituted for hydroseed when required by the Municipality or if necessary for site stabilization late in the growing season. Sod shall not be substituted without receipt of the Owner's Authorization.) Sod shall be a drought tolerant species consisting primarily of Fine Leafed Fescues including Red Fescue, Chewings Fescue and Hard Fescue with Kentucky Bluegrass filler for hardness. Sod shall be placed on a prepared subgrade. Subgrade shall be finish graded and tilled to a depth of 4" to 6". All foreign material, roots, sticks, large soil clumps and rocks over 2" diameter shall be removed from the subgrade. Sod shall not be placed on frozen or saturated subgrade. Fertilizer, lime and/or compost shall be placed over the prepared subgrade in accordance with the Sod Supplier/Manufacturer's recommendations. Sod shall be placed in accordance with the Sod Supplier/Manufacturer's recommendations. Sod shall be installed with biodegradable stakes on slopes of 1:4 or greater and within ditches, swales and other areas exposed to concentrated overland storm water flow. All sod shall be planted and maintained in a healthy condition and shall be guaranteed by the Landscape Contractor and/or Supplier for a minimum period of 1 year from the time of planting. Any sod that dies or become diseased during the guarantee period shall be removed and replaced by the Landscape Contractor and/or Supplier at no cost to the Owner.
19. The Landscape Contractor shall be responsible for watering non-irrigated plantings and sod during dry weather conditions throughout the guarantee period as necessary to promote growth and establishment.
20. The existing irrigation system shall be modified as a part of this project. The existing irrigation system shall be inspected and tested to determine the limits of irrigation and condition of the irrigation system. The irrigation system shall be modified as necessary to accommodate the proposed site improvements and to provide irrigation to all lawn and landscape areas within the limits of irrigation as shown on the Landscape Plan. All broken, damaged and/or inoperable portions of the existing irrigation system shall be repaired or replaced as necessary. All existing sprinkler heads that are to remain shall be adjusted as necessary for proper operation and coverage. The Contractor shall submit an irrigation system design and shop drawings to the Owner for review and approval prior to installation. Irrigation systems shall be designed to utilize the minimum amount of water necessary to provide sufficient irrigation, satisfy the Local Municipal requirements and site conditions and shall include a rain sensor. A separate water meter, if not already existing, shall be installed as a part of the irrigation system modification to allow for reduced rate metering by the Local Municipality and/or Water Authority. The Contractor shall be responsible for coordinating installation of irrigation lines, sleeves, plumbing connections, controls and appurtenances at the appropriate stages of construction. All existing irrigations lines and systems that are to remain that are cut, plugged, spliced, damaged and/or otherwise modified during demolition and/or construction activities shall be properly repaired, replaced, reconnected and/or adjusted as necessary to ensure proper operation.
21. All existing on-site trees shall be trimmed / pruned as directed by the owner.

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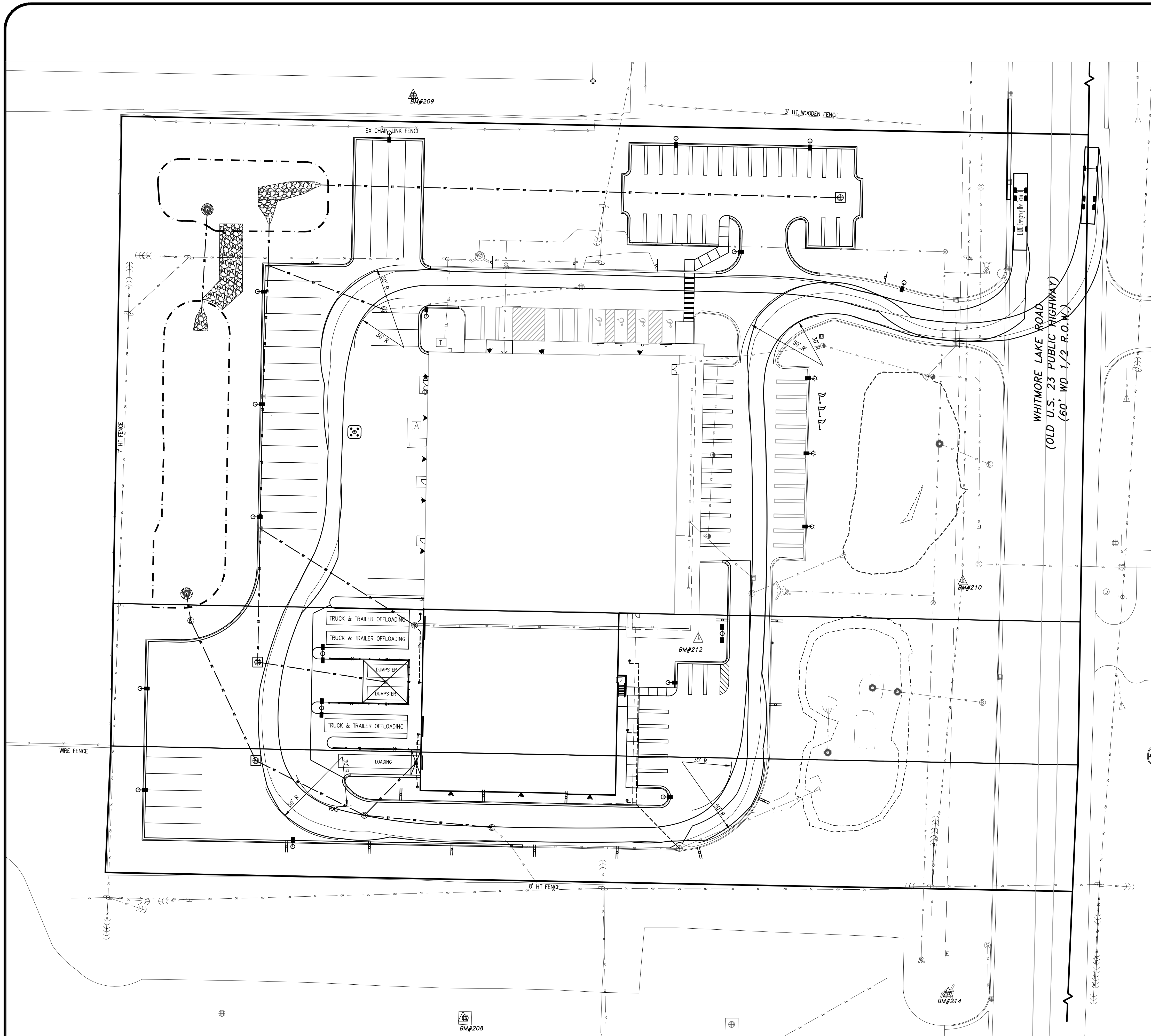
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PURE ENERGY
5942 WHITMORE LAKE RD

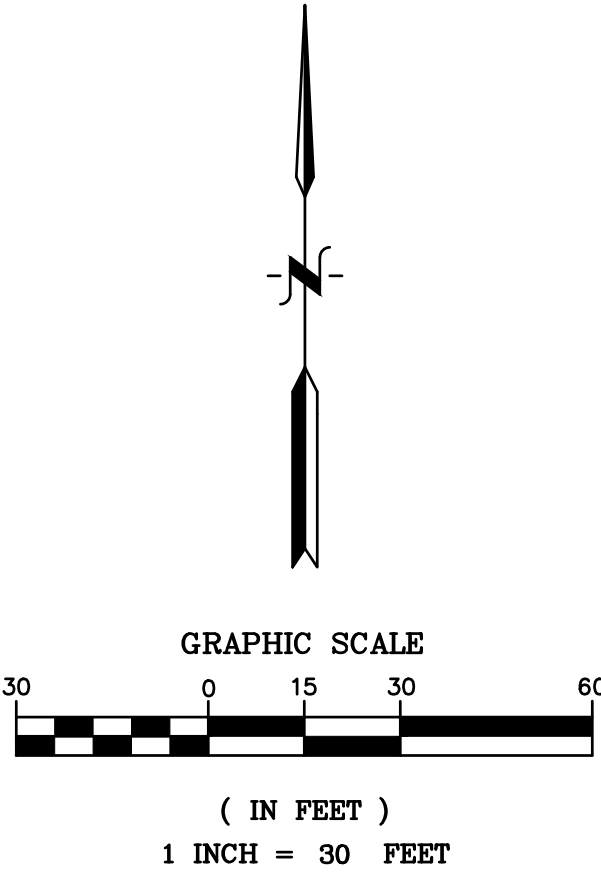
LANDSCAPE NOTES
AND DETAILS

CLIENT:	SCALE: 1"=20'
PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	PROJECT No.: 9244762 DWG NAME: 4762 LA ISSUED: MAR. 28, 2025

LA2



- LEGEND**
- EX MISC. STRUCTURE (AS LABELED)
 - EX BOLLARD
 - EX SIGN
 - PR SIGNS
 - EX LIGHT BASE
 - EX UTILITY MANHOLE (AS LABELED)
 - EX UTILITY POLE W/GUY WIRE
 - EX OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
 - EX U/G LINES (ELECTRIC/PHONE/CABLE)
 - EX STORM WATER MANHOLE W/IDENTIFIER
 - EX CATCH BASIN W/IDENTIFIER
 - FLARED END SECTION
 - EX STORM WATER DRAINAGE PIPE
 - PR STORM WATER DRAINAGE PIPE
 - EX HYDRANT
 - EX WATER SHUT OFF
 - EX WATER VALVE
 - EX WATER VALVE BOX
 - EX WATER MAIN
 - EX CONCRETE CURB (UNLESS OTHERWISE STATED)
 - PR CONCRETE CURB
 - PR LIGHT POLES



BENCHMARKS

DATUM (NAVD 88) BASED ON NGS OPUS SOLUTION REPORT, DATED JUNE 20, 2019 AT 8:55 AM.
NOTE: PREVIOUS AS-BUILT DRAWING PREPARED BY PEA, REVISED DATE MAY 19, 2015 ON ASSUMED "NGVD 29" DATUM (DESCRIBED AS U.S.C.S.).
"NGVD 29" DATUM BEING 0.74 FEET HIGHER THAN "NAVD 88" AS CURRENTLY ESTABLISHED.

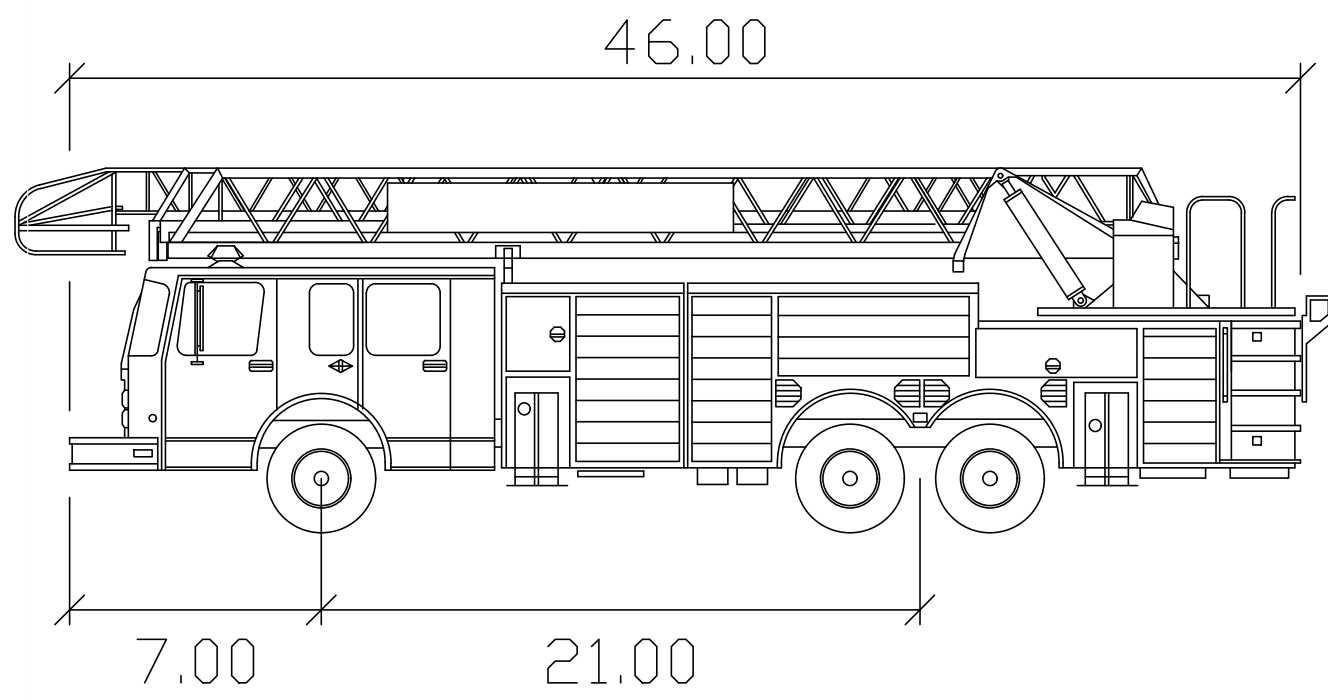
BENCHMARK #208 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 47± FEET NORTH OF BUILDING #6060
WHITMORE LAKE ROAD AND 83.50' WEST OF ENTRANCE GATE.
ELEVATION = 916.48 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #209 (OFF SITE)
WESTERLY RIM OF CATCH BASIN, LOCATED 11.50 FEET NORTH OF FACE OF EXISTING BLOCK RETENTION WALL AT NORTH SIDE OF PROPERTY.
ELEVATION = 939.81 (NAVD 88)

BENCHMARK #210
GEAR SPIKE IN EASTERLY SIDE OF UTILITY POLE, LOCATED 55± FEET WEST OF CENTERLINE OF WHITMORE LAKE ROAD AND 155± FEET SOUTH OF ENTRANCE.
ELEVATION = 934.24 (NAVD 88)
REF: PREVIOUS SITE PLAN (SEE ABOVE)

BENCHMARK #212
SOUTHEAST CORNER OF CONCRETE PAD, LOCATED 21± FEET SOUTHEAST FROM THE SOUTHEAST CORNER OF BUILDING #5942
WHITMORE LAKE ROAD.
ELEVATION = 945.00 (NAVD 88)

BENCHMARK #214 (OFF SITE)
ARROW ON HYDRANT, LOCATED 53± FEET WEST OF THE CENTERLINE OF WHITMORE LAKE ROAD AND 42± FEET NORTH OF THE CENTERLINE ENTRANCE.
ELEVATION = 926.57 (NAVD 88)



BRIGHTON 46 feet
Width : 8.50
Track : 8.25
Lock to Lock Time : 6.00
Steering Angle : 40.00

TYPICAL BRIGHTON TWP. FIRE TRUCK

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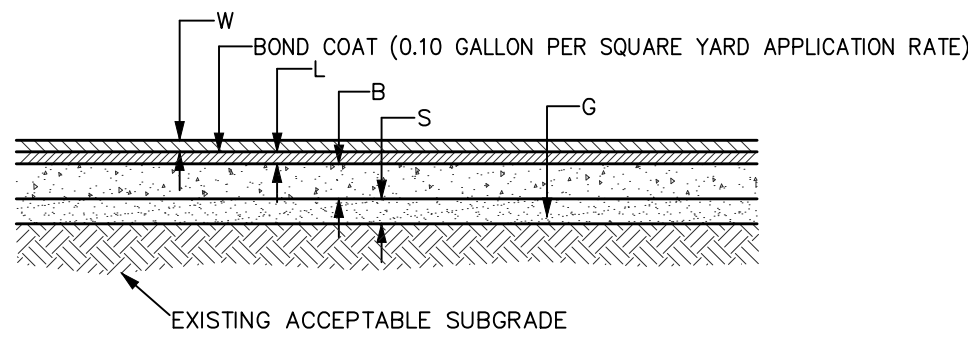
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DESIGN:FAF	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: SES						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

