

FINAL PLANS FOR WOODLAND CROSSING

PART OF THE SOUTHWEST 1/4 OF SECTION 25, T.3N.,R.11E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

Developer

MJC WOODLAND CROSSINGS LLC
46600 Romeo Plank Rd., Suite 5
Macomb, MI 48044
Phone: (586) 263-1203

Project Engineering Consultant

LAND DEVELOPMENT CONSULTING SERVICES, INC.
46600 ROMEO PLANK, SUITE 2 PHONE: (586)868-2350
MACOMB, MI 48044 FAX: (586)868-2351



LOCATION MAP
CITY OF ROCHESTER HILLS,
OAKLAND COUNTY, MICHIGAN

PROPERTY DESCRIPTION: (PARCEL ID 70-15-25-352-017)

PART OF THE S.W. 1/4 OF SECTION 25, T.3N., R.11E., ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT DISTANCE EAST 990.00 FEET FROM THE S.W. SECTION CORNER OF SAID SECTION 25; THENCE N00°36'49"E 660.00 FEET; THENCE E. 143.93'; THENCE S00°36'49"W 660.00 FEET; THENCE WEST 143.93 FEET ALONG SOUTH SECTION LINE OF SAID SECTION 25 TO THE POINT OF BEGINNING. CONTAINING 2.18 AC. SUBJECT TO THE RIGHTS OF THE PUBLIC AND ANY GOVERNMENTAL UNIT IN ANY PART THEREOF TAKEN, USED OR DEEDED FOR STREET, ROAD OR HIGHWAY PURPOSES AND ANY OTHER EASEMENTS OF RECORDS.

PROPERTY DESCRIPTION: (PARCEL ID 70-15-25-352-018)

PART OF THE S.W. 1/4 OF SECTION 25, T.3N., R.11E., ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT DISTANCE EAST 1133.93 FEET FROM THE S.W. SECTION CORNER OF SAID SECTION 25; THENCE N00°36'49"E 660.00 FEET; THENCE E. 195.38'; THENCE S00°35'00"W 660.00 FEET; THENCE WEST 195.73 FEET ALONG SOUTH SECTION LINE OF SAID SECTION 25 TO THE POINT OF BEGINNING. CONTAINING 2.96 AC. SUBJECT TO THE RIGHTS OF THE PUBLIC AND ANY GOVERNMENTAL UNIT IN ANY PART THEREOF TAKEN, USED OR DEEDED FOR STREET, ROAD OR HIGHWAY PURPOSES AND ANY OTHER EASEMENTS OF RECORDS.

DATE	REMARKS
09-13-18	FINAL SITE PLAN APPROVAL

LIST OF DRAWINGS

Engineering:

- C1 Cover Sheet
- C2 Final Site Plan
- C3 Topographic Survey Plan
- C4 Grading And Drainage Area Plan
- C5 Utility Plan
- C6 E Auburn Road Profile And Sight Lines

Landscaping:

- LA-1.0 Tree Survey
- LA-1.1 Landscaping Plan
- LA-2.0 Specifications and Details
- S-1.0 Tree Survey Inventory
- IR-1 Irrigation Plan

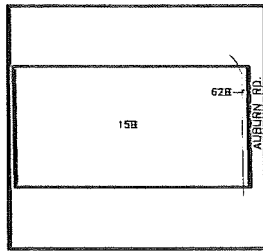


CITY FILE # 17-035

COVER SHEET	LDCS JOB#17-01
WOODLAND CROSSING	DRAWING NO.
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI	C1

BENCH MARK LIST

- BENCH MARK No. 1
ARROW ON HYDRANT, N. SIDE AUBURN RD. @ #1251, RHD# 2 BROOKLANDS
ELEV. 719.25
- BENCH MARK No. 2
SANITARY MH LOCATED 34' N. OF C/L AUBURN RD. AND 16' E. OF EAST PROPERTY LINE
ELEV. 715.66
- BENCH MARK No. 3
SET MAG NAIL N. FACE OF UTILITY POLE LOCATED N. SIDE AUBURN RD AND 117' E. OF WEST PROPERTY LINE
ELEV. 719.65
- BENCH MARK No. 4
ARROW ON HYDRANT, LOCATED @ SE CORNER OF AUBURN RD. AND ROBINWOOD RD.
ELEV. 718.48



SOILS MAP

SOIL DATA:

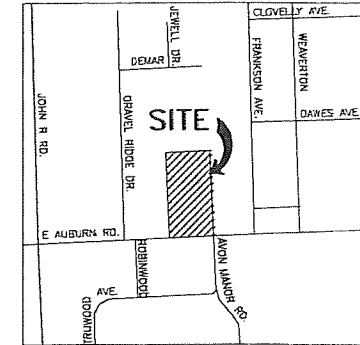
- 15B SPINKS LOAMY SANDS
0 TO 6 PERCENT SLOPES
- 62B URBAN-LAND SPINKS COMPLEX
0 TO 8 PERCENT SLOPES

FIRE DEPARTMENT NOTES :

- CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14.
- OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES.
- LARGEST DWELLING UNIT SIZE IN PROPOSED DEVELOPMENT WILL NOT EXCEED 3500 S.F.



**3 WORKING DAYS
BEFORE YOU DIG
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1-800-482-7171**

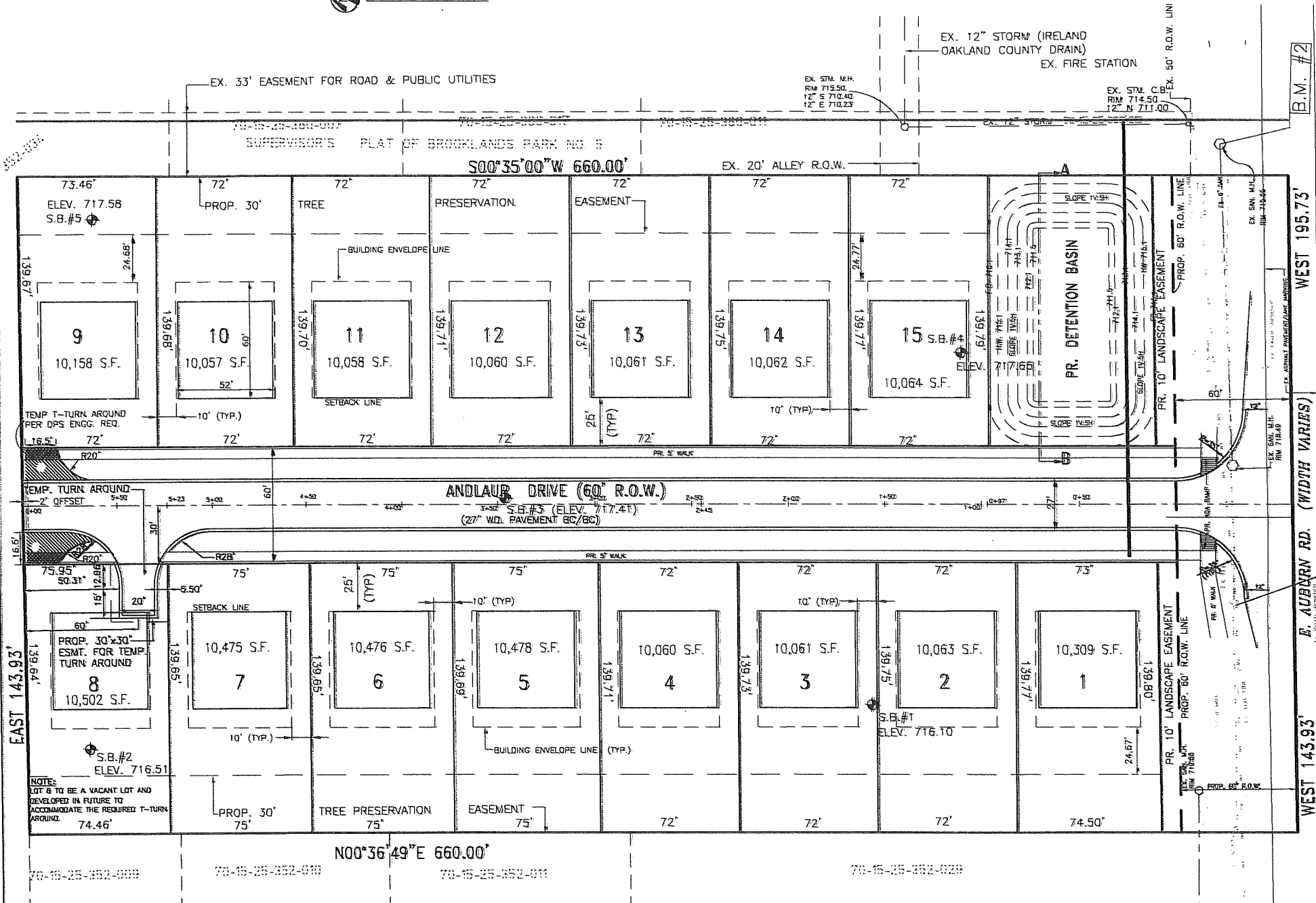


LOCATION MAP
CITY OF ROCHESTER HILLS
OKLAHOMA COUNTY, MICHIGAN

AVON MANOR RD.

SITE DATA:

SITE ZONING:	R-4
SITE AREA:	
GROSS SITE AREA	5.12 AC.
FUTURE R.O.W.	0.47 AC.
NET SITE AREA (EXCLUDING R.O.W.)	4.65 AC.
TREE PRESERVATION AREA	0.75 AC.
PROPOSED NUMBER OF UNITS	15
DENSITY: MAX. ALLOWED	3.44/AC. (3.22 UNITS/AC. PROPOSED)
SETBACKS:	
FRONT: 25'	
REAR: 35' (PROVIDED 54.68' ALONG EAST BOUNDARY LINE & 54.63' ALONG WEST BOUNDARY LINE INCLUDING 30' OF TREE PRESERVATION EASEMENT)	
SIDE: 10' MIN. (TOTAL 20')	
MIN. LOT AREA REQ'D (R-4) = 9600 S.F. (MIN. 10,057' PROPOSED)	
MIN. FLOOR AREA = 912 S.F.	
MAXIMUM STORIES = 2	
MAXIMUM HEIGHT = 25'	
MAXIMUM LOT COVERAGE = 30%	



NOTE:
LOT 6 TO BE A VACANT LOT AND DEVELOPED IN FUTURE TO ACCOMMODATE THE REQUIRED T-TURN AROUND.

