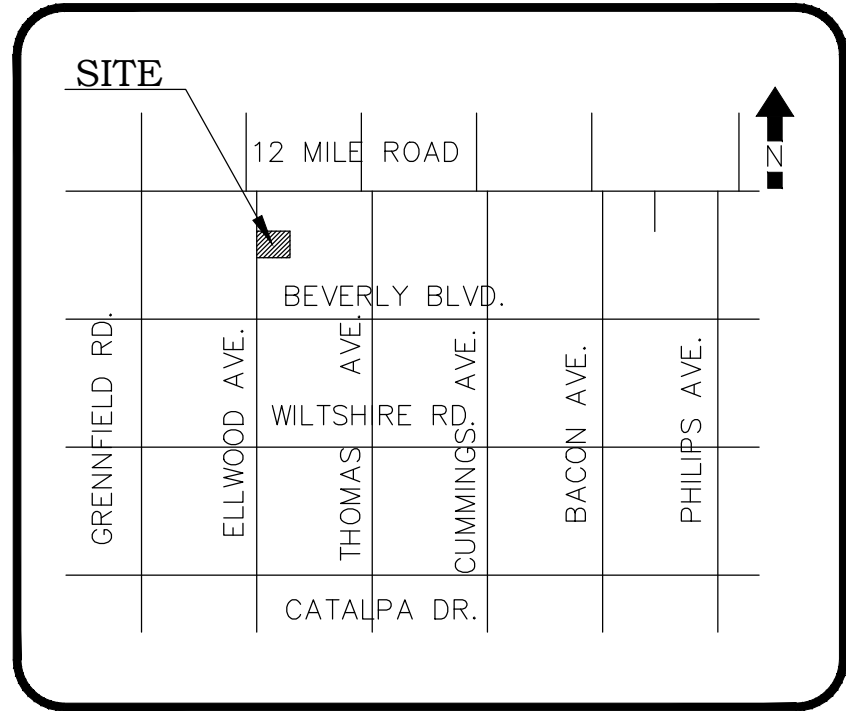
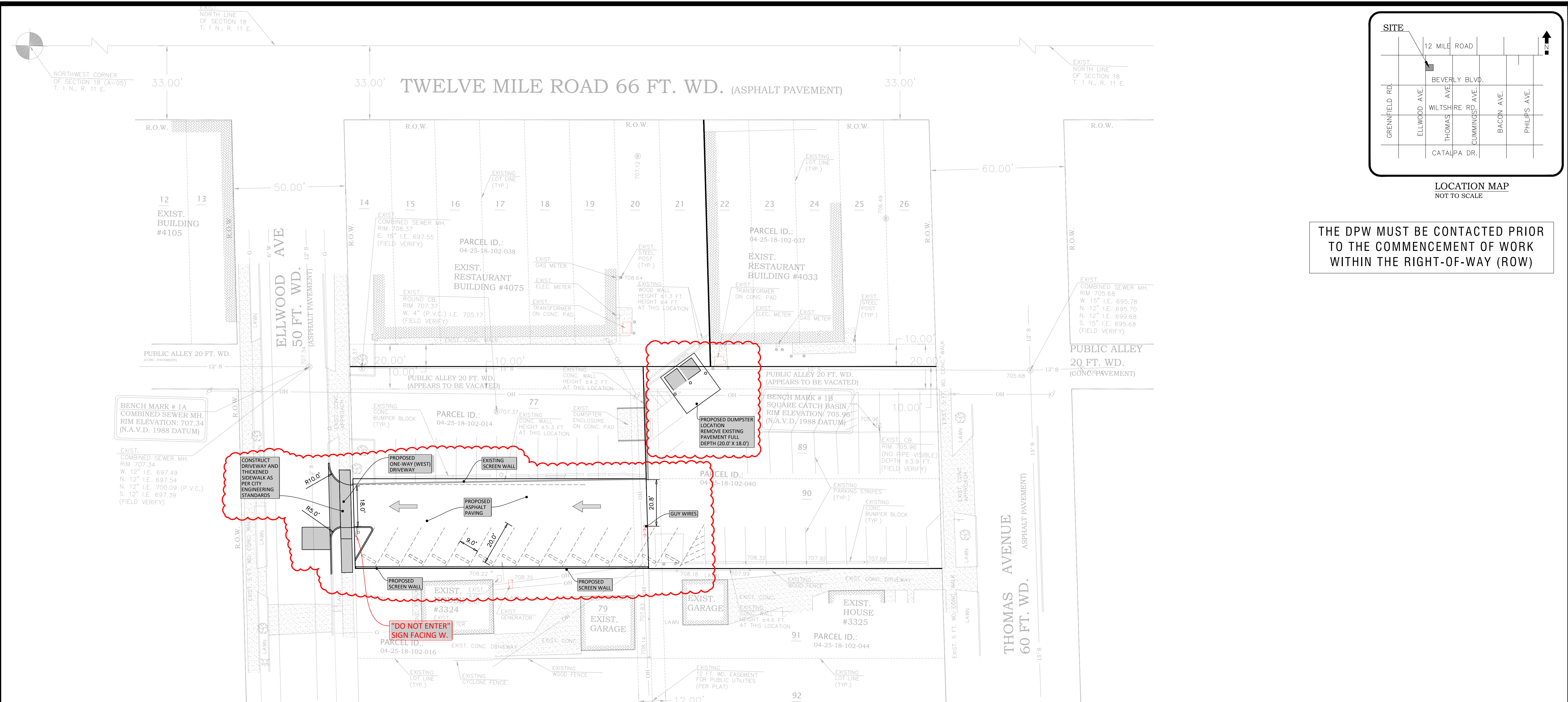








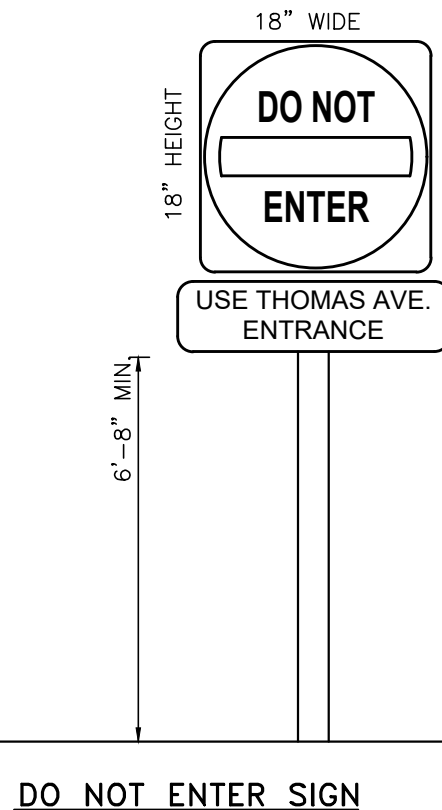




THE DPW MUST BE CONTACTED PRIOR TO THE COMMENCEMENT OF WORK WITHIN THE RIGHT-OF-WAY (ROW)

SCOPE OF WORK:

- ALL SITE REMOVAL AS PER SHEET C-02
- PROVIDE DUMPSTER PAD AT THE NORTHWEST CORNER OF EXISTING PARKING LOT FOR 4033 12 MILE RD.
- RECONSTRUCT A ONE-WAY (EXIT ONLY) DRIVEWAY WITH THICKENED CONCRETE
- CONSTRUCT PARKING LOT WITH ASPHALT PAVEMENT.
- CONSTRUCT A CONCRETE SCREEN WALL ALONG THE SOUTHERLY PROPERTY LINE.
- STRIPE PARKING LOT AS PER LAYOUT WITH ONE-WAY LAYOUT EXISTING TOWARD ELLWOOD AVE.



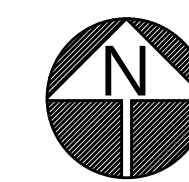
3340 Ellwood Ave / 4033 12 Mile Rd,  
Berkley, MI 48072

| MARK | AMENDMENT DESCRIPTION     | DATE    |
|------|---------------------------|---------|
|      | PLANNING COMMISSION       | 2-11-25 |
|      | REVISED PER 02-27-25 LTR. | 3-06-25 |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |

OVERALL SITE PLAN

SCALE 1" = 20'  
DRAWN  
DUPLICATION STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF CONSULTANT.

Drawing No.  
C-01





THE DPW MUST BE CONTACTED PRIOR TO THE COMMENCEMENT OF WORK WITHIN THE RIGHT-OF-WAY (ROW)

BENCH MARK # 1A  
COMBINED SEWER MH.  
RIM ELEVATION: 707.34  
(N.A.V.D. 1988 DATUM)

EXIST. COMBINED SEWER MH.  
RIM 707.34  
W. 12" I.E. 697.49  
N. 12" I.E. 697.54  
N. 12" I.E. 700.09 (P.V.C.)  
S. 12" I.E. 697.39  
(FIELD VERIFY)

- REMOVAL NOTES:
- REMOVE EXISTING BUILDING, HOUSE, AND GARAGE.
  - REMOVE ALL CONCRETE PAVEMENT.
  - REMOVE DRIVEWAY AND SIDEWALK ON ELLWOOD AVE AS PER THIS LAYOUT.
  - REMOVE ALL ELECTRICAL, COMMUNICATION LINE, GAS AS PER UTILITY COMPANIES.
  - REMOVE AND CAP EXISTING SEWER AND WATER LINES AS PER CITY DIRECTIONS
  - RESTORE TO ORIGINAL CONDITIONS ANY DAMAGE TO LANDSCAPING, PAVEMENT OR BUILDING DUE TO WORK ACTIVITIES.



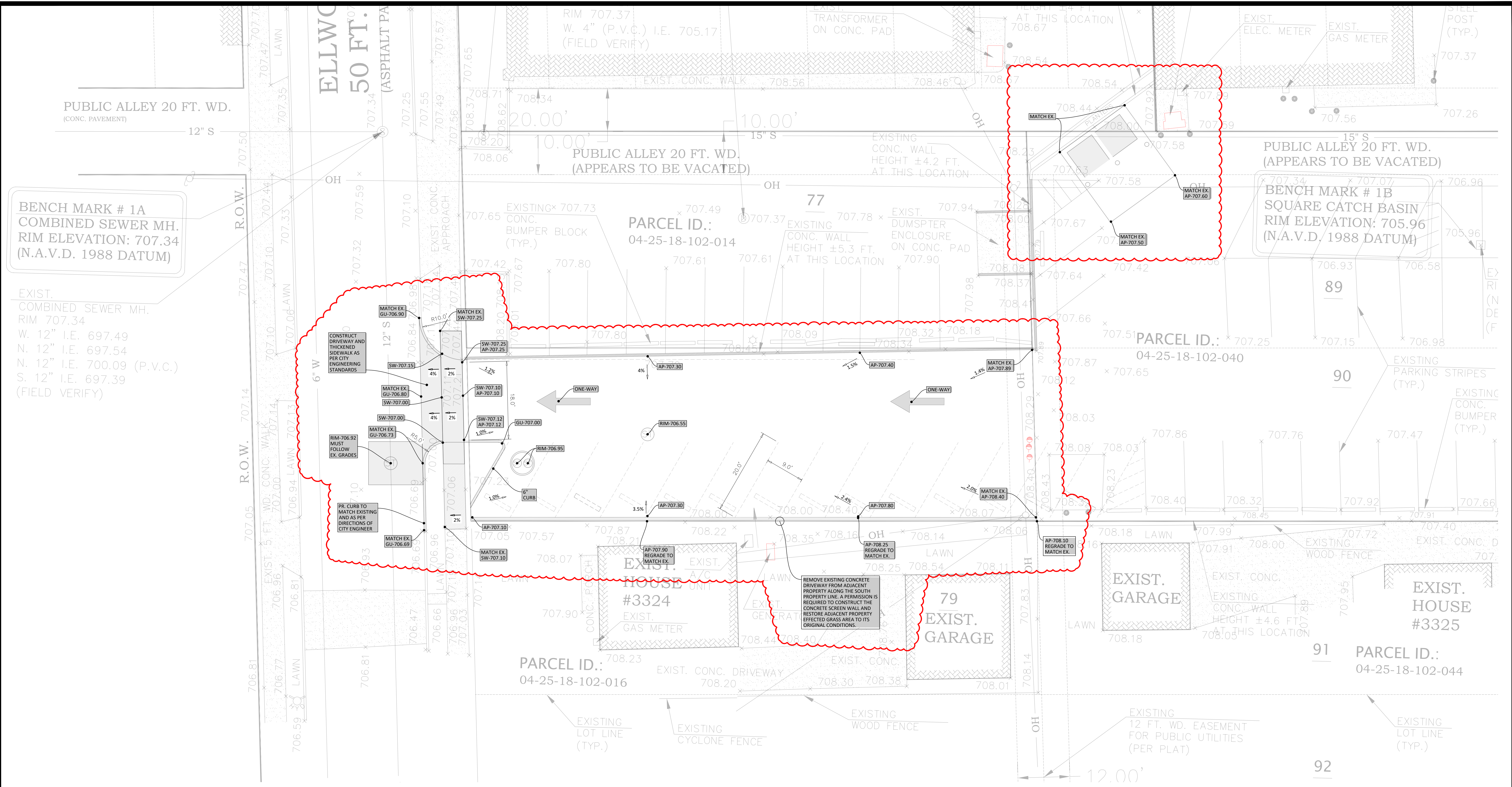
3340 Ellwood Ave / 4033 12 Mile Rd,  
Berkley, MI 48072

| MARK | AMENDMENT DESCRIPTION     | DATE    |
|------|---------------------------|---------|
|      | PLANNING COMMISSION       | 2-11-25 |
|      | REVISED PER 02-27-25 LTR. | 3-06-25 |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |

| REMOVAL SITE PLAN                                                           |             |
|-----------------------------------------------------------------------------|-------------|
| SCALE 1" = 10'                                                              | Drawing No. |
| DUPPLICATION STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF CONSULTANT. | C-02        |

