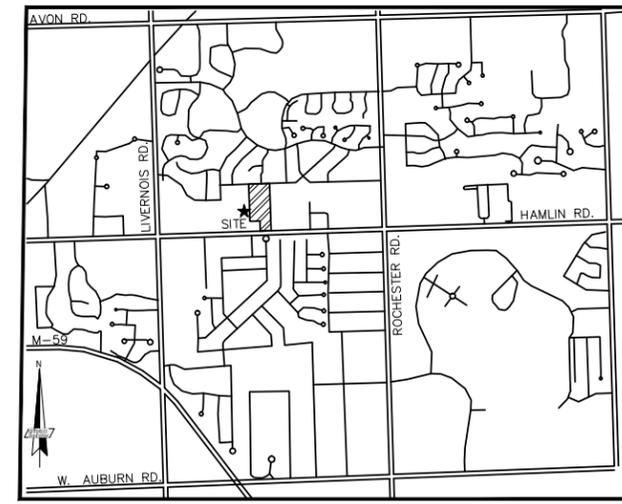
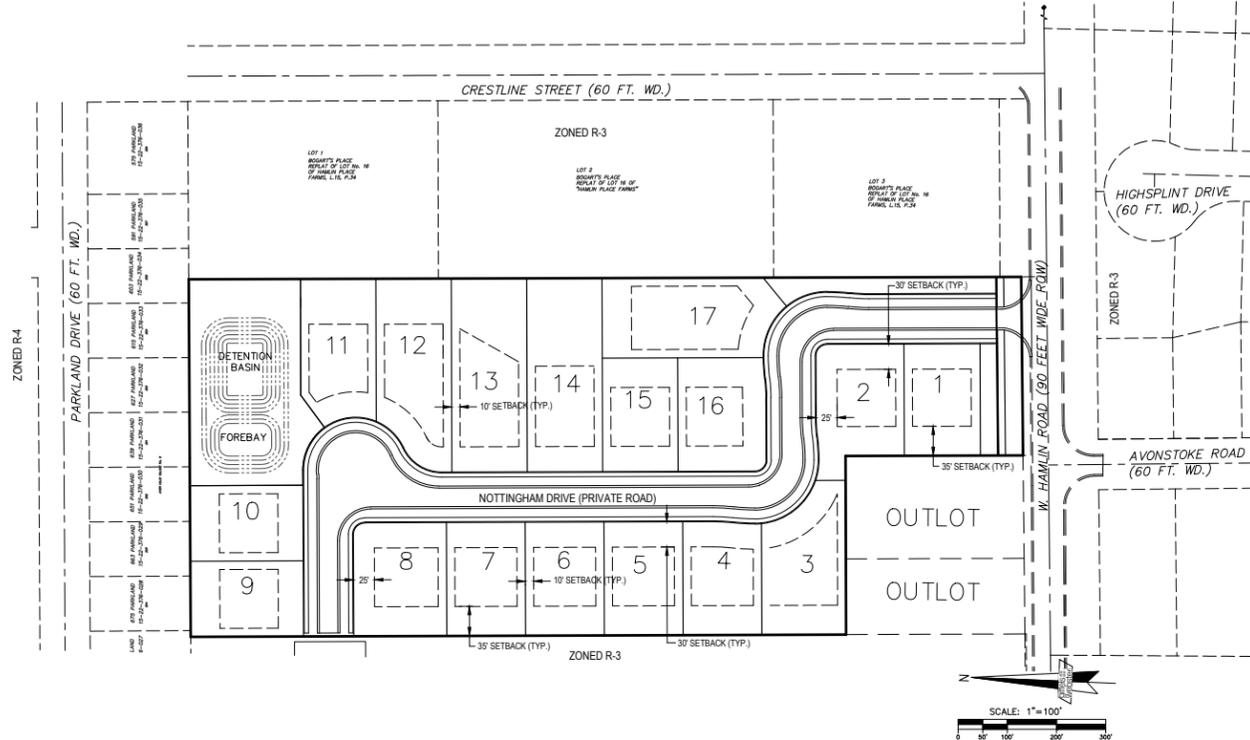


GENERAL NOTES

- ALL PROPOSED ROADS ARE TO BE PRIVATE. ALL ROAD PAVEMENT AND STORM DRAINAGE SHALL BE IN ACCORDANCE WITH CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ROCHESTER HILLS, AND THE ROAD COMMISSION FOR OKLAND COUNTY (RCOC) WHERE APPLICABLE, WITH CONCRETE CURB AND GUTTER. ALL ROADS SHALL BE 27 FT. WIDE, BACK-TO-BACK OF CURBS. THE TOTAL LENGTH OF PROPOSED ROADS (MEASURED CENTERLINE-TO-CENTERLINE) IS 1,235 LF (TYPICAL 27 FT. WIDE).
- THE STORM DRAINAGE SYSTEM WILL INCLUDE STORM SEWER PIPES AND CATCH BASINS DISCHARGING TO A NORTHERN AND SOUTHERN DETENTION BASIN. THE DESIGN OF THE STORM WATER SYSTEM WILL MEET THE CITY OF ROCHESTER HILLS STANDARDS WITH THE DETENTION SYSTEMS DESIGNED TO PROVIDE FOR 10-YEAR STORM LEVELS. BOTH DETENTION BASINS WILL OUTLET TO AN EXISTING COUNTY DRAIN THROUGH A CONTROLLED OUTLET.
- SANITARY SEWER DISPOSAL WILL BE THROUGH A PROPOSED SEWERAGE COLLECTION SYSTEM, CONNECTING TO AN EXISTING SEWER ON HAMLIN RD.
- POTABLE WATER SUPPLY SOURCE WILL BE FROM EXISTING CITY OF ROCHESTER HILLS WATER SUPPLY SYSTEM. THE PROPOSED WATER DISTRIBUTION SYSTEM SERVICING THE SITE WILL BE CONNECTED TO AN EXISTING 16" WATER MAIN THAT RUNS THROUGH PHASE 1 OF THE SITE. THE EXISTING WATER MAIN WILL REMAIN IN PLACE, AS IS.
- UNDERGROUND GAS, ELECTRIC, TELEPHONE, AND CABLE TV LINES WILL BE LOCATED IN 10 FT. WIDE EASEMENTS ALONG PROPOSED ROADWAYS AND REAR YARDS.
- OPEN SPACE AREAS ARE PRIVATE AND FOR THE ENJOYMENT OF NOTTINGHAM WOODS RESIDENTS
- MAXIMUM 20 FT. WIDE EASEMENTS WILL BE PROVIDED FOR STORM SEWERS, SANITARY SEWERS, AND WATER MAINS. EASEMENTS WILL ALSO BE PROVIDED FOR ALL DRAINAGE SWALES AND STORM WATER DETENTION PONDS. DETAILED EASEMENT INFORMATION WILL BE INCLUDED IN THE FINAL SITE PLAN PROCESS.
- FIRE LANES TO BE PROVIDED ON INTERIOR STREETS AND PARKING TO BE ALLOWED ON ONE SIDE OF THE STREET ONLY.
- THERE ARE NO REGULATED WETLAND AREAS ON SITE.
- SIDEWALKS ARE PROPOSED ON BOTH SIDES OF THE ROADS. SIDEWALKS WILL BE DELINEATED IN THE DETAILED ENGINEERING PLAN PROCESS.
- ALL DIMENSIONS ARE TO BACK OF CURB, IF APPLICABLE.
- ALL PROPOSED WATER MAINS SHALL BE CENTERED IN A 20' EASEMENT.
- SEWER MAIN AND MANHOLE LOCATIONS ARE CONCEPTUAL. FINAL LOCATIONS TO BE DETERMINED AT FINAL DESIGN.
- PRIOR TO CONSTRUCTION PERMIT APPROVAL, OWNER TO COMPLETE SOIL BORINGS TO DETERMINE WATER TABLE ELEVATION AND SOIL PERCOLATION RATES. DETENTION BASIN BOTTOM ELEVATION TO BE CONSTRUCTED BELOW THE OUTLET INVERT, ALLOWING FOR INFILTRATION BASED ON RESULTS OF SOIL ANALYSIS.
- A PRIVATE ROAD EASEMENT WILL BE RECORDED AS PART OF THE CONDOMINIUM DOCUMENTS AND WILL INCLUDE LANGUAGE ALLOWING FOR FUTURE EXTENSION OF NOTTINGHAM DRIVE TO THE WEST.
- FINAL GRADING OF LOTS TO MEET CITY OF ROCHESTER HILLS AND MICHIGAN BUILDING CODE (2009) STANDARD REQUIREMENTS.
- FINAL CONFIGURATION OF THE TREE PRESERVATION AREA MAY CHANGE BASED ON DETERMINATION OF FINAL REQUIREMENTS FOR DETENTION.

NOTTINGHAM WOODS

VANGUARD COMPANIES PRELIMINARY SITE PLAN ROCHESTER HILLS OAKLAND COUNTY, MI



LOCATION MAP
(1"=2,000')

BENCHMARK DATA

(N.G.V.D. 1929) DATUM
SOURCE: GPS, NAVD 88 AND CONVERTED USING VERTCON TOOL AVAILABLE ON THE NGS WEBSITE

SITE BENCHMARK NO. 1
BENCHMARK TIE IN NORTH FACE OF A UTILITY POLE ON THE SOUTH SIDE OF HAMLIN ROAD, +/- 160 FEET WEST OF CRESTLINE STREET.
(OUT OF SCOPE OF DRAWING)
ELEVATION=846.33'

SITE BENCHMARK NO. 2
ARROW ON HYDRANT AT THE SOUTHWEST CORNER OF HAMLIN ROAD AND AVONSTOKE ROAD.
ELEVATION=854.16'

SITE BENCHMARK NO. 3
MAG NAIL WITH GW TAG #80004 IN THE SOUTH FACE OF A UTILITY POLE, +/- 70 FEET EAST OF THE NORTHWEST CORNER OF THE PROPERTY AND +/- 6 FEET NORTH OF PROPERTY LINE IN THE REAR YARD OF ADDRESS 675 PARKLAND.
ELEVATION=849.40'

ZONING INFORMATION

PROPOSED USE: R-3 ZONING, SINGLE FAMILY RESIDENTIAL
EXISTING USE: UNDEVELOPED FARMLAND/WOODLAND

EXISTING ZONING: R-3 RESIDENTIAL

TOTAL UNITS = 17

SETBACKS:
FRONT = 30'
SIDE (EACH) = 10'
SIDE (TOTAL) = 20'
SIDE (ABUTTING STREET) = 25'
REAR = 35'

	REQUIRED	PROPOSED
MAXIMUM LOT COVERAGE	30%	30%
AVG. MIN. LOT WIDTH (LOT SIZE VARIATION OPTION)	90'	92.6'
MIN. LOT WIDTH (LOT SIZE VARIATION OPTION)	81'	81'
AVG. MIN LOT AREA (LOT SIZE VARIATION OPTION)	12,000 SF.	13,737
MIN. LOT AREA (LOT SIZE VARIATION OPTION)	10,800 SF.	12,076 SF.
MAXIMUM STORIES	2	2
MAXIMUM BUILDING HEIGHT	30'	30'
MINIMUM FLOOR AREA	1,200 SF.	2,000 SF.

