MONTEBELLO ESTATES
JSP15-76

MONTEBELLO ESTATES JSP 15-76

Public hearing at the request of Mirage Development for Planning Commission's approval of Preliminary Site Plan, Woodlands Permit, Wetlands Permit and Stormwater Management Plan. The subject property is currently zoned R-3, One-Family Residential and is located in Section 27, west of Novi Road and north of Nine Mile Road. The applicant is proposing a 32 unit single-family detached residential development on a 26.94 acre property.

Required Action

Approval/Postpone/Denial of the Preliminary Site Plan, Wetland Permit, Woodland Permit, and Stormwater Management Plan.

REVIEW	RESULT	DATE	COMMENTS
Planning	Approval recommended	03-15-16	• Items to be addressed on the final site plan submittal
Engineering	**Approval NOT recommended**	03-15-16	• **A City Council variance for absence of sidewalk and water main along Nine Mile Road (Staff does not support)** • Items to be addressed on the final site plan submittal
Landscaping	Approval recommended	03-11-16	• **Waiver for reduction/absence of greenbelt planting, street trees, and required berm along Nine Mile Road and Cottisford Road (Staff Supports)** • Items to be addressed on the final site plan submittal
Wetland	Approval recommended	03-10-16	• **Requires a City of Novi Wetland Permit and an Authorization to encroach the 25-Foot Natural Features Setback** • Items to be addressed on the final site plan submittal
Woodland	Approval recommended	03-10-16	• **Requires a City of Novi Woodland Permit** • Items to be addressed on the final site plan submittal
Traffic	Approval recommended	03-09-16	• Items to be addressed on the final site plan submittal
Traffic Impact Study	Approval recommended	03-09-16	• All items addressed
Facade	Not Applicable		
Fire	Approval recommended	03-03-16	• All items addressed

Motion sheet

Approval – Preliminary Site Plan

In the matter of Montebello Estates, JSP 15-76, motion to **approve** the Preliminary Site Plan based on and subject to the following:

a. A Landscape waiver to permit the absence of required berm and greenbelt plantings along Nine Mile Road (for 1139 feet of total 1379 feet frontage) as listed in Section 5.5.3.B.ii and iii (32 canopy trees and 57 sub canopy trees required; 0 provided) due to existing natural vegetation and terrain to be preserved, which is hereby granted;
b. A Landscape waiver to permit the absence of the required berm and some of the required greenbelt planting along Cottisford Road as listed in Section 5.5.3.B.ii and iii (14 sub canopy trees required; 0 provided) due to existing natural vegetation and terrain to be preserved, which is hereby granted;
c. A Landscape waiver to permit a decorative wall west of the proposed Montebello Court entrance instead of the required berm and to permit the absence of the required berm east of the entrance in order to preserve the attractive natural terrain with dense regulated woodland along the Public Right of Way frontage for Nine Mile Road as required in Section 5.5.3.B.ii and iii. , which is hereby granted;
d. A Landscape waiver to permit the absence of the required Right of Way trees along Nine Mile Road (39 required, 3 provided) as listed in Section 5.5.3.E.i.c due to existing natural vegetation to be preserved and conflict with the required clear vision triangle, which is hereby granted;
e. Applicant to work with the Novi Township to meet their street tree requirements along Cottisford road;
f. Applicant must resolve floodplain encroachment on lots prior to final site plan approval;
g. City Council variance from Section 11-68(a)(1) of Novi City Code for absence of the water main along the entire Nine Mile Road frontage in order to preserve the existing vegetation;

   -OR-

   The applicant shall provide the required water main along the entire Nine Mile Road frontage as per staff's recommendation;
h. City Council variance from Section 11-256(b) of Novi City Code for absence of the sidewalk along the entire Nine Mile Road frontage;

   –OR-

   The applicant shall provide the required sidewalk along the entire Nine Mile Road frontage as per staff's recommendation;
i. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
j. *(additional conditions here if any).*

(This motion is made because the plan is otherwise in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)

– AND –

Approval – Wetland Permit

In the matter of Montebello Estates, JSP 15-76, motion to **approve** the Wetland Permit based on and subject to the following:

a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
b. *(additional conditions here if any).*

(This motion is made because the plan is otherwise in compliance with Chapter 12, Article V of the Code of Ordinances and all other applicable provisions of the Ordinance.)

– AND –

Approval – Woodland Permit

In the matter of Montebello Estates, JSP 15-76, motion to **approve** the Woodland Permit based on and subject to the following:

a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
b. (additional conditions here if any).

(This motion is made because the plan is otherwise in compliance with Chapter 37 of the Code of Ordinances and all other applicable provisions of the Ordinance.)

– AND –

Approval – Stormwater Management Plan

In the matter of Montebello Estates, JSP 15-76, motion to **approve** the Stormwater Management Plan, based on and subject to:

a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
b. (additional conditions here if any).

(This motion is made *because it otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

– OR –

Denial – Preliminary Site Plan
In the matter of Montebello Estates, JSP 15-76, motion to **deny** the Preliminary Site Plan...*(because the plan is not in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)*

– AND –

Denial – Wetland Permit
In the matter of Montebello Estates, JSP 15-76, motion to **deny** the Wetland Permit...*(because the plan is not in compliance with Chapter 12, Article V of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

– AND –

Denial – Woodland Permit
In the matter of Montebello Estates, JSP 15-76, motion to **deny** the Woodland Permit...*(because the plan is not in compliance with Chapter 37 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

– AND –

Denial – Stormwater Management Plan
In the matter of Montebello Estates, JSP 15-76, motion to **deny** the Stormwater Management Plan...(*because the plan is not in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

MAPS

Location

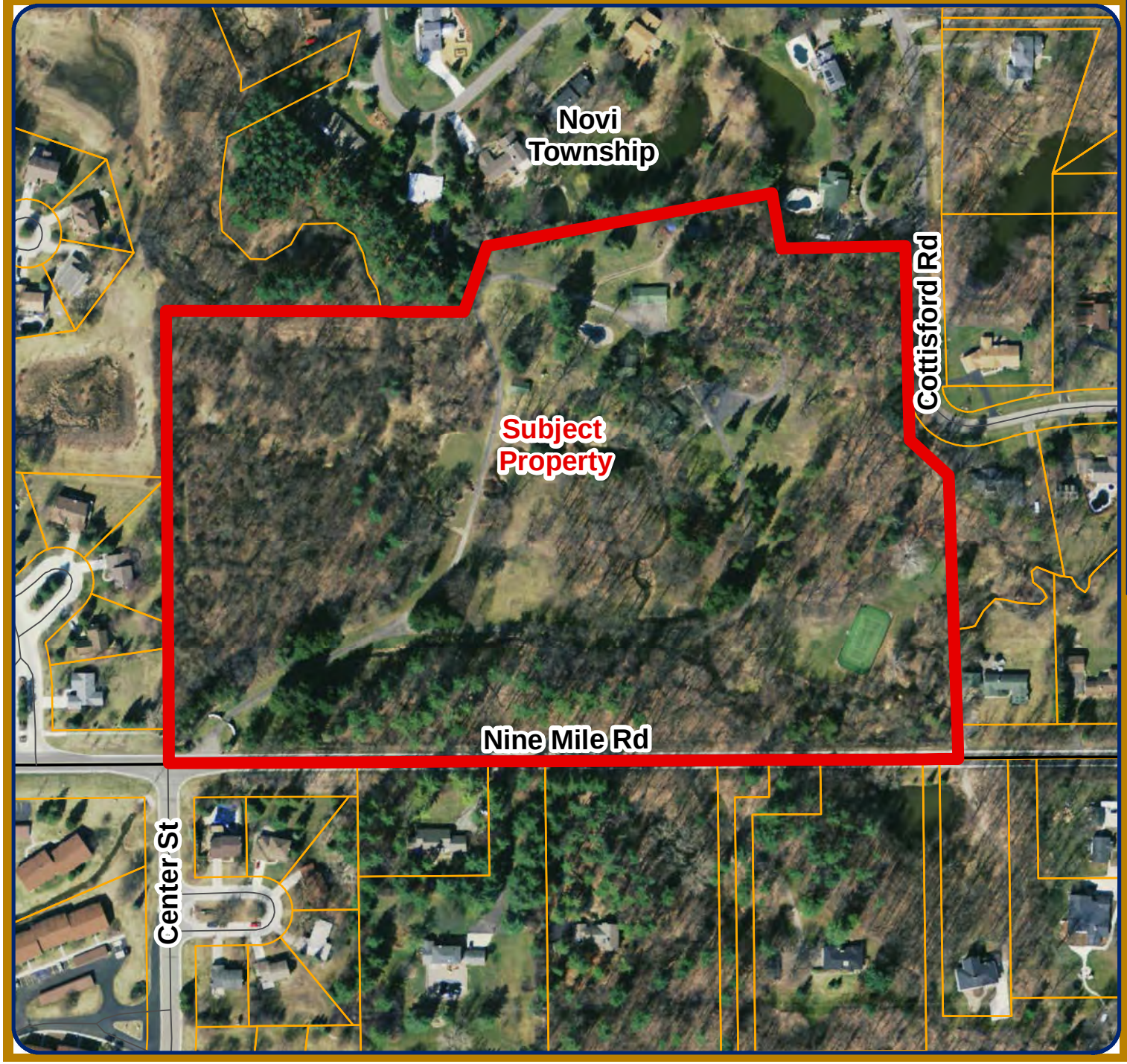
Zoning

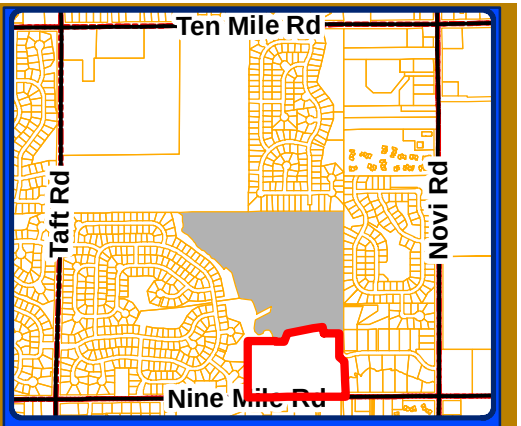
Future Land Use

Natural Features

JSP 15-76 Montebello Estates

Location





Legend

- Sections
- City of Novi
- Novi Township

City of Novi
Dept. of Community Development
City Hall / Civic Center
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

Map Author: Sri Komaragiri
Date: 01/04/16
Project:JSP 15-76 Montebello Estates
Version #: 1

Feet
0 55 110 220 330

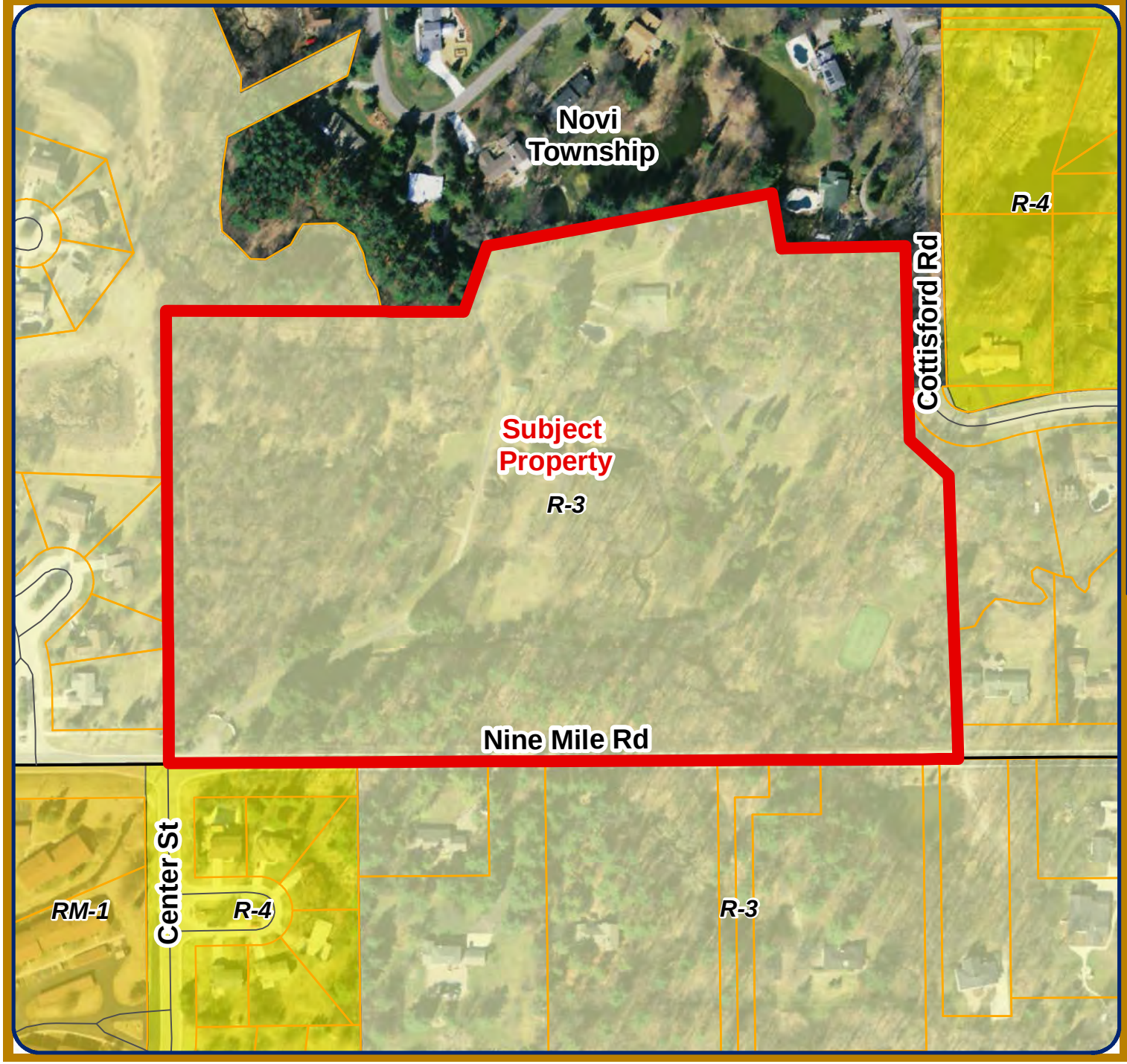
1 inch = 250 feet

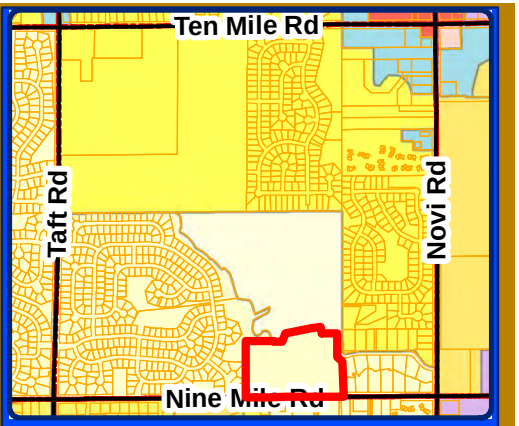
MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

JSP 15-76 Montebello Estates

Zoning





Legend

- Sections
- R-1: One-Family Residential District
- R-3: One-Family Residential District
- R-4: One-Family Residential District
- RM-1: Low-Density Multiple Family
- B-1: Local Business District
- B-3: General Business District
- I-1: Light Industrial District
- OS-1: Office Service District

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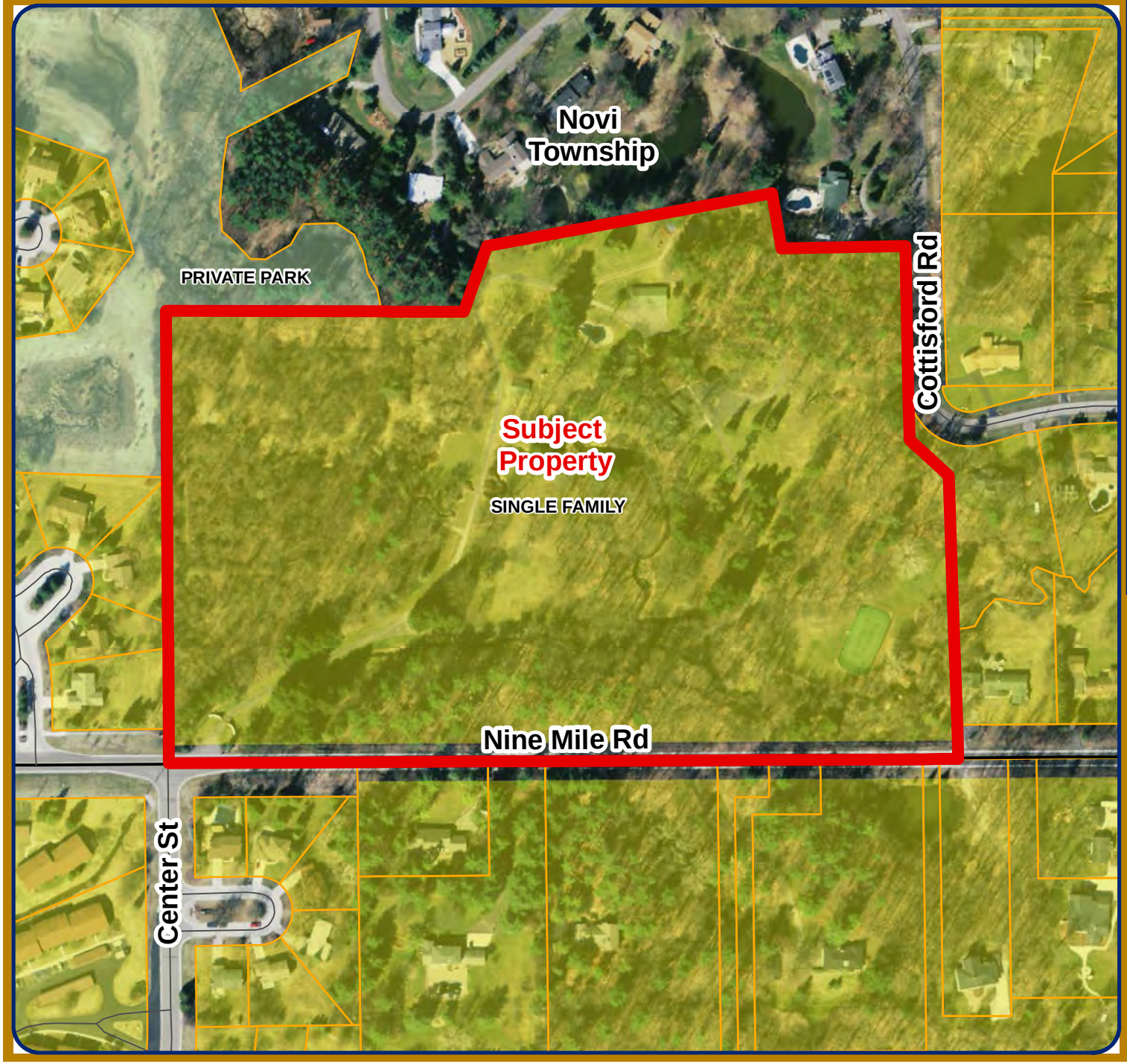
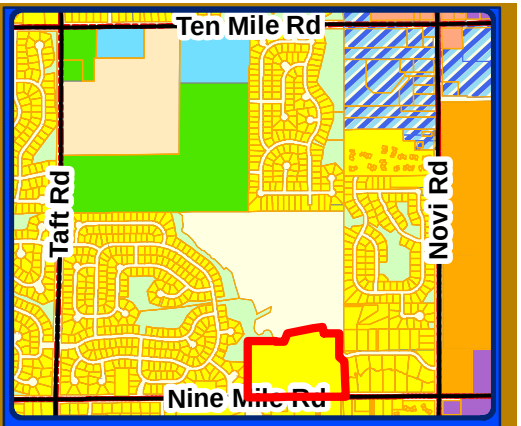
JSP 15-76 Montebello Estates

Future Land Use





Legend

- Sections
- SINGLE FAMILY
- MULTIPLE FAMILY
- COMMUNITY OFFICE
- INDUSTRIAL RES DEV TECH
- LOCAL COMMERCIAL
- EDUCATIONAL FACILITY
- PUBLIC
- PUBLIC PARK
- PRIVATE PARK

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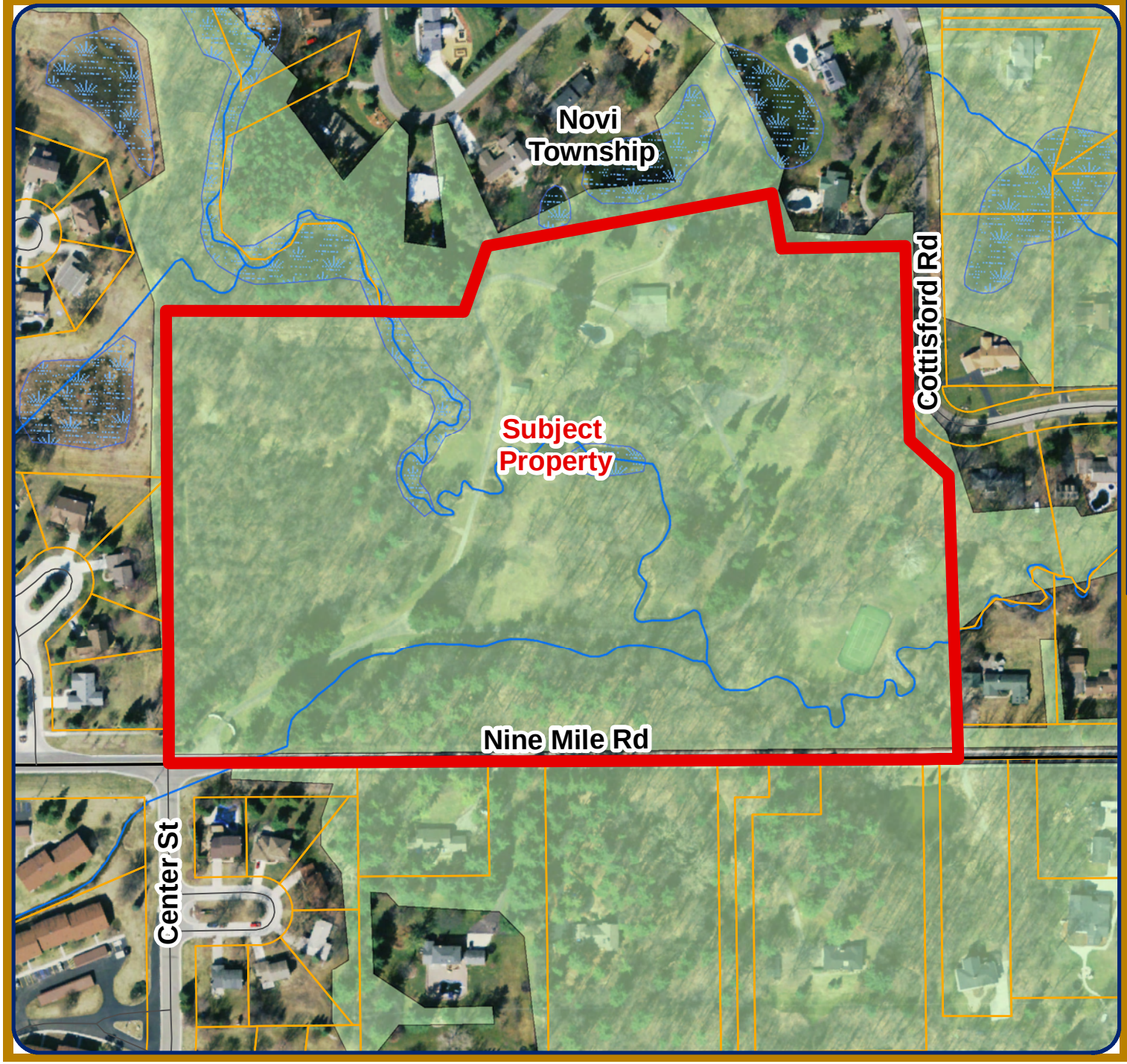
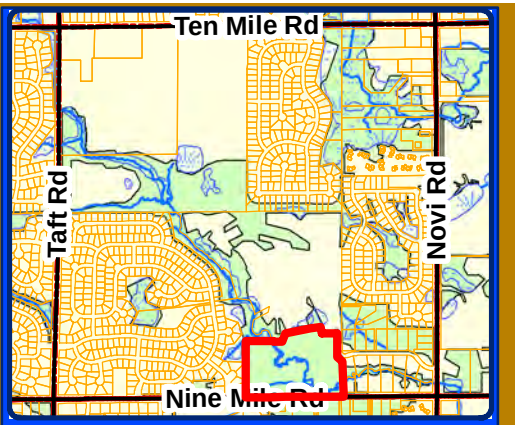
JSP 15-76 Montebello Estates

Natural Features





Legend

- Sections
- Wetlands
- Woodlands

City of Novi

Dept. of Community Development
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0 55 110 220 330

1 inch = 250 feet

MAP INTERPRETATION NOTICE

SITE PLAN

(Full plan set available for viewing at the Community Development Department.)

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
557 CARPENTER • NORTHVILLE, MI 48167
248 467 4668 • Fax 248 349 0559
Email: jca@wideopenwest.com

Seal:

Title:
Landscape Plan

Project:
Montebello
Novi, Michigan

Prepared for:
Mirage Development
45380 West Ten Mile, Suite 135
Novi, Michigan 48375
248.349.0598

Revision:	Issued:
Submission	November 18, 2015
Revised	December 10, 2015
Revised	March 18, 2016

Job Number:
15-065

Drawn By:	Checked By:
jca	jca

0' 15' 30' 60'

NORTH
1"=60'

Sheet No.
L-1

PRELIMINARY SITE PLAN FOR

MONTEBELLO ESTATES

A RESIDENTIAL PLANNED DEVELOPMENT

SECTION 27, TOWN 1 NORTH, RANGE 7 EAST,
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

LEGAL DESCRIPTION

DESCRIPTION PARCEL 22-27-452-001
PART OF THE SOUTHEAST ¼ OF SECTION 27, T.1N., R.8E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT THE SOUTH ¼CORNER OF SAID SECTION 27; THENCE N 02°49'43" W, 792.96 FEET; THENCE N 87°47'56" E, 520.84 FEET; THENCE N 17°09'00"E, 122.32 FEET; THENCE N 77°06'00" E, 507.00 FEET; THENCE S 12°07'00" E, 98.31 FEET; THENCE N 86°33'12" E, 216.00 FEET; THENCE S 04°03'19" E, 340.00 FEET; THENCE S 50°44'19" E, 93.10 FEET; THENCE S 03°52'37" E, 497.04 FEET TO THE SOUTH LINE OF SAID SECTION 27; THENCE S 87°18'00" W ALONG SAID SOUTH LINE, 1379.11 FEET TO THE POINT OF BEGINNING. CONTAINING 26.94 ACRES AND SUBJECT TO EASEMENTS AND RIGHT-OF-WAYS OF RECORD.

FIRE DEPARTMENT NOTES

1. All fire hydrants and water mains shall be installed and in service prior to above foundation building construction as each phase is built.
2. All roads shall be paved and capable of supporting 35 tons prior to construction above foundation.
3. Building addresses shall be posted facing the street during all phases of construction. Addresses shall be a minimum of three inches in height on a contrasting background.
4. Provide 4-6" diameter concrete filled steel posts 48" above finish grade at each hydrant as required.
5. Fire lanes shall be posted with "Fire Lane – No Parking" signs in accordance with Ordinance #85.99.02.

NOTES

ALL WORK SHALL CONFORM TO THE CITY OF NOVI'S CURRENT STANDARDS AND SPECIFICATIONS.

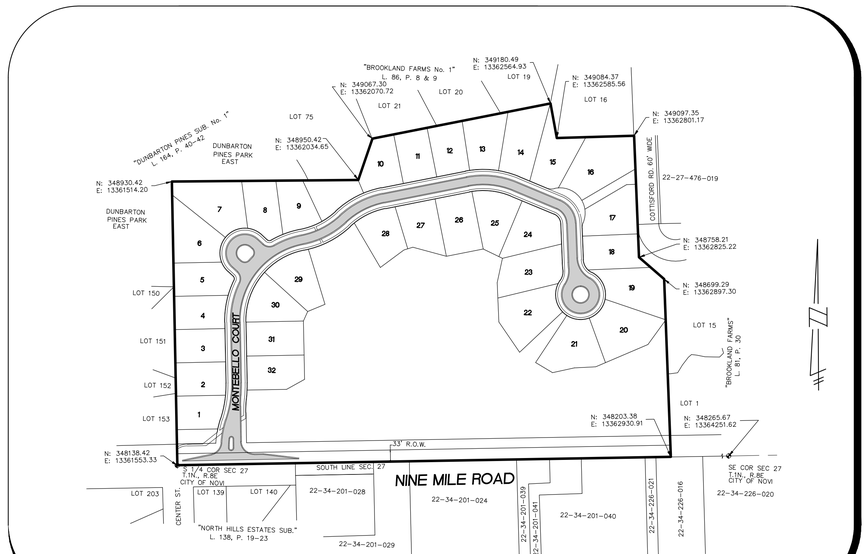
THE CONTRACTOR MUST OBTAIN A PERMIT FROM THE CITY OF NOVI FOR ANY WORK WITHIN THE RIGHT-OF-WAY OF 9 MILE ROAD.

ALL PAVEMENT MARKINGS, TRAFFIC CONTROL SIGNS, AND PARKING SIGNS SHALL COMPLY WITH THE DESIGN AND PLACEMENT REQUIREMENTS OF THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

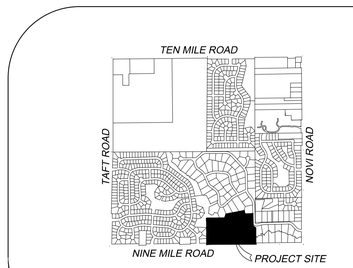
PREPARED FOR:

MIRAGE DEVELOPMENT, LLC

45380 W. 10 MILE ROAD, SUITE 135
NOVI, MI 48375
PHONE: 248.349.0582



SCALE: 1" = 200'



LOCATION MAP
SCALE: 1"=2000'

SHEET INDEX

BENCHMARKS

CITY OF NOVI BENCHMARKS
BENCHMARK #2742
"X" ON NORTH RIM OF SANITARY MANHOLE LOCATED 15' NORTH OF THE C/L OF NINE MILE ROAD AND 160 FEET EAST OF DRIVE #44000 NINE MILE ROAD. ELEV. 873.24 USGS DATUM

BENCHMARK #3411
"X" ON NORTH RIM OF GATEWELL LOCATED IN THE SOUTHWEST QUAD OF THE INTERSECTION OF NINE MILE ROAD AND CENTER STREET, 50' WEST OF THE CENTERLINE OF CENTER STREET. ELEV. 873.64 USGS DATUM

SEIBER, KEAST ENGINEERING, L.L.C.
CONSULTING ENGINEERS
100 MAINCENTRE • SUITE 10 • NORTHVILLE, MICHIGAN • 48167
PHONE: 248.308.3331 FAX: 248.308.3335

TOPOGRAPHIC & BOUNDARY SURVEY PREPARED BY:
JCK GROUP, INC.
8615 RICHARDSON ROAD,
COMMERCE TWP., MICHIGAN 48390
PHONE: 248.363.2550

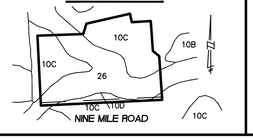
WETLAND FLAGGING PREPARED BY:
KING & MacGREGOR ENVIRONMENTAL INC.
43050 FORD ROAD, SUITE 130,
CANTON, MICHIGAN 48187
PHONE: 734.354.0594

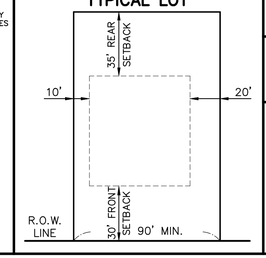
LANDSCAPE & WOODLAND PLANS PREPARED BY:
ALLEN DESIGN
557 CARPENTER ROAD,
NORTHVILLE, MICHIGAN 48167
PHONE: 248.467.4668

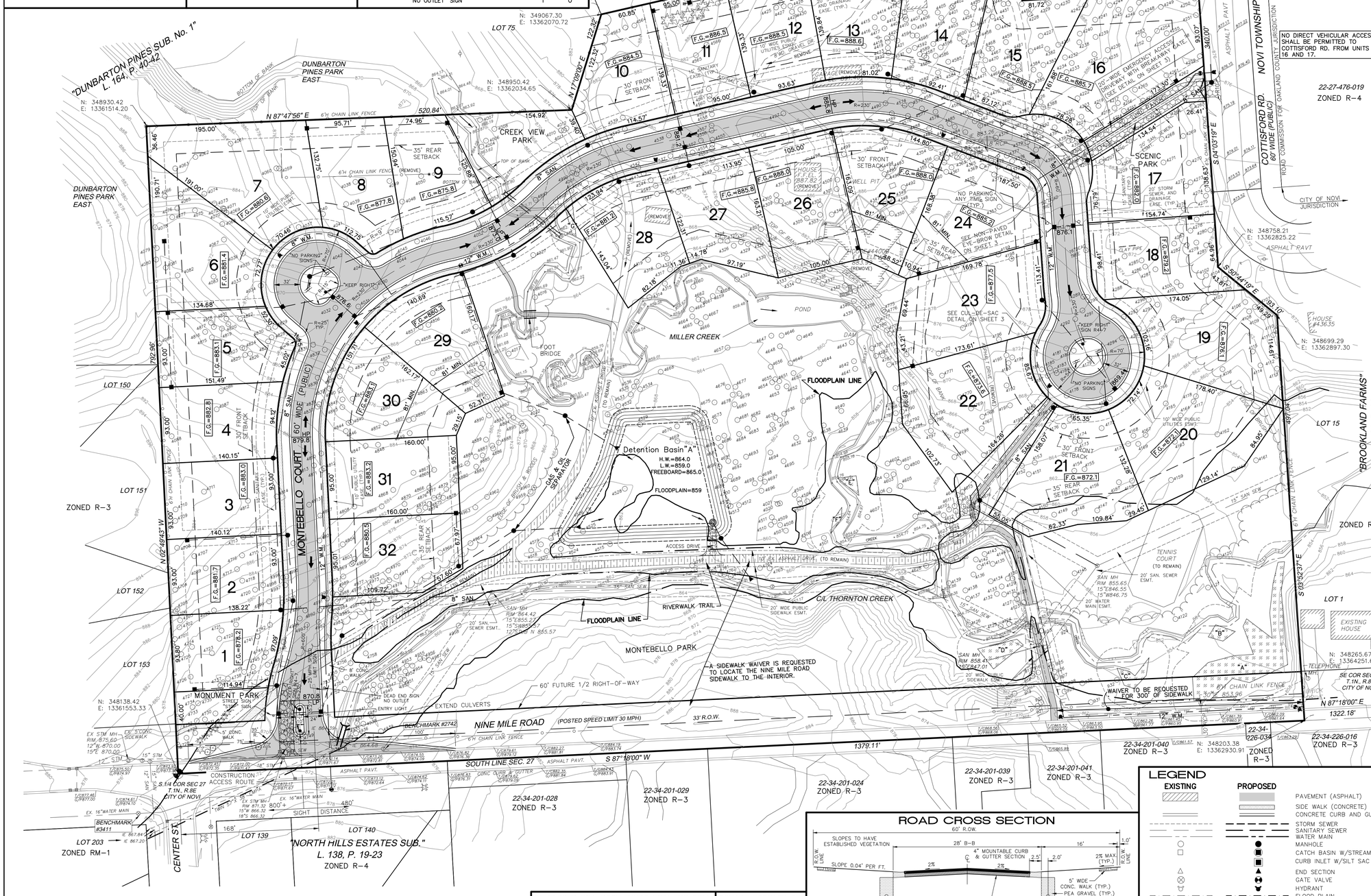
REVISIONS			ENGINEER'S SEAL
NO.	ITEM	DATE	
1.	SUBMIT TO CITY	11-18-15	
2.	REVISE PER CITY CONSULTANTS	12-10-15	
3.	REVISE PER CITY CONSULTANTS	2-19-16	

DATE: 11-16-15 | DESIGNED BY: A.A. | CHECKED BY: C.S. | JOB NUMBER: 15-012 | DRAWING FILE: 15-012SP-CS

P:\15-012 MAE WEST PROPERTY\15-012SP-COVER.DWG 12/10/2015 9:43 AM







SOIL CLASSIFICATION

SOIL CLASSIFICATIONS WERE DETERMINED BY THE SOIL SURVEY OF OAKLAND COUNTY, MICHIGAN. PUBLISHED BY UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE.

10B – MARLETTE SANDY LOAM, 1–6% SLOPES
10C – MARLETTE SANDY LOAM, 6–12% SLOPES
10D – MARLETTE LOAM, 12–18% SLOPES
26 – SLOAN SILT LOAMS

SOIL MAP

TYPICAL LOT

EYEBROW SIGNAGE

"NO PARKING" SIGNS WILL BE POSTED ON BOTH SIDES OF THE STREET THROUGH THE EYEBROW BEND TO ENSURE MOBILITY OF FIRE TRUCKS AND MOVING VANS.

SIGNAGE NOTES

1. STREET NAME SIGNS SHOULD BE PLACED ATOP THE INTERIOR YIELD SIGNS AND THE EXITING STOP SIGNS.
2. ALL STREET–NAME SIGNS SHALL COMPLY WITH THE CITY OF NOVI DESIGN STANDARDS.

SIGN LEGEND

SYMBOL	DESCRIPTION	QUANITITY PANEL	QUANITITY POST
●	= "KEEP RIGHT" SIGN (R4–7A)	4	4
○	= "NO PARKING ANY TIME" SIGN (R7–1)	12	8
○	= "25 MPH SPEED LIMIT" SIGN (R2–1) (25)	1	1
⌀	= "STOP" SIGN (R1–1 30")	1	1
	"STREET NAME" SIGN (D3–1)	1	0
○	= "DEAD END" SIGN	1	0
	"NO OUTLET" SIGN	1	0

DEVELOPER WILL POST FUNDS WITH THE CITY OF NOVI TOWARDS THE CONSTRUCTION OF A PEDESTRIAN WALK ALONG NINE MILE ROAD.

SQUARE FOOTAGE OF PROPOSED PAVEMENT 58,050 S.F. (PUBLIC)

ROAD CROSS SECTION

LEGEND

EXISTING	PROPOSED	
▨	▩	PAVEMENT (ASPHALT)
	▤	SIDE WALK (CONCRETE)
═	═	CONCRETE CURB AND GUTTER
- - -	— — —	STORM SEWER
— —	— —	SANITARY SEWER
—– –—	—– –—	WATER MAIN
○	●	MANHOLE
□	▣	CATCH BASIN W/STREAM GUARD
	▣	CURB INLET W/SILT SAC
△	▲	END SECTION
⊗	⊗	GATE VALVE
♉	♉	HYDRANT
— · —	— · —	FLOOD PLAIN
—1000—	—1000—	CONTOURS
+ 1000.0	1000.00 T/C	SPOT ELEVATION

UNIT TABLE			
UNIT	AREA (SF)	WIDTH	D/W RETIO
1	12,029	96.92'	1.37:1
2	13,008	93.02'	1.51:1
3	13,033	93.00'	1.51:1
4	13,319	93.55'	1.52:1
5	14,442	94.52'	1.82:1
6	18,171	90.00'	1.92:1
7	21,923	90.00'	2.20:1
8	14,434	99.48'	1.64:1
9	12,987	105.66'	1.20:1
10	13,743	120.33'	1.22:1
11	13,239	95.00'	1.47:1
12	13,500	95.00'	1.47:1
13	15;,605	90.00'	1.64:1
14	19,487	95.00'	2.03:1
15	16,292	90.00'	1.61:1
16	24,420	90.00'	2.25:1
17	16,755	90.44'	1.70:1
18	15,063	95.00'	1.63:1
19	19,538	97.74'	1.74:1
20	21,310	95.00'	1.74:1

UNIT TABLE			
UNIT	AREA (SF)	WIDTH	D/W RETIO
21	19,196	90.00'	1.52:1
22	20,573	95.00'	1.79:1
23	19,017	105.00'	1.74:1
24	16,962	135.67'	1.43:1
25	15,943	125.00'	1.37:1
26	17,137	105.00'	1.55:1
27	14,854	110.95'	1.25:1
28	14,621	115.30'	1.19:1
29	15,781	122.03'	1.37:1
30	14,676	125.92'	1.30:1
31	15,200	95.00'	1.68:1
32	14,516	95.00'	1.68:1

NOTE:
LOT WIDTH IS THE STRAIGHT LINE DISTANCE BETWEEN THE SIDE LOT LINES, MEASURED AT THE TWO POINTS WHERE THE MIN. FRONT YARD SETBACK LINE INTERSECTS THE SIDE LOT LINES

AVERAGE UNIT AREA = 15,243
AVERAGE UNIT WIDTH = 100.54'

SITE DATA

PROPOSED ONE–FAMILY RESIDENTIAL SITE CONDOMINIUM

CURRENT ZONING: "R–3"
AREA GROSS = 26.94 ACRES
PROPOSED NO. OF LOTS = 32

NET AREA: = 25.90 ACRES
DENSITY: = 1.23 LOTS/PER ACRE
OPEN SPACE: = 9.49 A.C.
% OPEN SPACE = 36.6%

PROPOSED DESIGN CRITERIA

(CONSISTENT WITH "R–3 ZONING")

MINIMUM LOT SIZE = 12,000 SQ.FT.
MINIMUM LOT WIDTH = 90.00 FEET
BUILDING HEIGHT = 35' OR 2.5 STORIES, WHICHEVER IS LESS

FRONT SETBACK = 30 FEET
REAR SETBACK = 35 FEET
SIDE YARD SETBACK = 10 FEET (MINIMUM)
SIDE YARD SETBACK = 30 FEET (AGGREGATE)

PROPOSED IMPROVEMENTS

1. MUNICIPAL SEWER TO BE PROVIDED BY CONNECTING TO AN EXISTING 15" SANITARY SEWER LOCATED THROUGHOUT THE SITE.
2. MUNICIPAL WATER TO BE PROVIDED BY CONNECTING TO AN EXISTING 16" WATER MAIN LOCATED ON THE SOUTH SIDE OF NINE MILE ROAD.
   ALL PROPOSED WATER MAIN SHALL BE 12" AND 8" DUCTILE IRON CL.54 AS SHOWN.
3. STORM WATER DETENTION SHALL BE PROVIDED ON SITE.
4. 5' WIDE CONCRETE SIDEWALKS SHALL BE CONSTRUCTED ON BOTH SIDES OF ALL INTERIOR ROADWAYS. 5' WD. CONCRETE WALK SHALL BE CONSTRUCTED ALONG THE WESTERLY PART OF NINE MILE ROAD AND 8' WD. ASPHALT WALK SHALL BE CONSTRUCTED AS AN ON–SITE PUBLIC WALK.
   ALL SIDEWALKS SHALL BE PROVIDED WITH RAMPS & DETECTABLE WARNING SURFACES. A WAIVER IS REQUIRED TO PLACE THE NINE MILE ROAD SIDEWALK ON THE INTERIOR. A WAIVER WILL ALSO BE REQUIRED FOR 300' OF NINE MILE ROAD SIDEWALK (EASTERLY SECTION). THE EQUIVALENT COST SHALL BE PAID INTO THE CITY SIDEWALK FUND.
5. ALL ROADWAYS TO BE PUBLIC.
6. A CITY OF NOVI RIGHT–OF–WAY PERMIT IS REQUIRED FOR WORK WITHIN ANY PUBLIC ROAD RIGHT–OF–WAY.

MONTEBELLO ESTATES

SECTION 27, TOWN 1 NORTH, RANGE 8 EAST
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

REVISIONS

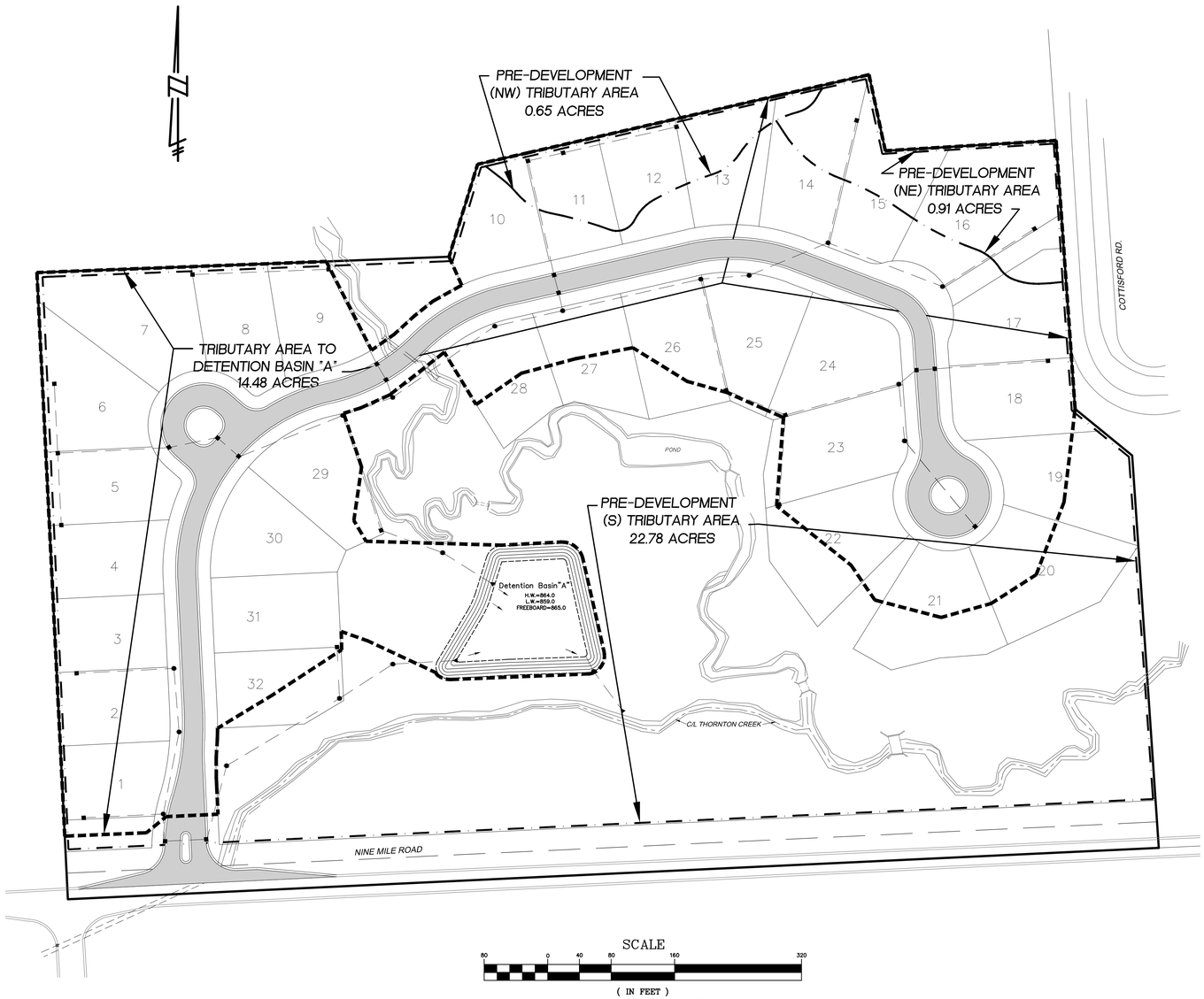
NO.	ITEM	DATE
1.	SUBMIT TO CITY	11–18–15
2.	REV. PER CITY CONSULTANTS	12–10–15
3.	REV. PER CITY CONSULTANTS	2–19–16

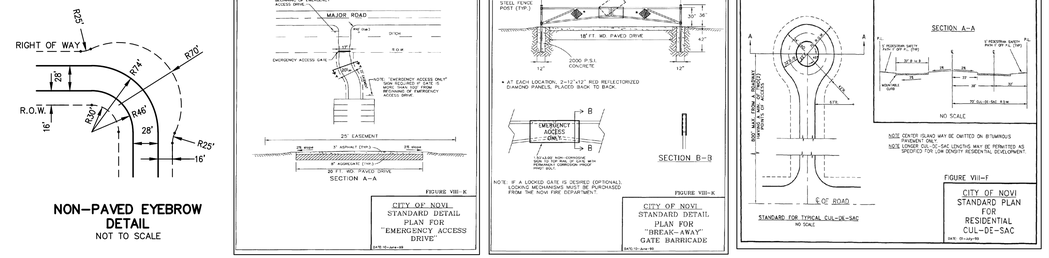
DATE: 11–16–15	DESIGNED BY: A.A.	JOB NUMBER: 15–012
	CHECKED BY: C.S.	DRAWING FILE: 15–012SP–0A

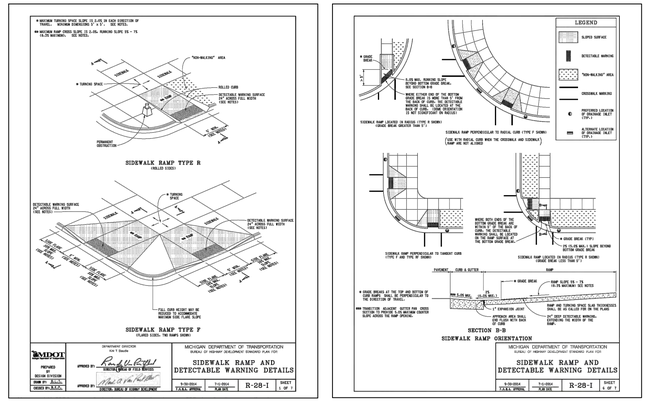
PRELIMINARY SITE PLAN

SEIBER, KEAST ENGINEERING, L.L.C.
CONSULTING ENGINEERS
100 MAINCENTRE • SUITE 10 • NORTHVILLE, MICHIGAN • 48167
PHONE: 248.308.3331 FAX: 248.308.3335

SHEET
2







C-FACTOR DETERMINATION

C -Factor Determination for Basin "A"
Tributary Area = 14.19 Ac.