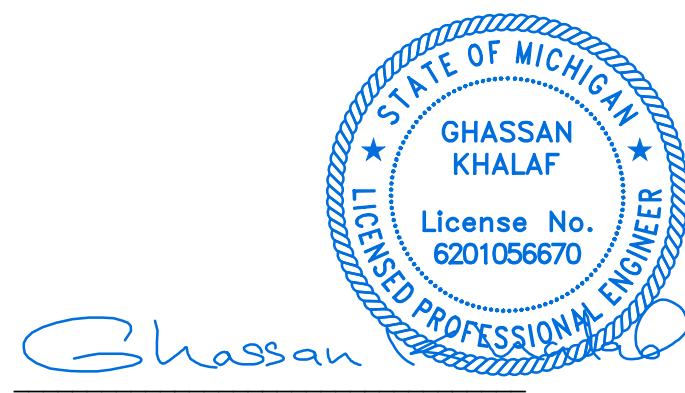






REFER TO SHEET C-03.1 FOR THE FOLLOWING DETAILS

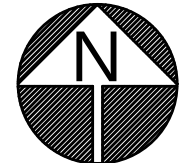
- ON-SITE PROPOSED PAVEMENT
- ON-SITE CURB AND GUTTER
- SIDEWALK AND THICKENED SIDEWALK
- DRIVEWAY CROSS-SECTION
- DUMPSTER CONCRETE



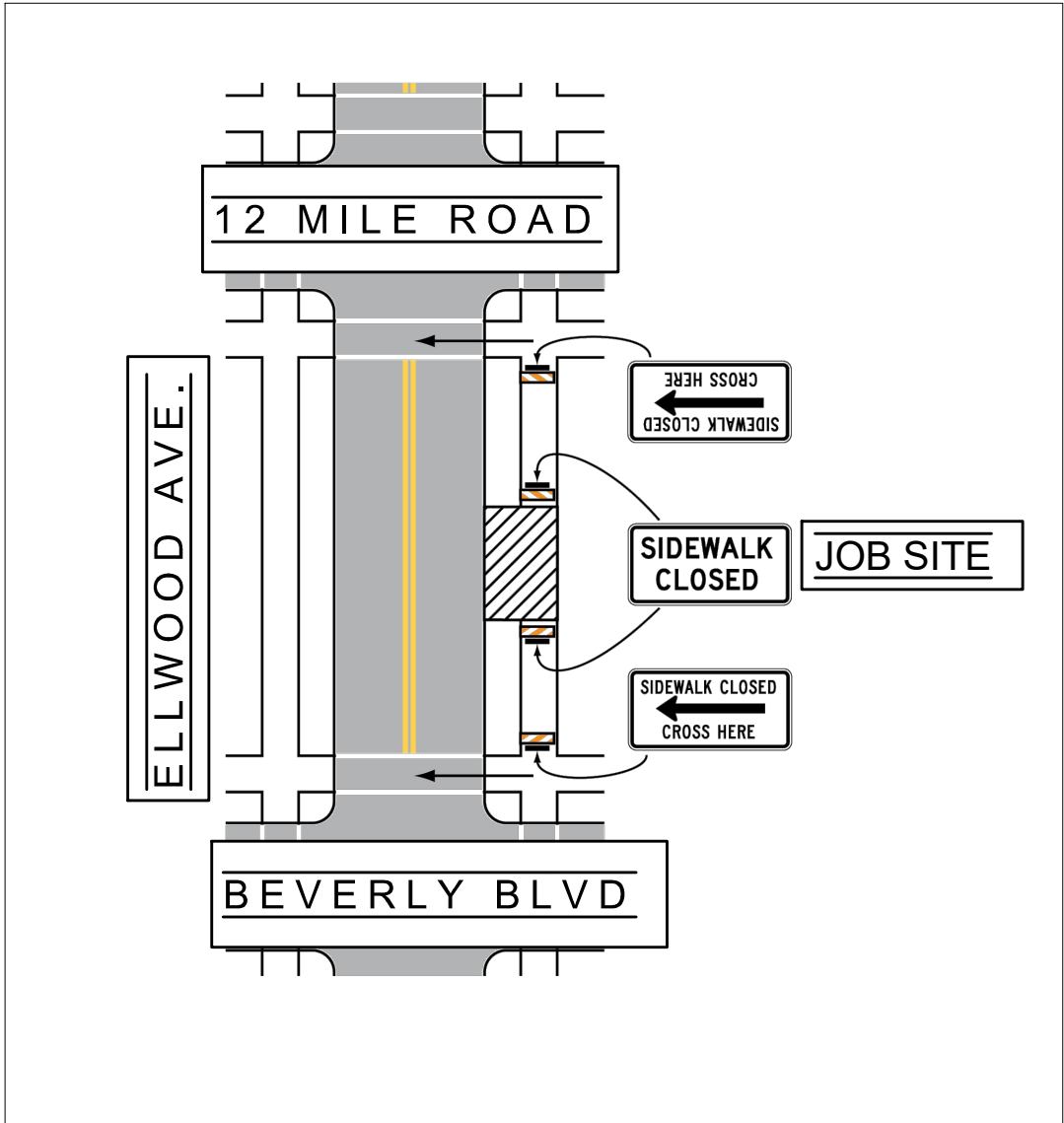
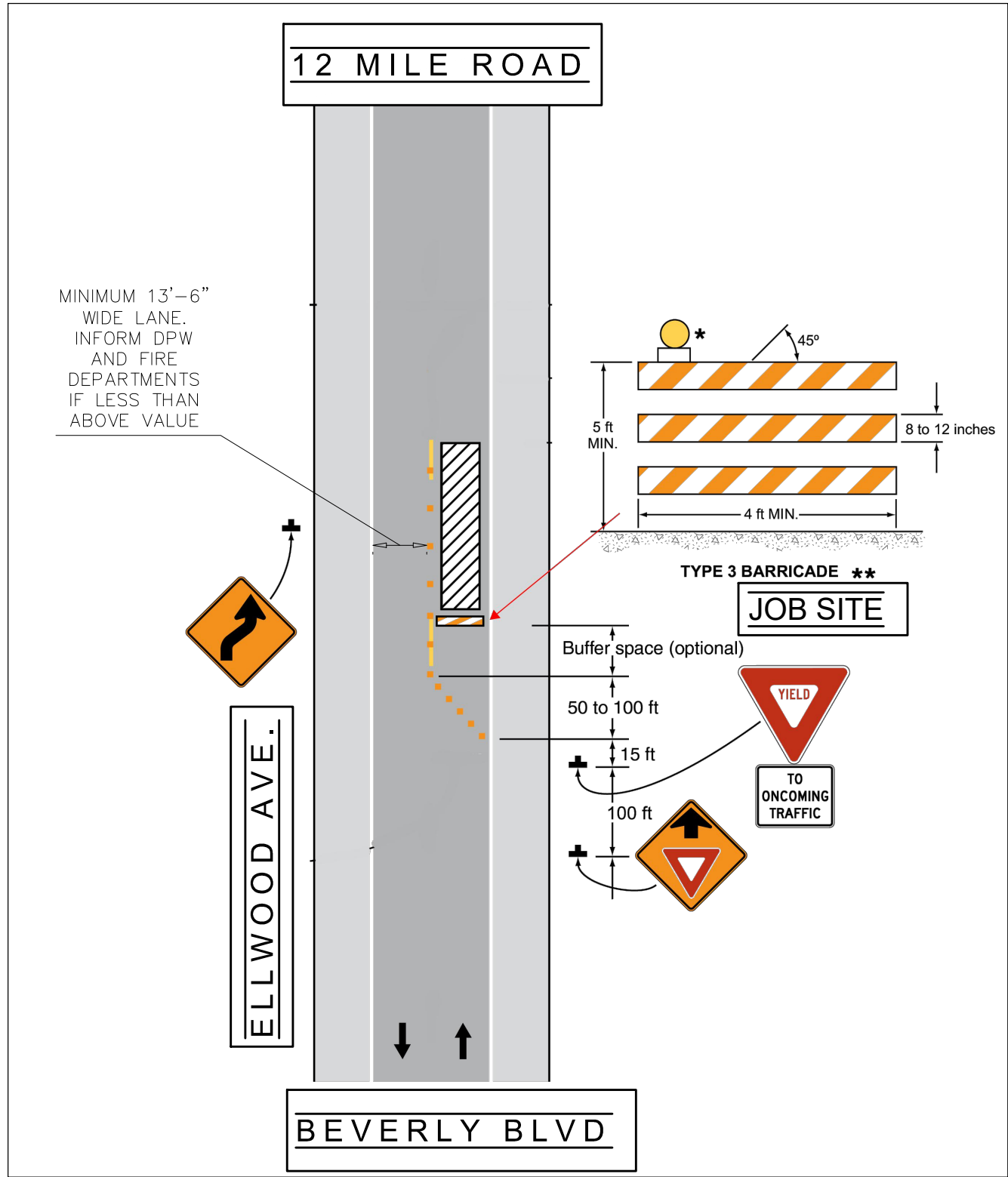
3340 Ellwood Ave / 4033 12 Mile Rd,  
Berkley, MI 48072

| MARK | AMENDMENT DESCRIPTION     | DATE    |
|------|---------------------------|---------|
|      | PLANNING COMMISSION       | 2-11-25 |
|      | REVISED PER 02-27-25 LTR. | 3-06-25 |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |

| GRADING SITE PLAN                                                                |                            |
|----------------------------------------------------------------------------------|----------------------------|
| SCALE<br>DRAWN<br>1" = 10'                                                       | Drawing No.<br><b>C-03</b> |
| DUPLICATION STRICTLY PROHIBITED<br>WITHOUT THE WRITTEN CONSENT<br>OF CONSULTANT. |                            |