EMERGENCY VEHICLE
CIRCULATION PLAN

CLIENT: PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	SCALE: 1"=30' PROJECT No.: 9244762 DWG NAME: 4762 EVC ISSUED: MAR. 28, 2025	EVC
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ON-SITE BITUMINOUS PAVEMENT
CROSS SECTION
NOT TO SCALE

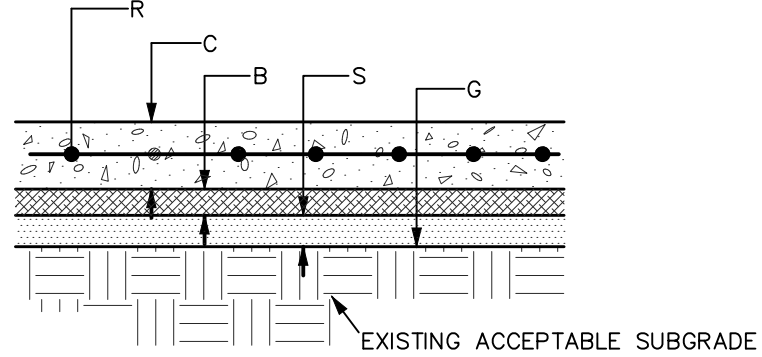
KEY	DESCRIPTION	MATERIAL SPECIFICATION	MINIMUM COMPACTED THICKNESS
W	WEARING COURSE	MDOT 36A	2"
L	LEVELING COURSE	MDOT 13A	2"
B	AGGREGATE BASE	MDOT 21AA	8"
S	GRANULAR SUBBASE	MDOT CLASS II	7"
G	GEOGRID	N/A	N/A

BITUMINOUS PAVEMENT NOTES:

- The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes, Road and/or Parking Lot Construction Notes and Typical Road and/or Pavement Cross Section details on the project plans for additional requirements.
- Unsuitable soils found within the 1 on 1 influence zone of the roadway, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced up to the proposed subgrade elevation with MDOT Class III granular material compacted to 95% maximum unit weight, modified proctor.
- Contractor shall proof roll prepared subgrade as directed by Engineer. Unacceptable areas of subgrade shall be undercut and replaced as directed by Engineer.
- Owner/Developer may delay placement of the bituminous wearing course outside of the public road right of way. 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 placement of the bituminous leveling course. The bituminous leveling course shall be repaired as directed by Engineer prior to placement of the bituminous wearing course.
- Parking lot sub-grade (top five feet) to be compacted to a minimum density of 98% of the materials maximum unit weight (in accordance with AASHTO T-180 or ASTM D1557) with a 20 ton roller.

DEMOLITION NOTES:

- 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.
- 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.
- 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.
- 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.
- Contractor shall recycle and/or dispose of all demolition debris in accordance with the appropriate Local, County, State and Federal regulations.
- All bituminous and concrete pavement to be removed shall be saw cut at the limits of removal to provide for a clean straight edge for future abutment.
- Any existing on-site rip rap within proposed area of disturbance shall be removed. Existing rip rap may be stockpiled on site for reuse. Existing rip rap shall be cleaned to remove excess soil, sediment, trash and debris prior to reuse. Salvaged rip rap shall be reinstalled in accordance with the rip rap detail provided on the project plans.
- All existing irrigation lines 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.
- All existing water main and sanitary sewer 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.
- All existing storm sewer 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.
- 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.
- All existing utility meters 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.
- 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.

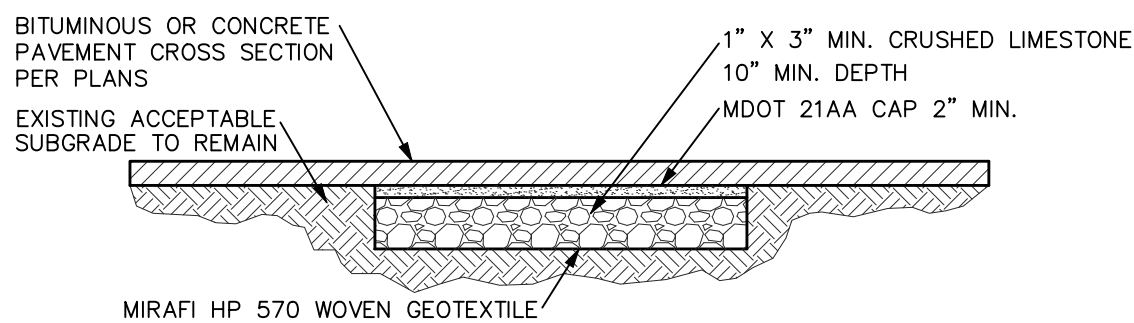


HEAVY DUTY CONCRETE PAVEMENT
CROSS-SECTION
NOT TO SCALE

KEY	DESCRIPTION	MATERIAL SPEC.	MIN. THICKNESS
R	REINFORCEMENT	SEE NOTE 8	SEE NOTE 8
C	CONCRETE	MDOT P1-1A - 6 SACK	8"
B	AGGREGATE BASE	N/A	N/A
S	GRANULAR SUBBASE	MDOT CLASS II	6"
G	GEOGRID	N/A	N/A

CONCRETE PAVEMENT NOTES:

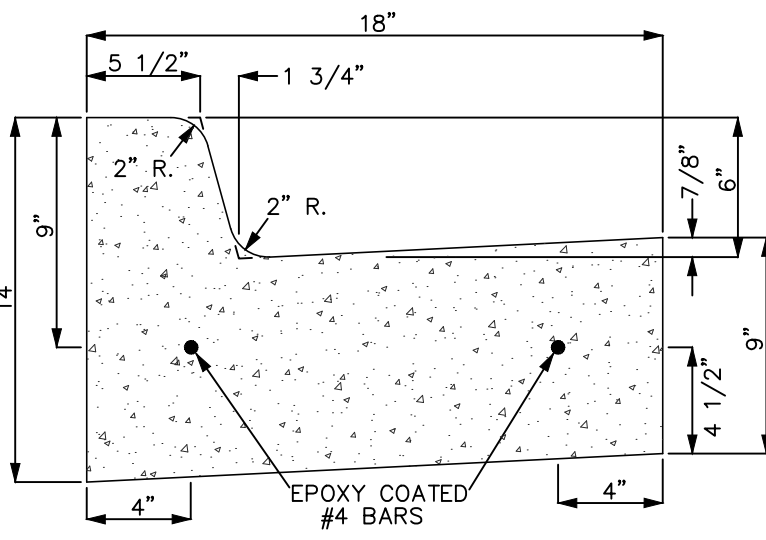
- The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes, Road and/or Parking Lot Construction Notes and Typical Road and/or Pavement Cross Section details on the project plans for additional requirements.
- Unsuitable soils found within the 1 on 1 influence zone of the pavement, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced up to the proposed subgrade elevation with MDOT Class II granular material compacted to 95% maximum unit weight, modified proctor.
- Contractor shall proof roll prepared subgrade as directed by Engineer. Unacceptable areas of subgrade shall be undercut and replaced as directed by Engineer.
- 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.
- 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.
- 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: 300' maximum on center. Transverse expansion control joints shall be 1" thick asphalt fiber joint filler matching entire concrete cross section.
- Provide lane ties when specified on the Project Plans, otherwise provide 0.5" asphalt fiber control joint between concrete pavement and all other concrete structures, such as concrete curb, sidewalks and concrete driveways.
- Heavy Duty Concrete Pavement placed within the Truck Well shall be Reinforced with epoxy coated deformed #5 bars at 12" on center each way placed at mid-depth of the concrete, unless noted otherwise on the Project Structural Plans. See Structural Plans and Details within the Building Plans for additional requirements.
- The Concrete Pavement shall not be exposed to vehicular traffic until the concrete has reached at least 75% of the design flexural strength.



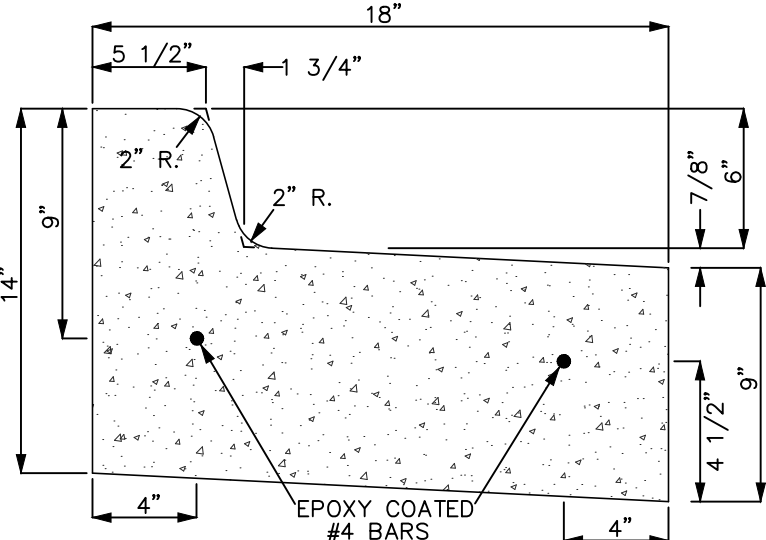
SUBGRADE UNDERCUT AND
REPLACEMENT CROSS-SECTION
NOT TO SCALE

PAVEMENT SUBGRADE UNDERCUT NOTES:

- Areas of pavement subgrade that do not pass a proof roll inspection shall be undercut when directed by the Material Testing Engineer and/or Project Engineer. All undercut work shall be witnessed and field measured by the Material Testing Engineer and/or Project Engineer. Copies of the field notes depicting the field measurements of the undercut areas shall be provided to the General Contractor and/or Earthwork Subcontractor and ALDI Inc.
- Undercut areas shall be excavated to a depth of 12" below the proposed subgrade elevation using an Excavator or Backhoe with a Smooth Edged Ditching Bucket so as not to scarify the underlying soils. Undercut areas shall remain free of all construction traffic and equipment to avoid rutting and/or tracking of the underlying soils.
- Mirafi HP 570 Woven Geotextile Fabric (or approved equal) shall be placed over all undercut areas per the Manufacturer's specifications. Overlap all seams a minimum of 12" unless specified otherwise by the Manufacturer.
- Backfill the undercut areas with 1" x 3" minimum size crushed angular limestone up to the proposed subgrade elevation. Crushed concrete material shall NOT be substituted for crushed limestone material. The backfill material shall be spread with a Wide Track Dozer to minimize loading on the underlying soils. Static roll the backfill material with a large smooth drum roller.
- Construct the appropriate Bituminous or Concrete Pavement Cross Section over the undercut areas per the Project Plans.
- The General Contractor and/or Earthwork Subcontractor shall provide ALDI Inc with unit pricing to perform subgrade undercut work per square yard (SY) of undercut area. Undercut Unit Pricing SHALL include excavation, loading, hauling and offsite disposal of excess spoils, placement of geotextile fabric and backfill including all labor, equipment and materials necessary to complete pavement subgrade undercut work as specified on the Project Plans.



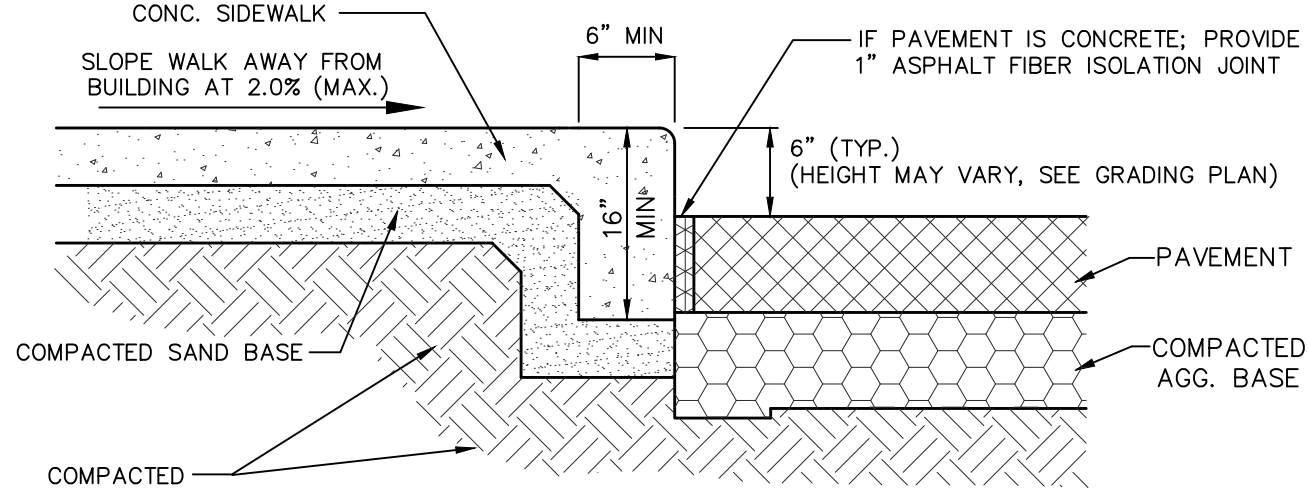
MDOT TYPE F2 CURB
NOT TO SCALE



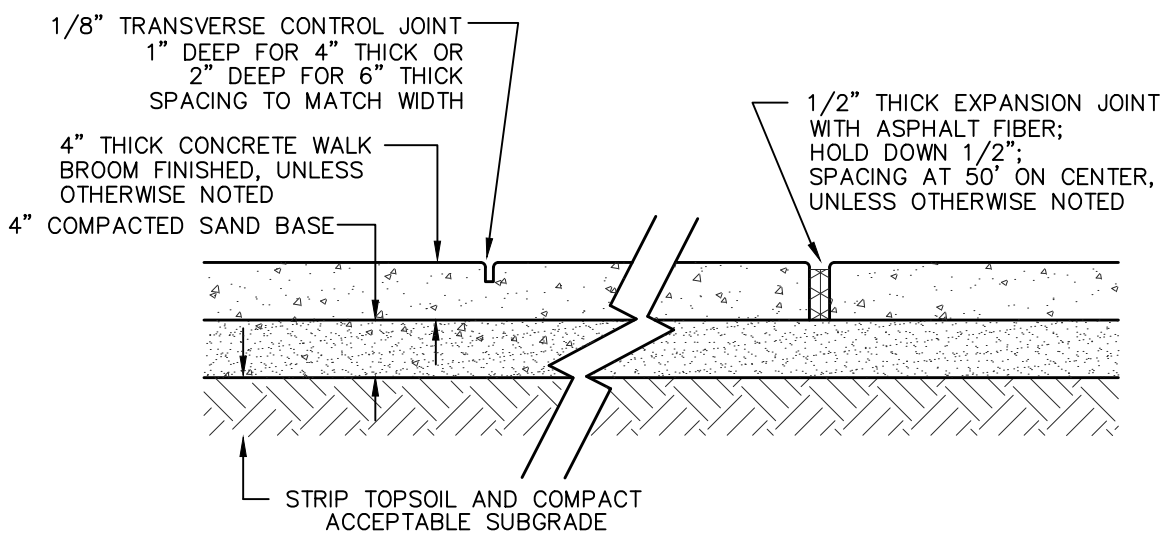
MDOT TYPE F2 CURB
REVERSE PITCH
NOT TO SCALE

CONCRETE CURB NOTES:

- Refer to the project plans for the proposed locations of the specific curb types.
- 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.
- 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.
- 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.
- Install transverse contraction control joints in concrete curb with 1" minimum depth at 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.
- Install transverse expansion control joints in concrete 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.
- Provide 1" asphalt fiber control joint between back of curb and all other concrete structures, such as concrete sidewalks and concrete driveways.
- Curb Contractor shall provide final adjustment of catch basin castings in curb line. Castings shall be tack pointed to structure water tight with concrete or mortar inside and outside of casting.
- 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.