Impervious Areas			
Sidewalks =	0.45	Ac.	
Roads =	1.39	Ac.	
Houses and Driveways =	2.70	Ac.	
	4.54	**Ac.**	**at C = 0.95**
Pervious Areas			
Lawn Areas =	**8.40**	**Ac.**	**at C = 0.35**
Park Areas = Group B	**0.91**	**Ac.**	**at C = 0.25**
Low Water	**0.34**	**Ac.**	**at C = 1.00**

C Avg. = 0.55

STORM WATER DETENTION CALCULATIONS

DETERMINE DETENTION REQUIRED (100-YEAR STORM)

Basin "A"

Qall =	2.17 cfs (0.15 cfs/AC.)		
AC. =	14.48 (AREA TRIBUTARY TO THE DETENTION BASIN)		
C =	0.55		
Qo =	Qall / (AC. x C) =	0.27	
T =	.25 + SQRT(10312.5/Qo) =	169.45 min.	
Vs =	((16500 x T)/(T + 25))-(40 x Qo x T)=	12530.09 C.F./Ac. imp.	
Vt =	Vs x AC. x C =	99789.60957 C.F.	
TOTAL DETENTION VOLUME REQUIRED =		**99,790 C.F.**	

PERMANENT WATER VOLUME REQUIRED
(volume of water below the normal water surface)

Drainage Area =	14.48 Ac.		
"C" Factor =	0.55		
2.5 x 0.5 inches x 0.55 x 14.19 Ac. =		**36,137 C.F.**	
VOLUME PROVIDED =		**39,876 C.F.**	

FIRST FLUSH VOLUME REQUIRED

1815 x 14.48 Ac x 0.55 =		**14,455 C.F.**	
VOLUME PROVIDED @	860.0	**15,910 C.F.**	

BANK FULL FLOOD VOLUME REQUIRED

5160 x 14.48 Ac. x 0.55 =		**41,094 C.F.**	
VOLUME PROVIDED @	861.5	**43,051 C.F.**	

TOTAL DETENTION PROVIDED (100 YEAR)

ELEVATION	AREA(s.f.)	VOLUME	VOL(total)	
864	26551		102453	HW
		25278		
863	24005		77175	
		22783		
862	21560		54392	
		20388		
861	19216		34004	
		18094		
860	16972		15910	
		15910		
859	14848		0	LW

TOTAL DETENTION VOLUME PROVIDED = 102,453 C.F.

PERMANENT WATER VOLUME PROVIDED

ELEVATION	AREA(s.f.)	VOLUME	VOL(total)
859	14848		39875.5
		7424	
858	12856		32452
		0	
858	12856		32452
		12856	
857	9299		19596
		11078	
856	7737		8518
		8518	
855	6319		0

100-YR DETENTION BASIN OUTLET SIZING

Qall =	2.17	cfs
Outlet Diameter, D =	6	In
Outlet Area, Aall =	0.196	sf
H100 = (HW - LW)	5.00	ft
Hall = H100 - D/2 =	4.75	ft
Q100 = Aall*(0.62*sqrt(2*g*Hall)) =	**2.13**	**cfs**
	Maximum Discharge	

FIRST FLUSH OUTLET (Tff = 24 HRS)

Qff = Vff/Tff =	0.18	cfs
Hff = 2/3(FF-LW) =	1.00	ft
Aff = Qff/(0.62*sqrt(2*g*Hff)) =	0.037	sf
HOLE SIZE =	1.00	In
# HOLE REQUIRED =	6.8	Holes
# PROVIDE AT LW =	7	Holes
Affact =	0.038	sf
Qffact = Affact*(0.62*sqrt(2*g*Hff)) =	0.19	cfs
Tffact = Vff/Qffact =	**23.27**	**Hours > 24 Hours ok**

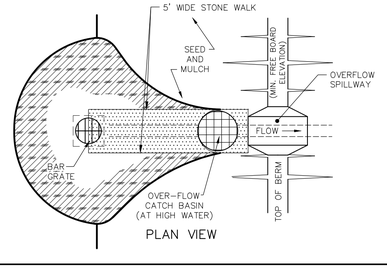
BANK FULL FLOOD OUTLET THROUGH FIRST FLUSH OUTLET (Tbf = 24-40 HOURS)

Hbf = 2/3*(BF-LW) =	1.67	ft
Qbf = Affact*(0.62*sqrt(2*g*Hbf)) =	0.25	cfs
Tbf = Vbf/Qbf =	**48.76**	**Hours**
(Tbf > 40 Hours, Provide Additional Outlets at FF EL)		

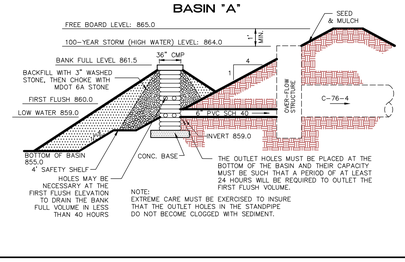
BANKFULL STANDPIPE OUTLET (USE Tbf = 40 HOURS)

Vrem = Vbf-Vff =	27141	cf
Trem = Tbf - Tffact =	16.73	Hours Remaining
Hbf = 2/3*(BF-LW) =	1.67	ft
Qremff = Affact*(0.62*sqrt(2*g*Hbf)) =	0.245	cfs
Vremff = Trem*Qremff =	14774	cf
Vrembf = Vrem - Vremff =	12367	cf
Qrembf = Vrembf / Trem =	0.21	cfs
Hbf-ff = 2/3*(BF-FF) =	1.00	ft
Abf = Qrembf/(0.62*sqrt(2*g*Hbf-ff)) =	0.041	sf
HOLE SIZE =	1.00	In
# HOLE REQUIRED =	7.6	Holes
# PROVIDE AT FF =	8	Holes
Abfact =	0.044	sf
Qbfact = Abfact*(0.62*sqrt(2*g*Hbf-ff)) =	0.22	cfs
Tbfact = Vrembf / Qbfact =	15.82	Hours
TOTAL BF RELEASE TIME =	**39.09**	**Hours < 40 Hours - ok**
Max Flow Requried to Pass Restrictor Plate = Qremff + Qrembf		
=	0.45	cfs

SEDIMENT FILTER DETAIL



DETENTION BASIN SEDIMENT FILTER DETAIL



MAINTENANCE SCHEDULE:

THE PROPERTY OWNER IS RESPONSIBLE FOR THE MAINTENANCE OF THE DETENTION BASIN. MAINTENANCE SHOULD BE PERFORMED FOLLOWING ANY ANY STORM AND SHOULD INCLUDE:

1. CHECKING THE DEPTH OF SEDIMENT DEPOSIT TO ENSURE THE CAPACITY OF THE BASIN IS ADEQUATE FOR STORM WATER AND SEDIMENT DEPOSITION, AND FOR THE REMOVING OF SEDIMENT.
2. CHECKING THE BASIN FOR PIPING, SEEPAGE, OR OTHER MECHANICAL DAMAGE.
3. CHECKING FOR THE PRESENCE OF ANY SOIL CAKING, WHICH WOULD PREVENT PROPER DRAINAGE FROM THE
4. CHECKING THE OUTFALL TO ENSURE DRAINAGE IS NOT CAUSING ANY ROSIVE VELOCITIES AND TO ENSURE THE OUTLET IS NOT CLOGGED.
5. ANY PROBLEM DISCOVERED DURING THE MAINTENANCE CHECKS SHOULD BE ADDRESSED IMMEDIATELY.
6. SEDIMENT REMOVED DURING CLEANING SHOULD BE PLACED AT AN UPLAND AREA AND STABILIZED SO THAT IT DOES NOT RE-ENTER THE DRAINAGE COURSE.

PRE AND POST DEVELOPMENT STORM WATER DISCHARGE

PRE-DEVELOPMENT	POST-DEVELOPMENT
PRE (NE) AREA	**POST (NE) AREA**
AREA: 0.91 ACRES	0.91 ACRES
DISCHARGE: 1.66 CFS	0.00 CFS
VOLUME: 4,504 CF	0.00 CF
PRE (NW) AREA	**POST (NW) AREA**
AREA: 0.65 ACRES	0.65 ACRES
DISCHARGE: 1.19 CFS	0.00 CFS
VOLUME: 3,217 CF	0.00 CF
PRE (S) AREA	**POST (S) AREA**
AREA: 22.78 ACRES	22.78 ACRES
DISCHARGE: 42.29 CFS	18.56 CFS
VOLUME: 114,193 CF	174,035 CF

MONTEBELLO ESTATES

SECTION 27, TOWN 1 NORTH, RANGE 8 EAST
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

REVISIONS

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1.	SUBMIT TO CITY	11-18-15
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3.	REV. PER CITY CONSULTANTS	2-19-16

DATE: 11-16-15 | DESIGNED BY: A.A. | JOB NUMBER: 15-012 | CHECKED BY: C.S. | DRAWING FILE: 15-012SP-SMP

STORM MANAGEMENT PLAN

SEIBER, KEAST ENGINEERING, L.L.C.
CONSULTING ENGINEERS
100 MAINCENTRE • SUITE 10 • NORTHVILLE, MICHIGAN • 48167
PHONE: 248.308.3331 FAX: 248.308.3335

SHEET 3

SCALE

60 0 30 60 120 240

(IN FEET)

Horizontal Scale: 1 inch = 60 ft.

N

N 87°47'56" E 620.84'

N 11°09'10" E 122.32'

N 77°06'00" E 507.00'

S 12°07'01" E 98.31'

N 86°33'12" E 216.00'

S 04°03'19" E 340.00'

S 80°44'19" E 93.10'

S 03°52'37" E 497.06'

N 02°49'43" W 792.96'

MONTEBELLO COURT

COTTISFORD RD.

NINE MILE ROAD

CENTER ST.

BUFFER SETBACK DISTURBANCE = 0.12 AC

MILLER CREEK BUFFER IMPACT 0.17 Ac.

WETLAND "G" 0.01 ACRES

WETLAND IMPACT 0.01 AC

MILLER CREEK BUFFER IMPACT 0.17 Ac.

RELOCATE STREAM 95 L.F.

POND

DAM

MILLER CREEK

FOOT BRIDGE

25' WATERCOURSE BUFFERS (TYP.)

MILLER CREEK BUFFER IMPACT 0.01 Ac.

Detention Basin "A"

WETLAND "E" 0.006 ACRES

WETLAND "F" 0.004 ACRES

C/L THORNTON CREEK

THORNTON CREEK BUFFER IMPACT 0.05 Ac.

EXTEND CULVERTS

WETLAND "D" 0.02 ACRES

WETLAND "C" 0.01 ACRES

WETLAND "B" 0.008 ACRES

WETLAND "A" 0.14 ACRES

EXISTING HOUSE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

ALL WETLANDS ARE MDEQ REGULATED

WETLAND IMPACT

WETLAND	AREA (AC.)	WETLAND IMPACT AREA (AC.)	25' BUFFER AREA (AC.)	25' BUFFER DISTURBANCE (AC.)	WETLAND FILL (C.Y.)
A	0.14	0	0.31	0	0
B	0.008	0	0.07	0	0
C	0.01	0	0.12	0	0
D	0.02	0	0.13	0.01	0
E	0.006	0	0.08	0	0
F	0.004	0	0.08	0	0
G	0.01	0.01	0.12	0.12	48
THORNTON CREEK	–	–	1.95	0.05	–
MILLER CREEK	–	–	2.40	0.35	–
TOTAL:	0.198	0.01	5.26	0.51	48

TOTAL WETLAND FILL = 0.01 AC, 48 CUBIC YARDS

LEGEND

WETLAND IMPACT

WETLAND BUFFER IMPACT

WATERCOURSE BUFFER IMPACT

MONTEBELLO ESTATES

SECTION 27, TOWN 1 NORTH, RANGE 8 EAST
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

REVISIONS

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3.	REV. PER CITY CONSULTANTS	2-19-16

DATE: 11-16-15 | DESIGNED BY: A.A. | JOB NUMBER: 15-012 | CHECKED BY: C.S. | DRAWING FILE: 15-012-WP

WETLAND PLAN

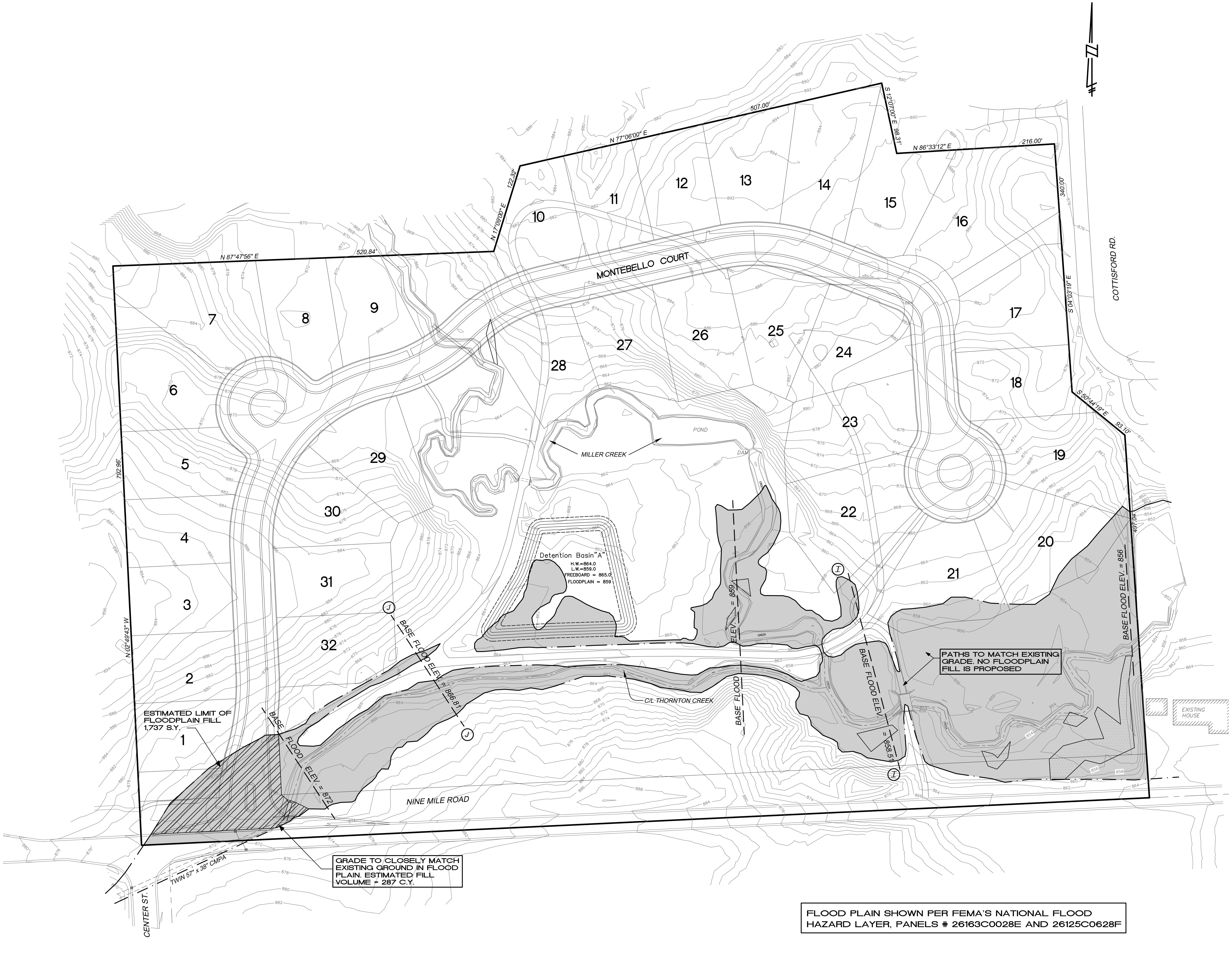
SEIBER, KEAST ENGINEERING, L.L.C.

CONSULTING ENGINEERS

100 MAINCENTRE • SUITE 10 • NORTHVILLE, MICHIGAN • 48167

PHONE: 248.308.3331 FAX: 248.308.3335

SHEET 4


SCALE
(IN FEET)
Horizontal Scale: 1 inch = 60 ft.
MONTEBELLO COURT
COTTISFORD RD.
NINE MILE ROAD
CENTER ST.
MILLER CREEK
POND
DAM
C/L THORNTON CREEK
Detention Basin"A"
H.W.=864.0
L.W.=859.0
FREEBOARD = 865.0
FLOODPLAIN = 859
BASE FLOOD ELEV. = 866.81
BASE FLOOD ELEV. = 872
BASE FLOOD ELEV. = 859
BASE FLOOD ELEV. = 858.5
BASE FLOOD ELEV. = 856
ESTIMATED LIMIT OF FLOODPLAIN FILL 1,737 S.Y.
GRADE TO CLOSELY MATCH EXISTING GROUND IN FLOOD PLAIN. ESTIMATED FILL VOLUME = 287 C.Y.
PATHS TO MATCH EXISTING GRADE. NO FLOODPLAIN FILL IS PROPOSED
TWIN 57" x 38" CMPA
EXISTING HOUSE
N 87°47'56" E 520.84'
N 17°08'00" E 122.32'
N 77°06'00" E 507.00'
S 12°07'00" E 98.31'
N 86°33'12" E 216.00'
340.00'
S 04°03'19" E
S 50°44'19" E 93.10'
497.04'
N 02°49'43" W 792.96'
FLOOD PLAIN SHOWN PER FEMA'S NATIONAL FLOOD HAZARD LAYER, PANELS # 26163C0028E AND 26125C0628F

MONTEBELLO ESTATES

SECTION 27, TOWN 1 NORTH, RANGE 8 EAST
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

REVISIONS

NO.	ITEM	DATE
1.	REV. PER CITY CONSULTANTS	12-10-15
2.	REV. PER CITY CONSULTANTS	2-19-16

DATE: 12-8-15	DESIGNED BY: A.A.	JOB NUMBER: 15-012
	CHECKED BY: C.S.	DRAWING FILE: 15-012-FP

FLOODPLAIN PLAN

SEIBER, KEAST ENGINEERING, L.L.C.
CONSULTING ENGINEERS
100 MAINCENTRE • SUITE 10 • NORTHVILLE, MICHIGAN • 48167
PHONE: 248.308.3331 FAX: 248.308.3335

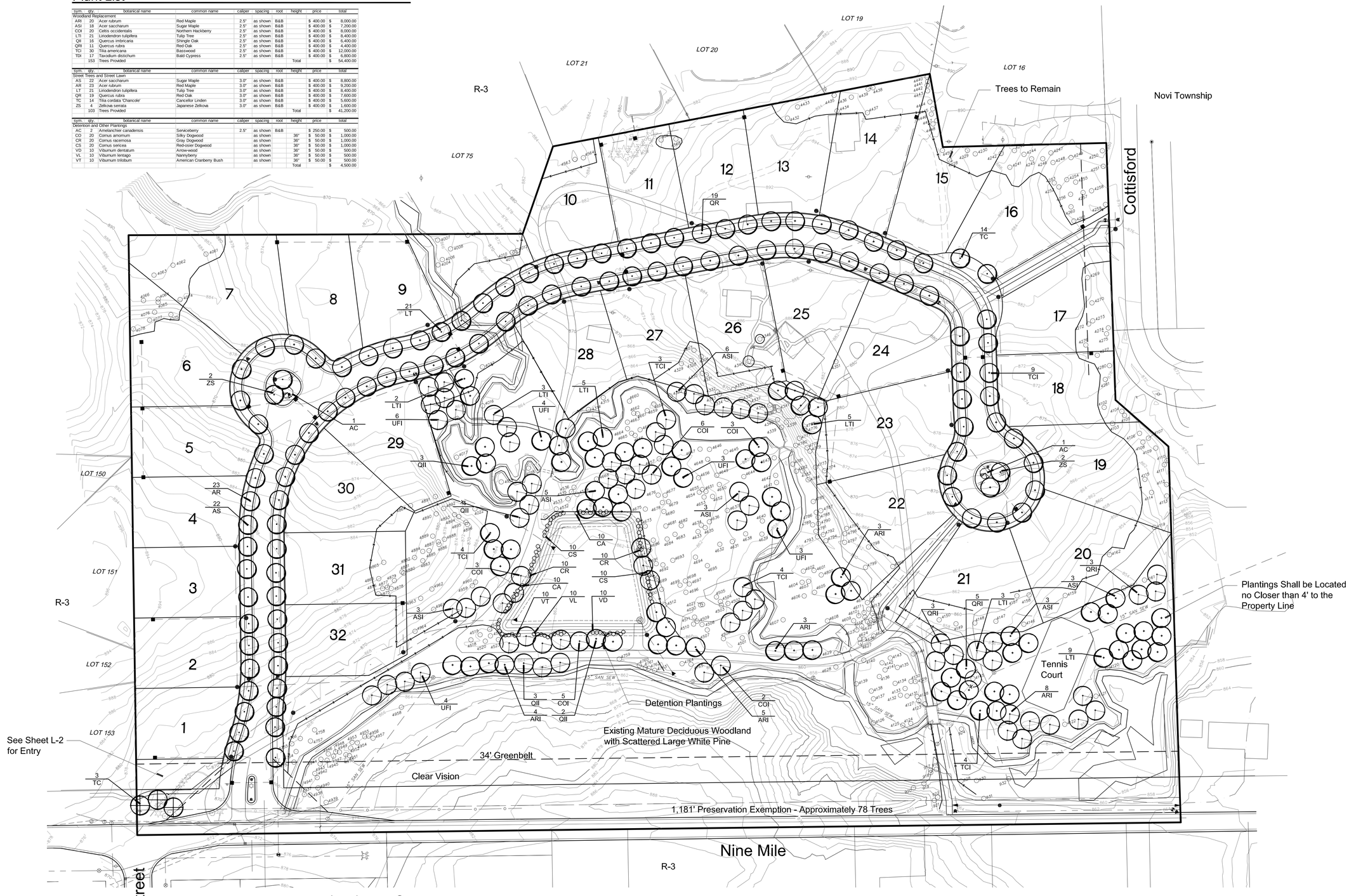
SHEET 5

Plant List

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
Woodland Replacement									
ARI	20	Acer rubrum	Red Maple	2.5"	as shown	B&B		$ 400.00	$ 8,000.00
ASI	18	Acer saccharum	Sugar Maple	2.5"	as shown	B&B		$ 400.00	$ 7,200.00
COI	20	Celtis occidentalis	Northern Hackberry	2.5"	as shown	B&B		$ 400.00	$ 8,000.00
LTI	21	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B		$ 400.00	$ 8,400.00
QII	16	Quercus imbricaria	Shingle Oak	2.5"	as shown	B&B		$ 400.00	$ 6,400.00
QRI	11	Quercus rubra	Red Oak	2.5"	as shown	B&B		$ 400.00	$ 4,400.00
TCI	30	Tilia americana	Basswood	2.5"	as shown	B&B		$ 400.00	$ 12,000.00
TDI	17	Taxodium distichum	Bald Cypress	2.5"	as shown	B&B		$ 400.00	$ 6,800.00
	153	Trees Provided					Total		$ 54,400.00

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
Street Trees and Street Lawn									
AS	22	Acer saccharum	Sugar Maple	3.0"	as shown	B&B		$ 400.00	$ 8,800.00
AR	23	Acer rubrum	Red Maple	3.0"	as shown	B&B		$ 400.00	$ 9,200.00
LT	21	Liriodendron tulipifera	Tulip Tree	3.0"	as shown	B&B		$ 400.00	$ 8,400.00
QR	19	Quercus rubra	Red Oak	3.0"	as shown	B&B		$ 400.00	$ 7,600.00
TC	14	Tilia cordata 'Chancole'	Cancellor Linden	3.0"	as shown	B&B		$ 400.00	$ 5,600.00
ZS	4	Zelkova serrata	Japanese Zelkova	3.0"	as shown	B&B		$ 400.00	$ 1,600.00
	103	Trees Provided					Total		$ 41,200.00

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
Detention and Other Plantings									
AC	2	Amelanchier canadensis	Serviceberry	2.5"	as shown	B&B		$ 250.00	$ 500.00
CO	20	Cornus amomum	Silky Dogwood		as shown		36"	$ 50.00	$ 1,000.00
CR	20	Cornus racemosa	Gray Dogwood		as shown		36"	$ 50.00	$ 1,000.00
CS	20	Cornus sericea	Red-osier Dogwood		as shown		36"	$ 50.00	$ 1,000.00
VD	10	Viburnum dentatum	Arrow-wood		as shown		36"	$ 50.00	$ 500.00
VL	10	Viburnum lentago	Nannyberry		as shown		36"	$ 50.00	$ 500.00
VT	10	Viburnum trilobum	American Cranberry Bush		as shown		36"	$ 50.00	$ 500.00
							Total		$ 4,500.00



Landscape Summary

Street Trees
- Total Lots 70' - 105': 32 Lots
- Corner Lots: 0 Lots
- Trees Required: 96 Trees (32 x 3 Trees)
- Trees Provided: 105 Trees (9 to Count as Woodland Replacement)

Street Lawn
- Total Street Frontage: 1,379 l.f.
- Less Ex. Vegetation: 1,181 l.f.
- Net Frontage: 198 l.f.
- Trees Required: 5.6 Trees (198 / 35)
- Trees Provided: 3 Trees
- Trees Required without Exemption: 40 Trees (1,379 / 35)

Woodland Mitigation
- Trees Required (Sheet L-6): 1,027 Trees
- Trees Provided: 153 Trees
- Trees Paid into Tree Fund: 874 Trees

Detention Pond Plantings
- High-Water Elevation: 624 l.f. (864.0')
- Required Planting: 437 l.f. (624 x 70%)
- Planting Provided: 450 l.f. (72%)

Notes:
- No Overhead Lines Exist
- Trees Shall be Planted 10' from Utility Structures
- Snow Shall be Deposited Adjacent to Drives and within the Curb Lawn
- Detention Pond to be Seeded with Stormwater Seed Mix by JF New.

Know what's below. Call before you dig.

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
557 CARPENTER • NORTHVILLE, MI 48167
248 467 4668 • Fax 248 349 0559
Email: jca@wideopenwest.com

Seal:

STATE OF MICHIGAN
JAMES C. ALLEN
Landscape Architect
REGISTERED LANDSCAPE ARCHITECT

Title:

Landscape Plan

Project:

Montebello
Novi, Michigan

Prepared for:

Mirage Development
45380 West Ten Mile, Suite 135
Novi, Michigan 48375
248.349.0598

Revision:	Issued:
Submission	November 18, 2015
Revised	December 10, 2015
Revised	February 19, 2016

Job Number:
15-065

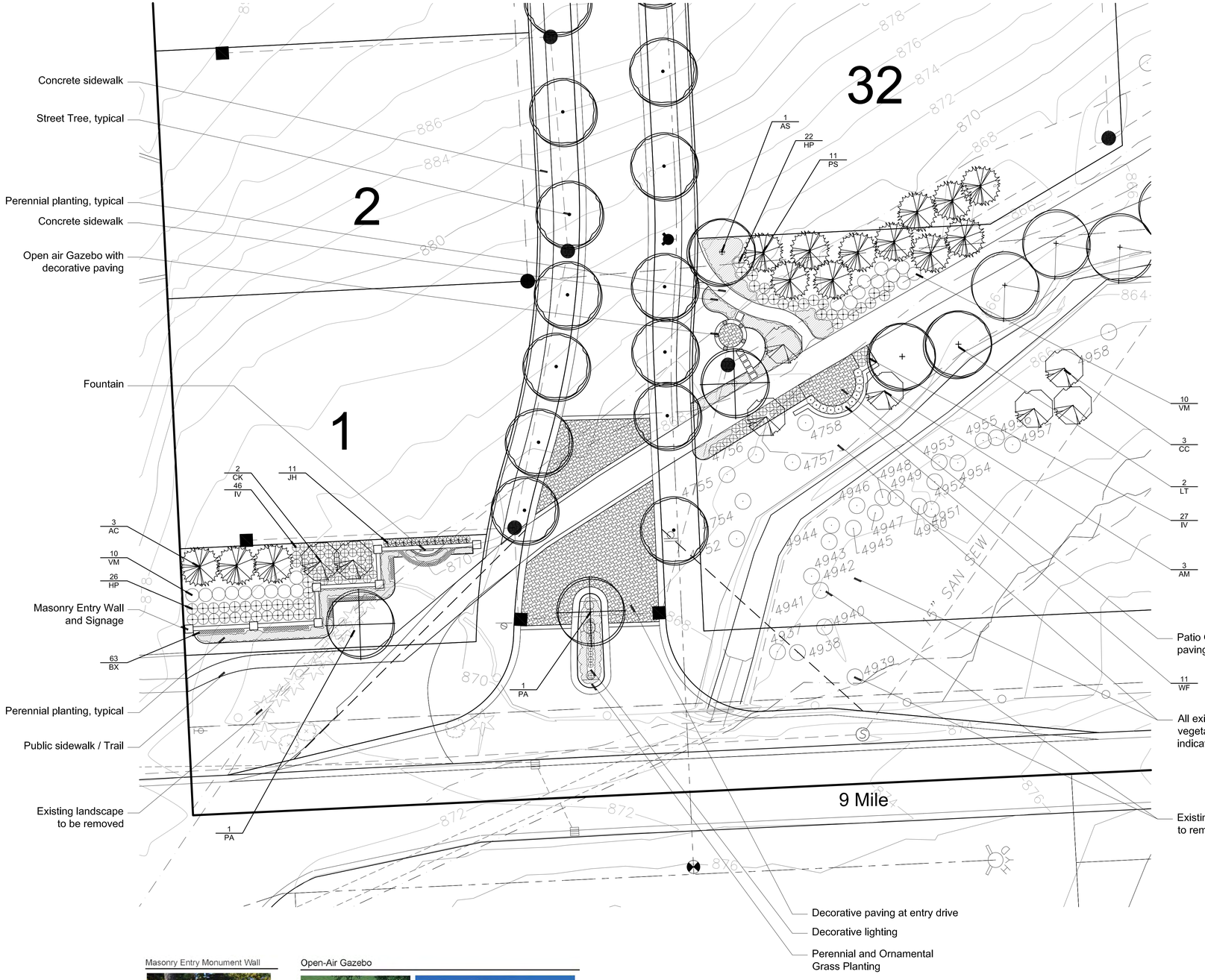
Drawn By:	Checked By:
jca	jca

0' 15' 30' 60'

NORTH
1"=60'

Sheet No.

L-1



Masonry Entry Monument Wall

Open-Air Gazebo

Street Lights

Decorative Paving

Context Images

Plant List

sym	qty	botanical name	common name	caliper	spacing	root	height	price	total
AC	3	Abies concolor	White Fir		as shown	B&B	8'	$ 325.00	$ 975.00
AM	3	Amelanchier canadensis	Serviceberry, Single Stem	2.5"	as shown	B&B		$ 250.00	$ 750.00
AS	1	Acer saccharum	Sugar Maple	3.0"	as shown	B&B		$ 400.00	$ 400.00
BX	63	Buxus sempirvirens	Korean Boxwood		as shown		21"-24"	$ 50.00	$ 3,150.00
CC	3	Cercis canadensis	Eastern Redbud, Multi-stem	2.5"	as shown	B&B		$ 250.00	$ 750.00
CK	2	Cornus kousa 'Milky Way'	Milky Way Chinese Dogwood	2.5"	as shown	B&B		$ 250.00	$ 500.00
HP	48	Hydrangea p. 'Little Lime'	Little Lime Hydrangea		as shown		24"-30"	$ 50.00	$ 2,400.00
IV	73	Ilex v. 'Red Sprite'	Red Sprite Michigan Holly		as shown		24"	$ 50.00	$ 3,650.00
JH	11	Juniperus 'Hetz Columnaris'	Hetz Columnar Juniper		as shown		7' hvy.	$ 50.00	$ 550.00
LT	2	Liriodendron tulipifera	Tulip Tree	3.0"	as shown	B&B		$ 400.00	$ 800.00
PA	2	Platanus x. a 'Bloodgood'	Bloodgood London Plane Tree	3.0"	as shown	B&B		$ 400.00	$ 800.00
PS	7	Pinus strobus	White Pine		as shown	B&B	8'	$ 325.00	$ 2,275.00
VM	20	Viburnum x b. 'Mohawk'	Burkwood Viburnum		as shown	B&B	36"-42"	$ 50.00	$ 1,000.00
WF	11	Weigela f. 'Summer Wine'	Summer Wine Weigela		as shown	B&B	24"	$ 50.00	$ 550.00

Landscape Summary

Greenbelt Plantings

Total Street Frontage	1,379 l.f.
Less Ex. Vegetation	1,181 l.f.
Net Frontage	198 l.f.
Canopy Trees Required	5.6 Trees (198 / 35)
Canopy Trees Provided	6 Trees
Sub-Canopy Trees Required	10 Trees (198 / 20)
Sub-Canopy Trees Provided	10 Trees

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
557 CARPENTER • NORTHVILLE, MI 48167
248 467 4668 • Fax 248 349 0559
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Seal:

STATE OF MICHIGAN
JAMES C. ALLEN
Landscape Architect
REGISTERED LANDSCAPE ARCHITECT

Title:

Entry Plan

Project:

Montebello
Novi, Michigan

Prepared for:

Mirage Development
45380 West Ten Mile, Suite 135
Novi, Michigan 48375
248.349.0598

Revision:	Issued:
Submission	November 18, 2015
Revised	November 10, 2015
Revised	February 19, 2016

Job Number:

15-065

Drawn By:	Checked By:
jca	jca

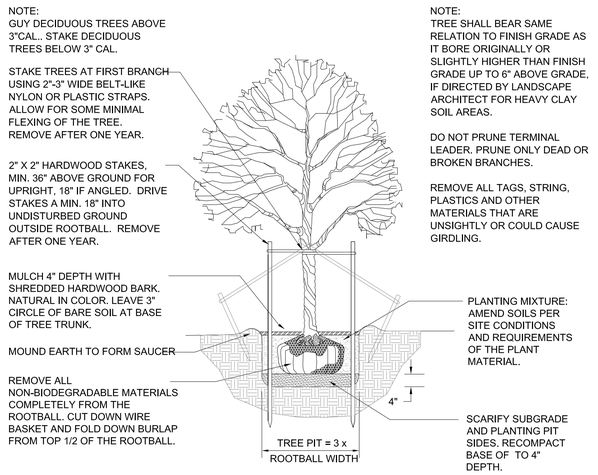
0' 5' 10' 20'

NORTH
1"=20'

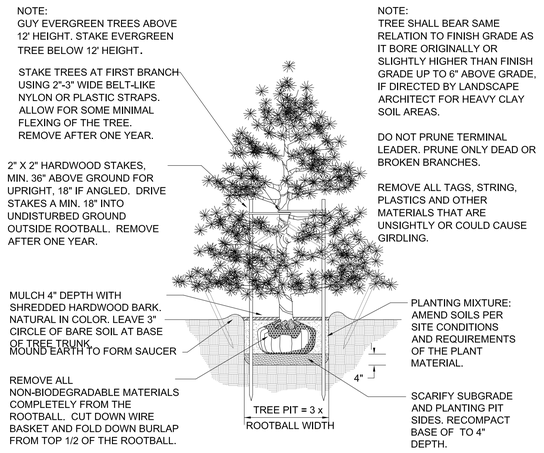
Sheet No.

L-2

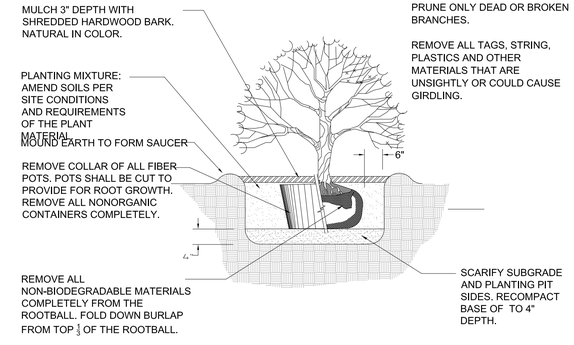
811 Know what's below. Call



DECIDUOUS TREE PLANTING DETAIL

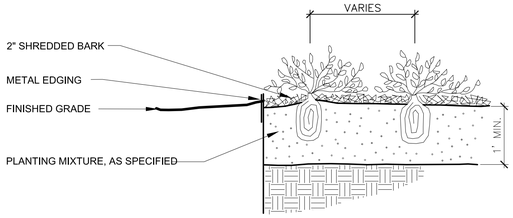


EVERGREEN TREE PLANTING DETAIL



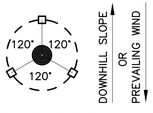
SHRUB PLANTING DETAIL

NOT TO SCALE



PERENNIAL PLANTING DETAIL

Not to scale

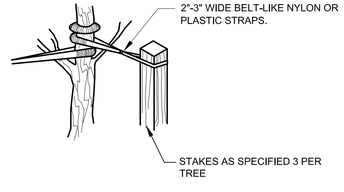


STAKING/GUYING LOCATION

NOTE:
ORIENT STAKING/GUYING TO PREVAILING WINDS, EXCEPT ON SLOPES GREATER THAN 3:1 ORIENT TO SLOPE.

USE SAME STAKING/GUYING ORIENTATION FOR ALL PLANTS WITHIN EACH GROUPING OR AREA

GUYING DETAIL

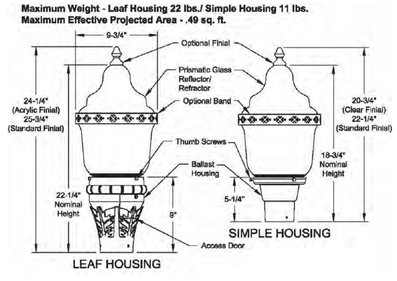


STAKING DETAIL

TREE STAKING DETAIL

Not to scale

Entry Lighting



Lighting by Halophane
Head - Granville Mini, Simple Housing
Base - Wadsworth
Pole - Wadsworth

LANDSCAPE NOTES

1. All plants shall be north Midwest American region grown, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn.
2. Plants shall be full, well-branched, and in healthy vigorous growing condition.
3. Plants shall be watered before and after planting is complete.
4. All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least two (2) full years following City approval.
5. All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
6. Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
7. "Agriform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
8. Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 peat, mixed well and spread to the depth as indicated in planting details.
9. All plantings shall be mulched per planting details located on this sheet.
10. The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
11. No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
12. The City of Novi's Landscape Architect shall be notified of any discrepancies between the plans and field conditions prior to installation.
13. The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
14. The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
15. Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
16. The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
17. A pre-emergent weed control agent, "Preen" or equal, shall be applied uniformly on top of all mulching in all planting beds.
18. All landscape areas shall be provided with an underground automatic sprinkler system.
19. Sod shall be two year old "Baron/Cheriadelphi" Kentucky Blue Grass grown in a sod nursery on loam soil.

CITY OF NOVI NOTES

1. All landscape islands shall be backfilled with a sand mixture to facilitate drainage.
2. All proposed landscape islands shall be curbed.
3. All landscape areas shall be irrigated.
4. Overhead utility lines and poles to be relocated as directed by utility company of record.
5. Evergreen and canopy trees shall be planted a minimum of 10' from a fire hydrant, and manhole, 15' from overhead wires.
6. All plant material shall be guaranteed for two (2) years including 1 cultivation (June-Aug.) after City Approval and shall be installed and maintained according to City of Novi standards. Replace Failing Material During the Next Approprate Planting Period.
7. All proposed street trees shall be planted a minimum of 4' from both the back of curb and proposed walks.
8. All tree and shrub planting beds shall be mulched with shredded hardwood bark, spread to minimum depth of 4". All lawn area trees shall have a 4' diameter circle of shredded hardwood mulch 3" away from trunk. All perennial, annual and ground cover beds shall receive 2" of dark colored bark mulch as indicated on the plant list. Mulch is to be free from debris and foreign material, and shall contain no pieces of inconsistent size.
9. All Substitutions or Deviations from the Landscape Plan Must be Approved in Writing by the City of Novi Prior to their Installation.

NOTES:
THE APPROXIMATE DATE OF INSTALLATION FOR THE PROPOSED LANDSCAPE WILL BE MARCH 15 - NOVEMBER 15 OF 2016

THE SITE WILL BE MAINTAINED BY THE DEVELOPER IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE CITY OF NOVI ZONING ORDINANCE. THIS INCLUDES WEEDING AND WATERING AS REQUIRED BY NORMAL MAINTENANCE PRACTICES.

DEVELOPER SHALL BE RESPONSIBLE FOR REPLACING ANY TREES WITHIN UTILITY EASEMENTS THAT ARE DAMAGED THROUGH NORMAL MAINTENANCE OR REPAIRS.

PLANT MATERIALS SHALL BE GUARANTEED FOR 2 YEARS AND SHALL BE MAINTAINED IN ACCORDANCE WITH CITY ORDINANCES. WARRANTY PERIOD BEGINS AT THE TIME OF CITY APPROVAL. WATERING AS NECESSARY SHALL OCCUR DURING THIS WARRANTY PERIOD.

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
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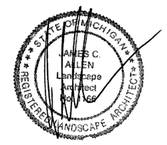

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Landscape Details

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Montebello
Novi, Michigan

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15-065

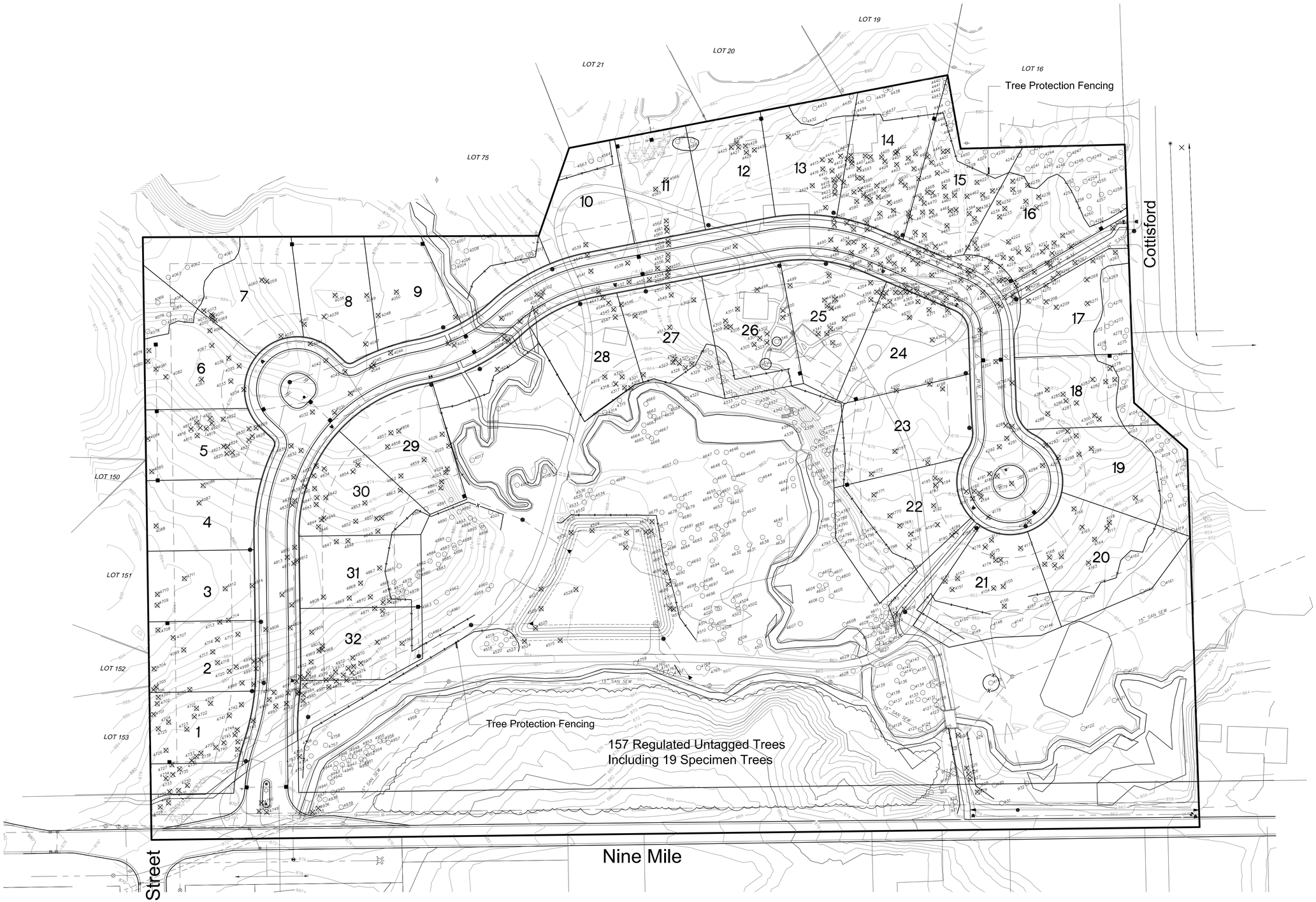
Drawn By:	Checked By:
jca	jca

NORTH

Sheet No.

L-3

Know what's below. Call before you dig.



Notes:

- The Entire Site is within the Woodland Boundary.
- Please see Sheets L-5 and L-6 for Tree List.

0' 15' 30' 60'

NORTH
1"=60'

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Sheet No.