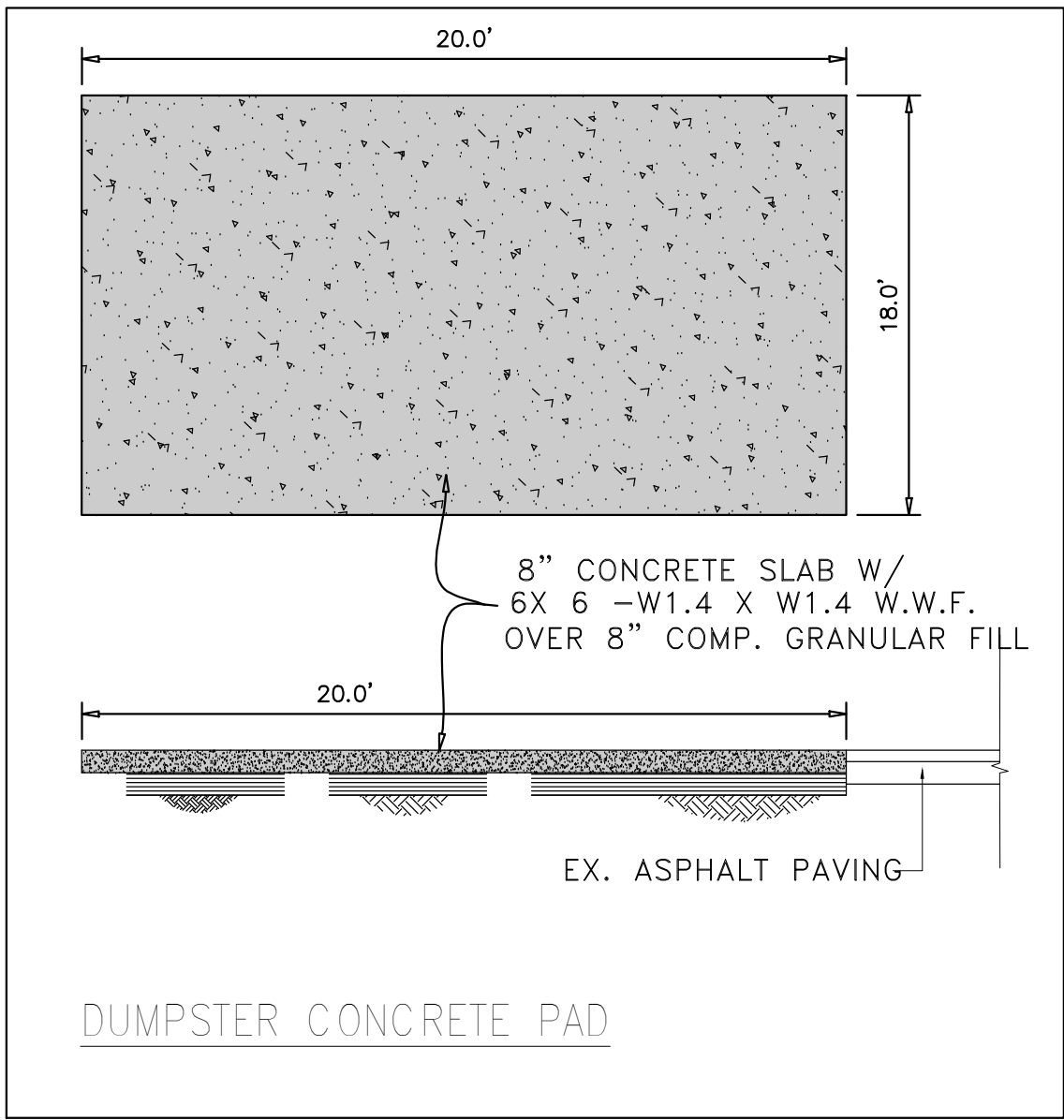
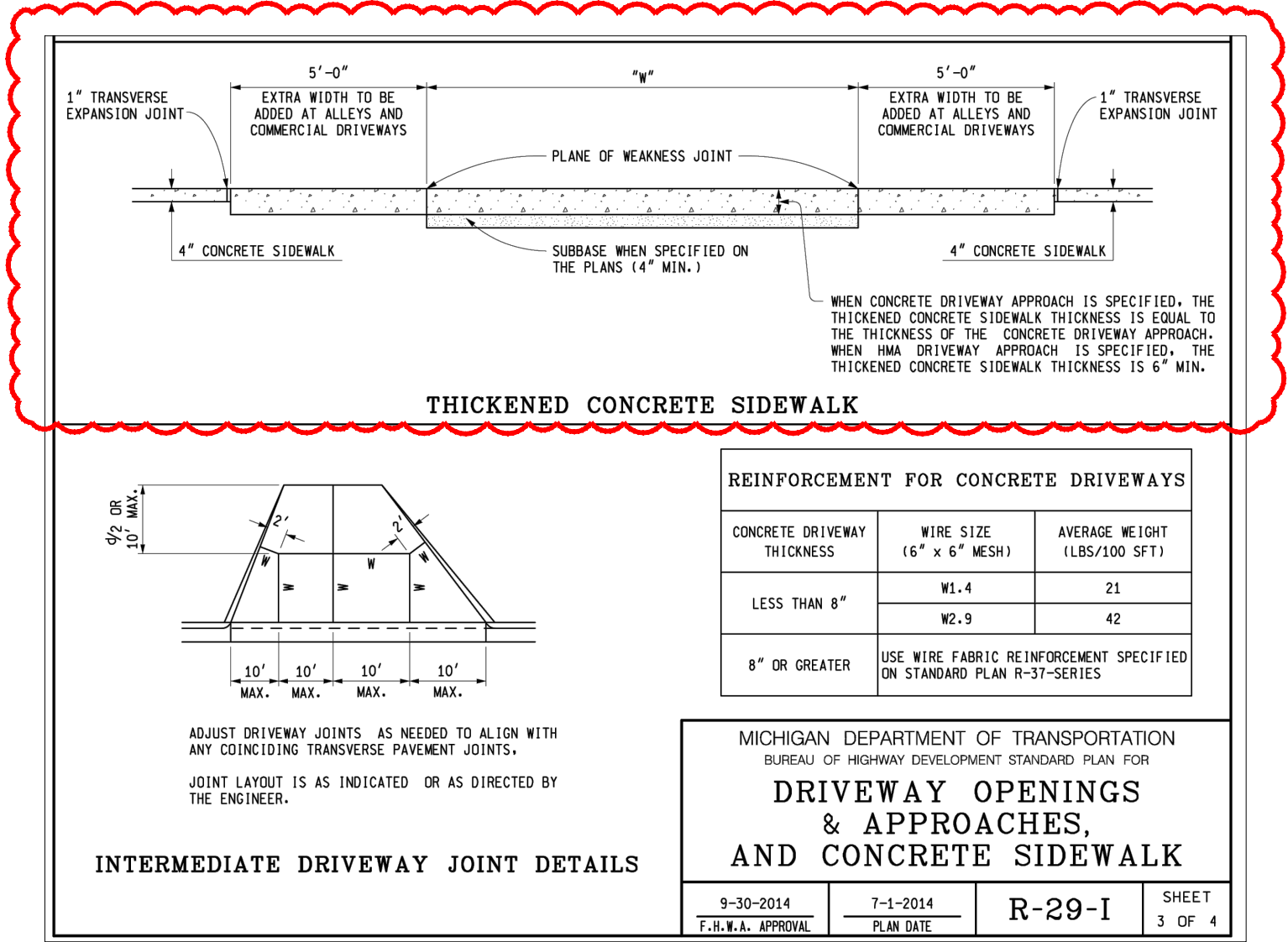
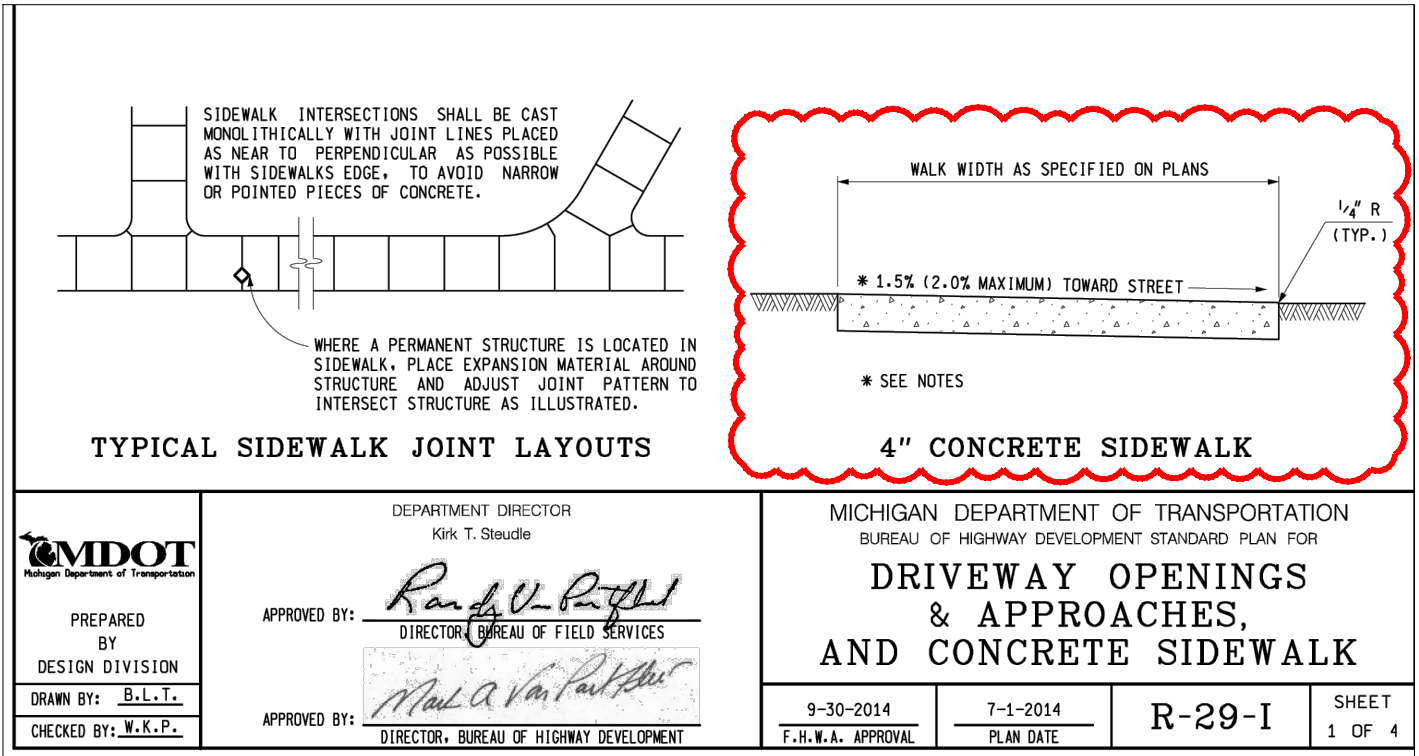
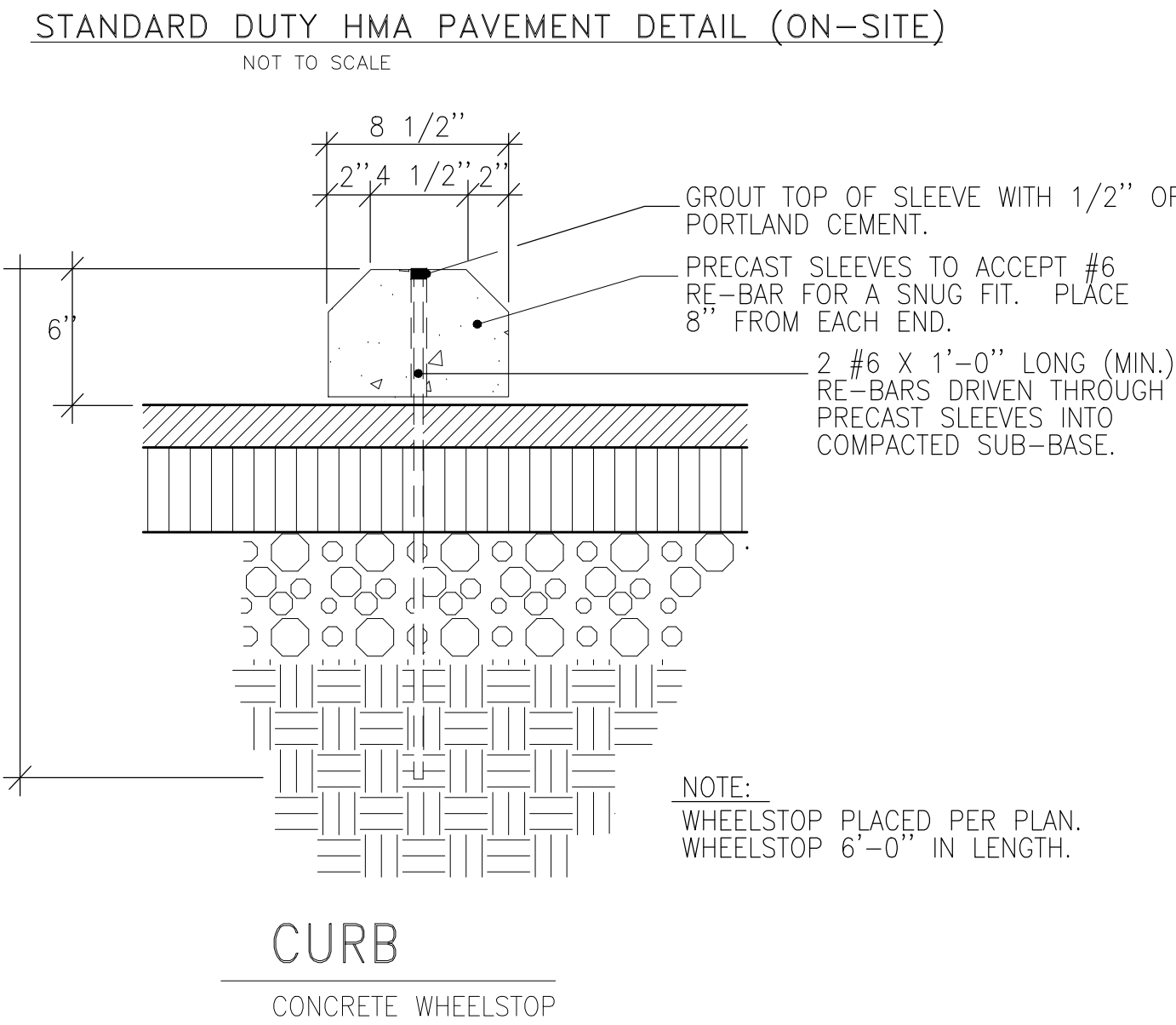
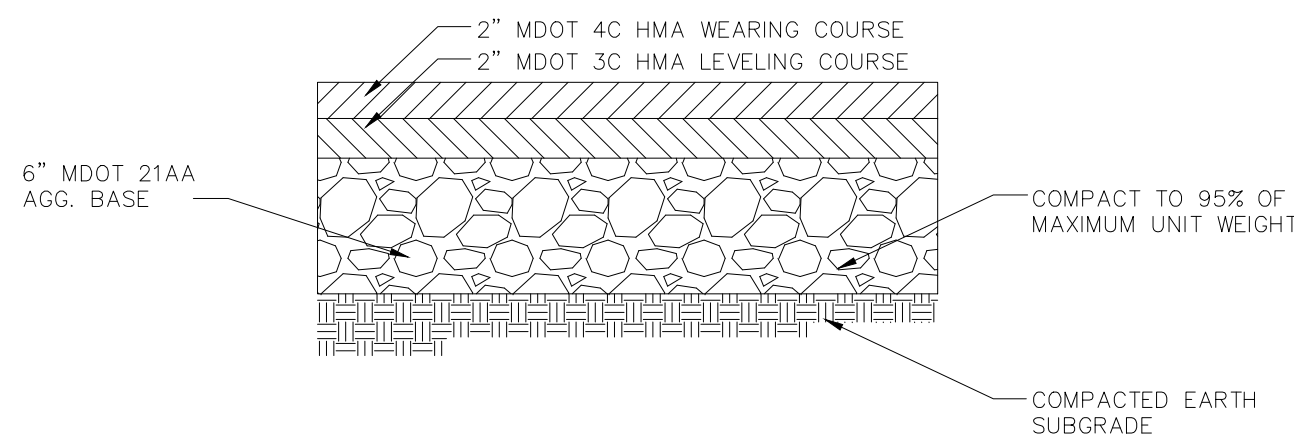
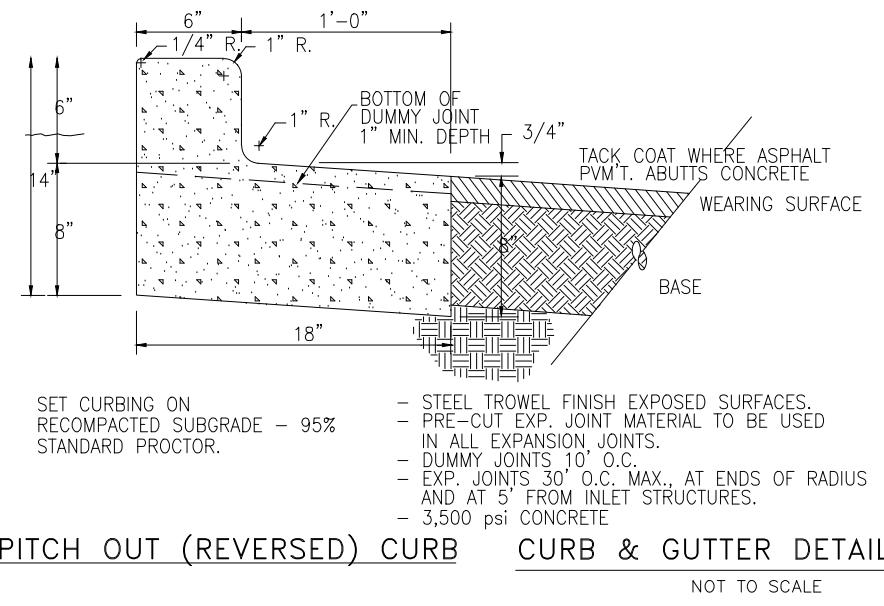
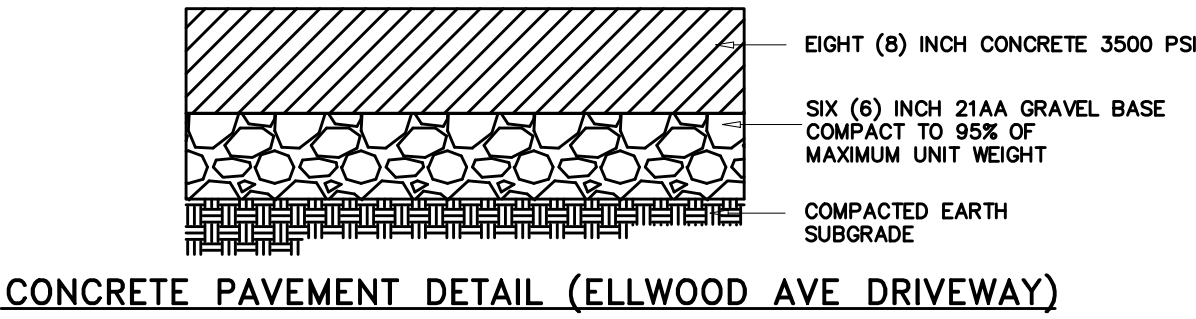