EXISTING PARCEL AREA = 8.673 ACRES
RESIDENTIAL DENSITY = 1.96 DWELLINGS/ACRE



Engineers
Surveyors
Planners
Landscape Architects
Environmental Specialists

6303 26 Mile Road
Suite 100
Washington, MI 48094
p (586) 781-8950
f (586) 781-8951
www.giffelswebster.com

Executive:	P.M.
Manager:	M.P.
Engineer:	L.W.
Quality Control:	N.M.
Section:	



DATE:	ISSUE:
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

GENERAL LEGEND

	EXISTING	PROPOSED
STORM SEWER	STM	STM
SANITARY SEWER	SAN	SAN
WATER MAIN	W	W
GAS MAIN	G	G
UNDERGROUND ELECTRIC LINES	UGE	UGE
UNDERGROUND TELEPHONE LINES	UGT	UGT
UNDERGROUND CABLE TELEVISION LINES	CTV	CTV
OVERHEAD LINES	OH	OH
PUBLIC LIGHTING LINES	PLD	PLD
STEAM LINES	STEAM	STEAM
FENCE LINE	X	X
PROJECT PHASE LIMIT LINE		
CONCRETE CURB AND GUTTER (STANDARD)		
CONCRETE CURB AND GUTTER (REVERSED)		
THICKENED SLAB CURB/WALK		
STORM MANHOLE	⊕	⊕
CATCH BASIN	⊕	⊕
YARD BASIN	⊕	⊕
INLET BASIN	⊕	⊕
END SECTION))
ROOF/DOWN SPOUT	⊕	⊕
OVERFLOW/OUTLET STRUCTURE	⊕	⊕
STORM CLEAN OUT	⊕	⊕
SANITARY MANHOLE	⊕	⊕
SANITARY CLEAN OUT	⊕	⊕
SANITARY RISER	⊕	⊕
SANITARY PUMP STATION	⊕	⊕

EXISTING	PROPOSED	EXISTING	PROPOSED
GATE VALVE	⊕	GUY WIRE ANCHOR	<
FIRE HYDRANT	⊕	UTILITY FLAG	—
STOP BOX AND VALVE	⊕	SIGN POST	—
FDC CONNECTION	⊕	GUARD POST/BOLLARD	⊕
WATER METER	⊕	FENCE POST	⊕
POST INDICATOR VALVE	⊕	PAY PHONE	⊕
WELL HEAD	⊕	PARKING METER	⊕
IRRIGATION CONTROL BOX	⊕	RESIDENTIAL MAILBOX	⊕
LAWN IRRIGATION HEAD	⊕	U.S. MAILBOX	⊕
GAS VALVE	⊕	BLDG CORNER (FIELD LOCATED)	*
GAS MANHOLE	⊕	TREE	⊕
GAS RISER	⊕	WETLAND FLAG	⊕
GAS METER	⊕	SPOT ELEVATION	⊕
ELECTRIC MANHOLE	⊕	SOIL BORING	⊕
ELECTRIC RISER	⊕	ASPH.	⊕
ELECTRIC METER	⊕	CONC.	⊕
ELECTRIC TRANSFORMER	⊕	A.C.	⊕
LIGHT POLE	⊕	G.P.	⊕
TELEPHONE MANHOLE	⊕	C.L.F.	⊕
TELEPHONE RISER	⊕	D.L.	⊕
TELEPHONE CROSS BOX	⊕	F.F.	⊕
CABLE RISER	⊕	O.H.	⊕
TRAFFIC CONTROL BOX	⊕	F.I.	⊕
AIR CONDITIONER	⊕	S.I.	⊕
PUBLIC LIGHTING MANHOLE	⊕	F.I.P.	⊕
UTILITY POLE	⊕	M.R.	⊕
		F.M.	⊕
		S.N.	⊕

DEMOLITION LEGEND

REMOVE UTILITY STRUCTURE	⊕
REMOVE UTILITY PIPE	⊕
ABANDON UTILITY PIPE	⊕
CUT AND BULKHEAD UTILITY PIPE	⊕
REMOVE BUILDING	⊕
REMOVE CONCRETE PAVEMENT	⊕
REMOVE ASPHALT PAVEMENT	⊕
REMOVE SIDEWALK	⊕
COMPACTED SAND BACKFILL (CSB)	⊕
AGGREGATE MATERIAL	⊕
ASPHALT PAVEMENT	⊕
CONCRETE PAVEMENT	⊕

PAVING AND GRADING HATCH LEGEND

COMPACTED SAND BACKFILL (CSB)	⊕
AGGREGATE MATERIAL	⊕
ASPHALT PAVEMENT	⊕
CONCRETE PAVEMENT	⊕

SHEET INDEX

- 01 COVER
- 02 EXISTING CONDITIONS
- 03 SITE PLAN
- 04 UTILITY CALCULATIONS
- 05 TREE PRESERVATION PLAN
- 06 TREE TABLE 1 OF 2
- 07 TREE TABLE 2 OF 2
- LA-01 LANDSCAPE PLAN
- LA-02 LANDSCAPE DETAILS

COVER
PRELIMINARY SITE PLAN NOTTINGHAM WOODS
ROCHESTER HILLS MICHIGAN
Oakland County

Date:	7/6/15
Scale:	1" = 100'
Sheet:	01
Project:	18701.00

Z:\18701.00 Nottinghams Woods\Drawing Files\Site plan\01 Cover Sheet.dwg

LEGAL DESCRIPTION

LOT 18 AND PART OF LOT 17 OF HAMLIN PLACE FARMS, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 15 OF PLATS PAGE 34, OAKLAND COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS:

COMMENCING AT THE SOUTH QUARTER CORNER OF SECTION 22, TOWN 3, NORTH, RANGE 11 EAST, AVON TOWNSHIP (NOW CITY OF ROCHESTER HILLS), OAKLAND COUNTY, MICHIGAN, SOUTH 87 DEGREES 04 MINUTES 41 SECONDS WEST, 287.51 FEET ALONG THE SOUTH LINE OF SECTION 22; THENCE NORTH 02 DEGREES 30 MINUTES 23 SECONDS WEST, 30.00 FEET TO THE SOUTHEAST CORNER OF LOT 17, SAID POINT BEING THE POINT OF BEGINNING; THENCE SOUTH 87 DEGREES 04 MINUTES 41 SECONDS WEST, 212.50 FEET ALONG THE NORTH RIGHT OF WAY LINE OF HAMLIN ROAD (VARIABLE WIDTH) TO THE SOUTHWEST CORNER OF SAID LOT 17; THENCE NORTH 02 DEGREES 32 MINUTES 05 SECONDS WEST, 211.92 FEET ALONG THE WEST LINE OF LOT 17 SAID LINE ALSO BEING THE EAST LINE OF LOT 18; THENCE SOUTH 87 DEGREES 27 MINUTES 33 SECONDS WEST, 212.52 FEET TO A POINT ON THE WEST LINE OF LOT 18; THENCE NORTH 02 DEGREES 32 MINUTES 27 SECONDS WEST, 782.16 FEET ALONG SAID WEST LINE TO A POINT ON THE SOUTH LINE OF "AVON HILLS VILLAGE SUBDIVISION NO. 5, AS RECORDED IN LIBER 95 OF PLATS, PAGE 11, OAKLAND COUNTY RECORDS; THENCE NORTH 87 DEGREES 20 MINUTES 03 SECONDS EAST, 425.60 FEET ALONG SAID SOUTH LINE TO THE NORTHWEST CORNER OF LOT 1 OF "BOGART'S PLACE REPLAT OF LOT 16 OF HAMLIN PLACE FARMS" AS RECORDED IN LIBER 123 OF PLATS, PAGE 3, OAKLAND COUNTY RECORDS SAID POINT ALSO BEING THE NORTHEAST CORNER OF LOT 17; THENCE SOUTH 02 DEGREES 30 MINUTES 23 SECONDS EAST, 993.60 FEET TO THE POINT OF BEGINNING AND CONTAINING 8.673 ACRES.

PARCEL ID NO. 15-22-376-039

Executive:	P.M.
Manager:	M.P.
Engineer:	L.W.
Quality Control:	N.M.
Section:	

Professional Seal



DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

Developed For:

VANGUARD COMPANIES
101 S. MAIN STREET
ROCHESTER, MI 48037

p (248) 650-6206
f (248) 650-6274

EXISTING CONDITIONS

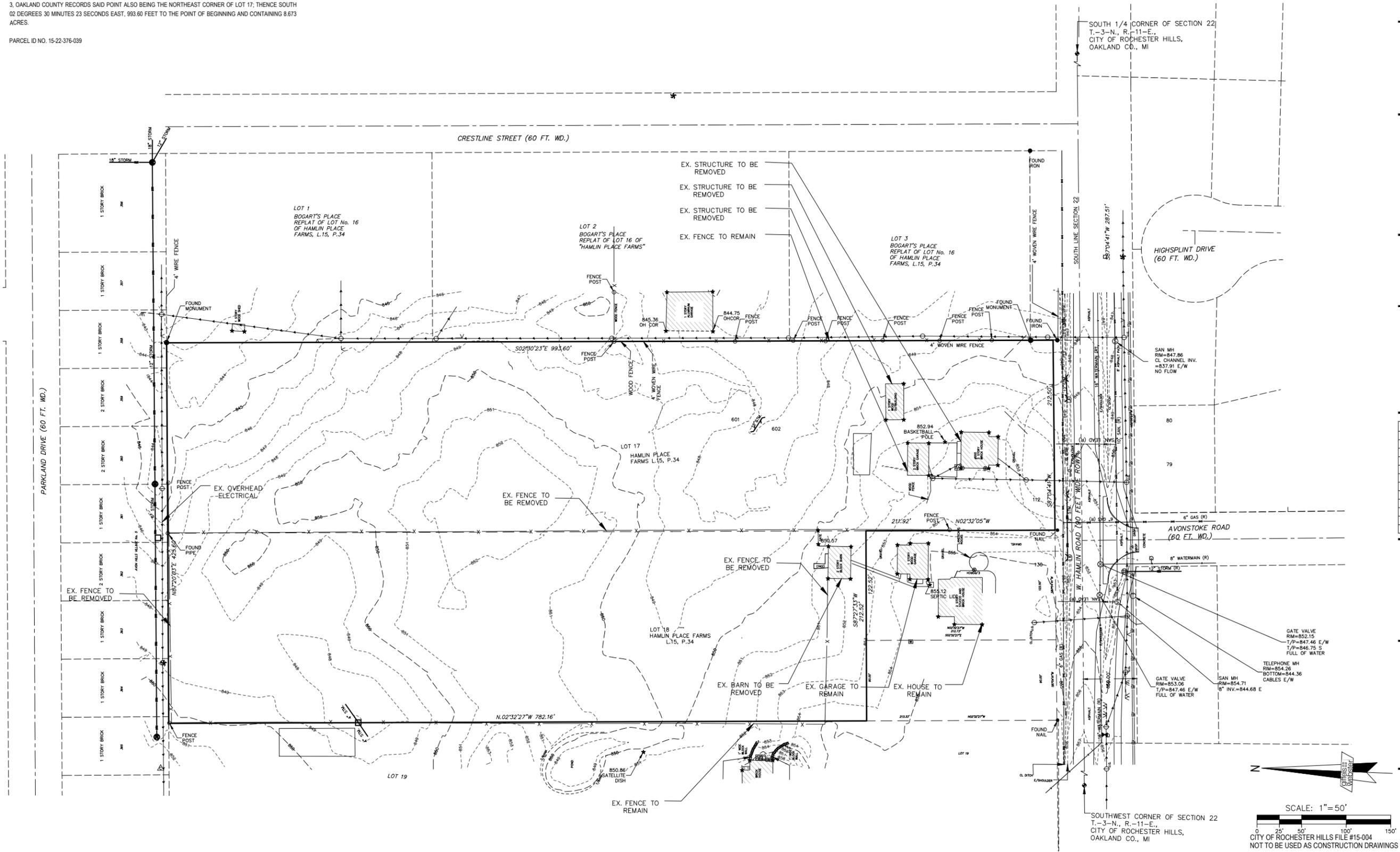
PRELIMINARY SITE PLAN
NOTTINGHAM WOODS

ROCHESTER HILLS
MICHIGAN

Oakland County

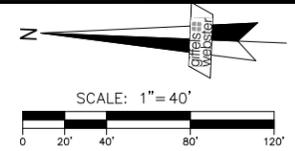
Date:	7/6/15
Scale:	1" = 50'
Sheet:	02
Project:	18701.00

Copyright © 2015 Giffels Webster.
No reproduction shall be made without the
prior written consent of Giffels Webster.



FIRE DEPARTMENT NOTES:

- CONSTRUCTION SITE 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, FIRE PRESERVATION ORDINANCE CHAPTER 58, SEC 307.6.2 & 307.6.2.3
- BUILDING CONSTRUCTION TYPE IS V-8.
- PROPOSED INDIVIDUAL BUILDING SIZES WILL RANGE FROM 2,000 SF TO 3,600 SF OF LIVING SPACE.



giffels webster

Engineers
Surveyors
Planners
Landscape Architects
Environmental Specialists

6303 26 Mile Road
Suite 100
Washington, MI 48094
p (586) 781-8950
f (586) 781-8951
www.giffelswebster.com

Executive: P.M.
Manager: M.P.
Engineer: L.W.
Quality Control: N.M.
Section:



DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

Developed For:

