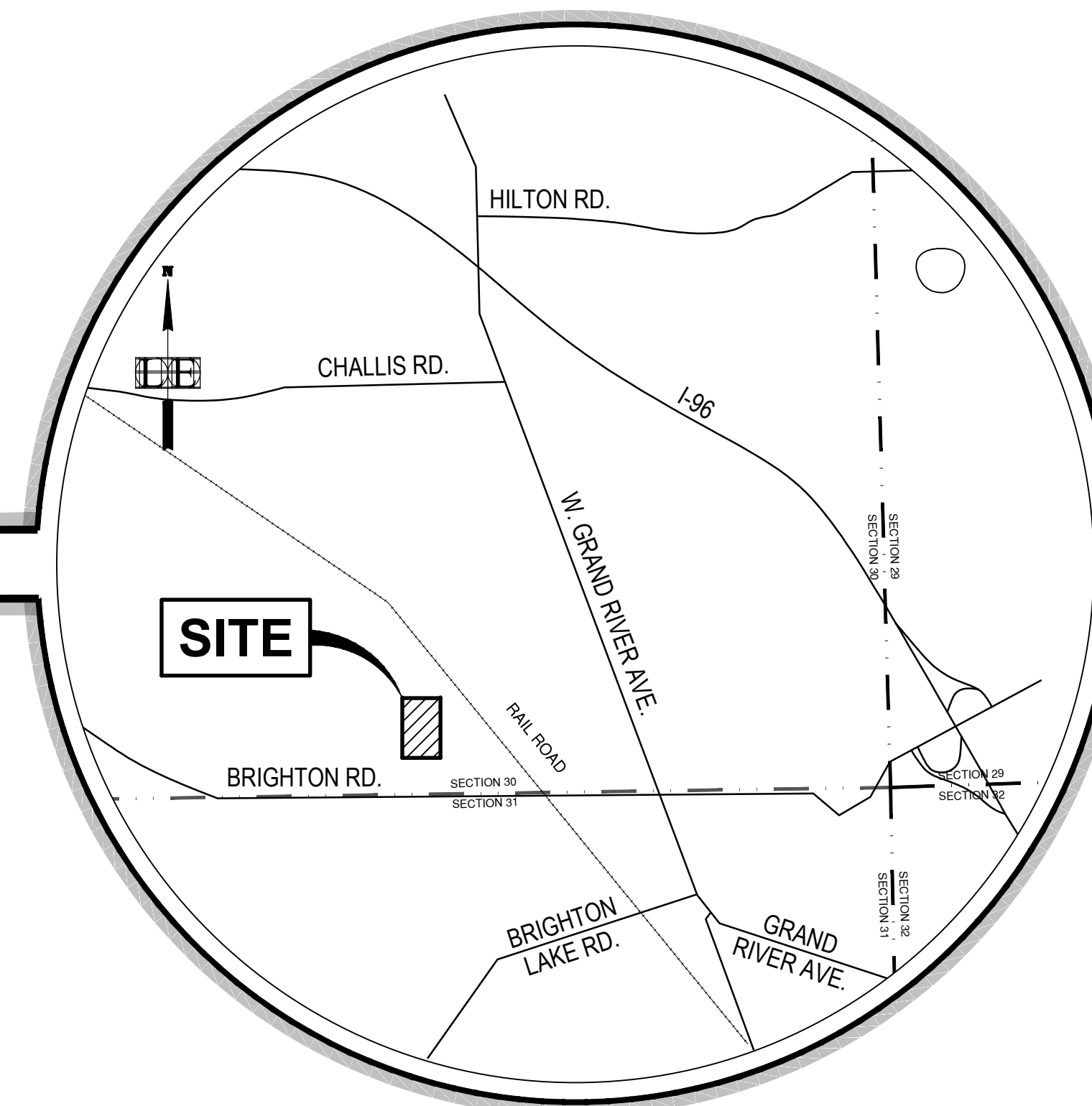


PRELIMINARY SITE PLAN FOR WEST VILLAGE A PLANNED UNIT DEVELOPMENT CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN

SHEET INDEX

- C-1.0 COVER SHEET
- C-2.0 EXISTING CONDITIONS
- C-3.0 SITE LAYOUT
- C-3.1 FIRE PROTECTION & EMERGENCY ACCESS PLAN
- C-4.0 PRELIMINARY UTILITY PLAN
- C-5.0 PRELIMINARY GRADING PLAN
- C-6.0 STORM WATER MANAGEMENT PLAN
- C-7.0 DETAILS

- A-1.0 CONCEPTUAL ELEVATIONS
- A-1.1 PRELIMINARY FLOOR PLANS
- A-1.2 PRELIMINARY FLOOR PLANS - CONT.
- A-1.3 TYPICAL BUILDING ELEVATION
- A-2.0 COMMUNITY BUILDING CONCEPTUAL ELEVATIONS
- A-2.1 COMMUNITY BUILDING FIRST FLOOR PLAN



LOCATION MAP
NOT TO SCALE

GENERAL NOTES

1. Contractor is responsible for protecting all existing and proposed utilities from damage during all stages of construction.
2. The engineer and applicable agency must approve, prior to construction, any alteration, or variance from these plans.
3. All signs shall meet the requirements of the City of Brighton Zoning Ordinance.
4. Underground dry utilities shall be extended from existing locations to service this site as required by utility companies.
5. Soils are majority Boyer-Oshtemo Loamy Sands and Bronson loamy Sand (U.S.D.A. "Soil Survey of Livingston Co.,").
6. All construction shall be performed in accordance with the current standards and specifications of the City of Brighton and Livingston County.
7. The contractor shall telephone the City of Brighton 72 hours before beginning any construction.
8. Three working days prior to any excavation, the Contractor shall telephone MISS DIG (800-482-7171) for the location of underground utilities and shall also notify representatives of other utilities located in the vicinity of the work. It shall be the Contractor's responsibility to verify and/or obtain any information necessary regarding the presence of underground utilities which might affect this job.
9. There are no wetlands located on site, based on-line map data from the National Wetlands Inventory.
10. Site plan use: Residential
11. Site storm drainage will be detained on site prior to being released to an existing storm sewer.
12. Property to be serviced by connection to community water main, and gravity sanitary sewer.
13. Roadway within this development shall be private.

LEGAL DESCRIPTION

THE LAND REFERRED TO IN THIS COMMITMENT, SITUATED IN THE COUNTY OF LIVINGSTON, CITY OF BRIGHTON, STATE OF MICHIGAN, (PROVIDED BY FIRST AMERICAN TITLE INSURANCE COMPANY) IS DESCRIBED AS FOLLOWS:

PARCEL 1: (AS PROVIDED AND SURVEYED)
LOT 210, PLAT OF SMITH AND MCPHERSON'S ADDITION TO THE VILLAGE (NOW CITY) OF BRIGHTON, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 1 OF PLATS, PAGE 20A.

TAX ITEM NO. 18-30-305-073

PARCEL 2: (AS PROVIDED)
A PART OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 SECTION 30, TOWN 2 NORTH, RANGE 6 EAST, CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN, BEGINNING AT THE NORTHEAST CORNER OF LOT 205 SMITH AND MCPHERSON'S ADDITION TO THE CITY OF BRIGHTON; THENCE NORTH 379.17 FEET; THENCE WESTERLY 551.5 FEET TO THE WEST LINE OF SAID SECTION 30; THENCE SOUTH 382.9 FEET ALONG SAID SECTION LINE; THENCE EAST 551.5 FEET TO THE POINT OF BEGINNING.

ALSO:
BEGINNING AT A POINT 379.17 FEET NORTH OF THE NORTHEAST CORNER OF LOT 205, PLAT OF SMITH AND MCPHERSON'S ADDITION TO THE CITY OF BRIGHTON; THENCE NORTH 445.17 FEET TO THE NORTHWEST CORNER OF LOT 219 OF SAID SMITH AND MCPHERSON'S ADDITION; THENCE WESTERLY 551.5 FEET TO THE WEST LINE OF SAID SECTION 30; TOWN 2 NORTH, RANGE 6 EAST, CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN; THENCE SOUTH 448.9 FEET ALONG THE WEST LINE OF SAID SECTION 30; THENCE EAST 551.5 FEET TO THE POINT OF BEGINNING.

TAX ITEM NO. 18-30-300-018

PARCEL 2 DESCRIPTION (AS SURVEYED):
A PART OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 SECTION 30, TOWN 2 NORTH, RANGE 6 EAST, CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN, BEGINNING AT THE NORTHEAST CORNER OF LOT 205 "SMITH AND MCPHERSON'S ADDITION TO THE CITY OF BRIGHTON"; THENCE S89°49'39"W 553.56 FEET ALONG SAID SUBDIVISION LINE TO THE EASTERLY LINE OF GENOA TOWNSHIP AND THE EASTERLY LINE OF "HEALY AND DILLOWAY SUBDIVISION" AS MONUMENTED; THENCE ALONG SAID EASTERLY LINE N00°00'57"E 832.11 FEET TO AN ESTABLISHED PERE MARQUETTE RAILROAD RIGHT-OF-WAY POST; THENCE S89°22'03"E 553.36 FEET TO THE NORTHWEST CORNER OF LOT 219 "SMITH AND MCPHERSON'S ADDITION TO THE CITY OF BRIGHTON" AS MONUMENTED; THENCE ALONG THE WESTERLY LINE OF "SMITH AND MCPHERSON'S ADDITION TO THE CITY OF BRIGHTON" S00°00'00"W 824.34 FEET TO THE POINT OF BEGINNING.

NOTE:
LEGAL DESCRIPTION WAS PROVIDED BY OWNER AND BASED ON ALTA SURVEY BY NEDERVELD DATED 03/24/2015.

Schedule of Modifications to existing R-1 zoning		
	R-1	Proposed
Minimum lot area - 2 family	10,000 sf	N.A.
Minimum lot width	66 ft	N.A.
Maximum lot coverage	25%	55.9%
Minimum front yard setback	25 ft	40 ft to property line
Maximum front yard setback	50 ft	N.A.
Minimum rear yard setback	35 ft	20 ft to internal drive
Minimum side yard setback - 2 family		
One side	10 ft	25 ft to property line
Total of two sides	20 ft	20 ft between bldgs
Maximum building height	2.5 stories - 35 ft	3 stories - 33.4 ft to midpoint

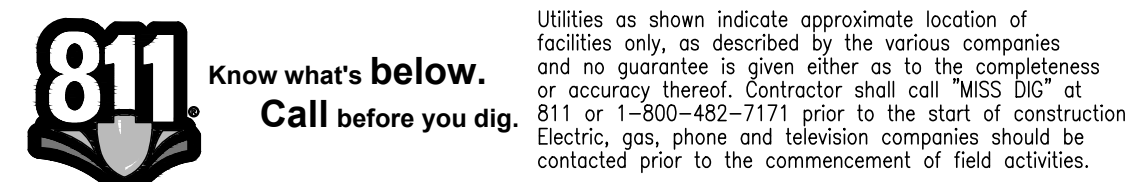
SITE DATA

ZONING	R-1, SINGLE FAMILY RES.
GROSS SITE AREA	10.52 AC.
PROPOSED UNITS:	140
-1 CAR TOWNS:	44
-2 CAR TOWNS:	96
PROPOSED DENSITY:	13.31 DU./AC.

PARKING DATA

ONE-CAR TOWNS:	44 SPACES
-GARAGE PARKING:	44 SPACES
-APRON PARKING:	44 SPACES
-PARKING DISTRIBUTION:	2 SPACES/DU.
TWO-CAR TOWNS:	192 SPACES
-GARAGE PARKING:	192 SPACES
-APRON PARKING:	192 SPACES
-PARKING DISTRIBUTION:	4 SPACES/DU.
TOTAL RESIDENT PARKING:	472
-AVG SPACES/DU.	3.37 SPACES
GUEST PARKING:	16 SPACES
ADA SPACES:	2 SPACES

UTILITY DISCLAIMER



Utilities as shown indicate approximate location of facilities only, as described by the various companies and no guarantee is given either as to the completeness or accuracy thereof. Contractor shall call "MISS DIG" at 811 or 1-800-482-7171 prior to the start of construction. Electric, gas, phone and television companies should be contacted prior to the commencement of field activities.

NOT TO BE USED AS CONSTRUCTION DRAWINGS

ARCHITECT

HOBBS + BLACK ARCHITECTS

100 NORTH STATE STREET
ANN ARBOR, MI 48104
PHONE: 734.663.4189

OWNER / APPLICANT / DEVELOPER

S.R. JACOBSON DEVELOPMENT CORP.