**ELLWOOD AVE. TRAFFIC CONTROL AND CONSTRUCTION SEQUENCE:**  
1- INSTALL TEMPORARY SIGNS AND BARRICADE AS PER ABOVE PLAN.  
2- SAW CUT ROAD, REMOVE SIDEWALK AND CURBING FOR PROPOSED WORK.  
3- EXPOSE MAIN COMBINED SEWER RUN.  
4- INSTALL PROPOSED MANHOLE AND OUTLET  
5- BACKFILL AND COMPACT TO BELOW PAVEMENT LEVEL.  
6- PAVE ROAD AS PER DPW / CITY ENGINEER DIRECTION (MUST MATCH EXISTING PAVEMENT THICKNESS, MATERIALS, AND GRADES.  
7- REMOVE SIGNS AND BARRICADE IN ITEM 1

LANE CLOSURE DURATION: 4-8 WEEKS

NOTE: SWEEP AND CLEAN ROAD PERIODICALLY AS NEEDED.

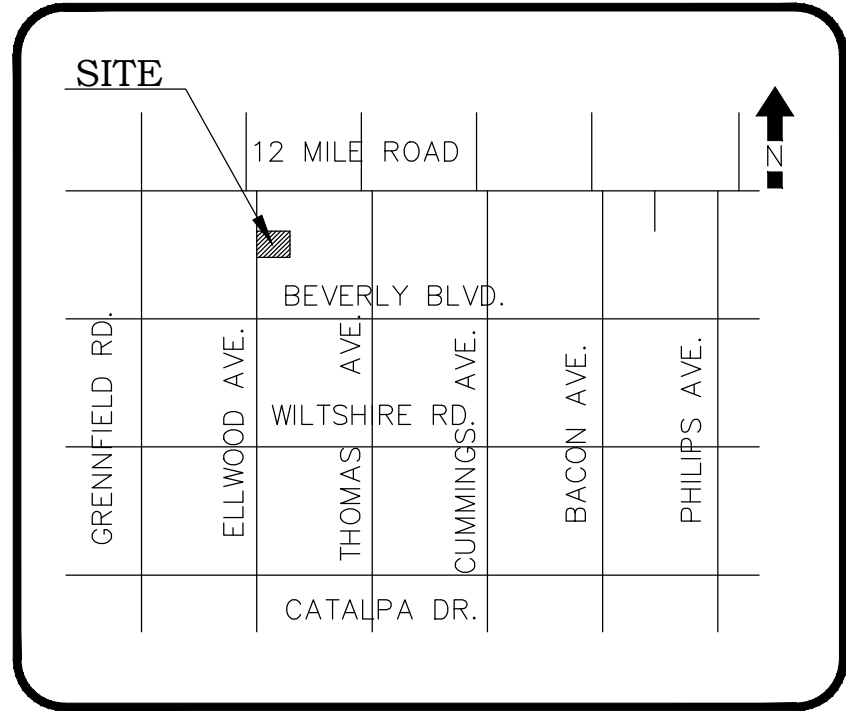
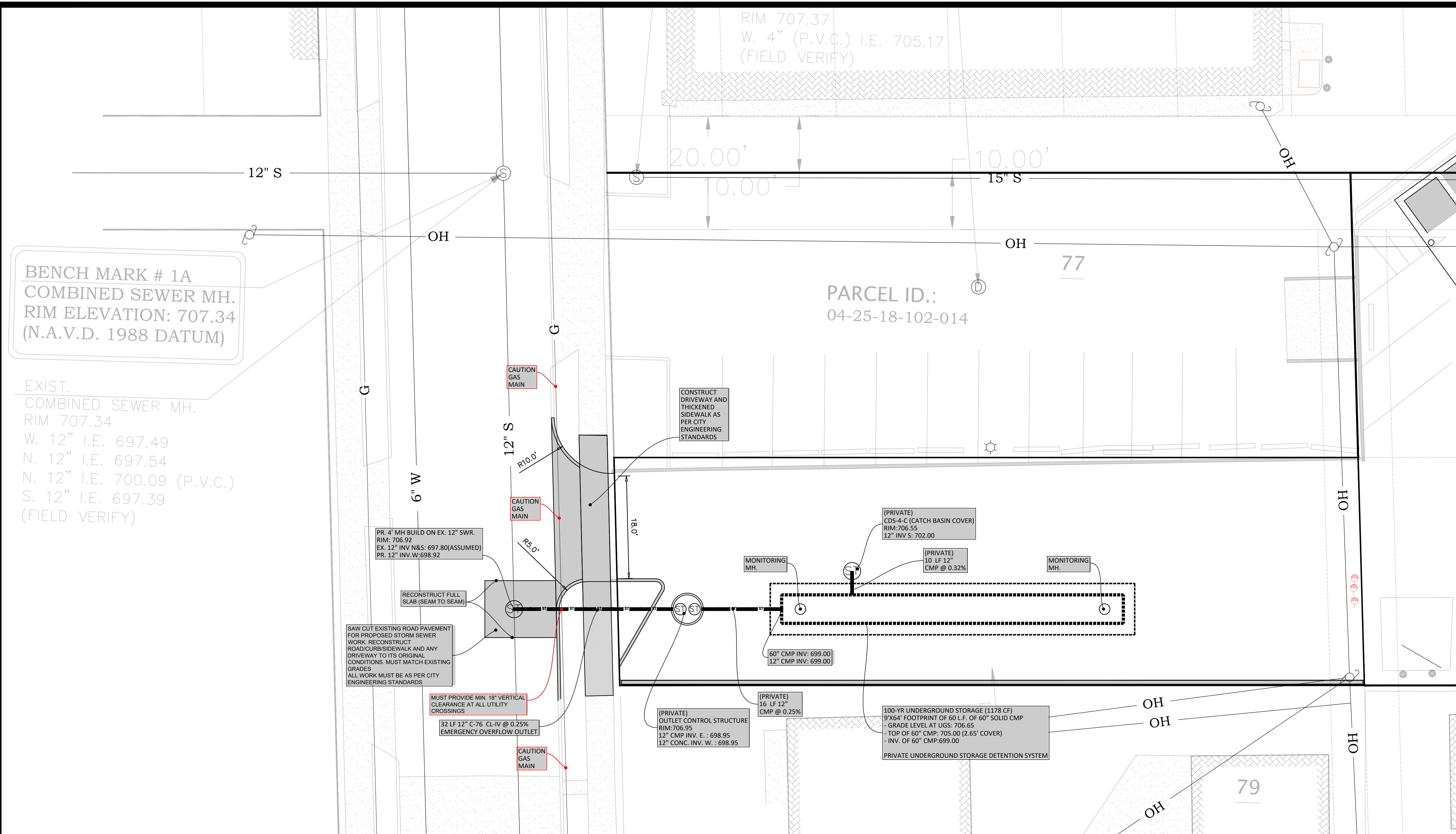


3340 Ellwood Ave / 4033 12 Mile Rd,  
Berkley, MI 48072

| MARK | AMENDMENT DESCRIPTION     | DATE    |
|------|---------------------------|---------|
|      | PLANNING COMMISSION       | 2-11-25 |
|      | REVISED PER 02-27-25 LTR. | 3-06-25 |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |

| DETAILS AND NOTES                                                           |                       |
|-----------------------------------------------------------------------------|-----------------------|
| SCALE<br>DRAWN<br>1" = 20'                                                  | Drawing No.<br>C-03.1 |
| DUPPLICATION STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF CONSULTANT. |                       |
|                                                                             |                       |

