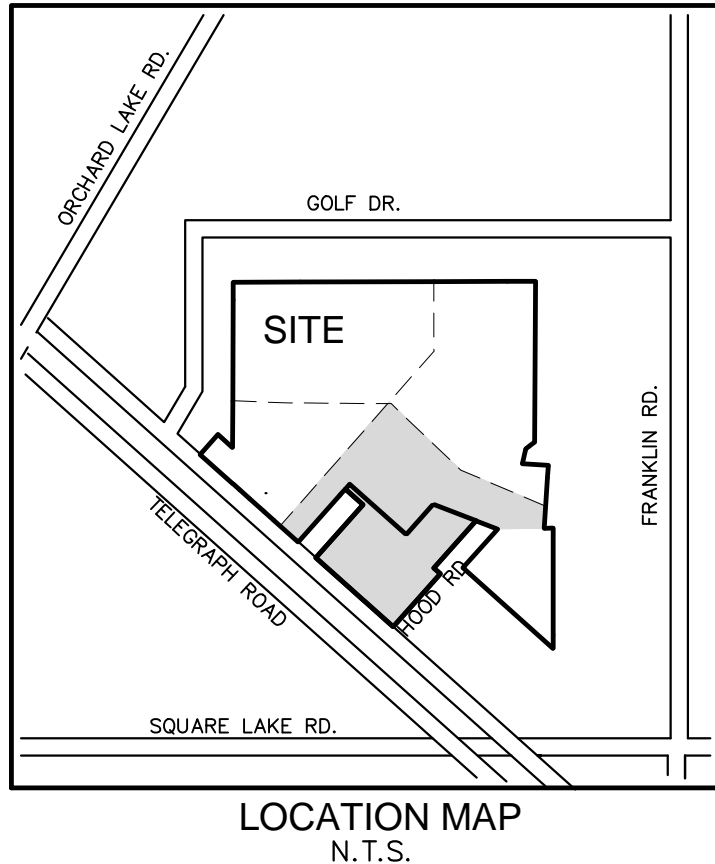
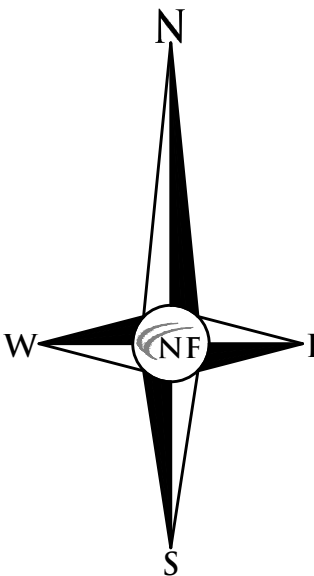
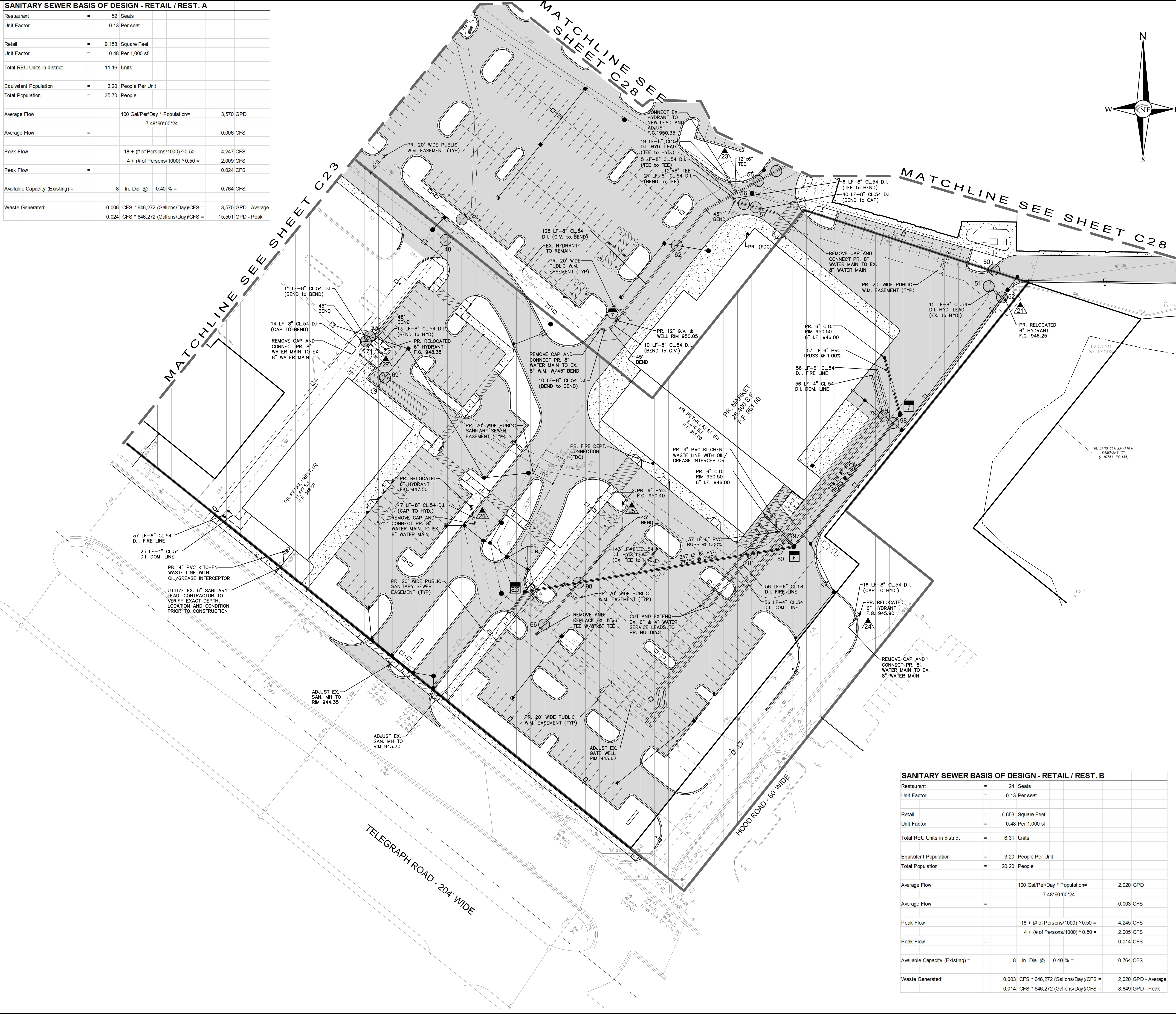


