PRESSURE LOSS CALCULATIONS
BROOKHILL CONDO
2/16/2022

TEST INFORMATION FROM HYDRANT 655 BROOKFIELD ROAD
ON THE NORTH EAST CORNER OF APPARMENT BUILDINGS

STATIC PRESSURE =	71 PSI	C VALLUE
RESIUAL PRESSURE =	69 PSI	PVE = 150
FLOW RATE =	1300 GPM	DI = 130
HYD. NOZZLE ELEV. =	857.50	

CRITICAL HYDRANT #7 S

HYD. NOZZLE ELEV. = 895.25

EXISTING WATER MAIN =	144 LF	C =	150 SIZE	8
EXISTING WATER MAIN =	700 LF	C =	150 SIZE	12
PROPOSED WATER MAIN =	580 LF	C =	150 SIZE	8
PROPOSED WATER MAIN =	24.3 LF	C =	150 SIZE	6

CONVERT PRESSURE DROP TO REQUIRED FIRE FLOW OF 500 GPM

$\frac{H2}{H1} = \frac{(Q2)^{1.85}}{(Q1)}$ H2 = 2* (500/1033)^1.85 0.34 PSI

CONVERT FRICTION LOSS BETWEEN TEST HYDRANT AND DESIGN HYDRANT A FLOW RATE OF 500 GPM

8" EX	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	= 0.56
12" EX	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	= 0.38
8" PR	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	= 2.27
8" PR	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	= 0.39

F.L = 3.60 /2.31
F.L = 1.56 PSI

STATIC PRESSURE CHANGE FROM THE TESTED HYDRANT TO THE DESIGN HYDRANT

DESIGN HYDRANT NOZZEL ELEV. =	895.25
TEST HYDRANT NOZZEL ELEV. =	857.50
	37.75 / 2.31 = 16.34 PSI

RESIDUAL PRESSURE AT THE DESIGN HYDRANT

STATIC PRESSURE =	71 PSI
RESIDUAL PRESSURE CONVERSION =	0.34 PSI
TEANSMISSION LOSS =	1.56 PSI
STATIC PRESSURE CHANGE =	16.34 PSI
	52.76 PSI @500 GPM

STATIC PRESSURE AT THE DESIGN HYDRANT

STATIC PRESSURE =	71 PSI
STATIC PRESSURE CHANGE =	16.34 PSI
	54.66 PSI @500 GPM

PRESSURE LOSS CALCULATIONS
BROOKHILL CONDO
2/16/2022

TEST INFORMATION FROM HYDRANT 655 BROOKFIELD ROAD
ON THE NORTH EAST CORNER OF APPARMENT BUILDINGS

STATIC PRESSURE =	71 PSI	C VALLUE
RESIUAL PRESSURE =	69 PSI	PVE = 150
FLOW RATE =	1300 GPM	DI = 130
HYD. NOZZLE ELEV. =	857.50	

CRITICAL HYDRANT #7 S

HYD. NOZZLE ELEV. = 895.25

EXISTING WATER MAIN =	144 LF	C =	150	SIZE	8
EXISTING WATER MAIN =	700 LF	C =	150	SIZE	12
PROPOSED WATER MAIN =	580 LF	C =	150	SIZE	8
PROPOSED WATER MAIN =	24.3 LF	C =	150	SIZE	6

CONVERT PRESSURE DROP TO REQUIRED FIRE FLOW OF 1000 GPM

$\frac{H2}{H1} = \frac{(Q2)^{1.85}}{(Q1)}$ H2 = 2* (1000/1033)^1.85 1.23 PSI

CONVERT FRICTION LOSS BETWEEN TEST HYDRANT AND DESIGN HYDRANT A FLOW RATE OF 500 GPM

8" EX	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	=	2.03
12" EX	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	=	1.37
8" PR	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	=	8.17
8" PR	F.L. =	(L/ 100) x 0.2083 x (100^1.85) x (Q^1.85)/((C^1.85) x (D^4.86555	=	1.39