L-4

Tree List

TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	REMARKS	REQUIRED REPLACEMENT
915	10,13,13,14	American Elm	Ulmus americana	Good	Save	
916	16	American Elm	Ulmus americana	Good	Save	
917	8	Sugar Maple	Acer saccharum	Good	Save	
918	14	Black Cherry	Prunus serotina	Fair	Save	
919	29	Sugar Maple	Acer saccharum	Good	Save	
920	29	Sugar Maple	Acer saccharum	Good	Save	
921	22	Red Oak	Quercus rubra	Good	Save	
922	23	American Elm	Ulmus americana	Good	Save	
923	10,11	Sugar Maple	Acer saccharum	Good	Remove	3
924	13	Box Elder	Acer negundo	Good	Save	
925	8	Sugar Maple	Acer saccharum	Good	Remove	1
926	10	Sugar Maple	Acer saccharum	Good	Remove	1
927	10	American Elm	Ulmus americana	Good	Remove	1
928	15	Norway Spruce	Picea abies	Good	Save	
929	13	Norway Spruce	Picea abies	Good	Remove	2
930	17	Norway Spruce	Picea abies	Good	Save	
931	33	Black Walnut	Juglans nigra	Good	Save	
932	24	Norway Spruce	Picea abies	Good	Save	
4001	15	Norway Maple	Acer platanoides	Good	Remove	2
4002	17	Black Cherry	Prunus serotina	Good	Remove	2
4003	21	American Elm	Ulmus americana	Good	Save	
4004	10	Box Elder	Acer negundo	Good	Save	
4005	10	Box Elder	Acer negundo	Good	Save	
4006	12	Norway Maple	Acer platanoides	Good	Save	
4007	9	Box Elder	Acer negundo	Good	Save	
4008	11	Box Elder	Acer negundo	Good	Save	
4009	19	Black Cherry	Prunus serotina	Good	Save	
4010	14	Black Walnut	Juglans nigra	Good	Save	
4011	15	Black Walnut	Juglans nigra	Good	Save	
4012	19	Black Walnut	Juglans nigra	Good	Save	
4013	10	American Elm	Ulmus americana	Good	Save	
4014	11	American Elm	Ulmus americana	Good	Save	
4015	11	Black Cherry	Prunus serotina	Good	Save	
4016	11,13	Box Elder	Acer negundo	Good	Save	
4017	16	Black Walnut	Juglans nigra	Good	Save	
4018	16	Box Elder	Acer negundo	Good	Save	
4019	19	Weeping willow	Salix alba	Good	Save	
4020	9	Sugar Maple	Acer saccharum	Good	Save	
4021	16	Sugar Maple	Acer saccharum	Good	Save	
4022	13	Box Elder	Acer negundo	Good	Save	
4023	15	Black Cherry	Prunus serotina	Good	Remove	2
4024	11	Black Walnut	Juglans nigra	Good	Remove	1
4025	10	Box Elder	Acer negundo	Good	Remove	1
4026	11	Black Walnut	Juglans nigra	Good	Remove	1
4027	6,9	Box Elder	Acer negundo	Good	Save	
4028	14	Black Walnut	Juglans nigra	Good	Remove	2
4029	8	Box Elder	Acer negundo	Good	Remove	1
4030	11	Box Elder	Acer negundo	Good	Remove	1
4031	7,12,13	Box Elder	Acer negundo	Good	Remove	4
4032	14	Box Elder	Acer negundo	Good	Remove	2
4033	10	Box Elder	Acer negundo	Good	Remove	1
4034	9	Box Elder	Acer negundo	Good	Remove	1
4035	9	Black Cherry	Prunus serotina	Good	Remove	1
4036	10,12	Common Apple	Malus spp.	Good	Remove	**3**
4037	10	American Elm	Ulmus americana	Good	Remove	1
4038	40	Black Cherry	Prunus serotina	Good	Remove	4
4039	12	Box Elder	Acer negundo	Good	Remove	2
4040	9	American Elm	Ulmus americana	Good	Remove	1
4041	12	American Elm	Ulmus americana	Good	Remove	2
4042	8	White Ash	Fraxinus americana	Good	Remove	1
4043	11	American Elm	Ulmus americana	Good	Remove	1
4044	9	Common Apple	Malus spp.	Good	Remove	1
4045	11	Common Apple	Malus spp.	Good	Remove	1
4046	10	Common Apple	Malus spp.	Good	Remove	1
4047	8	Common Apple	Malus spp.	Good	Remove	1
4048	11	Common Apple	Malus spp.	Good	Remove	1
4049	22	Black Cherry	Prunus serotina	Poor	Remove	3
4050	10	American Elm	Ulmus americana	Good	Remove	1
4051	8	White Pine	Pinus strobus	Good	Remove	1
4052	8	White Pine	Pinus strobus	Good	Remove	1
4053	12	Black Walnut	Juglans nigra	Good	Remove	2
4054	28	Black Cherry	Prunus serotina	Good	Save	
4055	24	Black Cherry	Prunus serotina	Good	Save	
4056	15	Red Oak	Quercus rubra	Good	Save	
4057	12	American Elm	Ulmus americana	Good	Save	
4058	9	American Elm	Ulmus americana	Good	Save	
4059	14	American Elm	Ulmus americana	Good	Save	
4060	46	Black Cherry	Prunus serotina	Good	Remove	4
4061	11	American Elm	Ulmus americana	Split Trunk	Save	
4062	11	Black Cherry	Prunus serotina	Good	Save	
4063	9	Bitternut Hickory	Carya cordiformis	Good	Save	
4064	15	Black Cherry	Prunus serotina	Good	Save	
4065	10	Black Cherry	Prunus serotina	Good	Save	
4066	16	Basswood	Tilia americana	Good	Save	
4067	14	Black Cherry	Prunus serotina	Good	Remove	2
4068	11	Black Cherry	Prunus serotina	Good	Remove	1
4069	9	Black Cherry	Prunus serotina	Good	Remove	1
4070	9	Black Cherry	Prunus serotina	Good	Remove	1
4071	8	Black Cherry	Prunus serotina	Good	Remove	1
4072	13	American Elm	Ulmus americana	Good	Remove	2
4073	10	Black Cherry	Prunus serotina	Good	Remove	1
4074	11	Black Cherry	Prunus serotina	Good	Save	
4075	11	American Elm	Ulmus americana	Good	Save	
4076	11	Norway Maple	Acer platanoides	Good	Save	
4077	15	Norway Maple	Acer platanoides	Good	Save	
4078	14	Basswood	Tilia americana	Good	Save	
4079	12	Bitternut Hickory	Carya cordiformis	Good	Remove	2
4080	22	Basswood	Tilia americana	Good	Remove	3
4081	13	Bitternut Hickory	Carya cordiformis	Good	Remove	2
4082	8	Black Cherry	Prunus serotina	Good	Remove	1
4083	18	Norway Spruce	Picea abies	Good	Remove	2
4084	9	Bitternut Hickory	Carya cordiformis	Good	Remove	1
4085	17	Black Cherry	Prunus serotina	Good	Remove	2
4086	13	Black Cherry	Prunus serotina	Good	Remove	2
4087	9	Black Cherry	Prunus serotina	Good	Remove	1
4088	12	Austrian Pine	Pinus nigra	Good	Remove	2
4089	9	Black Cherry	Prunus serotina	Good	Remove	1
4090	12	Black Cherry	Prunus serotina	Good	Remove	2
4101	16	Black Cherry	Prunus serotina	Good	Remove	2
4102	16	Norway Spuce	Picea abies	Good	Save	
4103	15	Chinese Juniper	Juniperus chinensis	Good	Save	
4104	12	Norway Spuce	Picea abies	Good	Save	
4105	10	Silver Maple	Acer saccharinum	Good	Save	
4106	20	White Oak	Quercus alba	Good	Save	
4107	12	White Oak	Quercus alba	Good	Save	
4108	18	Red Oak	Quercus rubra	Good	Save	
4109	19	Sugar Maple	Acer saccharum	Good	Save	
4110	30	Sugar Maple	Acer saccharum	Good	Save	
4111	17	Black Walnut	Juglans nigra	Good	Save	
4112	15,16	Black Walnut	Juglans nigra	Good	Save	
4113	20	Black Walnut	Juglans nigra	Good	Save	
4114	14	Black Cherry	Prunus serotina	Good	Save	
4115	13,15	Red Oak	Quercus rubra	Good	Save	
4116	15	Black Walnut	Juglans nigra	Good	Remove	2
4117	21	White Spruce	Picea glauca	Good	Remove	3
4118	26	White Spruce	Picea glauca	Good	Remove	3
4119	13	Box Elder	Acer negundo	Good	Save	
4120	13	Black Walnut	Juglans nigra	Good	Save	
4121	32	Sycamore	Platanus occidentalis	Good	Save	
4122	16	Black Walnut	Juglans nigra	Good	Save	
4123	23	Sugar Maple	Acer saccharum	Good	Save	
4124	23	Weeping willow	Salix alba	Good	Save	
4125	9	Box Elder	Acer negundo	Good	Save	
4126	19	Corkscrew Willow	Salix matsudana 'Tortousa'	Good	Save	
4127	23	Black Walnut	Juglans nigra	Good	Save	
4128	8	Common Larch	Larix decidua	Good	Save	
4129	17	Common Larch	Larix decidua	Good	Save	
4130	11	Common Larch	Larix decidua	Good	Save	
4131	13	Common Larch	Larix decidua	Good	Save	
4132	11	Common Larch	Larix decidua	Good	Save	
4133	10	Common Larch	Larix decidua	Good	Save	
4134	17	Common Larch	Larix decidua	Good	Save	
4135	18	Common Larch	Larix decidua	Good	Save	
4136	16	Common Larch	Larix decidua	Good	Save	
4137	13	Basswood	Tilia americana	Good	Save	
4138	10	Sugar Maple	Acer saccharum	Good	Save	
4139	13	Sugar Maple	Acer saccharum	Good	Save	
4140	12	Sugar Maple	Acer saccharum	Good	Save	
4141	13	Common Larch	Larix decidua	Good	Save	
4142	12	Common Larch	Larix decidua	Good	Save	
4143	13	Common Larch	Larix decidua	Good	Save	
4144	18	Sugar Maple	Acer saccharum	Good	Save	
4145	9	American Beech	Fagus grandifolia	Good	Save	
4146	23	Red Oak	Quercus rubra	Good	Save	
4146	23	Red Oak	Quercus rubra	Good	Save	
4147	21	Red Oak	Quercus rubra	Good	Save	
4148	22	Red Oak	Quercus rubra	Good	Save	
4149	27	Red Oak	Quercus rubra	Good	Save	
4150	24	Red Oak	Quercus rubra	Good	Save	
4151	12	Norway Spuce	Picea abies	Good	Remove	2
4152	13	Norway Spuce	Picea abies	Good	Remove	2
4153	23	Common Mulberry	Morus alba	Good	Remove	3
4154	12,14	Norway Spuce	Picea abies	Good	Remove	4
4155	10	Norway Spuce	Picea abies	Good	Remove	1
4156	13	Black Cherry	Prunus serotina	Good	Remove	2
4157	14	Black Cherry	Prunus serotina	Good	Save	
4158	9,11	Common Mulberry	Morus alba	Good	Save	
4159	24	Red Oak	Quercus rubra	Good	Save	
4160	13	Black Walnut	Juglans nigra	Good	Save	
4161	16	Black Walnut	Juglans nigra	Good	Save	
4162	27,31	Sycamore	Platanus occidentalis	Good	Save	
4163	21	Sycamore	Platanus occidentalis	Good	Remove	3
4164	21	White Spruce	Picea glauca	Good	Remove	3
4165	19	Black Cherry	Prunus serotina	Good	Remove	2
4166	19	Black Cherry	Prunus serotina	Good	Remove	2
4167	18	Norway Spuce	Picea abies	Good	Remove	2
4168	12	Norway Spuce	Picea abies	Good	Remove	2
4169	8,9,10	Norway Spuce	Picea abies	Good	Remove	4
4170	8,10	Common Mulberry	Morus alba	Good	Remove	3
4171	28	Silver Maple	Acer saccharinum	Good	Remove	3
4172	12,19,24	Sugar Maple	Acer saccharum	Good	Remove	7
4173	17	Black Cherry	Prunus serotina	Good	Remove	2
4174	9,10	Black Cherry	Prunus serotina	Good	Remove	3
4175	9	Black Cherry	Prunus serotina	Good	Remove	1
4176	15	Black Cherry	Prunus serotina	Good	Remove	2
4177	8	Black Cherry	Prunus serotina	Good	Remove	1
4178	14	Black Cherry	Prunus serotina	Good	Remove	2
4179	15	Common Mulberry	Morus alba	Good	Remove	2
4180	13	Black Cherry	Prunus serotina	Good	Remove	2
4181	15	Black Walnut	Juglans nigra	Good	Remove	2
4182	8,8,8	Norway Spuce	Picea abies	Good	Remove	3
4183	14	Black Cherry	Prunus serotina	Good	Remove	2
4184	14	Black Cherry	Prunus serotina	Good	Remove	2
4185	14	White Oak	Quercus alba	Good	Remove	2
4186	11	Black Walnut	Juglans nigra	Good	Remove	1
4187	14	Norway Spuce	Picea abies	Good	Remove	2
4188	18	Norway Spuce	Picea abies	Good	Remove	2
4189	14	Norway Spuce	Picea abies	Good	Remove	2
4190	9,20	Norway Spuce	Picea abies	Good	Remove	4
4191	14	Norway Spuce	Picea abies	Good	Remove	2
4192	14,14	Norway Spuce	Picea abies	Good	Remove	4
4193	13	Norway Spuce	Picea abies	Good	Remove	2
4194	15	Norway Spuce	Picea abies	Good	Remove	2
4195	16	Norway Spuce	Picea abies	Good	Remove	2
4196	8,10	Norway Spuce	Picea abies	Good	Remove	3
4197	23	White Spruce	Picea glauca	Good	Remove	3
4198	10	Norway Spuce	Picea abies	Good	Remove	1
4199	14	Norway Spuce	Picea abies	Good	Remove	2
4200	16	Norway Spuce	Picea abies	Good	Remove	2
4201	8	Red Maple	Acer rubrum	Good	Remove	1
4202	18	Austrian Pine	Pinus nigra	Good	Remove	2
4203	10	Black Cherry	Prunus serotina	Good	Remove	1
4204	14	Black Cherry	Prunus serotina	Good	Remove	2
4205	11	Black Cherry	Prunus serotina	Good	Remove	1
4206	11	Black Cherry	Prunus serotina	Good	Remove	1
4207	11	Black Cherry	Prunus serotina	Good	Remove	1
4208	16	Common Mulberry	Morus alba	Good	Remove	2
4209	22	Black Cherry	Prunus serotina	Good	Remove	3
4210	11	Austrian Pine	Pinus nigra	Good	Remove	1
4211	17	Austrian Pine	Pinus nigra	Good	Remove	2
4212	13	Black Cherry	Prunus serotina	Good	Remove	2
4213	11	Black Cherry	Prunus serotina	Good	Remove	1
4214	16	Norway Spuce	Picea abies	Good	Remove	2
4215	20	Black Cherry	Prunus serotina	Good	Remove	2
4216	13	Black Cherry	Prunus serotina	Good	Remove	2
4217	16	Black Cherry	Prunus serotina	Good	Remove	2
4218	10	Red Maple	Acer rubrum	Good	Remove	1
4219	13	Norway Spuce	Picea abies	Good	Remove	2
4220	12	Black Cherry	Prunus serotina	Good	Remove	2
4221	19	Black Cherry	Prunus serotina	Good	Remove	2
4222	11	Sugar Maple	Acer saccharum	Good	Remove	1
4223	14	Black Cherry	Prunus serotina	Good	Remove	2
4224	11	Black Cherry	Prunus serotina	Good	Remove	1
4225	16	Black Cherry	Prunus serotina	Good	Remove	2
4226	8	Red Maple	Acer rubrum	Good	Remove	1
4227	12	Sugar Maple	Acer saccharum	Good	Remove	2
4228	17	Sugar Maple	Acer saccharum	Good	Save	
4229	17	Black Cherry	Prunus serotina	Good	Save	
4230	19	Norway Maple	Acer platanoides	Good	Save	
4231	10	Sugar Maple	Acer saccharum	Good	Remove	1
4232	12	Black Cherry	Prunus serotina	Good	Remove	2
4233	9	Sugar Maple	Acer saccharum	Good	Remove	1
4234	11	Sugar Maple	Acer saccharum	Good	Remove	1
4235	10	Red Maple	Acer rubrum	Good	Remove	1
4236	15	Red Maple	Acer rubrum	Good	Remove	2
4237	12	Sugar Maple	Acer saccharum	Good	Save	
4238	12	Black Cherry	Prunus serotina	Good	Remove	2
4239	10	Black Cherry	Prunus serotina	Good	Remove	1
4240	14	Sugar Maple	Acer saccharum	Good	Remove	2
4241	9	Sugar Maple	Acer saccharum	Good	Save	
4242	13	Sugar Maple	Acer saccharum	Good	Save	
4243	11	Sugar Maple	Acer saccharum	Good	Save	
4244	10	Sugar Maple	Acer saccharum	Good	Save	
4245	10	Sugar Maple	Acer saccharum	Good	Save	
4246	10	Sugar Maple	Acer saccharum	Good	Save	
4247	12	Sugar Maple	Acer saccharum	Good	Save	
4248	9,10	Sugar Maple	Acer saccharum	Good	Save	
4249	9	Sugar Maple	Acer saccharum	Good	Save	
4250	21	Black Cherry	Prunus serotina	Good	Save	
4251	12	Red Maple	Acer rubrum	Good	Save	
4252	9	Red Maple	Acer rubrum	Good	Save	
4253	10	Red Maple	Acer rubrum	Good	Save	
4254	14	Black Cherry	Prunus serotina	Good	Save	
4255	11	Sugar Maple	Acer saccharum	Good	Save	
4256	16	Sugar Maple	Acer saccharum	Good	Save	
4257	12	Red Oak	Quercus rubra	Good	Save	
4258	10	Red Maple	Acer rubrum	Good	Save	
4259	21	Red Oak	Quercus rubra	Good	Save	
4260	9	Red Maple	Acer rubrum	Good	Save	
4261	14	Sugar Maple	Acer saccharum	Good	Save	
4262	9	Red Maple	Acer rubrum	Good	Remove	1
4263	8	Red Maple	Acer rubrum	Good	Remove	1
4264	9	Red Maple	Acer rubrum	Good	Remove	1
4265	10	Red Maple	Acer rubrum	Good	Remove	1
4266	16	Red Maple	Acer rubrum	Good	Remove	2
4267	17	Black Cherry	Prunus serotina	Good	Remove	2
4268	9	Red Maple	Acer rubrum	Good	Remove	1
4269	29	Silver Maple	Acer saccharinum	Good	Save	
4270	18	Austrian Pine	Pinus nigra	Good	Save	
4271	34	Red Oak	Quercus rubra	Good	Remove	4
4272	10	Norway Spuce	Picea abies	Good	Save	
4273	9	Sugar Maple	Acer saccharum	Good	Save	
4274	12	Norway Spuce	Picea abies	Good	Save	
4275	36	Black Cherry	Prunus serotina	Good	Save	
4276	19	Norway Spuce	Picea abies	Good	Save	
4277	14	Chinese Juniper	Juniperus chinensis	Good	Save	
4278	15	Norway Spuce	Picea abies	Good	Save	
4279	10	Norway Spuce	Picea abies	Good	Remove	1
4280	30	Black Walnut	Juglans nigra	Good	Save	
4281	24	Black Walnut	Juglans nigra	Good	Save	
4282	23	Black Walnut	Juglans nigra	Good	Remove	3
4283	9	Sugar Maple	Acer saccharum	Good	Remove	1
4284	22	Red Oak	Quercus rubra	Good	Remove	3
4285	29	Red Oak	Quercus rubra	Good	Remove	3
4286	25	Red Oak	Quercus rubra	Good	Remove	3
4287	24	Red Oak	Quercus rubra	Good	Remove	3
4288	48	Red Oak	Quercus rubra	Poor	Remove	4
4289	15	Black Cherry	Prunus serotina	Good	Remove	2
4290	12	White Oak	Quercus alba	Good	Remove	2
4291	16,18	Norway Spuce	Picea abies	Good	Remove	5
4292	13	Norway Spuce	Picea abies	Good	Remove	2
4293	32	Red Oak	Quercus rubra	Good	Remove	4
4294	14	Black Cherry	Prunus serotina	Good	Remove	2
4295	32	Red Oak	Quercus rubra	Good	Remove	4
4296	36	Red Oak	Quercus rubra	Good	Remove	4
4297	26	Red Oak	Quercus rubra	Good	Remove	3
4298	30	Red Oak	Quercus rubra	Good	Remove	3
4299	29	Red Oak	Quercus rubra	Good	Remove	3
4300	10	Sugar Maple	Acer saccharum	Good	Remove	1
4301	10	Canadian Hemlock	Tsuga canadensis	Good	Remove	1
4302	9	Canadian Hemlock	Tsuga canadensis	Good	Remove	1
4303	9	Canadian Hemlock	Tsuga canadensis	Good	Remove	1
4304	10	Canadian Hemlock	Tsuga canadensis	Good	Remove	1
4305	11	Canadian Hemlock	Tsuga canadensis	Good	Remove	1
4306	24	Red Oak	Quercus rubra	Good	Save	
4307	36	Red Oak	Quercus rubra	Good	Save	
4308	14	Norway Spuce	Picea abies	Good	Remove	2
4309	13	Norway Spuce	Picea abies	Good	Remove	2
4310	14	Norway Spuce	Picea abies	Good	Remove	2
4311	10	Norway Spuce	Picea abies	Good	Remove	1
4312	23	White Oak	Quercus alba	Good	Remove	3
4313	40	White Oak	Quercus alba	Good	Remove	4
4314	15,17	Black Locust	Robinia pseudoacacia	Good	Save	
4315	9	Black Locust	Robinia pseudoacacia	Good	Save	
4316	18	Black Locust	Robinia pseudoacacia	Good	Remove	2
4317	16	Black Cherry	Prunus serotina	Good	Remove	2
4318	20	Red Oak	Quercus rubra	Good	Remove	2
4319	18	Red Oak	Quercus rubra	Good	Remove	2
4320	13	Red Oak	Quercus rubra	Good	Remove	2
4321	17	Black Cherry	Prunus serotina	Poor	Remove	2
4322	13	Common Mulberry	Morus alba	Good	Save	
4323	18	Black Cherry	Prunus serotina	Good	Remove	2
4324	15	Black Walnut	Juglans nigra	Good	Remove	2
4325	16	Red Oak	Quercus rubra	Good	Remove	2
4326	15	Red Oak	Quercus rubra	Good	Remove	2
4327	9	Norway Spuce	Picea abies	Good	Remove	1
4328	10	Norway Spuce	Picea abies	Good	Save	
4329	11	Norway Spuce	Picea abies	Good	Save	
4330	36	Red Oak	Quercus rubra	Good	Save	
4331	44	American Beech	Fagus grandifolia	Good	Save	
4332	12	Basswood	Tilia americana	Good	Save	
4333	8	Black Locust	Robinia pseudoacacia	Good	Save	
4334	18	Basswood	Tilia americana	Good	Save	
4335	34	Sugar Maple	Acer saccharum	Good	Save	
4336	9	Basswood	Tilia americana	Good	Save	
4337	14	Red Oak	Quercus rubra	Good	Save	
4338	27	American Elm	Ulmus americana	Good	Save	
4339	17	American Elm	Ulmus americana	Good	Save	
4340	19	Black Maple	Acer nigrum	Good	Save	
4341	28	Chinkapin Oak	Quercus muehlenbergii	Good	Save	
4342	32	Red Oak	Quercus rubra	Good	Save	
4344	24	Black Maple	Acer nigrum	Good	Save	
4345	28	White Oak	Quercus alba	Good	Save	
4346	46	White Oak	Quercus alba	Good	Save	
4347	11	Sugar Maple	Acer saccharum	Good	Remove	1
4348	14	Black Walnut	Juglans nigra	Good	Remove	2
4349	18	Red Oak	Quercus rubra	Good	Remove	2
4350	24	Red Oak	Quercus rubra	Good	Remove	3
4351	33	Black Maple	Acer nigrum	Good	Save	
4352	25	Sugar Maple	Acer saccharum	Poor	Remove	3
4353	8	Magnolia	Magnolia acuminata	Good	Remove	1
4354	26	Austrian Pine	Pinus nigra	Good	Remove	3
4355	11	Austrian Pine	Pinus nigra	Good	Remove	1
4356	9	Austrian Pine	Pinus nigra	Good	Remove	1
4357	10	Austrian Pine	Pinus nigra	Good	Remove	1
4358	12	Sugar Maple	Acer saccharum	Good	Remove	2
4359	8	Austrian Pine	Pinus nigra	Good	Remove	1
4360	9	Austrian Pine	Pinus nigra	Good	Remove	1
4361	9	Austrian Pine	Pinus nigra	Good	Remove	1
4362	9	Austrian Pine	Pinus nigra	Good	Remove	1
4363	9	Austrian Pine	Pinus nigra	Good	Remove	1
4364	11	Austrian Pine	Pinus nigra	Good	Remove	1
4365	9	Austrian Pine	Pinus nigra	Good	Remove	1
4366	11	Austrian Pine	Pinus nigra	Good	Remove	1
4367	12	Austrian Pine	Pinus nigra	Good	Remove	2
4368	12	Austrian Pine	Pinus nigra	Good	Remove	2
4369	10	Austrian Pine	Pinus nigra	Good	Remove	1
4370	28	Sugar Maple	Acer saccharum	Good	Remove	3
4371	12	Austrian Pine	Pinus nigra	Good	Remove	2
4372	10	Austrian Pine	Pinus nigra	Good	Remove	1
4373	10	Austrian Pine	Pinus nigra	Good	Remove	1
4374	12	Austrian Pine	Pinus nigra	Good	Remove	2
4375	10	Austrian Pine	Pinus nigra	Good	Remove	1
4376	10	Austrian Pine	Pinus nigra	Good	Remove	1
4377	10	Austrian Pine	Pinus nigra	Good	Remove	1
4378	20	Sugar Maple	Acer saccharum	Good	Remove	2
4379	11	Austrian Pine	Pinus nigra	Good	Remove	1
4380	11	Sugar Maple	Acer saccharum	Good	Remove	1
4381	11	Austrian Pine	Pinus nigra	Good	Remove	1
4382	24	Austrian Pine	Pinus nigra	Good	Remove	3
4383	22	Austrian Pine	Pinus nigra	Good	Remove	3
4384	20	Austrian Pine	Pinus nigra	Good	Remove	2
4385	11	Austrian Pine	Pinus nigra	Good	Remove	1
4386	11	Black Cherry	Prunus serotina	Good	Remove	1
4387	8	Red Maple	Acer rubrum	Good	Remove	1
4388	17	Austrian Pine	Pinus nigra	Good	Remove	2
4389	21	Austrian Pine	Pinus nigra	Good	Remove	3
4390	10	Black Cherry	Prunus serotina	Good	Remove	1
4391	8	Sugar Maple	Acer saccharum	Good	Remove	1
4392	9	Sugar Maple	Acer saccharum	Good	Remove	1
4393	9	Sugar Maple	Acer saccharum	Good	Remove	1
4394	11	Austrian Pine	Pinus nigra	Good	Remove	1
4395	11	Sugar Maple	Acer saccharum	Good	Remove	1
4396	8	Sugar Maple	Acer saccharum	Good	Remove	1
4397	10	Black Cherry	Prunus serotina	Good	Remove	1
4398	12	Black Cherry	Prunus serotina	Good	Remove	2
4399	10	Sugar Maple	Acer saccharum	Good	Remove	1
4400	10	Black Cherry	Prunus serotina	Good	Remove	1
4401	14	Austrian Pine	Pinus nigra	Good	Remove	2
4402	11	Black Cherry	Prunus serotina	Good	Remove	1
4403	12	Sugar Maple	Acer saccharum	Good	Remove	2
4404	11	Austrian Pine	Pinus nigra	Good	Remove	1
4405	11	Sugar Maple	Acer saccharum	Good	Remove	1
4406	16	Austrian Pine	Pinus nigra	Good	Remove	2
4407	12	Austrian Pine	Pinus nigra	Good	Remove	2
4408	11	Austrian Pine	Pinus nigra	Good	Remove	1
4409	10	Austrian Pine	Pinus nigra	Good	Remove	1
4410	9	Austrian Pine	Pinus nigra	Good	Remove	1
4412	11	Austrian Pine	Pinus nigra	Good	Remove	1
4413	15	Austrian Pine	Pinus nigra	Good	Remove	2
4414	20	Austrian Pine	Pinus nigra	Good	Remove	2
4415	16	Austrian Pine	Pinus nigra	Good	Remove	2
4416	21	Austrian Pine	Pinus nigra	Good	Remove	3
4417	16	Austrian Pine	Pinus nigra	Good	Remove	2
4418	12	Austrian Pine	Pinus nigra	Good	Remove	2
4419	9	Austrian Pine	Pinus nigra	Good	Remove	1
4420	16	Austrian Pine	Pinus nigra	Good	Remove	2
4421	18	Austrian Pine	Pinus nigra	Good	Remove	2
4422	12	Austrian Pine	Pinus nigra	Good	Remove	2
4423	16	Austrian Pine	Pinus nigra	Good	Remove	2
4424	30	Sugar Maple	Acer saccharum	Good	Remove	3
4425	8,10	White Cedar	Thuja occidentalis	Good	Remove	3
4426	6,10	White Cedar	Thuja occidentalis	Good	Remove	1
4427	4,11	White Cedar	Thuja occidentalis	Good	Remove	1
4428	9,10,10,10	White Cedar	Thuja occidentalis	Good	Remove	5
4429	6,9	White Cedar	Thuja occidentalis	Good	Remove	1
4430	6,6,8	White Cedar	Thuja occidentalis	Good	Remove	1
4431	24	Black Cherry	Prunus serotina	Good	Remove	3
4432	26	Red Oak	Quercus rubra	Good	Save	
4433	22	White Pine	Pinus strobus	Good	Save	
4434	17	Black Walnut	Juglans nigra	Good	Save	
4435	14	Black Walnut	Juglans nigra	Good	Save	
4436	4,9	White Cedar	Thuja occidentalis	Good	Save	
4437	9	Weeping willow	Salix alba	Good	Save	
4438	17	Black Cherry	Prunus serotina	Good	Save	
4439	9	Black Cherry	Prunus serotina	Good	Save	
4440	12	Norway Spuce	Picea abies	Good	Save	
4441	10	Norway Spuce	Picea abies	Good	Save	
4442	8	Norway Spuce	Picea abies	Good	Save	
4443	12	Norway Spuce	Picea abies	Good	Save	
4444	12	Norway Spuce	Picea abies	Good	Save	
4445	8	Norway Spuce	Picea abies	Good	Save	
4446	9	Norway Spuce	Picea abies	Good	Save	
4447	22	Black Cherry	Prunus serotina	Good	Save	
4448	10	Norway Spuce	Picea abies	Good	Save	
4449	10	Black Cherry	Prunus serotina	Good	Remove	1
4450	14	Austrian Pine	Pinus nigra	Good	Save	
4451	13	Austrian Pine	Pinus nigra	Good	Remove	2
4452	30	Sugar Maple	Acer saccharum	Good	Remove	3
4453	10	Sugar Maple	Acer saccharum	Good	Remove	1
4454	19	Austrian Pine	Pinus nigra	Good	Remove	2
4455	8	Red Oak	Quercus rubra	Good	Remove	1
4456	12	Austrian Pine	Pinus nigra	Good	Remove	2
4457	12	Sugar Maple	Acer saccharum	Good	Remove	2
4458	15	Sugar Maple	Acer saccharum	Good	Remove	2
4459	17	Austrian Pine	Pinus nigra	Good	Remove	2
4460	16	Austrian Pine	Pinus nigra	Good	Remove	2
4461	18	Austrian Pine	Pinus nigra	Good	Remove	2
4462	9	Sugar Maple	Acer saccharum	Good	Remove	1
4463	10	Sugar Maple	Acer saccharum	Good	Remove	1
4464	18	Austrian Pine	Pinus nigra	Good	Remove	2
4465	13	Austrian Pine	Pinus nigra	Good	Remove	2
4466	12	Austrian Pine	Pinus nigra	Good	Remove	2
4467	13	Austrian Pine	Pinus nigra	Good	Remove	2
4468	10	Sugar Maple	Acer saccharum	Good	Remove	1
4469	13	Austrian Pine	Pinus nigra	Good	Remove	2
4470	10	Norway Maple	Acer platanoides	Good	Remove	1
4471	12	Austrian Pine	Pinus nigra	Good	Remove	2
4472	15	Austrian Pine	Pinus nigra	Good	Remove	2
4473	19	Austrian Pine	Pinus nigra	Good	Remove	2
4474	14	Austrian Pine	Pinus nigra	Good	Remove	2
4475	16	Austrian Pine	Pinus nigra	Good	Remove	2
4476	11	Sugar Maple	Acer saccharum	Good	Remove	1
4477	12	Sugar Maple	Acer saccharum	Good	Remove	2
4478	16	Austrian Pine	Pinus nigra	Good	Remove	2
4479	15	Austrian Pine	Pinus nigra	Good	Remove	2
4480	12	Sugar Maple	Acer saccharum	Good	Remove	2
4481	10	Sugar Maple	Acer saccharum	Good	Remove	1
4482	16	Austrian Pine	Pinus nigra	Good	Remove	2
4483	10	Austrian Pine	Pinus nigra	Good	Remove	1
4484	12	Sugar Maple	Acer saccharum	Good	Remove	2
4485	14	Austrian Pine	Pinus nigra	Good	Remove	2
4486	12	Norway Maple	Acer platanoides	Good	Remove	2
4487	9	Sugar Maple	Acer saccharum	Good	Remove	1
4488	20	Red Oak	Quercus rubra	Good	Remove	2
4489	10	Austrian Pine	Pinus nigra	Good	Remove	1
4490	11	Austrian Pine	Pinus nigra	Good	Remove	1
4491	11	White Spruce	Picea glauca	Good	Remove	1
4492	21	White Spruce	Picea glauca	Good	Remove	3
4493	20	White Spruce	Picea glauca	Good	Remove	2
4494	14	Scotch Pine	Pinus sylvestris	Good	Remove	2
4495	15	Red Oak	Quercus rubra	Good	Remove	2
4496	11	Scotch Pine	Pinus sylvestris	Good	Remove	1
4497	22	American Elm	Ulmus americana	Good	Remove	3
4498	20	Black Walnut	Juglans nigra	Good	Remove	2
4499	12	Eastern Red Cedar	Juniperus virginiana	Good	Remove	2
4500	18	White Spruce	Picea glauca	Good	Remove	2
4501	30	Black Walnut	Juglans nigra	Good	Save	
4502	20	Sugar Maple	Acer saccharum	Good	Save	
4503	22	Sugar Maple	Acer saccharum	Good	Save	
4504	24	Sugar Maple	Acer saccharum	Good	Save	
4505	22	Sugar Maple	Acer saccharum	Good	Save	
4506	22	Bitternut Hickory	Carya cordiformis	Good	Save	
4507	32	Sugar Maple	Acer saccharum	Good	Save	
4508	23	Sugar Maple	Acer saccharum	Good	Save	
4509	14	Sugar Maple	Acer saccharum	Good	Save	
4510	25	Sugar Maple	Acer saccharum	Good	Save	
4511	28	Sugar Maple	Acer saccharum	Good	Save	
4512	16	Black Cherry	Prunus serotina	Good	Save	
4513	18	Sugar Maple	Acer saccharum	Good	Remove	2
4514	24	Black Cherry	Prunus serotina	Good	Remove	3
4515	19	Norway Maple 'Crimson King'	Acer platanoides 'Crimson King'	Good	Remove	2
4518	30	Norway Spuce	Picea abies	Good	Save	
4519	22	Norway Spuce	Picea abies	Good	Save	
4520	17	Norway Spuce	Picea abies	Good	Save	
4521	24	Norway Spuce	Picea abies	Good	Save	
4522	20	Norway Spuce	Picea abies	Good	Save	
4523	24	Norway Spuce	Picea abies	Good	Save	
4524	26	Norway Spuce	Picea abies	Good	Remove	2
4525	20	Norway Maple 'Crimson King'	Acer platanoides 'Crimson King'	Good	Remove	2
4526	40	American Elm	Ulmus americana	Good	Remove	4
4527	16	Sugar Maple	Acer saccharum	Good	Remove	2
4528	45	Weeping willow	Salix alba	Poor	Save	
4529	12	Common Horsechestnut	Aesculus hippocastanum	Good	Remove	2
4530	28	Red Oak	Quercus rubra	Good	Remove	3
4531	15	Norway Maple	Acer platanoides	Good	Save	
4532	13	Black Walnut	Juglans nigra	Good	Save	
4533	14	Sugar Maple	Acer saccharum	Good	Save	
4534	17	Sugar Maple	Acer saccharum	Good	Save	
4535	13	Basswood	Tilia americana	Good	Save	
4536	13	Basswood	Tilia americana	Good	Save	
4537	19	Bitternut Hickory	Carya cordiformis	Good	Remove	2
4538	20	Black Walnut	Juglans nigra	Good	Remove	2
4539	22	Red Oak	Quercus rubra	Good	Remove	3
4540	19	Red Oak	Quercus rubra	Good	Remove	2
4541	16	Red Oak	Quercus rubra	Good	Remove	2
4542	9,16	Norway Spuce	Picea abies	Good	Remove	4
4543	14	Norway Spuce	Picea abies	Good	Remove	2
4544	17	Norway Spuce	Picea abies	Good	Remove	2
4545	17	Norway Spuce	Picea abies	Good	Remove	2
4546	11	Red Oak	Quercus rubra	Good	Remove	1
4547	20	Red Oak	Quercus rubra	Good	Remove	2
4548	16	Black Cherry	Prunus serotina	Good	Remove	2
4549	16	White Pine	Pinus strobus	Good	Remove	2
4550	15	White Pine	Pinus strobus	Good	Remove	2
4551	6,18	Red Oak	Quercus rubra	Good	Remove	2
4552	14	Sugar Maple	Acer saccharum	Good	Remove	2
4553	9	White Pine	Pinus strobus	Good	Remove	1
4554	12	White Pine	Pinus strobus	Good	Remove	2
4555	26	White Pine	Pinus strobus	Good	Remove	3
4556	20	White Pine	Pinus strobus	Good	Remove	2
4557	20	White Pine	Pinus strobus	Good	Remove	2
4558	20	White Pine	Pinus strobus	Good	Remove	2
4559	16	White Pine	Pinus strobus	Good	Remove	2
4560	21	White Pine	Pinus strobus	Good	Remove	3
4561	19	White Pine	Pinus strobus	Good	Remove	2
4562	26	White Pine	Pinus strobus	Good	Remove	3
4563	30	Black Walnut	Juglans nigra	Good	Save	
4564	19	Red Oak	Quercus rubra	Good	Save	
4565	16	Black Walnut	Juglans nigra	Good	Remove	2
4566	16	Black Cherry	Prunus serotina	Good	Remove	2
4567	22	White Pine	Pinus strobus	Good	Save	
4568	18	White Pine	Pinus strobus	Good	Save	
4569	20	Austrian Pine	Pinus nigra	Good	Remove	2
4570	9	Austrian Pine	Pinus nigra	Good	Remove	1
4571	10	Chinese Juniper	Juniperus chinensis	Good	Remove	1
4572	8,12	Sugar Maple	Acer saccharum	Good	Remove	3
4573	16	Sugar Maple	Acer saccharum	Good	Remove	2
4574	8	Red Oak	Quercus rubra	Good	Remove	1
4575	13	Austrian Pine	Pinus nigra	Good	Remove	2
4576	14	Sugar Maple	Acer saccharum	Good	Remove	2
4577	14	Sugar Maple	Acer saccharum	Good	Remove	2
4578	11	Sugar Maple	Acer saccharum	Good	Remove	1
4579	13	Austrian Pine	Pinus nigra	Good	Remove	2
4580	12	Sugar Maple	Acer saccharum	Good	Remove	2
4581	14	Sugar Maple	Acer saccharum	Good	Remove	2
4582	19	Austrian Pine	Pinus nigra	Good	Remove	2
4583	17	Austrian Pine	Pinus nigra	Good	Remove	2
4584	10	Sugar Maple	Acer saccharum	Good	Remove	1
4585	9	Black Cherry	Prunus serotina	Good	Remove	1
4586	11	Austrian Pine	Pinus nigra	Good	Remove	1
4587	8	Sugar Maple	Acer saccharum	Good	Remove	1
4588	10	Austrian Pine	Pinus nigra	Good	Remove	1
4589	12	Austrian Pine	Pinus nigra	Good	Remove	2
4590	12	Austrian Pine	Pinus nigra	Good	Remove	2
4591	10	Austrian Pine	Pinus nigra	Good	Remove	1
4592	10	Austrian Pine	Pinus nigra	Good	Remove	1
4593	12	Sugar Maple	Acer saccharum	Good	Remove	2
4594	9	Austrian Pine	Pinus nigra	Good	Remove	1
4595	9	Austrian Pine	Pinus nigra	Good	Remove	1
4596	12	Sugar Maple	Acer saccharum	Good	Remove	2
4597	16	Austrian Pine	Pinus nigra	Good	Remove	2
4598	10	Black Cherry	Prunus serotina	Good	Remove	1
4599	12	Austrian Pine	Pinus nigra	Good	Remove	2
4600	15	Basswood	Tilia americana	Good	Remove	2
4601	13	Black Cherry	Prunus serotina	Good	Save	
4602	32	Red Oak	Quercus rubra	Good	Save	
4603	16	Sugar Maple	Acer saccharum	Good	Save	
4604	15	Sugar Maple	Acer saccharum	Good	Save	
4605	19	Sugar Maple	Acer saccharum	Good	Save	
4606	23	Sugar Maple	Acer saccharum	Good	Save	
4607	21	Black Walnut	Juglans nigra	Good	Save	
4608	11,17	Basswood	Tilia americana	Good	Save	
4609	10	Norway Spuce	Picea abies	Good	Save	
4610	12	Norway Spuce	Picea abies	Good	Save	
4611	11	Norway Spuce	Picea abies	Good	Save	
4612	9	Norway Spuce	Picea abies	Good	Save	
4613	9	Norway Spuce	Picea abies	Good	Save	
4614	17	Norway Spuce	Picea abies	Good	Save	
4615	22	Norway Spuce	Picea abies	Good	Save	
4616	22	Norway Spuce	Picea abies	Good	Remove	3
4617	18	Norway Spuce	Picea abies	Good	Remove	2
4618	10	Norway Spuce	Picea abies	Good	Save	

ALLEN DESIGN
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Tree List

Project:

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Drawn By:	Checked By:
jca	jca

NORTH

811
Know what's below.
Call before you dig.

Sheet No.
L-5

Tree List

TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	REMARKS	REQUIRED REPLACEMENT
4619	8	Norway Spuce	Picea abies	Good	Save	
4620	16	Norway Spuce	Picea abies	Good	Save	
4621	10	Norway Spuce	Picea abies	Good	Save	
4622	13	Norway Spuce	Picea abies	Good	Save	
4623	12	Norway Spuce	Picea abies	Good	Save	
4624	12	Sugar Maple	Acer saccharum	Good	Save	
4625	15	Sugar Maple	Acer saccharum	Good	Save	
4626	10	Sugar Maple	Acer saccharum	Good	Save	
4627	12	Sugar Maple	Acer saccharum	Good	Save	
4628	10	Sugar Maple	Acer saccharum	Good	Save	
4629	13	Sugar Maple	Acer saccharum	Good	Save	
4630	11	American Elm	Ulmus americana	Good	Save	
4631	15	Bitternut Hickory	Carya cordiformis	Good	Save	
4632	11	Black Cherry	Prunus serotina	Good	Save	
4633	18	Sugar Maple	Acer saccharum	Good	Save	
4634	15	Sugar Maple	Acer saccharum	Good	Save	
4635	8	Black Maple	Acer nigrum	Good	Save	
4636	24	Sugar Maple	Acer saccharum	Good	Save	
4637	24	Sugar Maple	Acer saccharum	Good	Save	
4638	25	Red Oak	Quercus rubra	Good	Save	
4639	18	Bitternut Hickory	Carya cordiformis	Good	Save	
4640	21	Sugar Maple	Acer saccharum	Good	Save	
4641	16	Basswood	Tilia americana	Good	Save	
4642	9	Black Cherry	Prunus serotina	Good	Save	
4643	19	Basswood	Tilia americana	Good	Save	
4644	21	Sugar Maple	Acer saccharum	Good	Save	
4645	18	Norway Spuce	Picea abies	Good	Save	
4646	14	Norway Spuce	Picea abies	Good	Save	
4647	14	Norway Spuce	Picea abies	Good	Save	
4648	8	Norway Spuce	Picea abies	Good	Save	
4649	22	Sugar Maple	Acer saccharum	Good	Save	
4650	19	Sugar Maple	Acer saccharum	Good	Save	
4651	12	Sugar Maple	Acer saccharum	Good	Save	
4652	17	Sugar Maple	Acer saccharum	Good	Save	
4653	20	Sugar Maple	Acer saccharum	Good	Save	
4654	10	Sugar Maple	Acer saccharum	Good	Save	
4655	18	Sugar Maple	Acer saccharum	Good	Save	
4656	16	Sugar Maple	Acer saccharum	Good	Save	
4657	26	Sugar Maple	Acer saccharum	Good	Save	
4658	13	Norway Spuce	Picea abies	Good	Save	
4659	10	Norway Spuce	Picea abies	Good	Save	
4660	17	Norway Spuce	Picea abies	Good	Save	
4661	11	Norway Spuce	Picea abies	Good	Save	
4662	13	Norway Spuce	Picea abies	Good	Save	
4663	22	Norway Spuce	Picea abies	Good	Save	
4664	13	Norway Spuce	Picea abies	Good	Save	
4665	17	Norway Spuce	Picea abies	Good	Save	
4666	15	Norway Spuce	Picea abies	Good	Save	
4667	14	Norway Spuce	Picea abies	Good	Save	
4668	16	Black Cherry	Prunus serotina	Good	Save	
4669	18	Black Locust	Robinia pseudoacacia	Good	Remove	2
4670	8,11	Black Locust	Robinia pseudoacacia	Good	Remove	3
4671	14,15	Black Cherry	Prunus serotina	Good	Remove	4
4672	12	Black Cherry	Prunus serotina	Good	Remove	2
4673	10	Black Cherry	Prunus serotina	Good	Save	
4674	17	Black Cherry	Prunus serotina	Good	Remove	2
4675	18	Black Cherry	Prunus serotina	Good	Save	
4676	15	Black Cherry	Prunus serotina	Trunk Rot	Save	
4677	12	Black Cherry	Prunus serotina	Good	Save	
4678	17	Black Cherry	Prunus serotina	Good	Save	
4679	10	Black Cherry	Prunus serotina	Good	Save	
4680	16	Black Cherry	Prunus serotina	Good	Save	
4681	14	Sugar Maple	Acer saccharum	Good	Save	
4682	21	Sugar Maple	Acer saccharum	Good	Save	
4683	13	Sugar Maple	Acer saccharum	Good	Save	
4684	15	Black Cherry	Prunus serotina	Good	Save	
4685	18	Black Cherry	Prunus serotina	Good	Save	
4686	11	Black Cherry	Prunus serotina	Good	Save	
4687	17	Black Cherry	Prunus serotina	Good	Save	
4688	23	Black Cherry	Prunus serotina	Good	Remove	3
4689	11	Black Cherry	Prunus serotina	Good	Save	
4690	16	Black Cherry	Prunus serotina	Good	Remove	2
4691	12	Black Cherry	Prunus serotina	Poor	Save	
4692	10	Black Cherry	Prunus serotina	Good	Save	
4693	21	Sugar Maple	Acer saccharum	Good	Save	
4694	12	Sugar Maple	Acer saccharum	Good	Save	
4695	18	Sugar Maple	Acer saccharum	Good	Save	
4696	14	Black Cherry	Prunus serotina	Good	Save	
4697	11	Sugar Maple	Acer saccharum	Good	Save	
4698	9	Black Cherry	Prunus serotina	Poor	Save	
4699	16	Bitternut Hickory	Carya cordiformis	Good	Save	
4700	15	Black Cherry	Prunus serotina	Good	Save	
4701	8	Black Cherry	Prunus serotina	Good	Remove	1
4702	11	Box Elder	Acer negundo	Good	Remove	1
4703	12	Box Elder	Acer negundo	Good	Remove	2
4704	12	Black Cherry	Prunus serotina	Good	Remove	2
4705	11	Black Cherry	Prunus serotina	Good	Remove	1
4706	12	Black Walnut	Juglans nigra	Good	Remove	2
4707	11	Black Walnut	Juglans nigra	Good	Remove	1
4708	8	Black Cherry	Prunus serotina	Good	Remove	1
4709	12	Black Cherry	Prunus serotina	Good	Remove	2
4710	12	Black Walnut	Juglans nigra	Good	Remove	2
4711	14	Common Apple	Malus spp.	Poor	Remove	2
4712	9	Black Cherry	Prunus serotina	Good	Remove	1
4713	10	Black Cherry	Prunus serotina	Good	Remove	1
4714	10	Black Cherry	Prunus serotina	Good	Remove	1
4715	15	Black Walnut	Juglans nigra	Good	Remove	2
4716	12	Sugar Maple	Acer saccharum	Good	Remove	2
4717	12	Black Cherry	Prunus serotina	Good	Remove	2
4718	15	Black Walnut	Juglans nigra	Good	Remove	2
4719	14	Black Cherry	Prunus serotina	Good	Remove	2
4720	19	Black Cherry	Prunus serotina	Good	Remove	2
4721	14	Box Elder	Acer negundo	Good	Remove	2
4722	8,12	Box Elder	Acer negundo	Good	Remove	3
4723	18	Black Walnut	Juglans nigra	Good	Remove	2
4724	10	Box Elder	Acer negundo	Good	Remove	1
4725	16	Black Cherry	Prunus serotina	Good	Remove	2
4726	14	Black Walnut	Juglans nigra	Good	Remove	2
4727	16	American Elm	Ulmus americana	Good	Remove	2
4728	12	Norway Spuce	Picea abies	Good	Remove	2
4729	12	Black Walnut	Juglans nigra	Good	Remove	2
4730	10	Black Walnut	Juglans nigra	Good	Remove	1
4731	12	Norway Spuce	Picea abies	Good	Remove	2
4732	12	Norway Spuce	Picea abies	Good	Remove	2
4733	18	Norway Spuce	Picea abies	Good	Remove	2
4734	14	Norway Spuce	Picea abies	Good	Remove	2
4735	18	Norway Spuce	Picea abies	Good	Remove	2
4736	15	Norway Spuce	Picea abies	Good	Remove	2
4737	9	Norway Spuce	Picea abies	Good	Remove	1
4738	18	Norway Spuce	Picea abies	Good	Remove	2
4739	18	Norway Spuce	Picea abies	Good	Remove	2
4740	23	Norway Maple	Acer platanoides	Good	Remove	3
4741	9	Black Cherry	Prunus serotina	Good	Remove	1
4742	12	Black Cherry	Prunus serotina	Good	Remove	2
4743	24	Norway Maple	Acer platanoides	Good	Remove	3
4744	11	Black Cherry	Prunus serotina	Good	Remove	1
4745	9	Black Walnut	Juglans nigra	Good	Remove	1
4746	11	Scotch Pine	Pinus sylvestris	Good	Remove	1
4747	18	Norway Spuce	Picea abies	Good	Remove	2
4748	9	Norway Spuce	Picea abies	Good	Remove	1
4749	12	Norway Spuce	Picea abies	Good	Remove	2
4750	20	Norway Spuce	Picea abies	Good	Remove	2
4751	27	Black Walnut	Juglans nigra	Good	Save	
4752	18	Norway Spuce	Picea abies	Good	Save	
4753	23	Norway Spuce	Picea abies	Good	Remove	3
4754	16	Norway Spuce	Picea abies	Good	Save	
4755	21	Norway Spuce	Picea abies	Good	Save	
4756	17	Norway Spuce	Picea abies	Good	Save	
4757	23	Norway Spuce	Picea abies	Good	Save	
4758	24	Norway Spuce	Picea abies	Good	Save	
4759	16	Sugar Maple	Acer saccharum	Good	Save	
4760	13	Sugar Maple	Acer saccharum	Good	Save	
4761	12	Sugar Maple	Acer saccharum	Good	Save	
4762	12	Sugar Maple	Acer saccharum	Good	Save	
4763	13	Sugar Maple	Acer saccharum	Good	Save	
4764	16	Sugar Maple	Acer saccharum	Good	Save	
4765	10	Sugar Maple	Acer saccharum	Good	Save	
4766	19	Norway Spuce	Picea abies	Poor	Save	
4767	13	Sugar Maple	Acer saccharum	Good	Remove	2
4768	23	Black Cherry	Prunus serotina	Good	Remove	3
4769	19	Sugar Maple	Acer saccharum	Good	Remove	2
4770	14	Norway Spuce	Picea abies	Good	Remove	2
4771	10	Norway Spuce	Picea abies	Good	Remove	1
4772	9	Norway Spuce	Picea abies	Good	Remove	1
4773	24	Red Oak	Quercus rubra	Good	Save	
4774	25	Red Oak	Quercus rubra	Good	Save	

TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	REMARKS	REQUIRED REPLACEMENT
4775	18	Red Oak	Quercus rubra	Good	Save	
4776	14	Red Oak	Quercus rubra	Good	Save	
4777	10	Basswood	Tilia americana	Good	Save	
4778	11	Basswood	Tilia americana	Good	Save	
4779	11	Basswood	Tilia americana	Good	Save	
4780	12	Basswood	Tilia americana	Good	Save	
4781	9	Sugar Maple	Acer saccharum	Good	Save	
4782	11	Basswood	Tilia americana	Good	Save	
4783	13	Norway Spuce	Picea abies	Good	Save	
4784	9	Norway Spuce	Picea abies	Good	Save	
4785	18	Norway Spuce	Picea abies	Good	Save	
4786	11	Norway Spuce	Picea abies	Good	Save	
4787	9	Norway Spuce	Picea abies	Good	Save	
4788	11	Norway Spuce	Picea abies	Good	Save	
4789	12	Norway Spuce	Picea abies	Good	Save	
4790	11	Norway Spuce	Picea abies	Good	Save	
4791	16	Norway Spuce	Picea abies	Good	Save	
4792	9	Norway Spuce	Picea abies	Good	Save	
4793	16	Norway Spuce	Picea abies	Good	Remove	2
4794	14	Norway Spuce	Picea abies	Good	Remove	2
4795	13	Sugar Maple	Acer saccharum	Good	Save	
4796	13	Norway Spuce	Picea abies	Good	Save	
4797	23	Norway Spuce	Picea abies	Good	Save	
4798	11	Sugar Maple	Acer saccharum	Good	Save	
4799	18	Sugar Maple	Acer saccharum	Good	Save	
4800	19	Black Cherry	Prunus serotina	Good	Save	
4801	15	Black Walnut	Juglans nigra	Good	Save	
4802	8	Black Cherry	Prunus serotina	Good	Remove	1
4803	12	Black Cherry	Prunus serotina	Good	Remove	2
4804	12	Black Walnut	Juglans nigra	Good	Remove	2
4805	9	Black Walnut	Juglans nigra	Good	Remove	1
4806	14	Black Walnut	Juglans nigra	Good	Remove	2
4807	18	Black Cherry	Prunus serotina	Good	Remove	2
4808	16	Black Walnut	Juglans nigra	Good	Remove	2
4809	13	Black Cherry	Prunus serotina	Good	Remove	2
4810	17	Pin Cherry	Prunus pennsylvania	Good	Remove	2
4811	9	Black Cherry	Prunus serotina	Good	Remove	1
4812	10	Black Cherry	Prunus serotina	Good	Remove	1
4813	9	Black Cherry	Prunus serotina	Good	Remove	1
4814	15	Black Cherry	Prunus serotina	Good	Remove	2
4815	10	Black Cherry	Prunus serotina	Good	Remove	1
4816	9	Black Cherry	Prunus serotina	Good	Remove	1
4817	8	Black Cherry	Prunus serotina	Good	Remove	1
4818	8	Black Cherry	Prunus serotina	Good	Remove	1
4819	13	Silver Maple	Acer saccharinum	Good	Remove	2
4820	11	Black Cherry	Prunus serotina	Good	Remove	1
4821	10	American Elm	Ulmus americana	Good	Remove	1
4822	11	Black Cherry	Prunus serotina	Good	Remove	1
4823	8	Black Cherry	Prunus serotina	Good	Remove	1
4824	11	Black Cherry	Prunus serotina	Good	Remove	1
4825	16	American Elm	Ulmus americana	Good	Remove	2
4826	11	Black Cherry	Prunus serotina	Good	Remove	1
4827	10	Black Cherry	Prunus serotina	Good	Remove	1
4828	16	Black Cherry	Prunus serotina	Good	Remove	2
4829	12	Black Cherry	Prunus serotina	Good	Remove	2
4830	13	Pin Cherry	Prunus pennsylvania	Good	Remove	2
4831	11	American Elm	Ulmus americana	Good	Remove	1
4832	8	Black Cherry	Prunus serotina	Good	Remove	1
4833	9	Black Cherry	Prunus serotina	Good	Remove	1
4834	16	Black Cherry	Prunus serotina	Good	Remove	2
4835	11	Black Cherry	Prunus serotina	Good	Remove	1
4836	8,10	Black Cherry	Prunus serotina	Good	Remove	3
4837	15	Black Cherry	Prunus serotina	Good	Remove	2
4838	15	Black Cherry	Prunus serotina	Good	Remove	2
4839	8	Black Cherry	Prunus serotina	Good	Remove	1
4840	10	Black Cherry	Prunus serotina	Good	Remove	1
4841	8	Black Cherry	Prunus serotina	Good	Remove	1
4842	11	American Elm	Ulmus americana	Good	Remove	1
4843	9	Black Cherry	Prunus serotina	Good	Remove	1
4844	10	Black Cherry	Prunus serotina	Good	Remove	1
4845	10	Black Cherry	Prunus serotina	Good	Remove	1
4846	11	Black Cherry	Prunus serotina	Good	Remove	1
4847	8	Common Apple	Malus spp.	Good	Remove	1
4848	9	Black Cherry	Prunus serotina	Good	Remove	1
4849	8	Black Cherry	Prunus serotina	Good	Remove	1
4850	14	Black Cherry	Prunus serotina	Good	Remove	2
4851	9	Black Cherry	Prunus serotina	Good	Remove	1
4852	19	Black Cherry	Prunus serotina	Poor	Remove	2
4853	12	Black Cherry	Prunus serotina	Good	Remove	2
4854	11	Black Cherry	Prunus serotina	Good	Remove	1
4855	9	Black Cherry	Prunus serotina	Good	Remove	1
4856	12	Box Elder	Acer negundo	Good	Remove	2
4857	40	Black Cherry	Prunus serotina	Poor	Remove	4
4858	11	Black Walnut	Juglans nigra	Good	Remove	1
4859	14	White Pine	Pinus strobus	Good	Remove	2
4860	19	Black Cherry	Prunus serotina	Good	Remove	2
4861	11	Black Cherry	Prunus serotina	Good	Remove	1
4862	13	White Pine	Pinus strobus	Good	Remove	2
4863	12	White Pine	Pinus strobus	Good	Remove	2
4864	19	White Pine	Pinus strobus	Good	Save	
4865	9	Black Cherry	Prunus serotina	Good	Save	
4866	12	White Pine	Pinus strobus	Good	Save	
4867	10	Black Cherry	Prunus serotina	Good	Remove	1
4868	8	Common Apple	Malus spp.	Good	Remove	1
4869	9	Black Cherry	Prunus serotina	Good	Remove	1
4870	17	Red Oak	Quercus rubra	Good	Remove	2
4871	13	Silver Maple	Acer saccharinum	Good	Remove	2
4872	14	Silver Maple	Acer saccharinum	Good	Remove	2
4873	9	Silver Maple	Acer saccharinum	Good	Remove	1
4874	8	Silver Maple	Acer saccharinum	Good	Remove	1
4875	9	Silver Maple	Acer saccharinum	Good	Save	
4876	10	Silver Maple	Acer saccharinum	Good	Save	
4877	18	Red Oak	Quercus rubra	Good	Save	
4878	11	Silver Maple	Acer saccharinum	Good	Save	
4879	9	Silver Maple	Acer saccharinum	Good	Save	
4880	14	Silver Maple	Acer saccharinum	Good	Save	
4881	9	Black Cherry	Prunus serotina	Good	Save	
4882	14	White Pine	Pinus strobus	Good	Save	
4883	10	Sugar Maple	Acer saccharum	Good	Save	
4884	11	White Pine	Pinus strobus	Good	Save	
4885	9	Black Cherry	Prunus serotina	Good	Save	
4886	9	American Elm	Ulmus americana	Good	Save	
4887	11	Norway Spuce	Picea abies	Good	Save	
4888	13	Norway Spruce	Picea abies	Good	Save	
4889	15	Norway Spuce	Picea abies	Good	Save	
4890	12	Bitternut Hickory	Carya cordiformis	Good	Save	
4891	14	American Elm	Ulmus americana	Good	Save	
4892	20	Bitternut Hickory	Carya cordiformis	Good	Save	
4893	20	Bitternut Hickory	Carya cordiformis	Good	Save	
4894	10	American Elm	Ulmus americana	Good	Save	
4895	10	American Elm	Ulmus americana	Good	Save	
4896	22	Bitternut Hickory	Carya cordiformis	Good	Save	
4897	21	American Elm	Ulmus americana	Good	Remove	3
4898	12	Box Elder	Acer negundo	Good	Remove	2
4899	22	Norway Spruce	Picea abies	Good	Remove	3
4900	10	Black Walnut	Juglans nigra	Good	Remove	1
4935	14	Norway Spuce	Picea abies	Good	Remove	2
4936	12	Norway Spuce	Picea abies	Good	Remove	2
4937	9	Norway Spuce	Picea abies	Good	Save	
4938	15	Norway Spuce	Picea abies	Good	Save	
4939	13	Norway Spuce	Picea abies	Good	Save	
4940	27	Norway Spuce	Picea abies	Good	Save	
4941	18	Norway Spuce	Picea abies	Good	Save	
4942	14	Norway Spuce	Picea abies	Good	Save	
4943	14	Norway Spuce	Picea abies	Good	Save	
4944	11	Norway Spuce	Picea abies	Good	Save	
4945	13	Norway Spuce	Picea abies	Good	Save	
4946	13	Norway Spuce	Picea abies	Good	Save	
4947	11	Norway Spuce	Picea abies	Good	Save	
4948	11	Norway Spuce	Picea abies	Good	Save	
4949	12	Norway Spuce	Picea abies	Good	Save	
4950	18	Norway Spuce	Picea abies	Good	Save	
4951	15	Norway Spuce	Picea abies	Good	Save	
4952	14	Norway Spuce	Picea abies	Good	Save	
4953	14	Norway Spuce	Picea abies	Good	Save	
4954	9	Norway Spuce	Picea abies	Good	Save	
4955	15	Norway Spuce	Picea abies	Good	Save	
4956	19	Norway Spuce	Picea abies	Good	Save	
4957	11	Norway Spuce	Picea abies	Good	Save	
4958	11	American Elm	Ulmus americana	Good	Save	
4959	12	Norway Spuce	Picea abies	Poor	Save	
4960	10	Norway Spuce	Picea abies	Poor	Save	
4961	14	Norway Spuce	Picea abies	Poor	Save	
4962	12	Black Cherry	Prunus serotina	Good	Save	
4963	17	Sugar Maple	Acer saccharum	Good	Save	
4964	20	Common Mulberry	Morus alba	Good	Save	

TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	REMARKS	REQUIRED REPLACEMENT
4965	14	Black Walnut	Juglans nigra	Good	Save	
4966	16	Black Walnut	Juglans nigra	Good	Remove	2
4967	21	Black Walnut	Juglans nigra	Good	Remove	3
4968	8	Black Cherry	Prunus serotina	Good	Remove	1
4969	8	Black Cherry	Prunus serotina	Good	Remove	1
4970	9	Common Mulberry	Morus alba	Good	Remove	1
4971	19	Norway Spuce	Picea abies	Good	Remove	2
4972	10	Norway Spuce	Picea abies	Good	Remove	1
4973	9	Norway Spuce	Picea abies	Good	Remove	1
4974	23	Norway Spuce	Picea abies	Good	Remove	3
4975	13	Norway Spuce	Picea abies	Good	Remove	2
4976	16	Norway Spuce	Picea abies	Good	Remove	2
4977	9	Norway Spuce	Picea abies	Good	Remove	1
4978	14	Norway Spuce	Picea abies	Good	Remove	2
4979	19	Norway Spuce	Picea abies	Good	Remove	2
4980	9	Norway Spuce	Picea abies	Good	Remove	1
4981	22	Norway Spuce	Picea abies	Good	Remove	3
4982	9	Black Cherry	Prunus serotina	Poor	Remove	1
4983	12	Norway Spuce	Picea abies	Good	Remove	2
4984	16	Norway Spuce	Picea abies	Good	Remove	2
4985	13	Norway Spuce	Picea abies	Good	Remove	2
4986	12	Norway Spuce	Picea abies	Good	Remove	2
4987	13	Norway Spuce	Picea abies	Good	Remove	2
4988	11	Norway Spuce	Picea abies	Good	Remove	1
4989	16	Norway Spuce	Picea abies	Good	Remove	2
4990	18	Black Cherry	Prunus serotina	Poor	Remove	2
4991	8	Norway Maple	Acer platanoides	Good	Remove	1
4992	15	Black Cherry	Prunus serotina	Good	Remove	2
4993	17	Black Walnut	Juglans nigra	Good	Save	
4994	9	Black Cherry	Prunus serotina	Good	Save	
4995	14	Black Cherry	Prunus serotina	Good	Remove	2
4996	11	Black Cherry	Prunus serotina	Good	Remove	1
4997	9	American Elm	Ulmus americana	Good	Remove	1
4998	12	Black Cherry	Prunus serotina	Good	Remove	2
4999	9	Black Cherry	Prunus serotina	Good	Remove	1
5000	10	Black Cherry	Prunus serotina	Good	Remove	1
					Total	1027

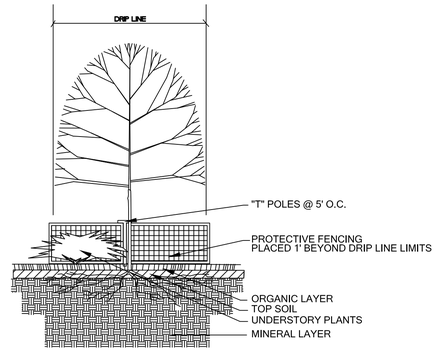
Woodland Summary

Total Regulated Trees	970 Trees
Untagged Regulated Trees	157 Trees
Total Trees	1,127 Trees
Regulated Trees Removed	571 Trees (51%)
Specimen Trees Shown on List	80 Trees
Additional South of Thornton Creek	19 Trees
Total Specimen Trees	99 Trees
Specimen Trees Removed	32 Trees (32%)
Replacement Required	
Trees 8" - 11" 219 trees x 1=	219 Trees
Trees 11" - 20" 270 trees x 2=	540 Trees
Trees 20" - 30" 50 trees x 3=	150 Trees
Trees 30"+ 10 trees x 4=	40 Trees
Multi-Stemmed Trees	78 Trees
Sub-total Replacement Required	1,027 Trees

Tree Survey Work was Conducted in August, 2015

Remarks Key:

Save	Tree will be saved
Credit	Tree is located outside of a woodland area and will be saved.
Remove	Tree is located in a regulated woodland and will be removed.
Remove/Exempt	Tree is dead or located outside of a woodland area.



TREE PROTECTION DETAIL

NO SCALE

1. Either Plastic or Wood Orange Snow Fencing Shall be Installed at or Beyond the Dripline, Unless More Substantial Fencing is Required.
2. Stakes Shall be Metal "T" Poles Spaced no Further than 5' on Center.
3. Fencing Shall not be Installed Closer to the Tree than the Dripline of Those Trees to be Saved. Special Circumstances Shall be Reviewed by the City.
4. Fencing Shall be Erected Prior to Construction. The City Shall be Notified Once the Fencing is Instaled for Inspection.
5. Under no Circumstances Shall the Portective Fencing be Removed Without Proper Approval from the City.
6. No Person Shall Conduct any Activity Within Areas Proposed to Remain. This Shall Include, but not Limited to:
   a. No Solvents or Chemicals Within Protected Areas.
   b. No Building Materials or Construction Equipment Within Protected Areas.
   c. No Grade Changes, Including Fill, Within Protected Areas.
   d. No Removal of Vegetation from the Ground Up Without Permission from the Proper Reviewing Authority, Including the Woodlands Review Board.
   e. Any Required Swale Needs to be Directed Around the Protected Areas. Instances Where Swales are Approved Through a Protected Area, the Swales Need to be HAND DUG. Machinery of Any Kind is Prohibited.
7. Regulated Woodland or Regulated Trees Adjacent to the Property are Also Required to be Protected Whether or not they are Shown on the Plan.

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
557 CARPENTER • NORTHVILLE, MI 48167
248 467 4668 • Fax 248 349 0559
Email: jca@wideopenwest.com

Seal:

Title:

Tree List

Project:

Montebello
Novi, Michigan

Prepared for:

Mirage Development
45380 West Ten Mile, Suite 135
Novi, Michigan 48375
248.349.0598

Revision: Issued:

Submission	November 18, 2015
Revised	December 10, 2015
Revised	February 19, 2016

Job Number:

15-065

Drawn By: jca

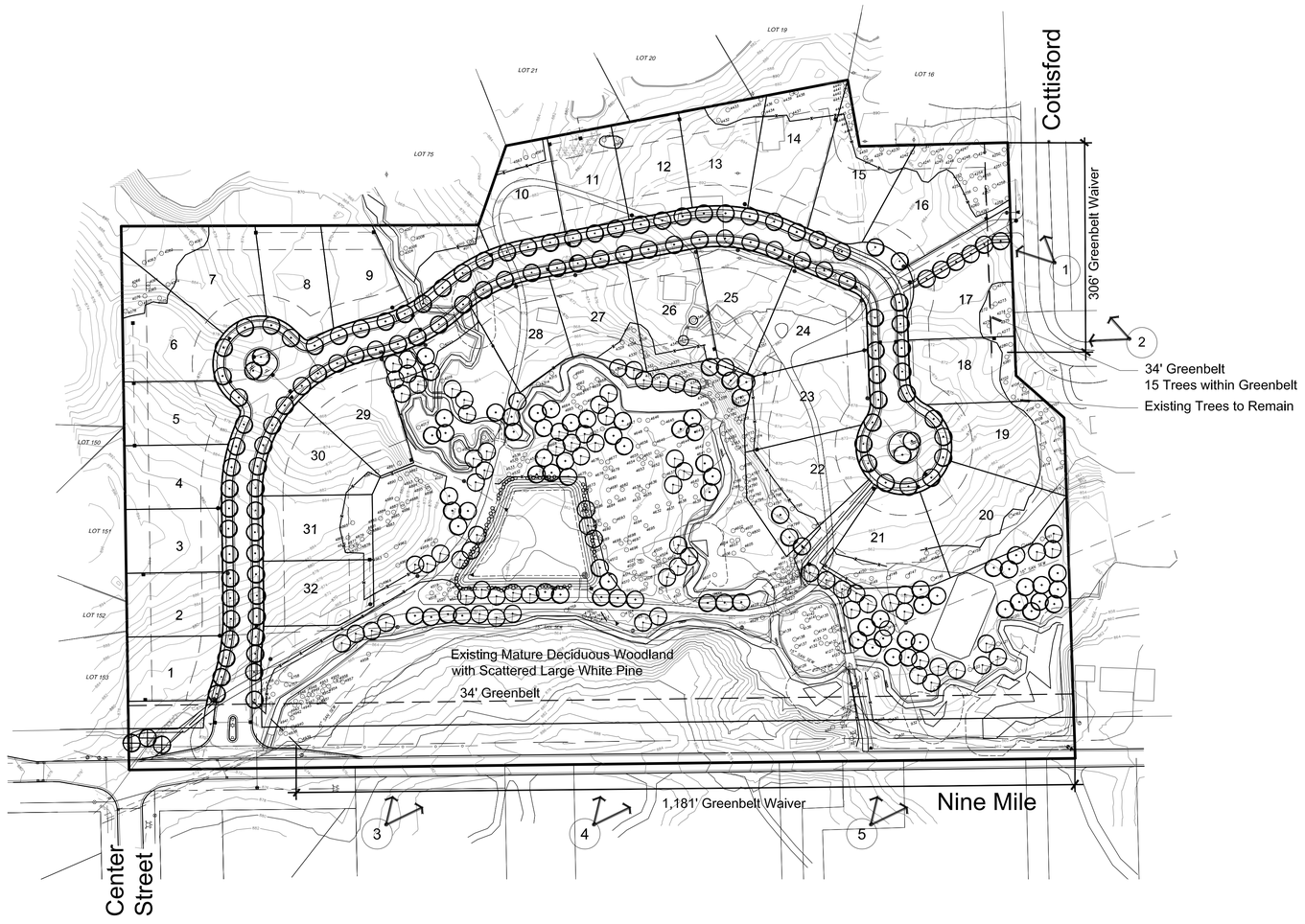
Checked By: jca

NORTH

Know what's below. Call before you dig.

Sheet No.

L-6

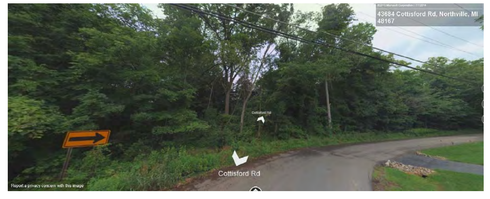


Landscape Summary - Cottisford

Street Lawn	
Total Street Frontage	306 l.f.
Less Ex. Vegetation	306 l.f.
Net Frontage	-0- l.f.
Trees Required	0 Trees (0 / 35)
Trees Provided	0 Trees
Trees Required without Exemption	9 Trees (306 / 35)
Greenbelt Plantings	
Total Street Frontage	306 l.f.
Less Ex. Vegetation	306 l.f.
Net Frontage	-0- l.f.
Canopy Trees Required	0 Trees (0 / 35)
Canopy Trees Provided	0 Trees
Trees Required without Exemption	9 Trees (306 / 35)
Sub-Canopy Trees Required	0 Trees (0 / 20)
Sub-Canopy Trees Provided	0 Trees
Trees Required without Exemption	15 Trees (306 / 20)

Photo 1

Photo 2



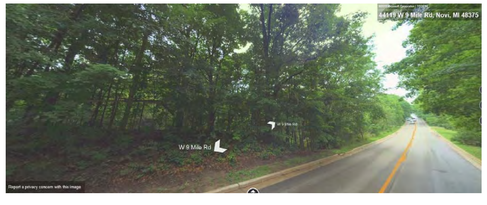
Landscape Summary - Nine Mile

Street Lawn	
Total Street Frontage	1,379 l.f.
Less Ex. Vegetation	1,181 l.f.
Net Frontage	198 l.f.
Trees Required	5.6 Trees (198 / 35)
Trees Provided	3 Trees
Trees Required without Exemption	40 Trees (1,379 / 35)
Greenbelt Plantings	
Total Street Frontage	1,379 l.f.
Less Ex. Vegetation	1,181 l.f.
Net Frontage	198 l.f.
Canopy Trees Required	5.6 Trees (198 / 35)
Canopy Trees Provided	6 Trees
Trees Required without Exemption	40 Trees (1,379 / 35)
Sub-Canopy Trees Required	10 Trees (198 / 20)
Sub-Canopy Trees Provided	10 Trees
Trees Required without Exemption	69 Trees (1,379 / 20)

Photo 3

Photo 4

Photo 5



Know what's below. Call before you dig.

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557 CARPENTER • NORTHVILLE, MI 48167
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Seal:

STATE OF MICHIGAN
JAMES C. ALLEN
Landscape Architect
REGISTERED LANDSCAPE ARCHITECT

Title:

Greenbelt Waivers

Project:

Montebello
Novi, Michigan

Prepared for:

Mirage Development
45380 West Ten Mile, Suite 135
Novi, Michigan 48375
248.349.0598

Revision:	Issued:
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Revised	February 19, 2016

Job Number:

15-065

Drawn By:	Checked By:
jca	jca

0' 25' 50' 100'

NORTH
1"=100'

Sheet No.

L-7

PREVIOUS PLANNING COMMISSION MEETING MINUTES
January 13, 2016

Excerpt from DRAFT
PLANNING COMMISSION MINUTES

CITY OF NOVI
Regular Meeting
January 13, 2016 7:00 PM
Council Chambers | Novi Civic Center | 45175 W. Ten Mile Rd.
(248) 347-0475

CALL TO ORDER
The meeting was called to order at 7:00 PM.

ROLL CALL
Present: Member Greco, Member Lynch, Chair Pehrson, Member Zuchlewski
Absent: Member Anthony (excused), Member Giacopetti (excused), Member Baratta, (excused)
Also Present: Barbara McBeth, Community Development Deputy Director; Sri Komaragiri, Planner; Chris Gruba, Planner; Rick Meader, Landscape Architect; Jeremy Miller, Engineer; Gary Dovre, City Attorney, Matt Klawon, Traffic Engineering Consultant; Matt Carmer and Pete Hill, ETC Consultants

3. MONTEBELLO ESTATES JSP15-0076
Public hearing at the request of Mirage Development for Planning Commission's approval of Preliminary Site Plan, Woodlands Permit, Wetlands Permit and Stormwater Management Plan. The subject property is currently zoned R-3, One-Family Residential and is located in Section 27, west of Novi Road and north of Nine Mile Road. The applicant is proposing a 33 unit single-family detached residential development on a 26.94 acre property.

Planner Sri Komaragiri stated that the subject property is located north of Nine Mile between Novi Road and Taft Road. The subject property is zoned R-3 one-family residential and is surrounded by the same zoning east, west and south. It is also surrounded by R-4 partly in northeast corner and south west corner. It is abutted by Novi Township to the north. The Future Land Use map indicates Single Family for the subject property and the surrounding properties.

There are regulated wetlands and regulated woodlands spread throughout the property on the property. The applicant is proposing to construct a 33 unit conventional site condominium with associated site improvements. The site access is provided by a proposed public roadway with a single curb cut from Nine Mile Road. A secondary emergency access is provided to Cottisford road. The proposed preliminary site plan addresses all of the Planning requirements.

The applicant is requesting two variances from Design and Construction standards for not providing a water main and a five foot sidewalk along the entire Nine Mile Road frontage. The missing sidewalk segment along subject property frontage is identified as segment 93A and is ranked 15 in 2015-16 Annual non-motorized prioritization update. There is no existing sidewalk on the south side of the Nine Mile as well. Engineering believes that there are alternate means to propose water main such as directional drilling to preserve natural features along the frontage. Staff is requesting applicant to provide more details to justify their request. For reasons stated above, Engineering does not support the variance requests and is recommending denial.

Landscape has identified some waivers that are required for reduction and absence of greenbelt planting, street trees and required berm along Nine Mile Road and Cottisford Road. The details are listed in the motion language. Landscape supports the requests for these and is recommending approval. The current site plan is proposing impacts to the existing wetlands and the buffers on site. However, our consultants are unable to make a proper determination to the extent of the impact due to deficiencies in the plan.

There are a total of 970 regulated trees on the site. Of which 58 percent are proposed to be removed which results in a total of about 1011 replacement trees required. The landscape plan appears to should a total of 143 trees to be planted on site and the remainder to be paid into City's tree fund. Staff is asking for additional information to justify the tree removal and make an effort to reduce the tree removal. Due to reasons stated above, Wetlands and woodlands are not recommending approval and are requesting additional information. The applicant has been working with our consultant to resolve those issues and staff believes that they are making headway.

Traffic and Fire are recommending approval with additional information to be provided during next submittal. The planning commission is asked tonight to hold a public hearing to approve or postpone or deny the Preliminary Site Plan, Wetland Permit, Woodland Permit and Stormwater Management Plan.

The applicant has provided a letter further explaining the concept and it has been provided to you this evening. The applicant Claudio Rossie with Mirage development is here with his Engineer, Cliff Seiber to answer any questions that you might have.

Cliff Seiber, the Project Engineer, stated that Claudio Rossi of Mirage Development is present with him. He stated that it is an amazing piece of property with entirely mature trees, two streams flowing through it; there is a lot of topography on this site. For this reason, Mr. Rossi decided not to apply for a PRO or a preservation option or any open space option that would enable him to increase density on this property. Under the R-3 zoning Mr. Rossi is allowed 2.7 units per acre. He is at 1.27, which is less than half the density that is permitted on this property under the current zoning. In order to further preserve the property and open it up, the minimum lot size for the zoning is 90 feet. They are averaging over 100 feet in width for all of the lots, and in addition, the minimum lot size is 12,000 square feet, and they are averaging at about 15,200 square feet. The lots are more open and larger which enables them to save more of the mature trees on the site. It also has a number of amenities, including an existing tennis court on the site which will be preserved. There are walking trails which have been introduced throughout the site that tie into some of the existing trails or driveways that are on the site. He also believes that there is a gazebo near the entrance that is being proposed as part of the park system.

There are a few issues as a result of the topography that they are requesting some relief from. The first is the requirement for a sidewalk along Nine Mile Road. When Nine Mile Road, they purposely made it narrow to preserve as many trees as possible due to the fairly sulfuric topography going through that hill. If they were to construct a sidewalk along the side of that tree, it would require the clearing of a large amount of trees and the installation of retaining walls which would destroy the current appearance of that roadway. They thought an applicable alternative would be to create a river walk. This means they would introduce a sidewalk system that ties into the sidewalk just to the west, and extend the sidewalk into the site along the existing river along Thornton Creek. Toward the east side of the property, there is an existing bridge that the prior owner used and that walkway would back out to Nine Mile Road and continue east to the easterly edge of the property. The existing asphalt pathway that runs along Thornton Creek is in very good shape and if the city engineers believe that it needs some improvement, that are certain it can be done. He feels this is a better alternative, it is scenic, and blends in with the existing topography. This would give people the opportunity to see Thornton Creek as it flows through the property, along with its existing waterfalls.

The second request is the requirement that the city has for landscaping, and they are to provide a berm along the road right-of-way. If they were to introduce the berm, which is typically for screening purposes, they would have more than enough screening and will not need to remove trees. Nine Mile Road running through that hill is much lower and provides existing topography and the trees provide all the screening that they may need.

The third item requested relates to the engineering and the water main. They had proposed a 12 inch water main through their site, tapping into the city's water main on Nine Mile Road and running it thorough the site, and back out to Nine Mile. They have shown that they provide the proper flow rates per city requirements in order to fight fires and serve the fire hydrants. One of the disadvantages of that proposal is that they do not provide water service to all the properties on the south side of Nine Mile Road. They think that they may have an alternative that would resolve that, and are requesting if the Planning Commission sees fit to approve this project, that it would be subject to them meeting further with the Engineering Department in order to see if they can satisfy them. They would still bring the 12 inch water main to their site, but also serve the other

properties on the south side of Nine Mile Road to ensure they have future potential for connecting to the municipal water system. He stated that he and Mr. Rossi are available to answer any questions.

Chair Pehrson opened the case for public hearing.

Stan Williams, 43635 Cottisford Road, stated that he and his wife live 417 feet immediately to the east of the property. The access road on Cottisford is adjacent to the north end of their property, and their property goes down into Thorton Creek. They are against the proposal and wish the owner would donate the land and make it a wildlife wilderness area. They would even be willing to support a millage increase if he would want to buy the land, and turn it into a wildlife refuge. He told Commissioner Lynch that he wrote a letter and he does not need to read it since he is going to be speaking. Along Cottisford, they are all on well water, and they have great water right now. If the area turns into concrete and road, he is concerned they are going to end up minimizing the ability of the land to recharge their aquifers beneath and impact the ability to supply them with well water. The plan also dramatically increases the opportunity for hazardous waste from the community from roads, construction runoff and fertilizers. The second major objection is that it will destroy a huge habitat for wildlife; they see deer and small mammals every day. He realizes the Commission's job is to look for variances and reasonable plans that would call for variances to the regulated woodland ordinance, but for them, they have trouble giving the city approval for them to knock down one tree on the property because it endangers their house, and he is concerned about all the mature trees being destroyed on the property. Third, there will be a rise in the flood plain located behind their property. It is not an issue at this time, but it could become an issue with the cement and land being developed since that property is upstream from where their property is located. Fourth, they have seen two different descriptions of the access to Cottisford Road, and they are against the regular access to Cottisford. This road is safe for kids to walk on and for bikers and joggers because there is only one access to that subdivision. It also prevents criminals from entering and creating mischief since there is only one way in and out. They do not object to the other plan they saw, showing a pathway to Cottisford, or if it were a breakaway gate for emergency vehicles. Lastly, he loves the plan about protecting the trees on Nine Mile, and thinks a sidewalk should not be installed, but be tied in with the pavement that already exists by the creek.

David Morris, 43680 Nine Mile Road, lives two lots east of the site. He thanked the McManus Family. To date, they have been great stewards of the land and makes Nine Mile visually unique. The heavily wooded lot provides a brief moment of serenity and peace. He enjoys the deer, great horned owls and other wildlife that are located on the property. He also enjoys the unique and beautiful trees in the area. When it comes to the Montebello plan to replace the 27 acre nature sanctuary with 33 new homes, he is in objection. From the regulated woodland map and ordinance page on the city website, they are told that native woodlands are one of the most valuable natural resources with the City of Novi. The pan removes half of the 1100 trees on the site and replants only 143 of them. Using estimates from the 'Trees Pay Us Back' brochure on the Novi City website, they can calculate that it is a loss in capacity with over 154 tons of carbon dioxide, 1034 pounds of other pollutants and over 579,000 gallons of rain water per year. The proposal counteracts this loss of city managed woodland with a payoff to plant trees or spend money elsewhere. The loss of trees increase and dwellings and paved surfaces will only add to the rainwater runoff. He would like assurance that there will be no decrease in flood retention, since there is already significant erosion to the properties along Thorton Creek. He objects to any change that increases the hydraulic flow down the stream and the by-laws require low phosphorus fertilizer to minimum added pollutants to Miller and Thorton Creeks. He would also like to avoid any property disturbance or drilling if the final plan includes a water main east of the site on Nine Mile Road. Any disturbance to the water table or ground near a well is also a concern. There is no impact to his property that contains the 15 inch sanitary sewer, but would want to ensure the final plan that way. He states that he is disappointed that even though the plan retains the trees along Nine Mile, the look, feel, and animal habitat will be affected forever. He questions why they need to build 33 more new homes in this area when there are already over 250 for sale in the off-season. He would like to see the land be sold to another family to enjoy the unique beauty and privacy.

Bill Boffman, 43943 Cottisford, is against the proposal. When he looks out his bedroom window, he currently sees the forest. If this proposal goes through, he will look out and see a house about 150 feet away. When you do the math, you need to take the wetlands out, so you are only putting in about four or five houses per acre. There are only about ten to twelve acres that they can build on. He brought his property 30 years ago and originally purchased it because it was next to the forest. There is nothing you can build or plant to make up for the forest. Because he is not completely competent with the process, he is turning it over to his attorneys

whom he is meeting tomorrow. He is going to let them handle the legal aspect of it.

John Juntunen, Novi Township's Supervisor, is against the proposal. He stated that Novi Township was not contacted at all regarding the proposal, and most of the township did not receive a mailing or notification. He objects for a few reasons, the first is being concerned about the second entrance onto Cottisford Road. As Cottisford Road runs straight, it belongs to Novi, but as soon as it hits the curve, it is then Novi Township. He has spoken with the Fire Marshal and he stated that it is required by the Fire Department to have a secondary entrance; it would be gated and not a thoroughfare. Since there is only one entrance, a traffic conflict already exists. And once you add construction traffic, it would be a problem for everyone. He is requesting that a condition be made that the road can never be turned into a thoroughfare, and that it cannot be used for construction purposes. Secondly, the proposed construction requires the removal of many large trees that provide habitat.

Michael Leavitt, 45177 Dunbarton Drive, feels the traffic study needs to be looked at on Nine Mile. The entrance off of Nine Mile on the proposal is close to Center Street. If you know anything about Nine Mile you know that there is a hill that slopes down and the sight lines are very poor for drivers. If you're going to have traffic that is going to be coming out of that new development, especially cars going across to Center Street, you will have some potential traffic hazards. It is also problematic because there are a lot of bikers and joggers on that road.

Peter Horn, 44119 Brookwood Drive, stated that his property abuts the property. He stated that he had a question relative to the description from when it was read. The plan indicates single unit families, but the person that read the description stated they were condominiums. He wanted to confirm that it was an error.

Planner Komaragiri stated that they call the project a condominium, but for all practical purposes it is a subdivision. The homes are going to be single family detached homes.

Vitas Sirgedas, 22422 Lydgate Court, stated that for 28 years he has been able to enjoy the view of the woodlands and animals, and now he will be staring at the back of someone's home within 30 feet of his backyard. He is requesting that the woodlands not be removed.

Fred Schlemmer, 44917 Lightsway Drive, stated that he agrees with the recent comment about the traffic. He does think the traffic study took the exits and entrances from the subdivision into consideration. In addition, the entrance to Dunbarton Pines is 100 feet up to the west of Nine Mile Road. He feels there would be a lot of confusion at this area, especially in the mornings. He understands the Planning Commission stated they do not consider traffic issues, but they should because it is a public safety issue. He also feels they are going to lose an aesthetically beautiful piece of property.

Margaret Finn, 22010 Cumberland Drive, stated that when you are on Nine Mile Road going west, it is a peaceful setting and you think you are up north. They love the woods and the wildlife that take up that area and does not want to see it removed.

Suzette Sellen, 43565 Cottisford, is against the proposal. She was living here before Twelve Oaks was built and it has turned into cement city. There are only a few areas left that are natural. He also helps rescue wildlife and is sick over what is going to happen to the wildlife if the woods are destroyed. One of the homes on Nine Mile across the street from here was recently demolished and then rebuilt; there was a lot of construction traffic and the road is only one way each way and it cannot be widened. Nine Mile Road cannot handle a large amount of construction traffic.

Michelle Taki, 44623 Midway Drive, states that her home backs up to the retention pond for the city. After it rains, they get a lot of water that collects there and is concerned about the new development, whether or not it will be able to tolerate all the extra drainage from the additional homes and concrete that would normally be absorbed by the wetland area. If you drive down Nine Mile Road after a rainy day, there is flooding. This needs to be addressed before more concrete is added to the area. Also, Nine Mile Road does not have a sidewalk that connects between Dunbarton Ponds and Novi Road, so they usually walk south through the subdivisions then come back on Center Street so they can avoid the traffic on Nine Mile. She is also concerned about the entry way to the subdivision because making a left turn off of Center onto Nine

Mile Road is very dangerous because of the cars coming down and from Taft Road. She hopes the board will take these concerns into consideration.

An unidentified man who lives on Cottisford, stated that he lives two properties away from the development on the east side. On top of everything that has already been mentioned, he is concerned about light pollution.

Chris Kondogiani, 45104 Dunbarton Drive, appreciates some of the things mentioned by the developer to preserve the natural habitat and the view from Nine Mile Road. He and his family moved from Livonia to Novi because they wanted to live near the woods. There are patches of Novi that make the city unique and this area is definitely one of them. If this development is approved, he would like to make sure the developer is required to preserve the unique view of the area.

Chris Bermingham stated that the new homes back up to the retention pond. The area is also a wildlife sanctuary that consists of owls and deer, and Miler Creek is full of fish and minnows. He would like to make sure there is a border or shrubbery along the stream banks so fertilizer and construction run off does not go into the creek. The area would be good for a park instead of a subdivision.

Jennifer Humphries, 43628 Cottisford, stated that she and her husband just purchased their home about four months ago, and their main attraction to the home was the privacy and woodlands that this area provided. Their home is the curve on Cottisford, and if that road were to come out, it will look like their circular drive is part of the road. Cottisford Road also seems narrower and the added traffic would not be good.

Sue Sellen stated that she loves Brooklyn Farms, and recently had fourteen deer in her backyard. She wished that all the residents in Brooklyn Farms received notification because they all admire that area. She is concerned because they are on a well, and is worried about the water, runoff and erosion. She is also concerned about the road going into Cottisford and is not clear on what that road is going to be used for. She mailed in a letter and told the Planning Commission that they did not need to read it.

A woman named Lisa, 43643 Nine Mile Road, stated that she lives across the street and thinks that the McManus property is majestic. She is hoping that the proposed development can consider quality instead of quantity. She lives off on 1.5 acres and she and the surrounding homes have similar lot sizes which gives it an up north feel. Two other subdivisions mentioned tonight are going to be packed with houses along with parks and walkways, but what they don't have is the space to have a bigger lot and make a unique subdivision. People will buy houses on bigger lots. If they can condense the plan to have fewer lots with larger properties and keep the woods, everyone could continue to enjoy the existing atmosphere.

Pam Williams, 43635 Cottisford, stated that if there could be a buffer of the original trees all the way around, so they are not looking into someone's yard and they are preserving the wildlife, it would be appreciated.

Matt Guyot, 45039 Dunbarton Drive, stated that he does not abut the proposed property. His major safety concern is the proposed entranceway and how the traffic would flow. When cars come down the hill, it is an issue to be looked at and considered. He enjoys the wildlife and heard the horned owls at 5 a.m. the other morning. He is hoping the Planning Commission will stop this proposal from moving forward.

Joshua Grutza, 43700 Nine Mile, thanked his neighbors for their passionate comments He purchased his home because of the woodlands and wetlands that surround the area, along with the wildlife, He has seen the creek flood and cannot image how much more it would flood if this subdivision were to be built. It is sad that the beautiful land could be developed into another subdivision since there are not many more areas like this left in Novi.

Rob Speyer, 43590 Nine Mile Road, stated that the area is extremely unique and he is against the proposal. The creek butts up to the back of his property line, and is concerned about the flooding. His neighbor's basements along with others have flooded in the past. When he purchased his home, they thought the area was built out and an additional development would not be built. The wildlife and wooded area is one of the original reasons that they purchased their home. He is also concerned about the traffic at the entranceway.

Bonnie Thrush stated that she is a lifelong resident of Novi. She has heard comments of people stating that 'it is going to happen anyway' and 'it doesn't matter what I say', but she has faith in the city and thinks there is a solution. She feels they have heard a lot of good suggestions and homes some of them will be considered. Her only issue is that she found out from a neighbor who forwarded her an email about the development, and requests more communication is provided.

David Raub, 22308 North Hills Court, stated that he is responsible for having the deer crossing signs installed on Nine Mile Road. Along with the deer, they have fox and other animals that live in the woods. The drains on Nine Mile Road get clogged with leaves and it floods, and the added water is not a good idea. He is against the development.

Pam Horn, 44119 Brookwood Drive, loves their home and the area that they live in. They did not receive public notice until Saturday evening, and in August she had two surveyors in her yard surveying. The surveyor told her that the owner of the property behind her had sold their property to do a developer and they were evaluating the flood plains. She told the board that tried calling everyone to find out what was going on and no one knew anything. She feels that it has been known since July this was going to occur and wishes the property owner would have personally called each of the neighbors. She agrees that this area of the city is a jewel.

Chair Pehrson asked if anyone else wished to speak. Since there was no one, he asked the public correspondence to be read.

Louise Hackett submitted a response and he believed she had already spoken. There is also one correspondence letter that did not have a name, so it could not be read into the record. Susan Sellen submitted a letter and she also spoke at the audience comment. There was an objection letter from Vitas Sirgedas, who also had spoken. An objection letter was received from Krysten and Sean Baligian, and they are disappointed about losing the woodland surroundings, increased traffic on Nine Mile, and worry about property value. There was an objection letter from the Novi Township Superintendent who is concerned about the secondary road entrance, the removal of many established trees, and the density being higher than surrounding properties. Falgun Patel, 43588 Cottisford, is in objection because of increased traffic, negative effect on wildlife, and decreased property values. Christopher Bermingham, whom also spoke wrote a letter of objection. Jason Rauhe, 44500 Louvert strongly objects; however the letter was not legible. Heidi Nielson, objects due to loss of habitat and issues with Thornton Creek including damaging runoff and negative effects on wildlife. Jay Gabriel, wrote an objection letter stating that there are too many buildings across from his subdivision. This letter was also not legible.