MANNY KIANICKY, P.E.
32400 TELEGRAPH RD, SUITE 200A
BINGHAM FARMS, MI 48025
PHONE: 248.642.4700

ENGINEER

LE

LIVINGSTON ENGINEERING

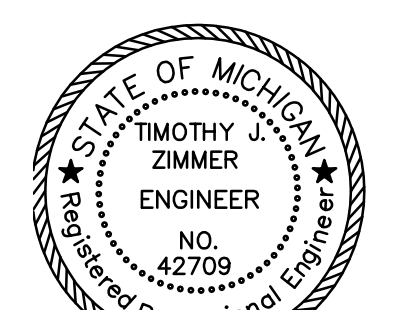
CIVIL ENGINEERING SURVEYING PLANNING

3300 S. OLD U.S. 23 BRIGHTON, MI 48114

WWW.LIVINGSTONENG.COM PHONE: (810) 225-7100 FAX: (810) 225-7699

WEST VILLAGE
CITY OF BRIGHTON
LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN

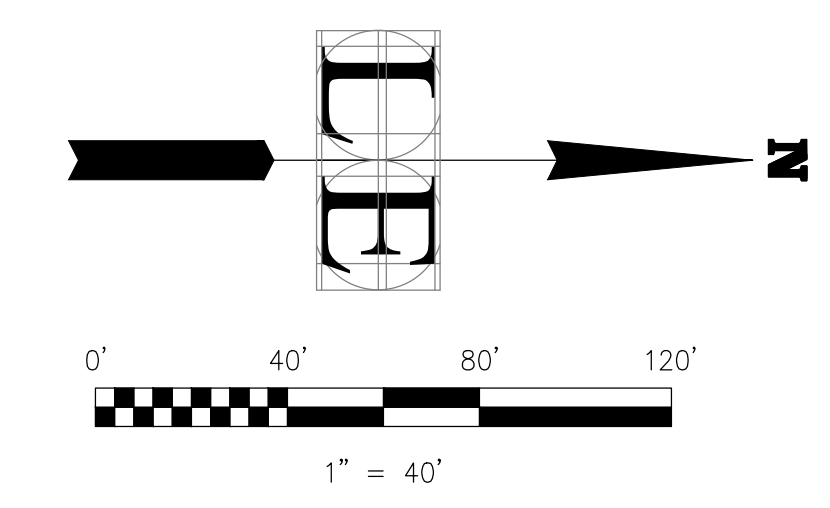
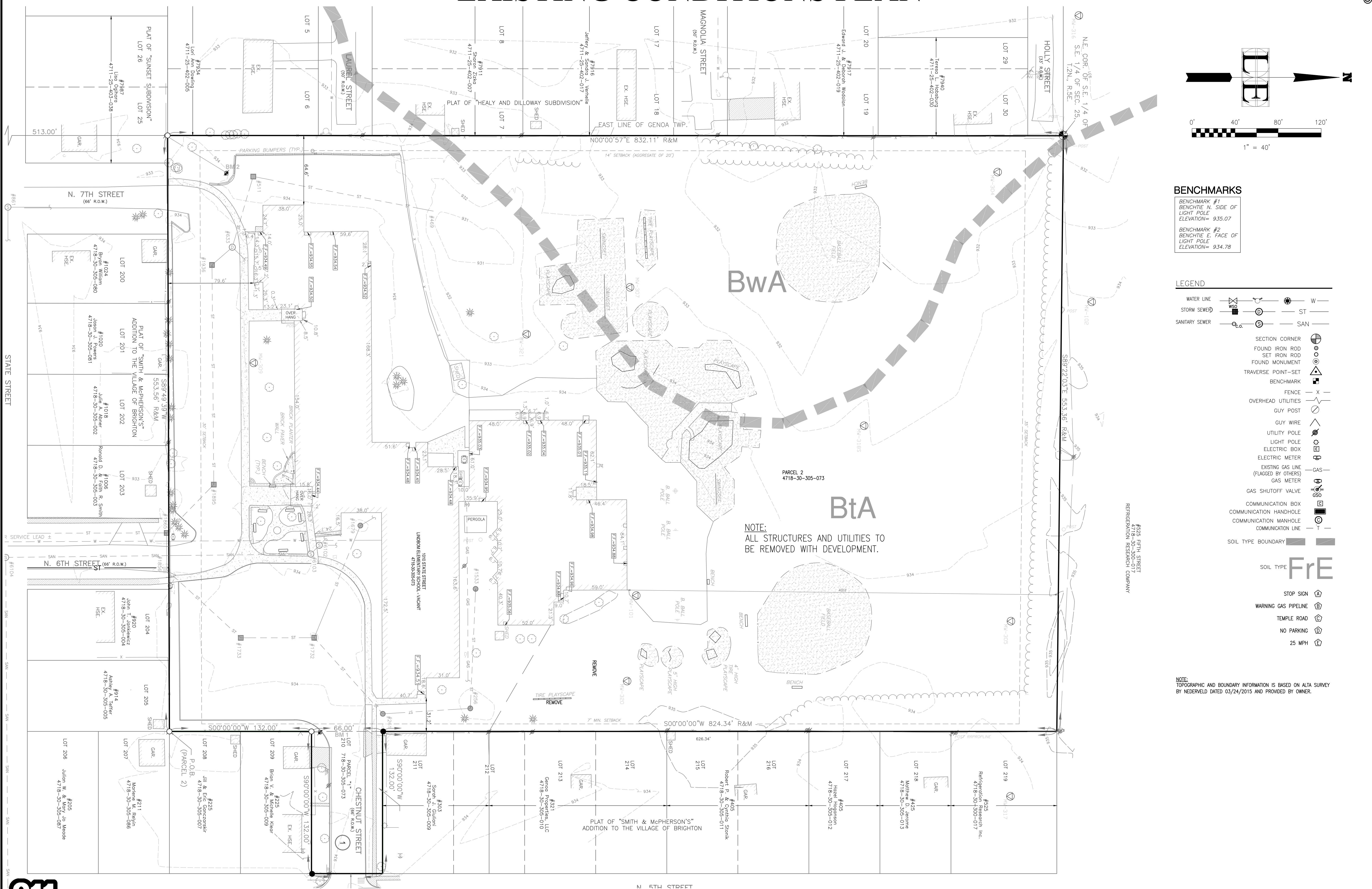
ENGINEER'S SEAL



REVISIONS	DATE	PROJECT No. 09176-2
		SHEET 1 OF 14
		DATE: JANUARY 02, 2020

Timothy J. Zimmer

EXISTING CONDITIONS PLAN



BENCHMARKS

BENCHMARK #1
BENCHTIE N. SIDE OF LIGHT POLE
ELEVATION= 935.07

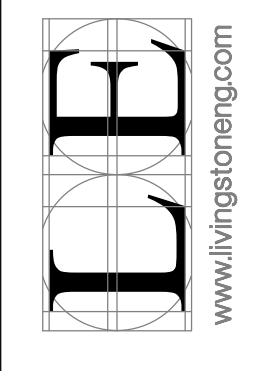
BENCHMARK #2
BENCHTIE E. FACE OF LIGHT POLE
ELEVATION= 934.78

LEGEND

WATER LINE		W
STORM SEWER		ST
SANITARY SEWER		SAN
SECTION CORNER		
FOUND IRON ROD		
SET IRON ROD		
FOUND MONUMENT		
TRAVERSE POINT-SET		
BENCHMARK		
FENCE		
OVERHEAD UTILITIES		
GUY POST		
GUY WIRE		
UTILITY POLE		
LIGHT POLE		
ELECTRIC BOX		
ELECTRIC METER		
EXISTING GAS LINE (FLAGGED BY OTHERS)		GAS
GAS METER		
GAS SHUTOFF VALVE		
COMMUNICATION BOX		
COMMUNICATION HANDHOLE		
COMMUNICATION MANHOLE		
COMMUNICATION LINE		
SOIL TYPE BOUNDARY		
SOIL TYPE	FrE	
STOP SIGN		
WARNING GAS PIPELINE		
TEMPLE ROAD		
NO PARKING		
25 MPH		

NOTE:
TOPOGRAPHIC AND BOUNDARY INFORMATION IS BASED ON ALTA SURVEY BY NEDERVELD DATED 03/24/2015 AND PROVIDED BY OWNER.

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CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD US. 23, BRIGHTON, MI 48114
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BINGHAM FARMS, MI 48024-2459
PH 248.642.0700

WEST VILLAGE
CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN
EXISTING CONDITIONS PLAN

DATE	REVISIONS	Drawn: LIZ/RLH	Checked:	Approved:	Date: 01/25/2020

Job No. **09176-2**
Scale:
Vertical: **T = 40'**
Horizontal:

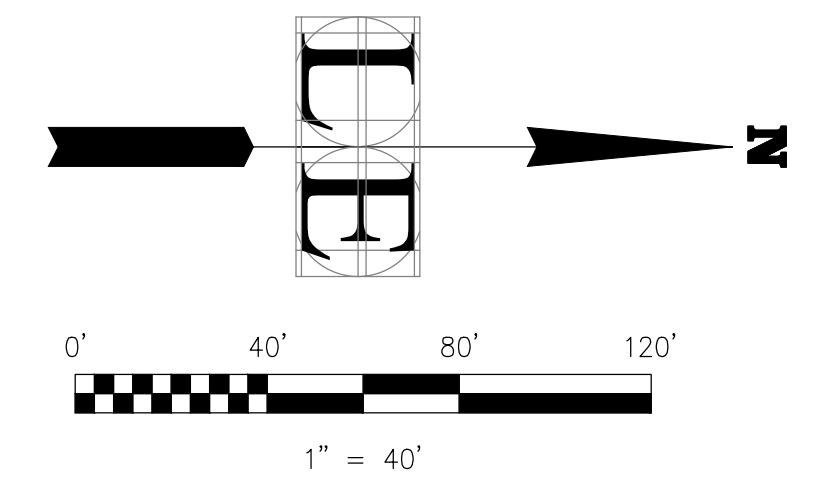
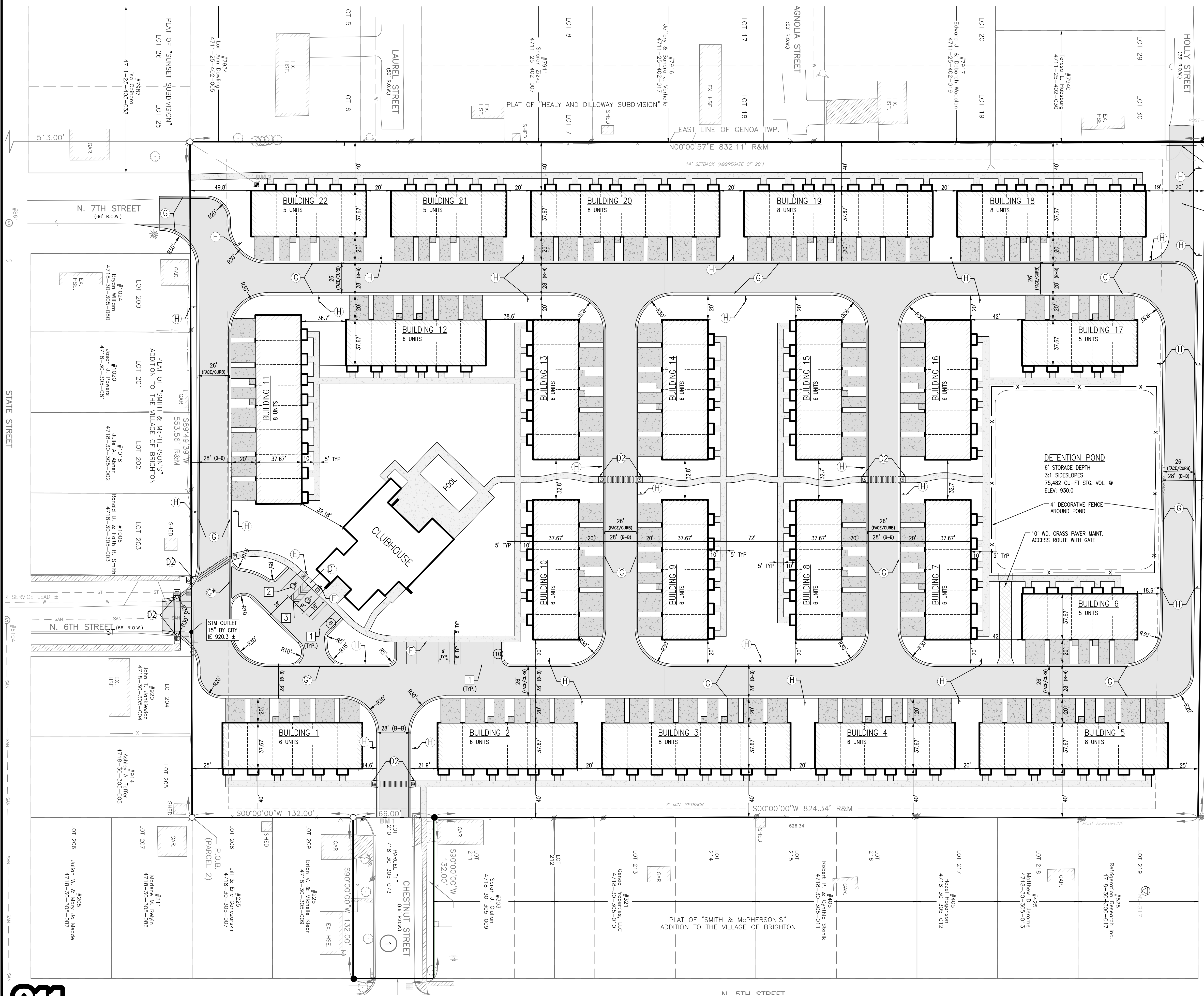
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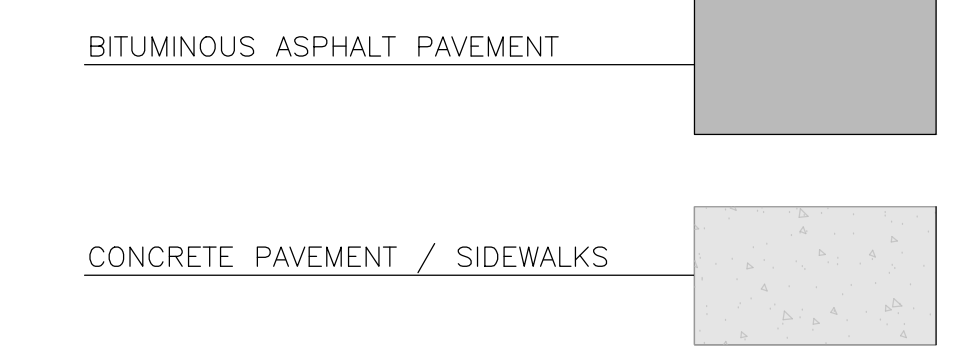
NOT TO BE USED AS CONSTRUCTION DRAWINGS

C-20

SITE LAYOUT



PROPOSED PAVEMENT LEGEND:



KEYED PAVEMENT MARKINGS:

- 4" SINGLE SOLID LINE, WHITE
- PAINTED INTERNATIONAL SYMBOL OF ACCESSIBILITY, BLUE ADA COMPLIANT
- 4" SINGLE SOLID LINES, BLUE, 45° CROSS HATCH PATTERN (2" O.C.) WITH BORDER, ADA COMPLIANT

ADA RAMP KEYED NOTES:

- R** ADA COMPLIANT RAMP
- L** ADA COMPLIANT RAMP LANDING AREA

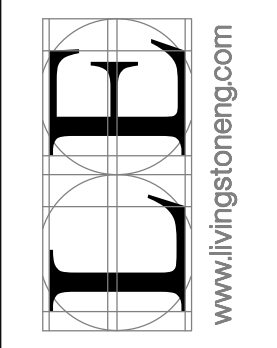
KEYED NOTES:

- D1** SIDEWALK RAMP - MDOT TYPE P, SEE DETAIL D1 ON SHEET C7.0
- D2** SIDEWALK RAMP - MDOT TYPE R, SEE DETAIL D2 ON SHEET C7.0
- F** BARRIER FREE SIGN WITH R7-B, SEE DETAIL E ON SHEET C7.0
- E** CURB FACE WALK AT PROPOSED PAVEMENT, SEE DETAIL F ON SHEET C7.0
- G** MOUNTABLE CONCRETE CURB, SEE DETAIL G ON SHEET C7.0
- M** MDOT TYPE M CONCRETE CURB, SEE DETAIL M ON SHEET C7.0
- H** "FIRE LANE, NO PARKING" SIGN, AS DIRECTED BY BRIGHTON AREA FIRE DEPT.