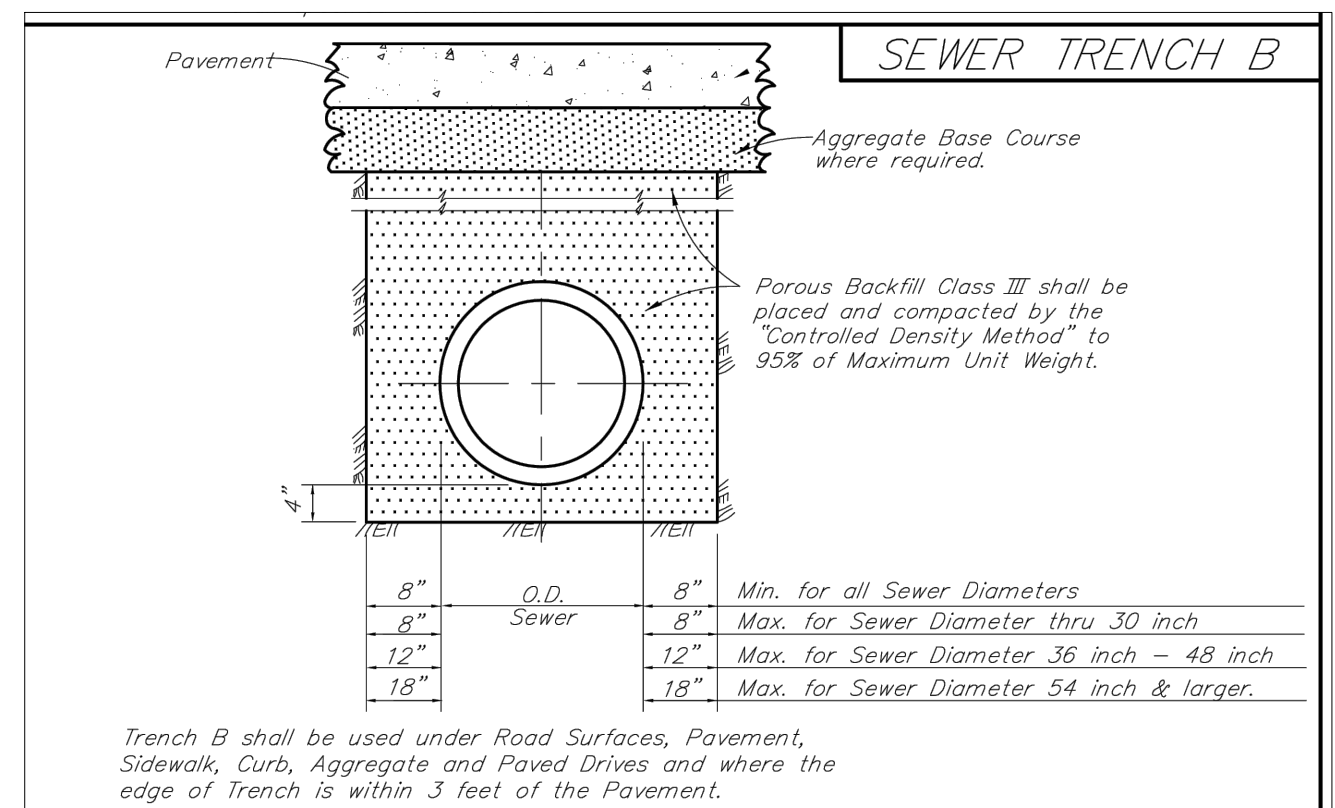
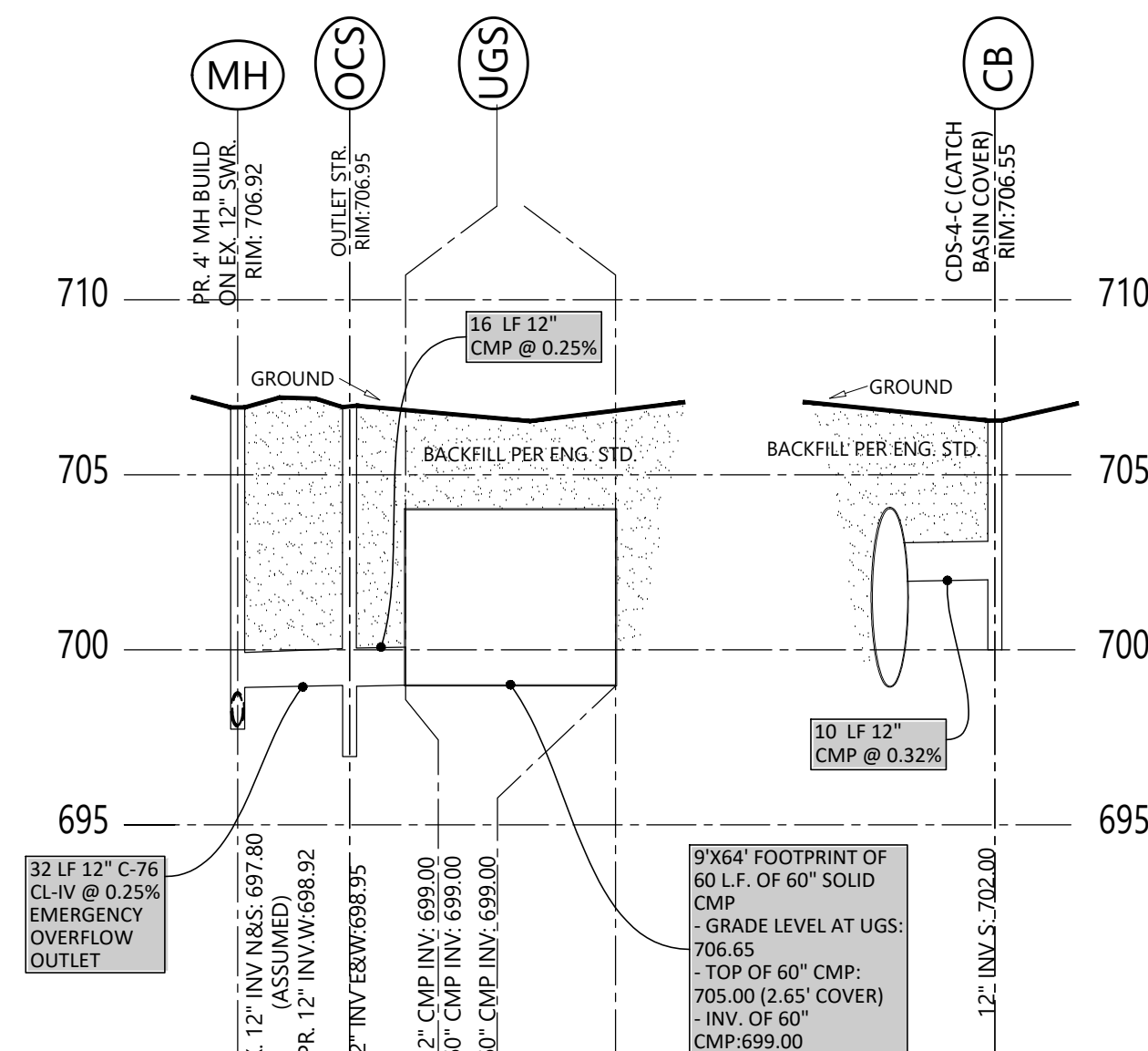




Land Use Summary

| Characteristic                                         | Existing Conditions | Proposed Conditions |
|--------------------------------------------------------|---------------------|---------------------|
| Total Development Area (ac)                            | 0.12                | 0.12                |
| Impervious Area (ac)                                   | 0.06                | 0.12                |
| Total Pervious Area (ac)                               | 0.07                | 0.00                |
| Pervious Area Breakdown by Cover Type                  |                     |                     |
| Meadow/fallow/natural areas (non-cultivated) (ac)      | 0.00                | 0.00                |
| Predominant NRCS Soil Type (A, B, C, or D)             | N/A                 | N/A                 |
| Improved areas (turf grass, landscape, row crops) (ac) | 0.07                | 0.00                |
| Predominant NRCS Soil Type (A, B, C, or D)             | Type C              | Type C              |
| Wooded Areas (ac)                                      | 0.00                | 0.00                |
| Predominant NRCS Soil Type (A, B, C, or D)             | N/A                 | N/A                 |
| Calculated CPVC Volume (cubic feet)                    |                     | 520.98              |
| CPVC Volume Provided (cubic feet)                      |                     | 0.00                |
| CPVC Volume Provided (cubic feet)                      |                     | 761.43              |

THE DPW MUST BE CONTACTED PRIOR TO THE COMMENCEMENT OF WORK WITHIN THE RIGHT-OF-WAY (ROW)



BACKFILL WITH TRENCH "B" OR AS DIRECTED BY CITY ENGINEER

GK

GK Consulting Inc.  
5648 Middlebelt Rd  
Garden City, MI 48135  
gkci@outlook.com  
313-377-9449  
Building, Civil & Traffic Engineering Services

STATE OF MICHIGAN  
GHASSAN KHALAF  
License No. 6201056670  
LICENSED PROFESSIONAL ENGINEER

Ghassan

3340 Ellwood Ave / 4033 12 Mile Rd,  
Berkley, MI 48072

| MARK | AMENDMENT DESCRIPTION     | DATE    |
|------|---------------------------|---------|
|      | PLANNING COMMISSION       | 2-11-25 |
|      | REVISED PER 02-27-25 LTR. | 3-06-25 |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |

STORM SEWER PLAN

SCALE 1" = 10'  
DRAWN

DUPPLICATION STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF CONSULTANT.

Drawing No.  
C-04



Project 3340 ELLWOOD AVE, BERKLEY

Infiltration rate = 0.00 in/hr

Infiltration rate > 0.24in/hr? No

Dry Pond Design? No

| Surface Type | A (ac) | C    | AxC  |
|--------------|--------|------|------|
| Pervious     | 0.00   | 0.25 | 0.00 |
| Impervious   | 0.12   | 0.95 | 0.11 |
| Total        | 0.120  |      | 0.11 |

$C_{avg} = \sum (A \times C) / A$

$C_{avg} = 0.11 / 0.12 = 0.92$

TIME OF CONCENTRATION CALCULATIONS

Sheet Flow

$T_1 = L / V$

$V = K \times S^{0.5}$

S = 2.00 %

K = 0.48

L = 80.00 ft

$T_1 = 80 / (0.48 \times 2^{0.5} \times 60) = 1.964 \text{ min.}$

Shallow Flow

$T_2 = L / 3600V$

V = 2.50 f/sec

L = 10.00 ft

$T_1 = 10 / (2.5 \text{ fps} \times 3600) = 0.001 \text{ min.}$

T = 2 min

$I_{100} = 30.2 \cdot P^{0.22} / (9.17 + T)^{0.841}$

$I_{100} = 30.2^{0.22} / (9.17 + 2)^{0.841} = 11.78 \text{ in/hr}$

$V_{CPVC} = A \times C \times 4719$

$V_{CPVC} = 0.12 \times 0.92 \times 3,630 = 520.98 \text{ ft}^3$

Infiltration

$V_{100} = A \times C \times 6,897$

$V_{100} = 0.12 \times 0.92 \times 6,897 = 761.43 \text{ ft}^3$

Bank Full

$Q_{allowable} = 1.1055 - 0.206 \ln(A)$  (max. 1.0 cfs/ac)

$Q_{allowable} = 1.1055 - 0.206 \ln(0.12) = 1.54 \text{ cfs/ac}$

1.00 cfs/ac (max.)

$Q_s = A \times Q_{allowable}$

$Q_s = 0.12 \times 1 = 0.12 \text{ cfs}$

$Q_s = C \times I \times A$

$Q_s = 0.92 \times 11.78 \times 0.12 = 1.3 \text{ cfs}$

$V_s = A \times C \times 18,900$

$V_s = 0.12 \times 0.92 \times 18,900 = 2,086.56 \text{ ft}^3$

$V_s = V_s \times (0.206 - 0.15 \ln(Q_s / Q_s))$

$V_s = 2,086.56 \times (0.206 - 0.15 \ln(1.3 / 1.3)) = 1,175.56 \text{ ft}^3$

100-Year Storage

The Site Plan must be designed to accommodate the following volumes:

CPVC = 520.98 ft<sup>3</sup>

Ved = 761.43 ft<sup>3</sup>

Volume Control is NOT met, then:

Flood Control = 1,175.56 ft<sup>3</sup>

Orifice Calculations

Orifice Channel Protection Rate Control (CPRC) Orifice

$Q_{avg \text{ CPRC}} = Ved / 172,800$  (The VED is designed to release over a period of 48-hours)

$Q_{avg \text{ CPRC}} = 761.43 / 172,800 = 0.004 \text{ cfs}$

$h_{ED} = 3.85 \text{ ft}$

$h_{avg} = h_{ED} / 2$

$h_{avg} = 3.85 / 2 = 1.925 \text{ ft}$

$A = Q_{avg \text{ CPRC}} / (0.62 (2 \times g \times h_{avg})^{0.5})$

$A = 0.004 / (0.62 (2 \times 32.2 \times 1.925)^{0.5}) = 0.0006 \text{ ft}^2$

$Or, 0.086 \text{ in}^2$

Hole Size = 1 in (1.0 in min.)

No. of Holes = 1

Use 1 - 1" Dia.Hole

AT LEVEL = 699.45

$A_{(act)} = 1 \times 1^2 \times 3.14 / 4 = 0.785 \text{ in}^2$

$Or, 0.005 \text{ ft}^2$

$Q_{avg \text{ CPRC}(act)} = A_{(act)} \times 0.62 (2 \times g \times h_{avg})^{0.5}$

$Q_{avg \text{ CPRC}(act)} = 0.005 \times 0.62 (2 \times 32.2 \times 1.925)^{0.5} = 0.035 \text{ cfs}$

More than 10% ----- Not Good

Flood Control Orifice

$h_{max} = 6 \text{ ft}$

$h_{res} = h_{max} - h_{ED}$

$h_{res} = 6 - 3.85 = 2.15 \text{ ft}$

100-yr flow through Ext. Det. Orifice:

$Q_{ED} = A_{ED} \times 0.62 (2 \times g \times h_{max})^{0.5}$

$Q_{ED} = 0.005 \times 0.62 (2 \times 32.2 \times 6)^{0.5} = 0.061 \text{ cfs}$

$Q_{res} = Q_s - Q_{ED}$

$Q_{res} = 0.12 - 0.061 = 0.059 \text{ cfs}$

$A = Q_{res} / (0.62 (2 \times g \times h_{res})^{0.5})$

$A = 0.059 / (0.62 (2 \times 32.2 \times 2.15)^{0.5}) = 0.0081 \text{ ft}^2$

$Or, 1.166 \text{ in}^2$

Hole Size = 1 in (1.0 in min.)