SANITARY SEWER BASIS OF DESIGN - RETAIL / REST. A				
Restaurant	=	52	Seats	
Unit Factor	=	0.13	Per seat	
Retail	=	9,158	Square Feet	
Unit Factor	=	0.48	Per 1,000 sf	
Total REU Units in district	=	11.16	Units	
Equivalent Population	=	3.20	People Per Unit	
Total Population	=	35.70	People	
Average Flow		100 Gal/PerDay * Population=	3,570	GPD
Average Flow	=	7.48*60*60*24	0.006	CFS
Peak Flow		18 + (# of Persons/1000) * 0.50 =	4.247	CFS
Peak Flow	=	4 + (# of Persons/1000) * 0.50 =	2.009	CFS
Peak Flow	=		0.024	CFS
Available Capacity (Existing) =		8 In. Dia. @ 0.40 % =	0.764	CFS
Waste Generated:		0.006 CFS * 646,272 (Gallons/Day)/CFS =	3,570	GPD - Average
		0.024 CFS * 646,272 (Gallons/Day)/CFS =	15,501	GPD - Peak



LEGEND		
CLEAN-OUT	MANHOLE	EXISTING SANITARY SEWER
HYDRANT	GATE VALVE	EXISTING WATER MAIN
INLET	RYCB	EXISTING STORM SEWER
		EXISTING BURIED CABLES
		EXISTING GAS MAIN
UTILITY POLE	GUY POLE	EXISTING OVERHEAD LINES
EXISTING LIGHT POLE	EXISTING SIGN	
C.O.	MANHOLE	PR. SANITARY SEWER
HYDRANT	GATE VALVE	PROPOSED WATER MAIN
INLET	RYCB	PROPOSED STORM SEWER
COMPACT TO 95% MAX. DENSITY		
A		PR. SAND BACKFILL
TC 600.00		UTILITY CROSSING
SU 600.00		PR. TOP OF CURB ELEVATION
TW 600.00		PROPOSED GUTTER ELEVATION
TP 600.00		PR. TOP OF WALK ELEVATION
FG 600.00		PR. TOP OF PAVEMENT ELEV.
600		PROPOSED FINISH GRADE
		PROPOSED CONTOUR
		PROPOSED SWALE
		PR. DRAINAGE DIRECTION
		PROPOSED INLET FILTER
		DRAINAGE AREA LIMITS
		PROPOSED SILT FENCE
		LIMITS OF SOIL DISRUPTION