GENERAL NOTES :

- THIS SITE IS IN ZONED AS R-4
- ALL UNITS WILL BE SERVED WITH PUBLIC SANITARY SEWER AND PUBLIC WATER.
- 8" WATERMAIN WILL BE PROVIDED BY CONNECTION TO THE EXISTING 12" WATERMAIN ALONG AUBURN ROAD.
- 8" SANITARY WILL BE PROVIDED BY CONNECTION TO THE EXISTING SANITARY SEWER ALONG AUBURN ROAD.
- STORM SEWER SYSTEM WILL BE PROVIDED PER CITY OF ROCHESTER HILLS ENGINEERING DEPARTMENT AND OKLAHOMA COUNTY WATER RESOURCES COMMISSION. ON SITE DETENTION BASIN WILL BE PROVIDED WITH PERMITTED RESTRICTED OUTLET.
- EASEMENT WILL BE PROVIDED TO SERVE ALL PUBLIC UTILITIES AS REQUIRED BY THE ENGINEERING PLANS AND UTILITY COMPANIES.
- SOIL EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE TAKEN PER OKLAHOMA COUNTY WATER RESOURCES COMMISSION REQUIREMENTS.
- PAVING WILL BE PROVIDED MEETING ALL THE CITY OF ROCHESTER HILLS REQUIREMENTS.
- ALL WORK WITHIN AUBURN ROAD R.O.W. WILL BE IN ACCORDANCE WITH M.D.O.T. STANDARDS.
- THIS PROJECT WILL ABIDE BY THE CITY OF ROCHESTER HILLS TREE PRESERVATION ORDINANCE.
- PROPOSED GRADES WILL MATCH EXISTING ELEVATIONS AT THE PROPERTY LINES UNLESS GRADING EASEMENTS ARE OBTAINED OR RETAINING WALLS PROVIDED.
- ALL HYDRANTS INCLUDING PROJECTIONS WILL BE A MINIMUM OF 5 FEET FROM THE BACK OF CURB AND 3 FEET FROM THE EDGE OF SIDE WALK.
- ANY EXISTING SEPTIC SYSTEM HOUSELEADS OR WELLS WILL BE ABANDONED IN ACCORDANCE WITH CITY AND '04'04' REQUIREMENTS.

**CITY OF ROCHESTER HILLS
HYDRANT FLOW TEST**

Date: 5-10-15 Time: 10:30 AM Test Performed By: JF + LR
Location: 1251 Auburn Fire #2 Calculations Performed By: JF

Number of Hydrants Flowing	1
Number of Curbless Open	1
Size of Curbless (inches)	3 3/4
Friction Loss Coefficient (K)	9
Static Pressure, P _s (psi)	83
Residual Pressure, P _r (psi)	77
Flow Pressure, P _f (psi)	38
Residual Flow, Q (GPM)	2578 / 1932 @ 200 ft. head
Flow Rate at 200 ft. Q ₂₀₀ (GPM)	8287 / 6877 @ 2.30 psi / 100' H.P. @ 200'
Supply Main Size (inches)	6" @ 1012' @ 100'
Supply Main Size (inches) hydrant	12"
Flow Rate at 200 ft. Q ₂₀₀ (GPM)	6 maintained by B.S. at 157m 291

CITY FILE # 17-035

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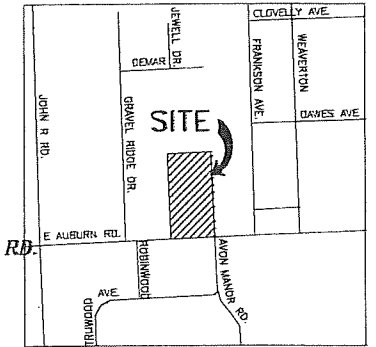
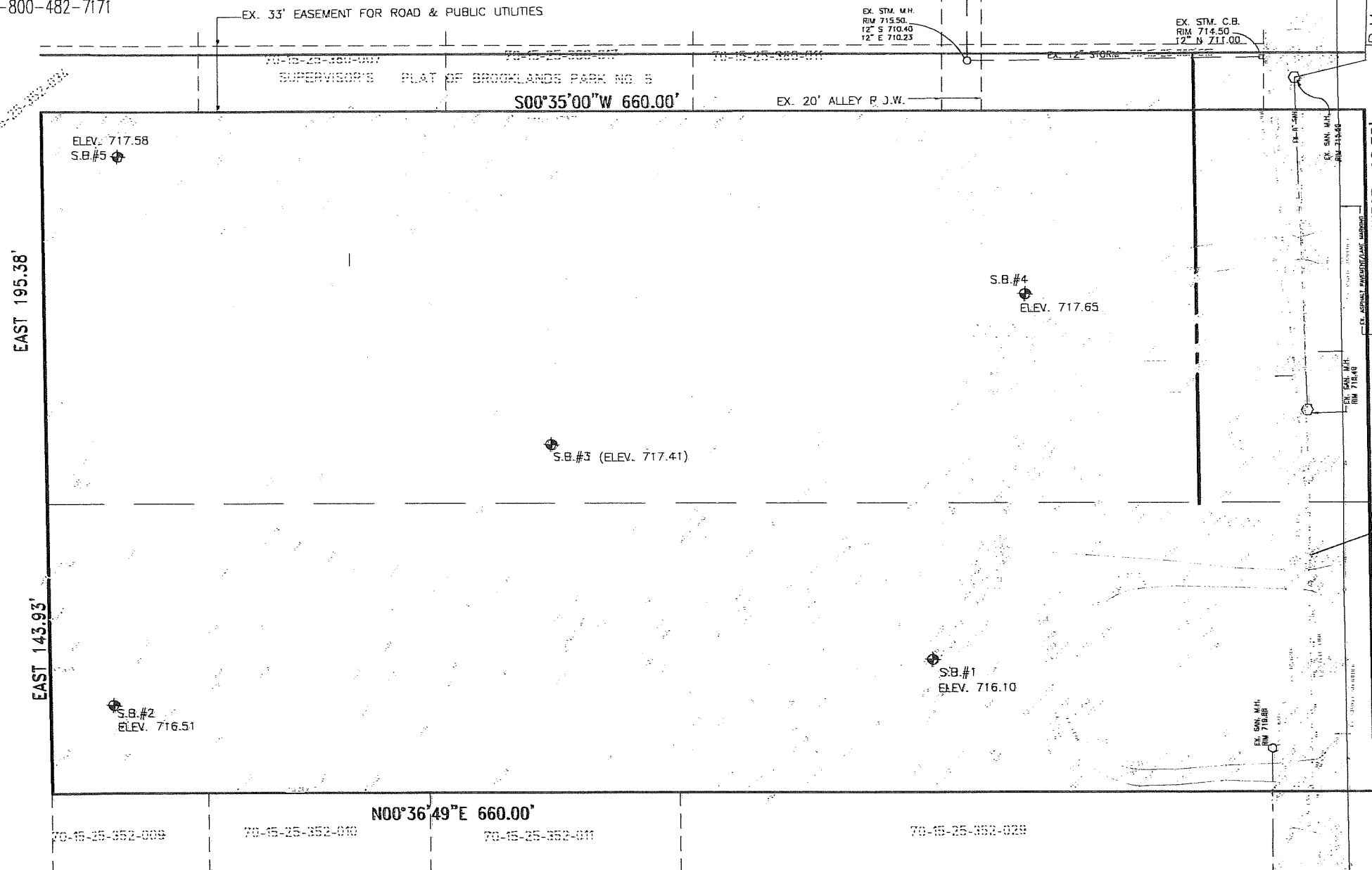
WOODLAND CROSSING
1171-1183 E AUBURN ROAD, ROCHESTER HILLS, MICHIGAN
PART OF THE SOUTHWEST 1/4 OF SEC. 25, T34N, R11E,
CITY OF ROCHESTER HILLS, OKLAHOMA COUNTY, MICHIGAN.

FINAL SITE PLAN
MDC WOODLAND CROSSING LLC (586)-761-1203
46600 ROMEO PLANK ROAD, SUITE 5 MACOMB, MI 48044

SCALE: 1" = 30'
DATE: 09-13-18
DRAWN BY: S.H.T.
LDCS # 15-SP-01
DRAWING NO. C2



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LOCATION MAP
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI
NOT TO SCALE

LEGEND- (EXISTING FEATURES)