GENERAL NOTES:

- ALL UTILITY COMPANIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION AND ALL UTILITIES LOCATED. ANY DISCREPANCIES OR CONFLICTS SHALL BE REPORTED TO ENGINEER FOR RESOLUTION PRIOR TO COMMENCING CONSTRUCTION.
- ALL SIDEWALK RAMP TO MEET CURRENT ADA GUIDELINES AND SPECIFICATIONS.
- ALL DIMENSIONS TO CURB ARE MEASURED FROM BACK OF CURB UNLESS OTHERWISE NOTED.
- UNDERGROUND ELECTRIC & GAS CONNECTION WILL BE PROVIDED AS DETERMINED BY UTILITY COMPANY.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF BRIGHTON & LIVINGSTON COUNTY STANDARDS AND SPECIFICATIONS.
- ON-SITE STREETS WILL BE PRIVATE.
- NO DUMPSTERS ARE PROPOSED ON SITE. UNITS TO HAVE INDIVIDUAL PICKUP FOR GARBAGE SERVICE.
- THE ADDRESS OF EACH BUILDING SHALL BE SHOWN WITH A MINIMUM OF 4" HIGH LETTERS OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET. THE LOCATION AND SIZE SHALL BE VERIFIED PRIOR TO INSTALLATION.
- FINAL LOCATION OF FIRE LANE SIGNS TO BE SHALL BE PLACED AS DIRECTED BY THE BRIGHTON AREA FIRE AUTHORITY.
- ALL SIDEWALKS ARE 5 FT WIDE UNLESS OTHERWISE NOTED.

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LIVINGSTON ENGINEERING
 CIVIL ENGINEERING SURVEYING PLANNING
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 BINGHAM FARMS, MI 48024-2469
 PR. 24824200

WEST VILLAGE
 CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN
 PRELIMINARY SITE PLAN
 DIMENSIONAL LAYOUT PLAN

DATE	REVISIONS

Drawn: **112/Rsh**
 Checked:
 Approved:
 Date: **01/25/2020**

Job No: **09176-2**
 Scale:
 Vertical:
 Horizontal: **T = 40'**



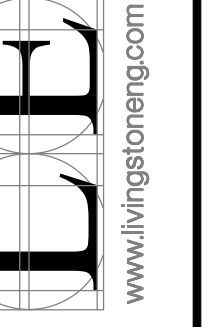
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C-30

FIRE PROTECTION AND EMERGENCY ACCESS PLAN

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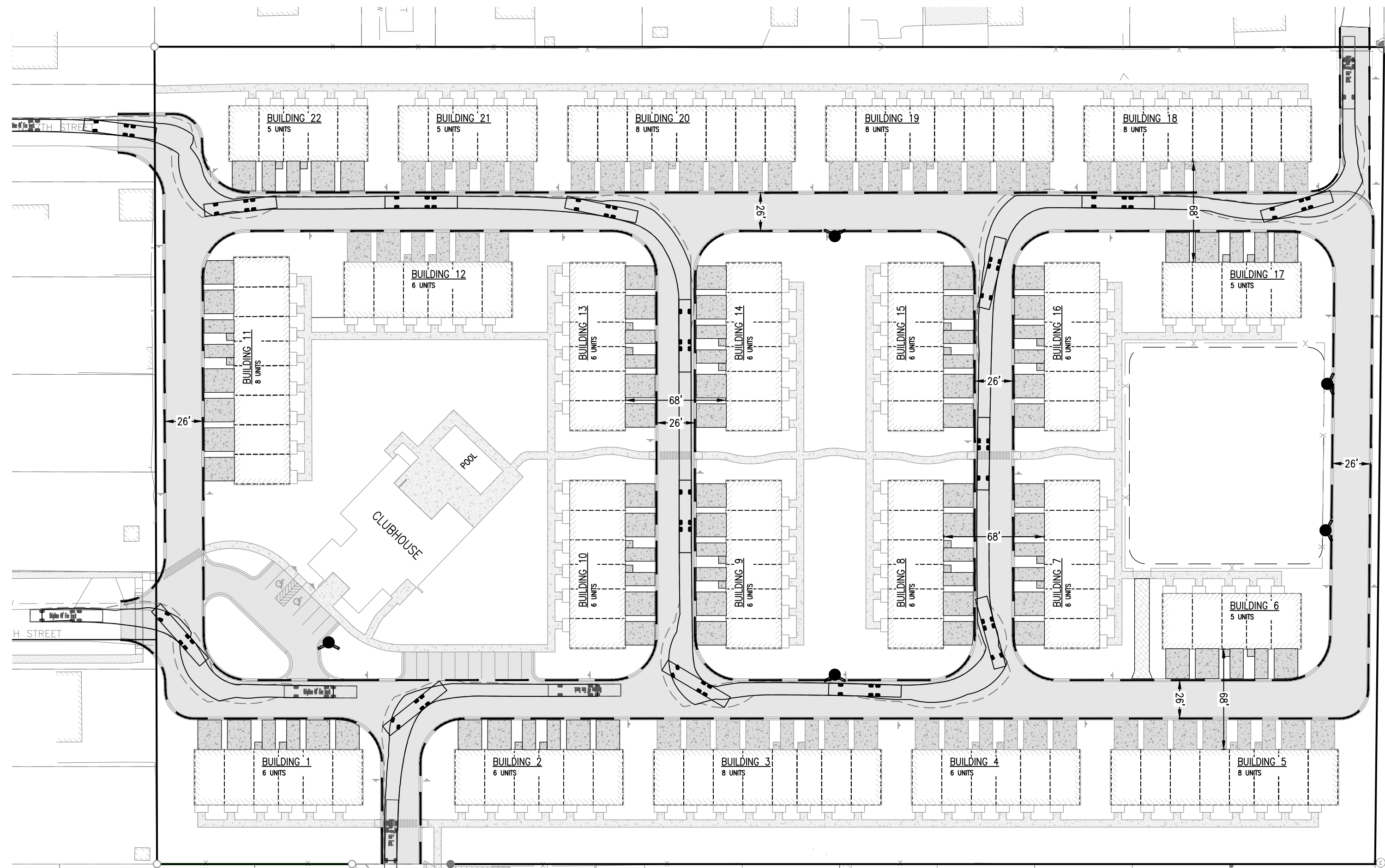
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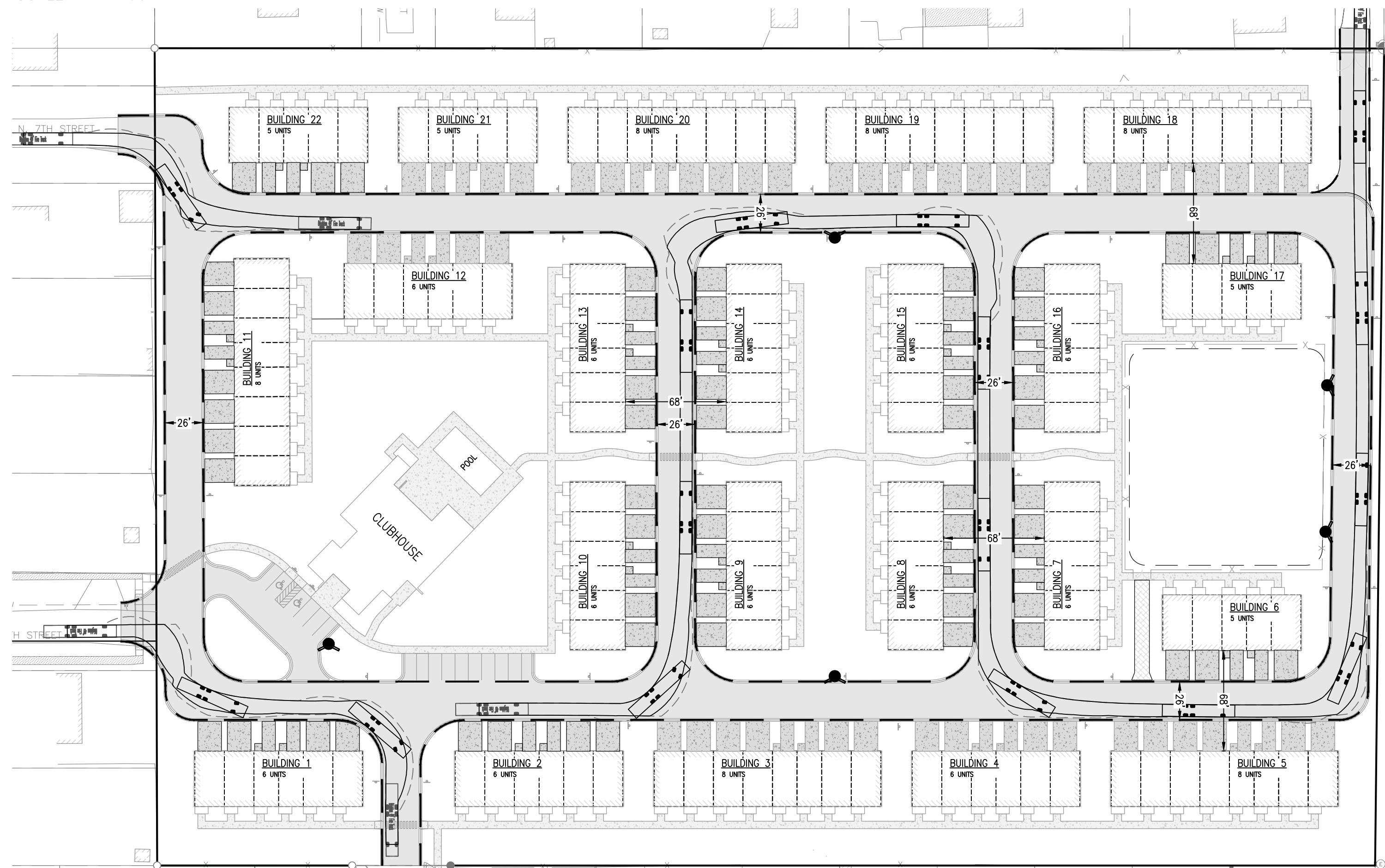
Client: SR JACOBSON DEVELOPMENT CORPORATION
 3240 TELEGRAPH RD. SUITE 200A
 BINGHAM FARMS, MI 48324-2459
 PR. 28242/2700

WEST VILLAGE
 CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN
 PRELIMINARY SITE PLAN
 FIRE PROTECTION & EMERGENCY ACCESS PLAN

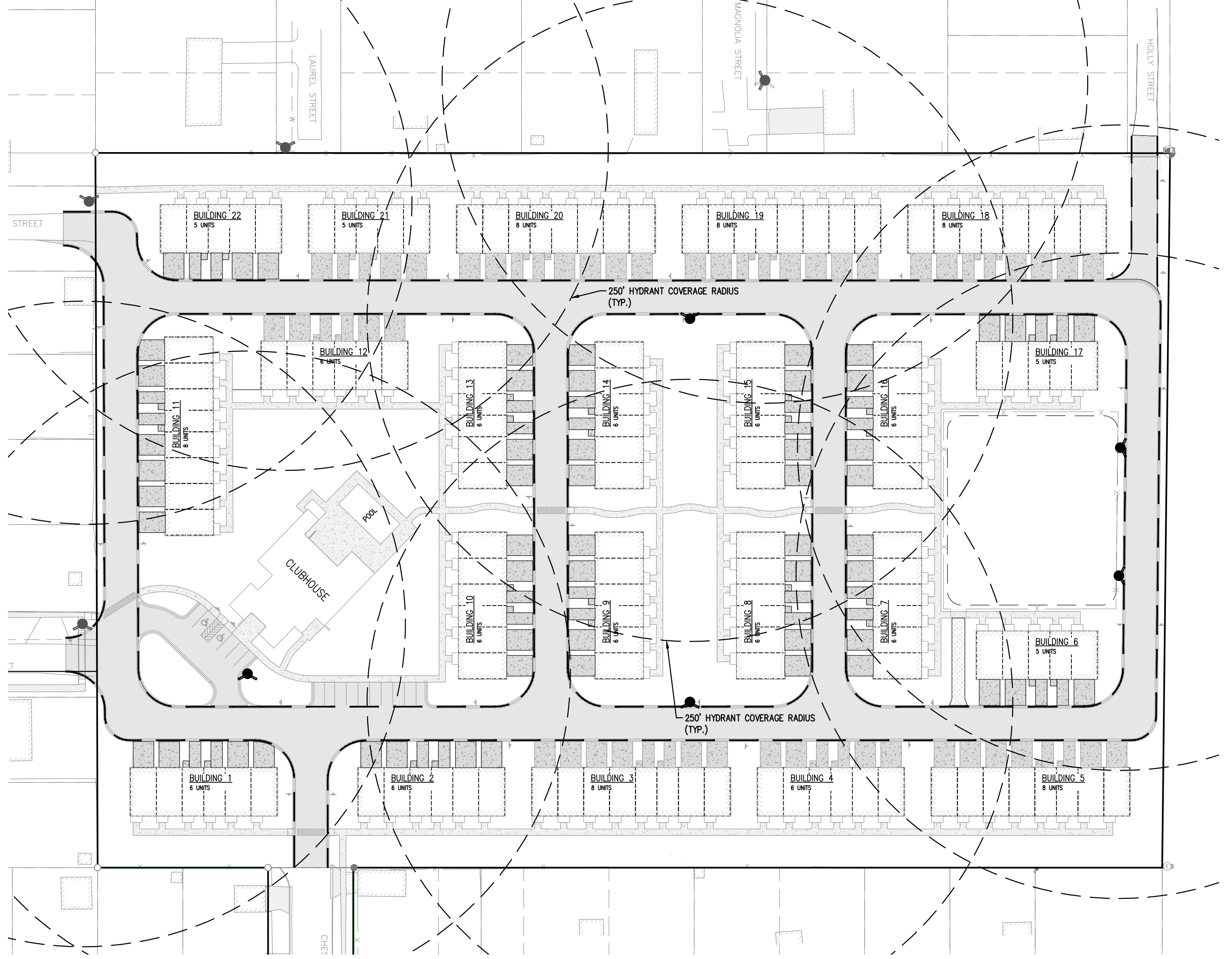
DATE	REVISIONS	DRAWN	CHECKED	APPROVED	DATE



FIRE TRUCK MANEUVERABILITY: ROUTE A
 SCALE: 1" = 60'