VANGUARD COMPANIES

101 S. MAIN STREET
ROCHESTER, MI 48037

p (248) 650-6206
f (248) 650-6274

SITE PLAN

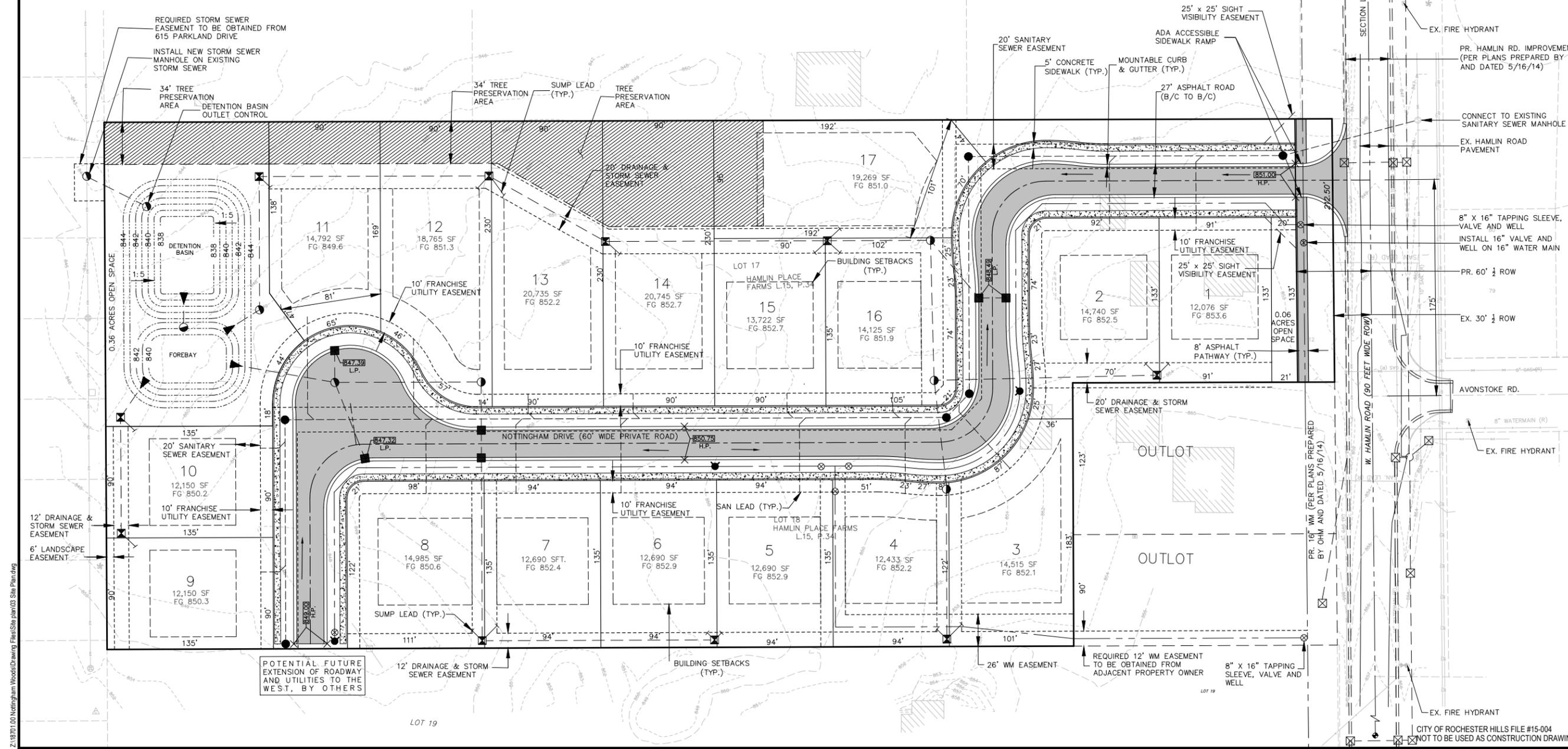
PRELIMINARY SITE PLAN
NOTTINGHAM WOODS

ROCHESTER HILLS
MICHIGAN

Oakland County

Date: 7/6/15
Scale: 1" = 40'
Sheet: 03
Project: 18701.00

Copyright © 2015 Giffels Webster. No reproduction shall be made without the prior written consent of Giffels Webster.



Z:\18701.00 Nottinghams Woods\Drawing Files\Site plan\03 Site Plan.dwg

CITY OF ROCHESTER HILLS FILE #15-004
NOT TO BE USED AS CONSTRUCTION DRAWINGS

DETENTION BASIN CALCULATIONS



Detention Design
Project Name
Project Number

Completed By Lydia Wakefield
Working Date November 24, 2015
Jurisdiction Oakland County

Weighted "C" Calculation

Area (acres)	C	Area x C
Water surfaces 0.00	1.00	0.00
Roofs 1.45	0.95	1.38
Asphalt or concrete pavement 1.17	0.95	1.11
Semi-pervious lawns (HSG A) 5.38	0.18	0.97
Total 8.00		3.46

*Based on Sandy Loam Soil Types (HSG A) with slopes <6%

$C = \frac{\text{Area} \times C}{\text{Area}} = \frac{3.46}{8.00} = 0.43$

Allowable Outflow Calculation

Based on Acreage: Property Area = 8.00 acres

$Q_{out} = 0.20 \text{ cfs/acre} \times 8.00 \text{ acres} = 1.60 \text{ cfs}$

25 YEAR STORM EVENT

Required Storage Volume

$Q_{in} = \frac{1.60}{8.00 \text{ acres} \times 0.43} = 0.46 \text{ cfs per acre impervious}$

$T_{25} = -25 + \sqrt{\frac{8,063}{0.46}} = -25 + \sqrt{17,528} = 107 \text{ minutes}$

$V_{25} = \frac{12,900 \times T_{25}}{12,900 \times T_{25} + 107} \times 40 \times 0.46 \times 107 = 8,476 \text{ cubic feet per acre impervious}$

$V_{25} = 8,476 \times 8.00 \times 0.43 = 29,305 \text{ cubic feet}$

The required infiltration volume is one half inch of rain in a 24-hour storm.

Existing Undisturbed Tree Area = 23,340 square feet

Credit Infiltration Volume = 1' x 23,340 = 23,340 cubic feet

$V_{in} = 1.815 \times 8.00 \times 0.43 = 6.275 \text{ cubic feet}$

The forebay will detain the first flush volume, or first half inch of rain in a 24-hour storm.

$V_{in} = 1.815 \times 8.00 \times 0.43 = 6.275 \text{ cubic feet}$

Elevation	Infiltration Basin			Forebay			Detention Pond		
	Area (sf)	Incremental Volume (sf)	Cumulative Volume (sf)	Area (sf)	Incremental Volume (sf)	Cumulative Volume (sf)	Area (sf)	Incremental Volume (sf)	Cumulative Volume (sf)
Freeboard Elevation 844	0	0	7,657	0	0	6,684	0	0	43,962
High Water of Pond 843	0	0	7,657	0	0	6,684	15,594	15,839	43,962
Top of Forebay Storage 842	0	0	7,657	4,468	4,468	6,684	8,099	14,053	27,123
841	0	0	7,657	3,317	3,878	2,806	6,510	7,290	13,070
Bottom of Detention Pond/ Bottom of Forebay 840	5079	0	7,657	2,324	2,806	0	5079	5,780	0
839	3805	4,427	3,230	0	0	0	0	0	0
Bottom of Infiltration Storage 838	2688	3,230	0	0	0	0	0	0	0

Infiltration Vol. Provided = 7,657 cft Forebay Vol. Provided = 6,684 cft Total Vol. Provided = 41,484 cft
 Infiltration Vol. Required = 4,408 cft Forebay Vol. Required = 6,275 cft Total Vol. Required = 29,305 cft

NOTES:

1. SOIL BORINGS, TO DETERMINE SOIL PERCOLATION RATES, WILL BE COMPLETED DURING PREPARATION OF CONSTRUCTION DRAWINGS FOR PERMITTING. IF INSUFFICIENT PERCOLATION RATES ARE INDICATED, THEN DRY WELLS WILL BE REQUIRED FOR PERMITTING AS AN ALTERNATIVE MEANS TO OBTAIN A SUFFICIENT RATE OF INFILTRATION.

SANITARY SEWER CALCULATIONS

SITE SANITARY SEWER DEMAND

Number of Lots = 17

Population = Number of Lots x 3.5 = 17 lots x 3.5 people per lot = 60 people

Average Flow = Population x Per Capita Capacity
Gallons per Cubic Foot x Seconds per Day

$\frac{60 \text{ people}}{7.48 \text{ gal/cft}} \times 100 \text{ gpcpd} = 803 \text{ sec/day}$

$0.01 \text{ CFS or } 4.13 \text{ GPM}$

Peaking Factor = 4.00

Peak Flow = Average Flow x Peaking Factor

$0.01 \text{ people} \times 4.00 = 0.04 \text{ CFS or } 16.53 \text{ GPM}$

EXISTING PIPE CAPACITY

Min. Pipe Slope = 0.40 %
 Pipe Diameter = 8 Inch
 N = 0.013
 Pipe Capacity (Hazen Williams) = 0.76 CFS

ULTIMATE SANITARY SEWER DEMAND (EXTENSION OF SEWER OFF-SITE TO WEST)

Number of Lots = 21

Population = Number of Lots x 3.5 = 21 lots x 3.5 people per lot = 74 people

Average Flow = Population x Per Capita Capacity
Gallons per Cubic Foot x Seconds per Day

$\frac{74 \text{ people}}{7.48 \text{ gal/cft}} \times 100 \text{ gpcpd} = 988 \text{ sec/day}$

$0.01 \text{ CFS or } 5.10 \text{ GPM}$

Peaking Factor = 4.00

Peak Flow = Average Flow x Peaking Factor

$0.01 \text{ people} \times 4.00 = 0.05 \text{ CFS or } 20.42 \text{ GPM}$

EXISTING PIPE CAPACITY

Min. Pipe Slope = 0.40 %
 Pipe Diameter = 8 Inch
 N = 0.013
 Pipe Capacity (Hazen Williams) = 0.76 CFS

WATER FIRE FLOW CALCULATIONS

Design Criteria

Required Fire Flow	1,500 GPM with a residual pressure of 20 psi
Maximum Day Flow	17 REUs x 1,000 gallons/day/REU = 17,000 gallons/day = 12 gpm
Hazen & Williams	C = 120

(1,500 GPM fire suppression + 12 gallon/minute maximum day demand)

Estimate Residual Pressure at Fire Hydrant with 1,512 GPM Demand (1,500 GPM Fire Suppression + 12 GPM Maximum Day Demand)

Residual Flow, Q _r (GPM)	Static Pressure @ Test Hydrant P _s (psi)	Calculated Residual Pressure @ 1,512 gpm P _{r1512} (psi)	Residual Pressure at Test Hydrant P _r (psi)
1962	57	$1,512 = Q_r \times ((P_s - P_{r1512}) / (P_s - P_r))^{0.54}$ P _{r1512} = 49 psi	44

Residual Pressure at the Furthest Point of Proposed WM (1,512 GPM Demand)

H _f	L (ft.)	C	Q (gpm)	D (in.)
$H_f = 0.002083 L (100/C)^{1.85} \times (Q^{0.85}/d^{4.8655})$ H _f = 50.3 ft = 21.8 psi	1,100	120	1,512	8
$P = P_{r1512} - H_f = 49 - 21.8 = 27.2 \text{ psi}$				



Engineers
Surveyors
Planners
Landscape Architects
Environmental Specialists

6303 26 Mile Road
Suite 100
Washington, MI 48094
p (586) 781-8950
f (586) 781-8951
www.giffelswebster.com

Executive: P.M.
 Manager: M.P.
 Engineer: L.W.
 Quality Control: N.M.
 Section:



DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

Developed For:
VANGUARD COMPANIES
 101 S. MAIN STREET
 ROCHESTER, MI 48037
 p (248) 650-6206
 f (248) 650-6274

UTILITY
 CALCULATIONS
 PRELIMINARY SITE PLAN
 NOTTINGHAM WOODS
 ROCHESTER HILLS
 MICHIGAN
 Oakland County

Date: 7/6/15
 Scale: 1" = 100'
 Sheet: 04
 Project: 18701.00

Z:\18701.00 Nottinghams Woods\Drawing Files\Site plan\04 Utility Calculations.dwg

**TREE IMPACT CALCULATIONS:
NOTTINGHAM WOODS**

TOTAL NUMBER OF TREES SURVEYED:	745
TOTAL NUMBER OF REGULATED TREES:	452
TOTAL NUMBER OF REGULATED TREES PRESERVED:	77
TOTAL NUMBER OF REGULATED TREES REMOVED:	375
TOTAL NUMBER OF UNREGULATED TREES:	179
TOTAL NUMBER OF TREES OFFSITE:	90

MAP LEGEND

- REGULATED TREES - TO BE PRESERVED
- REGULATED TREES - TO BE REMOVED
- UNREGULATED TREES
- ✕ DEAD TREES - TO BE REMOVED
- OFFSITE TREES

NOTES

- THIS PROJECT WILL REQUIRE TREE REPLACEMENT CREDITS FOR THE REMOVAL OF REGULATED TREES. THE REPLACEMENT CREDITS WILL BE ACCOUNTED FOR BY THE INSTALLATION OF NEW TREES (PER THE LANDSCAPE PLAN), WITH THE REMAINDER TO BE PAID INTO THE CITY TREE FUND AT \$200 PER TREE.
- ALL TREES ARE PRESUMED TO BE IN GOOD CONDITION UNLESS OTHERWISE NOTED.