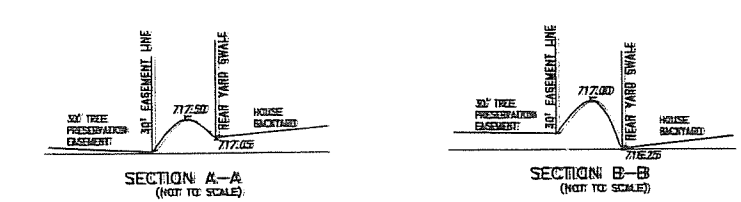
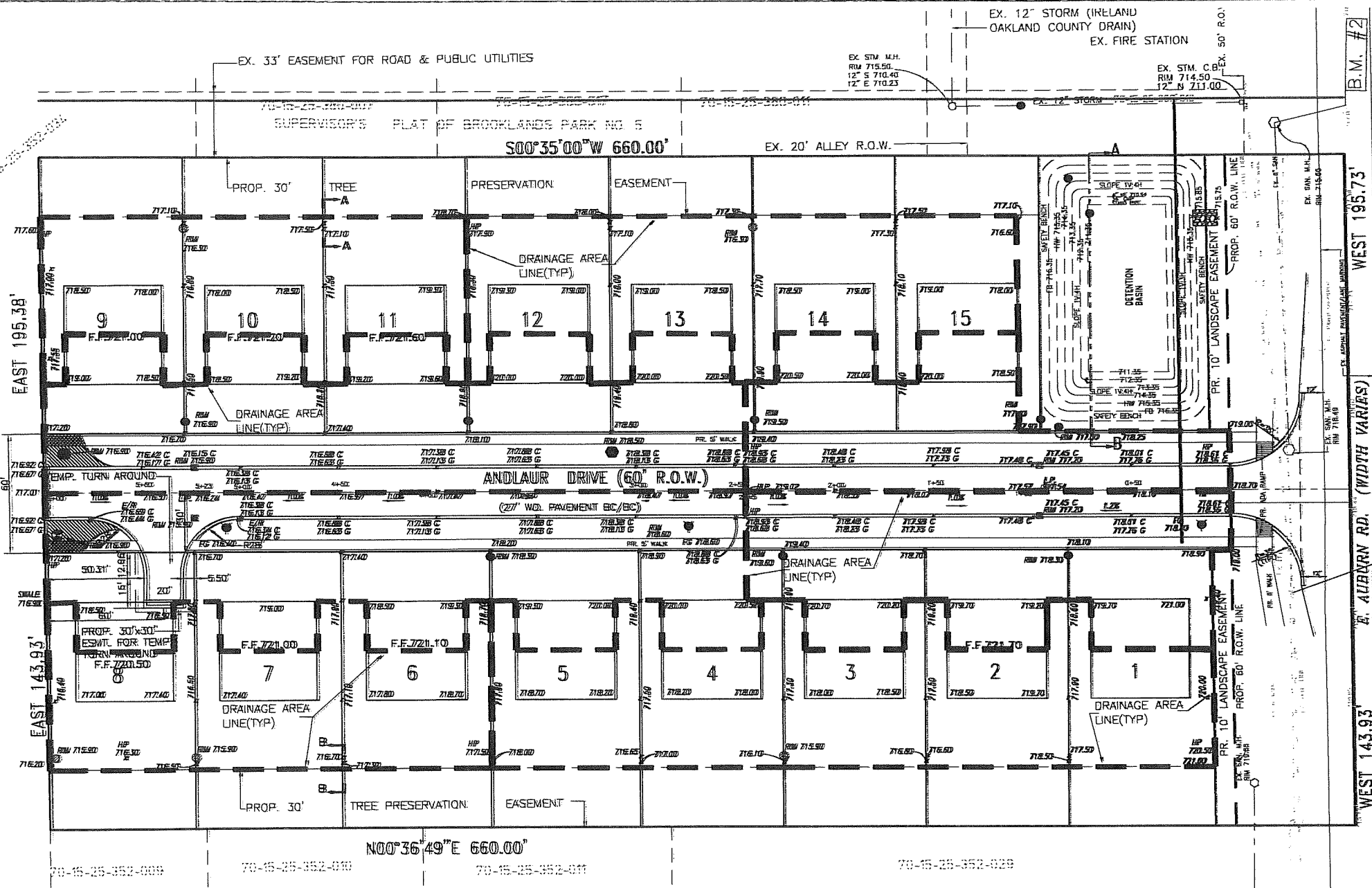
- GATE VALVE
- ⊕ HYDRANT
- SANITARY MANHOLE
- CATCH BASIN
- STORM SEWER CATCH BASIN OR MANHOLE
- UTILITY POLE
- SIGN
- ELEVATION
- WATERMAIN
- SANITARY SEWER
- STORM SEWER
- GAS PIPELINE
- OVERHEAD ELECTRIC

BENCH MARK LIST

- BENCH MARK No. 1
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#1251, RHFD #2 BROOKLANDS
ELEV. 719.25
- BENCH MARK No. 2
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AND 16' E. OF EAST PROPERTY LINE
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ARROW ON HYDRANT, LOCATED @ SE CORNER OF
AUBURN RD. AND ROBINWOOD RD.
ELEV. 718.48

CITY FILE # 17-035

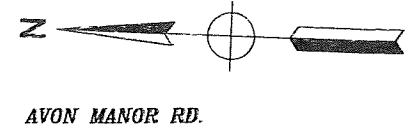
LAND DEVELOPMENT CONSULTING SERVICES, INC. 46600 ROME PLANK, SUITE 2 MACOMB, MI 48044		PHONE: (586)868-2350 FAX: (586)868-2351
WOODLAND CROSSING 1171-1183 E AUBURN ROAD, ROCHESTER HILLS, MICHIGAN PART OF THE SOUTHWEST 1/4 OF SEC. 25, T.1N., R.11E. CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN		SCALE: 1" = 30' DATE: 08-11-17 DRAWN BY: S.H.T.
TOPOGRAPHIC SURVEY PLAN		LDCS # 15-SF-01 DRAWING NO. C3
MLC WOODLAND CROSSING LLC 46600 ROME PLANK ROAD, SUITE 5 MACOMB, MI 48044		(586)-263-1203



- LEGEND**
- QV OR TSV
 - HYDRANT
 - SANITARY MANHOLE
 - ROAD CATCH BASIN
 - STORM SEWER CATCH BASIN OR MANHOLE
 - PROPOSED GRADE
 - - - - - DRAINAGE AREA LINE

BENCH MARK LIST

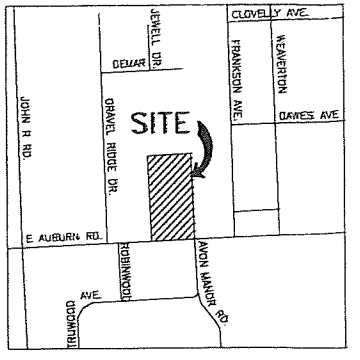
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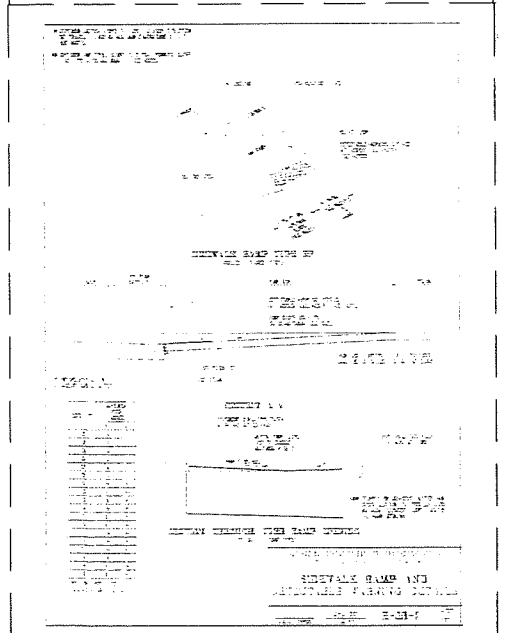
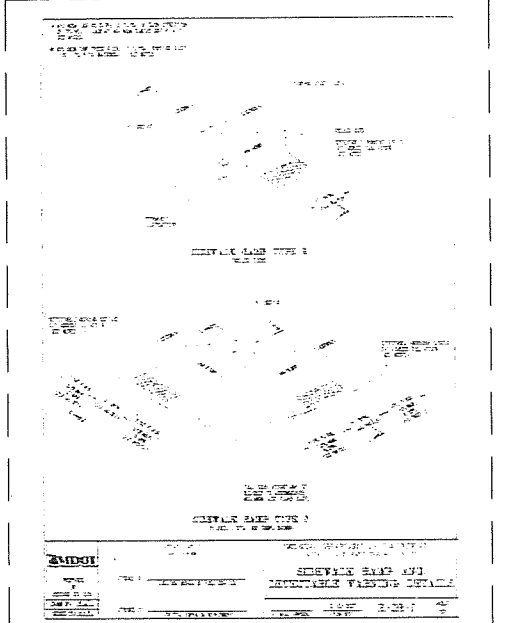
AVON MANOR RD.



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LOCATION MAP
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN