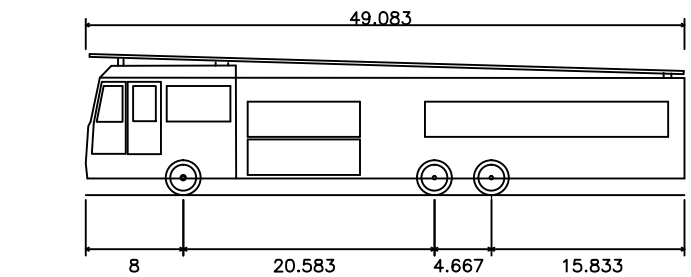
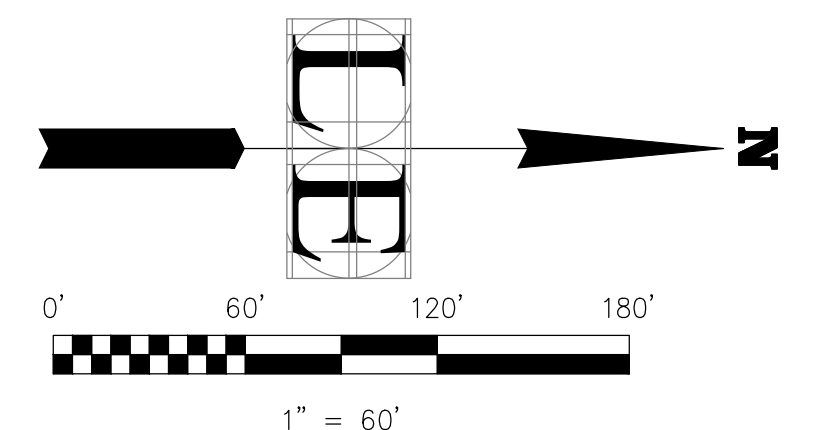
FIRE TRUCK MANEUVERABILITY: ROUTE B
 SCALE: 1" = 60'



HYDRANT COVERAGE AND BUILDING ISOLATION MAP
 SCALE: 1" = 60'

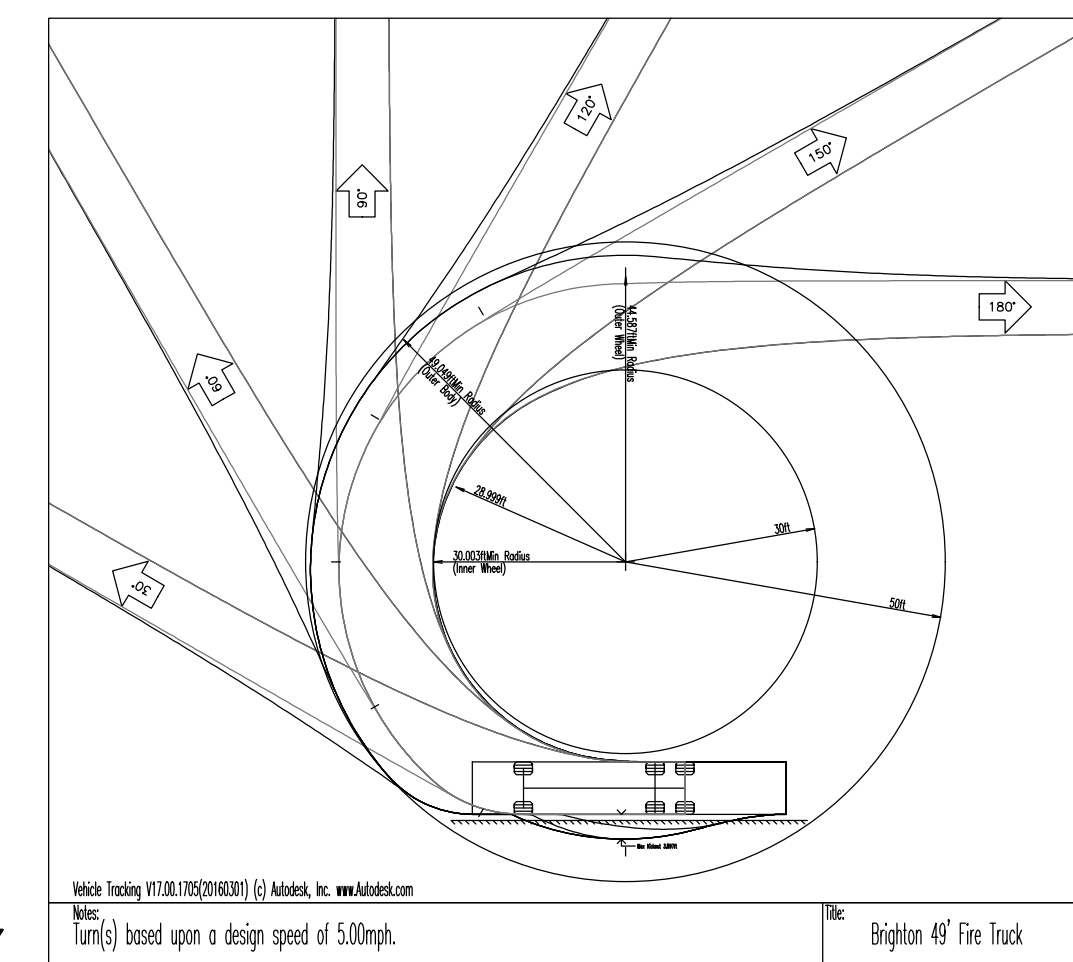


PROPOSED FIRE LANE/EMERGENCY ACCESS
 (26 FT WIDE MIN FACE OF CURB TO FACE OF CURB)



Brighton 49' Fire Truck
 Overall Length 49.083ft
 Overall Width 8.167ft
 Overall Body Height 11.584ft
 Min Body Ground Clearance 3.364ft
 Track Width 4.667ft
 Lock-to-lock time 5.00s
 Max Steering Angle (Virtual) 45.00°

**BRIGHTON AREA FIRE AUTHORITY
 FIRE TRUCK TEMPLATE**
 NOT TO SCALE



FIRE TRUCK TURNING RADII
 SCALE: 1" = 30'

FIRE PROTECTION & EMERGENCY ACCESS NOTES

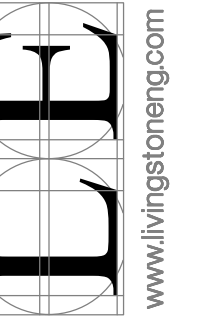
1. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB.
2. "NO PARKING-FIRE LANE" SIGNS SHALL BE POSTED ON THE SITE AS DIRECTED BY THE BRIGHTON AREA FIRE AUTHORITY. SEE SHEET C-3.0 FOR PROPOSED SIGN LOCATIONS.
3. VEHICLE USED FOR THE FIRE TRUCK MANEUVERABILITY STUDY WAS BASED ON A TEMPLATE PROVIDED BY THE BRIGHTON AREA FIRE AUTHORITY.
4. EACH BUILDING SHALL BE COVERED WITHIN A 250 FT RADIUS OF A HYDRANT. THE ADDRESS OF EACH BUILDING SHALL BE SHOWN WITH A MINIMUM OF 4" HIGH LETTERS OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET. THE LOCATION AND SIZE SHALL BE VERIFIED PRIOR TO INSTALLATION.
5. PROPOSED FIRE LANE SHALL BE 26 FT WIDE MINIMUM FACE OF CURB TO FACE OF CURB.

NOT TO BE USED AS CONSTRUCTION DRAWINGS

C-31

FILE:C:\Users\jacobson\Dropbox (Living)\Projects\2009\09176-2 SR Jacobson_Site Plan\09176-2_C-31_Fire Protection.dwg

PRELIMINARY UTILITY PLAN

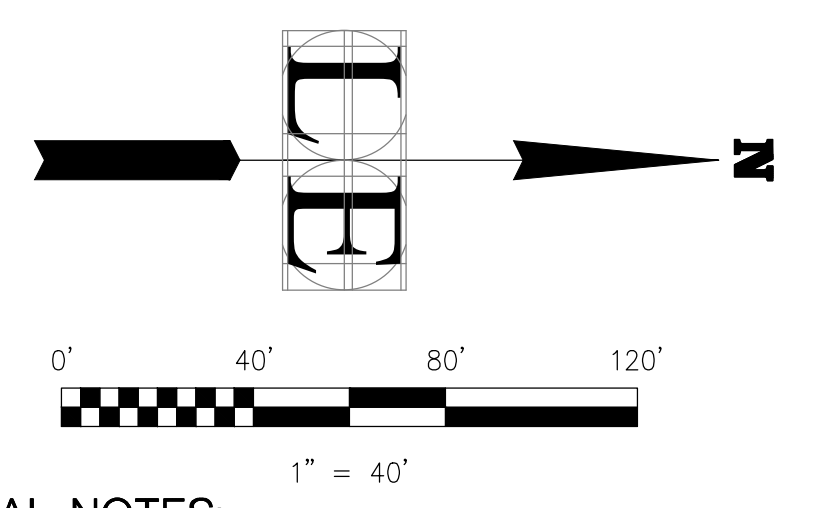


Client
 SR JACOBSON DEVELOPMENT CORPORATION
 2600 TELEGRAPH RD. SUITE 200A
 BRIGHTON MI 48024-2469
 PR 28242200

WEST VILLAGE
 CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN
 PRELIMINARY SITE PLAN
 PRELIMINARY UTILITY PLAN

DATE	REVISIONS

Drawn: LJ/RSB	Checked: 	Approved: 	Date: 01/25/2020
Job No: 09176-2	Scale: 	Vertical: 	Horizontal: T = 40'



GENERAL NOTES:

- ALL UTILITY COMPANIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION AND ALL UTILITIES LOCATED. ANY DISCREPANCIES OR CONFLICTS SHALL BE REPORTED TO ENGINEER FOR RESOLUTION PRIOR TO COMMENCING CONSTRUCTION.
- ALL STORM SEWER, WATER MAIN AND SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF BRIGHTON AND LIVINGSTON COUNTY STANDARDS AND SPECIFICATIONS.
- PROVIDE MINIMUM 18" VERTICAL & 10 FT HORIZONTAL SEPARATION BETWEEN ALL UTILITIES.
- PUBLIC ROAD RESTORATION REQUIRED AS A RESULT OF UTILITY CONNECTIONS WITHIN FLINT RD AND EAST STREET SHALL BE A MINIMUM OF 12 FT WIDE AND SHALL EXTEND THE ENTIRE ROADWAY WIDTH. PAVEMENT SHALL MEET MOOT TESTING REQUIREMENTS.
- THE CITY OF BRIGHTON WILL NEED TO WITNESS THE INSTALLATION AND DEMOLITION OF ALL WORK WITHIN THE CITY'S ROAD RIGHT-OF-WAY ALONG WITH ALL EXISTING AND PROPOSED CITY EASEMENTS.
- THE CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF 48 HOURS PRIOR TO ANY WORK IN THE CITY'S ROAD RIGHT-OF-WAY, EXISTING EASEMENTS, AND PROPOSED EASEMENTS.
- ALL WORKMANSHIP, DESIGN, CONSTRUCTION AND MATERIALS SHALL BE IN THE ACCORDANCE WITH THE CITY OF BRIGHTON ENGINEERING DESIGN STANDARDS, LATEST EDITION.
- PROPOSED WATER, SANITARY AND STORM SEWER CONNECTIONS AT N. 6TH STREET ARE BASED ON PROPOSED RECONSTRUCTION PLANS FOR UTILITIES BY THE CITY OF BRIGHTON.

STORM SEWER NOTES:

- STORM SEWER TO BE RCP C76 CL IV UNLESS OTHERWISE NOTED.
- ALL PIPE LENGTHS SHOWN ARE FROM ϕ TO ϕ OF STRUCTURE OR FROM ϕ OF STRUCTURE TO END OF FLARED END SECTION.
- ALL STORM SEWER WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
- MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.
- ALL CATCH BASIN'S ARE 4 FT DIA. UNLESS OTHERWISE NOTED.