SIDEWALK WITH INTEGRAL CURB &
ISOLATION JOINT DETAIL
NOT TO SCALE



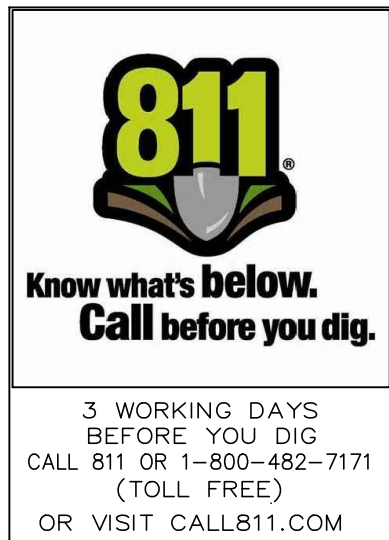
SIDEWALK CROSS SECTION
NOT TO SCALE

SIDEWALK CROSS SECTION NOTES:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Provide 1" asphalt fiber control joint between concrete sidewalks and all other concrete structures, such as concrete building foundations, concrete curb and concrete driveways.
- 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.
- The Concrete Pavement shall not be exposed to vehicular traffic until the concrete has reached at least 75% of the design flexural strength.

GENERAL NOTES:

- 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.
- 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).
- 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.
- 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.
- 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.
- Contractor shall contact the 811 Public Underground 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.
- Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of work.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Contractor shall notify Owner/Developer and Engineer immediately upon encountering any field conditions, which are inconsistent with the project plans and/or specifications.
- 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.
- 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.
- 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.
- 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.



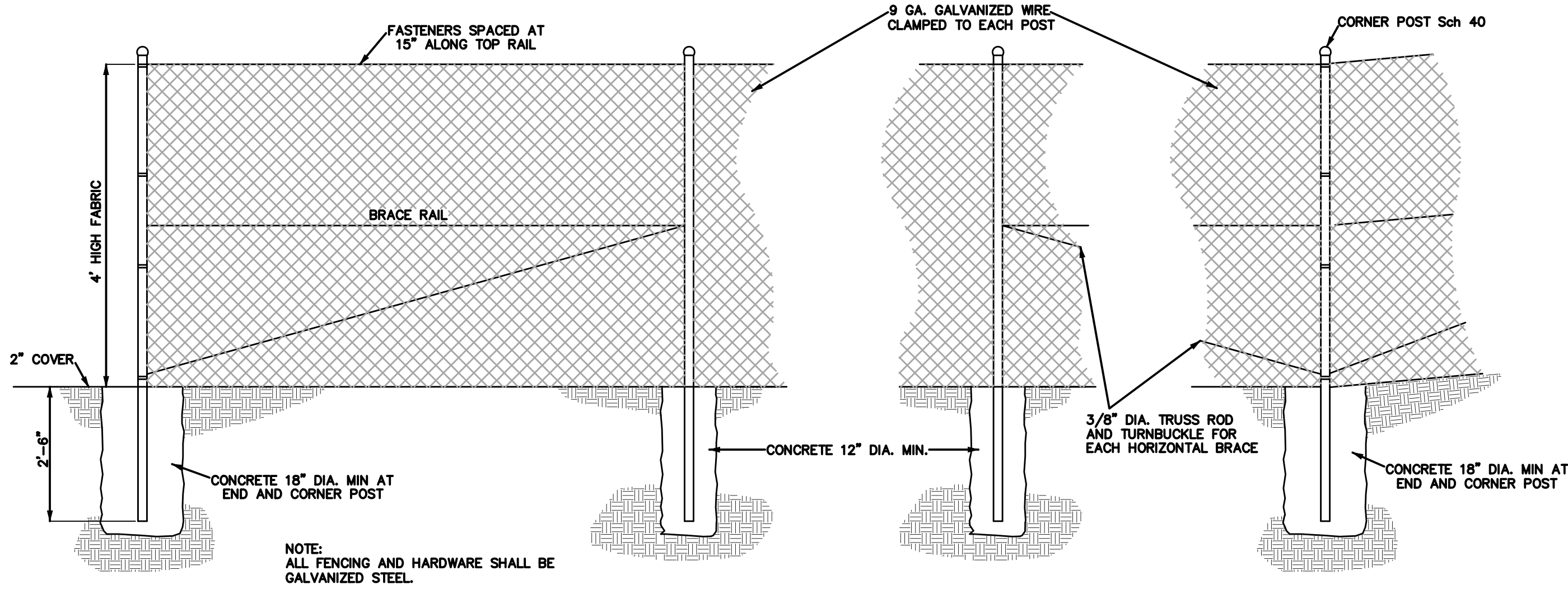
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DRAFT: L.F.						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

SITE DEVELOPMENT
NOTES & DETAILS

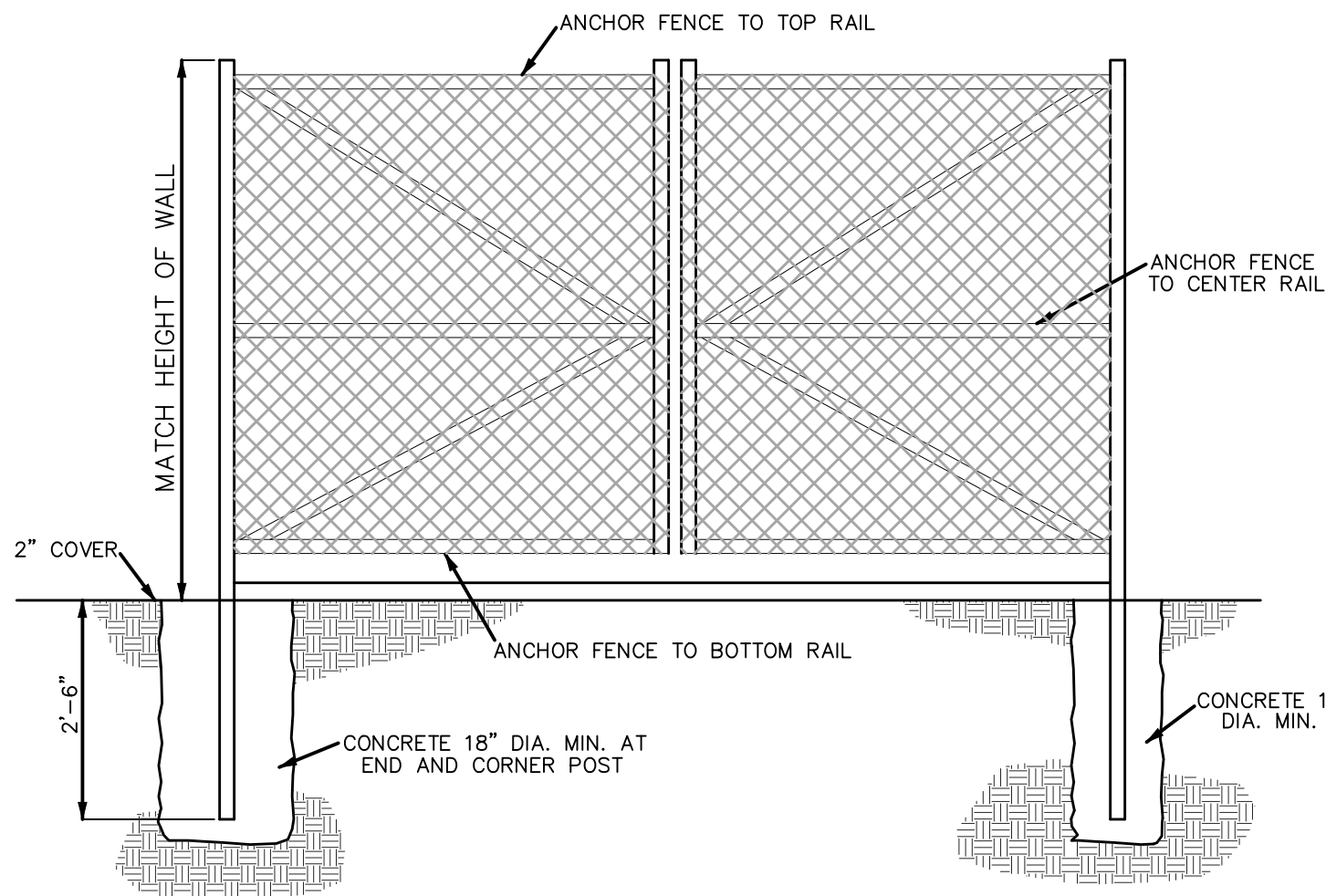
CLIENT:	SCALE: 1"=30'
PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	PROJECT No.: 244762 DWG NAME: 4762 DT ISSUED: MAR. 28, 2025

DT1



CHAIN LINK FENCE DETAIL

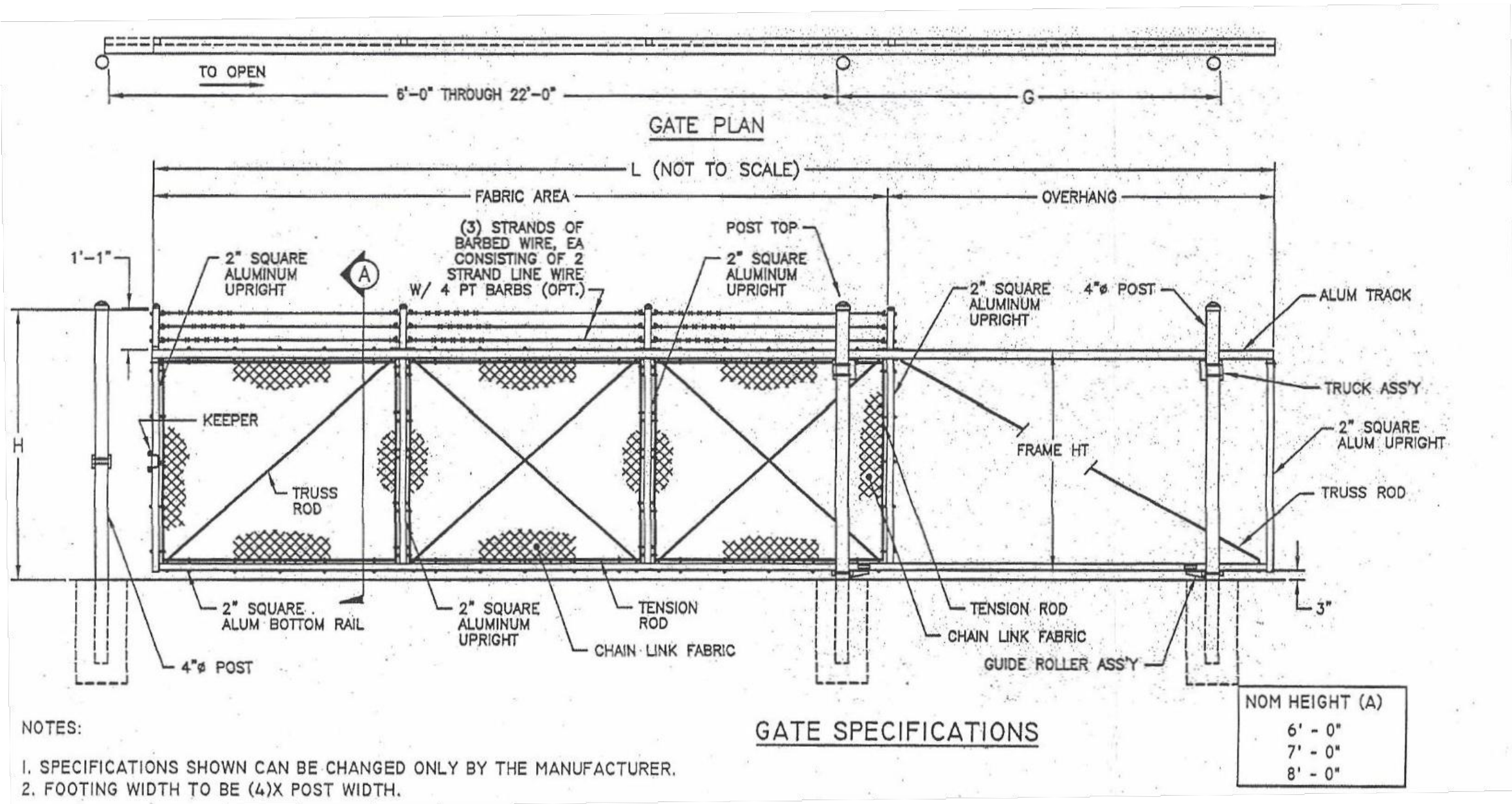
NOT TO SCALE



CHAINLINK GATE DETAIL

NOT TO SCALE

NOTE:
ALL POLES, RAILS AND HARDWARE
SHALL BE GALVANIZED STEEL.

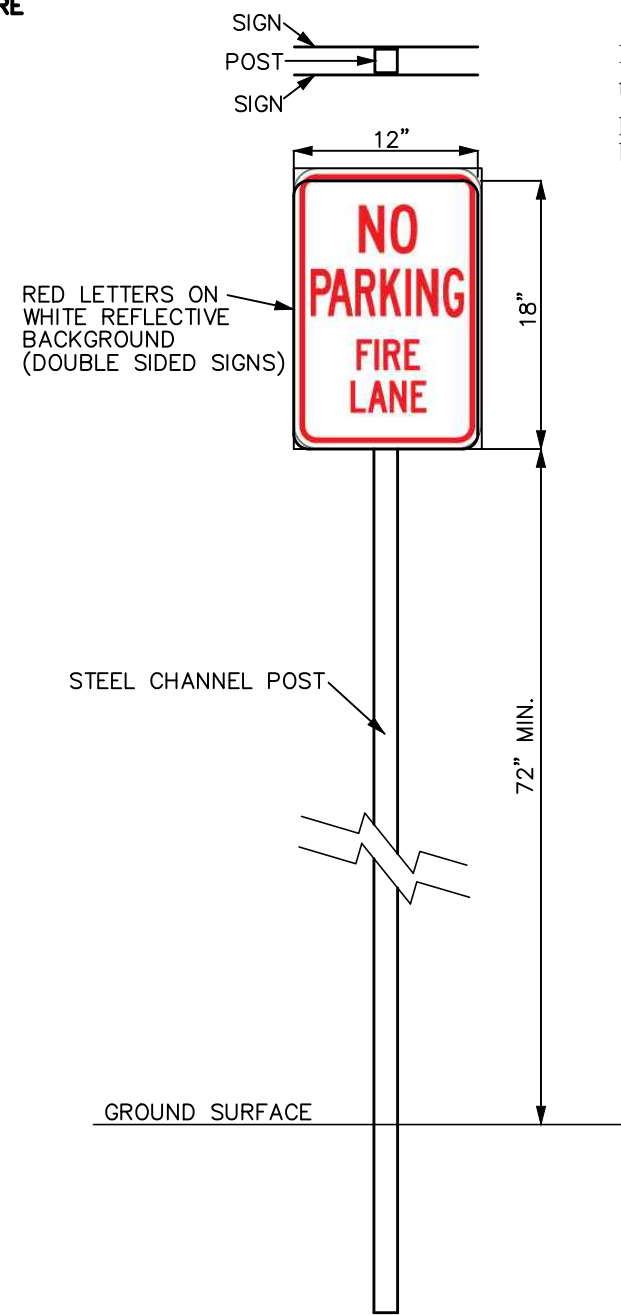


NOTES:

- SPECIFICATIONS SHOWN CAN BE CHANGED ONLY BY THE MANUFACTURER.
- FOOTING WIDTH TO BE (4)X POST WIDTH.