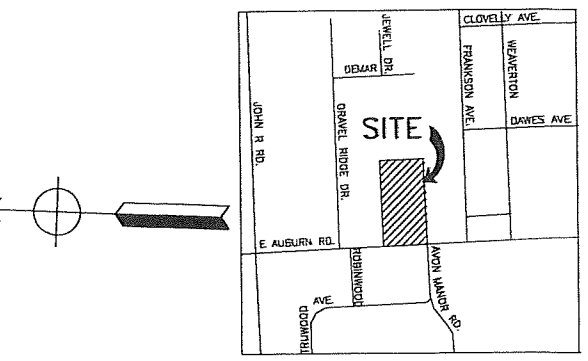
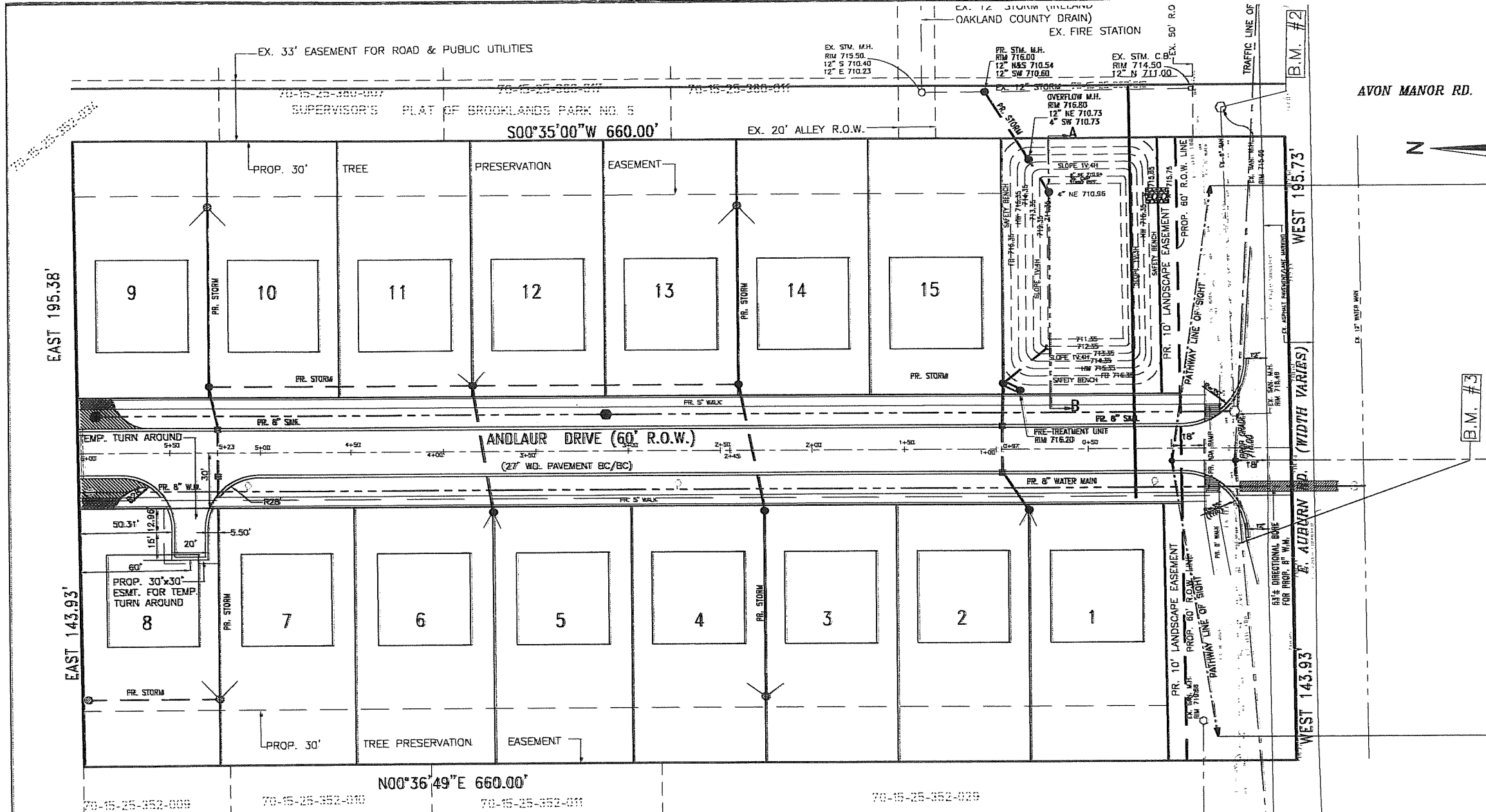
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WOODLAND CROSSING
1171-1183 E AUBURN ROAD, ROCHESTER HILLS, MICHIGAN
PART OF THE SOUTHWEST 1/4 OF SEC. 25, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

GRADING PLAN
M/C WOODLAND CROSSING LLC (586)-283-1203
46600 ROMEO PLANK ROAD, SUITE 5 MACOMB, MI 48044

SCALE 1" = 30'
DATE: 08-13-18
DRAWN BY: S.H.T.
LDCS # 15-SP-01
DRAWING NO. C4



LOCATION MAP
CITY OF ROCHESTER HILLS, MICHIGAN
3 WORKING DAYS BEFORE YOU DIG
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WATER QUALITY/ PRETREATMENT UNIT CAPACITY REQUIRED:

Worksheet - Graphical Peak Method
Project: Woodland Crossing by LDGS Date: 03-01-18
Location: Rochester Hills Checked: S.T. Date: 3/05/18

- Pertinent Data:
 Drainage Area 4.67 Acres = $A = 0.0073 \text{ mi}^2$
 Runoff Curve Number (Tables 2-3) RCN = 61 [Hy. Soil Grp: 'A' Lot size = 1/4 AC.]
 Time of Concentration $t_c = 0 \text{ M}^1 \cdot 1$ $T_c = 0.333 \text{ hr.}$
 Pond and Swamp Adjustment Area 0 percent
- Rainfall Frequency 2 year
- Rainfall P (24-hour) Appendix B 1.279 in (2.24)
- Initial Abstraction, Ia, Table 7.6 1.279 in
- Compute IaiP $1.279 / 2.24 = 0.571$ [use $q_p/P = 0.5 \text{ gph}$]
 $T_c = 0.333$
- Unit peak discharge, q_p , Figure 7.10 280 csm/in
- Runoff, Ro (L.I.D. Manual, table 8.1 Zone 10) 1 in (0.50) [Ro]
- Swamp Adjustment Factor, Fp (Table 7.5) 1 percent
- Peak discharge, q_p cfs
 (Where $q_p = q_u A R_o F_p$) = $280 \times 0.0073 \times 0.90 \times 1.0 = 1.84 \text{ CFS.}$

Figure 7.11-Graphical Peak Discharge Method Worksheet
(Source: Reference 45, TR-55 Second Edition June 1986)

INFILTRATION VOLUME:
 INFILTRATION VOLUME REQUIRED = $1815 \times A \times C$
 INFILTRATION VOLUME REQUIRED = $1815 \times 4.67 \times 0.41 = 3475 \text{ CFT}$
 INFILTRATION VOLUME PROVIDED =
 INFILTRATION RATE = INFILTRATION PERIOD * AREA * (1/12)
 INFILTRATION RATE = 0.52 INCH/HOUR
 INFILTRATION PERIOD = 6 HOURS
 AREA = TREE PRESERVATION AREA = $(503 + 580) \times 30 = 32490 \text{ SQ FT}$
 INFILTRATION VOLUME PROVIDED = $0.52 \times 6 \times 32490 / 12 = 8447 \text{ CFS}$
 (REF: CITY OF STURGIS, MI: STORM WATER DESIGN CRITERIA MANUAL PAGE: 70)
 VOLUME PROVIDED 8447 > VOLUME REQUIRED 3475 CFS; HENCE OK.

WEIGHTED "C" FACTOR CALCULATIONS

THE PROPOSED DEVELOPMENT HAS SPINKS SOILS WHICH HAS HYDROLOGIC SOIL GROUP 'A' SO 'C' WILL BE 0.15
 C' FOR PAVEMENT AND ROOF AREAS WILL BE 0.95
 TOTAL AREA = 4.67 ACRES
 IMPERVIOUS AREAS
 PAVEMENT = 17438 SQFT
 WALKWAY = 4800 SQFT
 DRIVEWAY = $15' \times 41' = 615 \text{ SQ FT}$
 ROOF AREA = $15' \times 2200' = 33000 \text{ SQ FT}$
 TOTAL IMPERVIOUS AREA = 65078 SQ FT = 1.49 AC
 TOTAL PERVIOUS AREA = 4.67 - 1.49 = 3.18 AC
 COMPOSITE 'C' = $(1.49 \times 0.95 + 3.18 \times 0.15) / 4.67 = 0.41$

LEGEND

- GV OR TVS
- HYDRANT
- SANITARY MANHOLE
- ROAD CATCH BASIN
- STORM SEWER CATCH BASIN OR MANHOLE
- WATERMAIN
- SANITARY SEWER
- STORM SEWER

BENCH MARK LIST

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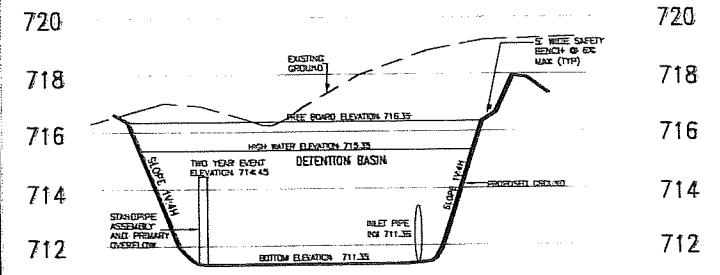
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ELEV. 718.48

DETENTION BASIN DESIGN

ELEVATION	AREA (A)	A1+A2	A1'A2	HT(H)	VOLUME	TOTAL VOLUME
711.35	3408					
712.35	4376	7784	14913408	1	3692	3692
713.35	5449	9825	23844824	1	4903	8795
714.35	6827	12076	36110523	1	6028	14813
715.35	7910	14537	52419570	1	7259	22072

DETENTION BASIN VOLUME PROVIDED = 22072 CFT



DETENTION BASIN CROSS SECTION A-B
 SCALE: HOR 1" = 20'; VER 1" = 2'
 A PRETREATMENT UNIT WILL BE PROVIDED FOR WATER QUALITY VOLUME FOR THIS PROJECT

SANITARY SEWER BASIS OF DESIGN:
 POPULATION = (3.5 PEOPLE / UNITS) = 3.5 x 15 UNITS = 52.5 PEOPLE
 PEOPLE AVERAGE FLOW = (52.5 PEOPLE x 100 GPCPD) = 5,250 GPD = 0.0079 CFS
 PEAK FLOW = 4 x 0.0079 = 0.0316 CFS
 CAPACITY OF A 8" PVC PIPE @ 0.40% = 0.77 CFS
 THEREFORE THE PROPOSED 8" SEWER SYSTEM WILL HAVE ADEQUATE CAPACITY.