SANITARY SEWER NOTES:

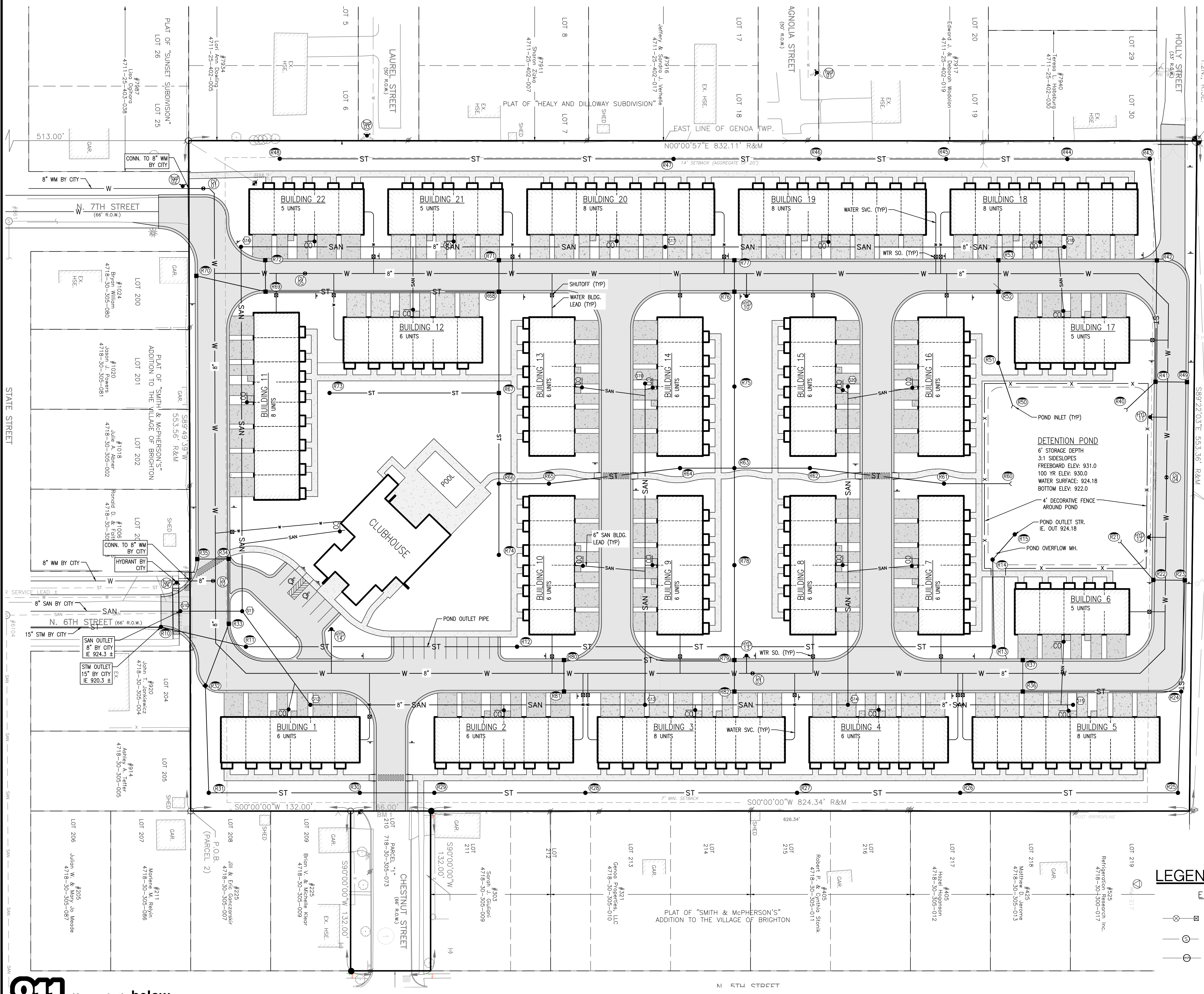
- SANITARY LEAD SHALL BE 6" SDR 26 PVC PIPE LAID AT A MIN. 1% GRADE.
- ALL PIPE LENGTHS SHOWN ARE FROM ϕ TO ϕ OF STRUCTURE.
- ALL SEWER WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
- MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

WATER MAIN NOTES:

- ALL PIPE LENGTHS SHOWN ARE FROM ϕ TO ϕ OF STRUCTURE/FITTING.
- WATER MAIN SHALL BE D.I. CLASS 52 INSTALLED WITH A MIN. OF 5.5 FT OF COVER.
- WATER SERVICE LEADS SHALL BE 2" DIA. TYPE 'X' COPPER.
- MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.
- ALL WATER MAIN WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
- FIRE HYDRANTS SHALL BE LOCATED 3 FT FROM BACK OF CURB.
- EACH BUILDING WILL HAVE A WATER METER LOCATION WITHIN THE GARAGE THAT SHALL BE ACCESSIBLE TO THE CITY AT ALL TIMES, SIMILAR TO A TYPICAL SINGLE FAMILY HOME.
- TRACING WIRE AND TERMINALS SHALL BE PROVIDED ON ALL WATER MAIN DISTRIBUTION LINES AND SERVICE LEADS. MATERIALS AND INSTALLATION SHALL BE PER THE CITY'S ENGINEERING DESIGN STANDARDS SPECIFICATION SECTION 22.113.
- TRACING WIRE SYSTEMS SHALL TERMINATE IN RHINO TRIVIEW FLEXTM TRACING WIRE STATIONS. TERMINALS SHALL BE EXTERNAL AND BLUE FOR WATER MAIN SYSTEMS.
- ALL NUTS, BOLTS AND WASHERS FOR INSTALLATION ON SLEEVES, COUPLINGS AND MECHANICAL JOINT CONNECTIONS SHALL BE COR-BLUE.
- ALL NUTS, BOLTS AND WASHERS USED BY MANUFACTURER TO FABRICATE AND ASSEMBLE GATE VALVES SHALL BE #316 STAINLESS STEEL AND EXPOSED PORTIONS SHALL BE FIELD COATED WITH PIPE MASTIC OR AN APPROVED CORROSION PROTECTIVE SPRAY.

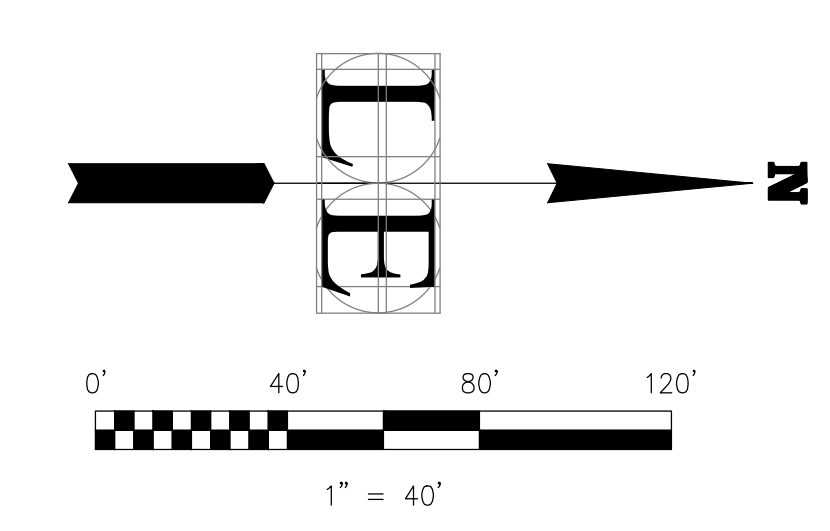
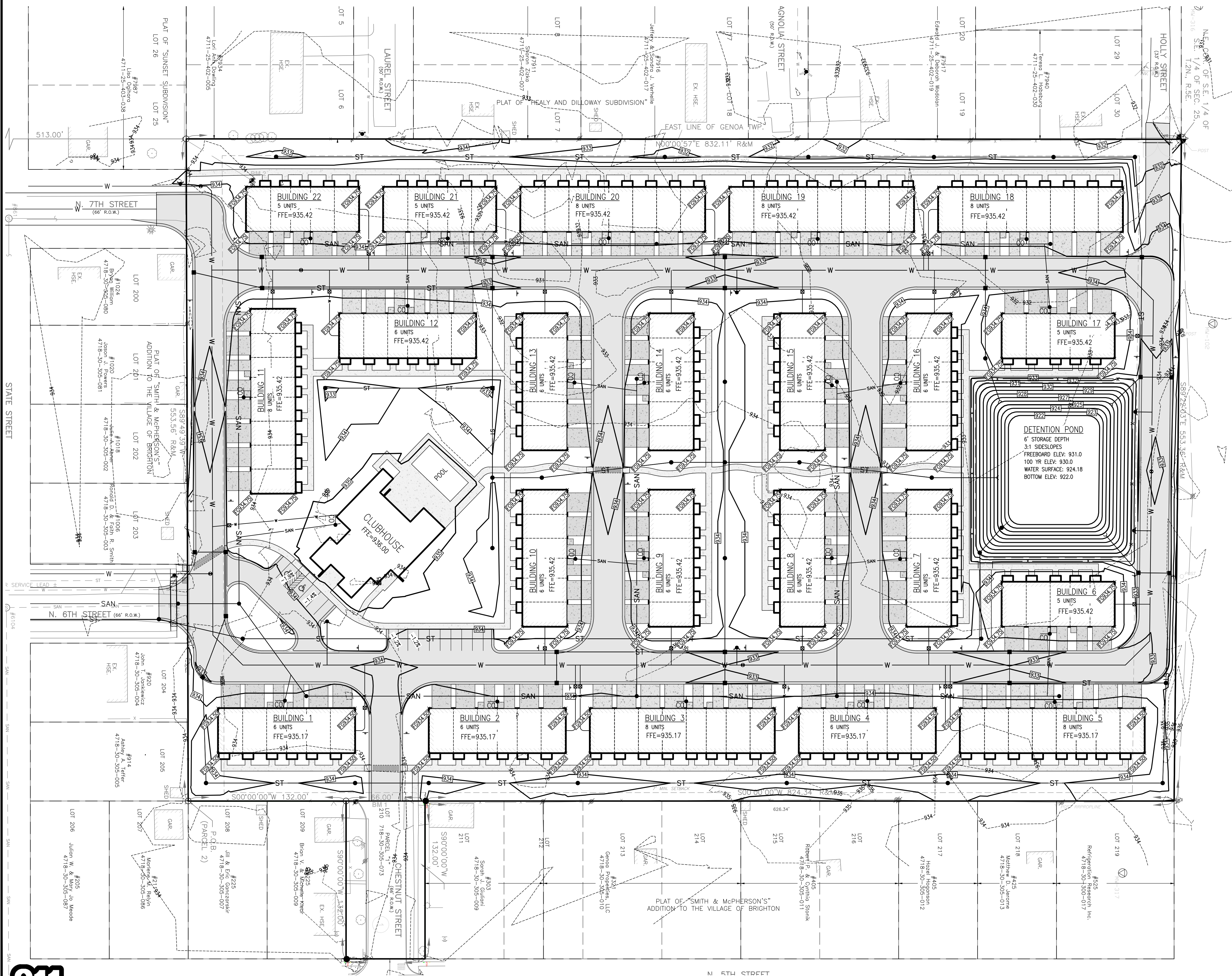
LEGEND

EXISTING	PROPOSED
ϕ -12" - W	WATER MAIN
ϕ -12" - SAN	GATE VALVE & WELL, GATE VALVE & BOX, HYDRANT
ϕ -12" - ST	SANITARY SEWER MANHOLE, CLEANOUT
	STORM SEWER CATCH BASIN, MANHOLE
	PAVEMENT REMOVAL
	UTILITY CROSSING & LABEL



NOT TO BE USED AS CONSTRUCTION DRAWINGS

PRELIMINARY GRADING PLAN

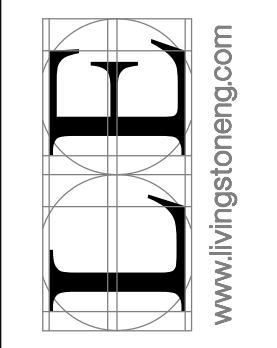


#425 FIFTH STREET
4718-30-305-017
REFRIGERATION RESEARCH COMPANY

PRELIMINARY GRADING NOTES

1. THIS PRELIMINARY GRADING PLAN HAS BEEN PROVIDED AS AN EXAMPLE OF FEASIBILITY ONLY. FINAL GRADING PLAN WILL VARY FROM WHAT IS SHOWN.
2. ALL SPOT GRADE ELEVATIONS LABELED ARE TOP OF PAVEMENT UNLESS OTHERWISE NOTED.

© 2019
LIVINGSTON ENGINEERING
 CIVIL ENGINEERING SURVEYING PLANNING
 3300 S. OLD U.S. 23, BRIGHTON, MI 48114
 PHONE: (810) 225-7100 FAX: (810) 225-7699
 www.livingstongeng.com



Client
 SR. JACOBSON DEVELOPMENT CORPORATION
 2600 TELEGRAPH RD. SUITE 200A
 BINGHAM FARMS, MI 48024-2459
 PR. 24842/070

WEST VILLAGE
 CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN
 PRELIMINARY SITE PLAN
 PRELIMINARY GRADING PLAN

REVISIONS	DATE

Job No. **09176-2**
 Scale:
 Vertical:
 Horizontal: **T = 40'**



NOT TO BE USED AS CONSTRUCTION DRAWINGS

C-50

FILE:C:\Users\User\Dropbox (Living)\Projects\2009\09176-2_SR_Jacobson_Site_S\03_DWGSS\Prelim_Site_Plan\09176-2_C-50_Grading_Plan.dwg

STORM WATER MANAGEMENT PLAN

STORM WATER MANAGEMENT NARRATIVE

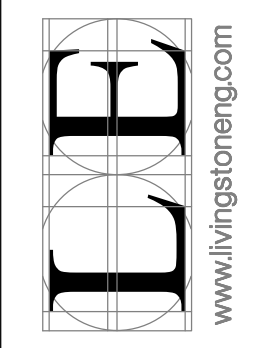
STORM WATER RUNOFF WILL BE COLLECTED WITH CATCH BASINS DISTRIBUTED THROUGHOUT THE PAVEMENT AND GREENSPACES, WHICH WILL CONVEY THE WATER THROUGH UNDERGROUND STORM SEWER TO A DETENTION POND ON THE NORTH END OF THE SITE.

DETENTION VOLUME WAS CALCULATED USING THE LIVINGSTON COUNTY DRAIN COMMISSIONERS METHOD FOR A 100-YEAR STORM.

AN OUTLET STRUCTURE IS BEING PROVIDED TO OUTLET WATER AT A PRE-DEVELOPED RELEASE RATE OF 0.2 CFS PER ACRE INTO A PROPOSED 15" STORM SEWER (INSTALLED BY THE CITY OF BRIGHTON) AT THE SOUTHERN END OF THE SITE AT NORTH 6TH STREET.

THE OUTLET STRUCTURE WILL ALSO PROVIDE EMERGENCY OVERFLOW AT THE 100-YEAR FLOOD VOLUME TO ALLOW WATER TO FLOW FREELY PAST THE RESTRICTED ORIFICES, AND PREVENT WATER FROM EXCEEDING THE DESIGN FLOOD ELEVATION.

