FIRE FLOW SUBMITTAL

Example of Fire Flow Report format

NOTES:

- Coordinate Fire Flow test with Steven Wallace at Marsh USA, Atlanta GA
- Report must be dated no more than 6 months prior to Publix issuing it's drawings
- Fire flow calculations should use a discharge coefficient of **0.80**, as called for in the Fire Protection Water Supply section of the Publix Site Development Manual.

PREPARED BY:

DATE


THOMPSON ROAD
PROP. FH
PUBLIX
SR 92
SOUTH FULTON PARKWAY

FRICTION LOSS

EXISTING 12" PIPE	=	***709 LF***
NEW 8"PIPE TO PARALLEL SYSTEM	=	***116 LF***
PARALLEL SYSTEM SHORT LEG	=	***201.5 LF***
PARALLEL SYSTEM LONG LEG	=	***1741.5 LF***
FROM PARALLEL SYSTEM TO RISER	=	***63 LF***

CALCULATION OF EQUIVALENT LENTGH FOR FITTINGS FOR EXISTING 12" PIPE

FITTINGS	QUANTITY	EQ. LENGTH	UNIT
12X12X8 TEE	1	49.00	LF
12" 45° ELBOW	4	62.00	LF

TOTAL LENGTH	111.00	LF

TOTAL LENGTH OF EXISTING 12" PIPE	820.00	LF

CALCULATION OF EQUIVALENT LENTGH FOR FITTINGS FOR NEW 8" PIPE FROM FENCE ROAD TO PARALLEL SYSTEM

FITTINGS	QUANTITY	EQ. LENGTH	UNIT
8X8X8 TEE	1	42.00	LF
8" GATE VALVE	1	4.50	LF
8" CHK VALVE	1	52.00	LF
8" 45° ELBOW	1	11.00	LF

TOTAL LENGTH	109.50	**LF**

TOTAL LENGTH OF NEW 8" PIPE	225.00	**LF**

CALCULATION OF EQUIVALENT LENTGH FOR FITTINGS FOR PARALLEL SYSTEM SHORT LEG

FITTINGS	QUANTITY	EQ. LENGTH	UNIT
8X8X8 TEE	1	42.00	LF
8X8X6 TEE	1	45.50	LF

TOTAL LENGTH	87.50	LF

TOTAL LENGTH OF PARALLEL SYSTEM SHORT LEG	289.00	LF

***CALCULATION OF EQUIVALENT LENTGH FOR FITTINGS FOR* PARALLEL SYSTEM LONG LEG**

FITTINGS	QUANTITY	EQ. LENGTH	UNIT
8X8X8 TEE	2	84.00	LF
8X8X6 TEE	6	273.00	LF
8" 90° ELBOW	1	21.00	LF
8" 45° ELBOW	6	66.00	LF
8" 22.50° ELBOW	2	6.00	LF
	TOTAL LENGTH	**450.00**	**LF**

TOTAL LENGTH OF PARALLEL SYSTEM LONG LEG	2191.50	LF

CALCULATION OF FRICTION LOSS PER LF OF PIPE

FRICTION FACTOR, C	=	100.00 FOR EXIST. PIPE 140.00 FOR NEW PIPE
GPM	=	1248 GPM
Diameter, d (inch)	=	8.00 FOR 8" PIPE 6.00 FOR 6" PIPE 12.00 FOR 12" PIPE

CALCULATIONS

HAZEN WILLIAMS EQUATION

FLOW COMPUTATIONS

NODE	LENGTH L (ft)	C	FLOW Q (gpm)	PIPE DIAMETER d (in)	LOSS h (ft)	PRESSURE LOSS PSI	NOTES
1	820	100	1248	12	5.1	2.22	
2	225	140	1248	8	5.4	2.35	
3	289	140	933	8	4.1	1.76	PARALLEL SYSTEM
4	2191.5	140	315	8	4.1	1.76	PARALLEL SYSTEM
5	63	140	1248	8	1.5	0.66	
TOTAL LOSS:					16.1	6.99	

TYPE OF EQUIPMENT	PRESSURE LOSS	UNIT
FOR EXIST. 12" PIPE:	2.22	PSI
FOR NEW 8" PIPE"	4.77	PSI
8" DBL DRT CHK BFP		
(BASED ON WATTS	4.50	PSI
MODEL 757 NDCDA)		
TOTAL:	11.49	PSI

HYDRANT TO RISER PRESSURE CALCULATION

ELEVATION

AT HYDRANT	=	922 FT
AT RISER	=	936 FT
EL. DIFFERENCE	=	-14.00 FT

PRESSURE AT HYDRANT

STATIC	=	105 PSI
RESIDUAL	=	100 PSI

PRESSURE AT RISER

STATIC	=	105-14.0*0.433
	=	98.94 PSI
RESIDUAL	=	100-14.0*0.433-11.49
	=	82.45 PSI

PUBLIX REQUIREMENTS AT RISER

1100 GPM AT 35 PSI

FLOW @ REQUIRED PRESSURE (35 PSI)

$$Q_R = Q_F x \frac{H_R^{0.54}}{H_F^{0.54}}$$

$$Q_R = 1248 x \frac{63.94^{0.54}}{16.49^{0.54}}$$

$Q_R = 2594.37 > 1100$ GPM

$Q_F = 1248$ GPM

$H_R = 98.94-35 = 63.94$ PSI

$H_F = 98.94-82.45 = 16.49$ PSI

PRESSURE @ REQUIRED FLOW (1100 GPM)