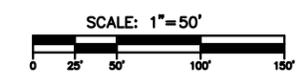


DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

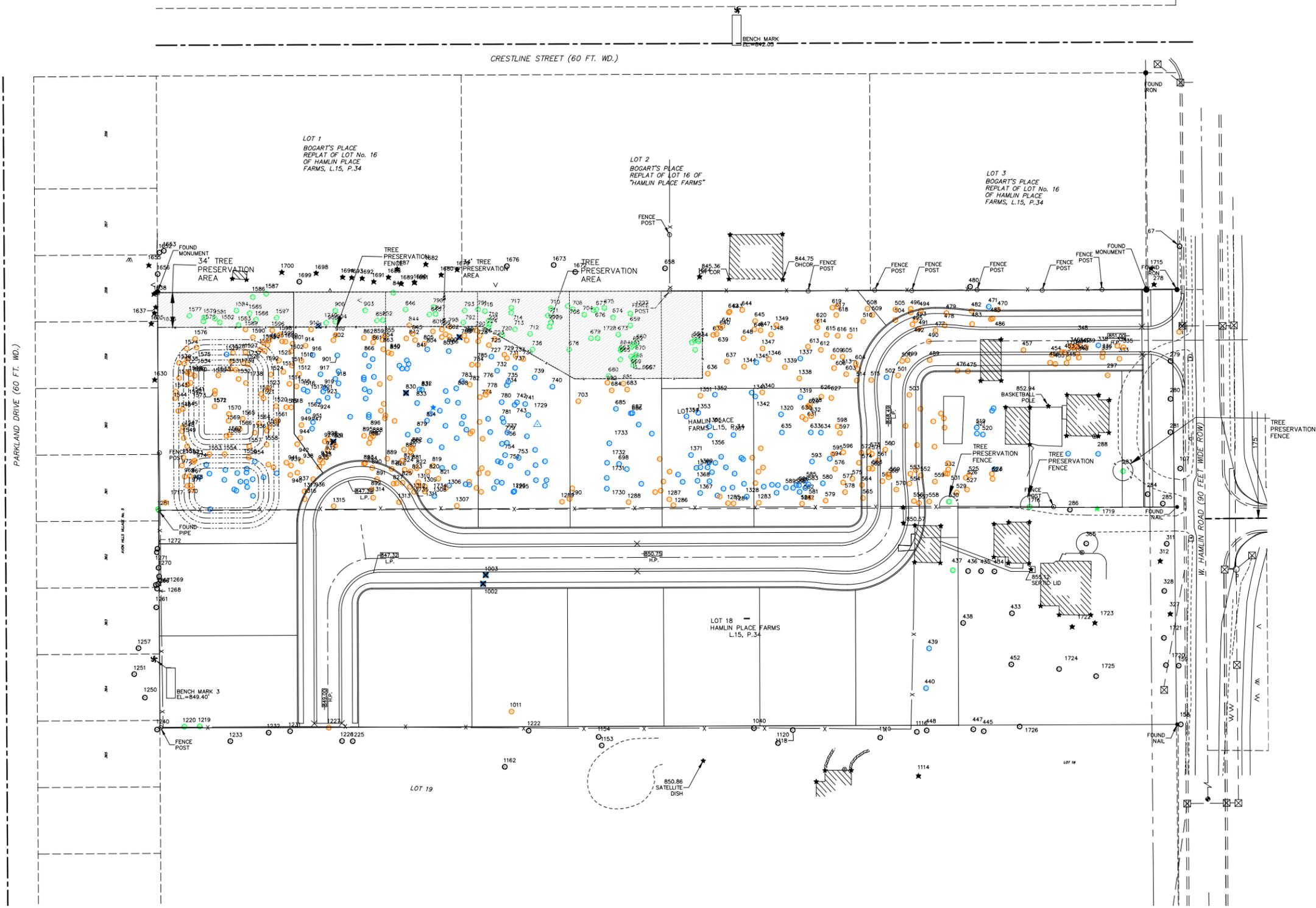
Developed For:
VANGUARD COMPANIES
101 S. MAIN STREET
ROCHESTER, MI 48037
p (248) 650-6206
f (248) 650-6274

TREE PRESERVATION PLAN
PRELIMINARY SITE PLAN
NOTTINGHAM WOODS
ROCHESTER HILLS
MICHIGAN
Oakland County

Date:	7/6/15
Scale:	1" = 50'
Sheet:	05
Project:	18701.00



CITY OF ROCHESTER HILLS FILE #15-004
NOT TO BE USED AS CONSTRUCTION DRAWINGS



Executive: P.M.
Manager: M.P.
Engineer: L.W.
Quality Control: N.M.
Section:



DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

Developed For:

VANGUARD COMPANIES
101 S. MAIN STREET
ROCHESTER, MI 48037

p (248) 650-6206
f (248) 650-6274

TREE TABLE 1 OF 2

**PRELIMINARY SITE PLAN
NOTTINGHAM WOODS**

ROCHESTER HILLS
MICHIGAN

Oakland County

Date: 7/6/15
Scale: N/A
Sheet: 06
Project: 18701.00

POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN	POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN	POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN	POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN
66	76413	28" HICKORY	REGULATED	TO BE REMOVED	529	76518	10" DOGWOOD	REGULATED	TO BE PRESERVED	654	78433	6" ELM	REGULATED	TO BE PRESERVED	773	78546	12" ASPEN	UNREGULATED	TO BE REMOVED
67	NO TAG (OFFSITE)	16" HICKORY	UNREGULATED	TO BE PRESERVED	530	76519	9" ELM	REGULATED	TO BE PRESERVED	658	80270	24" MAPLE	REGULATED	TO BE PRESERVED	774	78544	14" POPLAR	REGULATED	TO BE PRESERVED
107	NO TAG (OFFSITE)	15" HICKORY	UNREGULATED	1	531	76513	22" POPLAR	REGULATED	TO BE REMOVED	659	78494	15" ELM	REGULATED	TO BE PRESERVED	775	78545	14" COTTONWOOD	UNREGULATED	TO BE REMOVED
158	80265	15" HICKORY	REGULATED	TO BE PRESERVED	532	76514	6" ELM	REGULATED	TO BE REMOVED	660	78487	8" DOGWOOD	REGULATED	TO BE PRESERVED	776	78543	8" COTTONWOOD	REGULATED	TO BE PRESERVED
159	80264	22" HICKORY	REGULATED	TO BE PRESERVED	533	76512	24" POPLAR	UNREGULATED	TO BE REMOVED	661	78489	9" WALNUT	REGULATED	TO BE PRESERVED	777	78551	18" COTTONWOOD	REGULATED	TO BE REMOVED
278	NO TAG (OFFSITE)	10" PINE	UNREGULATED	TO BE PRESERVED	534	76511	15" BOX ELDER	UNREGULATED	TO BE REMOVED	662	78488	8" ELM	REGULATED	TO BE PRESERVED	778	78542	9" MAPLE	REGULATED	TO BE PRESERVED
279	76412	28" HICKORY	REGULATED	1	535	76510	6" ELM	UNREGULATED	TO BE REMOVED	663	78491	6" ELM	REGULATED	TO BE PRESERVED	779	78550	10" COTTONWOOD	REGULATED	TO BE PRESERVED
280	76280	18" MAPLE	REGULATED	1	543	76509	7" ELM	UNREGULATED	TO BE REMOVED	664	78490	7" WALNUT	REGULATED	TO BE PRESERVED	780	78538	7" MAPLE	REGULATED	TO BE PRESERVED
281	76410	30" MAPLE	REGULATED	1	544	76508	8/7" DOGWOOD	UNREGULATED	TO BE REMOVED	665	78492	12" WALNUT	REGULATED	TO BE PRESERVED	781	78549	8" ELM	REGULATED	TO BE PRESERVED
283	76439	20" MAPLE	REGULATED	TO BE PRESERVED	545	76507	10/6" ELM	UNREGULATED	TO BE REMOVED	666	78482	7" WALNUT	REGULATED	TO BE PRESERVED	782	79096	12" POPLAR	REGULATED	TO BE PRESERVED
284	76408	36" MAPLE	REGULATED	1	546	76506	8" ELM	UNREGULATED	TO BE REMOVED	667	78489	12" WALNUT	REGULATED	TO BE PRESERVED	783	79101	6" CHERRY	REGULATED	TO BE PRESERVED
285	76409	5" ORNAMENTAL	UNREGULATED	1	547	76505	6" CHERRY	UNREGULATED	TO BE REMOVED	668	78483	8" WALNUT	REGULATED	TO BE PRESERVED	784	79095	14" POPLAR	REGULATED	TO BE PRESERVED
286	76444	48" HICKORY	REGULATED	TO BE PRESERVED	548	76535	10" WALNUT	UNREGULATED	TO BE REMOVED	669	78485	6" ELM	REGULATED	TO BE PRESERVED	785	79094	8" BIRCH	REGULATED	TO BE PRESERVED
287	76441	33" MAPLE	UNREGULATED	TO BE REMOVED	550	76523	9" ELM	UNREGULATED	TO BE REMOVED	670	78486	7" ELM	REGULATED	TO BE PRESERVED	786	79067	18" COTTONWOOD	REGULATED	TO BE PRESERVED
288	76440	38" MAPLE	REGULATED	TO BE PRESERVED	551	76525	9" ELM	UNREGULATED	TO BE REMOVED	673	78493	12" DOGWOOD	REGULATED	TO BE PRESERVED	787	79079	8" POPLAR	REGULATED	TO BE PRESERVED
297	76414	20" MAPLE	REGULATED	TO BE PRESERVED	552	76524	6" ELM	REGULATED	TO BE REMOVED	674	78496	10" MAPLE	REGULATED	TO BE PRESERVED	788	DEAD	10" DEAD	UNREGULATED	TO BE REMOVED
311	76407	28" HICKORY	REGULATED	TO BE PRESERVED	553	76526	10" ELM	REGULATED	TO BE REMOVED	675	78492	12" CHERRY	REGULATED	TO BE PRESERVED	789	79078	13" COTTONWOOD	REGULATED	TO BE PRESERVED
312	76406	15" SPRUCE	REGULATED	TO BE PRESERVED	554	76527	9" ELM	REGULATED	TO BE REMOVED	676	78499	12" MAPLE	REGULATED	TO BE PRESERVED	790	79087	13" POPLAR	REGULATED	TO BE PRESERVED
327	76404	13" PINE	REGULATED	TO BE PRESERVED	556	76530	10" ELM	REGULATED	TO BE PRESERVED	677	78498	6" DOGWOOD	REGULATED	TO BE PRESERVED	791	79082	16" POPLAR	REGULATED	TO BE PRESERVED
328	76405	24" HICKORY	REGULATED	TO BE PRESERVED	557	76529	6" DOGWOOD	REGULATED	TO BE PRESERVED	678	78503	18/15/13/10" COTTONWOOD	REGULATED	TO BE PRESERVED	792	79077	12" POPLAR	REGULATED	TO BE PRESERVED
333	76415	10" ELM	REGULATED	TO BE REMOVED	558	76528	16" ELM	REGULATED	TO BE PRESERVED	679	78501	24" COTTONWOOD	REGULATED	TO BE PRESERVED	793	79081	10" POPLAR	REGULATED	TO BE PRESERVED
334	76417	12" MAPLE	REGULATED	TO BE REMOVED	559	DEAD	6" ELM	REGULATED	TO BE REMOVED	680	78481	13" ELM	REGULATED	TO BE PRESERVED	796	79076	18" COTTONWOOD	REGULATED	TO BE PRESERVED
335	76416	8" MAPLE	REGULATED	TO BE REMOVED	560	76536	10" ELM	UNREGULATED	TO BE REMOVED	681	78478	14" ELM	REGULATED	TO BE PRESERVED	798	79072	8" POPLAR	REGULATED	TO BE PRESERVED
336	76419	8" ELM	REGULATED	TO BE REMOVED	561	76537	7" DOGWOOD	UNREGULATED	TO BE REMOVED	682	78480	14" DOGWOOD	REGULATED	TO BE PRESERVED	799	79071	14" POPLAR	REGULATED	TO BE PRESERVED
337	76418	7" ELM	UNREGULATED	TO BE REMOVED	562	76539	7" ELM	UNREGULATED	TO BE REMOVED	683	78477	6" CHERRY	REGULATED	TO BE PRESERVED	800	79069	12" POPLAR	REGULATED	TO BE PRESERVED
338	76420	8" ASH	UNREGULATED	TO BE REMOVED	563	76538	7" ELM	UNREGULATED	TO BE REMOVED	684	78479	10" MAPLE	REGULATED	TO BE PRESERVED	801	79073	10" POPLAR	REGULATED	TO BE PRESERVED