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 SCALE: 1" = 30'
 DATE: 03-13-18
 DRAWN BY: S.H.T.
 LDGS # 15-SP-01
 DRAWING NO. C5

BENCH MARK LIST

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#1251, RHFD #2 BROOKLANDS
ELEV. 719.25

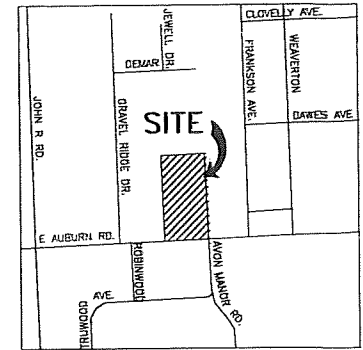
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AND 16' E. OF EAST PROPERTY LINE
ELEV. 715.68

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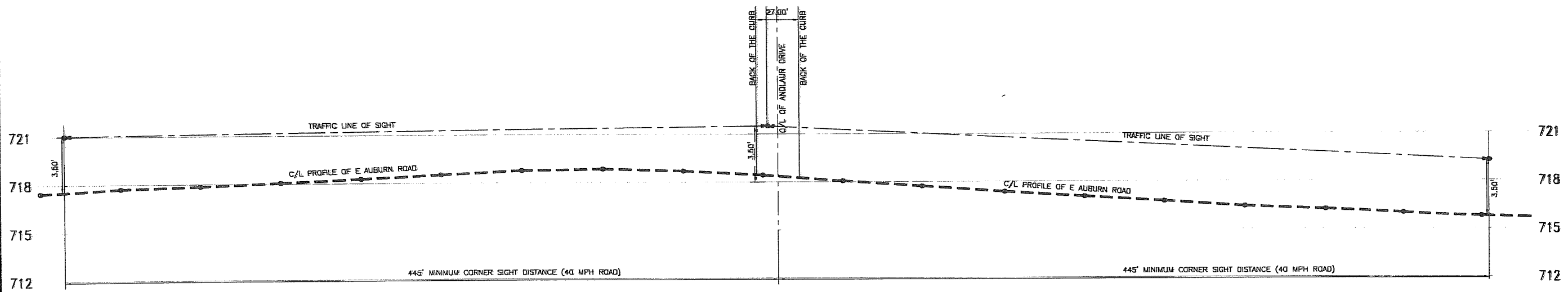
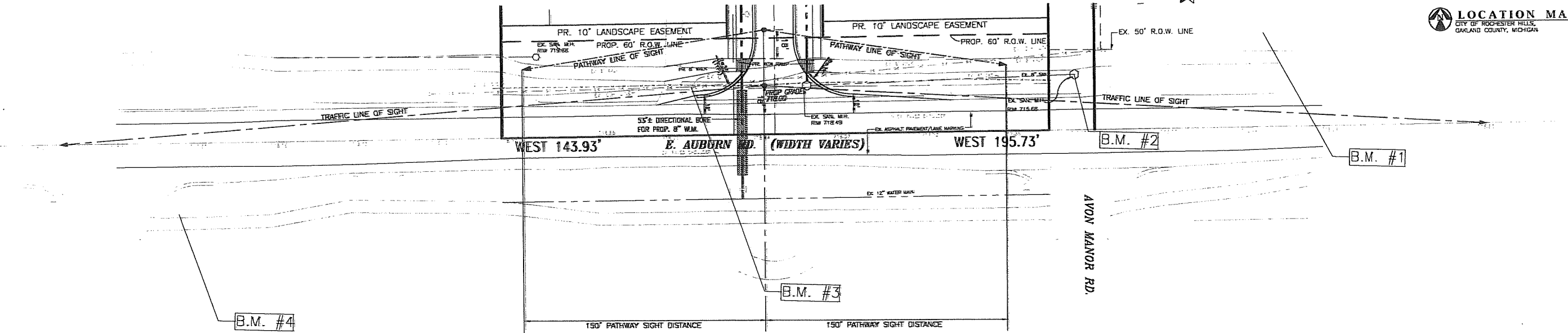
BENCH MARK No. 4
ARROW ON HYDRANT, LOCATED @ SE CORNER OF
AUBURN RD. AND ROBINWOOD RD
ELEV. 712.48



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LOCATION MAP
CITY OF ROCHESTER HILLS,
OAKLAND COUNTY, MICHIGAN



CITY FILE # 17-035






LAND DEVELOPMENT CONSULTING SERVICES, INC.	
46600 ROMED PLANK, SUITE 2 MACOMB, MI 48044	PHONE: (586)868-2350 FAX: (586)868-2351
WOODLAND CROSSING	
1171-1183 E AUBURN ROAD, ROCHESTER HILLS, MICHIGAN	SCALE: 1" = 30'
PART OF THE SOUTHWEST 1/4 OF SEC. 25, T.3N., R.11E. CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN	DATE: 09-13-18
E AUBURN ROAD PROFILE AND SIGHT LINES	DRAWN BY: S.H.T.
MAC WOODLAND CROSSING LLC 46600 ROMED PLANK ROAD, SUITE 5 MACOMB, MI 48044	(586)-263-1203 DRAWING NO. CG
	LDCS # 15-SP-01



NÚÑEZ DESIGN



TREE SURVEY LEGEND

-  **REGULATED TREES**
-  **PRESERVED REGULATED TREES**
-  **REMOVED - REGULATED & REPLACED**
-  **EXEMPT + REMOVED - HEALTH CONDITION**
-  **EXEMPT + REMOVED - BUILDING PAD:**

TREE PROTECTION FENCING

TREE ANALYSIS:

TOTAL # OF TAGGED TREES*	= 439
# OFF SITE TAGGED TREES (PRESERVED)	= 5
# POOR/VERY POOR /DEAD TREES (NON-REGULATED)	= 162
# TREES IN BUILDING PAD (NON-REGULATED)	= 57
# OF REGULATED TREES	= 216
TOTAL # OF TREES TO BE REMOVED	= 134
TOTAL # OF TREES TO BE PRESERVED	= 81
TOTAL % TREES PRESERVED	= 37.5%
TOTAL # OF REPLACEMENT CREDITS REQUIRED.	= 134
TOTAL # OF REPLACEMENT CREDITS PROVIDED	= 136

REFER TO SHEET LA 1.1 FOR THE BREAKDOWN OF PLANT SIZES AND REPLACEMENT CREDITS

TREE REPLACEMENT CREDITS

Tree Type and Size	Replacement Credits
2" Caliper Shade Tree	1 Credit (MINIMUM)
2.5" Caliper Shade Tree	1.5 Credits
3" Caliper Shade Tree	2 Credits
6" Evergreen Trees	1 Credit (MINIMUM)
9" Evergreen Trees	1.5 Credits
10" Evergreen Trees	2 Credits

SITE GRADING NOTES:

- SITES SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST 10' (RAD1.3).
- WHEREVER POSSIBLE, SWALES SHALL BE PROVIDED ALONG LOT LINES WITH 1% MINIMUM SLOPE TO CONVEY RUNOFF TO CONVEY RUNOFF TO A STORM SEWER OR OTHER APPROVED COLLECTION POINTS.
- DRIVEWAY SLOPES SHALL MEET THE FOLLOWING REQUIREMENTS:
 - APPROACH AND DRIVEWAY: 2% MINIMUM, - 10% MAXIMUM.
 - SIDEWALK CROSS-SLOPE (INCLUDING DRIVEWAY APPROACH): 1% MINIMUM, 2% MAXIMUM.
 - SIDE-ENTRY GARAGE: 2% MINIMUM, 4% MAXIMUM.
 - NEGATIVE SLOPE DRIVEWAY: 2% MINIMUM, 7% MAXIMUM.

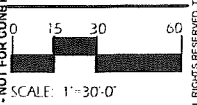
MJC COMPANIES

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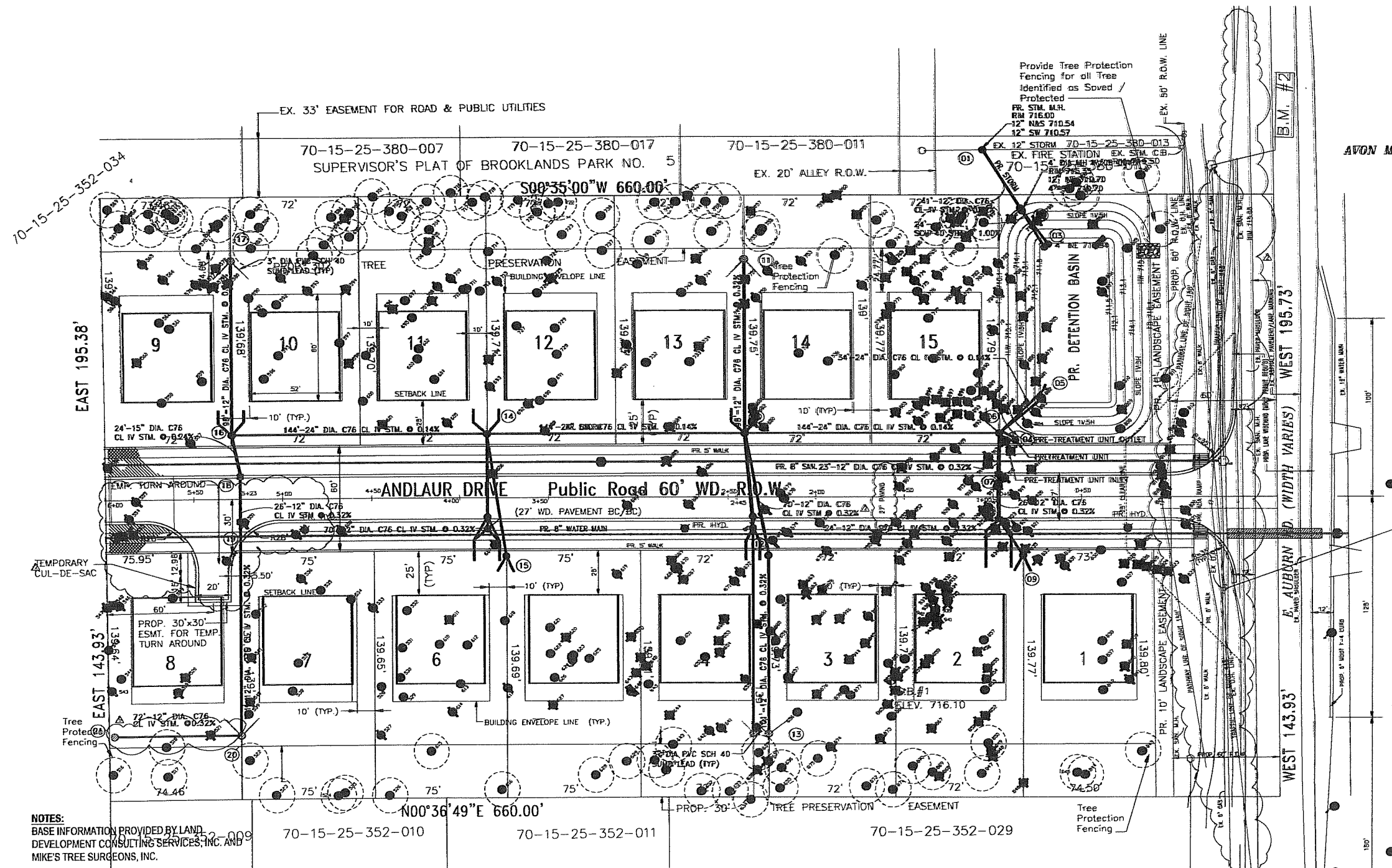
Date	Revision
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2-1-2018	Submittal to PC
1-8-2018	Submittal to PC
1-2-2018	REV. 874 Plan
12-20-2017	REV. Per City Review
11-21-2017	REVISIONS TO INC
11-17-2017	REV. Per City Review
09-18-2017	REVISIONS
09-01-2017	PRELIM SUBMITTAL
05-16-2017	CLIENT REVIEW
03-22-2017	CLIENT REVIEW
Date	06/08/2017