Chair Pehrson closed the audience participation and turned the case over to the Planning Commission for discussion.

Member Lynch asked how long the property had been zoned R-3 and Director McBeth stated that she does not have the date, but she can look into it if necessary.

Member Lynch stated that he thinks he remembers the property and feels it has been zoned this way for quite some time. He noticed that there seems to be a lot of concern about the creek, and asked Matt Carmer and Pete Hill with ECT to answer some questions.

Member Lynch confirmed that the creek flows into the middle branch of the Rouge River. He stated that he did not see any easement, and assumes they would need a wetland permit. He asked how we ensure that there is no phosphorous flowing into the watershed.

Mr. Carmer stated that the plan for the DEQ permit currently does not show a lot of wetland impact. There is a lot of topography, so the water is moving through the site quickly. The wetlands are mostly within the floodplain of the creek itself down in the southeast corner. It would be impacting the creek itself by crossing it, and currently there is 230 feet of stream proposed for enclosure. This is significant since the road would be nearly 30 feet wide.

Member Lynch asked how it will be resolved and Mr. Carmer stated that the applicant needs to obtain a DEQ permit, which will be done at the final site plan. They also need a Wetland and Watercourse Permit

through the city, in order to do the enclosure. In relation to the phosphorous and preventing other pollutants from entering the river, the best way is to maintain buffers around the stream itself. When you maintain backyards and lawn within 25 feet, the city has a 25 foot zoning buffer as well.

Member Lynch stated that he did not see anything on the plan that showed the natural vegetation around the waterways. He asked if DEQ requires a conservation easement in order to obtain a DEQ permit.

Mr. Carmer stated that it is not likely. Their jurisdiction ends at the ordinary high water mark of the creek. It is the city ordinance that protects the buffers.

Member Lynch asked if in regards to the creek flooding, he asked if DEQ is responsible for checking on the developer to assure that the water flows.

Mr. Hill confirmed, but with the addition of city engineering staff looking at the plans, making sure that flood prevention detention basins are adequately sized. There is some questions as to whether or not the DEQ will have jurisdiction over the flood plain due to the amount of upstream drainage area, if it is less that two square miles draining to this area of creek, then the state may not have jurisdiction.

Mr. Carmer added that when the applicant gets submitted to the state, it would get copied to the city, and there is an opportunity to collaborate with the state at that point.

Member Lynch inquired about the number of trees being added to the Tree Fund.

Mr. Hill stated that the current plan has 143 trees to be planted on site, which is 14% of the required number to be planted and 868 trees are proposed for the Tree Fund. The total number of regulated trees comes to 970, and about 50% of the regulated trees are being removed while the other 50% will be preserved.

Member Lynch asked why more trees could not be planted on site, and Mr. Carmer responded that there are spacing requirements on the planted trees, so when you are developing the larger portion, you run out of space to plant. They are recommending that the applicant provide as many on site replacement trees as possible.

Member Lynch asked the applicant to come up and speak in regards to this matter.

The applicant stated that a lot of residents were concerned about planting trees on the back of the lots in order to provide screening, but the city's current policy states they cannot provide any of the replacement trees on any of the lots. He used Churchill Crossing as an example. They would like to plant the trees there if it would be permitted, because they could stagger them and plant a larger number of trees there.

Director McBeth stated that the woodland replacements would be located in an area that could have a conservation easement across it, which they would not want to do on the back portion of someone's lot. This would prevent the owner of the property from performing specific landscaping or adding onto their property in the future if it were desired. With a conservation easement, if the homeowner wanted to remove a tree, it would actually be required to be maintained. She used the Valencia South project as an example of how they obtained a conservation easement to allow replacement trees to be planted.

Member Lynch asked if City Council would be allowed to deviate from the policy to allow the trees to be planted on the lots. Director McBeth stated they would need to look into it. This site plan would be reviewed and approved by the Planning Commission and would not go to City Council, so they would likely not weigh in, but this can be looked into for an answer at a later date.

Member Lynch stated that in regards to the trail, he does not see a reason for a sidewalk to be installed. He does not want to see shaving of the hill or removal of vegetation, and thinks the way it is presented is nice. Lastly, he inquired about the emergency entrance going into the subdivisions, and asked if it is a paved road.

The applicant stated that the Fire Department required for it to be paved, and there will be break-way gates. They could also include in the Final Site Plan notes that it cannot be used as a construction entrance. All the construction will be entering from a different spot.

Member Lynch stated he likes the fact they are looking to build less homes than what they potentially could build. The homes are nice, and the way it is laid out will fit in with the area, with the exception that he would like the opportunity to install the woodland replacements around the perimeter of the proposed development to maintain as much as possible and to keep the serene environment.

Member Greco stated he would like to address the concerned residents partially on behalf of the Commission. He drives the stretch on Nine Mile every day and agrees that it is beautiful year round. This is not necessarily a situation where there is a win-win. Unfortunately, this is private property and it can be developed. The laws of the land provide that cities can provide some regulation on where we can put things and on the planning that we can do. This property is going to be developed, and once it is zoned a certain way and a developer comes in with a plan that fits within that zoning, it is impossible to stop the development from happening. After this point, all they are doing is dealing with the details; buffers and making sure they comply with the ordinances, making sure there is enough study going in to the flood plain, and traffic studies. As far as trees, homes and density, it is all decided by the zoning ordinance. A lot of people are disappointed that there are homes in a development that are going to go onto this property, but there is very little that the city can do. The good news is that they have a developer that has been before the Planning Commission before and has done good work, and seems to be working with the McManus Family. The developer seems to appreciate things from an aesthetic perspective for the residents in the area that are there, particularly the Nine Mile Road area.

With respect to specific things concerning the plan, Member Greco is glad to hear the Cottisford access road will be an emergency access road only. A traffic study is primarily dealing with the flow of traffic going in and out of a development, but there is an issue with whether there is going to be an exit road, Center Street, the hills on both areas and is sure it is a concern for safety. Once a study gets completed and there is some focus on the area, he is not sure they really will want a traffic light or more things that interfere with the aesthetics of the area, but it should be considered. Commissioner Lynch mentioned the trees and having trees replanted on the property; he feels that it sounds like a good idea, but you still have to disturb the area. With respect to Nine Mile Road and the water main issue and the sidewalk, he is concerned about people walking and biking along Nine Mile Road. The sidewalk would change how it looks throughout the year and he likes the pathway going off the road. He understands that a lot of people prefer there to be no development or less homes, and unfortunately it is not something that we can control. At the public hearing for the site north of Fountain Walk, at the end of the discussion they spoke about a consent judgement, which is something that is entered into after litigation, and in that case the density was different that this proposal. For this current request, they are proposing less density, and he feels they do not have a choice but to support it.

Member Zuchlewski commented that he hates to see all the trees go, but he agrees that it is not a decision they can make. He feels if they get buffers around the subdivision on all the lots that are around the property line, it would help tremendously. He will support the plan with these recommendations, and is asking that they have a traffic study. If there is not a light installed, maybe they can install signs that read 'Caution' at the intersection. The proposal is beautiful, and he likes the water, greenbelt area and the walkway through the site.

Member Greco inquired about the fact that the developer and city are close to resolving the wetland permit and woodland permit issue requirements.

Planner Komaragiri stated that they are asking for additional information because they couldn't complete the review. The applicant has been providing the updated calculations with regards to how much impact they are making and where the replacement trees are going to be located. The staff is not able recommend or not recommend at this time.

Pete Hill stated that the applicant has been addressing the comments that were written up in the preliminary site plan letter. They are looking to see that those things are covered in the revised preliminary submittal. It is not complete at this time.

Member Greco stated that since these two things are not done yet, he suggested they table those items and request that the city do a more specific traffic study regarding the three roads coming from west to east, because the traffic study that was done relates more to the traffic impacts on the number of houses coming

in and out, and may not address some things. Looking at the report, it does not necessarily address the Dunbarton Pines exit, along with the apartment complex, Center Street and now the new development. A clarification on those issues would be a good idea.

Chair Pehrson stated that he too wants the traffic study to understand why there is not a better alignment with Center Street. He thinks the hill presents a problem trying to turn in and out, and he does not want to create a bigger problem if they can avoid it. He asked Director McBeth to comment on the concern about the noticing, and what the policy is to those in and out of the general area.

Director McBeth stated that the state law requires public notice, typically noticing properties within 300' of the perimeter property line. The time frame is to send those notices out five business days prior to the public hearing. A notice is also placed in the Novi News and there is a spot on the city website that speaks of public hearing notices, as well as the Planning Commission agenda. The agenda is also posted in the lobby of the Civic Center.

Chair Pehrson stated that he would support the postponement at this time to get more pieces of information relative to the trees, the traffic and the wetlands, to make certain those items are finalized prior to granting approval.

Attorney Dovre stated that he had a question for the developer regarding the trees. He asked about his willingness to place them on the perimeter and if he is willing to do it within conservation easements.

The developer stated that he is not ready to answer that question at this time. He prefers to plant the trees without the restriction on the homeowners.

Attorney Dovre advised the Commission that he has seen it done in absence of conservation easements by a homeowner that feels they do not have enough room in their backyard to do what they want, and will remove trees that were required at the time of approval. Without a conservation easement, the municipality has little if any enforcement mechanism. That would be a key if it were to be explored; to have that in place, then it could explain the city's policy. A homeowner might read their Master Deed and there might be a conservation easement there and the association may have the ability to enforce it. At the end of the day, if the homeowner wants a swimming pool or a playground installed, there may not be enough room, so there may be some logistical problems with that solution.

Chair Pehrson asked with this being a condo association, anything relative to low phosphate fertilizers, would it be in the association paperwork as well.

Director McBeth confirmed that it could be in their documents.

Attorney Dovre stated that if they motion to postpone, there is no harm in asking for a report from staff on the city's policy regarding the location or replacement trees.

ROLL CALL VOTE ON THE PRELIMINARY SITE PLAN, WETLAND PERMIT, WOODLAND PERMIT AND STORMWATER MANAGEMENT PLAN TO POSTPONE MADE BY MEMBER GRECO AND SECONDED BY MEMBER LYNCH

In the matter of Montebello Estates, JSP 15-7621, motion to postpone the Preliminary Site Plan, Wetland Permit, Woodland Permit and Stormwater Management Plan because the city and the developer are coming in with more final plans or at least decisions regarding the wetland determinations, the wetland permit and the woodland permit. A report is being requested by the staff regarding the location or placement of replacement trees. The city is also to use its consultants to do a study of the traffic on Nine Mile Road to the west of the proposed entranceway, taking into consideration the streets going into and out of the subdivisions, and the driveway to the apartment complex. ***Motion carried 4-0.***

Director McBeth stated that prior to the next hearing for this case they would like to send out another public notice so those interested will be informed. Residents can also contact the Community Development Department to find out the status of the plans if they choose to do so.

PLANNING REVIEW

PLAN REVIEW CENTER REPORT

March 15, 2016

Planning Review

Montebello Estates

JSP 15-76

Petitioner

Mirage Development, LLC

Review Type

Revised Preliminary Site Plan

Property Characteristics

- Site Location: Section 27 ; North of Nine Mile Road and west of Novi Road
- Site Zoning: R-3 One-Family Residential
- Adjoining Zoning: North-Novi Township; Other sides: R-3 One-Family Residential
- Site Use(s): Single family residence
- Adjoining Uses: Single family residential
- Site Size: 26.94
- Building Size: Not applicable
- Plan Date: 02-19-16

Project Summary

The applicant is proposing to construct a 32-unit conventional site condominium with associated site improvements. The changes to the site plan include the elimination of Lot 29 and deletion of the stream relocation. The applicant has also provided a Traffic Study as requested.

This site plan was seen by the Planning Commission on January 13, 2016 where the following action was taken:

> **In the matter of Montebello Estates, JSP 15-76, motion to postpone the approval of the Preliminary Site Plan, Wetland Permit, Woodland Permit and Stormwater Management Plan to allow the applicant time to consider further modifications to the Site Plan per additional information requested in the staff and consultant review letters, for a traffic study that addresses the proposed access road location and its alignment with and proximity to existing roads that intersect Nine Mile Road, and for a report from Staff on the City's policy regarding where woodland replacement trees may and may not be located. Motion carried 4-0.**

Recommendation

Approval of the ***Revised Preliminary Site Plan is recommended***. The plan conforms to the requirements of the Zoning Ordinance, with additional details required at the time of Final Site Plan submittal. **Planning Commission approval of the Preliminary Site Plan, Wetland Permit, and Woodland Permit is required.**

Ordinance Requirements

This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3 (Zoning Districts), Article 4 (Use Standards), Article 5 (Site Standards), and any other applicable provisions of the Zoning Ordinance. Please see the attached charts for information pertaining to

ordinance requirements. Items in **bold** below must be addressed and incorporated as part of the final site plan submittal.

1. *Flood Plain (Subdivision Ordinance 4.03.A):* There is an existing 100 year floodplain on the subject property. Some of the lots are encroaching into the floodplain. **Applicant is responsible for contacting the necessary agencies and obtaining the necessary permits for modifying the floodplain limits. Please provide a written response to this point for the Planning Commission.**

Other Reviews

1. Engineering Review: **Approval is not recommended** at this time.
2. Landscape Review: **Approval is recommended** with minor issues to be addressed in the Final Site Plans and several landscaping waivers will be required.
3. Wetland Review: **Approval is recommended** with items addressed prior to approval of the Final Site Plan. A City of Novi Minor Use Wetland Permit, Authorization to encroach on the 25-foot natural features setback, and MDEQ wetland use permit are required for this site plan.
4. Woodland Review: **Approval is recommended** with items addressed prior to approval of the Final Site Plan. A City of Novi Woodland Permit is required.
5. Traffic Review: **Approval is recommended.**
6. Facade Review: Façade review is not required for this project.
7. Fire Review: Pending review, letter to be sent at a later date.

Response Letter

This Site Plan is scheduled to go before the Planning Commission on March 23, 2016. Please provide the following **no later than March 18, 2016 at 9:00 am** if you wish to keep the schedule.

1. A response letter addressing **ALL** the comments from **ALL** the review letters and **a request for waivers and variances as you see fit.**
2. A PDF version of all the Site Plan drawings that were dated 2-19-2016 (less than 10 MB). **NO CHANGES MADE.**
3. A color rendering of the Site Plan, if any.

Site Addressing

The applicant should contact the Building Division for an address prior to applying for a building permit. Building permit applications cannot be processed without a correct address. The address application can be found on the Internet at www.cityofnovi.org under the forms page of the Community Development Department.

Please contact Jeannie Niland [248.347.0438] in the Community Development Department with any specific questions regarding addressing of sites.

Pre-Construction Meeting

Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued and prior to the start of any work on the site. There are a variety of requirements, fees, and permits that must be issued before a Pre-Con can be scheduled.

If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni [248.347.0430 or smarchioni@cityofnovi.org] in the Community Development Department.

Chapter 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni at 248-347-0430 for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

Signage

Exterior Signage is not regulated by the Planning Division or Planning Commission. Please contact Jeannie Niland (248.347.0438) for information regarding sign permits.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.347.0484 or kmellem@cityofnovi.org.

Kirsten J. Mellem

Kirsten Mellem – Planner

PLANNING REVIEW CHART: R-3_One Family Residential

Review Date: March 10, 2016
Review Type: Revised Preliminary Site Plan
Project Name: JSP15-76
Plan Date: February 19, 2016
Prepared by: Kirsten Mellem, Planner
Contact: **E-mail:** kmellem@cityofnovi.org; **Phone:** (248) 347-0484

Items in **Bold** need to be addressed by the applicant and/or the Planning Commission before approval of the PRO Concept Plan. Underlined items need to be addressed on the Preliminary Site Plan.

Item	Required Code	Proposed	Meets Code	Comments
Zoning and Use Requirements				
Master Plan *(adopted August 25, 2010)*	Single Family, with master planned 1.65 maximum dwelling units per acre.	32-unit single family residential development	Yes	**Planning Commission approval of the site plan is required**
Zoning *(Effective December 25, 2013)*	R-3: One-Family Residential	R-3: One-Family Residential	Yes	
Uses Permitted *(Sec.3.1.1)*	Single Family Dwellings	Single Family Dwellings	Yes	
Height, bulk, density and area limitations *(Sec. 3.1.4)*				
Maximum Dwelling Unit Density	2.7 DUA	1.23 DUA (32 Units)	Yes	
Minimum Lot Area *(Sec 3.1.4)*	12,000 sq. ft.	12,029 sq. ft. minimum 24,420 sq. ft. maximum	Yes	
Minimum Lot Width *(Sec 3.1.4)*	90 ft.	90 ft. minimum 135.67 ft. maximum	Yes	
Building Setbacks (Sec 3.1.4)				
Front	30 ft.	30 ft.	Yes	
Side	10 ft. one side 30 ft. total two sides	10 ft. one side 30 ft. total two sides	Yes	
Rear	35 ft.	35 ft.	Yes	

Item	Required Code	Proposed	Meets Code	Comments
Maximum % of Lot Area Covered *(By All Buildings)* *(Sec 3.1.4)*	25%	Information is not provided at this point		Details reviewed at plot plan phase
Minimum Floor Area *(Sec 3.1.4)*	1,000 sq. ft.	Information is not provided at this point	No	Details reviewed at plot plan phase
Building Height *(Sec 3.1.4)*	35 ft. or 2.5 stories whichever is less	No elevations provided at this time	NA	Building height reviewed at plot plan phase. Please mention the tentative height on the plans.
Frontage on a Public Street. *(Sec. 5.12)*	No lot or parcel of land shall be used for any purpose permitted by this Ordinance unless said lot or parcel shall front directly upon a public street, unless otherwise provided for in this Ordinance.	All units front on a proposed public road within the proposed condominium, with access to Nine Mile Road	Yes	
Note to District Standards *(Sec 3.6)*				
Area Requirements *(Sec 3.6A & Sec. 2.2)*	- Lot width shall be measured between two lines where a front setback line intersects with side setback lines. - Distance between side lot lines cannot be less than 90% between the front setback line and the main building.	Information is not provided at this point	Yes	
Additional Setbacks *(Sec 3.6B)*	NA	Single family development and no off-street parking	NA	
Exterior Side yard abutting Streets *(Sec 3.6C)*	NA	Side yards abutting residential districts	NA	
Wetland/Water-course Setback *(Sec 3.6M)*	25 ft. from boundary of a wetland and 25 ft. from the ordinary highwater mark of a watercourse.	25ft. wetland buffer indicated. Buffer to watercourses such as streams are not indicated	Yes	**Refer to Wetlands Review for additional comments**
Subdivision Ordinance				

Item	Required Code	Proposed	Meets Code	Comments
Blocks *(Subdivision Ordinance: Sec. 4.01)*	- Maximum length for all blocks shall not exceed 1,400 ft. - Widths of blocks shall be determined by the conditions of the layout.	Proposed open spaces and existing natural features break down continuous lots.	Yes	
Lots: Sizes and Shapes *(Subdivision Ordinance: Sec. 4.02A)*				
Lot Depth Abutting a Secondary Thoroughfare *(Subdivision Ordinance: Sec. 4.02.A5)*	Lots abutting a major or secondary thoroughfare must have a depth of at least 140'	None of the lots are abutting major or secondary thoroughfare	Yes	
Depth to Width Ratio *(Subdivision Ordinance: Sec. 4.02.A6)*	Single Family lots shall not exceed a 3:1 depth to width ratio	Lots appear to be in conformance.	Yes	
Arrangement *(Subdivision Ordinance: Sec. 4.02.B)*	- Every lot shall front or abut on a street. - Side lot lines shall be at right angles or radial to the street lines, or as nearly as possible thereto.	- All lots front on proposed streets - Al lots conform to shape requirement	Yes	
Streets *(Subdivision Ordinance: Sec. 4.04)*	Extend streets to boundary to provide access intervals not to exceed 1,300 ft. unless one of the following exists: - practical difficulties because of topographic conditions or natural features - Would create undesirable traffic patterns	Layout appears to be in conformance		
Topographic Conditions (Subdivision Ordinance Sec 4.03)				
A. Flood plain (Subdivision Ordinance 4.03)	Compliance with applicable state laws and City Code: Areas in a floodplain cannot be platted.	There is an existing 100 year floodplain on the subject property. Some of the lots are encroaching into the floodplain.	**No**	**Applicant is responsible for obtaining the necessary permits for modifying the floodplain limits. Please provide comments.**

Item	Required Code	Proposed	Meets Code	Comments
B. Trees and Landscaping	Compliance with Chapter 37 and Article 5 of City Zoning Code	Landscape Plan is provided	Yes	
C. Natural Features	To be preserved Lots cannot extend into a wetland or watercourse	The site has considerable wetlands.	**No**	**See Wetland Review letter for details**
D. Man-made Features	To be built according to City standards	None Proposed	NA	
E. Open Space Areas	Any Open Space Area shall meet the following: - Require performance guarantee - Shall be brought to a suitable grade - Compliance with zoning ordinance - Except for wooded areas, all ground area should be top dressed with a minimum of 25% of red fescue and a maximum of 20% perennial rye.	The open space that is provided will need to meet these standards. The proposed site plan includes some areas dedicated for residents use	Yes	
F. Non-Access Greenbelt Easements	- Along rear or side property lines for reverse frontage lots. - Shall be 15 ft. wide along all reverse frontage lots - 20 ft. wide where power lines exist	No reverse frontage lots	NA	
G. Zoning Boundary Screening	A non-residential development abutting a residential development would need screening	Subject property is not abutting any non-residential development	NA	
Sidewalks Requirements				
Non-Motorized Plan	A 5 ft. wide sidewalk is required along Nine Mile Road	A sidewalk waiver is proposed for the "River Walk Trail" Easement	**No**	**See Engineering Review letter for details.**
Sidewalks *(Subdivision Ordinance: Sec. 4.05)*	Sidewalks are required on both sides of proposed drives	Sidewalks are proposed on either side of the proposed Private drive	Yes	

Item	Required Code	Proposed	Meets Code	Comments
Public Sidewalks *(Chapter 11, Sec.11-276(b); Subdivision Ordinance: Sec. 4.05)*	A 5 ft. wide sidewalk is required along Nine Mile Road	A sidewalk waiver is proposed for the "River Walk Trail" Easement	**No**	**See Engineering review letter for details**
Other Requirements				
Development and Street Names	Development and street names must be approved by the Street Naming Committee before Preliminary Site Plan approval.	An application has been submitted	Yes	
Property Split or Combination	Property combination or split shall be reviewed and approved by the Community Development Department.	No Parcel combination or split is proposed at this time	No	
Development/ Business Sign	Signage if proposed requires a permit.	Entryway signage proposed	Yes/ No	For sign permit information contact Jeannie Niland 248-347-0438.

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. Please refer to those sections in Article 3, 4 and 5 of the zoning ordinance for further details.
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

ENGINEERING REVIEW

PLAN REVIEW CENTER REPORT

03/15/2016

Engineering Review

MONTEBELLO ESTATES
JSP15-0076

Applicant
MCMANUS, MARK & SHERRY

Review Type
Revised Preliminary Site Plan

Property Characteristics
- N. of 9 Mile Rd. and W. of Taft Rd.
- Site Size: 26.94 Acres
- Plan Date: 11/18/15

Project Summary
- Construction of an approximately 33 lot subdivision. Site access would be provided by a new Public roadway with a single curb cut from 9 Mile Rd.
- Water service would be provided by an 12-inch extension from the existing 18-inch water main at the west end of the site on the south side of 9 Mile Rd., along with 8 additional hydrants
- Sanitary sewer service would be provided an 8-inch extension of the existing 15-inch sanitary sewer running along the south side of the site in a public easement.
- Storm water would be collected by a single storm sewer collection system and detained in an on-site basin.

Recommendation

Approval of the Preliminary Site Plan and the Preliminary Storm Water Management Plan is NOT recommended.

Comments:

The Preliminary Site Plan does not meet the general requirements of Chapter 11 of the Code of Ordinances, the Storm Water Management Ordinance and/or the Engineering Design Manual. The following items must be addressed prior to resubmittal:

1. A 12-inch water main along the Nine Mile frontage of the site is required to provide access to the water main for domestic and fire use. The water main can be located in an easement as long as it is adjacent to and accessible from the right-of-way. This water main can be installed via directional drilling to preserve the natural features along the frontage.
2. A sidewalk is required along the 9 Mile frontage of the development unless a variance is granted by City Council. Since no sidewalk exists along the south side of Nine Mile Road, staff is not likely to support this variance request. The proposed terminus of the sidewalk perpendicular to 9 Mile Road is a safety concern and would not be supported by staff.
3. Provide details for flood plain modifications, no volume below the flood plain elevation can be counted toward the storage volume.
4. Provide a proposed grading plan.

Additional Comments (to be addressed prior to the Final Site Plan submittal):

General

5. A right-of-way permit will be required from the City of Novi and Oakland County.
6. Provide a note that compacted sand backfill shall be provided for all utilities within the influence of paved areas, and illustrate on the profiles.
7. Provide a construction materials table on the Utility Plan listing the quantity and material type for each utility (water, sanitary and storm) being proposed.
8. Provide a utility crossing table indicating that at least 18-inch vertical clearance will be provided, or that additional bedding measures will be utilized at points of conflict where adequate clearance cannot be maintained.
9. Provide a note stating if dewatering is anticipated or encountered during construction a dewatering plan must be submitted to the Engineering Department for review.
10. Generally, all proposed trees shall remain outside utility easements. Where proposed trees are required within a utility easement, the trees shall maintain a minimum 5-foot horizontal separation distance from any existing or proposed utility. All utilities shall be shown on the landscape plan, or other appropriate sheet, to confirm the separation distance.
11. Provide a utility plan and a grading plan on separate sheets.
12. The City standard detail sheets are not required for the Final Site Plan submittal. They will be required with the Stamping Set submittal. They can be found on the City website (www.cityofnovi.org/DesignManual).

Water Main

13. Note that a tapping sleeve, valve and well will be provided at the connection to the existing water main.
14. Provide modeling data to show fire flow can be achieved or provide an approved loop connection.
15. Provide a profile for all proposed water main 8-inch and larger.

16. Three (3) sealed sets of revised utility plans along with the MDEQ permit application (1/07 rev.) for water main construction and the Streamlined Water Main Permit Checklist should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets.

Sanitary Sewer

17. Because Wayne County has expressed capacity concerns, a temporary moratorium has been placed on approval of sanitary sewer permits from the City. We are working with the County to resolve this as quickly as possible. Until then all sanitary sewer permit applications will be on hold.
18. The proposed sanitary sewer extension should be constructed at maximum depth and minimum slope between the existing 15-inch sanitary sewer and a stub to Cottisford Drive to maximize the service area. The diameter of the proposed sanitary sewer should be sufficient to serve the future service area (including Novi Township).
19. Provide a testing bulkhead immediately upstream of the sanitary connection point. Additionally, provide a temporary 1-foot deep sump in the first sanitary structure proposed upstream of the connection point, and provide a secondary watertight bulkhead in the downstream side of this structure.
20. Provide a sanitary sewer basis of design.
21. Seven (7) sealed sets of revised utility plans along with the MDEQ permit application (04/14 rev.) for sanitary sewer construction and the Streamlined Sanitary Sewer Permit Certification Checklist should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets. Also, the MDEQ can be contacted for an expedited review by their office.

Storm Sewer

22. A minimum cover depth of 3 feet shall be maintained over all storm sewers. Currently, a few pipe sections do not meet this standard. Grades shall be elevated and minimum pipe slopes shall be used to maximize the cover depth. In situations where the minimum cover cannot be achieved, Class V pipe must be used with an absolute minimum cover depth of 2 feet. An explanation shall be provided where the cover depth cannot be provided.
23. Provide a 0.1-foot drop in the downstream invert of all storm structures where a change in direction of 30 degrees or greater occurs.
24. Match the 0.80 diameter depth above invert for pipe size increases.
25. Storm manholes with differences in invert elevations exceeding two feet shall contain a 2-foot deep plunge pool.
26. Label all inlet storm structures on the profiles. Inlets are only permitted in paved areas and when followed by a catch basin within 50 feet.

27. Label the 10-year HGL on the storm sewer profiles, and ensure the HGL remains at least 1-foot below the rim of each structure.
28. An easement is required over the storm sewer accepting and conveying off-site drainage.
29. Provide a schedule listing the casting type and other relevant information for each proposed storm structure on the utility plan. Round castings shall be provided on all catch basins except curb inlet structures.

Storm Water Management Plan

30. The Storm Water Management Plan for this development shall be designed in accordance with the Storm Water Ordinance and Chapter 5 of the new Engineering Design Manual.
31. All developed area must be included in the detention basin storage volume.
32. An adequate maintenance access route to the basin outlet structure and any other pretreatment structures shall be provided (15 feet wide, maximum slope of 1V:5H, and able to withstand the passage of heavy equipment). Verify the access route does not conflict with proposed landscaping.
33. A 25-foot vegetated buffer shall be provided around the perimeter of each storm water basin. This buffer cannot encroach onto adjacent lots.
34. Provide a soil boring in the vicinity of the storm water basin to determine soil conditions and to establish the high water elevation of the groundwater table.
35. Additional detail will be required for the culvert extension at the entrance on Nine Mile Road.
36. Provide a 5-foot wide stone bridge allowing direct access to the standpipe from the bank of the basin during high-water conditions (i.e. stone 6-inches above high water elevation). Provide a detail and/or note as necessary.
37. Provide an access easement for maintenance over the storm water detention system and the pretreatment structure. Also, include an access easement to the detention area from the public road right-of-way.

Paving & Grading

38. Provide grading information for the existing path to show the path is in compliance with accessibility standards.
39. Provide a note on the Grading Plan stating the right-of-way pathway will match existing grades at both ends.
40. Provide top of curb/walk and pavement/gutter grades to indicate height of curb.
41. Provide a profile for the proposed roadway.
42. Provide a cross-section for proposed paving.
43. Add a note to the plan stating that the emergency access gate is to be installed and closed prior to the issuance of the first TCO in the subdivision.
44. Site grading shall be limited to 1V:4H (25-percent), excluding landscaping berms.

45. The right-of-way sidewalk shall continue through the drive approach. If like materials are used for each, the sidewalk shall be striped through the approach. The sidewalk shall be increased to 6-inches thick along the crossing or match the proposed cross-section if the approach is concrete. The thickness of the sidewalk shall be increased to 6 inches across the drive approach. Provide additional spot grades as necessary to verify the maximum 2-percent cross-slope is maintained along the walk.
46. The City standard straight-faced curb (MDOT C-4 curb detail) shall be provided. Revise details accordingly.

Flood Plain

47. A City of Novi floodplain use permit will be required for the proposed floodplain impact. This should be submitted as soon as possible. Contact the Building Department for submittal information. An MDEQ floodplain use permit may also be required prior to site plan approval.

Soil Erosion

48. A SESC permit is required. A review has not been done at this time. The review checklist detailing all SESC requirements is attached to this letter. Please submit a SESC permit application under a separate cover. The application can be found on the City's website at http://www.cityofnovi.org.

The following must be provided at the time of Preliminary Site Plan resubmittal:

49. A letter from either the applicant or the applicant's engineer must be submitted with the revised PSP highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved.

The following must be submitted at the time of Final Site Plan submittal:

50. An itemized construction cost estimate must be submitted to the Community Development Department at the time of Final Site Plan submittal for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. ***The cost estimate must be itemized*** for each utility (water, sanitary, storm sewer), on-site paving, right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pretreatment structure and restoration).

The following must be submitted at the time of Stamping Set submittal:

51. A draft copy of the maintenance agreement for the storm water facilities, as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department with the Final Site Plan. Once the form of the agreement is approved, this agreement must be approved by City Council and shall be recorded in the office of the Oakland County Register of Deeds.
52. A draft copy of the 20-foot wide easement for the water main to be constructed on the site must be submitted to the Community Development Department.

53. A draft copy of the 20-foot wide easement for the sanitary sewer to be constructed on the site must be submitted to the Community Development Department.

54. Executed copies of any required off-site utility easements must be submitted to the Community Development Department.

The following must be addressed prior to construction:

55. A pre-construction meeting shall be required prior to any site work being started. Please contact Sarah Marchioni in the Community Development Department to setup a meeting (248-347-0430).
56. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting. Once determined, a grading permit fee must be paid to the City Treasurer's Office.

57. An NPDES permit must be obtained from the MDEQ because the site is over 5 acres in size. The MDEQ requires an approved plan to be submitted with the Notice of Coverage.

58. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department (248-347-0430) for forms and information.

59. A permit for work within the right-of-way of 9 Mile Rd. must be obtained from the City of Novi. The application is available from the City Engineering Department and should be filed at the time of Final Site Plan submittal. Please contact the Engineering Department at 248-347-0454 for further information.

60. A permit for work within the right-of-way of Cottisford Rd. must be obtained from the Road Commission for Oakland County. Please contact the RCOC (248-858-4835) directly with any questions. The applicant must forward a copy of this permit to the City. Provide a note on the plans indicating all work within the right-of-way will be constructed in accordance with the Road Commission for Oakland County standards.

61. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the water main plans have been approved.

62. A permit for sanitary sewer construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the sanitary sewer plans have been approved.

63. Construction Inspection Fees to be determined once the construction cost estimate is submitted must be paid prior to the pre-construction meeting.

64. A storm water performance guarantee, equal to 1.5 times the amount required to complete storm water management and facilities as specified in the Storm Water Management Ordinance, must be posted at the Treasurer's Office.

65. An incomplete site work performance guarantee, equal to 1.5 times the amount required to complete the site improvements (excluding the storm water detention facilities) as specified in the Performance Guarantee Ordinance, must be posted at the Treasurer's Office.

66. A street sign financial guarantee in an amount to be determined ($400 per traffic control sign proposed) must be posted at the Treasurer's Office.

Please contact Jeremy Miller at (248) 735-5694 with any questions.

Jeremy J. Miller

cc: Adam Wayne, Engineering
Brian Coburn, Engineering
Sri Komaragiri, Community Development
Becky Arold, Water & Sewer

LANDSCAPE REVIEW

PLAN REVIEW CENTER REPORT

March 11, 2016

Revised Preliminary Site Plan - Landscaping

Montebello Estates

Review Type

Revised Preliminary Site Plan Landscape Review

Property Characteristics

- Site Location: 44000 9 Mile Road
- Site Acreage: 26.94 acres
- Site Zoning: R-3
- Adjacent Zoning: R-3, Novi Twp R-4
- Plan Date: 2/19/2016

Ordinance Considerations

This project was reviewed for conformance with Chapter 37: Woodland Protection, Zoning Article 5.5 Landscape Standards, the Landscape Design Manual and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed and incorporated as part of the Preliminary Site Plan submittal. Underlined items should be addressed in the Final Site Plans. Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review is a summary and not intended to substitute for any Ordinance.

Recommendation

The plan is **recommended for approval.** There are some minor issues that need to be addressed in Final Site Plans and several landscaping waivers that will be required.

General comment

There are a number of landscaping waivers sought for this project, all of which are supported by staff. **A table has been added to the landscape plan summarizing the waivers sought.**

Ordinance Considerations

Existing Soils (Preliminary Site Plan checklist #10, #17)

Provided on Sheet 2.

Existing and proposed overhead and underground utilities, including hydrants.(LDM 2.e.(4))

A note indicates that there are no overhead utilities and all other utility lines and structures are provided.

Existing Trees (Sec 37 Woodland Protection, Preliminary Site Plan checklist #17 and LDM 2.3 (2))

1. The entire site is a regulated woodland.
2. A tree survey has been provided, and all trees to be removed and saved are indicated on Sheets L-4, L-5 and L-6.
3. Calculations for woodland tree replacements are provided on Sheet L-6. **Those calculations are referred to on Sheet L-1 where it is indicated that a donation to the tree fund will be made for trees that won't be planted on the site.**
4. **Tree fencing will need to be provided on the removals and grading plans per the tree protection fence detail on Sheet L-6.**

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.B.ii and iii)

1. The ordinance calls for a total of 39 canopy trees and 69 sub-canopy trees along 9 Mile Road and 8 canopy trees and 14 subcanopy trees along Cottisford Road. Due to existing natural vegetation and terrain, the applicant is requesting waivers for both of those frontages.
   a. **9 Mile Road:** 1139' of the 1379' of frontage has natural hills with dense regulated woodland that is being preserved. The existing terrain and vegetation serve the function of the required screening and **staff supports the waiver request to not provide 32 canopy or large evergreen trees and 57 sub-canopy trees or the required berm along the 9 Mile Road greenbelt.** The required numbers of canopy and subcanopy trees for the remaining 240' of frontage (7 canopy and 12 sub-canopy trees) are provided**. A decorative wall with landscaping is provided in lieu of the required berm for the frontage west of the entry. This waiver request is also supported by staff. The waivers for the berm and wall need to be added to the waiver table.**
   b. **Cottisford Road:** The rear of lots 16 and 17 (double-frontage lots), and the small park between them, front on Cottisford, which is a Novi Township Road in that area. As Cottisford is not a major road, it was concluded by city legal counsel that a greenbelt/easement was not required, but the greenbelt planting requirement is still in effect. That frontage is densely vegetated with 9 existing canopy trees that meet the requirement for canopy/evergreen trees and a number of subcanopy trees/shrubs that provide dense screening. 3 additional replacement canopy trees are proposed in the park. **In order to preserve the existing vegetation, the applicant is requesting a waiver for the berm and the required 14 subcanopy trees. This waiver is supported by staff. The waiver for the berm along Cottisford needs to be added to the waiver table.**
2. **The existing and proposed screening vegetation along Cottisford will need to be maintained in a dense condition by the future landowners of units 16 and 17, and by the homeowners' association for the park. This should be included in the development by-laws and the areas to be maintained should be called out on the Landscape Plan.**

Street Tree Requirements (Zoning Sec. 5.5.3.E.i.c and LDM 1.d.)

1. 39 deciduous canopy trees are required along 9 Mile Road based on the frontage. 78 existing trees are within and adjacent to the right-of-way in the preserved part of the frontage. **A waiver is sought for street trees in this area to protect the existing vegetation and is supported by staff.**
2. 7 canopy trees are required for the remaining 240' of frontage that is being disturbed. In the last review we recommended that a waiver for 4 of these trees be requested to provide the required clear vision zone. The plan was revised to include 3 street trees west of the 9 Mile Road entrance. **A waiver is sought for the four trees not planted due to the clear vision zone and is supported by staff. This waiver needs to be added to the waiver table.**
3. As the Cottisford Road right-of-way is a Novi Township right-of-way and under their jurisdiction, the applicant was advised to work with the Township to provide whatever street trees might be required along that section of road. There are no City of Novi required street trees along this stretch of frontage. **If the township does not require any trees, please add a note to the plan stating that.**
4. Internal street trees meet the requirements for the lot frontages. There are an additional 9 trees planted along the street which are credited as woodland replacement trees. This is acceptable.
5. The street island and cul-de-sac island landscaping has been revised to provide a mix of trees planted, as requested.

Plant List (LDM 2.h. and t.)

1. Plant list is provided with correct unit costs but costs of sod, seed and mulch need to be added.

2. **If possible, please increase the diversity of the non-replacement trees planted per the Landscape Design Manual Section 1.d.(1)(d). Maples constitute 44% of the total trees planted and the ordinance calls for a maximum of 20% for a genus. While the conditions of the site may not allow the 20% goal to be met, please reduce the maple percentage of non-replacement trees proposed.**

Planting Notations and Details (LDM)

1. All required planting details are provided.
2. Landscape notes have been revised as requested.

Storm Basin Landscape (Zoning Sec 5.5.3.E.iv and LDM 1.d.(3)

1. The proposed storm basin shrubs meet the requirements of the ordinance.
2. **Please add the seed mix proposed for the basin bottom and slopes.**

Irrigation (LDM 1.a.(1)(e) and 2.s)

Irrigation plan for landscaped areas is required for Final Site Plan.

Proposed topography. 2' contour minimum (LDM 2.e.(1))

Please provide proposed topography in Final Site Plans.

Snow Deposit (LDM.2.q.)

A note regarding snow deposits have been added to the plans.

Proposed trees to be saved (Sec 37 Woodland Protection 37-9, LDM 2.e.(1))

Tree ids for existing trees to be saved have been included on Sheet L-1 as requested.

Corner Clearance (Zoning Sec 5.9)

The corner vision zone at 9 Mile Road is shown. **A waiver is sought for four required street trees as there is insufficient room for them due to the width of the road and clear vision zone. Staff supports this waiver. As mentioned above, please add this waiver to the waiver table.**

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5621 or rmeader rmeader@cityofnovi.org.

Rick Meader – Landscape Architect

MEMORANDUM

TO: MEMBERS OF THE PLANNING COMMISSION

FROM: RICK MEADER, LANDSCAPE ARCHITECT

SUBJECT: WOODLAND REPLACEMENT TREES ON PRIVATE LOTS

DATE: MARCH 18, 2016

The Planning Commission recently considered a request for a new residential development, Montebello, and asked staff to elaborate on the requirements for woodland replacement plantings on private lots within that site. As in the past, some applicants have indicated the desire to plant woodland replacement trees on individual private lots in a subdivision, sometimes as many as ten woodland replacement trees per lot. At the meeting, staff indicated that this practice is discouraged for a number of reasons based on ordinance standards and for practical matters in terms of the on-going health of the trees. This memo provides additional rationale for the reasons why woodland replacement trees are typically planted in common areas, or other areas outside of individual lots, in order to insure the ongoing health and preservation of woodland replacement trees.

Per Section 37-8 (d), (f) and (g), the Woodland Protection Ordinance, woodland replacement trees are to be replaced in the following order:

1. *"The location of replacement trees shall be subject to the approval of the planning commission and shall be such as to provide the optimum enhancement, preservation and protection of woodland areas. Where woodland densities permit, tree replacements (or relocations) shall be within the same woodland areas as the removed trees." (Section (d))*

2. *"Where tree relocation or replacement is not feasible within the woodland area, the relocation or replacement plantings may be placed elsewhere on the project property." (Section (f))*

3. *"Relocation or replacement plantings may be considered on private property provided that the owner grants a permanent conservation easement and the location is approved by the planning commission." (Section (g))*

4. *"Where tree relocation or replacement is not feasible within the woodland area, or on the project property, the permit grantee shall pay into the city tree fund monies for tree replacement in a per tree amount…" (Section (g))*

Further, in section (h), the ordinance provides the following with regard to easement requirements for replacement plantings:

> *Where replacements are installed in a currently non-regulated woodland area on the project property, appropriate provision shall be made to guarantee that the replacement trees shall be preserved as planted, such as through a conservation or landscape easement to be granted to the city. Such easement or other provision shall be in a form acceptable to the city attorney and provide for the perpetual preservation of the replacement trees and related vegetation.*

While #2 and #3 seems to allow the placement of trees anywhere on the property, the first sentence of priority #1 sets up conditions for those locations. It states that the replacement tree location(s) must provide for conditions that will preserve and protect the replacement trees such that they will enhance and protect the woodlands. Placement on individual lots does not provide this protection for these reasons:

1. Individual homeowners, understandably, want to landscape their lots to their individual aesthetic. While the ordinance requires that the replacement trees be particular species, they may be placed anywhere on the lot. They may or may not be (and usually aren't) configured to create a woodland setting or be planted anywhere near the remnants of the original woodland to help with its enhancement or protection.

2. Homeowners often want to add elements to their yard after they have settled into their home. This may be a deck, a pool, a play area, or just more open space than their yard provides. In many cases, this involves removing trees, young or old. While a woodland use permit is required for projects that involve construction, trees less than 8" do not have to be replaced. Unless accurate records of replacement tree locations are available on the lot, it would be easy for a planted replacement tree to be missed in the review so that replacement would be lost. It would also be quite easy for the resident to remove a smaller tree with no detection of the removal. Any easement on a lot would also limit the homeowner's ability to add amenities as described.

3. Locating replacement trees on private lots provides significant difficulty in monitoring the health and continued existence of replacement trees, and gets complicated with regard to the City's inspection and financial guarantee return procedures. City staff may not be allowed to enter a lot without permission of the owner. Many trees are placed in back yards where they are not visible from the road. While a homeowner may be willing to provide access to allow the City Staff to inspect the trees upon planting in order for the homeowner to get most of their financial guarantees back, on-going inspections must be done at the good will of the owner. If trees have been removed for whatever reason, or died, City staff may not be able to get that access for the required inspection 2

years after planting. As only 25% of the material cost is held by the City for the two year guarantee period, it may not be a cost that the homeowner is concerned about getting back if they have removed replacement trees that they would have to replace if they were found to be missing or dead. Any on-going observations of those trees to see whether they are actually growing to a size where they provide "woodland" conditions, would be quite difficult, if not impossible. Even if the homeowners are completely cooperative, the logistics of obtaining the required permissions to enter a property for inspections can add a significant amount of time to complete a list of inspections.

4. Homeowners are often not aware of the Woodland Replacement Chart from the Woodlands Protection ordinance, often because the developer does not provide that list to new homeowners. As a result, they may landscape their property with many trees that are attractive, but which are not allowed to be used for replacement credits. This results in understandably upset homeowners who have to plant more trees than they had planned, in order to get the required credits. (Most homeowners want to see the required trees on their property, not make a contribution to the tree fund, especially after they've invested in landscaping already). If trees were not planted on private lots, this problem would be completely avoided as species are evaluated for correctness in the site plan review process, and on the site inspection of the overall site required for the Certificate of Occupancy.

5. Locating replacement trees on private lots makes the creation of conservation easements to protect the trees and "created woodlands" on a long-term basis very difficult, even though they are required by section 37-8 (h). Even if easements on the lots could be provided, the same enforcement issues raised above would apply. Good practice would also require any conservation/preservation easement to be physically demarcated with signs, boulders, split rail fence, etc. by the developer. Homeowners typically do not want such signs or barriers installed on their lot.

We hope this information is helpful to the Planning Commission in approving woodland permits and in making determinations regarding acceptable locations for woodland replacement trees.

cc: Barb McBeth

WETLANDS REVIEW

Environmental Consulting & Technology, Inc.

March 10, 2016
ECT No. 150897-0300

Ms. Barbara McBeth
Deputy Director of Community Development
City of Novi
45175 W. Ten Mile Road
Novi, Michigan 48375

Re: Montebello Estates (JSP15-0076)
Wetland Review of the Revised Preliminary Site Plan (PSP16-0016)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Revised Preliminary Site Plan for the proposed Montebello Estates project prepared by Seiber, Keast Engineering, L.L.C. dated February 19, 2016 (Plan). The Plan was reviewed for conformance with the City of Novi Wetland and Watercourse Protection Ordinance and the natural features setback provisions in the Zoning Ordinance. ECT visited this site for the purpose of a wetland boundary verification on Tuesday, December 22, 2015.

ECT currently recommends approval of the Revised Preliminary Site Plan for Wetlands. ECT recommends that the Applicant address the items noted in the *Wetland and Watercourse Comments* section of this letter prior to approval of the Final Site Plan.

The proposed development is located north of W. Nine Mile Road and west of Novi Road in Section 27. The Plan appears to propose the construction of thirty-two (32) single-family residential site condominiums, associated roads and utilities, and a storm water detention basin. The previously-reviewed site plan submittal proposed the construction of thirty-three (33) homes, however in an effort to minimize the amount of environmental impacts including direct impact to an existing stream (i.e., Miller Creek), the applicant has removed one lot from the plan (deleted the previously-proposed Lot 29). The proposed project site contains several areas of City-regulated, as well as MDEQ-Regulated wetlands and watercourses. The development site contains sections of both Miller Creek and Thornton Creek (each tributary to the Middle Branch of the Rouge River), see Figures 1 and 2. Miller Creek enters the site from the north and flows south and east to its confluence with Thornton Creek in the southern/central section of the site. Thornton Creek flows from west to east from the southwest section of the site to the southeast section of the site. There are two (2) existing driveway crossings of Miller Creek and one (1) crossing of Thornton Creek on the site. While direct impacts to on-site wetlands are relatively minor, the Plan continues to include a moderate amount of encroachment into the 25-foot watercourse setback associated with Miller Creek.