339	76421	6" MAPLE	REGULATED	TO BE REMOVED	564	76544	13" ELM	REGULATED	TO BE REMOVED	685	78476	18" MAPLE	REGULATED	TO BE PRESERVED	802	79068	10" POPLAR	REGULATED	TO BE PRESERVED
340	76422	15/13" ELM	REGULATED	TO BE REMOVED	565	76545	7" DOGWOOD	REGULATED	TO BE REMOVED	686	78475	10/8/6" CHERRY	REGULATED	TO BE REMOVED	803	79070	8" MAPLE	REGULATED	TO BE PRESERVED
341	76423	13" ELM	REGULATED	TO BE REMOVED	567	76534	9" ELM	REGULATED	TO BE PRESERVED	687	78474	8/6" ELM	REGULATED	TO BE REMOVED	804	79066	20" POPLAR	REGULATED	TO BE PRESERVED
342	76427	14" ELM	UNREGULATED	TO BE REMOVED	568	76532	8" ELM	REGULATED	TO BE PRESERVED	689	78463	10" ELM	UNREGULATED	TO BE REMOVED	805	79065	6/3" BIRCH	REGULATED	TO BE PRESERVED
343	76428	12/12" ELM	UNREGULATED	TO BE REMOVED	569	76533	12" ELM	UNREGULATED	TO BE REMOVED	690	78473	10" ELM	UNREGULATED	TO BE REMOVED	807	79099	12" POPLAR	UNREGULATED	TO BE REMOVED
344	76432	18" ELM	UNREGULATED	TO BE REMOVED	570	76531	10" ELM	REGULATED	TO BE PRESERVED	691	78462	7" CHERRY	UNREGULATED	TO BE REMOVED	808	79097	6" OAK	REGULATED	TO BE REMOVED
345	76433	15" ELM	UNREGULATED	TO BE REMOVED	571	76540	10" ELM	UNREGULATED	TO BE REMOVED	692	78472	24" COTTONWOOD	UNREGULATED	TO BE REMOVED	809	79098	14" POPLAR	UNREGULATED	TO BE REMOVED
346	76426	13" ELM	REGULATED	TO BE REMOVED	572	76542	8/5" ELM	UNREGULATED	TO BE REMOVED	693	78461	8" ELM	UNREGULATED	TO BE REMOVED	810	79100	6" CHERRY	UNREGULATED	TO BE REMOVED
347	76425	13" ELM	REGULATED	TO BE REMOVED	573	76541	6" ELM	UNREGULATED	TO BE REMOVED	694	78459	9" MAPLE	UNREGULATED	TO BE REMOVED	811	78480	8" CHERRY	UNREGULATED	TO BE REMOVED
348	76424	7/8" ELM	REGULATED	TO BE REMOVED	574	76543	13" ELM	UNREGULATED	TO BE REMOVED	695	78460	20" COTTONWOOD	UNREGULATED	TO BE REMOVED	812	78481	12" SPRUCE	UNREGULATED	TO BE REMOVED
365	76493	18" CRABAPPLE	REGULATED	TO BE PRESERVED	575	76546	8" DOGWOOD	REGULATED	TO BE REMOVED	696	78464	13" MAPLE	UNREGULATED	TO BE REMOVED	813	78482	16" POPLAR	UNREGULATED	TO BE REMOVED
433	76449	24/20" BOX ELDER	REGULATED	TO BE PRESERVED	576	76549	36" POPLAR	REGULATED	TO BE REMOVED	697	78466	10" ELM	UNREGULATED	TO BE REMOVED	814	78483	14" POPLAR	REGULATED	TO BE REMOVED
434	76457	18" ELM	REGULATED	TO BE PRESERVED	577	76547	8" ELM	REGULATED	TO BE REMOVED	698	78467	7/4" ELM	UNREGULATED	TO BE REMOVED	815	78584	10" POPLAR	UNREGULATED	TO BE REMOVED
435	76456	15" ELM	REGULATED	TO BE PRESERVED	578	76548	9" DOGWOOD	REGULATED	TO BE REMOVED	703	78522	14/13/12" MAPLE	REGULATED	TO BE PRESERVED	816	78479	12" COTTONWOOD	UNREGULATED	TO BE REMOVED
436	76455	15" ELM	REGULATED	TO BE PRESERVED	579	76566	7/6" DOGWOOD	UNREGULATED	TO BE REMOVED	704	78500	6" WALNUT	REGULATED	TO BE PRESERVED	817	78573	14" COTTONWOOD	UNREGULATED	TO BE REMOVED
437	76454	15" ELM	REGULATED	TO BE PRESERVED	580	76565	7" ELM	UNREGULATED	TO BE REMOVED	706	78504	8/6" MAPLE	REGULATED	TO BE PRESERVED	818	78572	14" POPLAR	UNREGULATED	TO BE REMOVED
438	76453	26" HICKORY	REGULATED	TO BE PRESERVED	581	76567	9" ELM	UNREGULATED	TO BE REMOVED	707	78509	15" ELM	REGULATED	TO BE PRESERVED	819	78594	10" POPLAR	UNREGULATED	TO BE REMOVED
439	76452	18/15" WALNUT	REGULATED	TO BE PRESERVED	582	DEAD	10" ELM	UNREGULATED	TO BE REMOVED	708	78505	18" COTTONWOOD	REGULATED	TO BE PRESERVED	820	78593	12" COTTONWOOD	REGULATED	TO BE REMOVED
440	76451	15" ASH	UNREGULATED	TO BE REMOVED	583	76568	28" POPLAR	UNREGULATED	TO BE REMOVED	709	78508	16" COTTONWOOD	REGULATED	TO BE PRESERVED	821	NO TAG	6" OAK	UNREGULATED	TO BE REMOVED
445	DEAD	10" ASH	UNREGULATED	TO BE REMOVED	584	76574	30" POPLAR	UNREGULATED	TO BE REMOVED	710	78506	10/6" ELM	REGULATED	TO BE PRESERVED	822	78592	12" POPLAR	REGULATED	TO BE REMOVED
447	76459	30" MAPLE	REGULATED	TO BE PRESERVED	585	76581	7" ELM	UNREGULATED	TO BE REMOVED	711	78507	18" CHERRY	REGULATED	TO BE PRESERVED	823	78591	6" ELM	REGULATED	TO BE REMOVED
448	76460	14" CHERRY	REGULATED	TO BE PRESERVED	586	76572	12" POPLAR	UNREGULATED	TO BE REMOVED	712	78511	15" BIRCH	REGULATED	TO BE PRESERVED	824	78590	10" COTTONWOOD	UNREGULATED	TO BE REMOVED
452	76450	12/12/14" BOX ELDER	REGULATED	TO BE PRESERVED	587	76573	15" POPLAR	UNREGULATED	TO BE REMOVED	713	78512	8" ELM	REGULATED	TO BE PRESERVED	825	79002	15" COTTONWOOD	UNREGULATED	TO BE REMOVED
453	76429	10" ELM	UNREGULATED	TO BE REMOVED	588	76575	15" POPLAR	UNREGULATED	TO BE REMOVED	714	78513	20" COTTONWOOD	REGULATED	TO BE PRESERVED	826	79003	10" COTTONWOOD	UNREGULATED	TO BE REMOVED
454	76435	18" ELM	UNREGULATED	TO BE REMOVED	589	76577	42" POPLAR	UNREGULATED	TO BE REMOVED	717	78514	8" CHERRY	REGULATED	TO BE PRESERVED	827	79004	26" POPLAR	UNREGULATED	TO BE REMOVED
455	76437	8" MAPLE	UNREGULATED	TO BE REMOVED	590	76576	8" ELM	UNREGULATED	TO BE REMOVED	718	79083	9" ELM	REGULATED	TO BE PRESERVED	828	79005	7" COTTONWOOD	UNREGULATED	TO BE REMOVED
456	76436	9" MAPLE	UNREGULATED	TO BE REMOVED	591	76579	6" ELM	UNREGULATED	TO BE REMOVED	719	79084	9" COTTONWOOD	REGULATED	TO BE PRESERVED	829	78589	7" ELM	UNREGULATED	TO BE REMOVED
457	76738	20" MAPLE	UNREGULATED	TO BE REMOVED	593	76564	9" ELM	UNREGULATED	TO BE REMOVED	720	79092	10" COTTONWOOD	REGULATED	TO BE PRESERVED	830	79030	16" DEAD	UNREGULATED	TO BE REMOVED
470	76471	10" MAPLE	REGULATED	TO BE REMOVED	594	76552	6" ELM	REGULATED	TO BE REMOVED	721	79085	6" ELM	REGULATED	TO BE PRESERVED	831	79029	9" POPLAR	REGULATED	TO BE REMOVED
471	76476 (DUPLICATE #)	12" ASH	UNREGULATED	TO BE REMOVED	595	76551	8" ELM	REGULATED	TO BE REMOVED	723	79091	10" COTTONWOOD	REGULATED	TO BE PRESERVED	832	79028	9" POPLAR	REGULATED	TO BE REMOVED
475	76478 (DUPLICATE #)	18" ELM	UNREGULATED	TO BE REMOVED	596	76550	8" ELM	REGULATED	TO BE REMOVED	724	79086	10" COTTONWOOD	REGULATED	TO BE PRESERVED	833	79027	8" OAK	REGULATED	TO BE REMOVED
476	76479	6" ELM	UNREGULATED	TO															