NÚÑEZ DESIGN
LANDSCAPE ARCHITECTURE & DESIGN
249 Park Street
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P. 248 224 5933
nunezdesigninc@gmail.com

Designed / Drawn: RLN/JRC
Checked / Approved: RLN
Job # N02-06



CITY FILE #17-035
SHEET



NOTES:
BASE INFORMATION PROVIDED BY LAND DEVELOPMENT CONSULTING SERVICES, INC. AND MIKE'S TREE SURGEONS, INC.

PROJECT FILE: N006-02 Auburn 12-2010 Woodland.dwg
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PLANTING NOTES

1. ALL LANDSCAPED AREAS TO BE WATERED BY AUTOMATIC WATERING SYSTEM.
2. IRRIGATION PLAN MUST BE SUBMITTED PRIOR TO STAFF APPROVAL OF THE FINAL SITE PLAN. WATERING WILL ONLY OCCUR BETWEEN THE HOURS OF 12AM AND 5AM.
3. LANDSCAPE COST ESTIMATE HAS BEEN PROVIDED.
4. ALL PLANT MATERIAL INSTALLED IN THE LANDSCAPED AREAS WITHIN THE IDENTIFIED CLEAR ZONES, WILL NOT EXCEED AN UNMAINTAINABLE, MATURE HEIGHT OF 24 INCHES.
5. SHADE TREES AND SHRUBS MUST BE PLANTED AT LEAST 5' FROM THE EDGE OF THE PUBLIC WALKWAY. EVERGREEN AND ORNAMENTAL TREES MUST BE PLANTED AT LEAST 10' FROM ANY FIRE HYDRANT. SHADE AND EVERGREEN TREES MUST BE PLANTED AT LEAST 15' FROM THE NEAREST OVERHEAD WIRE AND AT LEAST 5' FROM THE NEAREST UNDERGROUND UTILITY.
6. REFER TO LA 2.0 FOR PLANTING DETAILS.
7. LOW QUALITY TREES WILL BE REMOVED FOR SITE GRADING.
8. ALL TREES TO BE REPLACED BY HIGH QUALITY TREES THAT PROVIDE DENSITY AND DIVERSITY.

TREE REPLACEMENT CREDITS

Tree Type and Size	Replacement Credits
2" Coliper Shade Tree	1 Credit (MINIMUM)
2.5" Coliper Shade Tree	1.5 Credits
3" Coliper Shade Tree	2 Credits
8' Evergreen Trees	1 Credit (MINIMUM)
9' Evergreen Trees	1.5 Credits
10' Evergreen Trees	2 Credits

PLANT MATERIAL LIST

QTY	KEY	SPECIES	COMMON NAME	SPECIFICATION
5	BN	Betula nigra	River Birch	3" cal. B&B
3	QB	Quercus bicolor	Swamp Oak	3" cal. B&B
4	AJ	Acer x Freemanii 'Jeffersred'	Aulumn Blaze Maple	3" cal. B&B
10	OR	Quercus rubra	Red Oak	3" cal. B&B
10	LT	Liriodendron tulipifera	Tulip Tree	3" cal. B&B
9	AR	Acer rubrum 'Franksred'	Frank's Red Maple	3" cal. B&B
7	TG	Tilia cordata	Greenspire Linden	3" cal. B&B
4	MP	Malus 'Prairifire'	Prairifire Flowering Crab	2" cal. B&B
3	MS	Malus 'Snowdrift'	Snowdrift Flowering Crabapple	2" cal. B&B
12	PG	Picea glauca	White Spruce	10' ht. B&B
12	PE	Pinus strobus	Eastern White Pine	10' ht. B&B
9	PT	Pseudotsuga menziesii	Douglas Fir	10' ht. B&B
8	HG	Hydrangea m. 'Glowing Embers'	Glowing Embers Hydrangea	30" ht. # 5 Cont.
8	PD	Potentilla fruticosa 'Gold Drop'	Gold Drop Potentilla	30" ht. # 5 Cont.
22	RM	Rosa 'Radtko'	Double Knock Out Rose X	30" ht. # 5 Cont.
106	HM	Hemerocallis 'Black Eyed Stella'	Black Eyed Stella Daylily	1' ht. 1" O.C.
57	NF	Nepela x Faassenii 'Walker's Low'	'Walker's Low' Nepeta	1' ht. 1" O.C.
± 50 CY		Plant Mix		
± 60 CY		Mulch		
± 2,600		Sod or Seed X		

PROBABLE COST

QTY	UNIT COST	TOTAL
5	335.00	1,675.00
3	365.00	1,095.00
4	335.00	1,340.00
10	365.00	3,650.00
10	320.00	3,200.00
9	335.00	3,015.00
7	335.00	2,345.00
4	265.00	1,060.00
3	265.00	795.00
15	315.00	4,725.00
14	315.00	4,410.00
11	335.00	3,685.00
8	50.00	400.00
8	50.00	400.00
22	26.00	572.00
106	12.00	1,272.00
57	12.00	684.00
± 50	28.00	1,400.00
± 60	55.00	3,300.00
± 2,600	3.15	8,190.00
TOTAL		\$47,213.00

TREE REPLACEMENT CREDITS

QTY	SIZE	CREDIT	TOTAL
Deciduous Trees			
(4)	3" cal. Trees @ 2 Credits =	8	
(10)	3" cal. Trees @ 2 Credits =	20	
(10)	3" cal. Trees @ 2 Credits =	20	
(9)	3" cal. Trees @ 2 Credits =	18	
(6)	3" cal. Trees @ 2 Credits =	12	
Evergreen Trees			
(11)	10' ht. Trees @ 2 Credits =	22	
(10)	10' ht. Trees @ 2 Credits =	20	
(9)	10' ht. Trees @ 2 Credits =	18	
Replacement Tree Credits Required = 134			
Replacement Tree Credits Provided = 136			

STREET TREES: (Interior Street)
Min. 1 Deciduous Tree per Lot = 15 Deciduous Trees

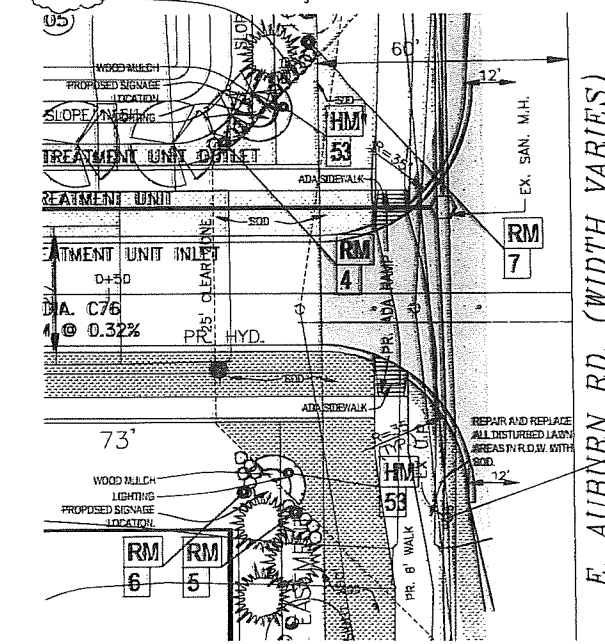
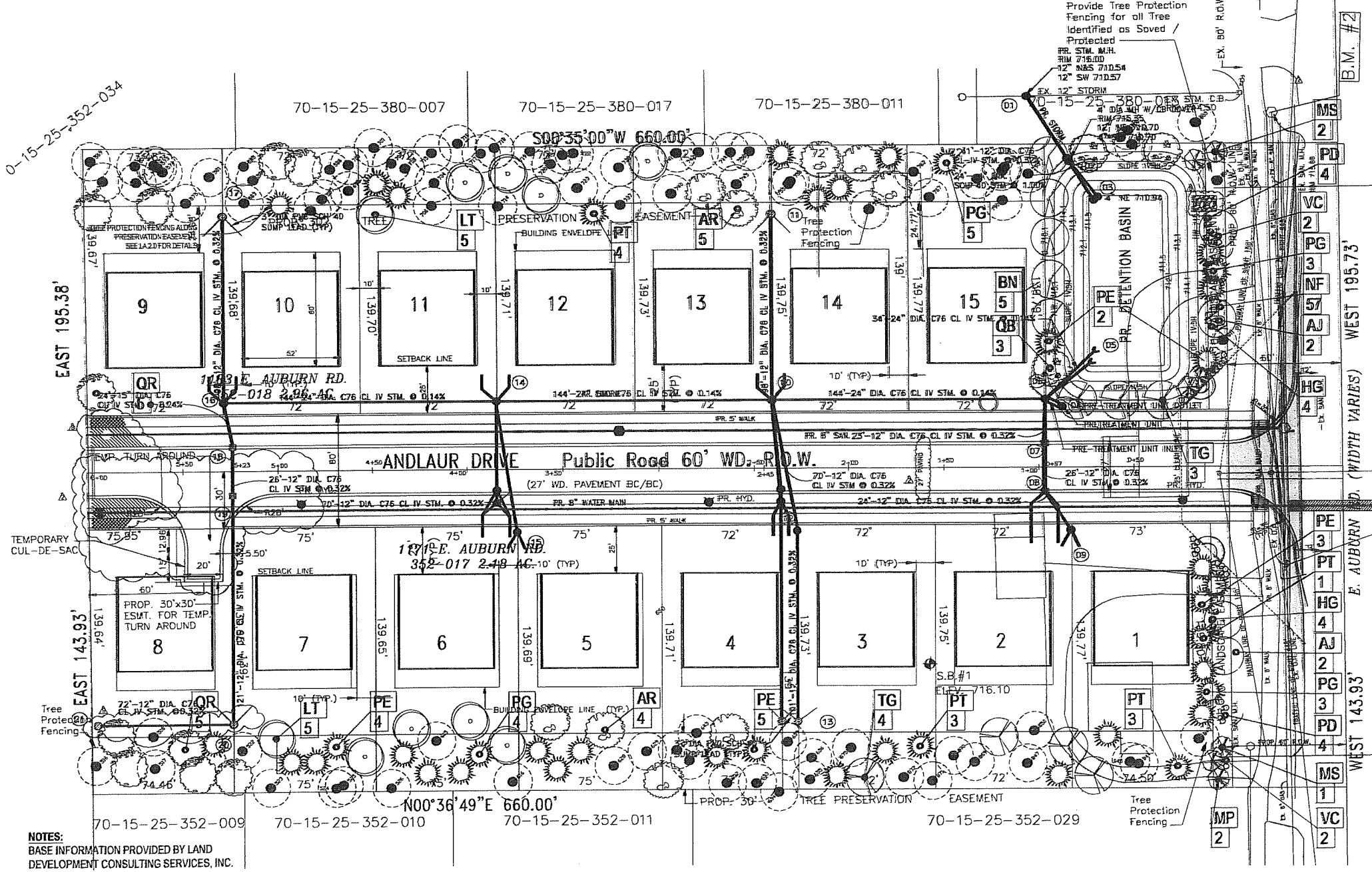
THE CITY SHALL PLANT STREET TREES IN THE ROW AFTER CONSTRUCTION OF THE PROJECT IS COMPLETED. THE APPLICANT SHALL PAY \$200 PER LOT TO ACCOUNT FOR THIS PLANTING. AMOUNT = \$3,000.00