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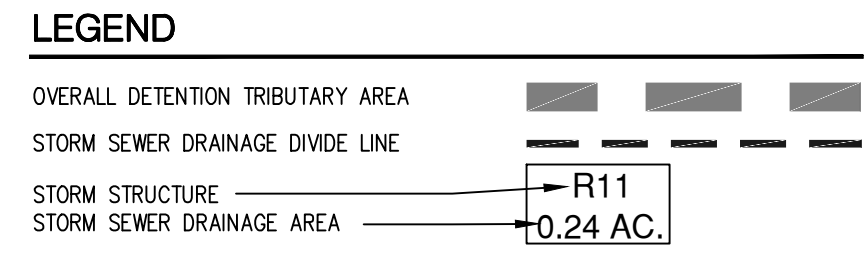
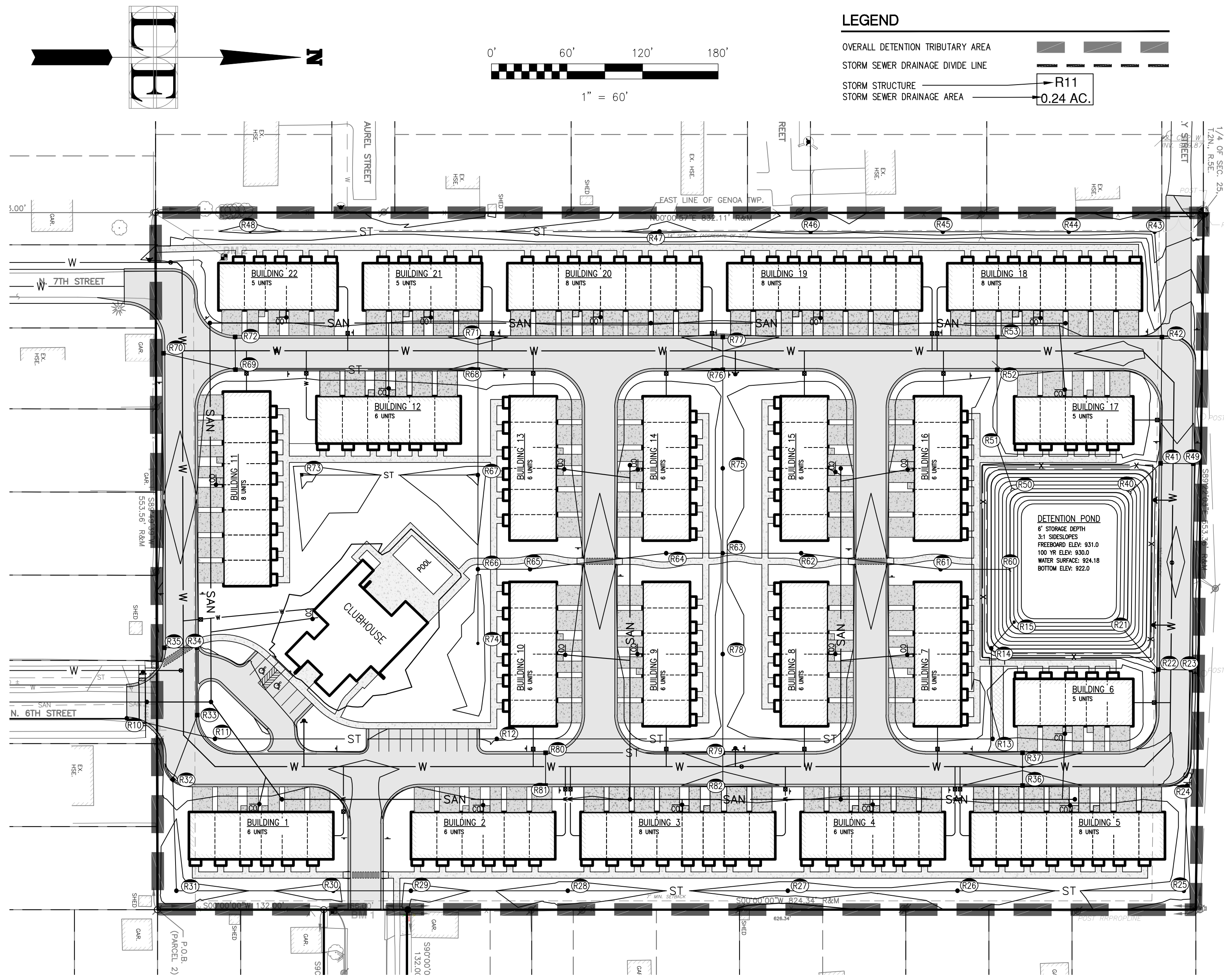
Client
 SR JACOBSON DEVELOPMENT CORPORATION
 3240 TELEGRAPH RD. SUITE 200A
 BINGHAM FARMS, MI 48024-2459
 PR 248242/00

WEST VILLAGE
 CITY OF BRIGHTON, LIVINGSTON COUNTY, MICHIGAN
 PRELIMINARY SITE PLAN
 STORM WATER MANAGEMENT PLAN

DATE	REVISIONS

Drawn: LIZ/RSB
 Checked:
 Approved:
 Date: 01/25/2020

Job No. **09176-2**
 Scale:
 Vertical:
 Horizontal: **T = 60'**



STORM WATER DETENTION POND CALCULATIONS

Project: Jacobson Development-Proposed Apartments
 Livingston Engineering Project No. 09176-2
 Livingston County Drain Commission Method

Common Items and Assumptions:

- A. First Flush = $(0.5/12) \times 43,560 \times \text{area} \times \text{developed C}$
 - B. Bankfull Flood = $8,160 \times \text{area} \times \text{developed C}$
 - C. Detention Volume Equation
- $V = ((A_1 + A_2)/2) \times H$
 where, A_1 = Area at top of storage elevation
 A_2 = Area at bottom of storage elevation
 H = Depth of analysis

Detention Pond Volumes:

A. First Flush, Bankfull Flood and 100-year Storm Event

1. Contributing Area =	10.52 Ac.
2. Developed Runoff Coefficient:	
Rooftop + drives	3.39
Asphalt/Curb Area	2.22
Sidewalk + pool Area	0.60
Detention	0.21
Lawn/Landscaped Area	4.10
Totals:	10.52

Developed C = $6.62 / 10.52 = 0.63$

3. First Flush Volume:
 $V = (0.5/12) \times 43,560 \times 0.63 \times 10.52 = 12014 \text{ CF}$

4. Bankfull Flood Volume:
 $V = 8,160 \times 0.63 \times 10.52 = 54015 \text{ CF}$

5. 100-Year Flood Volume:
 $Q_A = (0.20 \times 10.52) = 2.10 \text{ CFS}$
 $V_T = 75401 \text{ CF}$

	Elev.	Area(sf)	Vol (cf)	Acc. Vol (cf)
Elev ₀	924.18	9165		
	925.00	10160	7923	7923
	926.00	11415	10788	18711
	927.00	12741	12078	30789
	928.00	14139	13440	44229
	929.00	15609	14874	59103
	930.00	17152	16381	75483
Total:			75483 CF	

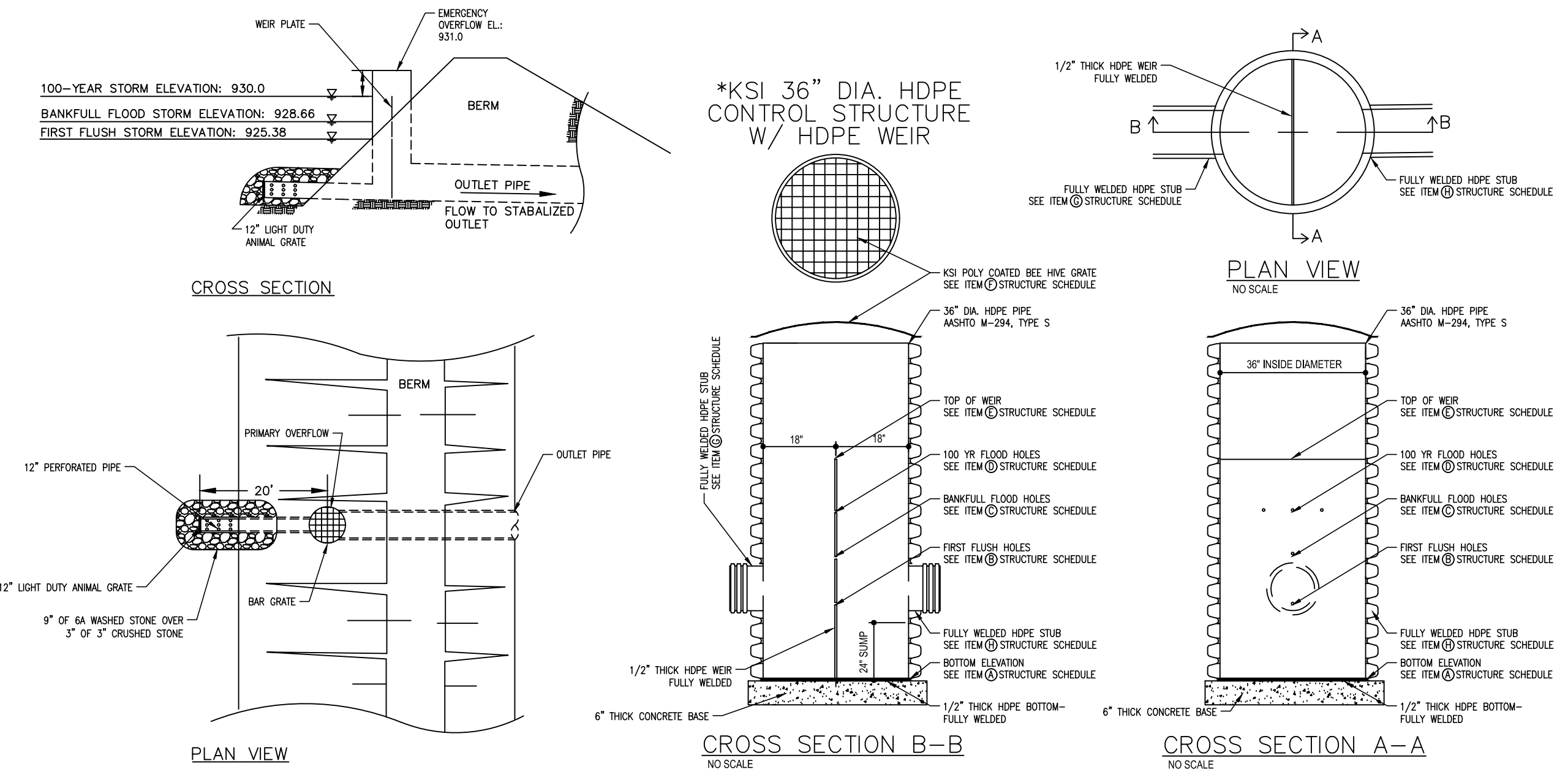
The following interpolations determine the pond water elevations for the three different storm events:

First Flush: $\frac{926.0 - 925.0}{18711 - 7923} = \frac{x - 925.0}{12014 - 7923}$
 $x = \text{Elev}_{FF} = 925.38$

Bankfull Flood: $\frac{929.0 - 928.0}{59103 - 44229} = \frac{x - 928.0}{54015 - 44229}$
 $x = \text{Elev}_{BF} = 928.66$

100 Yr. Flood: $\frac{930.0 - 929.0}{75483 - 59103} = \frac{x - 929.0}{75401 - 59103}$
 $x = 930.00$

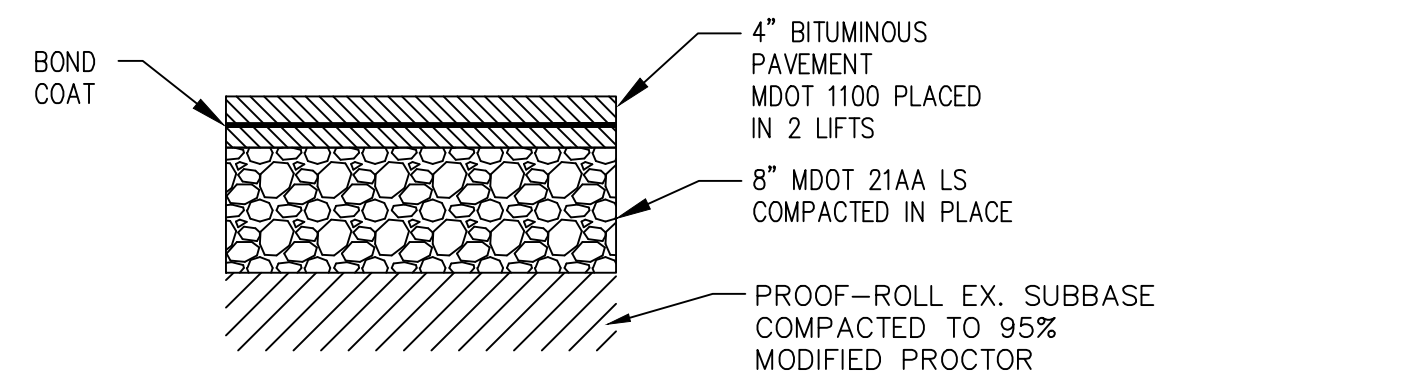
These yield pond water elevations of 925.38 for the First Flush, 928.66 for the Bankfull Flood, and 930.00 for the 100 Yr. Storm Event for Freeboard Elevation 931.00