GATE SPECIFICATIONS

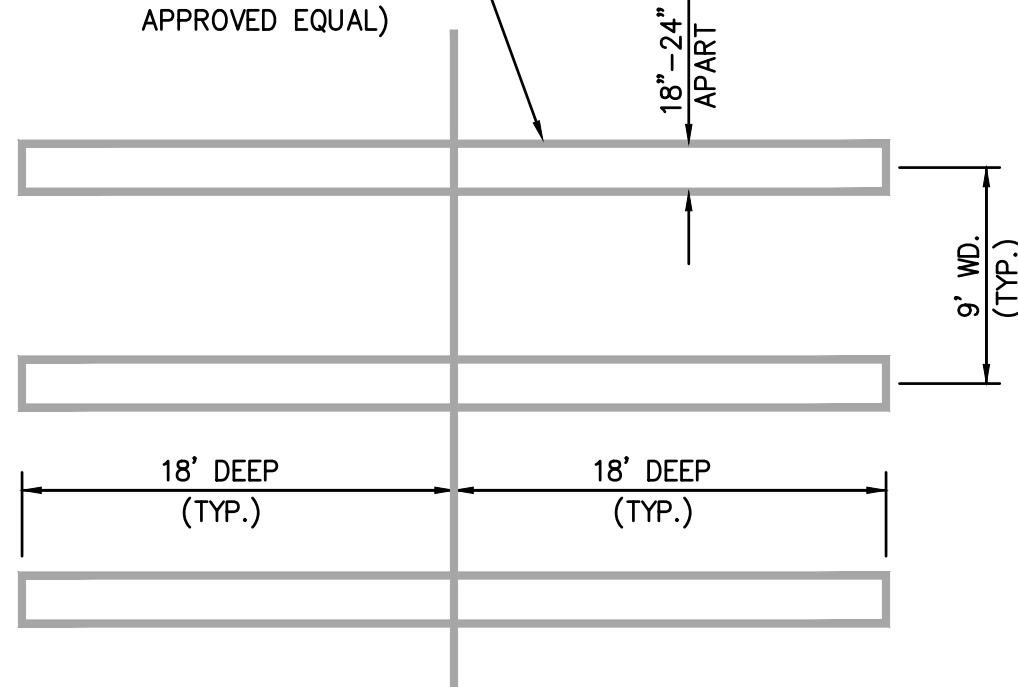
NOM HEIGHT (A)
6' - 0"
7' - 0"
8' - 0"



FIRE LANE SIGN POST DETAIL

NOT TO SCALE

3" TO 4" WIDE PAINTED PARKING STRIPES
(USE WATERBORNE TRAFFIC PAINT MEETING
SPECIFICATION TT-P-1952D TYPE II OR
APPROVED EQUAL)



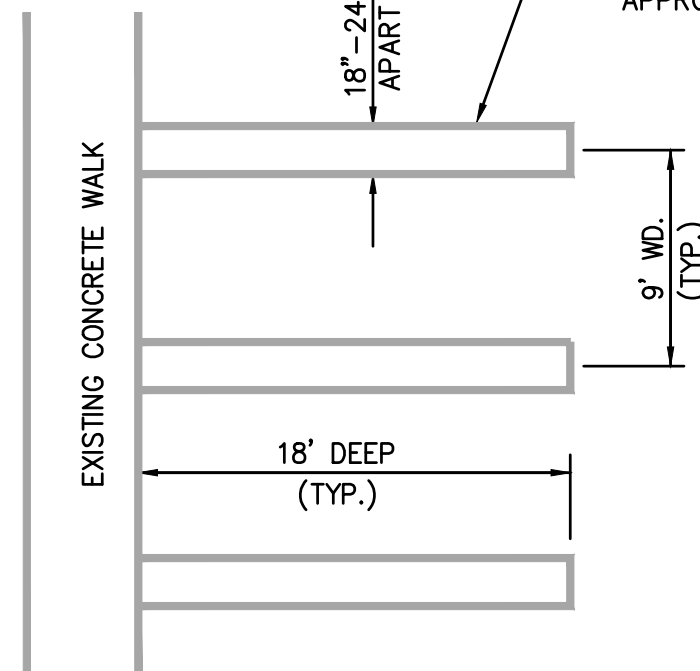
NOTES:

- SEE SHEET SP FOR PROPOSED PARKING STRIPING LOCATIONS.
- STANDARD SPACES SHALL USE WHITE PAINT.

PARKING SPACE TYPICAL STRIPING DETAIL

NOT TO SCALE

3" TO 4" WIDE PAINTED PARKING STRIPES
(USE WATERBORNE TRAFFIC PAINT MEETING
SPECIFICATION TT-P-1952D TYPE II OR
APPROVED EQUAL)




NOTES:

- SEE SHEET SP FOR PROPOSED PARKING STRIPING LOCATIONS.
- STANDARD SPACES SHALL USE WHITE PAINT.

SIGNAGE AND PAVEMENT MARKING NOTES:

- Pavement markings shall be in accordance with the type, color, size and locations shown on the plans. If the information on the plans is not complete and the authority having jurisdiction does not have specific requirements, then use the following: Paint shall be supplied in accordance with AASHTO: M 248 latest addition. Colors shall be as follows: (YELLOW - parking stalls, loading zones, parking islands, no parking zones and fire lanes) (WHITE - stop bars, pedestrian crossings, lane demarcations, directional arrows and lettering) (BLUE - handicap parking stalls and symbols). Stripe widths shall be as follows: (4" - parking spaces, driveway lanes, barrier free loading zones and no parking zones) (12" - crosswalks) (24" - stop bars).
- The pavement shall be clean and free of dirt, dust, moisture, oils and other foreign materials at time of marking application. Any old pavement markings shall be removed unless paints are compatible and overlay identically. The surface of the pavement prior to application shall be a minimum of 45 degrees F and rising unless the Manufacturer's recommendations are greater.
- The signage shall be in accordance with the type, color, size and locations shown on the plans in accordance with AASHTO M268. The signage shall be provided in accordance with the Local Municipality and the Michigan Manual of Uniform Traffic Devices latest edition.
- Posts, brackets and frames shall be steel per ASTM A-36, A-242, A-441, A-572, A588, Grade 50 and hot dip galvanized in accordance with ASTM A123. All cutting, drilling and/or other pole modifications shall be painted with galvanizing paint. All mounting hardware shall be stainless steel.
- Sign post footings shall be a minimum of 3'-6" deep and 8" in diameter unless poor soils or frost conditions require greater depth and/or diameter. Sign posts shall be kept plumb, 6 inches off the bottom of footing excavation and centered as 3000-psi concrete is placed under and around the sign post. The overall sign and post system should be able to withstand 33 pounds per square foot. All signs located in paved areas or with less than 3 feet of clearance between the centerline of sign post and the back of curb and/or edge of pavement shall be installed in a pipe bollard. Pipe bollards shall be 6" diameter schedule 40 steel pipe. Pipe bollards shall be filled with concrete that is rounded at the top of the bollard. Bollards shall be painted traffic yellow. Increase the sign post footing diameter to 14" minimum for pipe bollards and embed the bollard into the concrete footing a minimum of 3 feet below proposed finish grade.
- Signs shall not be mounted on posts until after concrete has cured for a minimum of seven days or ¾ strength is achieved.
- All barrier free striping and signage shall meet the Americans with Disabilities Act (ADA) requirements.
- All Fire Lane signs shall have a Red Border and Red Letters on White Background. All Fire Lane signs shall be Reflective. Fire lane striping and signage shall meet the requirements of the Local Building Inspector and Fire Department.
- "Mounting Height" shall be the minimum height of the bottom of the sign above finish grade. When signs are located downhill from the roadway, driveway and/or parking area, then the "Mounting Height" shall be the height of the bottom of the sign above the top of pavement finish grade at the nearest edge of pavement adjacent to the sign.
- All Traffic Control and Fire Lane signs shall be installed at 3 feet behind the back of curb (and/or edge of pavement) to the centerline of the sign post unless noted otherwise on the project plans.
- The Contractor(s) and/or Subcontractor(s) responsible for installation of the sign posts shall contact the 811 Public Underground Utility Locating System a minimum of three (3) working days prior to installation of the signposts. Install the sign posts in the locations specified on the project plans. When underground utilities conflict with the proposed sign post locations, field adjust the sign locations the minimum amount necessary to safely clear the underground utilities. Maintain a minimum of 2 feet of clearance between the edge of sign and the back of curb and/or edge of sidewalk.

SIGN SCHEDULE

SIGN	KEY	SIZE (W x H)	TYPE OR MOUNT	MOUNTING HEIGHT	QUANTITY
	FIRE LANE	12" x 18"	POST MOUNTED	6'-0"	19

•ADDITIONAL FIRE LANE SIGNAGE MAY BE REQUIRED BY THE LOCAL FIRE DEPARTMENT AUTHORITY.

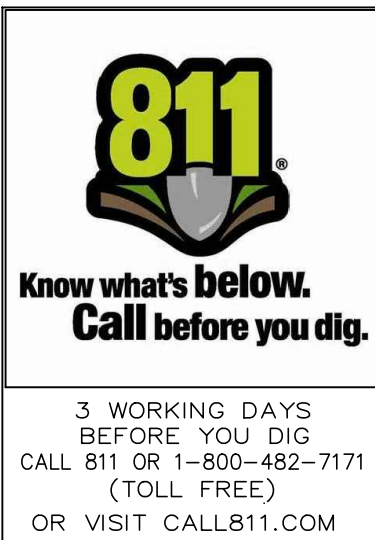
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DRAFT: L.F						
CHECK: WMP						

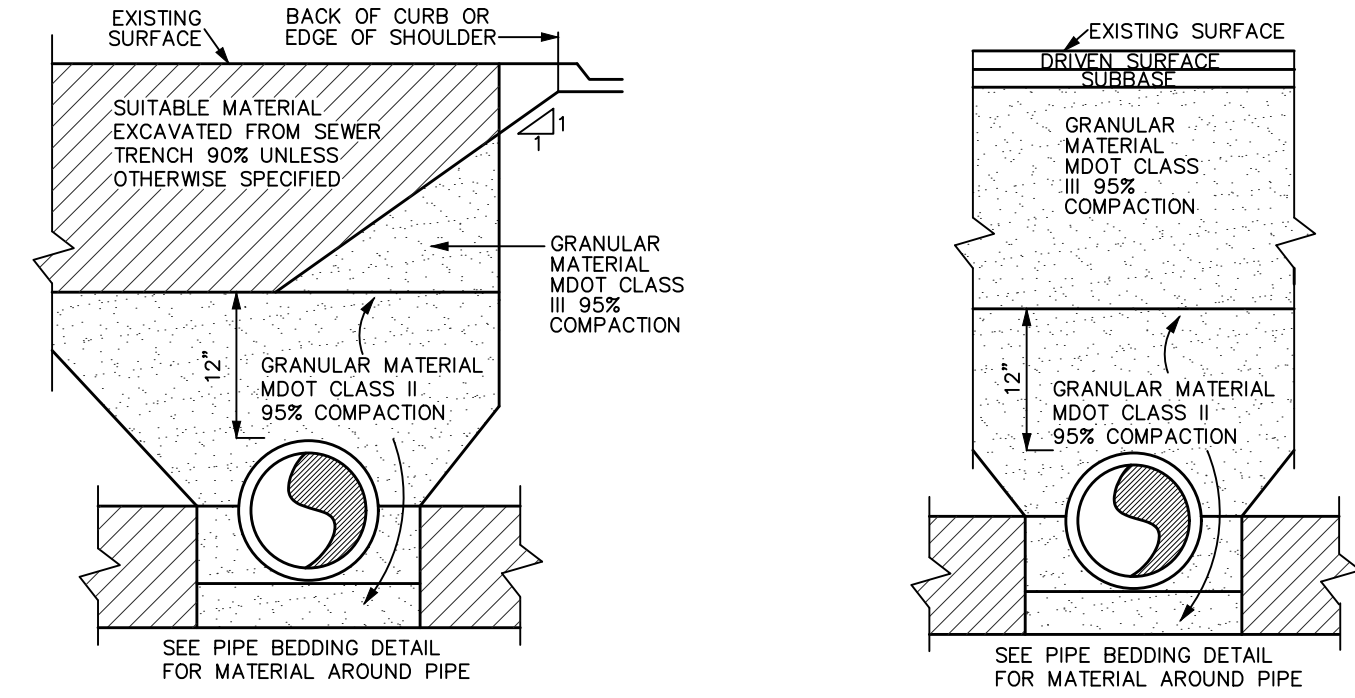
PURE ENERGY
5942 WHITMORE LAKE RD

SITE DEVELOPMENT
NOTES & DETAILS

CLIENT:	SCALE: 1"=30'
PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	PROJECT No.: 244762 DWG NAME: 4762 DT ISSUED: MAR. 28, 2025

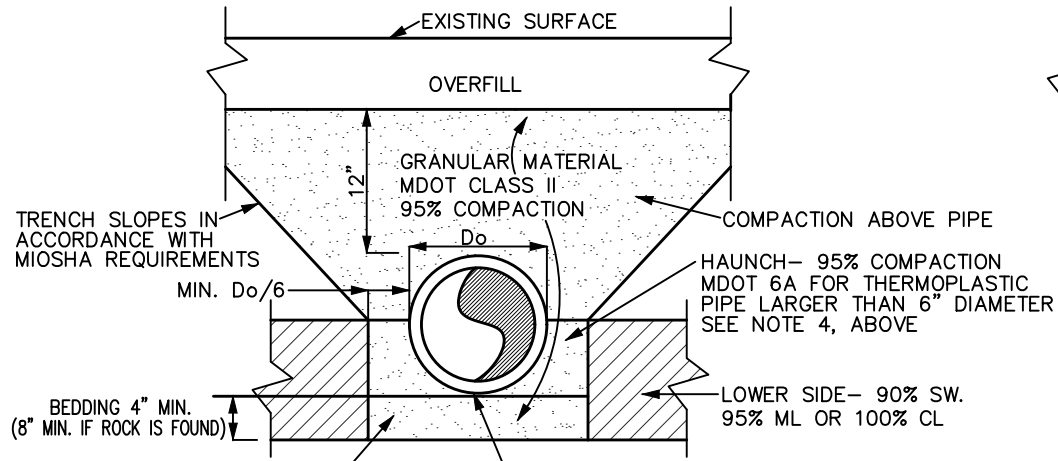
DT2





TRENCH A - PIPE UNDER OR WITHIN INFLUENCE OF DRIVEN SURFACE
NOT TO SCALE

- NOTES:
1. COMPACTION PRESENTED AS STANDARD PROCTOR VALUES.
 2. SOIL TYPES AASHTO DESIG.
GRAVEL SANDY (SW) A1, A3
SANDY SILTY (ML) A2, A4
SILTY CLAY (CL) A5, A6, A7
 3. SOIL IN HAUNCH AND LOWER SIDE ZONES OUTSIDE OF D_o/6 FROM SPRING LINE SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS THE SOIL IN THE OVERFILL ZONE.
 4. MATERIALS AROUND THERMO. PLASTIC PIPE WITH DIAMETER 6 INCHES SHALL PASS 0.5 INCH SIEVE. MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.