CITY OF ROCHESTER HILLS MAINTENANCE NOTES 138-12-109

1. LANDSCAPING SHALL BE KEPT IN A NEAT, ORDERLY AND HEALTHY GROWING CONDITION, FREE FROM DEBRIS AND REFUSE.
2. PRUNING SHALL BE MINIMAL AT TIME OF INSTALLATION, ONLY TO REMOVE DEAD OR DISEASED BRANCHES. SUBSEQUENT PRUNING SHALL ASSURE PROPER MATURATION OF PLANTS TO ACHIEVE THEIR APPROVED PURPOSE.
3. ALL DEAD, DAMAGED OR DISEASED PLANT MATERIAL SHALL BE REMOVED IMMEDIATELY AND REPLACED WITHIN (6) SIX MONTHS AFTER IT DIES OR IN THE NEXT PLANTING SEASON, WHICH EVER COMES FIRST. THE PLANTING SEASON FOR DECIDUOUS PLANTS SHALL BE BETWEEN MARCH 1 AND JUNE 1 AND FROM OCT. 1 UNTIL THE PREPARED SOIL FREEZES. THE PLANTING SEASON FOR EVERGREEN PLANTS SHALL BE BETWEEN MARCH 1 AND JUNE 1. PLANT MATERIAL INSTALLED TO REPLACE DEAD OR DISEASED MATERIAL SHALL BE AS CLOSE AS PRACTICAL TO THE SIZE OF THE MATERIAL IT IS INTENDED TO REPLACE. THE CITY MAY NOTIFY PROPERTY OWNERS OF THE NEED TO REPLACE DEAD, DAMAGED, OR DISEASED MATERIAL.

Requirement	Required	Provided
Right of Way Landscape Requirements (E. Auburn: 340 FT.)		
1 Deciduous Tree per 35 FT. or Evergreen Tree per 35 FT.	= 10 (3" cal. Deciduous Trees)	4
Preserved Existing Trees		4
1 Ornamental Tree per 60 FT.	= 6 (2" cal. Ornamental Trees)	2
Stormwater Landscape Requirements (Perimeter: 579 FT.)		
1.5 Deciduous Tree per 100 FT.	= 6 (3" cal. Deciduous Trees)	6
1 Evergreen Tree per 100 FT.	= 4 (10' ht. Evergreen Trees)	4
4 Shrubs per 100 FT.	= 16 (30" ht. Shrubs)	21

CLEARZONE AREA:
ALL PLANT MATERIAL INSTALLED IN THE LANDSCAPED AREAS WITHIN THE IDENTIFIED CLEAR ZONES WILL NOT EXCEED AN UNMAINTAINED MATURE HEIGHT OF 24 INCHES



Entrance Planting Detail
SCALE: 1" = 20'-0"

NOTES:

1. AN IRRIGATION PLAN MUST BE PROVIDED TO THE PLANNING STAFF PRIOR TO APPROVAL OF THE FINAL SITE PLAN. IRRIGATION SYSTEM MUST SPECIFY THAT WATERING WILL ONLY OCCUR BETWEEN THE HOURS OF 12:00AM AND 5AM.
2. IRRIGATION OVERSPRAY SHALL NOT BROADCAST ONTO THE CITY PATHWAY
3. ALL SIGNS MUST MEET THE REQUIREMENTS OF THE CITY AND BE APPROVED UNDER SEPARATE PERMITS ISSUED BY THE BUILDING DEPARTMENT.
4. PROJECT SIGNAGE & FINAL DETAILS TO BE PROVIDED BY OTHERS.



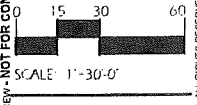
WOODLAND CROSSING
1171-1183 E. Auburn Rd.
Rochester Hills, MI

MJC COMPANIES
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Mazumh MI, 48044
586-263-1203
montalban@mjccompanies.com

Date	Revision
9-13-2018	Final Approval
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11-17-2017	REV. Per City Review
11-7-2017	REV. Per City Review
09-21-2017	REV. PER CITY REVIEW
08-16-2017	PRELIM SUBMITTAL
03-23-2017	CLIENT REVIEW
Date:	06/01/2017

NUNEZ DESIGN
LANDSCAPE ARCHITECTURE & URBAN DESIGN
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nunezdesigninc@gmail.com

Designed / Drawn: RLN / BC
Checked / Approved: RLN
Job # N02-06



811
Call before you dig.
CITY FILE: #17-035
SHEET
LA-1.1

PROJECT FILE: N02-06_Auburn_1-2-2018 Woodland Cross

Tree Inventory
1177 & 1181 Auburn Rd - 5 Acres Site
1177 & 1181 Auburn Rd, 5 Acres Site
City of Rochester Hills, Michigan
January 20, 2018

By Mike's Tree Services, Inc.
John P. Adams
Registration No. 1100000000
ID # 2001045928

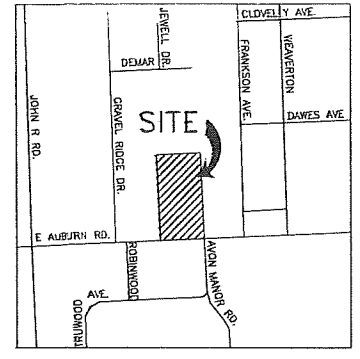
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Table with 10 columns: Tree Tag #, DBH in inches, Species Name (Common - Scientific), Health Condition, Crown Spread, Status. Lists trees 2018 through 2027.

Table with 10 columns: Tree Tag #, DBH in inches, Species Name (Common - Scientific), Health Condition, Crown Spread, Status. Lists trees 2028 through 2071.

Table with 10 columns: Tree Tag #, DBH in inches, Species Name (Common - Scientific), Health Condition, Crown Spread, Status. Lists trees 2072 through 2125.

Table with 10 columns: Tree Tag #, DBH in inches, Species Name (Common - Scientific), Health Condition, Crown Spread, Status. Lists trees 2126 through 2205.



CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN



WOODLAND CROSSING
1177 & 1181 E. Auburn Rd.
Rochester Hills, MI

PROJECT FILE: WOOD-CR-Auburn_1-2-2018 Woodland Crossing

Table with 10 columns: Tree Tag #, DBH in inches, Species Name (Common - Scientific), Health Condition, Crown Spread, Status. Lists trees 2206 through 2259.

Table with 10 columns: Tree Tag #, DBH in inches, Species Name (Common - Scientific), Health Condition, Crown Spread, Status. Lists trees 2260 through 2313.

Table with 10 columns: Tree Tag #, DBH in inches, Species Name (Common - Scientific), Health Condition, Crown Spread, Status. Lists trees 2314 through 2367.

KEY:
PRESERVED - Regulated Tree
REMOVED - Regulated Trees to be Replaced
E OS - Exempt - Off Site Tree to be Preserved
EX - Exempt - Tree Health Condition
E P - Exempt - Building Pad

TREE REPLACEMENT CREDITS

Tree Type and Size	Replacement Credits
2" Caliper Shade Tree	1 Credit (MINIMUM)
2.5" Caliper Shade Tree	1.5 Credits
3" Caliper Shade Tree	2 Credits
B' Evergreen Trees	1 Credit (MINIMUM)
9' Evergreen Trees	1.5 Credits
10' Evergreen Trees	2 Credits

TREE ANALYSIS:

TOTAL # OF TAGGED TREES*	= 439
# OFF SITE TAGGED TREES (PRESERVED)	= 5
# POOR/VERY POOR /DEAD TREES (NON-REGULATED)	= 162
# TREES IN BUILDING PAD (NON-REGULATED)	= 57
# OF REGULATED TREES	= 216
TOTAL # OF TREES TO BE REMOVED	= 134
TOTAL # OF TREES TO BE PRESERVED	= 82
TOTAL % TREES PRESERVED	= 37.5%
TOTAL # OF REPLACEMENT CREDITS REQUIRED.	= 134
TOTAL # OF REPLACEMENT CREDITS PROVIDED	= 136

*One 11' regulated B' Maple was not included in the tree survey and is being removed and is included in the replacement calculations above.