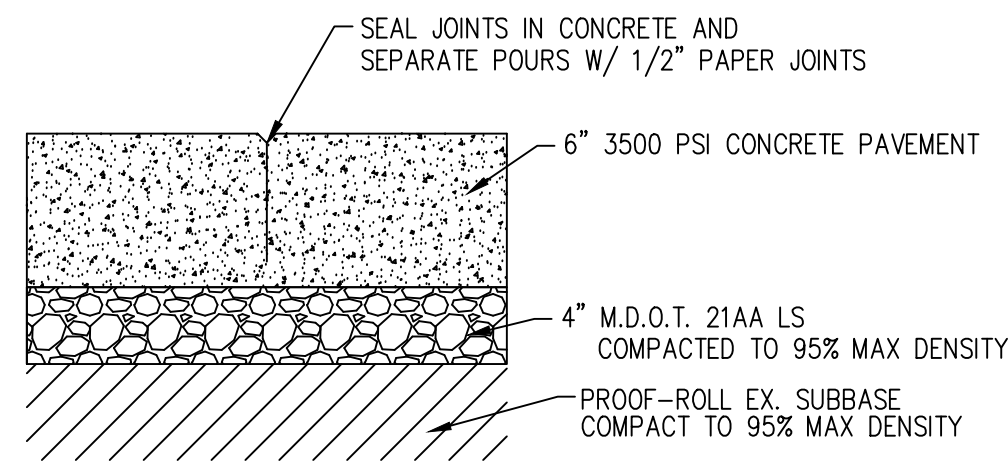
OUTLET STRUCTURE DETAIL

DETAIL PROVIDED BY THE FOLLOWING SUPPLIER:
 KENNEDY SYSTEMS INC.(KSI) • 2111 SAGE LAKE ROAD • PRESCOTT, MICHIGAN 48756 • 800-699-4046
 *OR ENGINEER APPROVED EQUAL

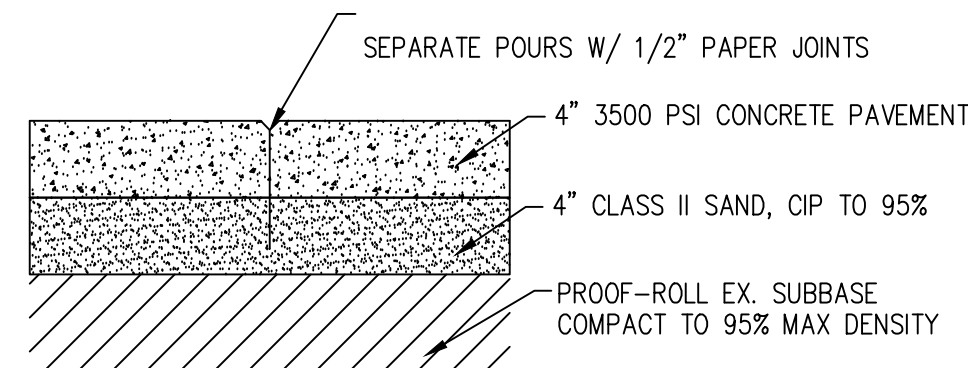
DETAILS



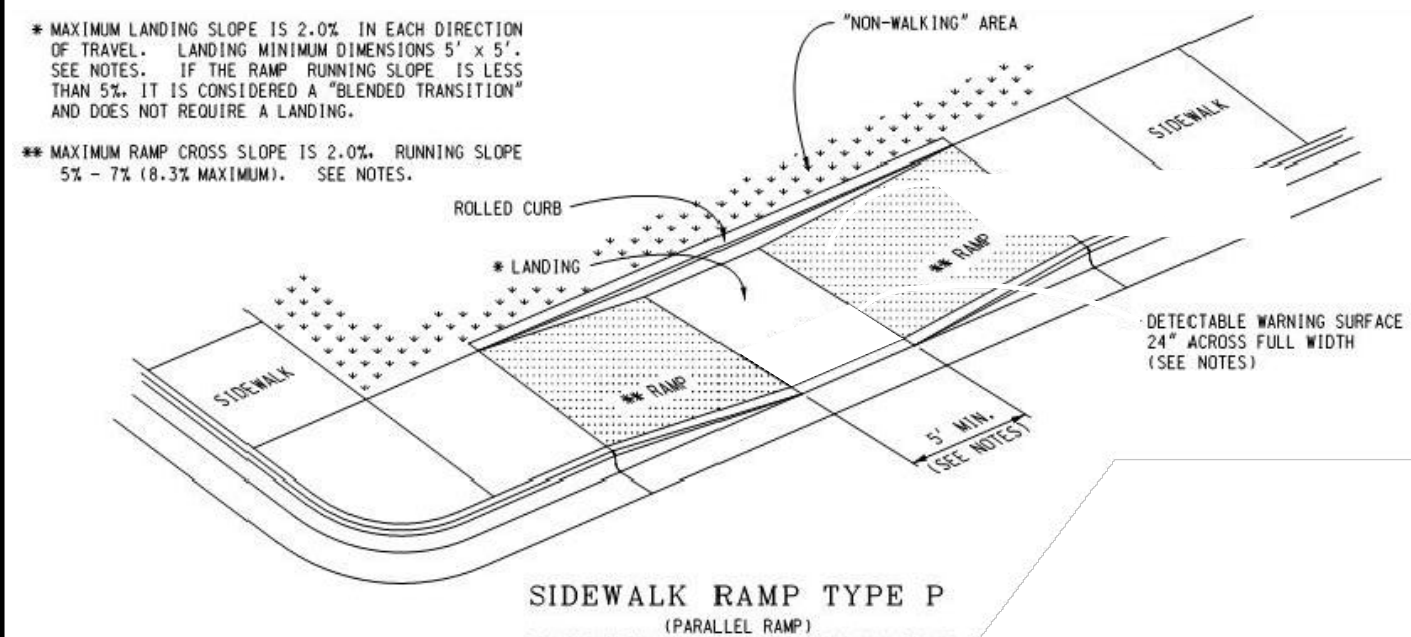
A LIGHT DUTY ASPHALT PAVEMENT SECTION
NOT TO SCALE



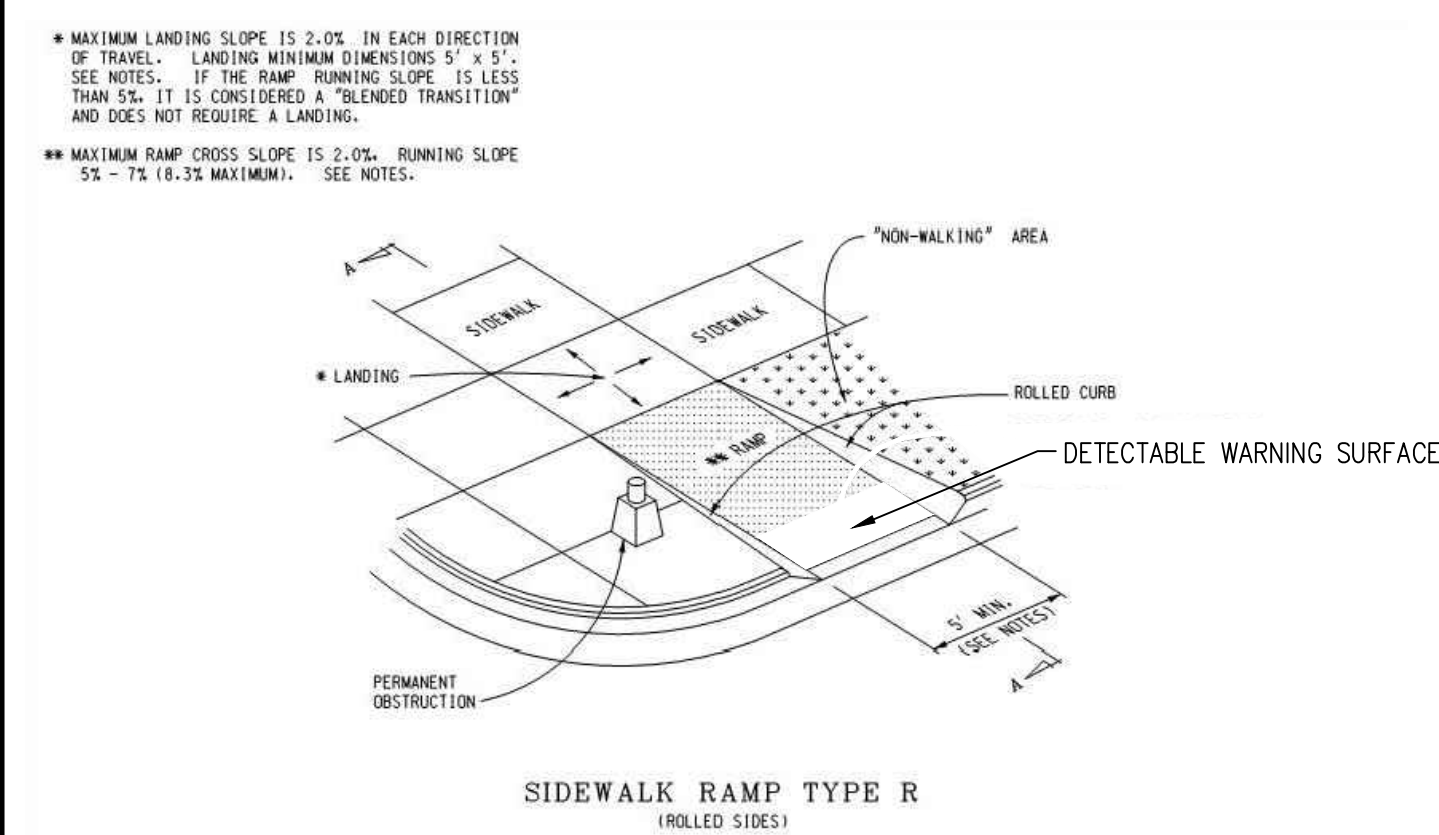
B CONCRETE PAVEMENT SECTION
** FOR USE IN DRIVEWAYS **
NOT TO SCALE



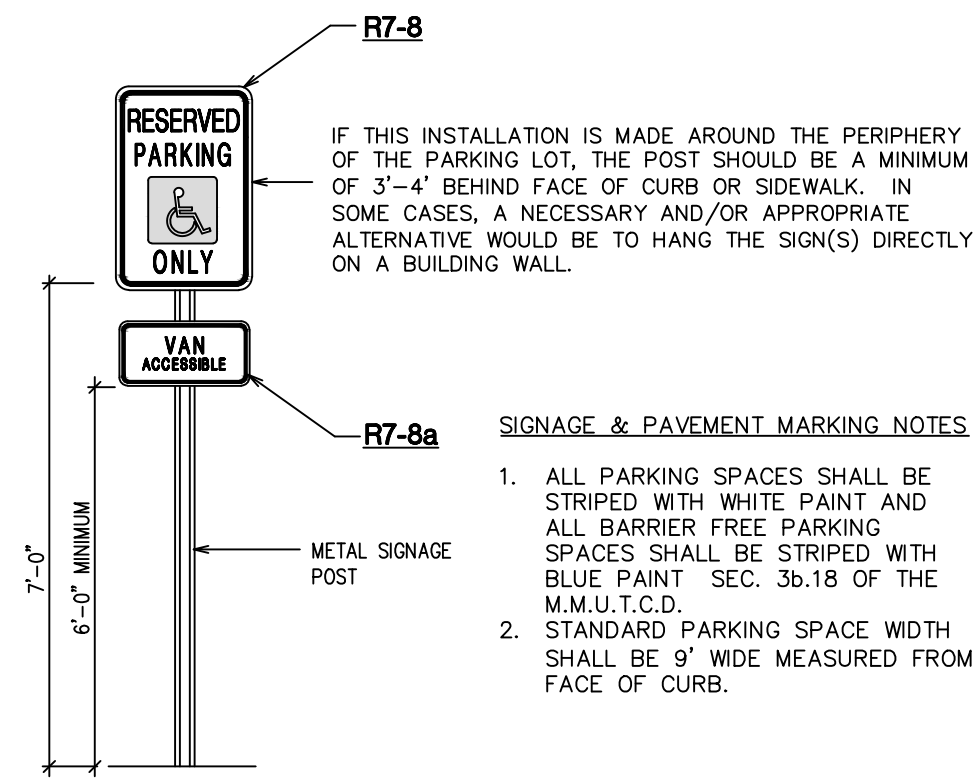
C CONCRETE SIDEWALK SECTION
** FOR USE IN SIDEWALK AREAS THAT DO NOT ABUT PAVEMENT **
NOT TO SCALE