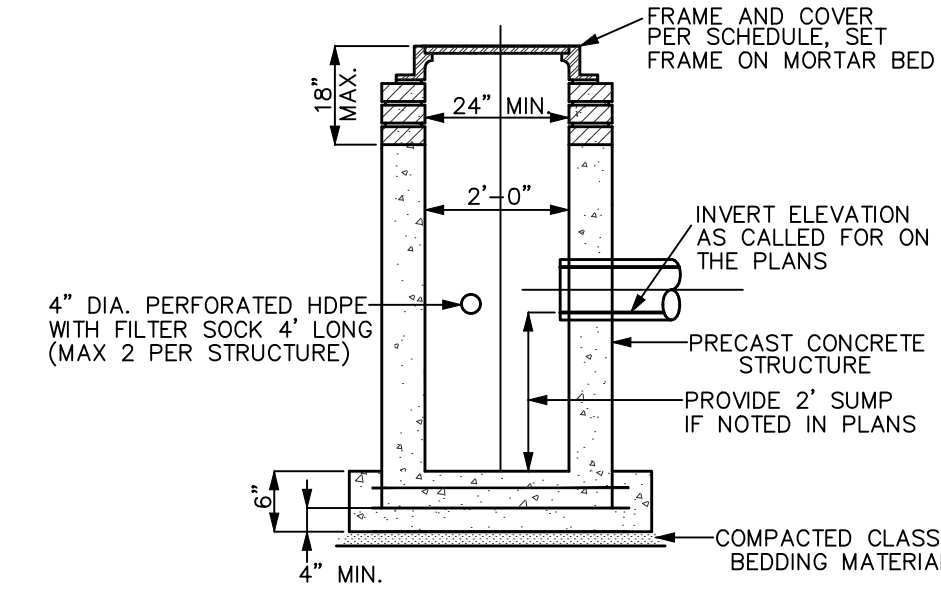


PIPE BEDDING DETAIL
NOT TO SCALE

TRENCH B - PIPE NOT UNDER DRIVEN SURFACES
NOT TO SCALE

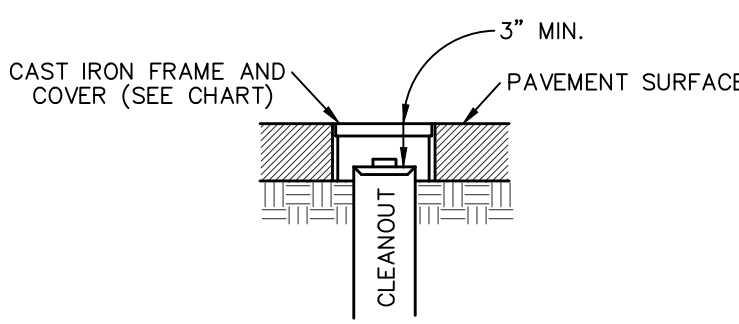
TRENCH DETAILS

NOT TO SCALE



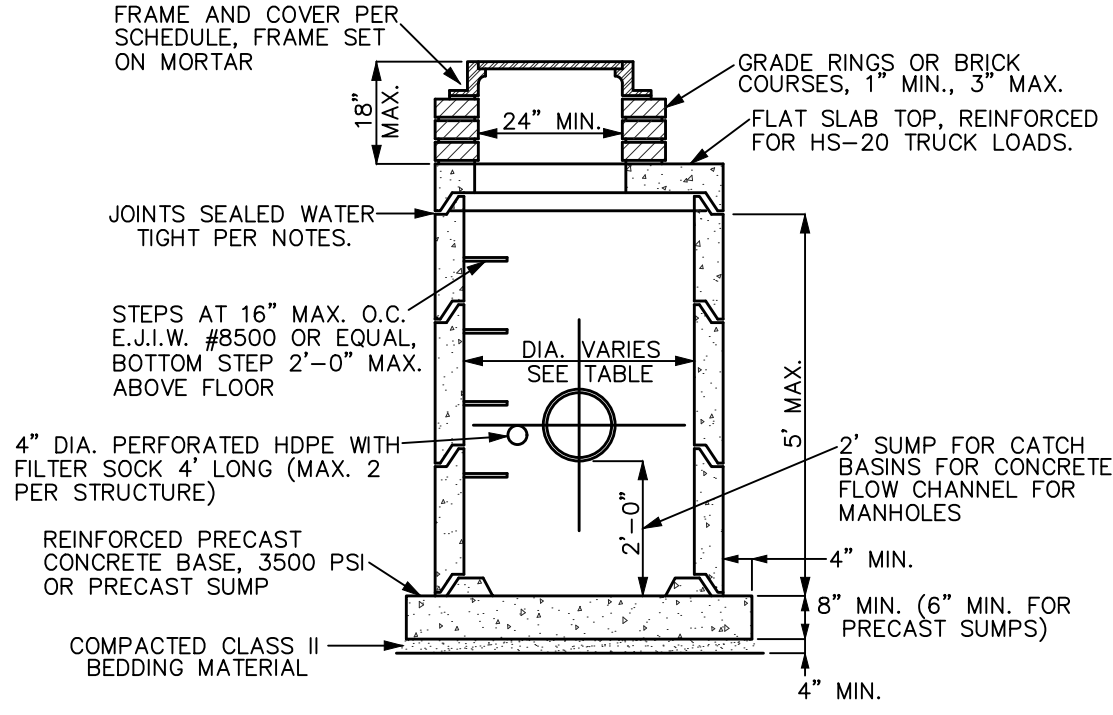
2' DIA. STORM INLET STRUCTURE
NOT TO SCALE

CLEANOUT DIA.	FRAME AND COVER
4"-8"	EJW 1578
10"-18"	EJW 1040Z-A-STORM

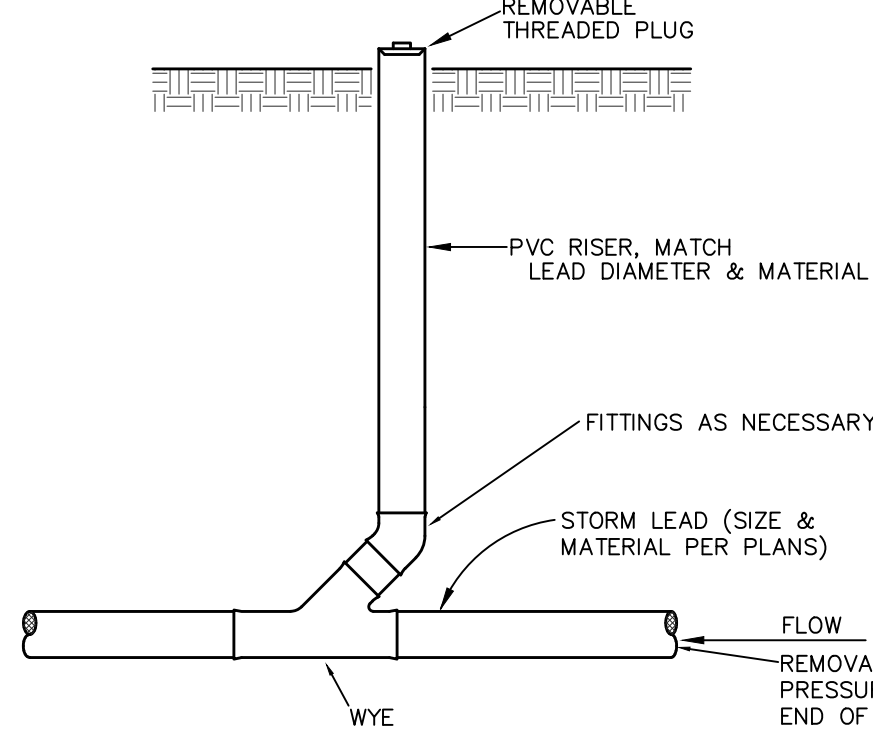


CLEANOUT IN PAVED AREA
NOT TO SCALE

PIPE SIZE	MIN. STRUCTURE DIA.
12"-24"	4'-0" MIN.
30"-36"	5'-0" MIN.
42"-48"	6'-0" MIN.



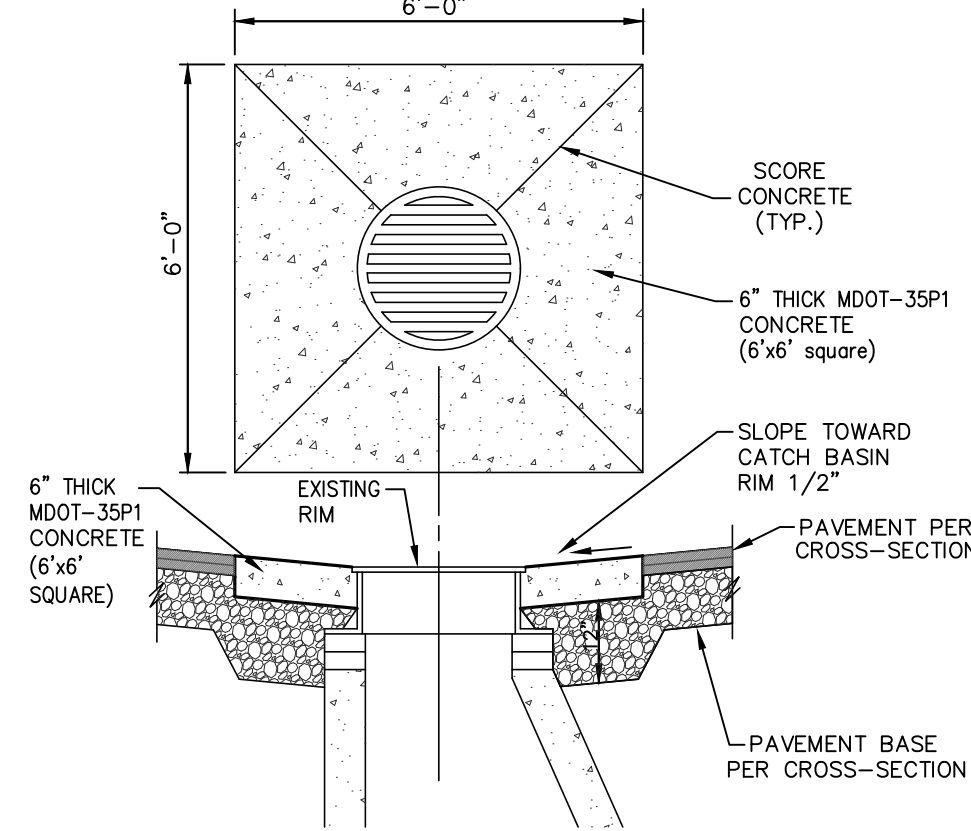
LOW PROFILE STORM STRUCTURE
NOT TO SCALE



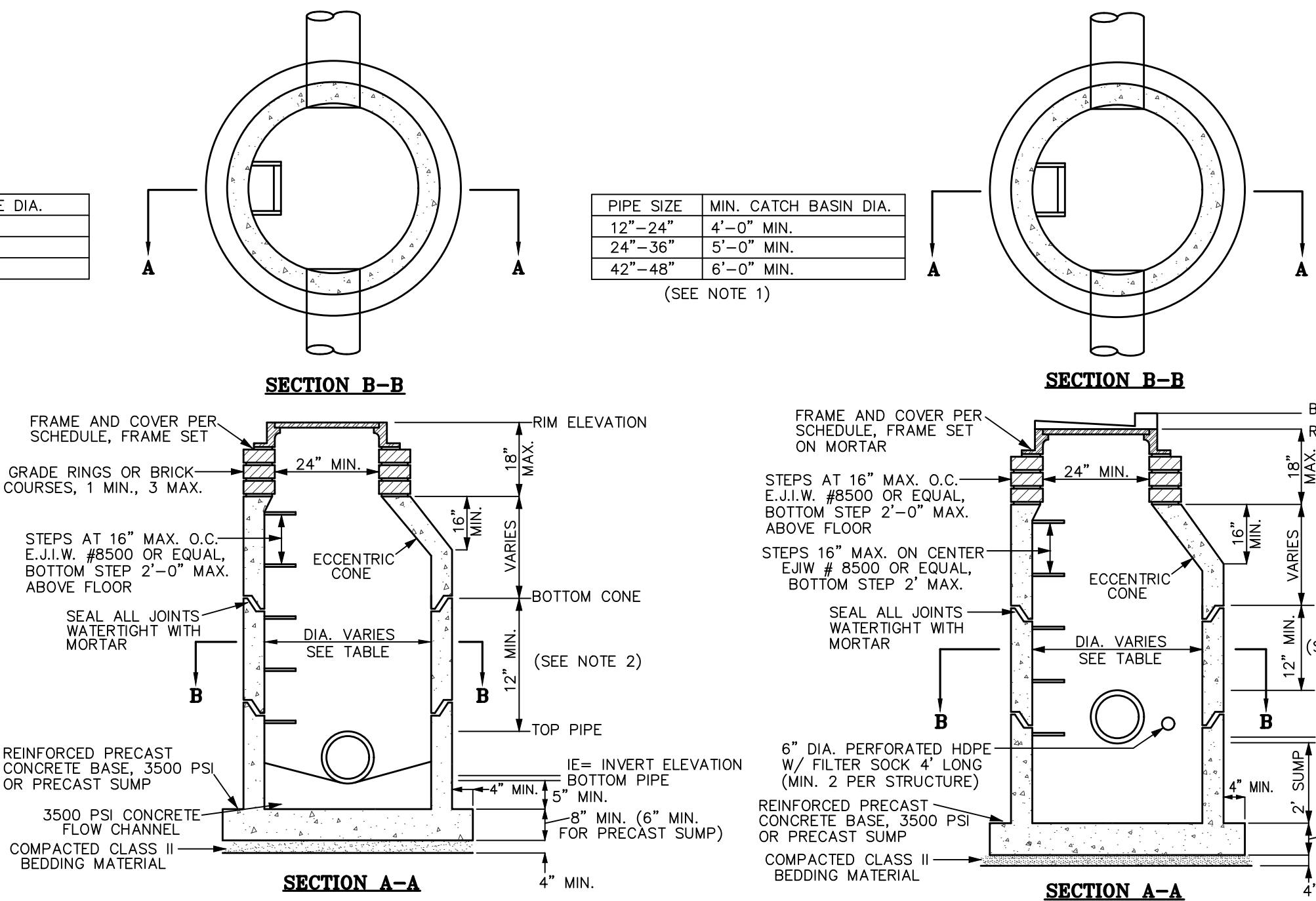
STANDARD CLEANOUT FOR STORM LEAD
NOT TO SCALE

PIPE SIZE	MIN. MANHOLE DIA.
12"-24"	4'-0" MIN.
24"-36"	5'-0" MIN.
42"-48"	6'-0" MIN.

(SEE NOTE 1)



CATCH BASIN COLLAR
NOT TO SCALE

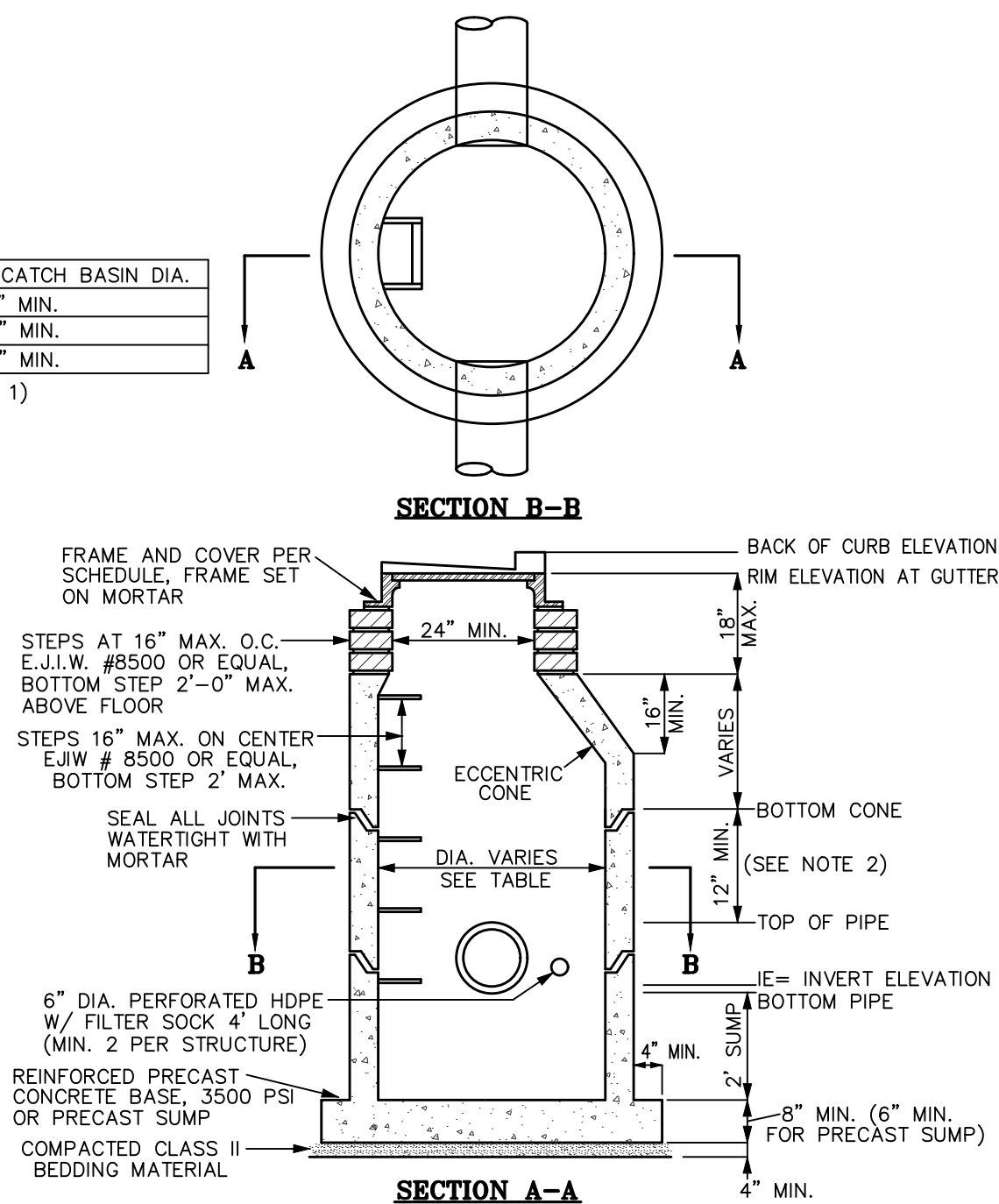


STORM STRUCTURE "B" STANDARD MANHOLE
NOT TO SCALE

- NOTES:
1. FURNISH LARGER STRUCTURE DIAMETER AS NEEDED TO MAINTAIN 6" MIN CLEAR BETWEEN PIPE OPENINGS.
 2. FURNISH LOW PROFILE STRUCTURE ONLY WHEN NECESSARY TO MAINTAIN PROPER CLEARANCE ABOVE PIPES.