Executive: P.M.
Manager: M.P.
Engineer: L.W.
Quality Control: N.M.
Section:



DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

Developed For:
VANGUARD COMPANIES
101 S. MAIN STREET
ROCHESTER, MI 48037
p (248) 650-6206
f (248) 650-6274

TREE TABLE 2 OF 2
PRELIMINARY SITE PLAN
NOTTINGHAM WOODS

ROCHESTER HILLS
MICHIGAN
Oakland County

Date: 7/6/15
Scale: N/A
Sheet: 07
Project: 18701.00

POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN	POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN	POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN	POINT NUMBER	TREE TAG	SPECIES	REGULATION	REMOVAL PLAN
881	78587	14" COTTONWOOD	REGULATED	TO BE REMOVED	1226	80320	12" DOGWOOD	REGULATED	TO BE PRESERVED	1367	78444	9" CHERRY	REGULATED	TO BE REMOVED	1637	80294	10" SPRUCE	REGULATED	TO BE PRESERVED
882	78586	10" POPLAR	REGULATED	TO BE REMOVED	1227	80319	6" WALNUT	REGULATED	TO BE PRESERVED	1368	78445	6" DOGWOOD	REGULATED	TO BE REMOVED	1638	80292	6" CEDAR	REGULATED	TO BE PRESERVED
883	78585	6" COTTONWOOD	REGULATED	TO BE REMOVED	1231	80318	7" MULBERRY	REGULATED	TO BE PRESERVED	1369	78447	18" POPLAR	REGULATED	TO BE REMOVED	1652	80289	24" MAPLE	REGULATED	TO BE PRESERVED
886	79013	6" ELM	UNREGULATED	TO BE REMOVED	1232	80317	6" DOGWOOD	REGULATED	TO BE PRESERVED	1370	78446	8" ELM	REGULATED	TO BE REMOVED	1653	80290	10" ASH	UNREGULATED	TO BE REMOVED
887	79014	12" COTTONWOOD	UNREGULATED	TO BE REMOVED	1233	80316	6/5/5/4" HAWTHORN	REGULATED	TO BE PRESERVED	1371	78448	10" ELM	REGULATED	TO BE REMOVED	1655	80291	12" SPRUCE	REGULATED	TO BE PRESERVED
888	79015	16" COTTONWOOD	UNREGULATED	TO BE REMOVED	1240	80303	6/6/6/7/4" FRUIT	REGULATED	TO BE PRESERVED	1372	78453	16" POPLAR	UNREGULATED	TO BE REMOVED	1656	80288	10" MAPLE	REGULATED	TO BE PRESERVED
889	79006	15" COTTONWOOD	UNREGULATED	TO BE REMOVED	1250	80304	8" CRABAPPLE	REGULATED	TO BE PRESERVED	1373	78454	8" ELM	UNREGULATED	TO BE REMOVED	1664	80271	12" FIR	REGULATED	TO BE PRESERVED
890	79010	14" COTTONWOOD	UNREGULATED	TO BE REMOVED	1251	80305	7" CRABAPPLE	REGULATED	TO BE PRESERVED	1510	80254	6" ELM	REGULATED	TO BE REMOVED	1672	80272	10/8" LOCUST	REGULATED	TO BE PRESERVED
891	79009	12" COTTONWOOD	UNREGULATED	TO BE REMOVED	1257	80306	10" CRABAPPLE	REGULATED	TO BE PRESERVED	1511	79171	11" MAPLE	REGULATED	TO BE REMOVED	1673	80273	13" MAPLE	REGULATED	TO BE PRESERVED
892	79008	6" ELM	REGULATED	TO BE REMOVED	1261	80307	14/11" MAPLE	REGULATED	TO BE PRESERVED	1512	80253	6" ELM	REGULATED	TO BE REMOVED	1676	80274	15" MAPLE	REGULATED	TO BE PRESERVED
893	79012	13" ELM	UNREGULATED	TO BE REMOVED	1266	80308	18/13/12/8" BIRCH	REGULATED	TO BE PRESERVED	1513	79172	10" POPLAR	REGULATED	TO BE REMOVED	1679	80275	24" PINE	REGULATED	TO BE PRESERVED
894	79011	6" ELM	UNREGULATED	TO BE REMOVED	1267	80309	8/6" BIRCH	REGULATED	TO BE PRESERVED	1514	79170	12" COTTONWOOD	REGULATED	TO BE REMOVED	1680	80276	24" PINE	REGULATED	TO BE PRESERVED
895	79016	8" ELM	UNREGULATED	TO BE REMOVED	1268	NO TAG	7" BIRCH	REGULATED	TO BE PRESERVED	1515	79169	6" OAK	REGULATED	TO BE REMOVED	1681	NO TAG (OFFSITE)	12" PINE	UNREGULATED	TO BE PRESERVED
896	79017	18" COTTONWOOD	UNREGULATED	TO BE REMOVED	1269	80310	10/7" BIRCH	REGULATED	TO BE PRESERVED	1516	79168	9" COTTONWOOD	REGULATED	TO BE REMOVED	1682	80277	14" PINE	REGULATED	TO BE PRESERVED
897	79018	6" COTTONWOOD	UNREGULATED	TO BE REMOVED	1270	80311	15/10/8" BIRCH	REGULATED	TO BE PRESERVED	1517	79167	13" COTTONWOOD	REGULATED	TO BE REMOVED	1687	80280	20" PINE	REGULATED	TO BE PRESERVED
898	79058	6" ELM	UNREGULATED	TO BE REMOVED	1271	80312	7/7" BIRCH	REGULATED	TO BE PRESERVED	1518	79155	16" COTTONWOOD	REGULATED	TO BE REMOVED	1688	80281	12" PINE	REGULATED	TO BE PRESERVED
901	80256	15" POPLAR	REGULATED	TO BE REMOVED	1272	80313	15/10" BIRCH	REGULATED	TO BE PRESERVED	1519	79154	10" COTTONWOOD	REGULATED	TO BE REMOVED	1689	80279	10" PINE	REGULATED	TO BE PRESERVED
902	80258	8" ELM	REGULATED	TO BE REMOVED	1281	80297	18" CHERRY	REGULATED	TO BE PRESERVED	1520	79153	12" COTTONWOOD	REGULATED	TO BE REMOVED	1690	80278	10" PINE	REGULATED	TO BE PRESERVED
903	79043	24" COTTONWOOD	REGULATED	TO BE PRESERVED	1282	76578	14" ELM	UNREGULATED	TO BE REMOVED	1521	79176	7" CHERRY	REGULATED	TO BE REMOVED	1691	80282	12" SPRUCE	REGULATED	TO BE PRESERVED
904	80262	10" CHERRY	REGULATED	TO BE REMOVED	1283	76587	8" DOGWOOD	UNREGULATED	TO BE REMOVED	1522	79175	6" CHERRY	REGULATED	TO BE REMOVED	1692	80283	14" SPRUCE	REGULATED	TO BE PRESERVED
906	80263	12" ELM	REGULATED	TO BE REMOVED	1284	76588	9/5" ELM	UNREGULATED	TO BE REMOVED	1523	79174	16" POPLAR	REGULATED	TO BE REMOVED	1693	80284	10" SPRUCE	REGULATED	TO BE PRESERVED
908	80261	6" ELM	REGULATED	TO BE REMOVED	1285	76589	10" ELM	UNREGULATED	TO BE REMOVED	1524	79173	10" ELM	REGULATED	TO BE REMOVED	1694	80285	12" PINE	REGULATED	TO BE PRESERVED
910	80259	6" BIRCH	REGULATED	TO BE REMOVED	1286	78457	6" CHERRY	UNREGULATED	TO BE REMOVED	1525	80252	12" COTTONWOOD	REGULATED	TO BE REMOVED	1698	80286	10" PINE	REGULATED	TO BE PRESERVED
912	80256	12" ELM	REGULATED	TO BE REMOVED	1287	78458	13" ELM	UNREGULATED	TO BE REMOVED	1526	80231	7" POPLAR	REGULATED	TO BE REMOVED	1699	80287	15/14/12/8" MAPLE	REGULATED	TO BE PRESERVED
914	80257	8" ELM	REGULATED	TO BE REMOVED	1288	78465	10" MAPLE	UNREGULATED	TO BE REMOVED	1527	80230	10" COTTONWOOD	REGULATED	TO BE REMOVED	1700	80288	14" SPRUCE	REGULATED	TO BE PRESERVED
916	80255	10" ELM	REGULATED	TO BE REMOVED	1289	78525	20" COTTONWOOD	UNREGULATED	TO BE REMOVED	1528	80219	12" POPLAR	REGULATED	TO BE REMOVED	1715	NO TAG (OFFSITE)	12" PINE	UNREGULATED	TO BE PRESERVED
917	79166	6" ELM	REGULATED	TO BE REMOVED	1290	78524	9" CHERRY	UNREGULATED	TO BE REMOVED	1529	80218	7" MAPLE	UNREGULATED	TO BE REMOVED	1716	76445	20" ELM	REGULATED	TO BE PRESERVED
918	79164	10" ELM	REGULATED	TO BE REMOVED	1291	78523	13/12" COTTONWOOD	UNREGULATED	TO BE REMOVED	1530	80220	8" ELM	REGULATED	TO BE REMOVED	1717	80296	8/5" OAK	REGULATED	TO BE PRESERVED
919	79162	10" ELM	REGULATED	TO BE REMOVED	1292	78527	14" MAPLE	UNREGULATED	TO BE REMOVED	1531	80221	8" ELM	REGULATED	TO BE REMOVED	1718	76430	15" ELM	UNREGULATED	TO BE REMOVED
920	79165	6" ELM	UNREGULATED	TO BE REMOVED	1293	78526	7" CHERRY	UNREGULATED	TO BE REMOVED	1532	80222	24" COTTONWOOD	REGULATED	TO BE REMOVED	1719	76442	12" FIR	REGULATED	TO BE PRESERVED
921	79161	18" COTTONWOOD	REGULATED	TO BE REMOVED	1294	78528	12" BIRCH	UNREGULATED	TO BE REMOVED	1533	80223	6" BIRCH	REGULATED	TO BE REMOVED	1720	76401	20" HICKORY	REGULATED	TO BE PRESERVED
922	79163	8" ELM	UNREGULATED	TO BE REMOVED	1295	78561	6" POPLAR	REGULATED	TO BE REMOVED	1534	80209	22" COTTONWOOD	REGULATED	TO BE REMOVED	1721	76403	24" OAK	UNREGULATED	TO BE REMOVED
923	79158	18" COTTONWOOD	REGULATED	TO BE REMOVED	1296	78560	6" ASPEN	REGULATED	TO BE REMOVED	1535	80208	12" COTTONWOOD	REGULATED	TO BE REMOVED	1722	76447	18" PINE	REGULATED	TO BE PRESERVED
924	79157	12" ELM	REGULATED	TO BE REMOVED	1297	78558	12" COTTONWOOD	UNREGULATED	TO BE REMOVED	1536	80207	6" BIRCH	REGULATED	TO BE REMOVED	1723	76446	15" PINE	REGULATED	TO BE PRESERVED
925	79159	8" ELM	UNREGULATED	TO BE REMOVED	1298	78559	10" COTTONWOOD	UNREGULATED	TO BE REMOVED	1537	80201	7" BIRCH	REGULATED	TO BE REMOVED	1724	76448	12" APPLE	REGULATED	TO BE PRESERVED
927	79113	18" COTTONWOOD	REGULATED	TO BE REMOVED	1299	78562	6" CHERRY	UNREGULATED	TO BE REMOVED	1538	80202	8" CHERRY	REGULATED	TO BE REMOVED	1725	76402	24" WILLOW	UNREGULATED	TO BE REMOVED
928	79112	10" COTTONWOOD	REGULATED	TO BE REMOVED	1300	78563	10/18" COTTONWOOD	UNREGULATED	TO BE REMOVED	1539	80203	15" COTTONWOOD	REGULATED	TO BE REMOVED	1726	76458	TREE\$1 TREE	REGULATED	TO BE PRESERVED
929	DEAD 6" DEAD	DEAD	UNREGULATED	TO BE REMOVED	1301	78564	15" COTTONWOOD	UNREGULATED	TO BE REMOVED	1540	80204	9" CHERRY	REGULATED	TO BE REMOVED	1727	78495	9" ELM	REGULATED	TO BE PRESERVED
930	79110	12" COTTONWOOD	REGULATED	TO BE REMOVED	1302	78565	7" COTTONWOOD	UNREGULATED	TO BE REMOVED	1541	80205	10" CHERRY	REGULATED	TO BE REMOVED	1728	78502	6" CHERRY	REGULATED	TO BE PRESERVED
931	79111	14" COTTONWOOD	REGULATED	TO BE REMOVED	1303	78566	16" COTTONWOOD	UNREGULATED	TO BE REMOVED	1542	80206	10" POPLAR	REGULATED	TO BE REMOVED	1729	78534	18" COTTONWOOD	REGULATED	TO BE REMOVED
932	79109	18" COTTONWOOD	REGULATED	TO BE REMOVED	1304	78567	12" COTTONWOOD	UNREGULATED	TO BE REMOVED	1543	79200	8" CHERRY	REGULATED	TO BE REMOVED	1730	78468	7" ELM	REGULATED	TO BE REMOVED
933	79108	8" ELM	REGULATED	TO BE REMOVED	1305	78569	8" ELM	UNREGULATED	TO BE REMOVED	1544	79199	18" CHERRY	REGULATED	TO BE REMOVED	1731	78469	13" ELM	REGULATED	TO BE REMOVED
934	79107	8" ELM	REGULATED	TO BE REMOVED	1306	78570	7" ELM	UNREGULATED	TO BE REMOVED	1545	79198	12" MAPLE	REGULATED	TO BE REMOVED	1732	78470	7" ELM	REGULATED	TO BE REMOVED
935	79106	24" COTTONWOOD	REGULATED	TO BE REMOVED	1307	78568	8" CHERRY	UNREGULATED	TO BE REMOVED	1546	79197	10" MAPLE	REGULATED	TO BE REMOVED	1733	78471	13" COTTONWOOD	REGULATED	TO BE REMOVED
936	79105	8" ELM	UNREGULATED	TO BE REMOVED	1308	DEAD	10/8" OAK	UNREGULATED	TO BE REMOVED	1547	79196	12" CHERRY	REGULATED	TO BE REMOVED	1734	78496	TREE\$1 TREE	REGULATED	TO BE REMOVED
937	79122	12" ELM	UNREGULATED	TO BE REMOVED	1309	78495	10" POPLAR	REGULATED	TO BE REMOVED	1548	79197	12" CHERRY	REGULATED	TO BE REMOVED	1735	78598	TREE\$1 TREE	REGULATED	TO BE REMOVED
938	NO TAG 10" ELM	NO TAG	UNREGULATED	TO BE REMOVED	1310	79001	15" COTTONWOOD	REGULATED	TO BE REMOVED	1549	79194	10" CHERRY	REGULATED	TO BE REMOVED	1736	79178	7" ELM	REGULATED	TO BE REMOVED
939	79120	16" COTTONWOOD	UNREGULATED	TO BE REMOVED	1311	78599	13" COTTONWOOD	REGULATED	TO BE REMOVED	1551	79192	8" CHERRY	REGULATED	TO BE PRESERVED	1737	80227	20" COTTONWOOD	REGULATED	TO BE REMOVED
940	79121	10" ELM	UNREGULATED	TO BE REMOVED	1312	78597	8" OAK	REGULATED	TO BE REMOVED	1552	79193	7" CHERRY	REGULATED	TO BE REMOVED	1738	80228	7" ELM	REGULATED	TO BE REMOVED
941	79119	12" COTTONWOOD	UNREGULATED	TO BE REMOVED	1313	78600	6/7" OAK	REGULATED	TO BE REMOVED	1553	79142	10" COTTONWOOD	REGULATED	TO BE REMOVED	1739	80229	7" ELM	REGULATED	TO BE REMOVED
942	79118	6" COTTONWOOD	REGULATED	TO BE REMOVED	1314	79007	7" POPLAR	REGULATED	TO BE REMOVED	1554	79143	16" COTTONWOOD	REGULATED	TO BE REMOVED	1740	80260	DEAD \$1 DEAD	UNREGULATED	TO BE REMOVED
943	79123	12" COTTONWOOD	UNREGULATED	TO BE REMOVED	1315	79101	22/12/11" COTTONWOOD	REGULATED	TO BE REMOVED	1556	79146	8" POPLAR	REGULATED	TO BE REMOVED					
944	79117	12" COTTONWOOD	REGULATED	TO BE REMOVED	1316	79103	6/4" OAK	UNREGULATED	TO BE REMOVED	1557	79148	15" COTTONWOOD	REGULATED	TO BE REMOVED					
945	79124	10" POPLAR	UNREGULATED	TO BE REMOVED	1317	79104	7" OAK	UNREGULATED	TO BE REMOVED	1558	79149	12" COTTONWOOD	REGULATED	TO BE REMOVED					
946	79125	10" COTTONWOOD	UNREGULATED	TO BE REMOVED	1318	79139	12" CHERRY	UNREGULATED	TO BE REMOVED	1559	79150	8" COTTONWOOD	REGULATED	TO BE REMOVED					
947	79115	16" COTTONWOOD	REGULATED	TO BE REMOVED	1319	78412	6" ASH	UNREGULATED	TO BE REMOVED	1560	79151	10" COTTONWOOD	REGULATED	TO BE REMOVED					
948	79126	15" COTTONWOOD	UNREGULATED	TO BE REMOVED	1320	76581	8" ASH	UNREGULATED	TO BE REMOVED	1561	79152	8" CHERRY	REGULATED	TO BE REMOVED					

STREET TREE PLANT LIST: XX
XX

TREE REQ.ED 1 PER LOT 17 LOTS 17 TREES PROPOSED (TO BE PLANTED BY THE CITY)