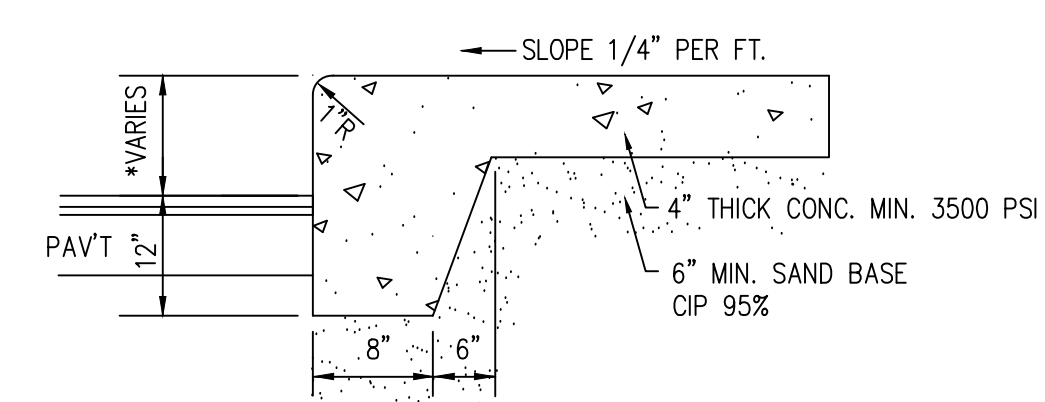
D1 SIDEWALK RAMP - MDOT TYPE P
NOT TO SCALE



D2 SIDEWALK RAMP - MDOT TYPE R
NOT TO SCALE

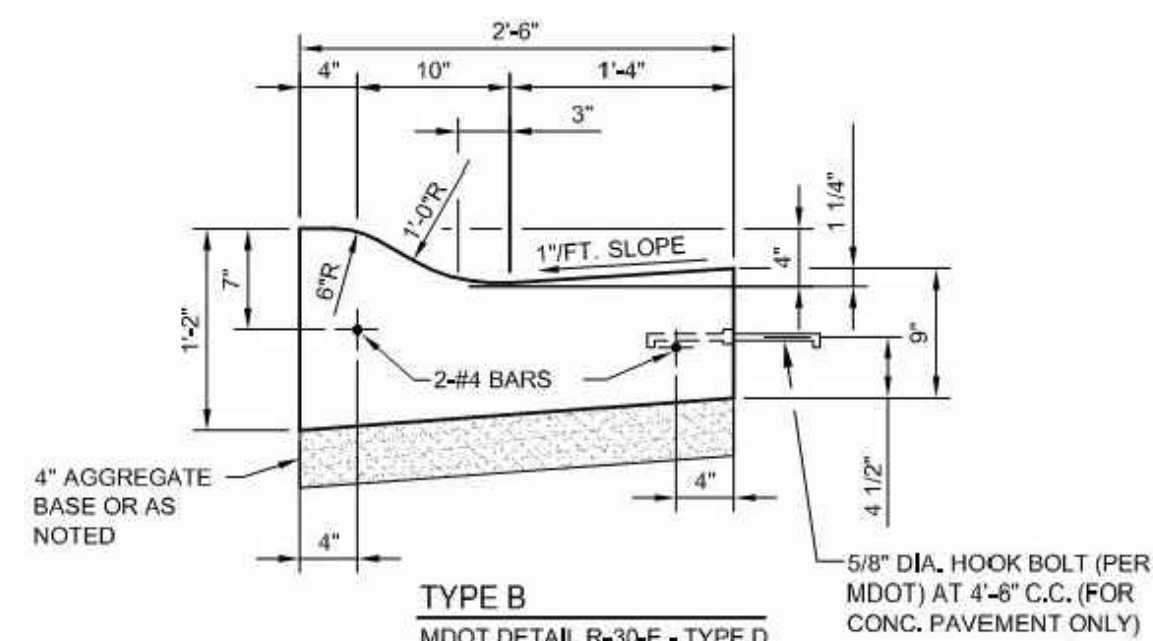


E BARRIER FREE SIGN
NOT TO SCALE

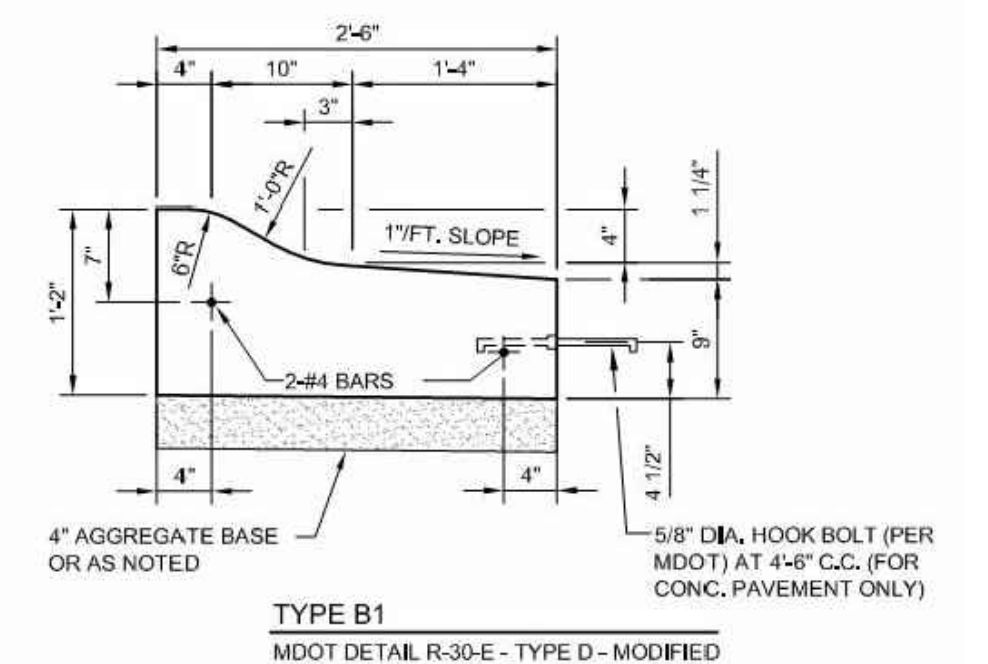


* NOTE: 0" IN AREAS WHERE T/P & T/W ARE FLUSH. ALL OTHER AREAS WALK IS 6" ABOVE ADJACENT PAVEMENT.

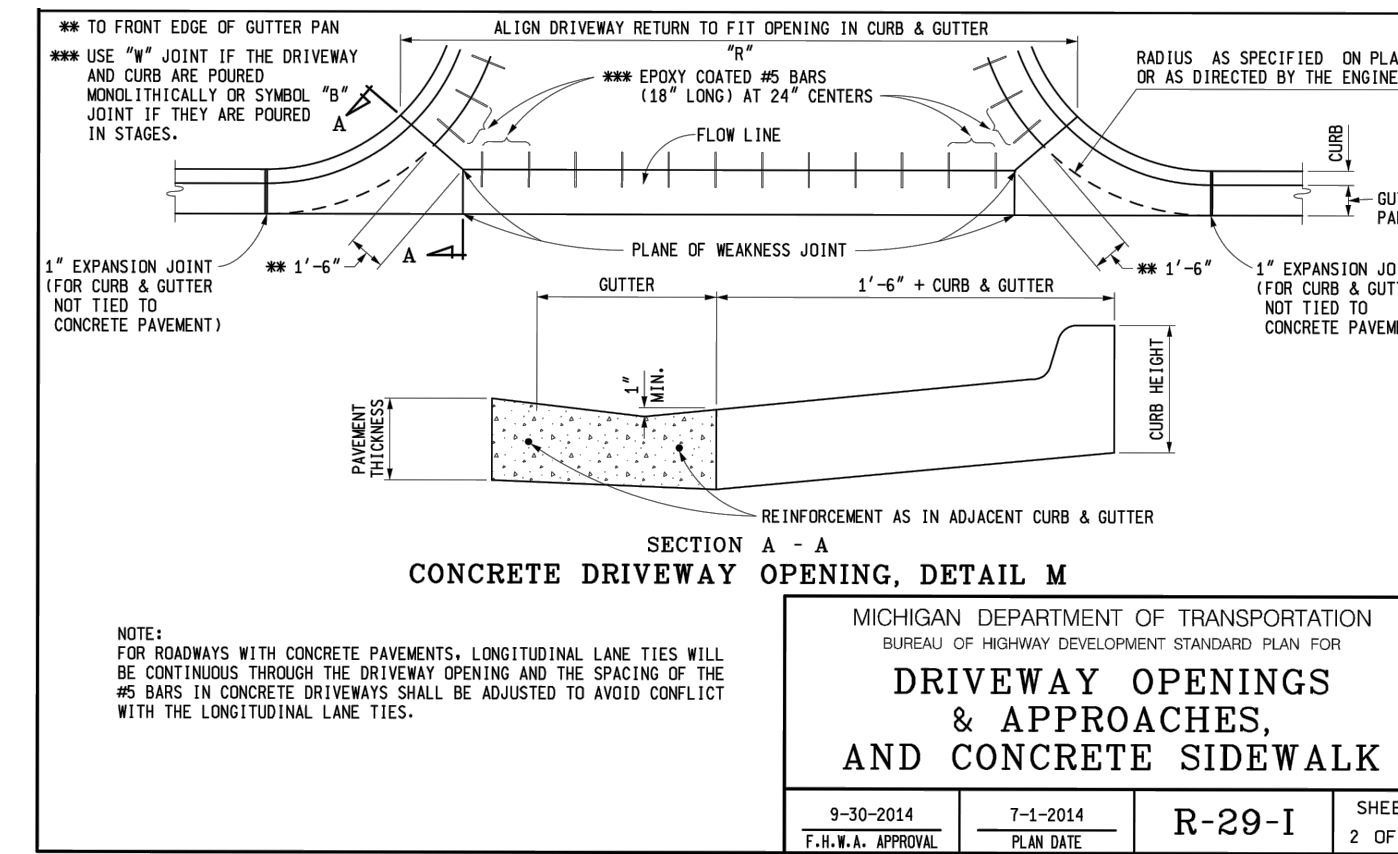
F CURB FACE WALK
NOT TO SCALE



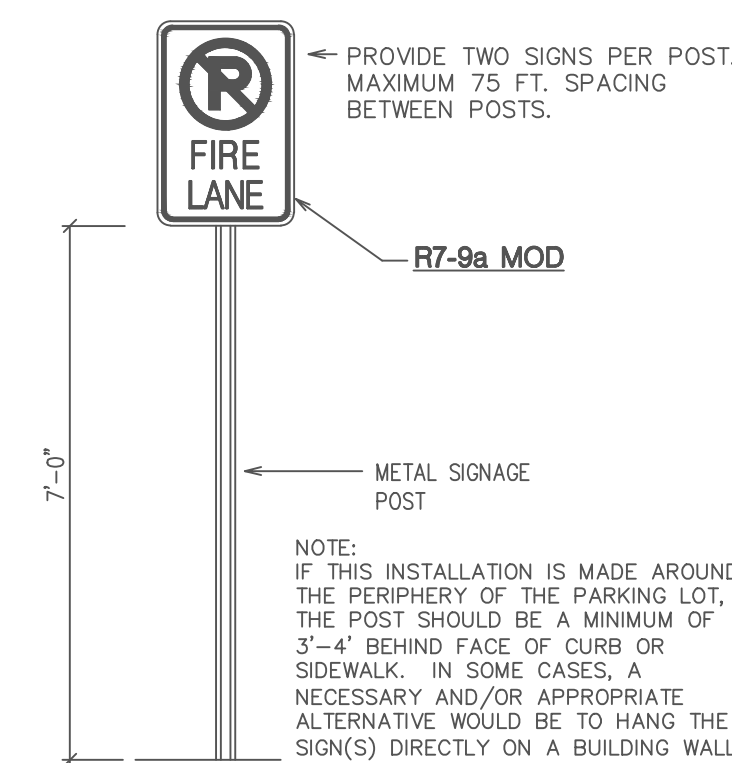
G CONCRETE CURB AND GUTTER



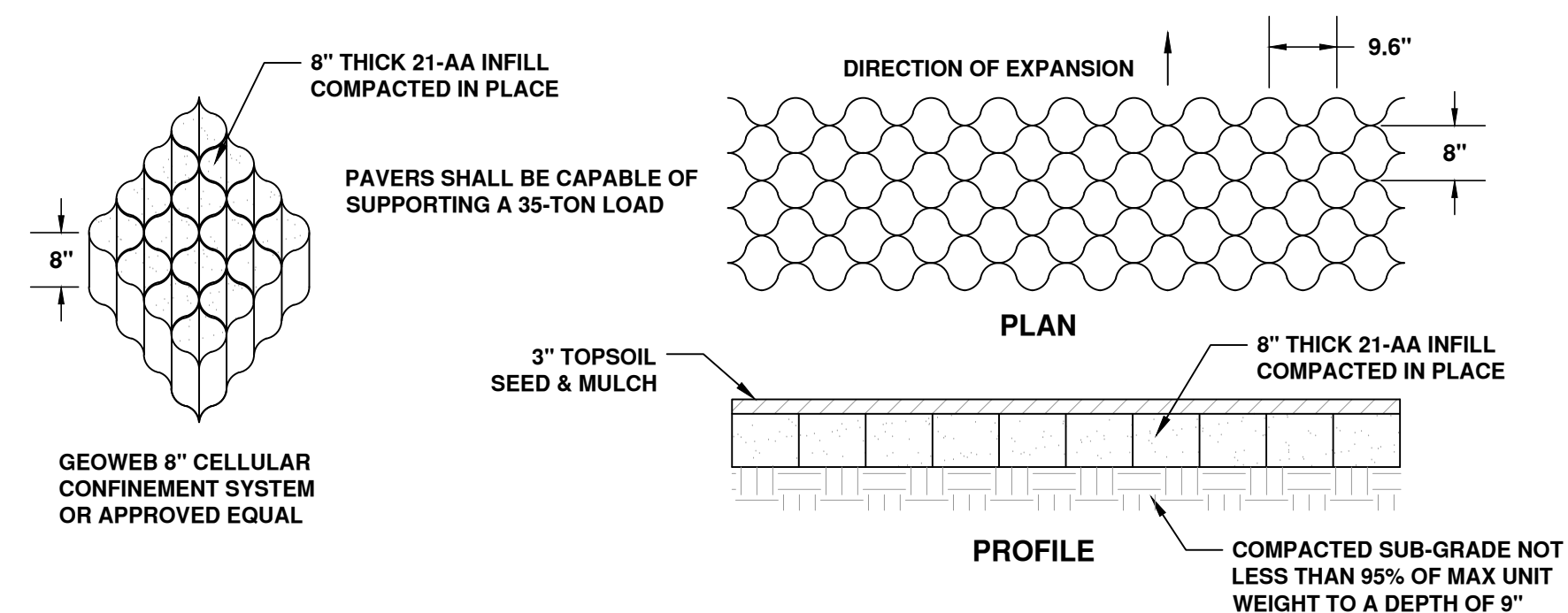
G CONCRETE CURB SPILLOUT



G* TYPE M CURB DETAIL
NOT TO SCALE

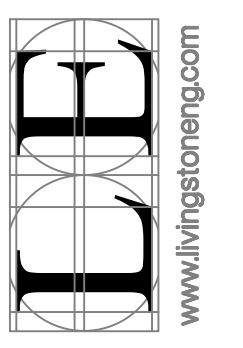


H FIRE LANE SIGN
N.T.S.



GRASS PAVERS FOR DETENTION BASIN MAINTENANCE ACCESS
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION (BUREAU OF HIGHWAY DEVELOPMENT) STANDARD PLAN FOR	
DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALK	
9-30-2014 F.H.W.S. APPROVAL	7-1-2014 PLAN DATE
R-29-I	SHEET 2 OF 4



DATE	
REVISIONS	
Drawn: T.Z./R.H.H.	Checked:
Scale:	Approved:
Vertical:	Date: 01/02/2020
Horizontal:	

FILE:C:\Users\User\Dropbox (Living)\Projects\2009\09176-2 SR Jacobson Stats SA\03 DWGS\Prim Site Plan\09176-2-C-7.D_Details.dwg