Onsite Wetland Evaluation

The *Wetland Plan* (Sheet 4) indicates the areas of existing on-site wetlands. As noted, these wetland areas were delineated by King & MacGregor Environmental, Inc. The wetlands were delineated by

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Ann Arbor, MI 48105

(734) 769-3004

FAX (734) 769-3164

King & MacGregor Environmental, Inc. (KME). The wetlands are all palustrine/emergent wetlands located adjacent to both Miller Creek and Thornton Creek.

All of these wetlands are of moderate to high quality. Relatively minor impacts to wetlands are proposed as part of the site design (only one of the seven on-site wetlands will be impacted; Wetland G). In addition to this wetland impact, the Plan proposes the enclosure of a section of Miller Creek in the northwest section of the site. ECT has verified that the wetland boundaries appear to be accurately depicted on the Plan.

What follows is a summary of the wetland and watercourse impacts associated with the proposed site design.

Wetland and Watercourse Impact Review

Currently, the Plan indicates impacts to one (1) of the seven (7) on-site wetlands (i.e., Wetland G, see Figure 2). The Plan proposes to fill Wetland G (0.01-acre), located in the northern section of the site, for the purpose of constructing a section of Montebello Court as well as Lot 28. The current Plan also proposes to enclose approximately 95 lineal feet of Miller Creek via a proposed 85 lineal foot culvert for the purpose of constructing a road crossing (i.e., Montebello Court) of Miller Creek. It should be noted that the currently-proposed enclosure is an improvement over the last plan submittal. The previous plan proposed the relocation of approximately 230 lineal feet of Miller Creek via a proposed 85 lineal foot culvert for the purpose of constructing a section of Montebello Court as well as Lot 29. The old plan involved the abandonment/filling of a greater length of Miller Creek, apparently in order to include an additional buildable lot (i.e., previously-proposed Lot 29).

The following table summarizes the existing wetlands and the proposed wetland impacts as listed on the *Wetland Plan* (Sheet 4):

Table 1. *Proposed Wetland Impacts*

Wetland Area	***Wetland Area (acres)***	***City Regulated?***	***MDEQ Regulated?***	***Impact Area (acre)***	***Estimated Impact Volume (cubic yards)***
A	0.14	**Yes City Regulated /Essential**	**Yes**	None Indicated	None Indicated
B	0.008	**Yes City Regulated /Essential**	**Yes**	None Indicated	None Indicated
C	0.01	**Yes City Regulated /Essential**	**Yes**	None Indicated	None Indicated
D	0.02	**Yes City Regulated /Essential**	**Yes**	None Indicated	None Indicated
E	0.006	**Yes City Regulated /Essential**	**Yes**	None Indicated	None Indicated

F	0.004	**Yes City Regulated /Essential**	**Yes**	None Indicated	None Indicated
G	0.01	**Yes City Regulated /Essential**	**Yes**	0.01	48
TOTAL	**0.198**	**--**	**--**	**0.01**	**48**

In addition to this proposed wetland impact (i.e., filling Wetland G), the Plan proposes disturbance to 0.51-acre of the 5.26 acres of total on-site wetland/watercourse buffer area (approximately 10% of the total wetland/watercourse buffer area. The wetland buffer impacts are for the purpose of constructing Montebello Court (Wetland G) and a proposed (pedestrian) access to Nine Mile Road in the southeast section of the site (Wetland D). The proposed Miller Creek watercourse buffer impacts are for the purpose of constructing the Montebello Court/Miller Creek crossing, construction of a proposed foot bridge, and for development of several of the buildable lots (i.e., Lots 9, 26, 27, 28 and 29). The proposed Thornton Creek watercourse buffer impacts are for the purpose of constructing the entry drive to Nine Mile Road as well as the proposed pedestrian access to Nine Mile Road in the southeast section of the site.

The following table summarizes the existing wetland/watercourse setbacks and the proposed wetland/watercourse setback impacts as listed on the Plan:

Table 2. *Proposed 25-Foot Wetland/Watercourse Buffer Impacts*

Wetland/Watercourse Buffer Area	***Wetland/Watercourse Buffer Area (acres)***	***Impact Area (acre)***
A	0.31	None Indicated
B	0.07	None Indicated
C	0.12	None Indicated
D	0.13	0.01
E	0.08	None Indicated
F	0.08	None Indicated
G	0.12	0.12
Thornton Creek	1.95	0.05
Miller Creek	2.40	0.35
TOTAL	**5.26**	**0.51**

It should be noted that the proposed impacts to wetlands and wetland/watercourse buffers remains unchanged from the Preliminary Site Plan.

In addition to the proposed wetland and watercourse impacts, the Plan appears to propose impacts to regulated floodplain. This includes approximately 1,737 square yards of floodplain fill (~287 cubic yards) in the southwest corner of the property for the proposed entrance from Nine Mile Road (this information is detailed on the *Floodplain Plan*, Sheet 5). Although not quantified on the Plan, there also appears to be proposed floodplain excavation for the purpose of constructing proposed stormwater detention basin "A" in the southern/central portion of the site. While the applicant's engineer (Seiber Keast Engineering, L.L.C.) has noted that it does not appear that the on-site floodplain areas are regulated by the Michigan Department of Environmental Quality (MDEQ) as the upstream tributary areas to Miller Creek and Thornton Creek may be less than two (2) square miles in area, it is the applicant's responsibility to determine if these impacts will need to be authorized by the MDEQ. As with wetland impacts, all area (square feet) and volume (cubic yards) impacts to floodplain shall be indicated on the Plan. In addition, the applicant should indicate all proposed areas of floodplain fill, floodplain excavation and net floodplain impact (i.e., net cut or fill).

Permits & Regulatory Status

All of the wetland on the project site appears to be considered essential and regulated by the City of Novi and any impacts to wetlands or wetland buffers would require approval and authorization from the City of Novi. All of the wetland areas appear to meet one or more of the essentiality criteria set forth in the City's Wetland and Watercourse Protection Ordinance (i.e., storm water storage/flood control, wildlife habitat, etc.). This information has been noted in the *Proposed Wetland Impacts* table, above.

All associated wetland also appears to be regulated by the MDEQ as it appears to be within 500 feet of a watercourse/regulated drain (either Miller Creek or Thornton Creek). It should however, be noted that final determination of regulatory status should be made by the MDEQ. It is the Applicant's responsibility to contact MDEQ in order to determine the regulatory status of the on-site wetlands (and floodplains). ECT requests that the applicant provide a copy of the MDEQ wetland permit application for this project to the City and to ECT for our files and a copy of the MDEQ wetland use permit once it has been issued. A City Wetland and Watercourse Permit cannot be issued until this information has been provided.

The project as proposed will require a City of Novi Minor Use Wetland Permit, *Authorization to Encroach the 25-Foot Natural Features Setback* (this authorization is required for the proposed impacts to regulated wetland/watercourse setbacks) and a MDEQ wetland use permit.

Wetland and Watercourse Comments

The following are repeat comments from our *Wetland Review of the Preliminary Site Plan* letter dated January 4, 2016. The current status of each comment is listed below in ***bold italics***:

1. ECT encourages the applicant to minimize impacts to on-site wetlands, watercourses and associated setbacks to the greatest extent practicable. It should be noted that although the impacts to regulated wetlands appears to be relatively small, the applicant could minimize, or avoid, impacts to regulated watercourses (i.e., Miller Creek) by utilizing the existing creek crossings to the greatest extent practicable. ECT recommends that the applicant consider alternate site

layouts that minimize or avoid the need for the relocation/enclosure of Miller Creek. It appears as if the current location of Lot 29 could be altered in order to minimize or avoid impacts to the Creek.

This comment has been partially addressed. The applicant has removed previously-proposed Lot 29 from the Plan. While this revision to the Plan has not decreased direct impacts to wetland areas, the direct impacts to Miller Creek have been reduced. The current Plan proposes the enclosure of approximately 95 lineal feet of Miller Creek and the rerouting of this section of creek within an approximately 85-foot long culvert. It should be noted that the currently-proposed enclosure is an improvement over the last plan submittal. The Preliminary Site Plan proposed the relocation of approximately 230 lineal feet of Miller Creek via a proposed 85 lineal foot culvert for the purpose of constructing a section of Montebello Court as well as Lot 29. The applicant should provide details of the proposed culvert in future site plan submittals.

As long linear ecosystems, rivers and streams are particularly vulnerable to fragmentation. A number of human activities can disrupt the continuity of river and stream ecosystems. There is growing concern about the role of road crossings, and especially culverts, in altering habitats and disrupting river and stream continuity. It is generally believed that culverts are more detrimental to creeks and streams than are bridges. Consequently, wildlife regulatory agency biologists routinely recommend installation of a bridge instead of a culvert. Culvert crossings tend to provide very little or no habitat within the culvert. Some habitat can be provided if the culvert is sufficiently embedded such that the substrate in the culvert resembles the natural streambed. Open-bottom or arch culverts and bridge crossings often maintain natural streambeds, although some habitat may be lost to footings, piers, and abutments. ECT recommends that the applicant provide additional culvert details with the next plan submittal and consider an alternative to the currently-proposed culvert enclosure. A proposed bridge or open-bottom, arch, or otherwise embedded culvert crossing at Miller Creek would help in preserving the continuity of Miller Creek.

2. The applicant shall provide information for any proposed seed mixes that will be used to restore the floodplain areas and/or any areas of temporary wetland and wetland buffer impacts. ECT would like to ensure that the proposed plant/seed material contains native plants as opposed to invasive or threatened plant types.

   This comment has not been addressed. The applicant's engineer (Seiber Keast Engineering, L.L.C.) has noted in a Preliminary Site Plan Review response letter dated February 18, 2016 that the seed mixes will be provided by the landscape architect (Allen Design). This information has not yet been provided on the Plan. This information should be included on the next plan submittal.

3. The Applicant is encouraged to provide wetland conservation easements for any areas of remaining wetland or 25-foot wetland buffer.

   This comment has not been addressed. The applicant's engineer (Seiber Keast Engineering, L.L.C.) has noted in a Preliminary Site Plan Review response letter dated February 18, 2016 that

the applicant will review the dedication of conservation easements related to wetlands and wetland buffers. All proposed preservation/conservation easements shall be indicated on the next plan submittal.

4. It should be noted that it is the Applicant's responsibility to confirm the need for a Permit from the MDEQ for any proposed wetland (or floodplain) impact. Final determination as to the regulatory status of each of the on-site wetlands shall be made by MDEQ. The Applicant should provide a copy of the MDEQ Wetland Use Permit application or letter of no jurisdiction to the City (and our office) for review and a copy of the approved permit upon issuance.

   This comment still applies. The applicant's engineer (Seiber Keast Engineering, L.L.C.) has noted in a Preliminary Site Plan Review response letter dated February 18, 2016 that the applicant will secure an MDEQ permit for work related to the Miller Creek road crossing and culvert installation for Thornton Creek. In addition, the response letter states that it does not appear that the on-site floodplain areas are regulated by the Michigan Department of Environmental Quality (MDEQ) as the upstream tributary areas to Miller Creek and Thornton Creek may be less than two (2) square miles in area. It is the applicant's responsibility to determine if these impacts will need to be authorized by the MDEQ. A City Wetland and Watercourse Permit cannot be issued until this information has been provided.

ECT recommends that the applicant also consider the following comment:

5. As noted in Table 2 above, the Plan proposes disturbance to 0.35 acres of the Miller Creek watercourse setback. These impacts are associated with the construction of the Montebello Court/Miller Creek crossing, construction of a proposed foot bridge, and for development of several of the buildable lots (i.e., Lots 9, 26, 27, 28 and 29). With regard to the preservation of 25-foot wetland/watercourse buffers, the applicant should work in order to preserve the existing wetland buffers to the greatest extent practicable. The preservation of the 25-foot buffer areas is important to the overall health of the existing creeks and wetlands as the existing buffers serve to filter pollutants and nutrients from storm water before entering the wetlands, as well as provide additional wildlife habitat. ECT recommends that should the orientation of Lots 9, 26, 27, 28 and 29 remain unchanged, the applicant provide assurance that the 25-foot watercourse setback on these lots will be maintained either through a conservation easement or deed restriction, etc. Any proposed conservation easement areas should be demarcated on-site through the use of proposed easement signage and potentially other means such as boulders or decorative fencing along the setback boundaries.

Recommendation

ECT currently recommends approval of the Revised Preliminary Site Plan for Wetlands. ECT recommends that the Applicant address the items noted above in the *Wetland and Watercourse Comments* section of this letter prior to approval of the Final Site Plan.

If you have any questions regarding the contents of this letter, please contact us.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Peter Hill, P.E.
Senior Associate Engineer

Matthew Carmer
Senior Scientist
Professional Wetland Scientist #1746

cc: Sri Komaragiri, City of Novi Planner
Richelle Leskun, City of Novi Planning Assistant
Rick Meader, City of Novi Landscape Architect
Kirsten Mellem, City of Novi Planner

Attachments: Figures 1 & 2 and Site Photos

Figure 1. City of Novi Regulated Wetland & Woodland Map (approximate property boundary shown in red). Regulated Woodland areas are shown in green and regulated Wetland areas are shown in blue.

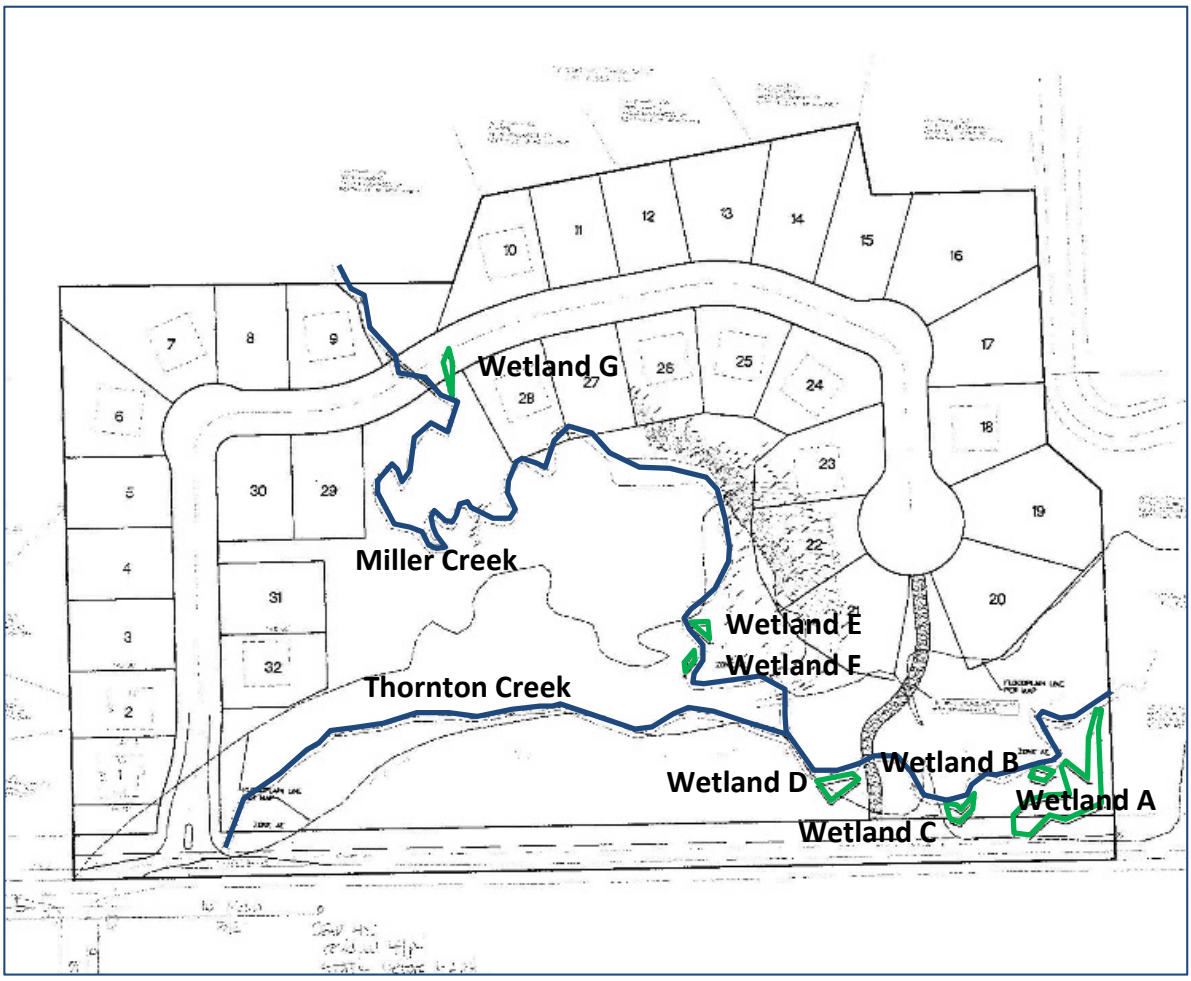

Figure 2. Previous iteration of Site Development Plan, provided by Seiber, Keast Engineering, L.L.C. Delineated wetland areas are indicated in green and (approximate) watercourse centerlines are shown in blue.

Site Photos

Photo 1. Looking south at existing driveway crossing of Miller Creek. ECT, December 22, 2015.

Photo 2. Looking south at area of Miller Creek that is to be relocated/enclosed in culvert. ECT, December 22, 2015.

Photo 3. Looking southeast at Wetland B and Wetland A in the southeast section of the site. ECT, December 22, 2015.

Photo 4. Looking southwest from existing bridge crossing of Thornton Creek in the southeast section of the site. Wetland D is located adjacent the Creek in this area. ECT, December 22, 2015.

Photo 5. Looking south from area near existing bridge crossing of Thornton Creek in the southeast section of the site. Wetland D is located adjacent the Creek in this area. ECT, December 22, 2015.

Photo 6. Looking west at Thornton Creek in the southwest section of the site. ECT December 22, 2015.

WOODLAND REVIEW

March 10, 2016
ECT No. 150897-0400

Ms. Barbara McBeth
Deputy Director of Community Development
City of Novi
45175 W. Ten Mile Road
Novi, Michigan 48375

Re: Montebello Estates (JSP15-0897)
Woodland Review of the Revised Preliminary Site Plan (PSP16-0016)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Revised Preliminary Site Plan for the proposed Montebello Estates project prepared by Seiber, Keast Engineering, L.L.C. dated February 19, 2016 (Plan). The Plan was reviewed for conformance with the City of Novi Woodland Protection Ordinance Chapter 37. The purpose of the Woodlands Protection Ordinance is to:

1) *Provide for the protection, preservation, replacement, proper maintenance and use of trees and woodlands located in the city in order to minimize disturbance to them and to prevent damage from erosion and siltation, a loss of wildlife and vegetation, and/or from the destruction of the natural habitat. In this regard, it is the intent of this chapter to protect the integrity of woodland areas as a whole, in recognition that woodlands serve as part of an ecosystem, and to place priority on the preservation of woodlands, trees, similar woody vegetation, and related natural resources over development when there are no location alternatives;*

2) *Protect the woodlands, including trees and other forms of vegetation, of the city for their economic support of local property values when allowed to remain uncleared and/or unharvested and for their natural beauty, wilderness character of geological, ecological, or historical significance; and*

3) *Provide for the paramount public concern for these natural resources in the interest of health, safety and general welfare of the residents of the city.*

ECT visited this site for the purpose of a woodland evaluation on Tuesday, December 22, 2015.

ECT currently recommends approval of the Revised Preliminary Site Plan for Woodlands. ECT recommends that the Applicant address the items noted in the *Woodland Comments* section of this letter prior to approval of the Final Site Plan.

The proposed development is located north of W. Nine Mile Road and west of Nine Mile Road, Section 27. The Plan appears to propose the construction of thirty-two (32) single-family residential site condominiums, associated roads and utilities, and a storm water detention basin. The previously-reviewed site plan submittal proposed the construction of thirty-three (33) homes, however in order to minimize the amount of impact to existing stream (i.e., Miller Creek), the applicant has deleted the previously-proposed Lot 29. The entire proposed project site is located within an area indicated as City-Regulated Woodland on the City of Novi Regulated Wetland and Woodland Map (see Figure 1). In addition, the development site contains sections of both Miller Creek and Thornton Creek (each tributary to the Middle Branch of the Rouge River) as well as City- and MDEQ-regulated wetlands.

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A *Woodland Plan* (Sheet L-4) and *Tree List* (Sheets L-5 and L-6) have been provided with the Plan. The existing site woodland information (tree sizes, species and conditions) has been provided by the Applicant. In addition, proposed impacts to on-site regulated woodlands have been described/quantified. Sheet L-6 (*Tree List*) includes a *Woodland Summary* that summarizes the proposed tree removals and required Woodland Replacement Tree quantities.

Onsite Woodland Evaluation

ECT has reviewed the City of Novi Official Woodlands Map and completed an onsite woodland evaluation on Tuesday, December 22, 2015. As noted above, the entire proposed project site is located within an area indicated as City-Regulated Woodland on the City of Novi Regulated Wetland and Woodland Map (see Figure 1). The proposed site development will involve a significant amount of impact to regulated woodlands and will include a significant number of tree removals.

The on-site trees have been identified in the field with metal tags attached with aluminum nails allowing ECT to compare the tree diameters reported on the *Tree List* to the existing tree diameters in the field. ECT found that the *Woodland Plan* and the *Woodland Tree List* appear to accurately depict the location, species composition and the size of the existing trees. ECT took a sample of diameter-at-breast-height (d.b.h.) measurements and found that the data provided on the Plan was consistent with the field measurements.

On-site woodland within the project area consists of American elm (*Ulmus americana*), sugar maple (*Acer saccharum*), silver maple (*acer saccharinum*), red maple (*Acer rubrum*), Norway maple (*Acer platanoides*), black cherry (*Prunus serotina)*, black walnut (*Juglans nigra*), red oak (*Quercus rubra*), white pine (*Pinus strobus*), Norway spruce (*Picea abies*), Austrian pine (*Pinus nigra*), common apple (*Malus spp.*), black locust (*Robinia pseudoacacia*), boxelder (*Acer negundo*), and sever other species.

Based on the *Tree List* information as well as our site assessment, the maximum size tree diameter on the site is 48-inch d.b.h. (red oak; Tree No. 4288). In terms of habitat quality and diversity of tree species, the project site is of good quality. The majority of the woodland areas consist of relatively-mature growth trees of good health. This wooded area provides a relatively high level environmental benefit and in terms of a scenic asset, windblock, noise buffer or other environmental asset, the woodland areas proposed for impact are considered to be of good quality.

After our woodland evaluation and review of the *Tree List,* there are eighty (80) trees on the Tree List that meet the minimum caliper size for designation as a specimen tree. Since the previous plan submittal, the applicant's landscape consultant (Allen Design) has tallied a total of 157 regulated, untagged trees located on the south side of the site, north of Nine Mile Road. In addition, it is noted that there are 19 additional specimen trees located within this "un-surveyed" area that is to remain undisturbed.

Several of these potential specimen trees include:

- Tree # 919, 29" sugar maple (24" is minimum caliper size for specimen trees of this species); save
- Tree # 920, 29" sugar maple (24" is minimum caliper size for specimen trees of this species); save
- Tree # 4038, 40" black cherry (24" is minimum caliper size for specimen trees of this species); remove
- Tree # 4060, 46" black cherry (24" is minimum caliper size for specimen trees of this species); remove
- Tree # 4288, 48" red oak (24" is minimum caliper size for specimen trees of this species); remove

- Tree # 4331, 44" American beech (24" is minimum caliper size for specimen trees of this species); save
- Tree # 4452, 30" sugar maple (24" is minimum caliper size for specimen trees of this species); remove
- Tree # 4526, 40" American elm (24" is minimum caliper size for specimen trees of this species); remove
- Tree # 4530, 28" red oak (24" is minimum caliper size for specimen trees of this species); remove
- Tree # 4563, 30" black walnut (24" is minimum caliper size for specimen trees of this species); save
- Tree # 4602, 32" red oak (24" is minimum caliper size for specimen trees of this species); save

Of the ninety-nine (99) total potential specimen trees, thirty-two (32) are proposed for removal (i.e., 32% removal of the potential Specimen Trees). The Applicant should be aware of the City's Specimen Tree Designation as outlined in Section 37-6.5 of the Woodland Ordinance. This section states that:

> "*A person may nominate a tree within the city for designation as a historic or specimen tree based upon documented historical or cultural associations. Such a nomination shall be made upon that form provided by the community development department. A person may nominate a tree within the city as a specimen tree based upon its size and good health. Any species may be nominated as a specimen tree for consideration by the planning commission. Typical tree species by caliper size that are eligible for nomination as specimen trees must meet the minimum size qualifications as shown below:*

Specimen Trees Minimum Caliper Size

Common Name	Species	DBH
Arborvitae	*Thuja occidentalis*	16"
Ash	*Fraxinus spp.*	24"
American basswood	*Tilia Americana*	24"
American beech	*Fagus grandifolia*	24"
American elm	*Ulmus americana*	24"
Birch	*Betula spp.*	18"
Black alder	*Alnus glutinosa*	12"
Black tupelo	*Nyssa sylvatica*	12"
Black walnut	*Juglans nigra*	24"
White walnut	*Juglans cinerea*	20"
Buckeye	*Aesculus spp.*	18"
Cedar, red	*Juniperus spp.*	14"
Crabapple	*Malus spp.*	12"
Douglas fir	*Pseudotsuga menziesii*	18"
Eastern hemlock	*Tsuga Canadensis*	14"
Flowering dogwood	*Cornus florida*	10"
Ginkgo	*Ginkgo biloba*	24"
Hickory	*Carya spp.*	24"
Kentucky coffee tree	*Gymnocladus dioicus*	24"
Larch/tamarack	*Larix laricina (eastern)*	14"
Locust	*Gleditsia triacanthos/Robinia pseudoacacia*	24"
Sycamore	*Platanus spp.*	24"
Maple	*Acer spp. (except negundo)*	24"

Oak	*Quercus spp.*	24"
Pine	*Pinus spp.*	24"
Sassafras	*Sassafras albidum*	16"
Spruce	*Picea spp.*	24"
Tulip tree	*Liriodendron tulipifera*	24"
Wild cherry	*Prunus spp.*	24"

Any tree designated by the planning commission as an historical or specimen tree shall be so depicted on an historic and specimen tree map to be maintained by the community development department. The removal of any designated specimen or historic tree will require prior approval by the planning commission. Replacement of the removed tree on an inch for inch basis may be required as part of the approval".

Proposed Woodland Impacts and Replacements

As shown, there appear to be substantial impacts proposed to regulated woodlands associated with the site construction. It appears as if the proposed work (proposed buildings and roads) will cover a significant portion of the site that does not contain sections of Miller Creek and Thornton Creek and will involve a considerable number of tree removals. It should be noted that the City of Novi replacement requirements pertain to regulated trees with d.b.h. greater than or equal to 8 inches and located within areas of City-mapped Regulated Woodlands.
A *Woodland Summary* Table has been included on the *Tree List* (Sheet L-6). The Applicant has noted the following:

- Total Regulated (Surveyed) Trees: 970
- Untagged Regulated Trees: 157
- Total Regulated Trees: 1,127
- Regulated Trees Removed: 571 (51% Removal of Regulated Trees)
- Regulated Trees Preserved: 556 (49% Preservation of Regulated Trees)

- Stems to be Removed 8" to 11": 219 x 1 replacement (Requiring 219 Replacements)
- Stems to be Removed 11" to 20": 270 x 2 replacements (Requiring 540 Replacements)
- Stems to be Removed 20" to 30": 50 x 3 replacements (Requiring 150 Replacements)
- Stems to be Removed 30"+: 10 x 4 replacements (Requiring 40 Replacements)
- Multi-Stemmed Trees: (Requires 78 Replacements)

- Total Replacement Trees Required: 1,027

It should be noted that the current Plan appears to include the removal of eleven (11) more trees than that shown on the Preliminary Site Plan (571 as opposed to 560 on the previous plan), resulting in sixteen (16) additional Woodland Replacement Trees required (1,027 as opposed to 1,011).

It should be noted that the current Plan does not appear to indicate proposed grades for the site. As such, it is difficult to determine if all of the tree removals currently indicated on the Plan are necessary. All subsequent site plans should include proposed site grading.

The landscape plans (Sheet L-1) appears to show a total of 153 Woodland Replacement Trees (this is only approximately 14% of the total Woodland Replacement Trees that are required). This is ten (10) more Woodland

Replacement credits than the previous plan submittal. All of the proposed Woodland Replacement trees appear to be two and one-half (2 ½) inch caliper deciduous trees and shall count at a 1-to-1 replacement ratio. With a total of 153 on-site Woodland Replacement Trees to be provided by the applicant, the remainder of the required Woodland Replacement Tree credits (874) are proposed to be paid to the City of Novi Tree Fund.

The previously-submitted site plan contained two (2) species of proposed Woodland Replacement trees that were not acceptable as they were not species that are native to Michigan. The applicant has replaced the unacceptable species with acceptable replacement species including basswood (*Tilia americana*) and bald cypress (*Taxodium distichum*).

City of Novi Woodland Review Standards and Woodland Permit Requirements

Based on Section 37-29 (*Application Review Standards*) of the City of Novi Woodland Ordinance, the following standards shall govern the grant or denial of an application for a use permit required by this article:

> *No application shall be denied solely on the basis that some trees are growing on the property under consideration. However, the protection and conservation of irreplaceable natural resources from pollution, impairment, or destruction is of paramount concern. Therefore, the preservation of woodlands, trees, similar woody vegetation, and related natural resources shall have priority over development when there are location alternatives.*

In addition,

> "*The removal or relocation of trees shall be limited to those instances when necessary for the location of a structure or site improvements and when no feasible and prudent alternative location for the structure or improvements can be had without causing undue hardship".*

There are a significant number of replacement trees required for the construction of the proposed development. The proposed Montebello Estates development consists of thirty-two (32) single-family residential site condominiums, associated roads and utilities, and a storm water detention basin.

The proposed development site is essentially surrounded by existing single family residential use. Impacts to a portion of the site woodlands are deemed unavoidable if this property is to be developed for residential use containing this many proposed lots. While the overall ecological values of the existing woodlands cannot be immediately replaced through the planting of woodland replacement trees, the applicant has provided an plan to meet the requirements of the Woodland Ordinance through on-site Woodland Replacement Credits and/or a payment to the City of Novi Tree Fund. Proposed woodland impacts will require a Woodland Permit from the City of Novi that allows for the removal of trees eight (8)-inch diameter-at-breast-height (d.b.h.) or greater. Such trees shall be relocated or replaced by the permit grantee.

Woodland Comments

The following are repeat comments from our *Woodland Review of the Preliminary Site Plan* letter dated January 4, 2016. The current status of each comment is listed below in ***bold italics***:

1. ECT encourages the Applicant to minimize impacts to on-site Woodlands to the greatest extent practicable; especially those trees that may meet the minimum size qualifications to be considered a Specimen Tree (as described above). Approximately 58% of regulated on-site trees are proposed to be removed. Currently, approximately 42% of the potential Specimen Trees are proposed for removal. The

applicant should demonstrate why additional trees cannot be preserved through the implementation of alternative site layouts that would reduce the overall impacts to woodlands. The applicant is also encouraged to minimize impacts to on-site trees that may meet the minimum size qualifications to be considered a Specimen Tree (as described above).

This comment still applies. The current Plan proposes the removal of 51% of regulated on-site trees. Currently, approximately 32% of the potential Specimen Trees are proposed for removal. This is an improvement from the impacts proposed on the Preliminary Site Plan. The applicant should continue to access whether additional on-site trees can be preserved and if additional Woodland Replacement trees can be provided on-site.

2. It should be noted that the design plan does not appear to indicate proposed grades for the site. As such, it is difficult to determine if all of the tree removals currently indicated on the Plan are necessary. All subsequent site plans should include proposed site grading.

   This comment has not been addressed.

3. The landscape plans (Sheet L-1) appears to show a total of 143 total Woodland Replacement Trees (two and one-half (2 ½) inches caliper) and count at a 1-to-1 replacement ratio. The Plan currently notes that 868 credits will be paid to the City of Novi Tree Fund. It should be noted that the applicant should provide Woodland Replacement Tree species consistent with the Woodland Tree Replacement Chart (attached). The *Chancellor linden* and the *Frontier elm* being proposed on the Landscape Plan are not acceptable Woodland Replacement trees. Please review the *Woodland Tree Replacement Chart* (attached) and revise the Plan as necessary.

   This comment has been addressed. While the Plan now includes 153 total Woodland Replacement Trees, all of the tree species currently proposed are acceptable and meet the City's requirements for Woodland Replacement trees. As noted above in Comment #1, the applicant should continue to look for opportunities to preserve additional on-site trees and provide additional Woodland Replacement trees on the proposed development site; preferably in common open space/green space as opposed to on individual lots.

4. The Applicant is encouraged to provide preservation/conservation easements for any areas of remaining woodland. These areas should be indicated on the Plan.

   This comment still applies. ECT recommends that the applicant provide assurance that areas of remaining woodland be maintained either through a conservation easement or deed restriction, etc. Any proposed conservation easement areas should be demarcated on-site through the use of proposed easement signage and potentially other means such as boulders or decorative fencing along the setback boundaries.

5. The Applicant is encouraged to provide woodland conservation easements for any areas containing woodland replacement trees. These areas should be indicated on the Plan.

   This comment still applies. As noted in Comment #4 above, ECT recommends that the applicant provide assurance that areas containing Woodland Replacement trees be maintained either

through a conservation easement or deed restriction, etc. Any proposed conservation easement areas should be demarcated on-site through the use of proposed easement signage and potentially other means such as boulders or decorative fencing along the setback boundaries.

6. A Woodland Replacement financial guarantee for the planting of replacement trees will be required. This financial guarantee will be based on the number of on-site woodland replacement trees (credits) being provided at a per tree value of $400. Currently, the required Woodland Replacement Financial Guarantee would be $85,800 (143 trees x $400/tree x 1.5).

   Based on a successful inspection of the installed on-site Woodland Replacement trees, seventy-five percent (75%) of the original Woodland Financial Guarantee shall be returned to the Applicant. Twenty-five percent (25%) of the original Woodland Replacement financial guarantee will be kept for a period of 2-years after the successful inspection of the tree replacement installation as a Woodland Maintenance and Guarantee Bond.

   This comment still applies. Because the number of on-site Woodland Replacement trees being provided has been revised (this quantity is now 153, increased from 143 on the previous plan submittal), the current Woodland Replacement Financial Guarantee would be $91,800 (153 trees x $400/tree x 1.5).

7. The Applicant will be required to pay the City of Novi Tree Fund at a value of $400/credit for any Woodland Replacement tree credits that cannot be placed on-site. Currently, the applicant intends to pay 868 credits to the Tree Fund. The required payment will be $347,200 (868 credits x $400/tree).

   This comment still applies. Because the number of tree credits required to be paid to the City of Novi Tree Fund has been revised (this quantity is now 874, increased from 868 on the previous plan submittal), the current Woodland Replacement Financial Guarantee would be $349,600 (874 trees x $400/tree).

8. Replacement material should not be located 1) within 10' of built structures or the edges of utility easements and 2) over underground structures/utilities or within their associated easements. In addition, replacement tree spacing should follow the *Plant Material Spacing Relationship Chart for Landscape Purposes* found in the City of Novi *Landscape Design Manual.*

   This comment still applies. All Woodland Replacement trees should be itemized and graphically shown on the landscape plans.

Recommendation

ECT currently recommends approval of the Revised Preliminary Site Plan for Woodlands. ECT recommends that the Applicant address the items noted in the *Woodland Comments* section of this letter prior to approval of the Final Site Plan.

If you have any questions regarding the contents of this letter, please contact us.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Peter Hill, P.E.
Senior Associate Engineer

Matthew Carmer
Senior Scientist
Professional Wetland Scientist #1746

cc: Sri Komaragiri, City of Novi Planner
Richelle Leskun, City of Novi Planning Assistant
Rick Meader, City of Novi Landscape Architect
Kirsten Mellem, City of Novi Planner

Attachments: Figure 1, Site Photos, Woodland Tree Replacement Chart

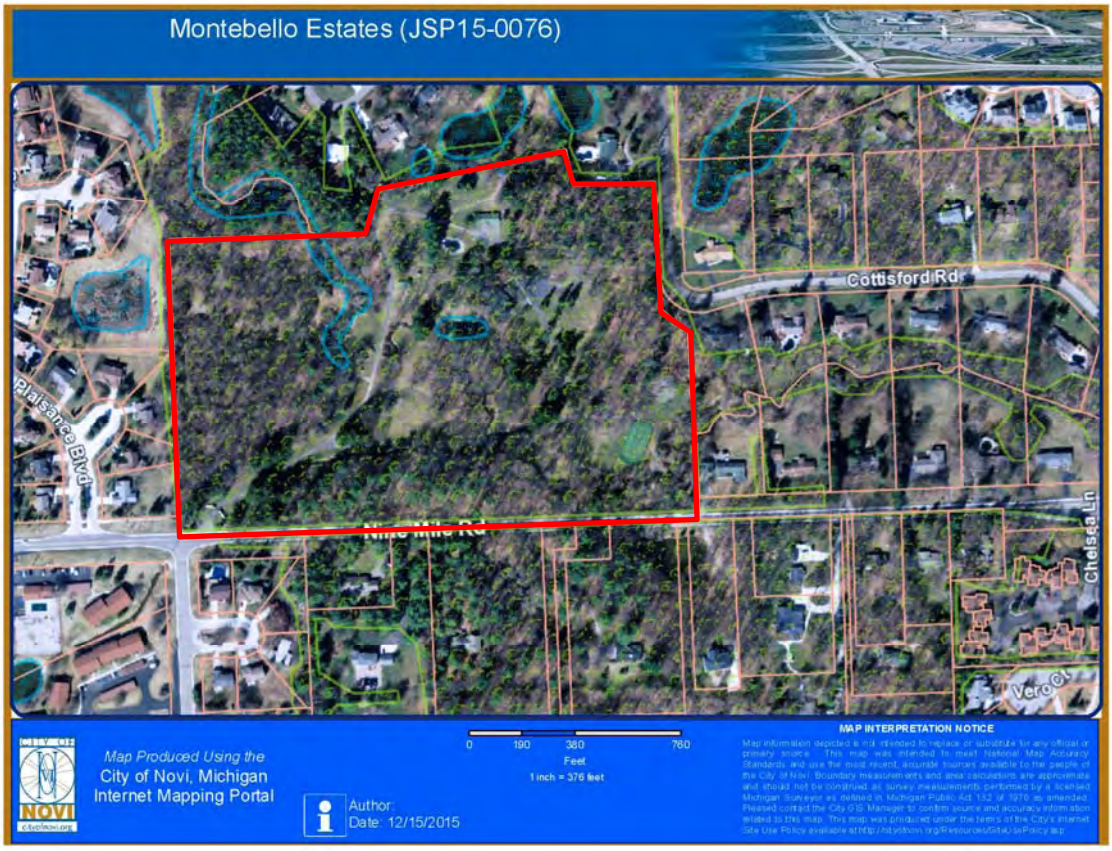

Figure 1. City of Novi Regulated Wetland & Woodland GIS Coverage Map (approximate property boundary shown in red). Regulated Woodland areas are shown in green and regulated Wetland areas are shown in blue).

Site Photos

Photo 1. Tree #4897, 21-inch American elm. Tree to be removed as part of the proposed stream enclosure of Miller Creek. ECT, December 22, 2015.

Photo 2. Tree #4897, 21-inch American elm. Tree to be removed as part of the proposed stream enclosure of Miller Creek. ECT, December 22, 2015.

Photo 3. Tree #4395, 11-inch sugar maple. Tree to be removed as part of the proposed development. ECT, December 22, 2015.

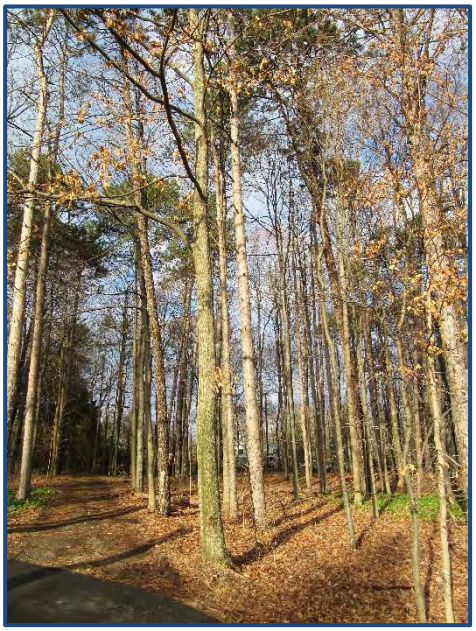

Photo 4. Tree #4395, 11-inch sugar maple. Tree to be removed as part of the proposed development. ECT, December 22, 2015.

Photo 5. Tree #4172, 12-, 19-, 24-inch sugar maple. Tree to be removed as part of the proposed development. This tree requires a total of seven (7) Woodland Replacement credits. ECT, December 22, 2015.

Photo 6. Tree #4172, 12-, 19-, 24-inch sugar maple. Tree to be removed as part of the proposed development. This tree requires a total of seven (7) Woodland Replacement credits. ECT, December 22, 2015.

Photo 7. Tree #4563, 30--inch black walnut. Tree to be saved as part of the proposed development. ECT, December 22, 2015.

Photo 8. Tree #4563, 30--inch black walnut. Tree to be saved as part of the proposed development. ECT, December 22, 2015.

Woodland Tree Replacement Chart

(from Chapter 37 Woodlands Protection)
(All canopy trees to be 2.5" cal or larger, evergreens as listed)

Common Name	Botanical Name
Black Maple	Acer nigrum
Striped Maple	Acer pennsylvanicum
Red Maple	Acer rubrum
Sugar Maple	Acer saccharum
Mountain Maple	Acer spicatum
Ohio Buckeye	Aesculus glabra
Downy Serviceberry	Amelanchier arborea
Yellow Birch	Betula alleghaniensis
Paper Birch	Betula papyrifera
American Hornbeam	Carpinus caroliniana
Bitternut Hickory	Carya cordiformis
Pignut Hickory	Carya glabra
Shagbark Hickory	Carya ovata
Northern Hackberry	Celtis occidentalis
Eastern Redbud	Cercis canadensis
Yellowwood	Cladrastis lutea
Beech	Fagus sp.
Thornless Honeylocust	Gleditsia triacanthos inermis
Kentucky Coffeetree	Gymnocladus diocus
Walnut	Juglans sp.
Eastern Larch	Larix laricina
Sweetgum	Liquidambar styraciflua
Tuliptree	Liriodendron tulipfera
Tupelo	Nyssa sylvatica
American Hophornbeam	Ostrya virginiana
White Spruce_(1.5:1 ratio) (6' ht.)	Picea glauca
Black Spruce_(1.5:1 ratio) (6' ht.)	Picea mariana
Red Pine	Pinus resinosa
White Pine_(1.5:1 ratio) (6' ht.)	Pinus strobus
American Sycamore	Platanus occidentalis
Black Cherry	Prunus serotina
White Oak	Quercus alba
Swamp White Oak	Quercus bicolor
Scarlet Oak	Quercus coccinea
Shingle Oak	Quercus imbricaria
Burr Oak	Quercus macrocarpa
Chinkapin Oak	Quercus muehlenbergii
Red Oak	Quercus rubra
Black Oak	Quercus velutina
American Bladdernut	Staphylea trifolia
Bald Cypress	Taxodium distichum
American Basswood	Tilia americana
Hemlock (1.5:1 ratio) (6' ht.)	Tsuga canadensis

TRAFFIC REVIEW

AECOM
27777 Franklin Road
Suite 2000
Southfield, MI 48034
www.aecom.com

248 204 5900 tel
248 204 5901 fax

Memorandum

To	Barbara McBeth, AICP	Page	1
CC	Sri Komaragiri, Kirsten Mellem, Brian Coburn, Jeremy Miller, Richelle Leskun		
Subject	JSP 15-0076 – Montebello Estates – Revised Preliminary – Traffic Review		
From	Matt Klawon, PE		
Date	March 9, 2016		

The revised preliminary site plan was reviewed to the level of detail provided and AECOM **recommends approval** for the applicant to move forward with the condition that the comments provided below are adequately addressed to the satisfaction of the City.

GENERAL COMMENTS

1. The applicant, Mirage Development, LLC, is proposing a residential development located on the north side of Nine Mile Road, west of Novi Road.
2. Nine Mile Road is within the City of Novi's jurisdiction.
3. The site is currently under R-3 zoning. The proposed site has a density of 1.23 lots per acre which is below the maximum dwelling unit density allowed for R-3 zoning.

TRAFFIC IMPACTS

1. AECOM performed an initial trip generation estimate based on the ITE Trip Generation Manual, 8th Edition, as follows:

   ITE Code:
   Development-specific Quantity:
   Zoning Change:

Trip Generation Summary					
	City of Novi Threshold	**Estimated Trips (Permitted under existing zoning)**	**Estimated Trips (Permitted under proposed zoning)**	**Proposed Development**	**Analysis**
AM Peak-Hour, Peak-Direction Trips	100	59	N/A	33	

PM Peak-Hour, Peak-Direction Trips	100	77	N/A	38	
Daily (One-Directional) Trips	750	756	N/A	369	

2. The number of trips does not exceed the City's threshold of more than 750 trips per day or 100 trips per either the AM or PM peak hour. AECOM recommends performing the following traffic impact study in accordance with the City's requirements:

Traffic Impact Study Recommendation	
Type of Study	**Justification**
None	N/A

EXTERNAL SITE ACCESS AND OPERATIONS

The following comments relate to the external interface between the proposed development and the surrounding roadway(s).

1. The Montebello Court entrance meets the City's entrance requirements.
2. There are no warranted modifications to the external roadway such as turn lanes or tapers.
3. Adequate sight distance is provided at the Montebello Court entrance.
4. Driveway spacing meets the requirements provided in the City's Code of Ordinances.
5. The number of access points provided is within City of Novi standards.

INTERNAL SITE OPERATIONS

The following comments relate to the on-site design and traffic flow operations.

1. General traffic flow
    a. Trucks and emergency vehicles can maneuver throughout the site.
    b. Cul-de-sacs are designed to the standards required by the City of Novi.
    c. No parking signs will be placed on both sides of the eyebrows.
2. Road widths and turning radii are within City of Novi requirements
3. Sidewalk Requirements
    a. Sidewalks throughout the site are 5 feet wide, which is the minimum required width by the City of Novi.
    b. Consider placing ADA ramps at the sidewalk crossing at the Montebello Court entrance.
    c. The applicant plans on requesting a variance related to the relocation of the Nine Mile Rd sidewalk.
    d. There are adequate sidewalk connections and stubs.
4. All on-site signing and pavement markings are in compliance with the Michigan Manual on Uniform Traffic Control Devices.

AECOM

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

AECOM

Sterling J. Frazier, E.I.T.
Reviewer, Traffic/ITS Engineer

Matthew G. Klawon, PE
Manager, Traffic Engineering and ITS Engineering Services

TRAFFIC IMPACT STUDY REVIEW

AECOM
27777 Franklin Road
Suite 2000
Southfield, MI 48034
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248.204.5900 tel
248.204.5901 fax

March 9, 2016

Barbara McBeth, AICP
Deputy Director of Community Development
City of Novi
45175 W. 10 Mile Road
Novi, MI 48375

SUBJECT: Montebello Traffic Impact Statement Review
PSP15-0076

Dear Ms. McBeth,

The traffic impact study (TIS) was reviewed to the level of detail provided and AECOM **recommends approval** for the applicant to move forward with the condition that the comments provided below are adequately addressed to the satisfaction of the City.