PIPE SIZE	MIN. CATCH BASIN DIA.
12"-24"	4'-0" MIN.
24"-36"	5'-0" MIN.
42"-48"	6'-0" MIN.

(SEE NOTE 1)



STORM STRUCTURE "A" STANDARD CATCH BASIN
NOT TO SCALE

- NOTES:
1. FURNISH LARGER STRUCTURE DIAMETER AS NEEDED TO MAINTAIN 6" MIN CLEAR BETWEEN PIPE OPENINGS.
 2. FURNISH LOW PROFILE STRUCTURE ONLY WHEN NECESSARY TO MAINTAIN PROPER CLEARANCE ABOVE PIPES.

STORM SEWER NOTES:

1. The storm sewer and stormwater management specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.
2. Storm sewer work shall include clearing of vegetation and tree stumps, stripping and stockpiling of topsoil for reuse, excavation of pipe trench, placement of pipe bedding, placement of pipe and structures including castings, connection to existing structures, buck pointing of structures, backfill of pipe trench, compaction of backfill, finish grading to provide positive drainage to structures, adjustment of castings to match finish grade, topsoil placement, seed & mulch, site cleanup and restoration, and other storm sewer related work as shown on the project plans and specifications.
3. Existing and proposed grades shown in profile view, when provided on the project plans, may be in relation to the centerline of road or item other than the centerline of pipe. The pipe lengths and grades shown in profile view on the project plans may not be to scale.
4. RCP when shown on the project plans shall be reinforced concrete pipe and shall conform to the specifications for reinforced concrete pipe per ASTM C76. RCP pipe joints shall be bell-and-spigot with rubber gaskets conforming to ASTM C433. Non-gasketed joints shall only be utilized when authorized by the Owner, Engineer AND Municipality. Non-gasketed joints of pipe having a diameter of 30 inches or greater shall be tuck-pointed on the inside with cement mortar after the backfill process is complete. Install reinforced concrete end sections incidental to work. Saw cut pipes to length as needed. When pipe class is not shown on the project plans, provide the following:
Pipe cover to proposed grade: 0 to 4 feet Class V
4.1 to 10 feet Class III*
10.1 to 18 feet Class IV
18.1 feet and greater Class V
* Use Class IV under paved surfaces
5. CMP when shown on the project plans shall be corrugated metal pipe and shall conform to the specifications for corrugated metal pipe per AASHTO Designation M36. CMP shall be 16-gauge steel minimum for 24 inch diameter or smaller and 14-gauge steel minimum for 30 inch diameter or greater. Install galvanized steel end sections and connection bands, incidental to work. Connection bands for CMP pipe joints located under paved surfaces shall be gasketed couplers. Saw cut pipes to length as needed.
6. HDPE - Type S when shown on the project plans shall be high density polyethylene pipe with a smooth interior and shall conform to the specifications for high density polyethylene pipe per AASHTO Designation M252 Type S for pipes of 3" to 10" diameter and per AASHTO Designation M294 Type S for pipes of 12" to 60" diameter. HDPE - Type S pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477. Tamp backfill at spring line of HDPE - Type S pipe. Install high density polyethylene end sections incidental to work. Saw cut pipes to length as needed.
7. HDPE - Type C when shown on the project plans shall be high density polyethylene pipe with a corrugated interior and shall conform to the specifications for high density polyethylene pipe per AASHTO Designation M252 for pipes of 3" to 10" diameter and per AASHTO Designation M294 for pipes of 12" to 60" diameter. HDPE - Type C pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477. Tamp backfill at spring line of HDPE - Type C pipe. Install high density polyethylene end sections incidental to work. Saw cut pipes to length as needed.
8. CPVC when shown on the project plans shall be corrugated polyvinyl chloride pipe and shall conform to the specifications for corrugated polyvinyl chloride pipe per ASTM F794 and F949. CPVC pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477. Tamp backfill at spring line of CPVC pipe. Install high density polyethylene end sections incidental to work. Saw cut pipes to length as needed.
9. PVC when shown on the project plans shall be polyvinyl chloride pipe and shall conform to the specifications for polyvinyl chloride pipe per ASTM D2751, maximum SDR of 26. PVC pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477 or solvent welded type conforming to ASTM D2564. Tamp backfill at spring line of PVC pipe. Saw cut pipes to length as needed.
10. Concrete storm structures shall be pre-cast and shall conform to the specification of pre-cast concrete structures per ASTM C478. Joints of concrete storm structure sections shall be bell-and-spigot with rubber gaskets conforming to ASTM C433. Brick, concrete block or cast in place storm structures may be substituted for pre-cast storm structures ONLY when authorized by the Owner, Engineer AND Municipality; refer to MDOT standard plan R-1, latest revision. All pipe openings in pre-cast structures shall be factory installed and shall include a rubber boot resilient pipe to manhole connector conforming to ASTM C1478-07. All clamps, bands and hardware shall be stainless steel or other non-corrosive material. Provide the appropriate adapter(s) as necessary for corrugated pipe. Pipe to storm structure connections shall be performed in accordance with the rubber boot connector manufacturer's recommendations. All temporary openings and seams in storm structures shall be tuck-pointed watertight with cement mortar. Refer to MDOT standard plan R-2, latest revision, for alternate on-line storm structure details when pipe exceeds 42 inch diameter.
11. Tap existing structures as acceptable to the Engineer and Municipality, incidental to work. All temporary openings in storm structures shall be tuck-pointed watertight with cement mortar.
12. Backfill all storm sewer in accordance with the Pipe Trench details provided on the project plans. Provide pipe bedding that meets or exceeds both the specifications of the Pipe Trench details on the project plans and the recommendation of the pipe manufacturer, incidental to work.
13. When edge drains and/or under drains are shown on the project plans, connection to storm structures is incidental to work. During storm sewer construction, install first 10 linear feet of edge drain and/or under drain from the storm structures in each specified direction and install temporary cap at end. Complete installation of edge drain following preparation of the subgrade when under paved surface or following finish grade when not under paved surface.
14. Install removable plugs in storm sewer stubs as acceptable to Engineer and Municipality, incidental to work. Mark the end of all storm sewer stubs with a 2" x 4" wooden stake extending a minimum of 12" above finish grade, incidental to work.
15. Storm structure castings shall be coated with water based asphaltic paint by the manufacturer. Seams and temporary openings between storm structures and castings shall be tuck-pointed water tight with cement mortar. Coordinate correct curb box / hood / "T" back as needed to match curb profile. See casting schedule on project plans for additional requirements.
16. Provide 3.5' minimum cover from the top of pipe of all roof drain pipes to the proposed finish grade when site conditions allow. When pipe cover is less than 3.5', install 2" thick by 24" wide Styrofoam insulation centered over the top of pipe at 12" above top of pipe or as required by the Local Municipality.

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DRAFT: L.F.						
CHECK: WMP						

PURE ENERGY
5942 WHITMORE LAKE RD

STORM SEWER
NOTES AND DETAILS

CLIENT: PLATINUM DEVELOPMENT GROUP INC. 5942 WHITMORE LAKE ROAD BRIGHTON, MI 48116 (248) 446-6100	SCALE: N/A PROJECT No.: 244762 DWG NAME: 4762 DT ISSUED: MAR. 28, 2025	DT3
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**PV
A**

**PUCCI + VOLLMAR
ARCHITECTS, PC**

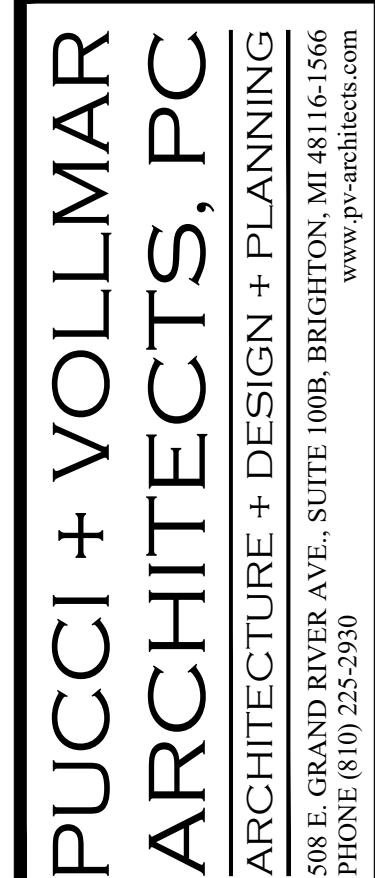
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PRELIMINARY
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CONSTRUCTION


		<p>FOR:</p> <p>RAND</p> <p>CONSTRUCTION</p> <p>1210 BRICKETT ROAD BRIGHTON, MI 48116 PHONE: 810-221-1011</p>	
<p>PROJECT</p> <p>5342 WHITMORE LK. RD. BRIGHTON, MICHIGAN</p>		<p>SHEET</p> <p>TITLE</p>	
		<p>LIFE SAFETY PLANS</p>	

[illegible]



**PRELIMINARY
NOT FOR
CONSTRUCTION**

FOR:
RAND
CONSTRUCTION
1270 RICKETT ROAD
BRIGHTON, MI 48116
PHONE: 810-227-7011

 <p>pure ENERGY COMPANY</p> <p>5942 WHITMORE LK. RD. BRIGHTON, MICHIGAN</p>	PROJECT
	<p>ADDITION FLOOR PLAN</p>
	<p>SHEET TITLE</p>

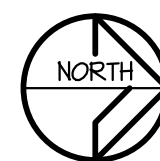
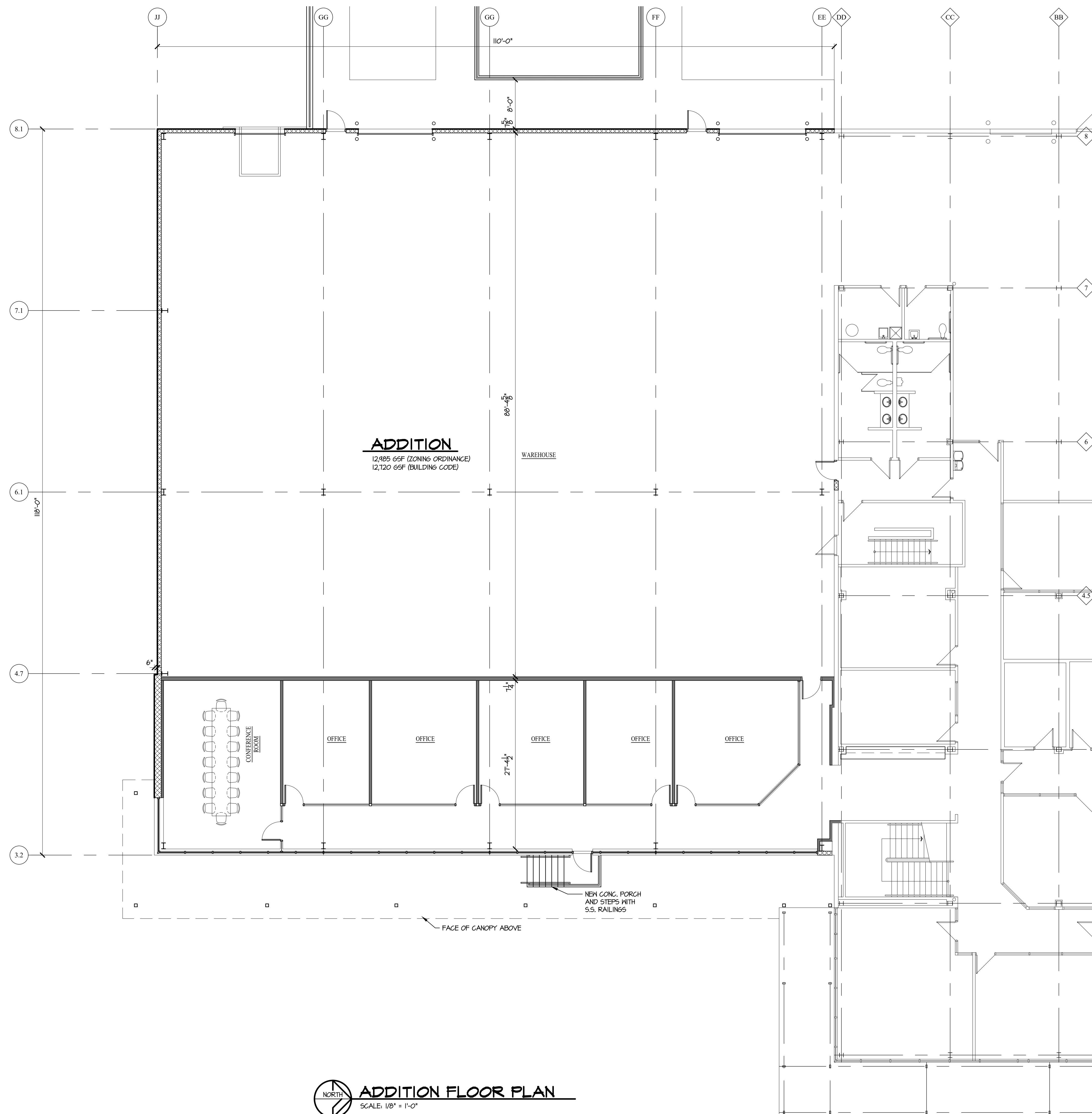
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DRAWN BY: KV
APPROVED BY: KV