No. of Holes = 1

Use 1 - 1" Dia.Hole

AT LEVEL = 702.08

$A_{(act)} = 1 \times 1^2 \times 3.14 / 4 = 0.785 \text{ in}^2$

$Or, 0.005 \text{ ft}^2$

$Q_{res}(act) = A_{(act)} \times 0.62 (2 \times g \times h_{res})^{0.5}$

$Q_{res}(act) = 0.005 \times 0.62 (2 \times 32.2 \times 2.15)^{0.5} = 0.036 \text{ cfs}$

More than 10% ----- Not Good

TOP OF EMERGENCY OVERTFLOW AT OUTLET CONTROL STRUCTURE =

AT LEVEL = 703.95

Outlet Pipe Design Calculations

$Q_s = 0.12 \text{ cfs}$  (Allowable Flow)

$D = 12 \text{ in}$  (Pipe Size)

$n = 0.013$  (Roughness Coefficient)

$S = 0.25\%$  (Pipe Slope)

$A = \pi \times (D / 12)^2 / 4$

$A = 3.14 \times (12 / 12)^2 / 4 = 0.785 \text{ ft}^2$

$P = \pi \times (D / 12)$

$P = 3.14 \times (12 / 12) = 3.142 \text{ ft}$

$R = A / P$

$R = 0.785 / 3.142 = 0.25 \text{ ft}$

$Q = 1.486 \times A \times R^{2/3} \times S^{1/2} / n$

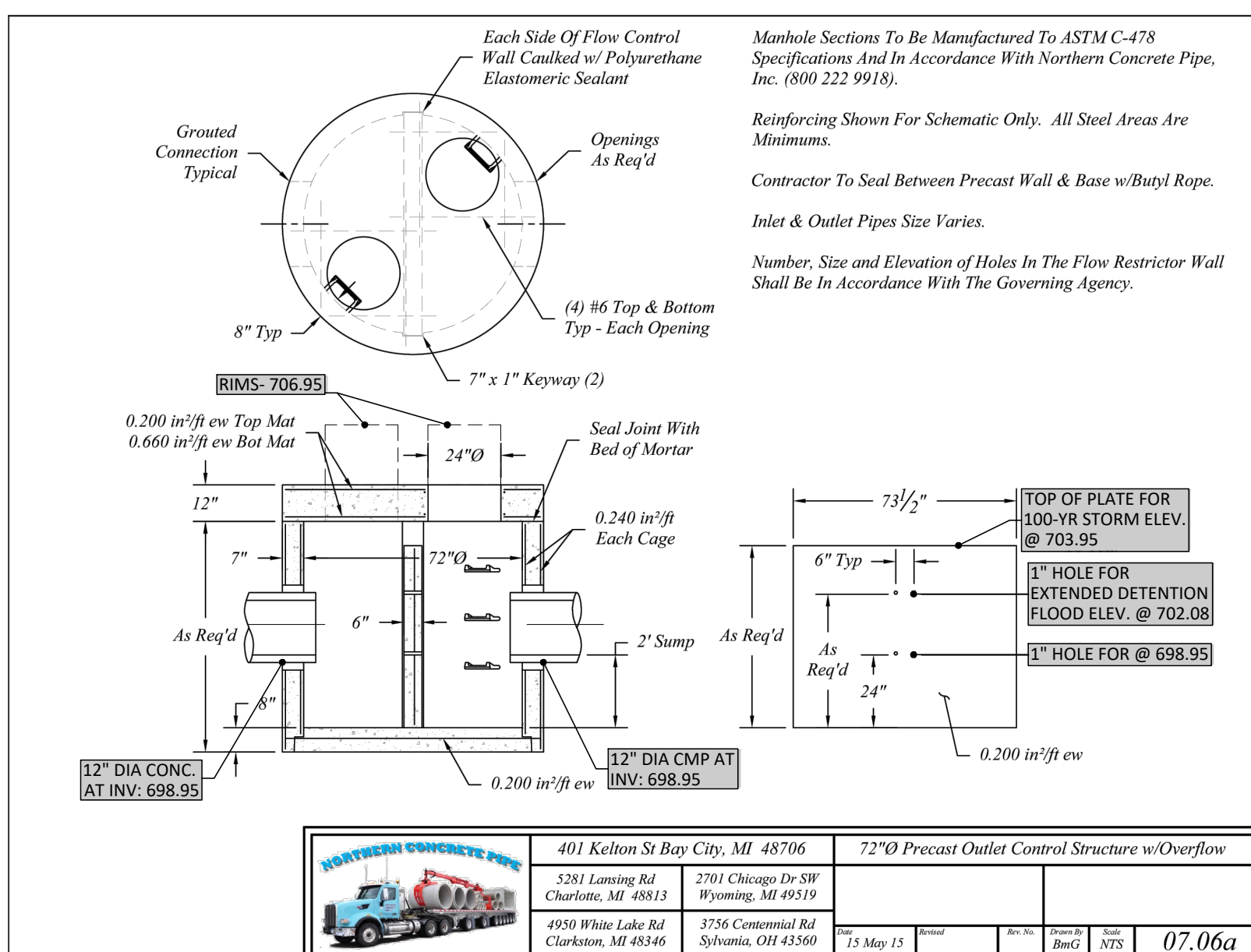
$Q = 1.486 \times 0.785 \times 0.25^{2/3} / 0.013 = 1.78 \text{ cfs}$

Use 12 inch Dia Pipe @ 0.25 % Slope

| V CPVC =                              | 521               | CF.                | Ved =         | 761             | CF.             | V100 =              | 1176                      | CF. |
|---------------------------------------|-------------------|--------------------|---------------|-----------------|-----------------|---------------------|---------------------------|-----|
| SUBTRACT STORAGE WITHIN PIPE SYSTEM = |                   |                    |               |                 |                 | 0                   | CF.                       |     |
| TOTAL VOLUME REQUIRED =               |                   |                    |               |                 |                 | 1176                | CF.                       |     |
| Enter Pipe I.D.=                      |                   | 60                 | in.           |                 | Total Volume/LF | Total CMP Length=   | 60                        | ft. |
| Enter Desired Increment =             |                   | 1                  | in.           |                 |                 | System Invert=      | 699.00                    | ft. |
| Inc Num                               | Water Level (ft.) | Inc Area (sq. ft.) | Hyd Rad (ft.) | Top Width (ft.) | Volume (cf)     | WS Elevatio n (ft.) |                           |     |
| 1                                     | 1                 | 0.07               | 0.06          | 1.28            | 4               | 699.08              |                           |     |
| 2                                     | 2                 | 0.20               | 0.11          | 1.80            | 12              | 699.17              |                           |     |
| 3                                     | 3                 | 0.37               | 0.16          | 2.18            | 22              | 699.25              |                           |     |
| 4                                     | 4                 | 0.56               | 0.22          | 2.49            | 34              | 699.33              |                           |     |
| 5                                     | 5                 | 0.78               | 0.27          | 2.76            | 47              | 699.42              |                           |     |
| 6                                     | 6                 | 1.02               | 0.32          | 3.00            | 61              | 699.50              |                           |     |
| 7                                     | 7                 | 1.28               | 0.37          | 3.21            | 77              | 699.58              |                           |     |
| 8                                     | 8                 | 1.56               | 0.42          | 3.40            | 93              | 699.67              |                           |     |
| 9                                     | 9                 | 1.85               | 0.46          | 3.57            | 111             | 699.75              |                           |     |
| 10                                    | 10                | 2.15               | 0.51          | 3.73            | 129             | 699.83              |                           |     |
| 11                                    | 11                | 2.47               | 0.56          | 3.87            | 148             | 699.92              |                           |     |
| 12                                    | 12                | 2.80               | 0.60          | 4.00            | 168             | 700.00              |                           |     |
| 13                                    | 13                | 3.13               | 0.65          | 4.12            | 188             | 700.08              |                           |     |
| 14                                    | 14                | 3.48               | 0.69          | 4.23            | 209             | 700.17              |                           |     |
| 15                                    | 15                | 3.84               | 0.73          | 4.33            | 230             | 700.25              |                           |     |
| 16                                    | 16                | 4.20               | 0.77          | 4.42            | 252             | 700.33              |                           |     |
| 17                                    | 17                | 4.58               | 0.82          | 4.51            | 275             | 700.42              |                           |     |
| 18                                    | 18                | 4.95               | 0.85          | 4.58            | 297             | 700.50              |                           |     |
| 19                                    | 19                | 5.34               | 0.89          | 4.65            | 320             | 700.58              |                           |     |
| 20                                    | 20                | 5.73               | 0.93          | 4.71            | 344             | 700.67              |                           |     |
| 21                                    | 21                | 6.12               | 0.97          | 4.77            | 367             | 700.75              |                           |     |
| 22                                    | 22                | 6.52               | 1.00          | 4.82            | 391             | 700.83              |                           |     |
| 23                                    | 23                | 6.93               | 1.04          | 4.86            | 416             | 700.92              |                           |     |
| 24                                    | 24                | 7.33               | 1.07          | 4.90            | 440             | 701.00              |                           |     |
| 25                                    | 25                | 7.74               | 1.10          | 4.93            | 465             | 701.08              |                           |     |
| 26                                    | 26                | 8.16               | 1.14          | 4.96            | 489             | 701.17              |                           |     |
| 27                                    | 27                | 8.57               | 1.17          | 4.97            | 514             | 701.25              |                           |     |
| 28                                    | 28                | 8.98               | 1.19          | 4.99            | 539             | 701.33              |                           |     |
| 29                                    | 29                | 9.40               | 1.22          | 5.00            | 564             | 701.42              |                           |     |
| 30                                    | 30                | 9.82               | 1.25          | 5.00            | 589             | 701.50              |                           |     |
| 31                                    | 31                | 10.23              | 1.28          | 5.00            | 614             | 701.58              |                           |     |
| 32                                    | 32                | 10.65              | 1.30          | 4.99            | 639             | 701.67              |                           |     |
| 33                                    | 33                | 11.07              | 1.32          | 4.97            | 664             | 701.75              |                           |     |
| 34                                    | 34                | 11.48              | 1.35          | 4.96            | 689             | 701.83              |                           |     |
| 35                                    | 35                | 11.89              | 1.37          | 4.93            | 713             | 701.92              |                           |     |
| 36                                    | 36                | 12.30              | 1.39          | 4.90            | 738             | 702.00              | Z ed OUTLET STR. = 702.08 |     |
| 37                                    | 37                | 12.71              | 1.41          | 4.86            | 762             | 702.08              |                           |     |
| 38                                    | 38                | 13.11              | 1.42          | 4.82            | 787             | 702.17              |                           |     |
| 39                                    | 39                | 13.51              | 1.44          | 4.77            | 811             | 702.25              |                           |     |
| 40                                    | 40                | 13.91              | 1.46          | 4.71            | 834             | 702.33              |                           |     |
| 41                                    | 41                | 14.30              | 1.47          | 4.65            | 858             | 702.42              |                           |     |
| 42                                    | 42                | 14.68              | 1.48          | 4.58            | 881             | 702.50              |                           |     |
| 43                                    | 43                | 15.06              | 1.49          | 4.51            | 904             | 702.58              |                           |     |
| 44                                    | 44                | 15.43              | 1.50          | 4.42            | 926             | 702.67              |                           |     |
| 45                                    | 45                | 15.80              | 1.51          | 4.33            | 948             | 702.75              |                           |     |
| 46                                    | 46                | 16.15              | 1.51          | 4.23            | 969             | 702.83              |                           |     |
| 47                                    | 47                | 16.50              | 1.52          | 4.12            | 990             | 702.92              |                           |     |
| 48                                    | 48                | 16.84              | 1.52          | 4.00            | 1010            | 703.00              |                           |     |
| 49                                    | 49                | 17.17              | 1.52          | 3.87            | 1030            | 703.08              |                           |     |
| 50                                    | 50                | 17.48              | 1.52          | 3.73            | 1049            | 703.17              |                           |     |
| 51                                    | 51                | 17.79              | 1.52          | 3.57            | 1067            | 703.25              |                           |     |
| 52                                    | 52                | 18.08              | 1.51          | 3.40            | 1085            | 703.33              |                           |     |
| 53                                    | 53                | 18.35              | 1.50          | 3.21            | 1101            | 703.42              |                           |     |
| 54                                    | 54                | 18.61              | 1.49          | 3.00            | 1117            | 703.50              |                           |     |
| 55                                    | 55                | 18.85              | 1.48          | 2.76            | 1131            | 703.58              |                           |     |
| 56                                    | 56                | 19.07              | 1.46          | 2.49            | 1144            | 703.67              |                           |     |
| 57                                    | 57                | 19.27              | 1.43          | 2.18            | 1156            | 703.75              |                           |     |
| 58                                    | 58                | 19.43              | 1.40          | 1.80            | 1166            | 703.83              |                           |     |
| 59                                    | 59                | 19.56              | 1.36          | 1.28            | 1174            | 703.92              | Z100 OUTLET STR. = 703.98 |     |
| 60                                    | 60                | 19.63              | 1.25          | 0.00            | 1178            | 704.00              |                           |     |

THE DPW MUST BE CONTACTED PRIOR TO THE COMMENCEMENT OF WORK WITHIN THE RIGHT-OF-WAY (ROW)

USE CDS-4-C INLET (TO TREART MAX. 1.0 CFS 100-YR STORM)