NO.	COMMON NAME	BOTANICAL NAME	SIZE	SYMBOL
4	RED MAPLE	ACER RUBRUM 'OCTOBER GLORY'	3" CAL. B&B	RM
4	SWEETGUM	LIQUIDAMBAR STRACELIA	3" CAL. B&B	SG
4	TULIP TREE	LIRIODENDRON TULIPIFERA	3" CAL. B&B	TU
4	SHAGBARK HICKORY	QUERCUS MUEHLENBERGII	3" CAL. B&B	OK
1	SHAGBARK HICKORY	CARYA OVATA	3" CAL. B&B	SH

GREENBELT PLANT LIST: XXX
X

REQ.ED 6 DECIDUOUS TREE; 4 ORNAMENTAL TREES = 6 DECIDUOUS TREES; 4 ORNAMENTAL TREES PROPOSED

NO.	COMMON NAME	BOTANICAL NAME	SIZE	SYMBOL
28	OBSIDIAN CORAL BELLS	HEUCHERA 'OBSIDIAN'	1 GAL. POT	OBP
15	FOUNTAIN GRASS	PENNISETUM ALOPECUROIDES	1 GAL. POT	FOU
NO.	COMMON NAME	BOTANICAL NAME	SIZE	SYMBOL
24	BRIDALWEATH SPIRAEA	SPIRAEA PRUNIFOLIA	24" SPD.	SPY
6	SKYROCKET JUNIPER	JUNIPERUS SCOPULORUM 'SKYROCKET'	5-6" HT.	SKY
15	GROW-LOW SUMAC	RHUS ARGOMATICA 'GRO-LOW'	24" SPD.	SUM
NO.	COMMON NAME	BOTANICAL NAME	SIZE	SYMBOL
3	LONDON PLANE TREE	PLATANUS X ACERIFOLIA	3" CAL. B&B	LP
3	SHAGBARK HICKORY	CARYA OVATA	3" CAL. B&B	SH
2	KOREAN LILAC TREE	SIRYNGA MEYER 'PALUBIN (TREE FORM)'	3" CAL. B&B	LI
9	WHITE FIR	ABIES CONCOLOR	6-7" TALL B&B	CF
21	WHITE SPRUCE	PICEA GLAUCA	6-7" TALL B&B	WS
6	PYRAMIDAL ENGLISH OAK	QUERCUS ROBUR 'FASTIGIATA'	3" CAL. B&B	EO

DETENTION PLANT LIST: XXX
Y

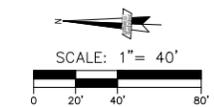
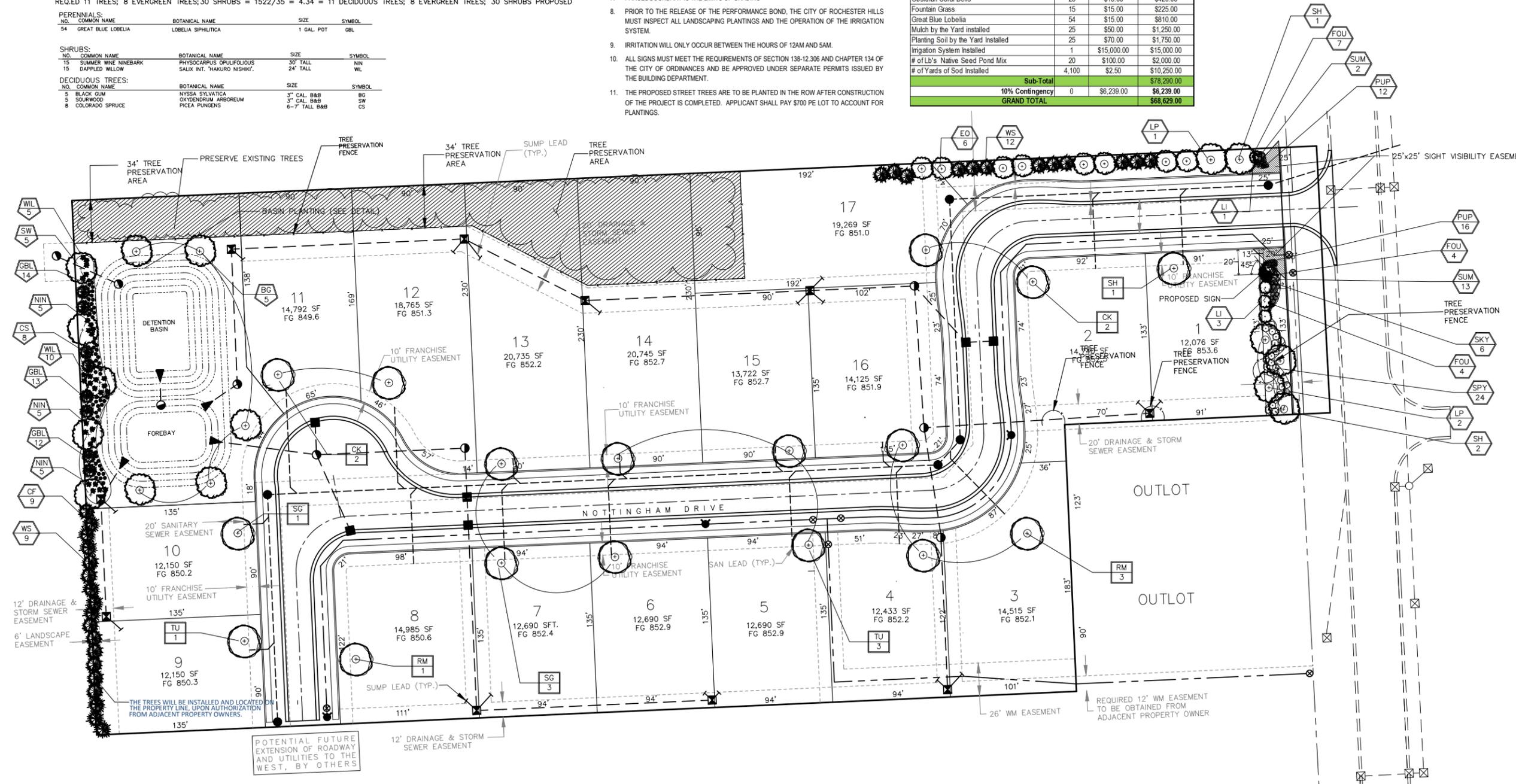
REQ.ED 11 TREES; 8 EVERGREEN TREES; 30 SHRUBS = 1522/35 = 4.34 = 11 DECIDUOUS TREES; 8 EVERGREEN TREES; 30 SHRUBS PROPOSED

NO.	COMMON NAME	BOTANICAL NAME	SIZE	SYMBOL
54	GREAT BLUE LOBELIA	LOBELIA SIPHILITICA	1 GAL. POT	GBL
NO.	COMMON NAME	BOTANICAL NAME	SIZE	SYMBOL
15	SUMMER WINE NINEBARK	PHYSOCARPUS OPULIFOLIUS	30" TALL	NIN
15	DAPPLED WILLOW	SALIX INT. 'HAKURO NISHIKI'	24" TALL	WIL
NO.	COMMON NAME	BOTANICAL NAME	SIZE	SYMBOL
5	BLACK GUM	NYSSA SYLVATICA	3" CAL. B&B	BG
5	SOURWOOD	OXYDENRUM ARBOREUM	3" CAL. B&B	SW
8	COLORADO SPRUCE	PICEA PUNGENS	6-7" TALL B&B	CS

NOTES

- PRIOR APPROVAL IS REQUIRED TO PLANT ANY TREE OR SHRUB ON THE PUBLIC RIGHT-OF-WAY.
- ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC ROAD. (TREES MUST BE PLANTED AT LEAST 15' AWAY FROM CURB OR ROAD EDGE WHERE THE SPEED LIMIT IS MORE THAN 35 MPH.) 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 THE PUBLIC WALKWAY.
- NO TREES OR SHRUBS MAY BE PLANTED WITHIN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY STREET RIGHT-OF-WAY LINES AT A DISTANCE ALONG EACH LINE OF 25' FROM THEIR POINT OF INTERSECTION. NO TREES OR SHRUBS MAY BE PLANTED IN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY DRIVEWAY WITH A PUBLIC WALKWAY AT A DISTANCE ALONG EACH LINE OF 15' FROM THEIR POINT OF INTERSECTION.
- ALL TREES AND SHRUBS MAY BE PLANTED AT LEAST 10' FROM ANY FIRE HYDRANT. SHADE AND EVERGREEN TREES MUST BE PLANTED AT LEAST 15' AWAY FROM THE NEAREST OVERHEAD WIRE. TREES MUST BE PLANTED A MINIMUM OF 5' FROM AN UNDERGROUND UTILITY, UNLESS THE CITY'S LANDSCAPE ARCHITECT REQUIRES A GREATER DISTANCE.
- PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS FORESTRY DIVISION NEEDS TO INSPECT ALL TREES, EXISTING OR PLANTED, TO IDENTIFY ANY THAT POSE A HAZARD TO THE SAFE USE OF PUBLIC RIGHT-OF-WAY. FORESTRY MAY REQUIRE THE DEVELOPER TO REMOVE, AND POSSIBLY REPLACE, ANY SUCH TREES.
- ALL PLANTING AREAS TO BE IRRIGATED
- PARCEL BOUNDARY IS THE LIMITS OF GRADING
- PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS MUST INSPECT ALL LANDSCAPING PLANTINGS AND THE OPERATION OF THE IRRIGATION SYSTEM.
- IRRIGATION WILL ONLY OCCUR BETWEEN THE HOURS OF 12AM AND 5AM.
- ALL SIGNS MUST MEET THE REQUIREMENTS OF SECTION 138-12.306 AND CHAPTER 134 OF THE CITY OF ORDINANCES AND BE APPROVED UNDER SEPARATE PERMITS ISSUED BY THE BUILDING DEPARTMENT.
- THE PROPOSED STREET TREES ARE TO BE PLANTED IN THE ROW AFTER CONSTRUCTION OF THE PROJECT IS COMPLETED. APPLICANT SHALL PAY \$700 PER LOT TO ACCOUNT FOR PLANTINGS.

ITEM	QUANT.	UNIT PRICE	TOTAL
Stone Sign	1	\$10,000.00	\$10,000.00
Red Maple	4	\$350.00	\$1,400.00
Sweetgum	4	\$400.00	\$1,600.00
Tulip Tree	4	\$350.00	\$1,400.00
Chinkapin	4	\$400.00	\$1,600.00
Shagbark Hickory	4	\$400.00	\$1,600.00
London Plane Tree	3	\$350.00	\$1,050.00
Korean Lilac Tree	4	\$400.00	\$1,600.00
Black Gum	5	\$400.00	\$2,000.00
Pyramidal English Oak	6	\$400.00	\$2,400.00
White Fir	11	\$400.00	\$4,400.00
Sourwood	6	\$350.00	\$2,100.00
White Spruce	26	\$350.00	\$9,100.00
Colorado Spruce	8	\$400.00	\$3,200.00
Bridal Wreath Spiraea	24	\$35.00	\$840.00
Skyrocket Juniper	6	\$70.00	\$420.00
Grow-Low Sumac	15	\$35.00	\$525.00
Summer Wine Ninebark	15	\$45.00	\$675.00
Dappled Willow	15	\$45.00	\$675.00
Obsidian Coral Bells	28	\$15.00	\$420.00
Fountain Grass	15	\$15.00	\$225.00
Great Blue Lobelia	54	\$15.00	\$810.00
Mulch by the Yard installed	25	\$50.00	\$1,250.00
Planting Soil by the Yard Installed	25	\$70.00	\$1,750.00
Irrigation System Installed	1	\$15,000.00	\$15,000.00
# of Lb's Native Seed Pond Mix	20	\$100.00	\$2,000.00
# of Yards of Sod Installed	4,100	\$2.50	\$10,250.00
Sub-Total			\$78,290.00
10% Contingency	0	\$6,239.00	\$6,239.00
GRAND TOTAL			\$84,529.00



DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.08.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

Developed For:
VANGUARD COMPANIES
101 S. MAIN STREET
ROCHESTER, MI 48037
p (248) 650-6206
f (248) 650-6274

LANDSCAPE PLAN
PRELIMINARY SITE PLAN
NOTTINGHAM WOODS
ROCHESTER HILLS
MICHIGAN
Oakland County

Date: 7/6/15
Scale: 1" = 40'
Sheet: LA-01
Project: 18701.00

Executive:	P.M.
Manager:	M.P.
Engineer:	L.W.
Quality Control:	N.M.
Section:	

Professional Seal



DATE	ISSUE
03.05.2015	PRELIM. SITE PLAN SUBMITTAL
07.06.2015	REVISED PER CITY REVIEW
08.04.2015	REVISED PER CITY REVIEW
10.23.2015	REVISED PER PC REVIEW
12.02.2015	RELOCATE LOT 17

Developed For:

VANGUARD COMPANIES
101 S. MAIN STREET
ROCHESTER, MI 48037
p (248) 650-6206
f (248) 650-6274

LANDSCAPE DETAILS
PRELIMINARY SITE PLAN
NOTTINGHAM WOODS

ROCHESTER HILLS
MICHIGAN
Oakland County

Date:	7/6/15
Scale:	N/A
Sheet:	LA-02
Project:	18701.00

PLANT NOTES:

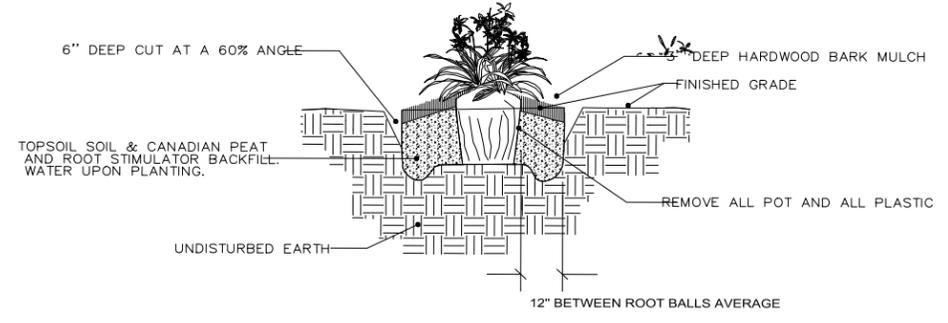
- A. The Planning Department may approve an alternative form of irrigation for a particular site, or may waive this requirement upon determining that underground irrigation is not necessary for the type of proposed plant materials.
- B. All automatic irrigation systems shall be designed to minimize water usage, and shall be shut off during water emergencies, periods of protracted rainfall, or water rationing periods.
- C. The irrigation requirement may be waived by the reviewing authority if the project incorporates landscaping that will contribute points towards LEED certification or an equivalent rating system.
- D. The applicant may be required to post a Performance Bond prior to the issuance of a temporary or final Certificate of Occupancy to ensure the completion of landscaping (including irrigation). If the landscaping is not 100% complete when any certificate of occupancy is requested, the City will inspect the landscaping and determine the percentage of completion and a performance bond must be submitted to the City by the Developer in the sum equal to the unfinished portion of the landscape work. The City will have the authority to determine the percentage of completion and the bond amount required. If the landscaping is 100% complete and approved no Performance Bond will be required.
- E. Maintenance Bond. A Maintenance Bond in the sum of 25% of estimated cost of landscaping (including irrigation) must be posted prior to the issuance of any Certificate of Occupancy (including temporary). The Maintenance Bond is held for a period 2 years, at the end of which time the City shall inspect the landscaping. Once, inspection issues are addressed the unused balance of the Maintenance Bond will be released.

Maintenance

- The owner of the property shall be responsible for all maintenance of site landscaping, as follows:
- A. Landscaping shall be kept in a neat, orderly and healthy growing condition, free from debris and refuse.
 - B. Pruning shall be minimal at the time of installation, only to remove dead or diseased branches. Subsequent pruning shall assure proper maturation of plants to achieve their approved purpose.
 - C. All dead, damaged, or diseased plant material shall be removed immediately and replaced within six (6) months after it dies or in the next planting season, whichever occurs first. For purposes of this Section, the planting season for deciduous plants shall be between March 1 and June 1 and from October 1 until the prepared soil becomes frozen. 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.
 - D. The approved landscape plan shall be considered a permanent record and integral part of the Site Plan Approval. Unless otherwise approved in accordance with the aforementioned procedures, any revisions to or removal of plant materials, or non-compliance with the maintenance requirements of this Section 138-2.109 will place the parcel in non-conformity with the approved landscape plan and be a violation of this Ordinance.
 - E. If protected trees are damaged, a fine shall be issued on an inch-by-inch basis at a monetary rate as defined by the Forestry Department.

Installation:

All landscaping shall be installed in a manner consistent with the standards of the American Association of Nurserymen, the approved site plan, and the following:



PERENNIAL PLANTING DETAIL
NO SCALE

LAWN SEED MIX:

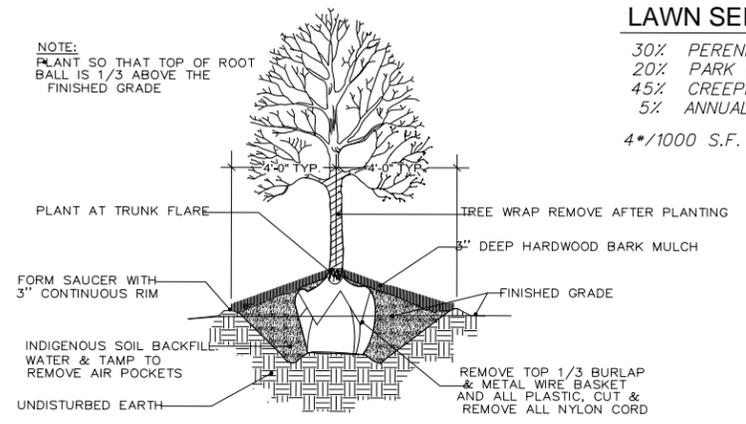
- 30% PERENNIAL RYGRASS
 - 20% PARK KENTUCKY BLUEGRASS
 - 45% CREEPING RED FESCUE
 - 5% ANNUAL RYEGRASS
- 4*/1000 S.F. SEEDING RATE

Bio Retention Native Seed Mix:

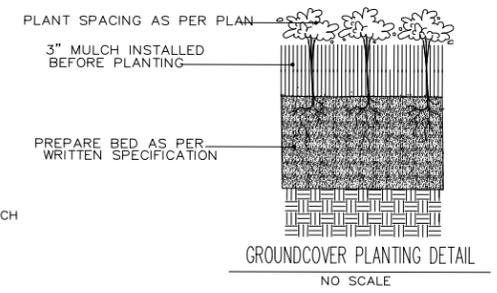
10 pounds

Common Name	Scientific Name	Color	Bloom Time	Oz.
Mexican Aster	Cosmos Bipinnatus	White, Purple	June-August	140
Annual Rye	Lolium perenne			100

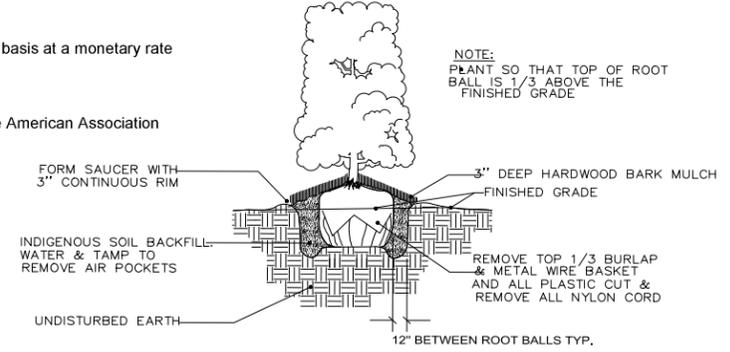
Common Name	Scientific Name	Oz.
Little Bluestem Grass	Schizachyrium scoparium	80



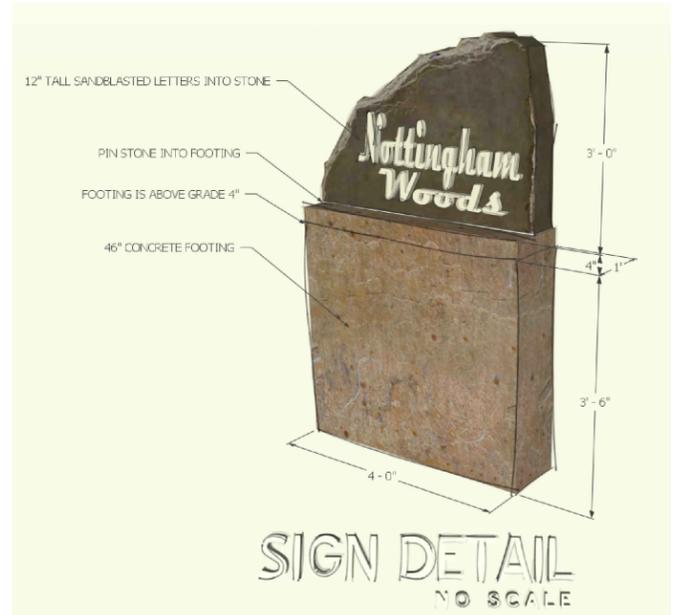
DECIDUOUS TREE PLANTING DETAIL
NO SCALE



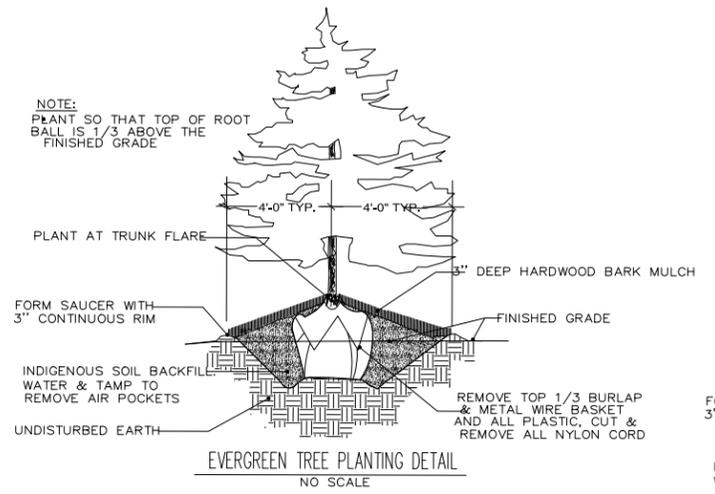
GROUNDCOVER PLANTING DETAIL
NO SCALE



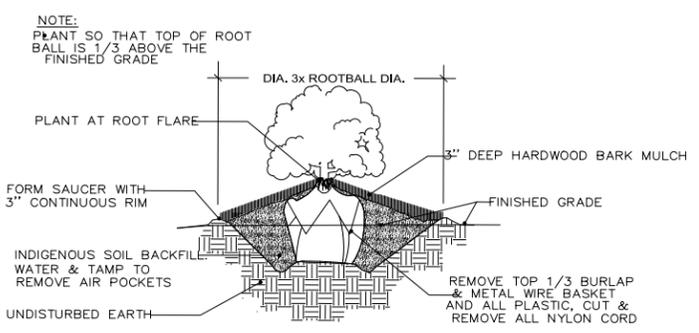
SHRUB HEDGE PLANTING DETAIL
NO SCALE



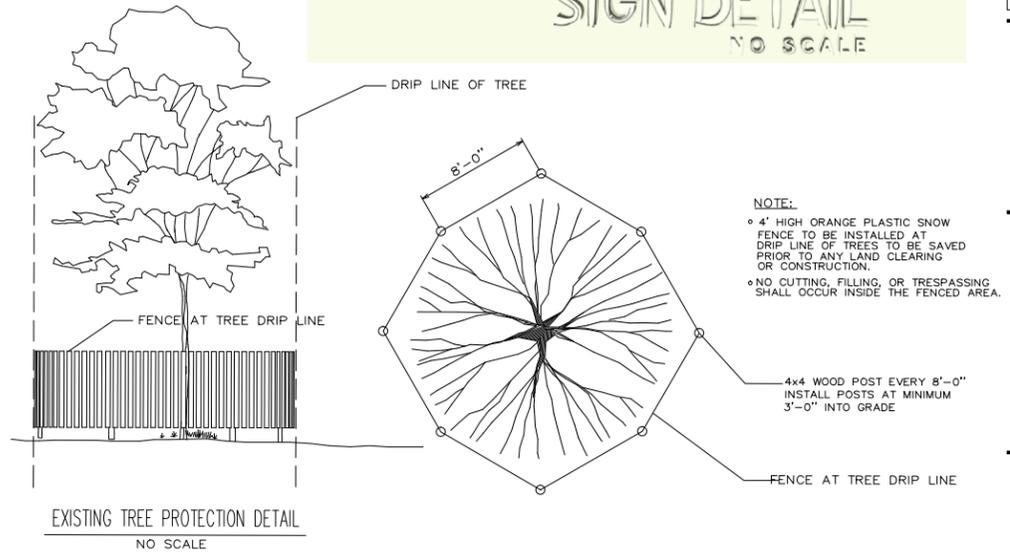
SIGN DETAIL
NO SCALE



EVERGREEN TREE PLANTING DETAIL
NO SCALE



SHRUB PLANTING DETAIL
NO SCALE



EXISTING TREE PROTECTION DETAIL
NO SCALE

- NOTE:**
- 4' HIGH ORANGE PLASTIC SNOW FENCE TO BE INSTALLED AT DRIP LINE OF TREES TO BE SAVED PRIOR TO ANY LAND CLEARING OR CONSTRUCTION.
 - NO CUTTING, FILLING, OR TRESPASSING SHALL OCCUR INSIDE THE FENCED AREA.

4x4 WOOD POST EVERY 8'-0"
INSTALL POSTS AT MINIMUM 3'-0" INTO GRADE