General TIS Comments:

1. The site is expected to generate 369 daily trips with 59 trips during the AM peak hour and 77 trips during the PM peak hour.
2. Study intersections include:
    a. Nine Mile Road and Center Street
    b. Nine Mile Road and Plaisance Boulevard
    c. Nine Mile Road and N. Hills Drive
    d. Nine Mile Road and Montebello Court (*proposed)*
3. All study intersections meet the required 340 feet of sight distance in both directions
4. Existing, background, and future conditions indicate that all study intersections will operate at a LOS C or better during both peak periods.
5. A right turn deceleration lane nor a left-turn passing lane are required at Nine Mile Road and Montebello Court.
    a. Left turn queuing has adequate storage areas based on 95th percentile queue lengths.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

AECOM

Sincerely,

AECOM

Sterling J. Frazier, E.I.T.
Reviewer, Traffic/ITS Engineer

Matthew G. Klawon, PE
Manager, Traffic Engineering and ITS Engineering Services

TRAFFIC IMPACT STUDY
From Applicant

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

Memo

VIA EMAIL

To:	**Mr. Claudio Rossi** **Mirage Development, LLC**
From:	**Michael J. Labadie, PE** **Julie M. Kroll, PE, PTOE** **Fleis & VandenBrink**
Date:	**February 19, 2016**
Re:	Montebello Estates Residential Development Novi, Michigan Traffic Impact Statement

Introduction

This memorandum presents the results of the Traffic Impact Statement (TIS) for the proposed Montebello Estates residential development in Novi, Michigan. The project site is located in the northeast quadrant of the 9 Mile Road & Center Street intersection. The proposed project includes 32 single-family homes and site access will be provided via one proposed site driveway on 9 Mile Road.

9 Mile Road is under the jurisdiction of the City of Novi. This TIS has been completed to identify the impacts (if any) of the proposed development on the following study intersections:

- 9 Mile Road & Center Street,
- 9 Mile Road & Plaisance Boulevard,
- 9 Mile Road & N. Hills Drive, and
- The proposed site driveway.

The scope of the study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practice and methodologies published by the Institute of Transportation Engineers (ITE). Additionally, F&V solicited input regarding the scope of work from the City of Novi and their traffic consultant (AECOM).

Data Collection

The existing weekday turning movement traffic volume data were collected by F&V on Wednesday February 10, 2016. Intersection turning movement counts were collected during the weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods at study intersections. F&V also collected an inventory of existing lane use and traffic controls at the study intersections. The existing AM and PM peak hour traffic volumes were identified based on the data collected. Peak hour turning movement volumes at each intersection were utilized for this study.

Existing Conditions

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro (Version 9) traffic analysis software. This analysis was based on the existing lane use and traffic control shown on the attached Figure 1, the existing peak hour traffic volumes shown on the attached Figure 2, and the methodologies presented in the *Highway Capacity Manual 2010* (HCM). Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. The results of the existing conditions analysis are attached and summarized in Table 1.

27725 Stansbury Boulevard, Suite 150
Farmington Hills, MI 48334
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Table 1: Existing Intersection Operations

Intersection	Control	Approach	AM Peak Delay (s/veh)	AM Peak LOS	PM Peak Delay (s/veh)	PM Peak LOS
1. 9 Mile Road & N. Hills Road	STOP (Minor)	EB	Free		Free	
		WB LT	8.4	A	7.7	A
		NB	12.3	B	10.3	B
2. 9 Mile Road & Plaisance Boulevard	STOP (Minor)	EB LT	0*	A	8.4	A
		WB	Free		Free	
		SB	19.1	C	14.8	B
3. 9 Mile Road & Center Street	STOP (Minor)	EB	Free		Free	
		WB LT	8.5	A	7.8	A
		NB	16.2	C	17.0	C

* - No Volume Present

The results of the existing conditions analysis indicate all study intersection approaches and movements operate acceptably at a LOS C or better during the peak periods. A review of network simulations indicates acceptable traffic operations during both peak periods with no left-turn inlock observed at the existing study intersections.

Background Conditions

In order to determine the applicable traffic growth rate for the existing traffic volumes to project build-out, historical traffic data in the vicinity of the project was referenced. Historical traffic volume data was available from the Road Commission for Oakland County (RCOC) Transportation Data Management System (TDMS) at the adjacent intersection of 9 Mile Road & Novi Road, located approximately ½ mile east of the proposed site. The average annual growth rate from 2009 to 2014 was approximately 1%; therefore, this growth rate was applied to the existing 2016 traffic volumes to determine the background traffic volumes at the project build-out year of 2021 shown on Figure 3.

Future peak hour vehicle delays and LOS ***without the proposed development*** were calculated based on the existing lane use and traffic control shown on Figure 1, the background traffic volumes shown on Figure 3, and the methodologies presented in the HCM. The results of the analysis of background conditions are attached and are summarized in Table 2.

Table 2: Background Intersection Operations

Intersection	Control	Approach	AM Peak Delay (s/veh)	AM Peak LOS	PM Peak Delay (s/veh)	PM Peak LOS
1. 9 Mile Road & N. Hills Road	STOP (Minor)	EB	Free		Free	
		WB LT	8.5	A	7.7	A
		NB	12.5	B	10.5	B
2. 9 Mile Road & Plaisance Boulevard	STOP (Minor)	EB LT	0*	A	8.5	A
		WB	Free		Free	
		SB	20.5	C	15.4	C
3. 9 Mile Road & Center Street	STOP (Minor)	EB	Free		Free	
		WB LT	8.6	A	7.8	A
		NB	17.2	C	18.2	C

* No Volume Present

The results of the background conditions analysis indicate all intersection delays and LOS will be similar to existing conditions and any increases in delay would not be discernable. Additionally, review of network simulations indicates acceptable traffic operations during both peak periods and significant vehicle queues are not observed.

Site Trip Generation Analysis

The number of AM and PM peak hour vehicle trips that would be generated by the proposed development was forecast based on data published by ITE in *Trip Generation, 9th Edition.* The site trip generation forecast for the site development is summarized in Table 3.

Table 3: Site Trip Generation

Land Use	ITE Code	Amount	Units	Average Daily Traffic	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Single-Family Residential	210	32	D.U.	368	8	24	32	24	14	38

The vehicle trips that would be generated by the proposed development were assigned to the study road network based on existing peak hour traffic patterns and the methodologies published by ITE. This methodology indicates new trips will enter and exit the development and return to their direction of origin. The distribution of site-generated traffic is summarized in Table 4.

Table 4: Site Trip Distribution

To / From	via	AM	PM
East	9 Mile Road	70%	70%
West	9 Mile Road	30%	30%
		100%	100%

The site-generated vehicle trips shown on the attached Figure 4 were added to the background traffic volumes shown on the attached Figure 3 to calculate the future peak hour traffic volumes shown on the attached Figure 5.

Future Conditions

Future peak hour vehicle delays and LOS ***with the proposed development*** were calculated based on the existing lane use and traffic control, the future traffic volumes, the proposed site access plan, and the methodologies presented in the HCM. Additionally, SimTraffic simulations were utilized to evaluate network operations and vehicle queues. The results of the analysis of future conditions are attached and are summarized in Table 5.

Table 5: Future Intersection Operations

Intersection	Control	Approach	AM Peak Delay (s/veh)	AM Peak LOS	PM Peak Delay (s/veh)	PM Peak LOS
1. 9 Mile Road & N. Hills Road	STOP (Minor)	EB	Free		Free	
		WB LT	8.5	A	7.7	A
		NB	12.6	B	10.5	B
2. 9 Mile Road & Plaisance Boulevard	STOP (Minor)	EB LT	0*	A	8.5	A
		WB	Free		Free	
		SB	21.0	C	15.6	C
3. 9 Mile Road & Center Street	STOP (Minor)	EB	Free		Free	
		WB LT	8.6	A	7.8	A
		NB	17.4	C	18.5	C
4. 9 Mile Road & Site Drive	STOP (Minor)	EB LT	8.0	A	8.7	A
		WB	Free		Free	
		SB	16.0	C	15.5	C

* No Volume Present

The future conditions results indicate the proposed development would not have a significant impact on the study intersections and driveways. Future vehicle delays and LOS as shown in Table 5 would be similar to

background conditions and any increases in delay would not be discernable. Additionally, review of network simulations indicates acceptable traffic operations during both peak periods and significant vehicle queues are not observed.

Access Management

The corner sight distance at all study intersections were evaluated according the requirements outlined in the City of Novi Code of Ordinances (Figure VIII-E). According to these requirements, the minimum sight distance is 340 feet in both directions. All of the study intersections meet this minimum requirement and the results of the analysis are shown on the attached Figures 6A-D.

The proposed Montebello Estates site drive was also evaluated according to the spacing requirements outlined in the City of Novi Code of Ordinances (Figure IX.12). The proposed site drive on 9 Mile Road has a driveway offset to the adjacent Center Street intersection of 150 feet and does not meet the desirable corner clearance of 200 feet. The offset between these two intersections provides approximately 135 feet of available center left-turn lane storage. The SimTraffic simulations were evaluated at these intersections with the addition of the proposed site generated traffic volumes to determine if left-turn conflicts would impact the operations of the proposed Site Drive or the Center Street intersection. The traffic simulation indicates there will be no left-turn conflicts and the close proximity of these intersections will not impact the operations. The results of this analysis are summarized in Table 6 and Sim Traffic results are attached.

Table 6: Vehicle Queue Lengths (Feet)

Intersection	Approach / Lane	Available Storage	AM Peak Avg Queue	AM Peak 95th Queue	PM Peak Avg Queue	PM Peak 95th Queue
Proposed Site Drive	EB LT	135	0*	6	6	32
Center Street	WB LT	135	12	49	16	58

*Low Volume Present

The site drive on 9 Mile was evaluated for a right-turn lane or taper and a left-turn passing lane according the guidelines outlined in City of Novi Code of Ordinances (Figures IX.8 and IX.10). The results of this analysis indicate neither a right-turn lane nor left-turn passing lane are required.

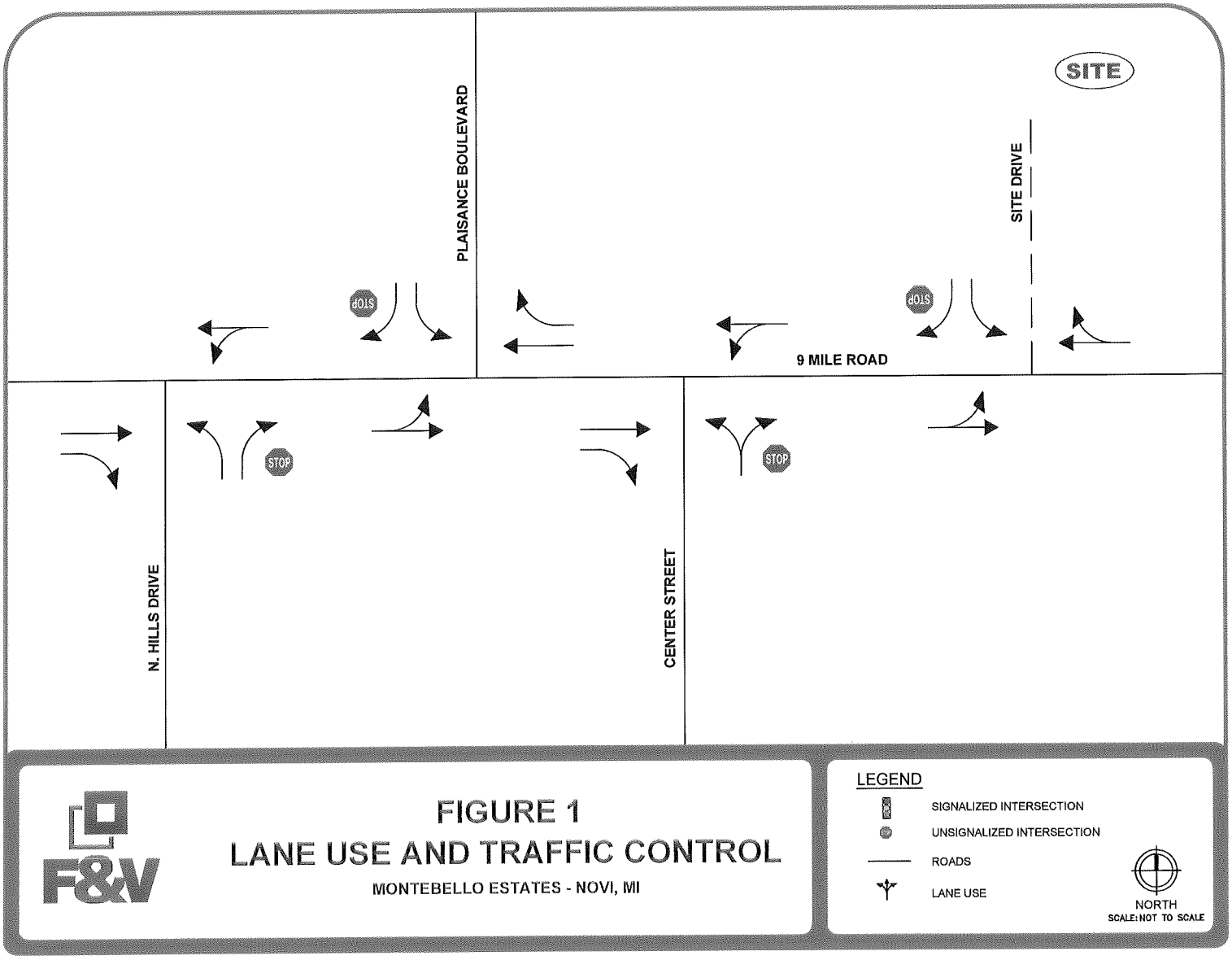
Conclusions

The conclusions of this Traffic Impact Statement are as follows:

1. All intersection approaches and movements currently operate acceptably at a LOS C or better during both peak periods. Review of network simulations indicates acceptable traffic operations during both peak periods and significant vehicle queues are not observed.
2. The background conditions results indicate all intersection delays and LOS will be similar to existing conditions and any increases in delay would not be discernable.
3. The future conditions results indicate the proposed development will not have a significant impact on the study intersections and driveways. All study intersections will operate at a LOS C or better during both peak periods and any increases in delay would not be discernable.
4. All study intersections meet the City of Novi sight distance requirements of 340 feet in both directions.
5. The proposed site drive on 9 Mile Road has a driveway offset to the adjacent Center Street intersection of 150 feet and does not meet the desirable corner clearance of 200 feet; however, the traffic simulation indicates there will be no left-turn conflicts and the close proximity of these driveways will not impact the operations of these intersections with 9 Mile Road.
6. Neither a right-turn lane nor left-turn passing lane are required at the Site Drive on 9 Mile Road.

Attached: Figures 1-6
Traffic Volume Data
Synchro / Sim Traffic Results
Turn Lane Warrants

CKS:jmk:mjl



F&V

FIGURE 1
LANE USE AND TRAFFIC CONTROL

MONTEBELLO ESTATES - NOVI, MI

LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- ROADS
- LANE USE

NORTH

SCALE: NOT TO SCALE

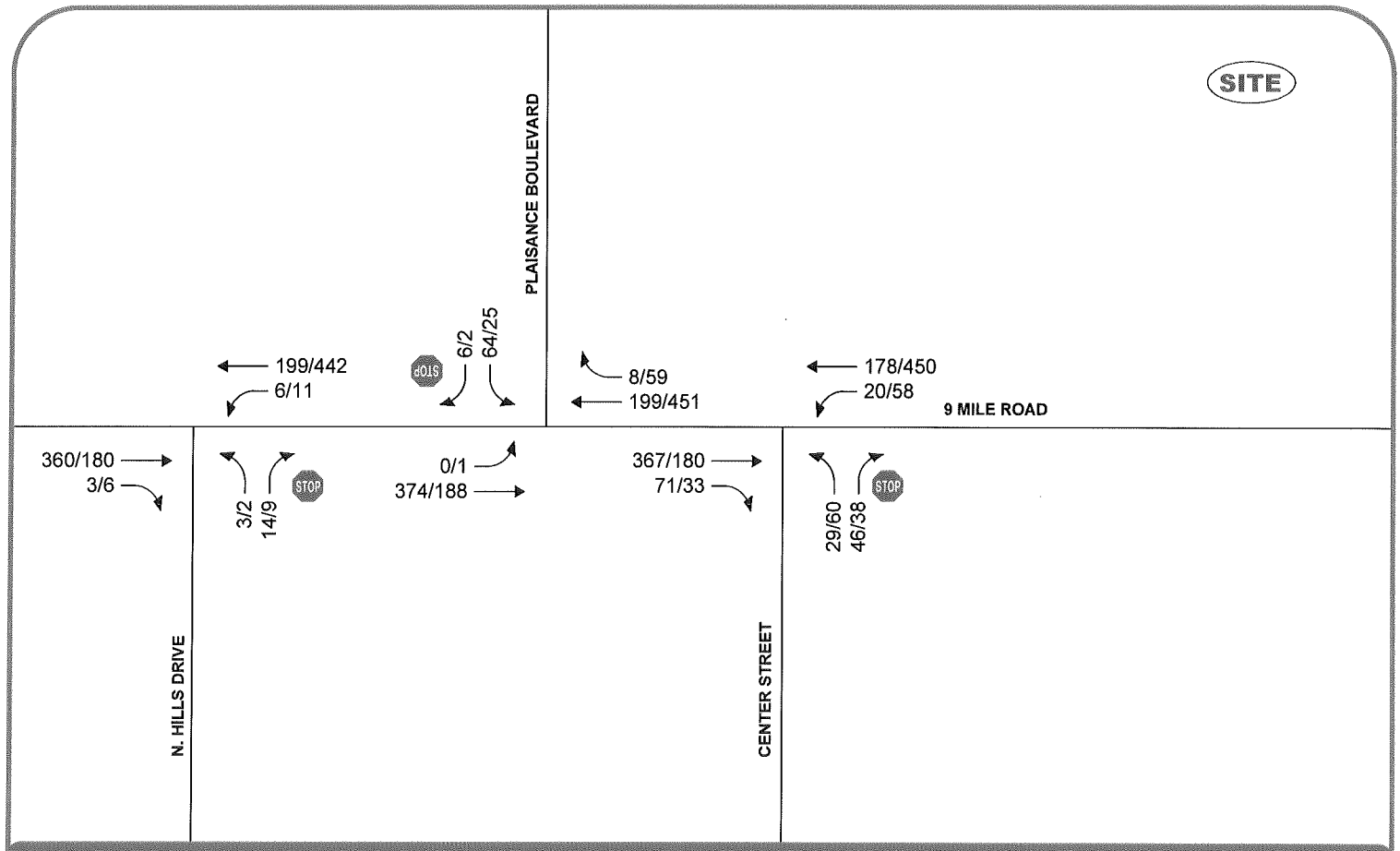


FIGURE 2
EXISTING TRAFFIC VOLUMES

MONTEBELLO ESTATES - NOVI, MI

LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

NORTH
SCALE: NOT TO SCALE

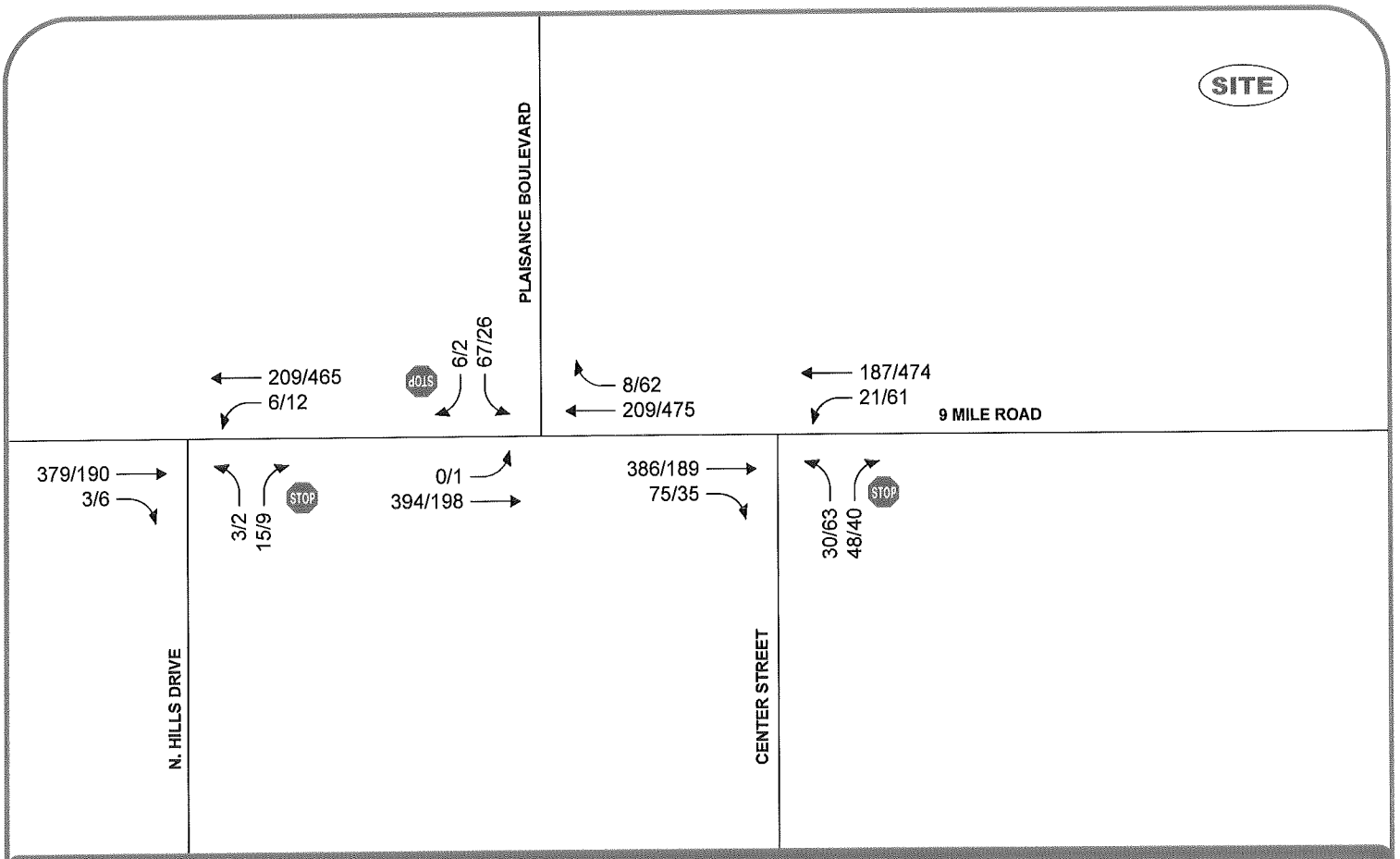


FIGURE 3
BACKGROUND TRAFFIC VOLUMES

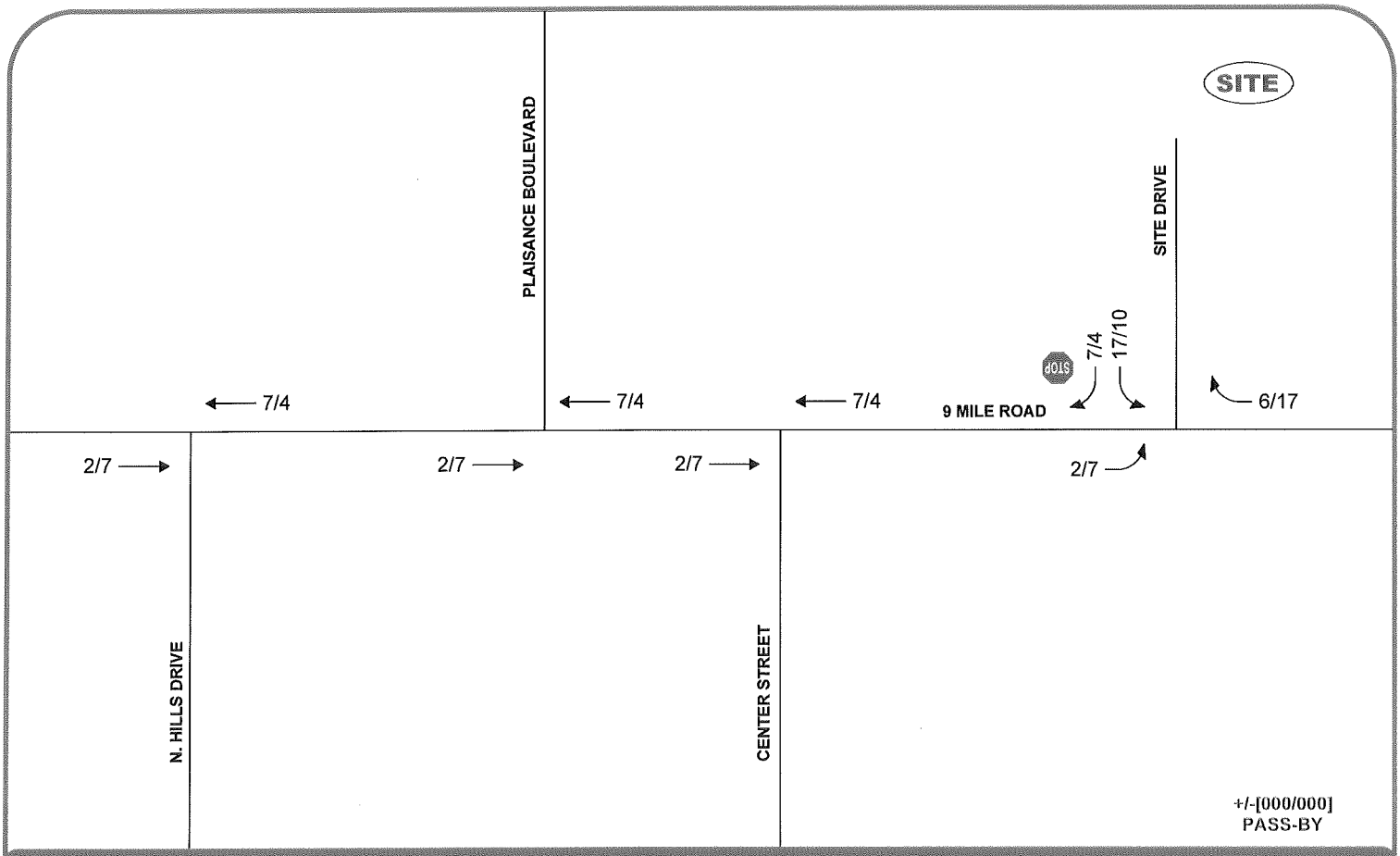
MONTEBELLO ESTATES - NOVI, MI

LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

NORTH

SCALE: NOT TO SCALE



F&V

FIGURE 4
SITE-GENERATED TRAFFIC VOLUMES

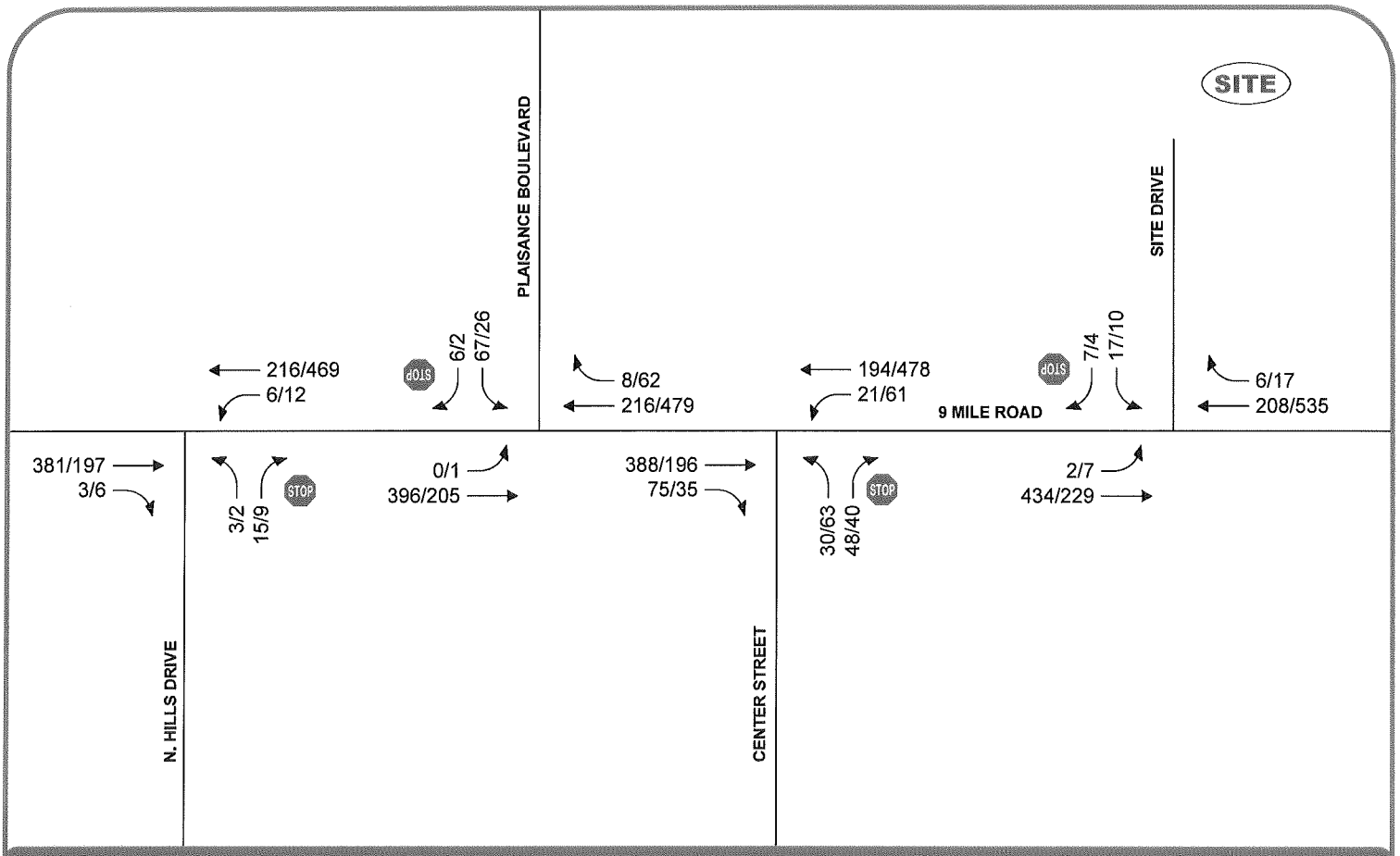
MONTEBELLO ESTATES - NOVI, MI

LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

NORTH

SCALE: NOT TO SCALE



F&V

FIGURE 5
FUTURE TRAFFIC VOLUMES

MONTEBELLO ESTATES - NOVI, MI

LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

NORTH

SCALE: NOT TO SCALE

F&V

FIGURE 6A
CORNER SIGHT DISTANCE

MONTEBELLO ESTATES - NOVI, MI

LEGEND

SITE — SITE LOCATION

ELEVATION (FEET)

NORTH

SCALE: NOT TO SCALE

F&V

FIGURE 6B
CORNER SIGHT DISTANCE

MONTEBELLO ESTATES - NOVI, MI

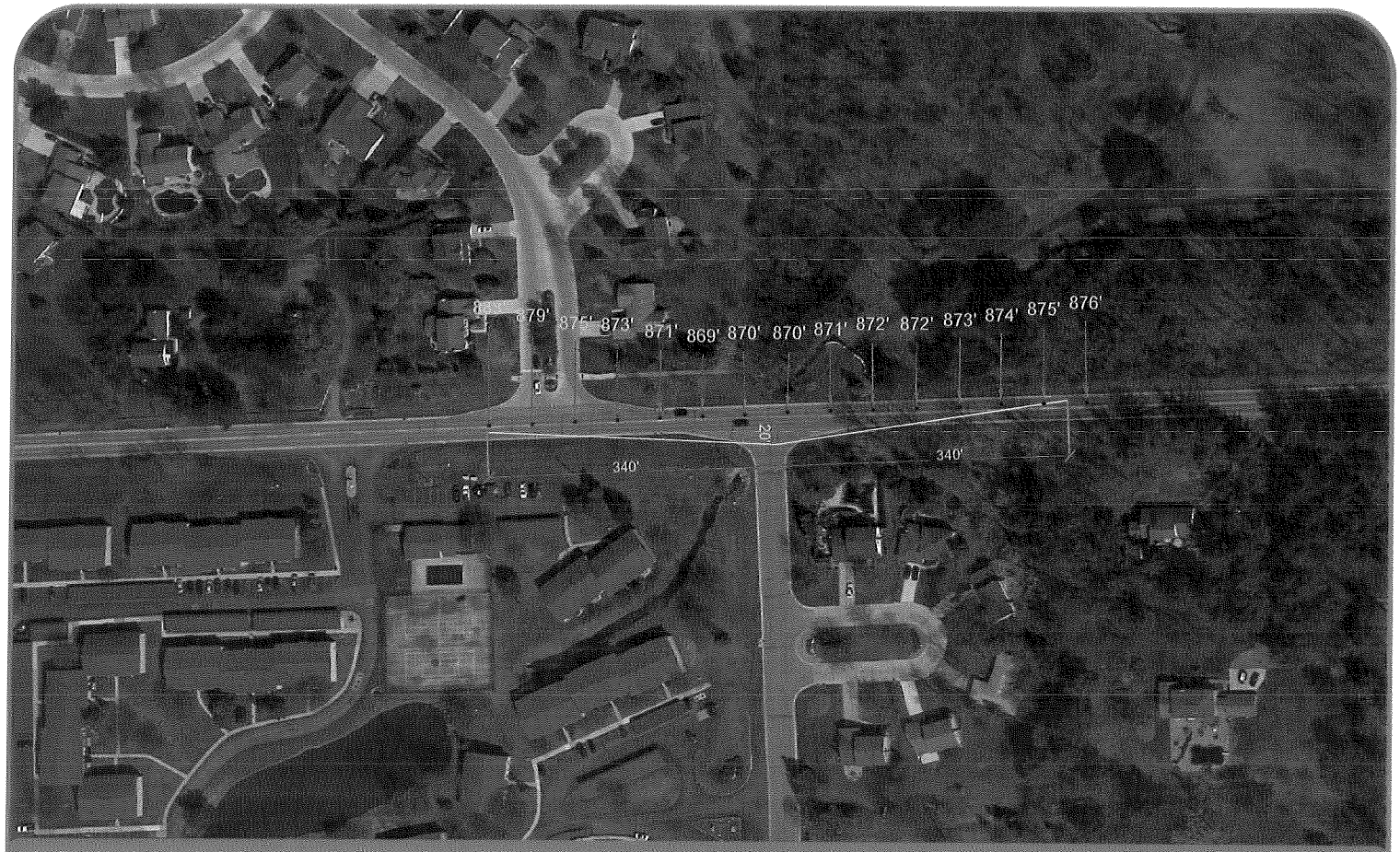
LEGEND

SITE — SITE LOCATION

ELEVATION (FEET)

NORTH

SCALE: NOT TO SCALE



F&V

FIGURE 6C
CORNER SIGHT DISTANCE

MONTEBELLO ESTATES - NOVI, MI

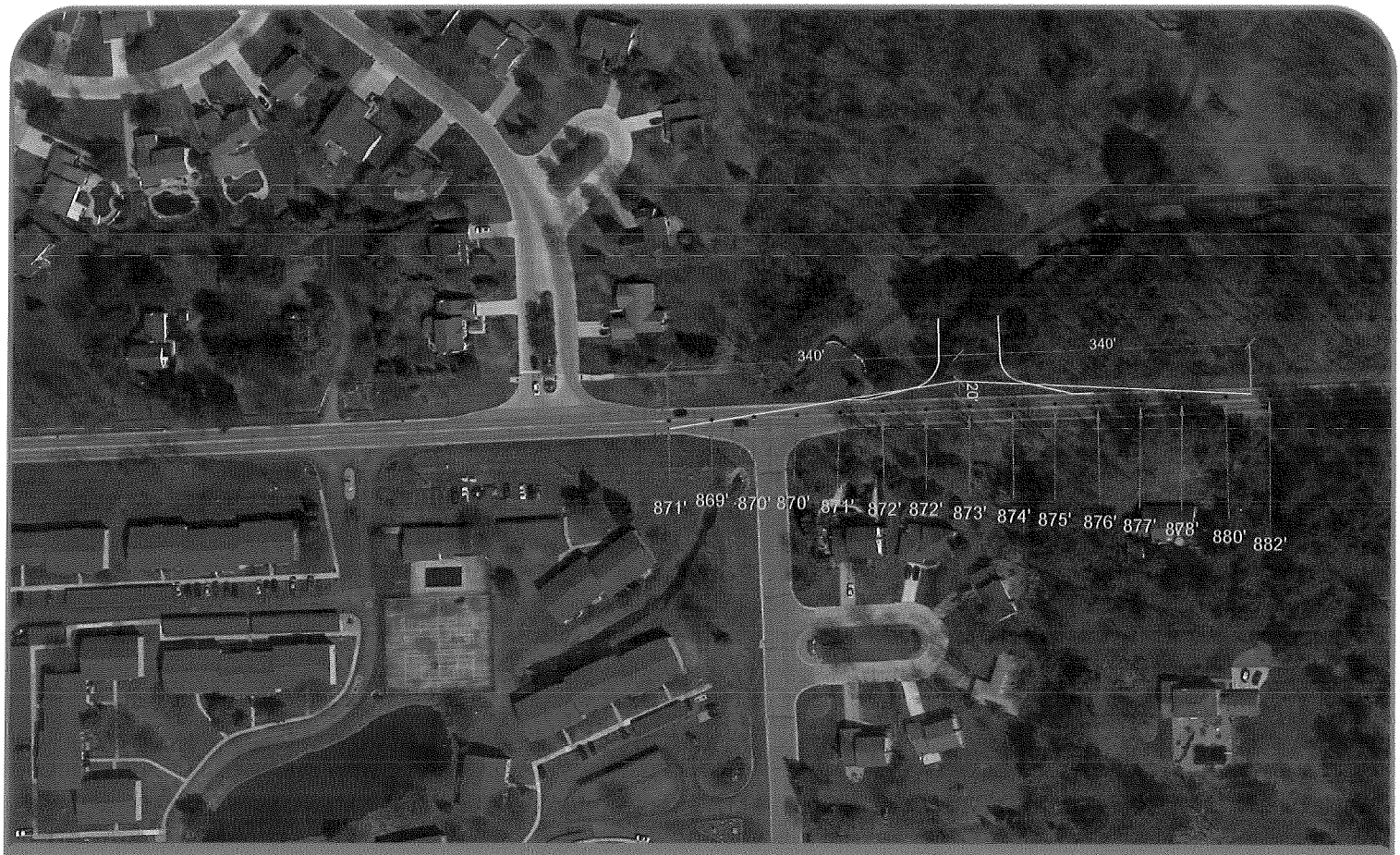
LEGEND

SITE — SITE LOCATION

ELEVATION (FEET)

NORTH

SCALE: NOT TO SCALE



F&V

FIGURE 6D
CORNER SIGHT DISTANCE

MONTEBELLO ESTATES - NOVI, MI

LEGEND

SITE SITE LOCATION

ELEVATION (FEET)

NORTH

SCALE: NOT TO SCALE

Fleis & VandenBrink Engineering, Inc.

27725 Stansbury Blvd, Suite 150
Farmington Hills, MI 48334

File Name : 9 mile road & center street
Site Code : 00000000
Start Date : 2/10/2016
Page No : 1

Project: Montebello Estates
Weather: Cloudy, Low 30s
Location: 9 Mile & Center St

Groups Printed- Unshifted

	CENTER STREET Southbound					9 MILE ROAD Westbound					CENTER STREET Northbound					9 MILE ROAD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	0	0	0	96	2	0	98	8	0	4	0	12	11	76	0	0	87	197
07:15 AM	0	0	0	0	0	0	29	3	0	32	7	0	8	0	15	8	101	0	0	109	156
07:30 AM	0	0	0	0	0	0	16	6	0	22	14	0	5	0	19	21	73	0	0	94	135
07:45 AM	0	0	0	0	0	0	37	9	0	46	17	0	12	0	29	31	117	0	0	148	223
Total	0	0	0	0	0	0	178	20	0	198	46	0	29	0	75	71	367	0	0	438	711
08:00 AM	0	0	0	0	0	0	29	7	0	36	14	0	10	0	24	10	98	0	0	108	168
08:15 AM	0	0	0	0	0	0	31	10	0	41	13	0	3	0	16	7	90	0	0	97	154
08:30 AM	0	0	0	0	0	0	16	7	0	23	14	0	6	0	20	7	70	0	0	77	120
08:45 AM	0	0	0	0	0	0	37	3	0	40	24	0	9	0	33	10	90	0	0	100	173
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04:00 PM	0	0	0	0	0	0	74	8	0	82	8	0	5	0	13	6	36	0	0	42	137
04:15 PM	0	0	0	0	0	0	60	7	0	67	10	0	9	0	19	9	45	0	0	54	140
04:30 PM	0	0	0	0	0	0	101	16	0	117	7	0	9	0	16	6	34	0	0	40	173
04:45 PM	0	0	0	0	0	0	86	13	0	99	10	0	9	0	19	5	47	0	0	52	170
Total	0	0	0	0	0	0	321	44	0	365	35	0	32	0	67	26	162	0	0	188	620
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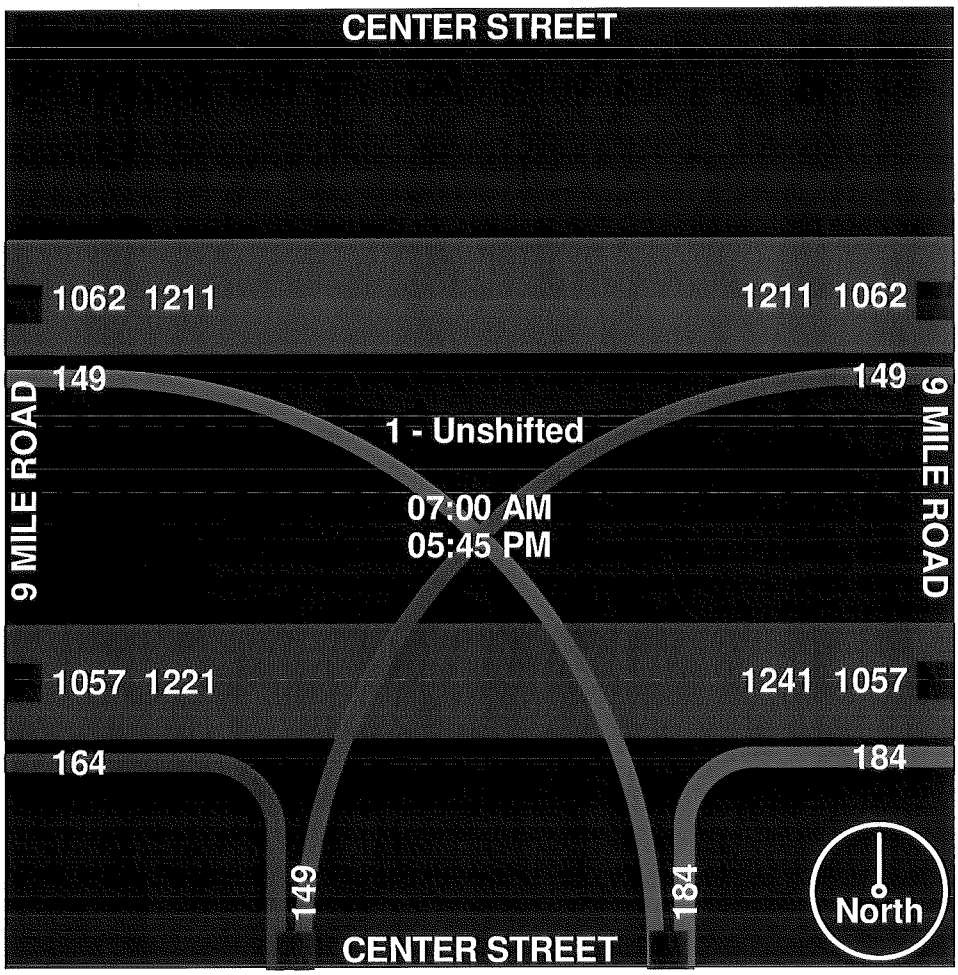
05:15 PM	0	0	0	0	0	0	111	16	0	127	10	0	20	0	30	8	53	0	0	61	218
05:30 PM	0	0	0	0	0	0	105	11	0	116	9	0	13	0	22	9	47	0	0	56	194
05:45 PM	0	0	0	0	0	0	124	16	0	140	7	0	17	0	24	4	38	0	0	42	206
Total	0	0	0	0	0	0	450	58	0	508	38	0	60	0	98	33	180	0	0	213	819
Grand Total	0	0	0	0	0	0	1062	149	0	1211	184	0	149	0	333	164	1057	0	0	1221	2765
Apprch %	0.0	0.0	0.0	0.0		0.0	87.7	12.3	0.0		55.3	0.0	44.7	0.0		13.4	86.6	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	38.4	5.4	0.0	43.8	6.7	0.0	5.4	0.0	12.0	5.9	38.2	0.0	0.0	44.2	

Fleis & VandenBrink Engineering, Inc.
27725 Stansbury Blvd, Suite 150
Farmington Hills, MI 48334

File Name : 9 mile road & center street
Site Code : 00000000
Start Date : 2/10/2016

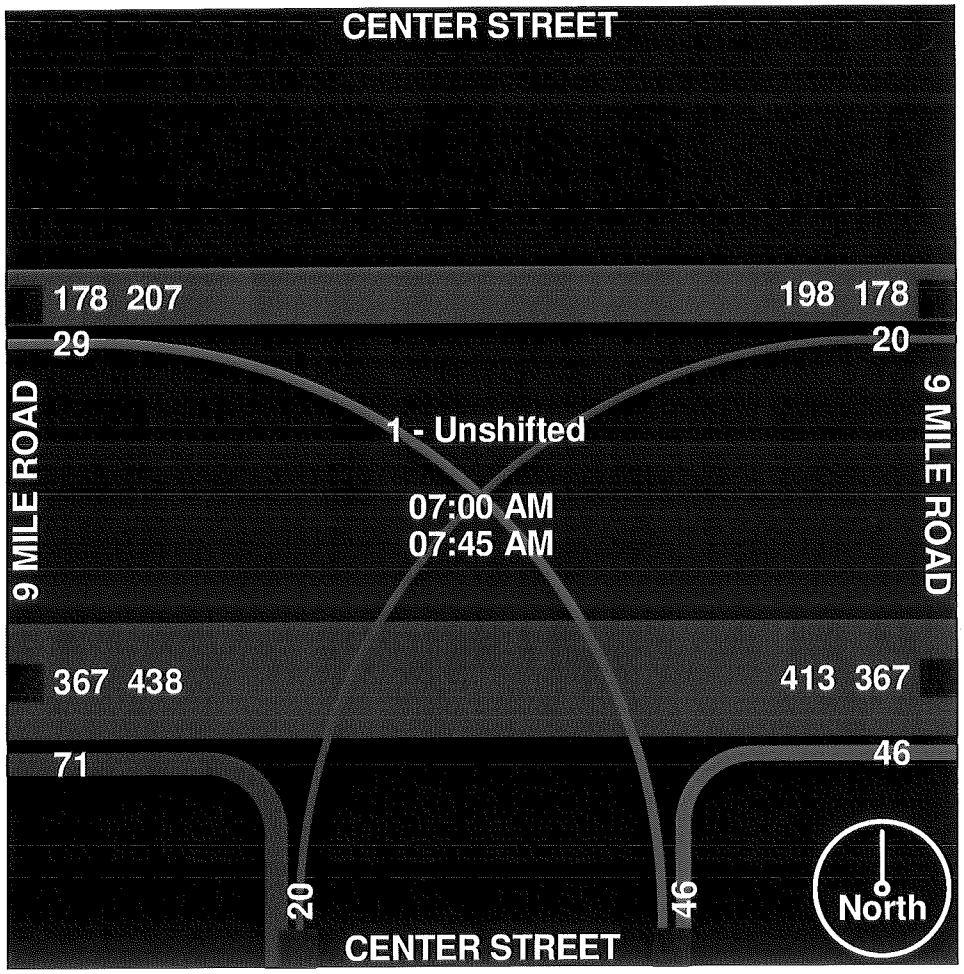


Fleis & VandenBrink Engineering, Inc.