CLIENT:

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mortalbanca@mjccompanies.com

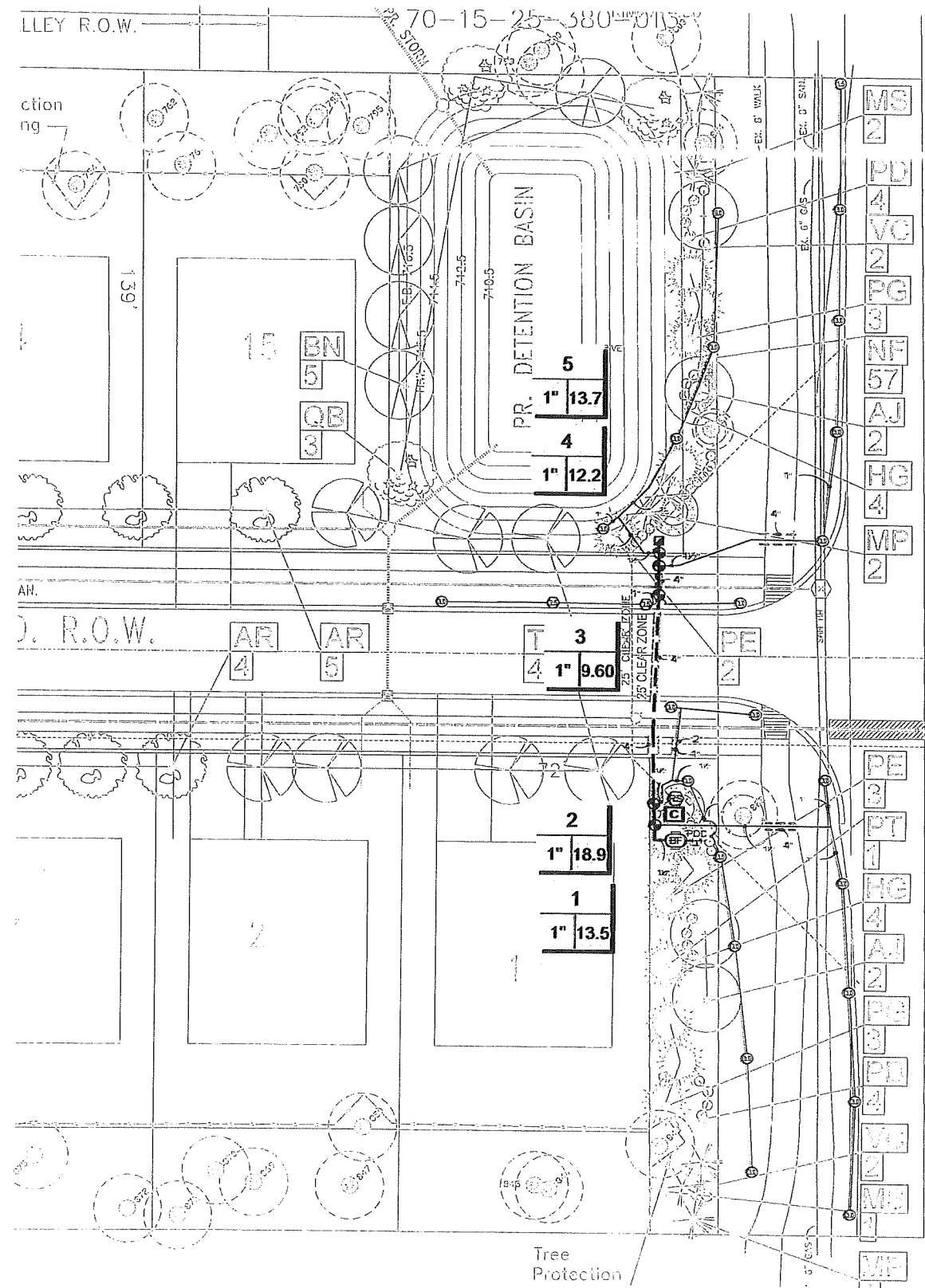
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Designed / Drawn: RLN/RLC
Checked / Approved: RLN
Job # ND-06

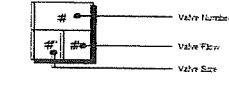
LAND DEVELOPMENT CONSULTING SERVICES, INC.
46600 ROMEO PLANK, SUITE 2
MACOMB, MI 48044
PHONE: (586)868-2350
FAX: (586)868-2351

TREE SURVEY INVENTORY



IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY
⊙	Hunter PGP-04-LA	2
⊙	Hunter PGP-04	1
⊙	Hunter PGP-04	21
⊙	Hunter PGP-04	1
SYMBOL	MANUFACTURER/MODEL	QTY
⊕	Hunter PGP-101G 1"	5
⊕	Hunter HQ-SRC 1"	1
⊕	Febco 765 1"	1
⊕	Hunter IC-0600-PL	1
⊕	Hunter Solar-Sync	1
⊕	POC 1"	1
—	Irrigation Lateral Line: Polyethylene Pipe 100 PSI 1"	625.3 Lf.
—	Irrigation Lateral Line: Polyethylene Pipe 100 PSI 1 1/2"	133.3 Lf.
—	Irrigation Mainline: PVC Class 160 SDR 25 1 1/2"	99.7 Lf.
—	Pipe Sleeve: PVC Class 160 SDR 26 2"	4.9 Lf.
—	Pipe Sleeve: PVC Class 160 SDR 26 4"	53.6 Lf.



IRRIGATION SPECIFICATIONS

- IRRIGATION SYSTEM DESIGN BASED ON 15 GPM AT 50 PSI.
- IRRIGATION DESIGN IS FROM THE POINT OF CONNECTION (POC) ONLY. THE DESIGN IS BASED ON GALLONS PER MINUTE (GPM) AND POUNDS PER SQUARE INCH (PSI) FURNISHED BY OTHERS.
- IRRIGATION CONTRACTOR IS TO VERIFY POINT OF CONNECTION IN THE FIELD. INSTALLER IS TO CONFIRM THE MINIMUM DISCHARGE REQUIREMENTS OF THE POINT OF CONNECTION AS INDICATED ON THE LEGEND PRIOR TO INSTALLATION.
- THE PRESSURE REQUIREMENT AT THE POINT OF CONNECTION IS BASED ON NO MORE THAN 5 FEET OF ELEVATION CHANGE IN THE AREAS OF IRRIGATION.
- ALL PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ACCORDING TO LOCAL BUILDING, ELECTRICAL, AND PLUMBING CODES.
- IRRIGATION CONTRACTOR WILL ARRANGE INSPECTIONS REQUIRED BY LOCAL AGENCIES AND ORDINANCES DURING THE COURSE OF CONSTRUCTION AS REQUIRED. ALL WIRING TO BE PER LOCAL CODE. BACKFLOW PREVENTION TO BE PER LOCAL CODE.
- LOCATION OF IRRIGATION COMPONENTS SHOWN ON DRAWING IS APPROXIMATE. ACTUAL PLACEMENT MAY VARY SLIGHTLY AS REQUIRED TO ACHIEVE FULL, EVEN COVERAGE.
- ALL SPRINKLER HEADS SHALL BE INSTALLED PERPENDICULAR TO FINISH GRADES, EXCEPT AS OTHERWISE INDICATED.
- INSTALL IRRIGATION MAINS WITH A MINIMUM 18" OF COVER BASED ON FINISH GRADES. INSTALL IRRIGATION LATERALS WITH MINIMUM 12" OF COVER BASED ON FINISH GRADES.
- PIPE LOCATIONS ARE DIAGRAMMATIC. VALVES AND MAINLINE SHOWN IN PAVED AREAS ARE FOR GRAPHIC CLARITY ONLY.
- THE IRRIGATION CONTRACTOR SHALL COMPLY WITH PIPE SIZES AS INDICATED.
- ALL WIRE SPLICES OR CONNECTIONS SHALL BE MADE WITH APPROVED WATERPROOF WIRE CONNECTIONS AND BE IN A VALVE OR SPLICE BOX.
- ALL CONTROL WIRING DOWNSTREAM OF THE CONTROLLER IS TO BE 14 AWG UL APPROVED DIRECT BURY.
- THE DESIGN IS BASED ON THE SITE INFORMATION AND/OR DRAWING SUPPLIED WITH THE DESIGN CRITERIA BEING SET (AREA TO BE IRRIGATED, EQUIPMENT MANUFACTURER AND MODEL TO BE USED, WATER SOURCE INFORMATION, ELECTRICAL POWER AVAILABILITY, ETC...). SITEONE LANDSCAPE SUPPLY BEARS NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS IN DESIGN OR INSTALLATION THAT ARISE DUE TO INACCURACIES IN THE ABOVE REFERENCED INFORMATION SUPPLIED TO SITEONE LANDSCAPE SUPPLY LANDSCAPES IN RELATION TO THIS PROJECT, UNLESS OTHERWISE NOTED.



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http://www.projectsolutionsiteone.com

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Project Name:
WOODLAND CROSSINGS
ROCHESTER HILLS, MI, 48069

Customer Name

Design Date: 12/15/17

Drawn By: J. LOVELL

REVISIONS

Description	Date
⚠	12/15/17
⚠	
⚠	
⚠	
⚠	

Drawing Title:
IRRIGATION DESIGN

Drawing Scale: 1" = 20'

Project Services Number: 145152

Sheet Number

IR-1