LEGEND	
	LIMITS OF BLOOMFIELD TOWNSHIP

ESTIMATED QUANTITIES		
COMMERCIAL DEVELOPMENT ZONE		
WATER MAIN		
DESCRIPTION	QUANTITY	UNITS
8" D.I. CLASS 54 WATER MAIN (PUBLIC)	427	L.F.
6" D.I. CLASS 54 WATER MAIN (PUBLIC)	34	L.F.
6" D.I. CLASS 54 WATER MAIN (PRIVATE)	133	L.F.
4" D.I. CLASS 54 WATER MAIN (PRIVATE)	121	L.F.
6" HYDRANT ASSEMBLY	6	EA.
8" GATE VALVE & WELL	1	EA.
SANITARY SEWER		
DESCRIPTION	QUANTITY	UNITS
8" PVC TRUSS SEWER PIPE	401	L.F.
6" PVC SDR 23.5 SEWER PIPE	90	L.F.
4" DIA. SANITARY MANHOLE	2	EA.
SEWER TAP/CONNECTION	1	EA.

GATE VALVE SCHEDULE	
8" GATE VALVE	
IN WELL	
RIM 950.05	

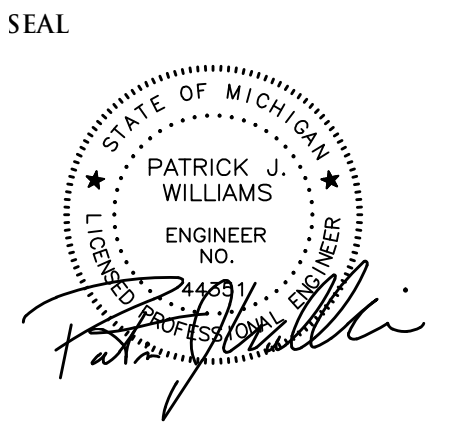
HYDRANT SCHEDULE	
21 6" STANDARD FIRE HYDRANT F.G. 946.25	23 6" STANDARD FIRE HYDRANT F.G. 950.40
23 6" STANDARD FIRE HYDRANT F.G. 950.35	26 RELOCATED EX. FIRE HYDRANT F.G. 947.50
24 RELOCATED EX. FIRE HYDRANT F.G. 945.90	27 6" STANDARD FIRE HYDRANT F.G. 948.35

SANITARY SCHEDULE	
SEE SANITARY PROFILE SHEET C-44 FOR SANITARY SEWER STRUCTURE SCHEDULES	

SANITARY SEWER BASIS OF DESIGN - RETAIL / REST. B				
Restaurant	=	24	Seats	
Unit Factor	=	0.13	Per seat	
Retail	=	6,653	Square Feet	
Unit Factor	=	0.48	Per 1,000 sf	
Total REU Units in district	=	6.31	Units	
Equivalent Population	=	3.20	People Per Unit	
Total Population	=	20.20	People	
Average Flow		100 Gal/PerDay * Population=	2,020	GPD
Average Flow	=	7.48*60*60*24	0.003	CFS
Peak Flow		18 + (# of Persons/1000) * 0.50 =	4.245	CFS
Peak Flow	=	4 + (# of Persons/1000) * 0.50 =	2.005	CFS
Peak Flow	=		0.014	CFS
Available Capacity (Existing) =		8 In. Dia. @ 0.40 % =	0.764	CFS
Waste Generated:		0.003 CFS * 646,272 (Gallons/Day)/CFS =	2,020	GPD - Average
		0.014 CFS * 646,272 (Gallons/Day)/CFS =	8,849	GPD - Peak



NOWAK & FRAUS ENGINEERS  
46777 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257



PROJECT  
Village at Bloomfield

CLIENT  
REDICO  
One Towne Square,  
Suite 1600  
Southfield, MI 48076

Contact:  
Phone: (248) 784-6486

PROJECT LOCATION  
Part of the W. 1/2 of Section 5,  
T. 2N., R. 10E., and part of the  
NE 1/4 of Section 6, T. 2N., R.  
10E., Bloomfield Township, The  
City of Pontiac and Bloomfield  
Township (conditionally  
transferred to The City of  
Pontiac) Oakland County,  
Michigan

SHEET  
Sanitary Sewer &  
Water Main Plan



DATE ISSUED / REVISED  
05-12-17 Bids / Permits

DRAWN BY:  
A. Wiseman  
DESIGNED BY:  
A. Wiseman  
APPROVED BY:  
P. Williams  
DATE:  
April 3, 2017  
SCALE: 1" = 40'