27725 Stansbury Blvd, Suite 150
Farmington Hills, MI 48334

File Name : 9 mile road & center street
Site Code : 00000000
Start Date : 2/10/2016
Page No : 3

	CENTER STREET Southbound					9 MILE ROAD Westbound					CENTER STREET Northbound					9 MILE ROAD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	0	0	0	0	0	0	178	20	0	198	46	0	29	0	75	71	367	0	0	438	711
Percent	0.0	0.0	0.0	0.0		0.0	89.9	10.1	0.0		61.3	0.0	38.7	0.0		16.2	83.8	0.0	0.0		
07:45 Volume	0	0	0	0	0	0	37	9	0	46	17	0	12	0	29	31	117	0	0	148	223
Peak Factor																					0.797
High Int.	6:45:00 AM					07:00 AM					07:45 AM					07:45 AM					
Volume	0	0	0	0	0	0	96	2	0	98	17	0	12	0	29	31	117	0	0	148	
Peak Factor										0.505					0.647					0.740	



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File Name : 9 mile road & center street
Site Code : 00000000
Start Date : 2/10/2016
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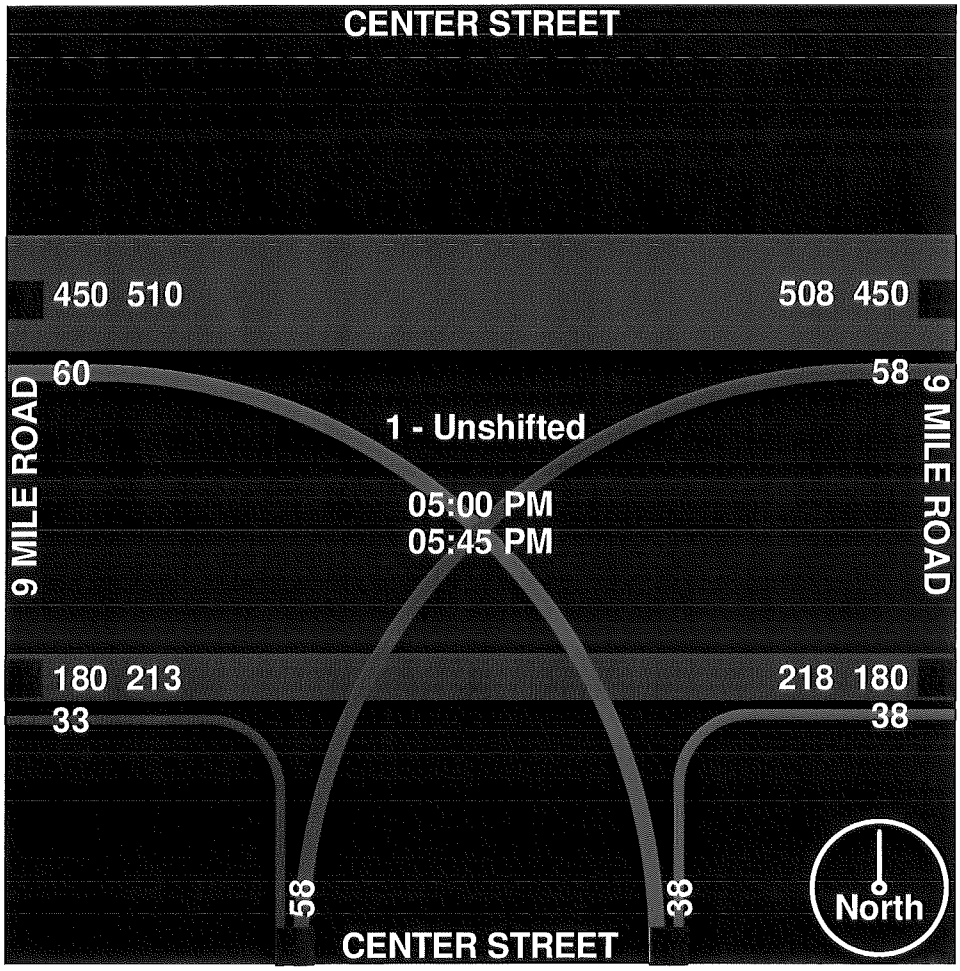
	CENTER STREET Southbound					9 MILE ROAD Westbound					CENTER STREET Northbound					9 MILE ROAD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection 05:00 PM																					
Volume	0	0	0	0	0	0	450	58	0	508	38	0	60	0	98	33	180	0	0	213	819
Percent	0.0	0.0	0.0	0.0		0.0	88.6	11.4	0.0		38.8	0.0	61.2	0.0		15.5	84.5	0.0	0.0		
05:15 Volume	0	0	0	0	0	0	111	16	0	127	10	0	20	0	30	8	53	0	0	61	218
Peak Factor																					0.939
High Int.						05:45 PM					05:15 PM					05:15 PM					
Volume	0	0	0	0	0	0	124	16	0	140	10	0	20	0	30	8	53	0	0	61	
Peak Factor										0.907					0.817					0.873	



Fleis & VandenBrink Engineering, Inc.

27725 Stansbury Blvd, Suite 150
Farmington Hills, MI 48334

File Name : 9 mile road & hills-plaisance
Site Code : 00000000
Start Date : 2/10/2016
Page No : 1

Project: Montebello Estates
Weather: Cloudy, Low 30s
Location: 9 Mile & Hills/Plaisance

Groups Printed- Unshifted

	PLAISANCE BOULEVARD Southbound					9 MILE ROAD Westbound					N. HILLS DRIVE Northbound					9 MILE ROAD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	2	0	15	0	17	3	0	2	0	5	1	0	1	0	2	1	0	0	0	1	25
07:15 AM	1	0	10	0	11	2	0	1	0	3	4	0	0	0	4	1	0	0	0	1	19
07:30 AM	3	0	13	0	16	0	0	0	0	0	1	0	2	0	3	1	0	0	0	1	20
07:45 AM	0	0	26	0	26	3	0	3	0	6	8	0	0	0	8	0	0	0	0	0	40
Total	6	0	64	0	70	8	0	6	0	14	14	0	3	0	17	3	0	0	0	3	104
08:00 AM	0	0	8	0	8	4	0	0	0	4	4	0	2	0	6	0	0	0	0	0	18
08:15 AM	0	0	7	0	7	2	0	0	0	2	2	0	1	0	3	0	0	0	0	0	12
08:30 AM	1	0	5	0	6	3	0	0	0	3	4	0	2	0	6	0	0	0	0	0	15
08:45 AM	2	0	6	0	8	3	0	0	0	3	4	0	3	0	7	0	0	0	0	0	18
Total	3	0	26	0	29	12	0	0	0	12	14	0	8	0	22	0	0	0	0	0	63
04:00 PM	1	0	0	0	1	7	0	0	0	7	5	0	0	0	5	1	0	1	0	2	15
04:15 PM	0	0	10	0	10	4	0	2	0	6	4	0	0	0	4	1	0	2	0	3	23
04:30 PM	0	0	5	0	5	9	0	5	0	14	0	0	1	0	1	3	0	1	0	4	24
04:45 PM	0	0	6	0	6	7	0	2	0	9	2	0	3	0	5	1	0	0	0	1	21
Total	1	0	21	0	22	27	0	9	0	36	11	0	4	0	15	6	0	4	0	10	83
05:00 PM	0	0	6	0	6	8	0	2	0	10	2	0	1	0	3	0	0	0	0	0	19
05:15 PM	2	0	7	0	9	17	0	5	0	22	1	0	0	0	1	3	0	1	0	4	36
05:30 PM	0	0	1	0	1	13	0	2	1	16	4	0	1	0	5	1	0	0	0	1	23
05:45 PM	0	0	11	0	11	21	0	2	0	23	2	0	0	0	2	2	0	0	0	2	38
Total	2	0	25	0	27	59	0	11	1	71	9	0	2	0	11	6	0	1	0	7	116
Grand Total	12	0	136	0	148	106	0	26	1	133	48	0	17	0	65	15	0	5	0	20	366
Apprch %	8.1	0.0	91.9	0.0		79.7	0.0	19.5	0.8		73.8	0.0	26.2	0.0		75.0	0.0	25.0	0.0		
Total %	3.3	0.0	37.2	0.0	40.4	29.0	0.0	7.1	0.3	36.3	13.1	0.0	4.6	0.0	17.8	4.1	0.0	1.4	0.0	5.5	

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File Name : 9 mile road & hills-plaisance
Site Code : 00000000
Start Date : 2/10/2016
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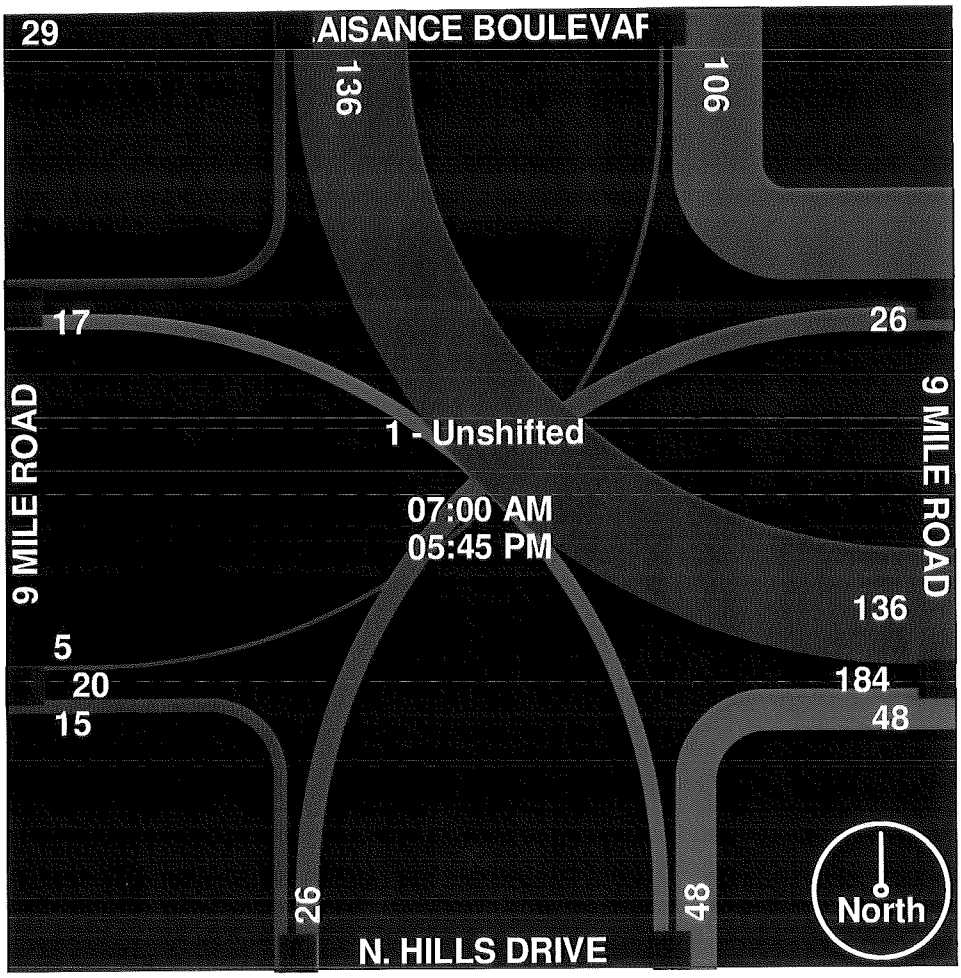

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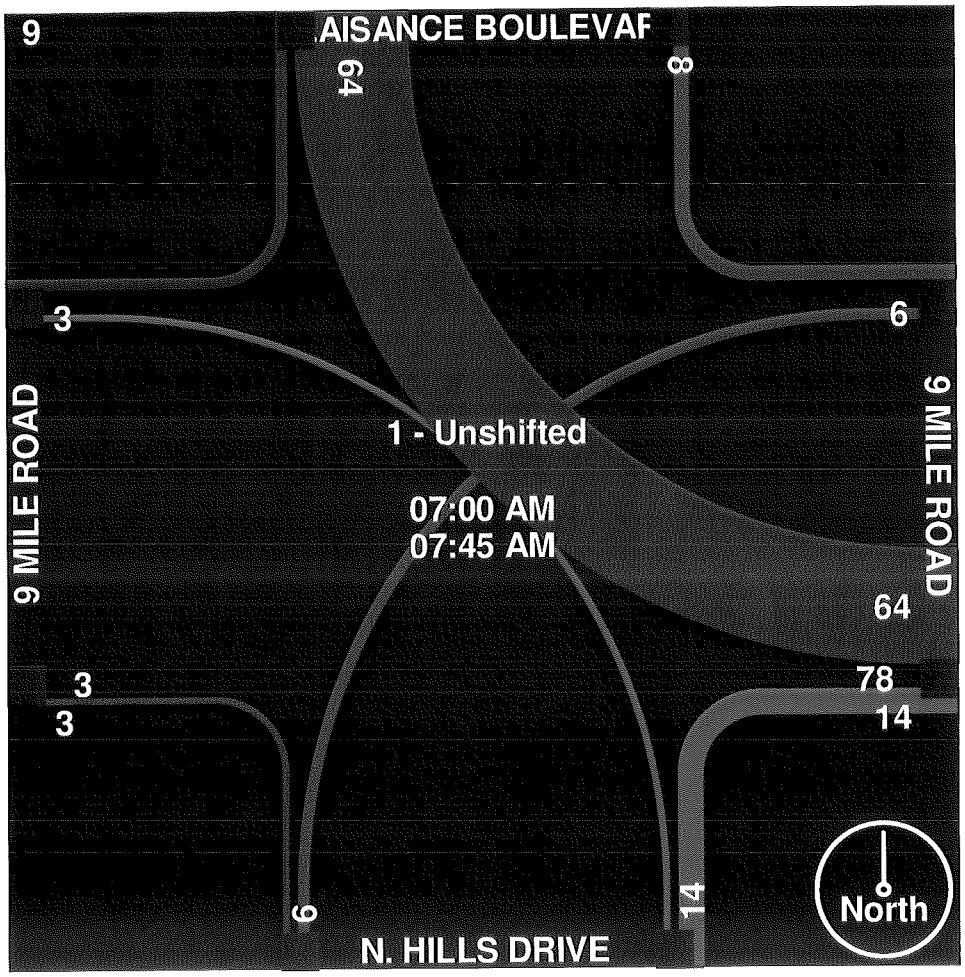
Farmington Hills, MI 48334

File Name : 9 mile road & hills-plaisance
Site Code : 00000000
Start Date : 2/10/2016

	PLAISANCE BOULEVARD Southbound					9 MILE ROAD Westbound					N. HILLS DRIVE Northbound					9 MILE ROAD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection 07:00 AM																					
Volume	6	0	64	0	70	8	0	6	0	14	14	0	3	0	17	3	0	0	0	3	104
Percent	8.6	0.0	91.4	0.0		57.1	0.0	42.9	0.0		82.4	0.0	17.6	0.0		100.0	0.0	0.0	0.0		
07:45 Volume	0	0	26	0	26	3	0	3	0	6	8	0	0	0	8	0	0	0	0	0	40
Peak Factor																					0.650
High Int.	07:45 AM					07:45 AM					07:45 AM					07:00 AM					
Volume	0	0	26	0	26	3	0	3	0	6	8	0	0	0	8	1	0	0	0	1	
Peak Factor					0.673					0.583					0.531					0.750	



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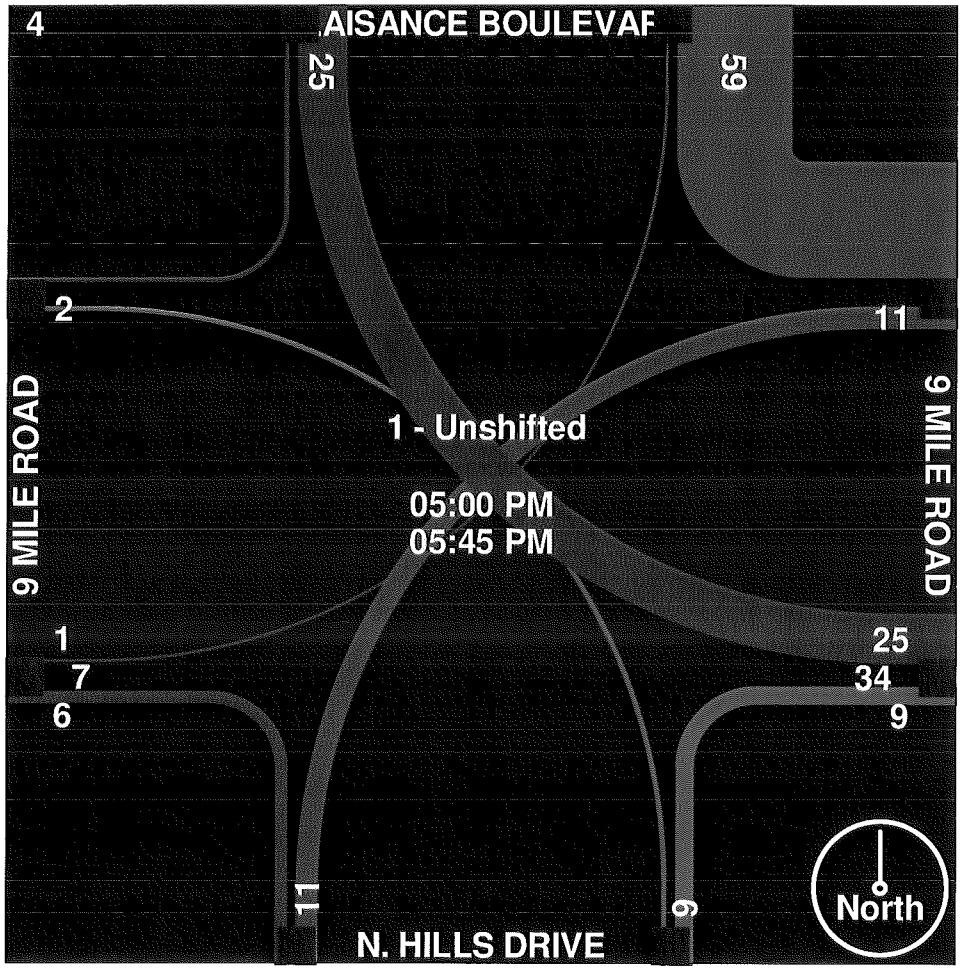
27725 Stansbury Blvd, Suite 150
Farmington Hills, MI 48334

File Name : 9 mile road & hills-plaisance
Site Code : 00000000
Start Date : 2/10/2016

	PLAISANCE BOULEVARD Southbound					9 MILE ROAD Westbound					N. HILLS DRIVE Northbound					9 MILE ROAD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	2	0	25	0	27	59	0	11	1	71	9	0	2	0	11	6	0	1	0	7	116
Percent	7.4	0.0	92.6	0.0		83.1	0.0	15.5	1.4		81.8	0.0	18.2	0.0		85.7	0.0	14.3	0.0		
05:45 Volume	0	0	11	0	11	21	0	2	0	23	2	0	0	0	2	2	0	0	0	2	38
Peak Factor																					0.763
High Int.	05:45 PM					05:45 PM					05:30 PM					05:15 PM					
Volume	0	0	11	0	11	21	0	2	0	23	4	0	1	0	5	3	0	1	0	4	
Peak Factor					0.614					0.772					0.550					0.438	



ROAD COMMISSION for OAKLAND COUNTY

MS2

Transportation Data Management System

List View | All DIRs | All Approaches

Record 1 of 1 Goto Record go

Location ID	7284	MPO ID	1640
Type	SPOT	HPMS ID	
On NHS		On HPMS	
LRS ID		LRS Loc Pt.	
SF Group	01	Route Type	
AF Group		Route	
GF Group			
Fnct'l Class	-	Milepost	
Located On	NINE MILE		
Loc On Alias			
AT	NOVI		

PR	MP	PT
633603	5.209	63070887

More Detail

STATION DATA

Directions: EB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2014	4,132						
2011	2,692						
2009	3,440						
2005	4,090						

Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Tue 6/24/2014	60	4,642
	Tue 7/19/2011	60	3,007
	Tue 3/24/2009	60	3,580
	Thu 6/23/2005	60	4,816

VOLUME TREND

Year	Annual Growth
2014	15%
2011	-12%
2009	-4%

SPEED

	Date	Int	Pace	85th	Total
No Data					

CLASSIFICATION

	Date	Int	Total
No Data			

WEIGH-IN-MOTION

	Date	Axles	Avg GVW	Total
No Data				

PER VEHICLE

	Date	Axles	85th	Total
No Data				

GAP

	Date	Int	Total

ROAD COMMISSION for OAKLAND COUNTY

MS2

Transportation Data Management System

List View | All DIRs | All Approaches

Record 1 of 1 Goto Record go

Location ID	7282	MPO ID	16485
Type	SPOT	HPMS ID	
On NHS		On HPMS	
LRS ID		LRS Loc Pt.	
SF Group	01	Route Type	
AF Group		Route	
GF Group			
Fnct'l Class	-	Milepost	
Located On	NOVI		
Loc On Alias			
AT	NINE MILE		

PR	MP	PT
621910	4.008	63070887

More Detail

STATION DATA

Directions: NB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2014	6,842						
2011	5,530						
2009	6,720						
2008	6,980						
2005	7,250						

Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Tue 6/24/2014	60	7,679
	Tue 7/19/2011	60	6,165
	Tue 3/24/2009	60	6,988
	Thu 6/19/2008	60	8,028
	Thu 6/23/2005	60	8,504

VOLUME TREND

Year	Annual Growth
2014	7%
2011	-9%
2009	-4%
2008	-1%

SPEED

	Date	Int	Pace	85th	Total
No Data					

CLASSIFICATION

	Date	Int	Total
No Data			

WEIGH-IN-MOTION

	Date	Axles	Avg GVW	Total
No Data				

PER VEHICLE

	Date	Axles	85th	Total
No Data				

ROAD COMMISSION for OAKLAND COUNTY

MS2

Transportation Data Management System

List View | All DIRs | All Approaches

Record 1 of 1 Goto Record go

Location ID	7283	**MPO ID**	16494
Type	SPOT	**HPMS ID**	
On NHS		**On HPMS**	
LRS ID		**LRS Loc Pt.**	
SF Group	01	**Route Type**	
AF Group		**Route**	
GF Group			
Fnct'l Class	-	**Milepost**	
Located On	NOVI		
Loc On Alias			
AT	NINE MILE		

PR	MP	PT
621910	4.008	63070887

More Detail

STATION DATA

Directions: SB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2014	8,755						
2011	5,355						
2009	7,850						
2008	8,180						
2005	7,060						

Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Tue 6/24/2014	60	9,827
	Tue 7/19/2011	60	5,977
	Tue 3/24/2009	60	8,161
	Thu 6/19/2008	60	9,415
	Thu 6/23/2005	60	8,289

VOLUME TREND

Year	Annual Growth
2014	18%
2011	-17%
2009	-4%
2008	5%

SPEED

	Date	Int	Pace	85th	Total
No Data					

CLASSIFICATION

	Date	Int	Total
No Data			

WEIGH-IN-MOTION

	Date	Axles	Avg GVW	Total
No Data				

PER VEHICLE

	Date	Axles	85th	Total
No Data				

ROAD COMMISSION for OAKLAND COUNTY

MS2

Transportation Data Management System

List View | All DIRs | All Approaches

Record 1 of 1 Goto Record go

Location ID	7285	**MPO ID**	1708
Type	SPOT	**HPMS ID**	
On NHS		**On HPMS**	
LRS ID		**LRS Loc Pt.**	
SF Group	01	**Route Type**	
AF Group		**Route**	
GF Group			
Fnct'l Class	-	**Milepost**	
Located On	NINE MILE		
Loc On Alias			
AT	NOVI		

PR	MP	PT
633603	5.209	63070887

More Detail

STATION DATA

Directions: WB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2014	5,373						
2011	4,507						
2009	5,700						
2005	6,050						

Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Tue 6/24/2014	60	6,028
	Tue 7/19/2011	60	5,024
	Tue 3/24/2009	60	5,926
	Thu 6/23/2005	60	7,095

VOLUME TREND

Year	Annual Growth
2014	6%
2011	-11%
2009	-1%

SPEED

	Date	Int	Pace	85th	Total
No Data					

CLASSIFICATION

	Date	Int	Total
No Data			

WEIGH-IN-MOTION

	Date	Axles	Avg GVW	Total
No Data				

PER VEHICLE

	Date	Axles	85th	Total
No Data				

GAP

	Date	Int	Total

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Exhibit 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤10.0
B	> 10.0 and ≤20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	>80.0

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	360	3	6	199	3	14
Future Vol, veh/h	360	3	6	199	3	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	70	-	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	486	4	10	332	5	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	486	0	838	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1077	-	336	581
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	712	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1077	-	332	581
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	704	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	332	581	-	-	1077	-
HCM Lane V/C Ratio	0.015	0.04	-	-	0.009	-
HCM Control Delay (s)	16	11.5	-	-	8.4	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	374	199	8	64	6
Future Vol, veh/h	0	374	199	8	64	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	1	0	150
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	60	60	67	67
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	505	332	13	96	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	332	0	-	0	837	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	505	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1227	-	-	-	337	710
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	606	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1227	-	-	-	337	710
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	606	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1227	-	-	-	337	710
HCM Lane V/C Ratio	-	-	-	-	0.283	0.013
HCM Control Delay (s)	0	-	-	-	19.9	10.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1.1	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	367	71	20	178	29	46
Future Vol, veh/h	367	71	20	178	29	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	1	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	60	60	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	496	96	33	297	45	71

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	496	0	859	496
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	363	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1068	-	327	574
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	704	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1068	-	315	574
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	678	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	16.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	436	-	-	1068	-
HCM Lane V/C Ratio	0.265	-	-	0.031	-
HCM Control Delay (s)	16.2	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	180	6	11	442	2	9
Future Vol, veh/h	180	6	11	442	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	70	-	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	91	91	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	7	12	486	3	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	207	0	717	207
Stage 1	-	-	-	-	207	-
Stage 2	-	-	-	-	510	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1364	-	396	833
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	603	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1364	-	391	833
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	391	833	-	-	1364	-
HCM Lane V/C Ratio	0.009	0.018	-	-	0.009	-
HCM Control Delay (s)	14.3	9.4	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	1	188	451	59	25	2
Future Vol, veh/h	1	188	451	59	25	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	1	0	150
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	91	91	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	216	496	65	41	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	496	0	-	0	714	496
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1068	-	-	-	398	574
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	818	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1068	-	-	-	398	574
Mov Cap-2 Maneuver	-	-	-	-	398	-
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	817	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1068	-	-	-	398	574
HCM Lane V/C Ratio	0.001	-	-	-	0.103	0.006
HCM Control Delay (s)	8.4	0	-	-	15.1	11.3
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	180	33	58	450	60	38
Future Vol, veh/h	180	33	58	450	60	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	1	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	91	91	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	38	64	495	73	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	207	0	829	207
Stage 1	-	-	-	-	207	-
Stage 2	-	-	-	-	622	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1364	-	340	833
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1364	-	318	833
Mov Cap-2 Maneuver	-	-	-	-	318	-
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	500	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	418	-	-	1364	-
HCM Lane V/C Ratio	0.286	-	-	0.047	-
HCM Control Delay (s)	17	-	-	7.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	379	3	6	209	3	15
Future Vol, veh/h	379	3	6	209	3	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	70	-	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	512	4	10	348	5	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	512	0	880	512
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	368	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1053	-	318	562
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1053	-	314	562
Mov Cap-2 Maneuver	-	-	-	-	314	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	314	562	-	-	1053	-
HCM Lane V/C Ratio	0.016	0.044	-	-	0.009	-
HCM Control Delay (s)	16.7	11.7	-	-	8.5	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	394	209	8	67	6
Future Vol, veh/h	0	394	209	8	67	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	1	0	150
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	60	60	67	67
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	532	348	13	100	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	348	0	-	0	880	348
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1211	-	-	-	318	695
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	589	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	318	695
Mov Cap-2 Maneuver	-	-	-	-	318	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	589	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1211	-	-	-	318	695
HCM Lane V/C Ratio	-	-	-	-	0.314	0.013
HCM Control Delay (s)	0	-	-	-	21.4	10.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1.3	0

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	386	75	21	187	30	48
Future Vol, veh/h	386	75	21	187	30	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	1	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	60	60	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	522	101	35	312	46	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	522	0	904	522
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1044	-	307	555
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	690	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1044	-	294	555
Mov Cap-2 Maneuver	-	-	-	-	294	-
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	662	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	414	-	-	1044	-
HCM Lane V/C Ratio	0.29	-	-	0.034	-
HCM Control Delay (s)	17.2	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	190	6	12	465	2	9
Future Vol, veh/h	190	6	12	465	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	70	-	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	91	91	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	218	7	13	511	3	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	218	0	755	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1352	-	376	822
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	586	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1352	-	371	822
Mov Cap-2 Maneuver	-	-	-	-	371	-
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	371	822	-	-	1352	-
HCM Lane V/C Ratio	0.009	0.018	-	-	0.01	-
HCM Control Delay (s)	14.8	9.5	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	1	198	475	62	26	2
Future Vol, veh/h	1	198	475	62	26	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	1	0	150
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	91	91	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	228	522	68	43	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	522	0	-	0	752	522
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	230	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1044	-	-	-	378	555
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1044	-	-	-	378	555
Mov Cap-2 Maneuver	-	-	-	-	378	-
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	807	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1044	-	-	-	378	555
HCM Lane V/C Ratio	0.001	-	-	-	0.113	0.006
HCM Control Delay (s)	8.5	0	-	-	15.7	11.5
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	189	35	61	474	63	40
Future Vol, veh/h	189	35	61	474	63	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	1	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	91	91	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	217	40	67	521	77	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	217	0	872	217
Stage 1	-	-	-	-	217	-
Stage 2	-	-	-	-	655	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1353	-	321	823
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	517	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1353	-	299	823
Mov Cap-2 Maneuver	-	-	-	-	299	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	481	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	18.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	397	-	-	1353	-
HCM Lane V/C Ratio	0.316	-	-	0.05	-
HCM Control Delay (s)	18.2	-	-	7.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	381	3	6	216	3	15
Future Vol, veh/h	381	3	6	216	3	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	70	-	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	515	4	10	360	5	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	515	0	895	515
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	380	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1051	-	311	560
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1051	-	307	560
Mov Cap-2 Maneuver	-	-	-	-	307	-
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	307	560	-	-	1051	-
HCM Lane V/C Ratio	0.016	0.045	-	-	0.01	-
HCM Control Delay (s)	16.9	11.7	-	-	8.5	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	396	216	8	67	6
Future Vol, veh/h	0	396	216	8	67	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	1	0	150
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	60	60	67	67
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	535	360	13	100	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	360	0	-	0	895	360
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	535	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1199	-	-	-	311	684
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	587	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1199	-	-	-	311	684
Mov Cap-2 Maneuver	-	-	-	-	311	-
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	21
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1199	-	-	-	311	684
HCM Lane V/C Ratio	-	-	-	-	0.322	0.013
HCM Control Delay (s)	0	-	-	-	22	10.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1.4	0

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	388	75	21	194	30	48
Future Vol, veh/h	388	75	21	194	30	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	1	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	60	60	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	524	101	35	323	46	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	524	0	917	524
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	393	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1043	-	302	553
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	682	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1043	-	290	553
Mov Cap-2 Maneuver	-	-	-	-	290	-
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	17.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	410	-	-	1043	-
HCM Lane V/C Ratio	0.293	-	-	0.034	-
HCM Control Delay (s)	17.4	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	2	434	208	6	17	7
Future Vol, veh/h	2	434	208	6	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	120
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	60	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	586	347	10	18	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	357	0	-	0	944	352
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	592	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1202	-	-	-	291	692
Stage 1	-	-	-	-	712	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1202	-	-	-	290	692
Mov Cap-2 Maneuver	-	-	-	-	290	-
Stage 1	-	-	-	-	712	-
Stage 2	-	-	-	-	551	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1202	-	-	-	290	692
HCM Lane V/C Ratio	0.002	-	-	-	0.064	0.011
HCM Control Delay (s)	8	0	-	-	18.3	10.3
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	197	6	12	469	2	9
Future Vol, veh/h	197	6	12	469	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	70	-	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	91	91	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	226	7	13	515	3	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	226	0	768	226
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	542	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1342	-	370	813
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1342	-	365	813
Mov Cap-2 Maneuver	-	-	-	-	365	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	575	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	365	813	-	-	1342	-
HCM Lane V/C Ratio	0.009	0.018	-	-	0.01	-
HCM Control Delay (s)	15	9.5	-	-	7.7	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	1	205	479	62	26	2
Future Vol, veh/h	1	205	479	62	26	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	1	0	150
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	91	91	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	236	526	68	43	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	526	0	-	0	764	526
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	238	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1041	-	-	-	372	552
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1041	-	-	-	372	552
Mov Cap-2 Maneuver	-	-	-	-	372	-
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	801	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1041	-	-	-	372	552
HCM Lane V/C Ratio	0.001	-	-	-	0.115	0.006
HCM Control Delay (s)	8.5	0	-	-	15.9	11.6
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	196	35	61	478	63	40
Future Vol, veh/h	196	35	61	478	63	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	1	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	91	91	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	225	40	67	525	77	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	225	0	884	225
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	659	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1344	-	316	814
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	515	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1344	-	294	814
Mov Cap-2 Maneuver	-	-	-	-	294	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	479	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	391	-	-	1344	-
HCM Lane V/C Ratio	0.321	-	-	0.05	-
HCM Control Delay (s)	18.5	-	-	7.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	7	229	535	17	10	4
Future Vol, veh/h	7	229	535	17	10	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	120
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	91	91	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	263	588	19	11	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	607	0	-	0	876	597
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	279	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	971	-	-	-	319	503
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	768	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	971	-	-	-	316	503
Mov Cap-2 Maneuver	-	-	-	-	316	-
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	760	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	971	-	-	-	316	503
HCM Lane V/C Ratio	0.008	-	-	-	0.034	0.009
HCM Control Delay (s)	8.7	0	-	-	16.8	12.2
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection: 1: N. Hills Drive & 9 Mile Road

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	47	25	36
Average Queue (ft)	4	2	9
95th Queue (ft)	24	12	29
Link Distance (ft)	138	283	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 2: 9 Mile Road & Plaisance Boulevard

Movement	SB	SB
Directions Served	L	R
Maximum Queue (ft)	74	26
Average Queue (ft)	30	4
95th Queue (ft)	60	20
Link Distance (ft)	453	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Center Street & 9 Mile Road

Movement	EB	WB	NB
Directions Served	R	LT	LR
Maximum Queue (ft)	33	78	79
Average Queue (ft)	2	12	27
95th Queue (ft)	16	49	57
Link Distance (ft)		91	674
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)	1		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 4: 9 Mile Road & Site Drive

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	6	42	31
Average Queue (ft)	0	13	7
95th Queue (ft)	6	40	27
Link Distance (ft)	91	326	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			120
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 1

Intersection: 1: N. Hills Drive & 9 Mile Road

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	65	17	22
Average Queue (ft)	5	1	5
95th Queue (ft)	30	8	19
Link Distance (ft)	138	283	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 9 Mile Road & Plaisance Boulevard

Movement	EB	WB	WB	SB	SB
Directions Served	LT	T	R	L	R
Maximum Queue (ft)	7	3	7	56	22
Average Queue (ft)	0	0	0	18	2
95th Queue (ft)	8	3	7	43	13
Link Distance (ft)	138	191		453	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			1		150
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Center Street & 9 Mile Road

Movement	EB	WB	NB
Directions Served	R	LT	LR
Maximum Queue (ft)	15	85	91
Average Queue (ft)	1	16	33
95th Queue (ft)	9	58	67
Link Distance (ft)		91	674
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)	1		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 9 Mile Road & Site Drive

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	66	5	39	32
Average Queue (ft)	6	0	9	4
95th Queue (ft)	32	5	32	21
Link Distance (ft)	91	886	326	
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				120
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1

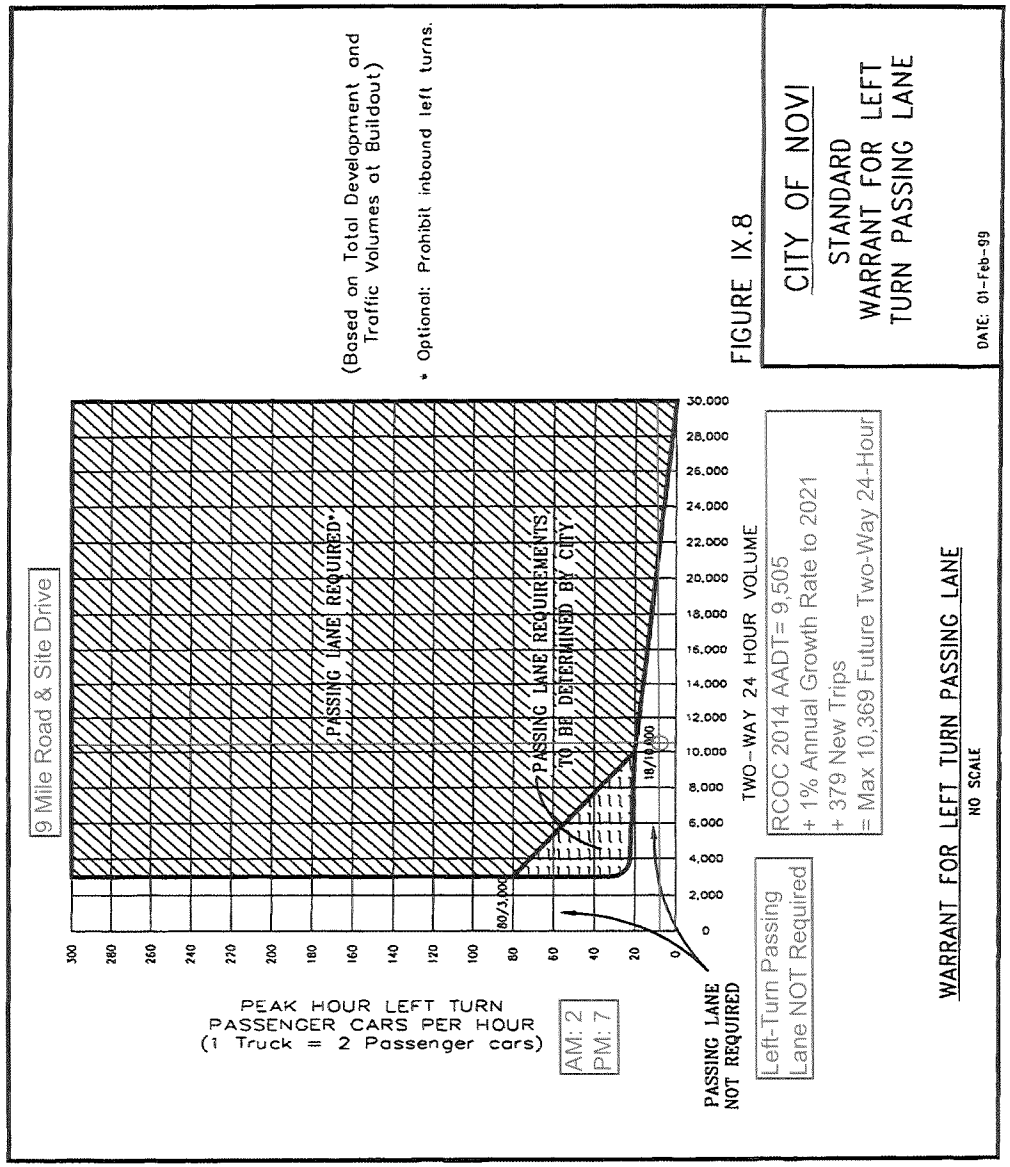


Figure IX.8

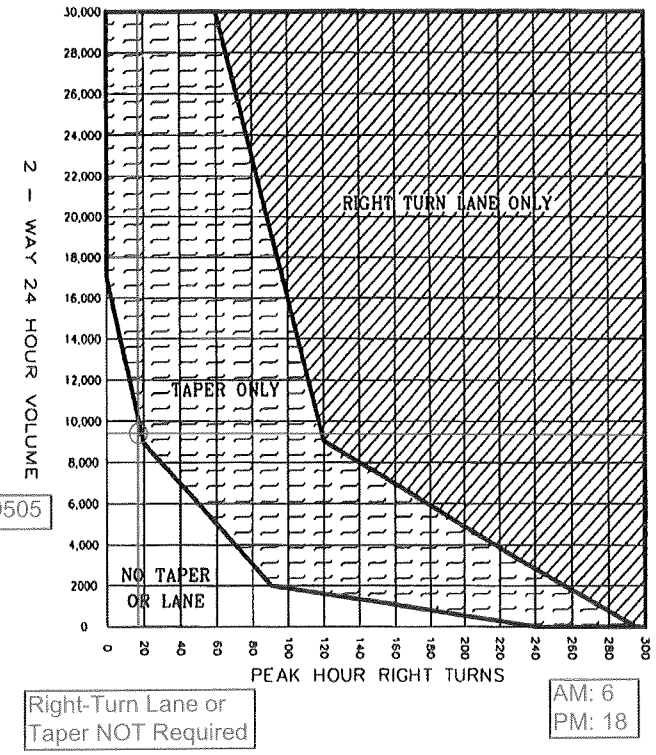
(Ord. No. 99-124.11, Pt. XXXIII, 7-26-99)

(Ord. No. 99-124.11, Pt. XXXIII, 7-26-99)

Figure IX.10

RCOC 2014 AADT: 9505

9 Mile Road & Site Drive



Right-Turn Lane or
Taper NOT Required

AM: 6
PM: 18

WARRANT FOR RIGHT TURN DECELERATION LANE OR TAPER

NO SCALE

FIGURE IX.10

CITY OF NOVI

STANDARD WARRANT FOR RIGHT TURN DECELERATION LANE OR TAPER

DATE: 27-Jan-99

FIRE REVIEW

March 3, 2016

TO: Barbara McBeth- Deputy Director of Community Development
Kirsten Mellem- Plan Review

RE: Montebello Estates

PSP#16-0016

Project Description A 33 unit single family home development located on the North side of Nine Mile at the current address of 44000 Nine Mile.

Comments:

1) The proposed secondary emergency access does not meet fire department requirements. **Corrected 12/14/15**
2) Provide water data for the remote hydrant on the proposed water main for the project. **Corrected 3/3/16**

Recommendation:

Recommended for approval.

Sincerely,

Joseph Shelton- Fire Marshal
City of Novi – Fire Dept.

cc: file

Novi Public Safety Administration
45125 W. Ten Mile Road
Novi, Michigan 48375
248.348.7100
248.347.0590 fax

cityofnovi.org

APPLICANT RESPONSE LETTER

SEIBER KEAST ENGINEERING, LLC
ENGINEERING CONSULTANTS

Clif Seiber, P.E.
Patrick G. Keast, P.E.
Azad W. Awad

100 MainCentre, Suite 10
Northville, MI 48167-1594
Phone No. 248.308.3331
E-mail: cs@seibereng.com

March 17, 2016

Ms. Kirsten Mellem, Planner
City of Novi
45175 W. Ten Mile Road
Novi, MI 48375

Re: **Montebello Estates**
Novi Project Number JSP 15-76
Preliminary Site Plan Review

Dear Ms. Mellem:

In accordance with your consultants and staff review letters issued under your cover letter dated March 15, 2016, and the comments from the Planning Commission during their January 13th meeting, the following responses are made to those letters. The comment number shown below corresponds to the comments contained in the consultant or staff review letters where applicable.

PLANNING REVIEW

1. The necessary permits from the City of Novi and the MDEQ related to the Thornton Creek floodplain will be acquired.

ENGINEERING REVIEW

Comments

1. A flow analysis was provided that demonstrated that the proposed water main configuration met the required water flow rates. Although engineering indicated that directional bore installation methods could be employed to reduce environmental impacts, such a method requires surface excavations for valves, fire hydrants and connection points between boring sections. We have submitted a sketch of the areas impacted by the use of directional drilling. Also shown on the Landscape Plan are photographs of Nine Mile Road tree cover. Significant tree loss would result from the water main installation even with the suggested drilling method. Furthermore, both the neighboring residents and Planning Commission members expressed concern with tree impacts due to the water main installation. We suggest that further discussions be held with the Engineering Department together with a variance request to the City Council.

2. A sidewalk variance will be requested of the City Council to locate the Nine Mile Road sidewalk to the interior "River Walk Trail" due to topographic and woodland issues on Nine Mile Road. A 20-foot wide public walkway easement has been shown on sheet 2 for this walk. In addition, a request will be made to pay into the City of Novi sidewalk fund rather than install the easterly 300 feet of walkway. This is requested due to the topographic issues and because there is no connecting sidewalk at that location. The money may be better spent connecting the gaps in the sidewalks along Dunbarton Pines on Nine Mile Road to the west of Montebello Estates. The terminus of the sidewalk at Nine Mile Road will be revised to eliminate the "safety concern".
3. No floodplain fill is proposed for the storm water basin. The floodplain elevation in the area of the storm water detention basin is 859, while the existing ground at the bottom of the basin is 862. No storage volume located below the flood elevation is counted toward the storage requirements. Applications will be submitted to the City of Novi and the MDEQ for any activity that impacts the Thornton Creek flood plain.
4. Sheet 2 of the Preliminary Site Plan included proposed road grades and proposed house finish grades. A more detailed grading plan will be provided at the time of Final Site Plan review.

TRAFFIC REVIEW

3. ADA ramps will be provided at all sidewalk connections to Montebello Court.

LANDSCAPE REVIEW

See the landscape architect's response letter related to the landscape review.

WOODLAND REVIEW

See the landscape architect's response letter related to the woodland review.

WETLAND REVIEW

1. Details of the Miller Creek culvert will be provided at the time of Final Site Plan submittal. This culvert will be imbedded so that the substrate resembles the natural stream bed.
2. Seed mixes will be provided by the Landscape Architect for restoration within the floodplain and disturbed areas of wetlands and wetland buffers.
3. The applicant will review the dedication of conservation easements related to wetlands and wetland buffers. Please note that due to the wetland and Miller Creek buffer impacts, the pedestrian foot bridge will be eliminated from the Final Site Plan to reduce such impacts.
4. We have determined that the tributary area to the Thornton Creek at Montebello Estates is slightly over the 2 square mile threshold; therefore, flood plain permit applications will be submitted to the City of Novi and the MDEQ.

FIRE DEPARTMENT REVIEW

1. No further comments.

Please place this matter on the next available Planning Commission agenda.

Sincerely,

SEIBER KEAST ENGINEERING, LLC

Clif Seiber, P.E.

Cc: Claudio Rossi, Mirage Development, LLC

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE

March 18, 2016

Ms. Kirsten Mellem, Planner
City of Novi Community Development
45175 West 10 Mile
Novi, MI 48375

RE: Montebello Estates – JSP 15-76

Dear Ms. Mellem:

Below are our responses to staff reviews of plans dated February 19, 2016.

Landscape Review

- Tree protection fencing will be shown on the grading plans.
- Tree species will be adjusted to reduce the number of maples.

Woodland Review

- Additional on-site replacement trees are shown. We will work with staff to identify potential additional tree preservation.
- Proposed grades will be shown on the plan when available.
- A note has been added stating replacement trees will be no closer than 10' to utilities. The trees are itemized and graphically shown.

Wetland Review

- Floodplain and wetland buffer seed mixes will be shown on the landscape plan for the next submittal.

If you have any questions or comments regarding this response, please contact me at your convenience.

Sincerely,

James C. Allen
Allen Design L.L.C.

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