PROJECT:	2509
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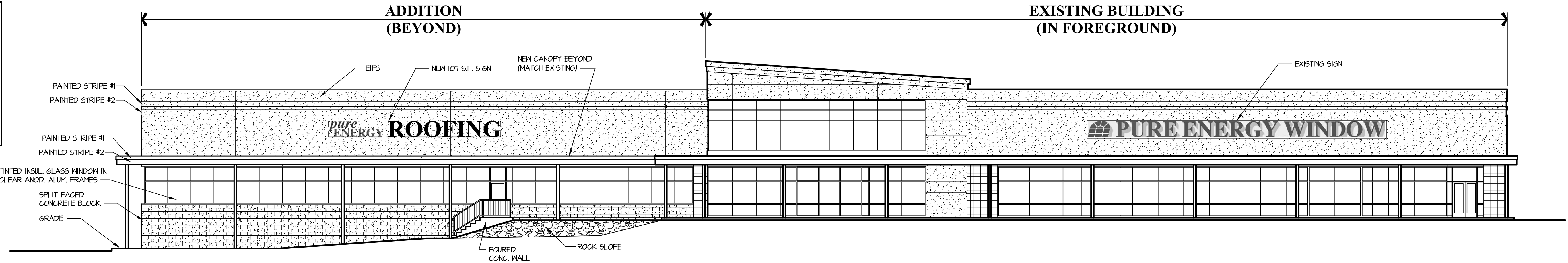
SHEET:
A1



ADDITION FLOOR PLAN

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

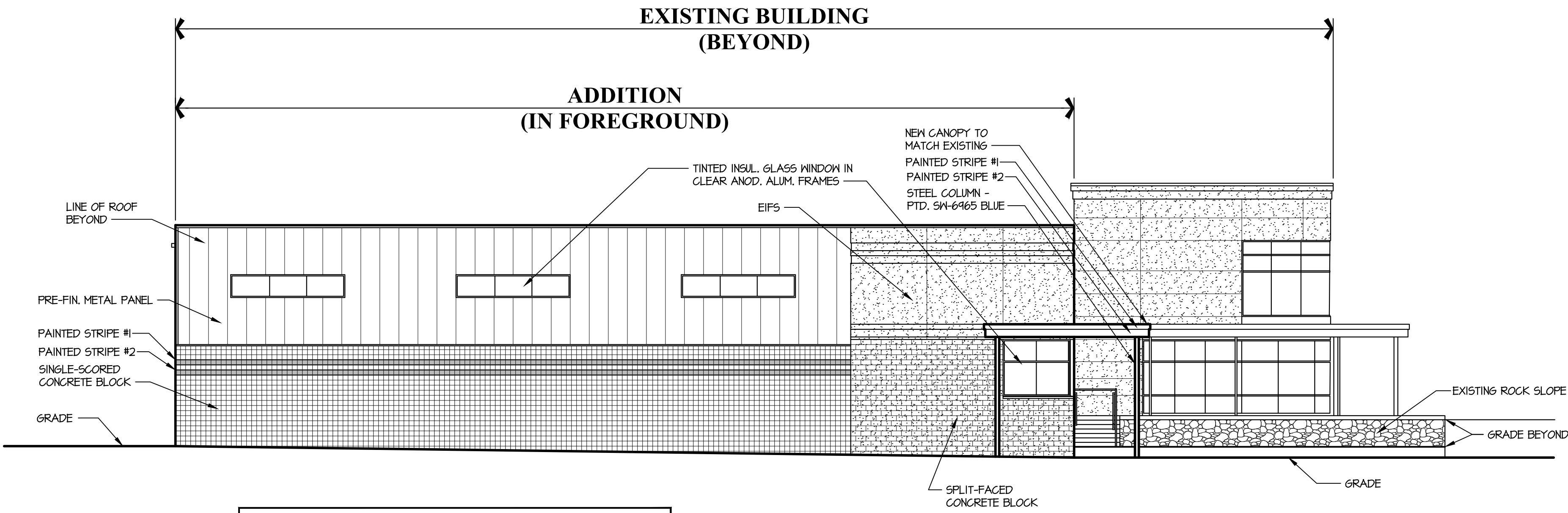
SIGNAGE:
ZONED: "I-1" LIGHT INDUSTRIAL
ALLOWABLE AREA OF WALL SIGNS:
10% OF WALL AREA, OR
40 S.F. WHICHEVER IS GREATER,
UP TO 120 S.F. MAX.
EAST WALL OF ADDITION = 3,225 S.F.
ALLOWABLE SIGN AREA = $3,225 \times 0.10 = 322.5$ S.F.
= 120 S.F. MAX.
PROPOSED WALL SIGN = $3'-2" \times 33'-8" = 107$ S.F.



**EAST ELEVATION MATERIAL PERCENTAGES
(ADDITION ONLY):**
GROSS ELEVATION AREA = 3,331 S.F.
NET ELEVATION AREA (LESS WINDOWS AND DOORS) = 2,242 S.F.
DECORATIVE CONCRETE BLOCK = 636 S.F. / 2,242 S.F. = 21.7% < 100% (COMPLIES)
METAL = 214 S.F. / 2,242 S.F. = 9.6% < 50% (COMPLIES)
FINISHES (EIFS) = 1,437 S.F. / 2,242 S.F. = 62.7% > 25% (DOES NOT COMPLY - WAIVER PREVIOUSLY GRANTED)

EAST (FRONT) ELEVATION
SCALE: 3/32" = 1'-0"

**EAST ELEVATION MATERIAL PERCENTAGES
(EXISTING BUILDING ONLY):**
GROSS ELEVATION AREA = 4,107 S.F.
NET ELEVATION AREA (LESS WINDOWS AND DOORS) = 2,250 S.F.
DECORATIVE CONCRETE BLOCK = 104 S.F. / 2,250 S.F. = 5%
METAL = 264 S.F. / 2,250 S.F. = 12%
FINISHES (EIFS) = 1,880 S.F. / 2,250 S.F. = 83%



**SOUTH ELEVATION MATERIAL PERCENTAGES
(ADDITION ONLY):**
GROSS ELEVATION AREA = 3,555 S.F.
NET ELEVATION AREA = 3,346 S.F.
DECORATIVE CONCRETE BLOCK = 1,611 S.F. / 3,346 S.F. = 48% < 100% (COMPLIES)
METAL = 1,334 S.F. / 3,346 S.F. = 40% < 50% (COMPLIES)
FINISHES (EIFS) = 316 S.F. / 3,346 S.F. = 12% < 25% (COMPLIES)

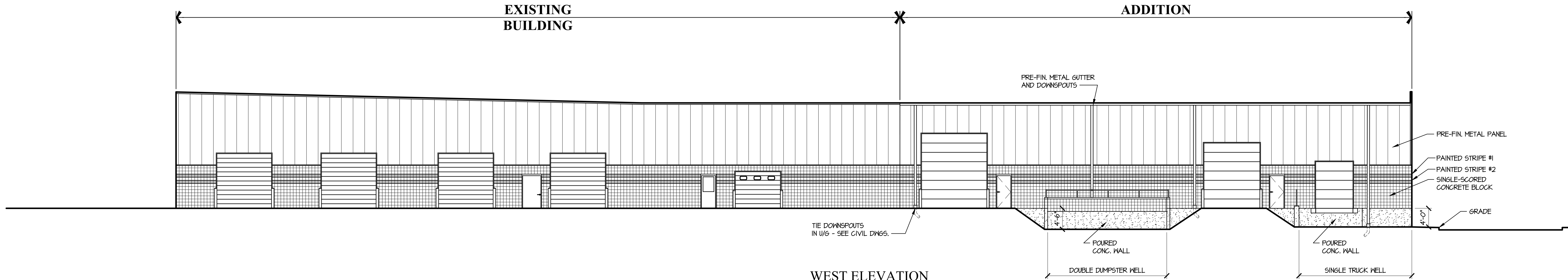
SOUTH ELEVATION
SCALE: 3/32" = 1'-0"

- MATERIALS:**
- SPLIT FACED CONCRETE BLOCK = PAINTED SHERWIN WILLIAMS SW-4104 "NATURAL LINEN"
 - EIFS = PAINTED: SHERWIN WILLIAMS SW-4104 "NATURAL LINEN"
 - STRIPE #1 = PAINTED: SHERWIN WILLIAMS SW-6748 "GREENS"
 - STRIPE #2 = PAINTED: SHERWIN WILLIAMS SW-6465 "HYPER BLUE"
 - WINDOWS = TRIPLE PANE INSULATED GLASS WITH A LIGHT BLUE TINT IN CLEAR ANODIZED ALUMINUM FRAMES.
 - DOORS = PAINTED SHERWIN WILLIAMS SW-6748 "GREENS"
 - NEW METAL PANELS = PAINTED SHERWIN WILLIAMS SW-6465 "HYPER BLUE"

- NOTES:**
- ALL EXTERIOR LIGHTING SHALL DOWNWARD DIRECTED AND SHIELDED.
 - THERE WILL NOT BE ANY ROOF TOP EQUIPMENT ON THE ADDITION.

**BRIGHTON TOWNSHIP
ZONING ORDINANCE REGULATIONS:**
ZONED: "I-1" LIGHT INDUSTRIAL
ALLOWABLE HEIGHT = 4 STORIES / 40 FT.
EXISTING AND PROPOSED HEIGHT = 1 STORY / 23'-4" FEET
SEC.14-01.G. - EXTERIOR WALL DESIGN STANDARDS:
DECORATIVE CONCRETE BLOCK = 100% MAX.
CONCRETE FORMED IN PLACE = 75% MAX.
METAL = 50% MAX.
FINISHES (EIFS) = 25% MAX.

**GREEN OAK TOWNSHIP
ZONING ORDINANCE REGULATIONS:**
ZONED: "I-1" LIMITED INDUSTRIAL
ALLOWABLE HEIGHT = 3 STORIES / 50 FT.
EXISTING AND PROPOSED HEIGHT = 1 STORY / 23'-4" FEET
SEC.38-191 - INDUSTRIAL BUILDING CONSTRUCTION:
THE FRONT WALLS OF ANY BUILDING IN AN LI DISTRICT SHALL BE CONSTRUCTED OR FACED WITH STONE, BRICK, DECORATIVE BLOCK, OR MATERIAL APPROVED BY THE PLANNING COMMISSION.
THE FRONT OF THE ADDITION IS FACED WITH SPLIT-FACED CONCRETE (DECORATIVE) BLOCK AND EIFS TO MATCH EXISTING.



WEST ELEVATION
SCALE: 3/32" = 1'-0"

Date: April 10, 2025

To: Charter Township of Brighton Planning Commission

From: Kelly Mathews

Subject: Preliminary Site Plan Review
Pure Energy Roofing
SP 25/03
Engineering sheets dated 3/28/25 and architectural sheets dated 4/25

Location: 5942 Whitmore Lake Rd.

Request: Preliminary Site Plan Review - New Warehouse Addition for Pure Energy Roofing Company

Zoning: I-1 (light industrial) & LI (limited industrial; Green Oak Township)

Applicant: Pure Energy Roofing Company

Owner: Platinum Development Group

Tax ID#: 12-32-300-072 and 12-32-300-067 and 16-05-100-008 (Green Oak Twp.)

A site plan for a 12,985 sq. ft. warehouse addition for Pure Energy Roofing has been reviewed. The current facility is 34,937 gross floor area. The existing building currently has ten (10) sewer and ten (10) LCWA water REU's. With the addition, the building size will be 47,922 gross sq. ft.

A small portion of the building, parking lot, and drive aisle is located in Green Oak Township; the site plan will be reviewed and approved by Green Oak Township.

SITE PLAN DISCUSSION

This site plan has been reviewed utilizing the standards in *Article 18 Site Plan Review*. Based on the review of the plans and a visit to the site, the following comments are outlined for your review.

1. **Use.** The use, industrial retail, office, and warehouse, is an allowed use in the I-1 zoning district per *Article 7, Section 7-02*.
2. **Site Layout.** The site has been reviewed in accordance with the area and bulk requirements described in *Article 7, Section 7-03*.

	Required	Provided	Comments
Building Height	40 ft./4 stories	24 ft.3 in. - new section; 31 ft. existing - varies	In compliance
Front Yard Setback East	60 ft.	169 ft. - existing 204 ft. - addition	In compliance
Side Yard Setback North	20 ft.	139 ft.	In compliance
Side Yard Setback South	20 ft.	46 ft.	In compliance
Rear Yard Setback West	50 ft.	188 ft.	In compliance
Parking Lot Setback (Front) East	60 ft.	90 ft. min. - Brighton Township 110 ft. - Green Oak Township	In compliance
Parking Lot Setback (Side) North	10 ft.	86 ft.	In compliance
Parking Lot Setback (Side) – Green Oak Township South	20 ft.	20 ft.	Green Oak Township; in compliance
Parking Lot Setback (Rear) West	10 ft.	16 ft.	In compliance

	Required	Provided	Comments
Minimum Lot Area (sq. ft.) - Brighton Township	40,000	Approx. 6.3 acres (total for 3 parcels) - 5.1 acres - Brighton Township and 1.2 acres in Green Oak Township	In compliance
Minimum Lot Width (ft.) - Brighton Township	150	458 (total for 3 parcels) 381 ft. - Brighton Township 77 ft. - Green Oak Township	In compliance
Maximum Lot Coverage - Brighton Township	50%	17% - both parcels	In compliance

3. **Loading/Unloading.** Loading/unloading zones are depicted on the site plan. Four (4) loading/unloading zones (min. size 10 ft. by 50 ft.) are required and are located in the rear of the building which meet the requirements of *Sec. 15-02*.

4. **Vehicular and Pedestrian Circulation.**

The proposed access is via an existing drive off of Whitmore Lake Rd.

5. **Parking.** The proposed parking was reviewed in accordance with *Article 15, Section 15-01* as described in the following table.

	Required	Provided	Comments
Parking Spaces Office - One (1) parking space per 200 SF usable – 11,037 sf usable = 53 spaces	55	68 including barrier free spaces	Need PC approval per Sec. 15-01(d)(6) if parking is more than 20% allowable

	Required	Provided	Comments
Barrier-Free Spaces	3	4	In compliance
Parking Space Dimensions	9 ft. by 20 ft. or 9 ft. by 18 ft. with 6-inch curb	9 ft. by 20 ft. or 9 by 18 ft. with 6-inch curb	In compliance
Aisle Width	24 ft. for two-way traffic	24 ft. for two-way traffic (min.)	In compliance

As a note, all parking must be double striped. Asphalt pavement and concrete curbing and gutter is planned as is required per *Section 15-01(e)(5)*. The proposed sidewalks abutting parking and existing are seven (7) ft. wide along the front of the building and fifteen (15) ft. along Whitmore Lake Rd.

6. **Sign.** New wall signage is planned for the building addition. A 177 sq. ft. ground signage was previously permitted for the existing building and 197.5 sq. ft. wall signage for the existing building. At the February 26, 2025 ZBA meeting, 120 sq. ft. wall signage was granted for the building addition for the roofing company.
7. **Building Materials.** Article 14, Section 14-01(c)(1) depicts the building materials required. Per Table 14-01, each wall has a percentage of coverage of the various building materials. A table has been provided by the applicant depicting the total percentage of proposed materials for the building: south and east elevations. The south elevation meets the Zoning Ordinance requirements. The east elevation has additional EIFS than the Zoning Ordinance allows. The proposed materials are the same as existing materials: decorative/concrete block, metal, EIFS, single scored concrete block and split faced concrete block. The Planning Commission can allow deviations from the Zoning Ordinance per *Sec. 14-01(c)(2)*. Per *Sec. 14-01(c)(5)*, colors are to be earth tone colors and compatible with the surrounding area. Additionally, samples of all materials must be brought to the Planning Commission meeting for review.

A floor plan has been submitted which depicts the layout of the proposed facility. Additionally, per *Sec. 14-01(c)(4)*, when walls are greater than one hundred (100) ft. in length, design variations must be applied per the suggestions in that section. Per *Sec. 14-01(c)(4)* interest is supposed to be added to the walls so there are not large blank walls.

8. **Landscaping.** A landscape plan has been submitted and has been reviewed in accordance with Article 14, Section 14-02.