Project Summary

Date: 9/7/2019

Project Name: 3340 ELLWOOD

City / County: BERKLEY

State: MICHIGAN

Designed By: GHASSAN KHALAF

Company: GK CONSULTING

Telephone: 313-377-9449

Enter Information in Blue Cells

Corrugated Metal Pipe Calculator

Storage Volume Required (cf): 1,178

Limiting Width (ft): 15.00

Effective Depth Below Asphalt (ft): 7.00

Solid or Perforated Pipe: Solid

Shape Or Diameter: 60

Spacing between Barrels (ft): 2.50

Stone Width Around Perimeter of System (ft): 2

Depth A: Porous Stone Above Pipe (in): 0

Depth C: Porous Stone Below Pipe (in): 20

Stone Porosity (0 to 40%): 20

System Sizing

Pipe Storage: 1,178 cf

Porous Stone Storage: 0 cf

Total Storage Provided: 1,178 cf

Number of Barrels: 1 barrels

Length Per Barrel: 60.00 ft

Rectangular Footprint (W x L): 9 ft x 64 ft

CONTECH Materials

Total CMP Footage: 60 ft

Approximate Total Poles: 3 pos

Approximate Coupling Bands: 1 bands

Approximate Truckloads: 1 trucks

Construction Quantities\*\*

Total Excavation: 150 cy

Porous Stone Backfill For Storage: 0 cy

Backfill to Grade Excluding Stone: 106 cy

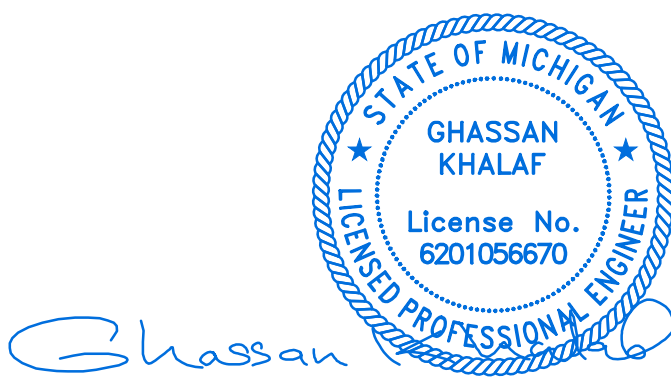
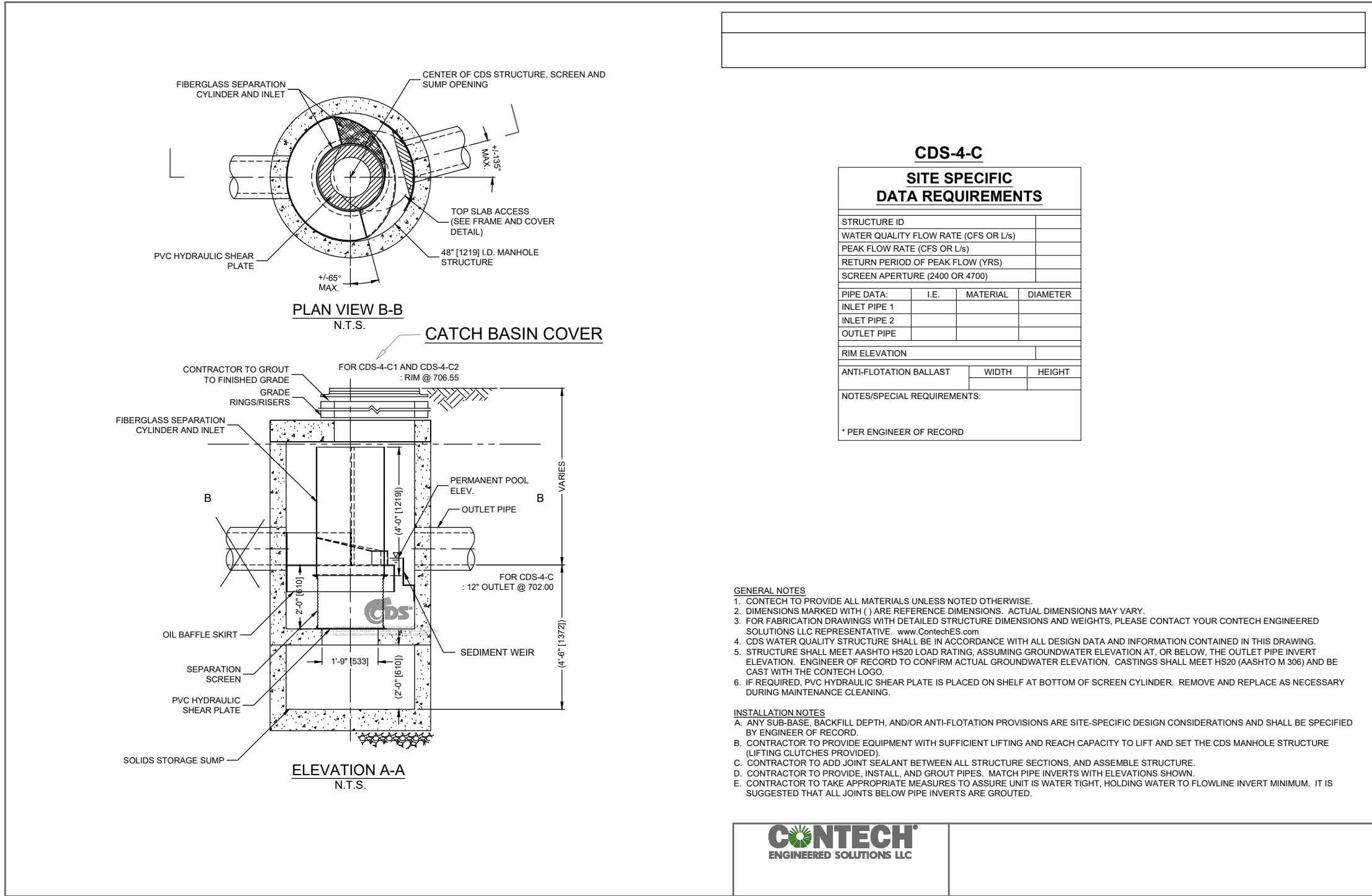
Backfill to Grade: 106 cy

Custom Layout

To adjust layout, enter desired barrel length in the light blue boxes below

Excess Footage = 0

| Barrel    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-----------|---|---|---|---|---|---|---|---|---|----|----|----|
| Barrel 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 2  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 3  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 4  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 5  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 6  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 7  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 8  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 9  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |
| Barrel 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |



3340 Ellwood Ave / 4033 12 Mile Rd, Berkley, MI 48072

| MARK | AMENDMENT DESCRIPTION     | DATE    |
|------|---------------------------|---------|
|      | PLANNING COMMISSION       | 2-11-25 |
|      | REVISED PER 02-27-25 LTR. | 3-06-25 |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |
|      |                           |         |

STORM SEWER MANAGEMENT CALCULATIONS / DETAILS

SCALE: NTS

DRAWN: C-05

DUPPLICATION STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF CONSULTANT.

Drawing No. C-05

North Arrow



ALTA/ACSM LAND TITLE SURVEY

EXCEPTIONS PERTAINING TO A SURVEY OF THE SCHEDULE "B"

- ⑧Easements over subject property as shown on the recorded plat. (Affects as shown).
- ⑨Easement for public utilities over that portion of subject property included in the vacated alley as evidenced by instrument recorded in Liber 10575, Page 566, Oakland County Records. (Affects as shown).
- ⑩Covenants, conditions and restrictions and other provisions but omitting restrictions, if any, based on race, color, religion, sex, handicap, familial status or national origin as contained in instrument recorded in Liber 961, Page 570, and in Liber 5324, Page 645, Oakland County Records. (Document pertains to the subdivision rules/regulations).
- ⑪Right of tenants, if any, under any unrecorded leases or otherwise.

Exceptions of Schedule "B" as shown herein are contained in the Title Commitment No. 63-17562717-GCM, being effective as of October 18, 2017 © 8:00am.

GENERAL NOTES

1. Distance to nearest intersection is 45 feet east from the center line of the site access NO. 1 to the intersection of the centerlines of W 12 Mile Road and Thomas Avenue, both public right-of-ways.
2. There is no evidence of current earth moving, building construction or building additions, upon subject property as shown herein.
3. There is no evidence of site use as a waste dump, sump or sanitary landfill.
4. Property has direct access to W 12 Mile Road and Thomas Avenue, both, public right-of-ways maintained by City of Berkley.
5. There is no evidence of cemetery upon subject property as shown herein.
6. Wooden planter as shown herein, near the SW Building Corner is built by the adjacent neighbor at #4075 W 12 Mile Road, therefore an encroachment statement has been made as shown on this survey.

LIST OF ENCROACHMENTS

- Ⓐ Ex dumpster walls as shown herein at the west property line of the subject property
- Ⓑ Ex. landscape planter into the 12 Mile Road Right-of-Way, as shown herein.
- Ⓒ Ex bumper at the NE corner of #4033 W 12 Mile Road, as shown herein.
- Ⓓ Ex concrete driveway of #3325 Thomas Ave., into the south portion of the subject property as shown herein.
- Ⓔ Ex wooden planter near the SW Building corner running in Northeasterly direction as shown herein.

LAND AREA

PID#: 25-18-102-037  
11,050 ± SQUARE FEET  
0.254 ± ACRES

PID#: 25-18-102-040  
11,760 ± SQUARE FEET  
0.270 ± ACRES

TOTAL:  
22,810 ± SQUARE FEET  
0.524 ± ACRES

PARKING STALLS

PID#: 25-18-102-037  
REGULAR=7  
HANDICAP=2  
TOTAL=9

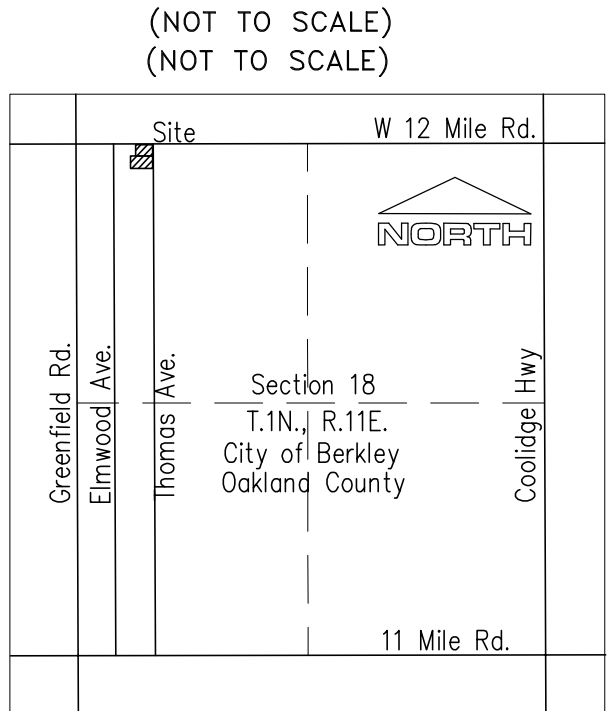
PID#: 25-18-102-040  
REGULAR=30  
HANDICAP=0  
TOTAL=30

GRAND TOTAL:  
REGULAR=37  
HANDICAP=2  
TOTAL=39

LEGEND

- UTILITY POLE
- LIGHT POLE
- OVER HEAD WIRE
- CATCH BASIN/ON SITE
- PAVEMENT CATCH BASIN/CBP
- EX. SANITARY M.H.
- EX. GATE VALVE & WATER
- EX. STORM M.H.
- WATER SHUT OFF
- HYDRANT
- HANDICAP STALL/SIGN
- 30 MILES PER HOUR SIGN
- STOP SIGN
- NO PARKING SIGN
- DECIDUOUS TREE
- GUARD POST
- PARCEL IDENTIFICATION NUMBER
- L/P
- GAS-MTR
- P.S.
- BLDG.
- EX.
- S-PK NAIL= SET PK NAIL IN ASPHALT/CONCRETE
- S- CH "X"= SET CHISELED "X" IN CONCRETE