F.L = 12.96 /2.31
F.L = 5.61 PSI

STATIC PRESSURE CHANGE FROM THE TESTED HYDRANT TO THE DESIGN HYDRANT

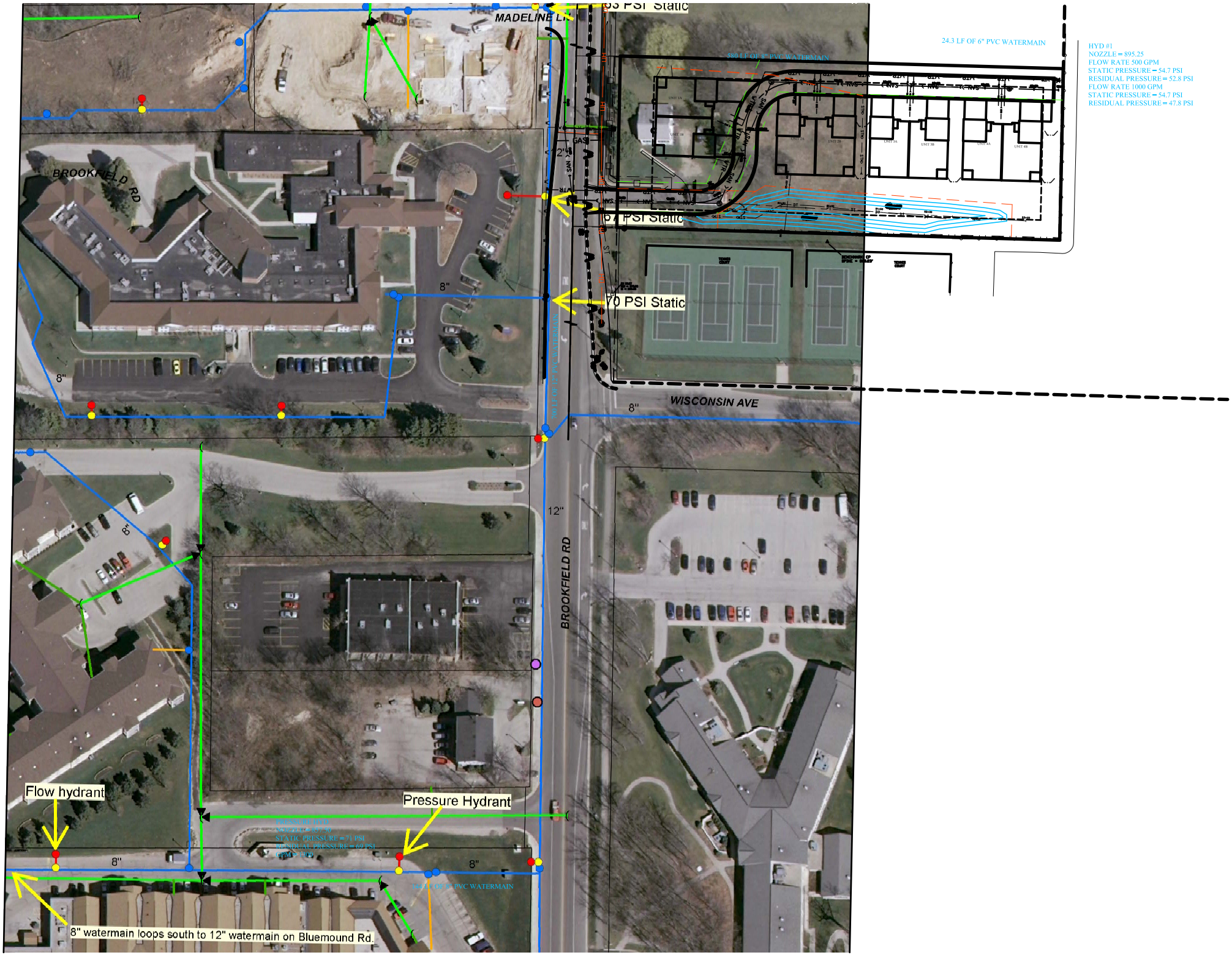
DESIGN HYDRANT NOZZEL ELEV. = 895.25
TEST HYDRANT NOZZEL ELEV. = 857.50
37.75 / 2.31 = 16.34 PSI

RESIDUAL PRESSURE AT THE DESIGN HYDRANT

STATIC PRESSURE =	71 PSI
RESIDUAL PRESSURE CONVERSION =	1.23 PSI
TEANSMISSION LOSS =	5.61 PSI
STATIC PRESSURE CHANGE =	16.34 PSI
	47.82 PSI @1000 GPM

STATIC PRESSURE AT THE DESIGN HYDRANT

STATIC PRESSURE =	71 PSI
STATIC PRESSURE CHANGE =	16.34 PSI
	54.66 PSI @1000 GPM


MADELINE LN
BROOKFIELD RD
WISCONSIN AVE
BROOKFIELD RD
8"
8"
8"
12"
8"
8"
8"
2"
70 PSI Static
70 PSI Static
24.3 LF OF 6" PVC WATERMAIN
580 LF OF 8" PVC WATERMAIN
HYD #1
NOZZLE = 895.25
FLOW RATE 500 GPM
STATIC PRESSURE = 54.7 PSI
RESIDUAL PRESSURE = 52.8 PSI
FLOW RATE 1000 GPM
STATIC PRESSURE = 54.7 PSI
RESIDUAL PRESSURE = 47.8 PSI
Flow hydrant
Pressure Hydrant
8" watermain loops south to 12" watermain on Bluemound Rd.