	Required	Provided
Buffer along Northern Property Line	None required	Existing trees and shrubs
Buffer along Western Property Line	None required	Not depicted
Buffer along Southern Property Line - Green Oak Township 20 ft. buffer with 1 tree for every 30 lf = 275.5 lf/30 = 9 trees	9 trees	13 trees - Meets ordinance
Greenbelt (Front Yard) East - Whitmore Lake Rd. 20 ft. buffer with 1 deciduous tree for each 30 ft. (383 ft. frontage in Brighton Township)	13 trees	9 trees - Does not meet ordinance

<p>Detention/Retention Basins - 1 tree and 10 shrubs per 50 linear ft. of detention basin perimeter.</p> <p>Basin A - $355/50 = 7$ trees & 71 shrubs</p> <p>Basin B - $360/50 = 7$ trees & 72 shrubs</p> <p>Basin C - $360/50 = 7$ trees and 72 shrubs</p> <p>Fencing is proposed with a 4:1 slope. Fencing is planned to be 4' high chain link for Basin A; a detail is provided on the site plan</p>	<p>Basin A - 7 trees & 71 shrubs</p> <p>Basin B - 7 trees & 72 shrubs</p> <p>Basin C - 7 trees and 72 shrubs</p>	<p>Basin A - 7 trees, 71 shrubs</p> <p>Basin B - 7 trees, 100 shrubs</p> <p>Basin C - 7 trees and 95 shrubs</p> <p>Meets ordinance</p>
<p>Parking Lot –</p> <p>Required for parking lots of 20 spaces or more - 1 canopy tree for each 10 parking spaces, in no case less than 2 trees shall be provided and a continuous row of shrubs along the front of the parking lot. A min. 1/3rd of the trees shall be placed in islands (min. size of islands specified in ordinance). $68/10 = 7$ trees</p>	<p>7 trees</p>	<p>4 trees - Does not meet ordinance</p>

9. **Lighting.** New wall and pole mounted lighting are proposed for the parking areas. Details of the lighting has been submitted including photometrics which meet the Zoning Ordinance per *Sec 14-03*.
10. **Waste Receptacle.** The applicant has depicted a new dumpster area in the rear of the building and an enclosure to match the building. A detail of the screening must be provided which meets the Zoning Ordinance per *Sec. 14-04*.
11. **Mechanical and Electrical Equipment.** Any new equipment must be depicted for the building. All proposed mechanical equipment must be depicted on the site plan and screened per *Section 14-05*. If any roof mounted equipment is proposed, it must be screened per *Section 14-01(d)(3)*.

12. Agency Approvals. Copies of all applicable County, State, and Agency approvals need to be submitted to the Township prior to site plan approval, including but not limited to:

- a. Livingston County Drain Commission
- b. Township Engineer
- c. Livingston County Road Commission
- d. Livingston Community Water Authority
- e. Brighton Area Fire Authority
- f. Green Oak Township Engineer
- g. Green Oak Township Planner

RECOMMENDATION

It is recommended that the Planning Commission approve the preliminary site plan conditioned upon the outstanding items in this letter and any other letters being handled administratively and Green Oak Township approving the preliminary site plan.



April 25, 2025

Via Email: planner@brightontwp.com

Kelly Mathews, Planner
Charter Township of Brighton
4363 Buno Road
Brighton, MI 48114

**RE: Pure Energy Window Company
5942 Whitemore Lake Road
Site Plan Review (1st Review)
F&V Project No. P50734**

Dear Kelly:

We have completed an engineering review of the site plan dated March 28, 2025 for the proposed 12,985 square foot building addition, loading and waste handling docks, expanded storm water management system, and additional parking areas with respect to drainage, paving, traffic impacts, site circulation, and public utilities. As you are aware, in 2021 we reviewed and recommended approval of a site plan for a 10,000 square foot building addition and similar site improvements. The current site plan includes a larger building expansion and additional parking improvements, primarily on the northerly portion of the site.

The submitted site plan is well prepared and detailed to a point that is beyond what is required for site plan review. Based on our review, we offer the following observations and comments but find the site plan satisfactory for engineering site plan approval.

1. The Site Information provided on Sheet SP contains proposed values that do not appear to match the plan. Items of question/discrepancy include:
 - a. Parking Setbacks, North and Rear
 - b. Building Setbacks, SouthThe anticipated revised values still comply with the zoning requirements.
2. The 2021 plan called for decommissioning and removal of the existing well on the west side of the existing building. The well is now proposed to remain. The building is also served by public water.
3. The Livingston County Drain Commissioner has reviewed the preliminary site plan and provided comments in their April 24, 2025 review letter. They are recommending preliminary site plan approval contingent upon some items being addressed in the construction plan submittal. We agree with addressing these items at the time of construction plan submittal.
4. Preliminary approval shall be obtained from the Brighton Area Fire Authority
5. Additional grading and detailed design review will be completed at the time of construction plan submittal.

**27725 Stansbury Boulevard, Suite 195
Farmington Hills, MI 48334**
P: 248.536.0080
F: 248.536.0079
www.fveng.com

If you have any questions or need any additional information, please contact us at (810) 743-9120 or via e-mail at grose@fveng.com.

Sincerely,

FLEIS & VANDENBRINK



Geric L. Rose, PE, PS
Regional Manager, Associate

Cc (via email): Wayne Perry, P.E., Desine Inc. (waynep@designinc.com)
Neil Ganshorn, Rand Construction (nganshorn@randconstruction.com)
Mathew Masters, Platinum Development Group (mmasters@pureenergywindows.com)
Kim Hiller, Livingston County Road Commission
Ken Recker, P.E., Chief Deputy Drain Commissioner, Livingston County
Mitch Dempsey, Environmental Projects Manager, Livingston County
Jim Rowell, Building Official, Livingston County
Richard Boisvert, CFPS Fire Marshal, Brighton Area Fire Authority
Brian Vick, Township Manager
Dan Cabage, F&V



BRIGHTON AREA FIRE AUTHORITY

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

April 24, 2025

Kelly Mathews, Planner
Charter Township of Brighton
Building and Planning
4363 Buno Road
Brighton, MI 48114

RE: Pure Energy Window Company
5942 Whitmore Lake Road
Brighton Township
Site Plan Review

Dear Kelly:

The Brighton Area Fire Department has reviewed the above-mentioned site plan. The plans were received for review on April 10, 2025 and the drawings are dated March 28, 2025. The project involves the addition of a 12,985-square-foot warehouse and office space to an existing 23,456-square-foot warehouse, showroom, and office. The plan review is based on the requirements of the International Fire Code (IFC) 2021 edition.

1. The addition shall be provided with an automatic sprinkler system in accordance with NFPA 13, *Standard for the Installation of Automatic Sprinkler Systems*. Details must be provided regarding the storage arrangement and products planned for the warehouse to determine the capacity of the existing fire protection system to protect the new addition.

IFC 903

2. Security gates on the north and south shall be equipped with Knox Corporation access control, utilizing either Knox Padlocks (if manual and chained) or Knox Key Switches (if equipped with powered opening).

IFC 506.1.1

3. 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. Emergency vehicle circulation plan must be re-run utilizing BAFA's apparatus (Specifications are below).

IFC 503.2.4

4. During the construction process, the addition and existing building will be evaluated for emergency responder radio signal strength. If coverage is found to be questionable or inadequate; the contractor or the building owner shall hire an approved contractor to conduct a grid test of the facility. If the signal strength coverage is found to be non-compliant, an approved emergency responder radio coverage system shall be provided in the building.

IFC 510

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.



April 10, 2025

Page 2

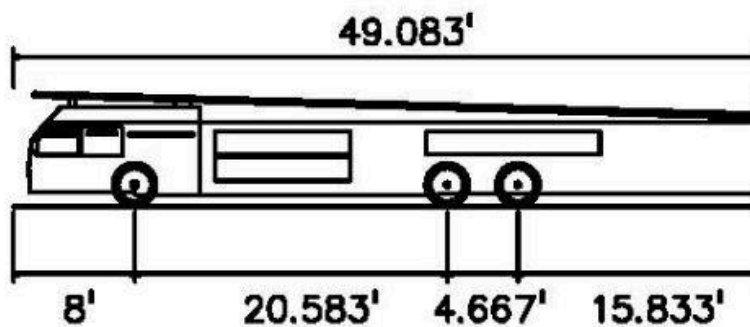
Pure Energy Window Company
5942 Whitmore Lake Road
Site Plan Review

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

Cordially,

Rick Boisvert, CFPS
Fire Marshal

cc: Geric Rose-Fleis & Vandenbrink (grose@fveng.com)
Daniel Cabage-Fleis & Vandenbrink (dcabage@fveng.com)



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

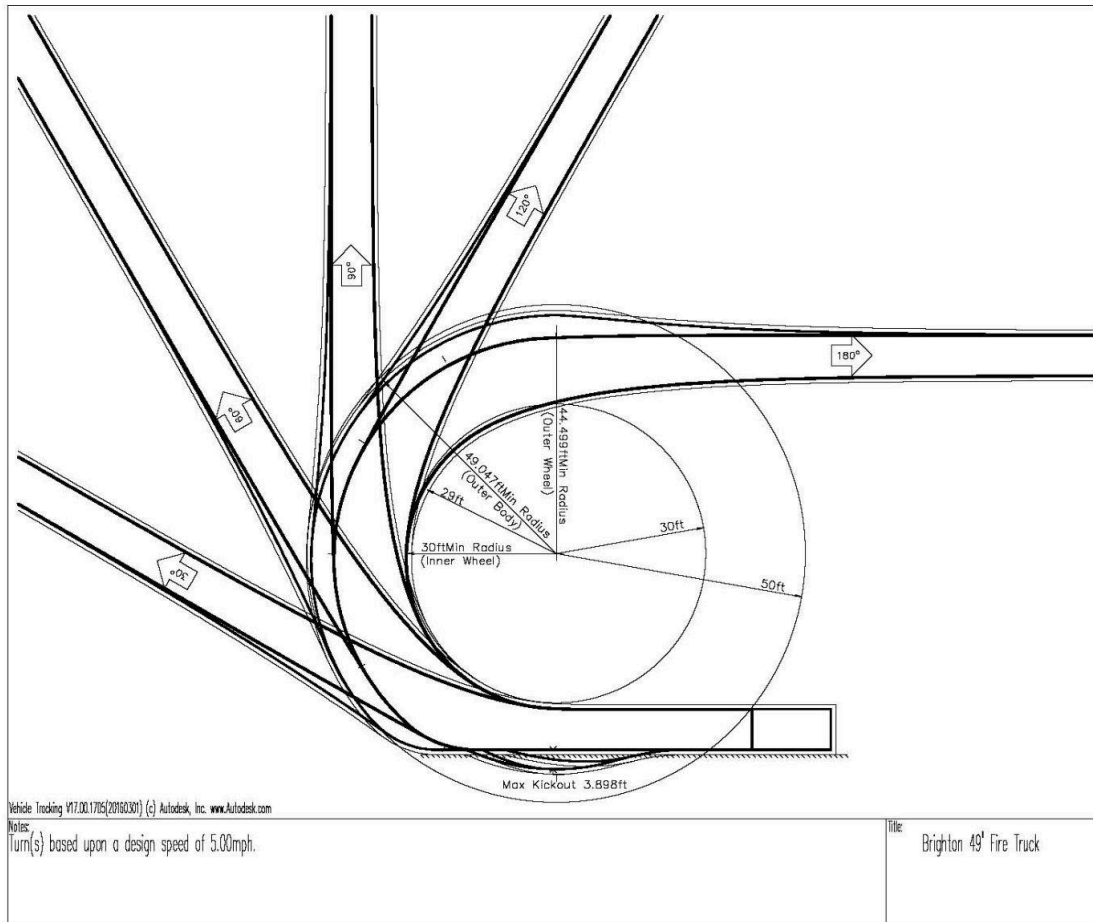
NOT TO SCALE



April 10, 2025

Page 3

Pure Energy Window Company
5942 Whitmore Lake Road
Site Plan Review



FIRE TRUCK TURNING RADII

1"=30'



Brian Jonckheere

Livingston County Drain Commissioner

2300 E. Grand River Ave., Ste. 105

Howell, MI 48843-7581

Phone: 517-546-0040 FAX: 517-545-9658

Website: www.milivcounty.gov/drain Email: drain@livgov.com

April 24, 2025

Mr. Wayne Perry, P.E.
Desine Inc.
2183 Pless Dr.
Brighton, MI 48114

RE: Pure Energy Window Company Building Addition Preliminary Site Plans
Southwest 1/4 of Sec. 32, Brighton Twp. &
Northwest 1/4 of Sec. 5, Green Oak Twp.

Dear Mr. Perry:

I received Preliminary Site Plans for the above referenced project on April 10, 2025. Plans for a smaller building addition on this site were previously reviewed by our office in 2021. The submitted information has been reviewed for conformance with the current L.C.D.C. "Procedures and Design Criteria for Stormwater Management Systems." My comments on the proposed drainage design are as follows:

- 1.) Drainage System Ownership - A note found on Sheet SP correctly states that "The onsite drainage system will be private and shall be properly maintained by the property owner." A stormwater maintenance agreement, similar to that found in Appendix K of the current L.C.D.C. Design Criteria, should be executed with Brighton Township prior to final project approval.
- 2.) Overall Drainage Concept - The 6.15 acre site, located on the west side of Whitmore Lake Road, currently contains a 34,690 S.F. industrial building, its associated driveways, parking lots and three stormwater detention basins. The proposed improvements include a 12,985 S.F. building addition with a truck loading area, several additional car and truck parking areas and an expansion of the current stormwater detention basin located behind the existing building. Runoff from most of the site presently flows to one of the three existing detention basins and will continue to do so under the proposed conditions. The basins discharge directly or indirectly, to the recently constructed ditch enclosure along Whitmore Lake Road.
- 3.) Existing Conditions - The existing site drainage structures should be shown on Sheet EX. The storm sewer pipe size and the drainage structures rim and invert information for the existing ditch enclosure along the site's Whitmore Lake Road frontage should also be shown on Sheet EX.

- 4.) Stormwater Detention/Infiltration - Runoff from the majority of the site's newly proposed impervious areas will be directed to the expanded Detention Basin A, which has now been designed based on the current L.C.D.C. Design Criteria using a maximum discharge rate of 0.15 cfs/acre. No infiltration testing information has been provided for this basin, however its required Channel Protection Volume will be stored below its outlet, without any infiltration credit being taken in the determination of its required 100 Year Frequency Storm storage volume. While this design approach is reasonable, a Stormwater Narrative should be added to the plans explaining why infiltration testing was not performed. A Land Use Summary Table for Basin A, similar to that found in Appendix J of the current LCDC Design Criteria, should be added to the Cover Sheet of the plans.

Since the proposed changes to the tributary areas of Basins B and C are very minor, no grading changes are being proposed to these basins, which were designed based on the previous L.C.D.C. Design Criteria. However, the outlet control structure of Basin C is to be modified to bring its discharge into compliance with its original design.

- 5.) Storm Sewers - The proposed storm sewers appear to be designed to accommodate the runoff from a 10 Year Frequency Storm over these tributary areas. A full review of the proposed storm sewer plans, which should include complete storm sewer profiles, will be performed at the time of the project's Construction Plan review.
- 6.) Site Grading - High points should be shown on Sheets GR1 and GR2 along the proposed curb line between CB 111, CB 112 and CB 113 to insure positive drainage between these structures.

I am granting approval of the preliminary plans for Pure Energy Window Company Building Addition, contingent on the above-mentioned items being addressed in the construction plan submittal.

Very truly yours,



Kenneth E. Recker, II, P.E.
Chief Deputy Drain Commissioner

C: Kelly Matthews, Brighton Township
Geric Rose, Fleis & Vandenbrink
Al Hogan, Green Oak Township
Leslie Zawada, Civil Engineering Solutions
Paul Lewsley, Spaulding DeDecker
Matthew Masters, Pure Energy Window