VICINITY MAP



ZONING NOTE

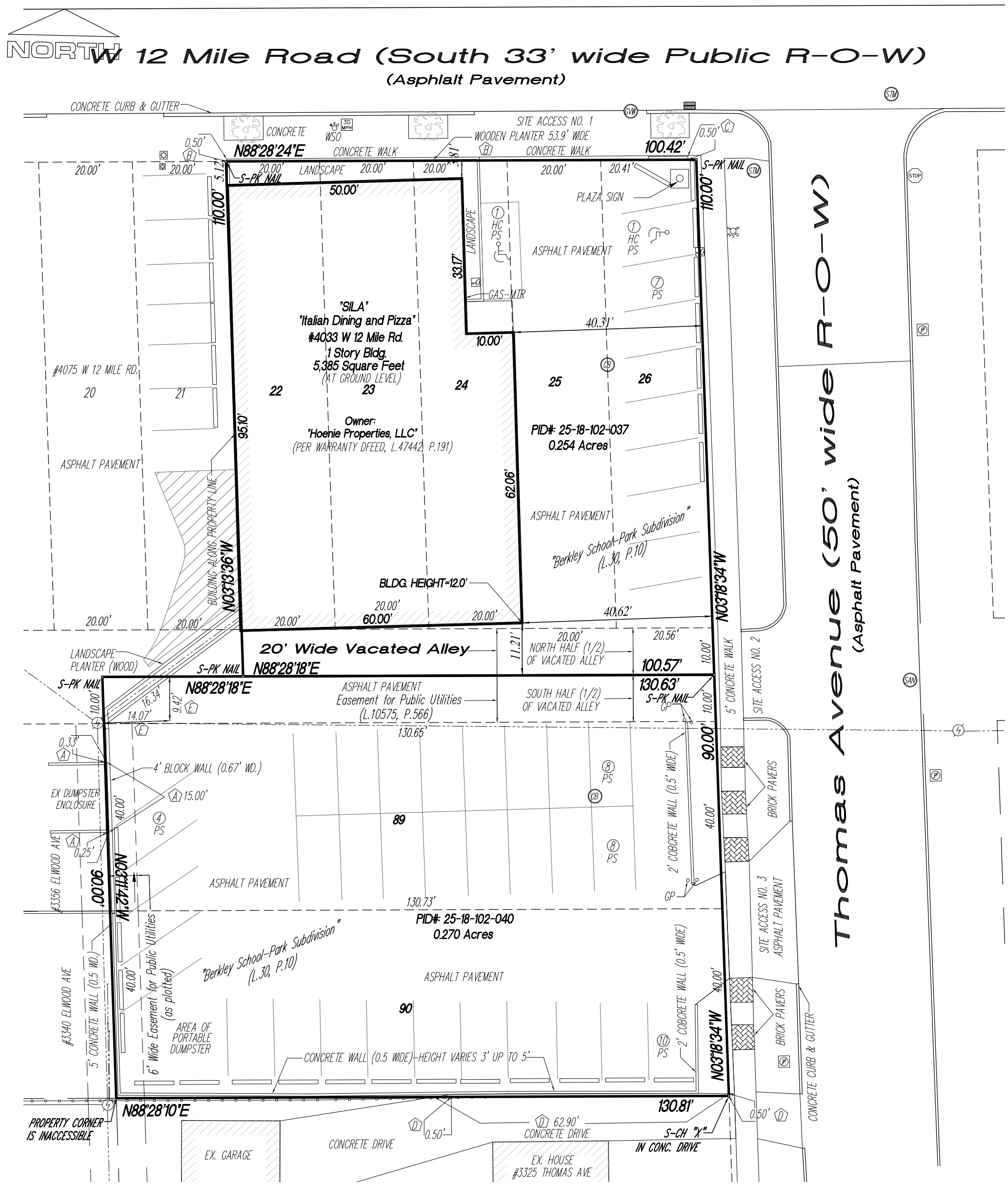
Zoned: TWELVE MILE DISTRICT  
as to 25-18-102-037 &  
Zoned: PARKING DISTRICT  
as to 25-18-102-040

Minimum Site Size: 15,000 Square Feet  
(22,810 Square Feet Total)

Minimum Site Width: 130 Feet  
(Actual Site Width: 200 Feet)

Maximum Building Height: 40 Feet  
(Max. Ex. Building Height: 12 Feet)

Setbacks: Front-Not Required  
Setbacks: Side-Not Required  
Setbacks: 10'-Rear

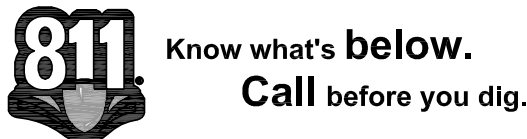


FLOOD NOTE

Subject property DOES NOT participate (DOES NOT LIE) in a Special Flood Hazard Area (SFHA), according to Flood Insurance Rate Map (FIRM) No. 26125 C, Panel No. 0539, Suffix "F".

BEARINGS ORIGIN

"TRUE NORTH"



ALTA/ACSM LAND TITLE SURVEY

SURVEYOR'S CERTIFICATE  
To "MARLENE SPREITZER" and "GRECO TITLE AGENCY":

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items: 1, 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, and 17 of Table A thereof. The field work was performed on November 21, 2017.

Date of Plat or Map: November 27, 2017.



Mende Bezanovski, P.S. 49430  
Professional Surveyor in the State of Michigan

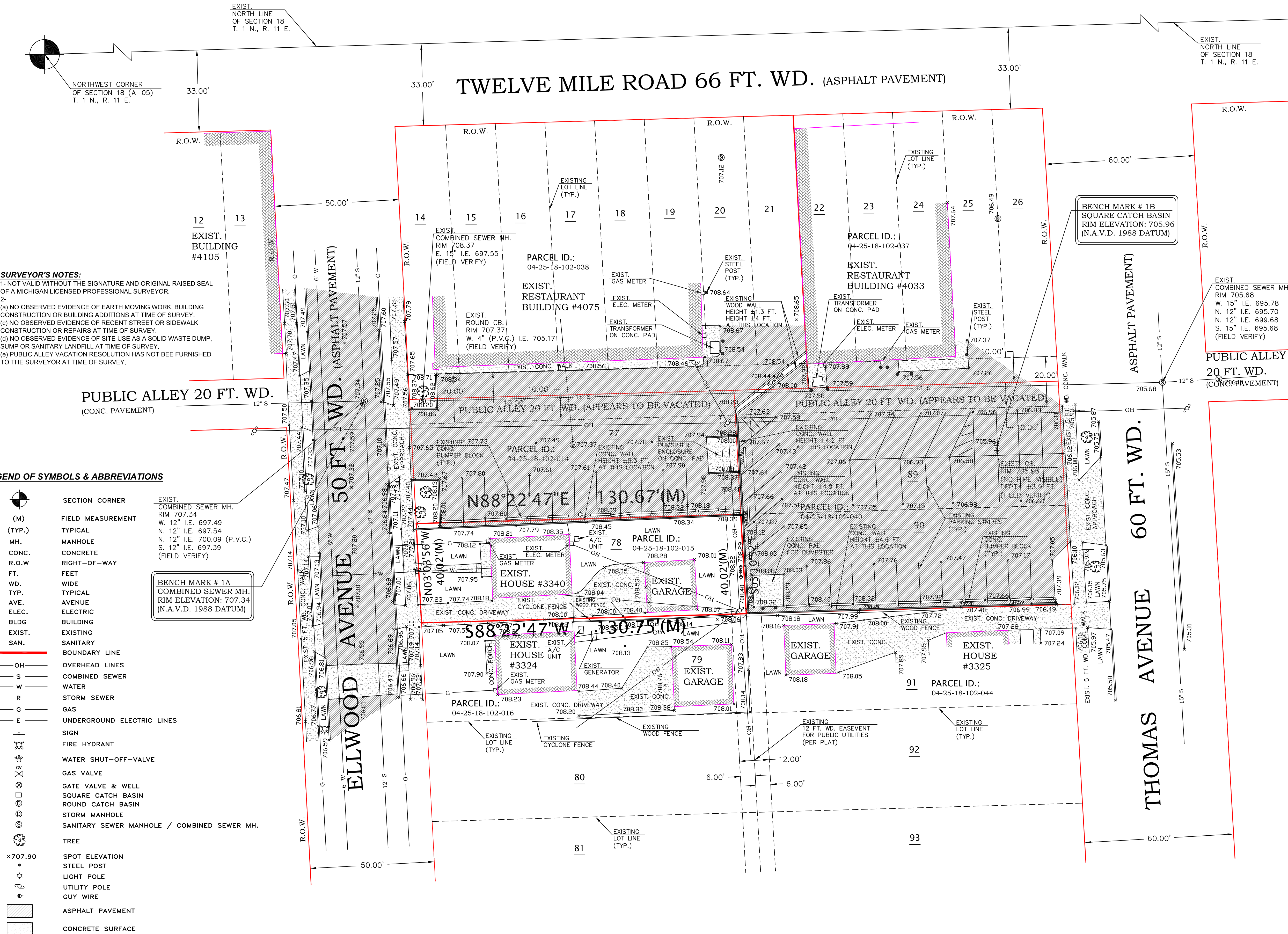
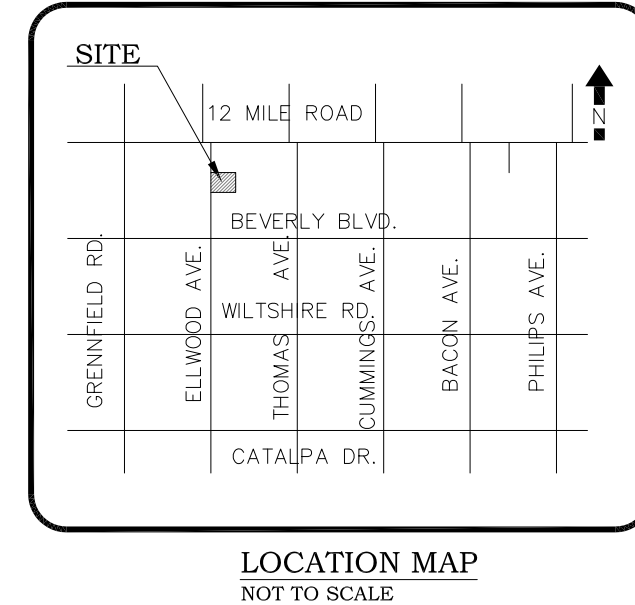
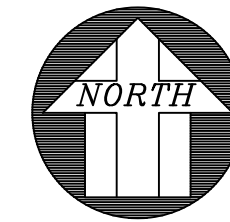


|                                                    |                  |
|----------------------------------------------------|------------------|
| SCALE: 1" = 20'                                    | PAGE: 1 OF 1     |
| JOB NUMBER: 2014-06-10-160-JR                      | DRAWN: MB        |
| FIELD: MB                                          | CHECKED: MB      |
| REVISIONS:                                         | DATE: 11-27-2017 |
| CLIENT: BERKLEY GREEN LANTERN PROPERTIES, LLC      |                  |
| ADDRESS: 4033 W 12 Mile Road<br>Berkley, MI, 48072 | TEL:<br>FAX:     |



**UTILITY NOTES:**  
ALL UTILITIES DEPICTED HEREON ARE FROM VISIBLE EVIDENCE.  
SURVEYOR DID NOT CONTACT SUBSURFACE UTILITY LOCATOR SERVICE.  
THE LOCATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN  
ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS  
TO THE COMPLETENESS, EXACTNESS OF LOCATION OR ACCURACY THEREOF.  
THE CONTRACTOR / OWNER SHALL BE EXCLUSIVELY RESPONSIBLE FOR  
DETERMINING THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES AND  
PROPOSED UTILITIES CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION OR  
ANY SITE MODIFICATION.

# BOUNDARY, TOPOGRAPHIC AND UTILITIES SURVEY



## PROPERTY DESCRIPTION: (FROM OAKLAND COUNTY ASSESSOR'S OFFICE & GIS MAPS)

THE FOLLOWING DESCRIBED PREMISES SITUATED IN THE CITY OF  
BERKLEY, COUNTY OF OAKLAND, STATE OF MICHIGAN, AND MORE  
PARTICULARLY DESCRIBED AS:

LOT 78 OF "BERKLEY SCHOOL-PARK"  
A SUBDIVISION OF PART OF WEST 1/2 OF  
THE NORTHWEST 1/4 OF SECTION 18, TOWN 1 NORTH, RANGE 11 EAST,  
VILLAGE OF BERKLEY (NOW CITY OF BERKLEY), OAKLAND COUNTY,  
MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER  
30 OF PLATS ON PAGE 10 OF THE OAKLAND COUNTY RECORDS.

MORE COMMONLY KNOWN AS:  
EXISTING HOUSE & GARAGE # 3340  
ELLWOOD AVENUE, CITY OF BERKLEY, OAKLAND COUNTY, MI 48072  
PARCEL ID.: 04-25-18-102-015

CONTAINING: ± 0.12 ACRES

SUBJECT TO THE EXISTING BUILDING AND USE RESTRICTIONS, EASEMENTS,  
RIGHT OF WAYS, AND ZONING ORDINANCES, OF RECORDS, IF ANY.

SEAL:

DATE: JANUARY 18, 2025

CLIENT:

ARCHITECT:  
MATTHEW SEELEY

OWNER:  
JOHN SPREITZER  
PH.: (248) 5218331

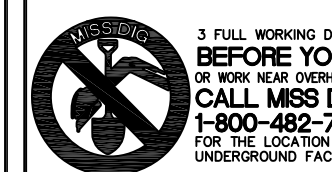
PROJECT LOCATION:

EXISTING HOUSE & GARAGE  
3340 ELLWOOD AVE.,  
CITY OF BERKLEY,  
OAKLAND COUNTY,  
MI 48072

PARCEL No.:  
04-25-18-102-015

SHEET:

BOUNDARY,  
TOPOGRAPHIC AND  
UTILITIES SURVEY



DATE: REVISION:

DRAWN BY:

DESIGNED BY:

APPROVED BY:

SURVEY DATE:  
JANUARY 15, 2025

SCALE:

1" = 20'

BOOK #:

B-025

JOB NO.

025-102

SHEET NO.

1 OF 1