$$H_R^{0.54} = \frac{Q_R x H_F^{0.54}}{Q_F}$$

$$H_R^{0.54} = \frac{1100 x 16.49^{0.54}}{1248}$$

$H_R = 13.05$

$13.05 = 98.94-X$

$X = 85.89 > 35$ PSI

$Q_R = 1100.00$ GPM

$H_R = 98.94-X$

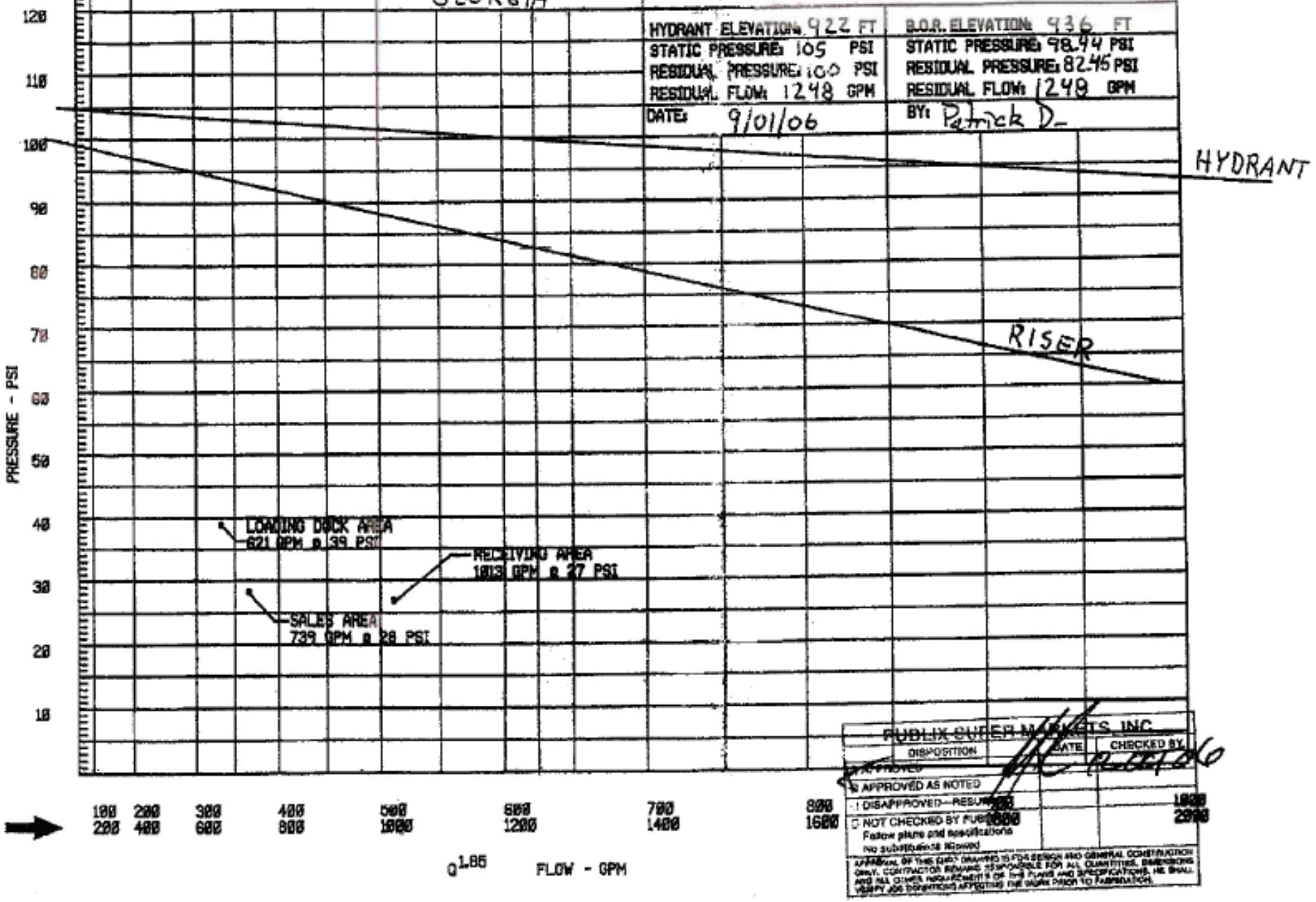
$Q_F = 1248$ GPM

PROJECT: PUBLIX 45.3

LOCATION: FULTON COUNTY GEORGIA

WATER SOURCE: EXIST. 12" MAIN

HYDRANT ELEVATION: 922 FT	B.O.R. ELEVATION: 936 FT
STATIC PRESSURE: 105 PSI	STATIC PRESSURE: 98.44 PSI
RESIDUAL PRESSURE: 100 PSI	RESIDUAL PRESSURE: 82.45 PSI
RESIDUAL FLOW: 1248 GPM	RESIDUAL FLOW: 1248 GPM
DATE: 9/01/06	BY: Patrick D.



PUBLIX SUPER MARKETS INC.

DISPOSITION	DATE	CHECKED BY
APPROVED		
APPROVED AS NOTED		
DISAPPROVED—RESUBMIT		
NOT CHECKED BY PUBLIX. Follow plans and specifications. No subsequent sprinkler drawings		

APPROVAL OF THIS SHOP DRAWING IS FOR DESIGN AND GENERAL CONSTRUCTION ONLY. CONTRACTOR REMAINS RESPONSIBLE FOR ALL QUANTITIES, DIMENSIONS AND ALL OTHER REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. HE SHALL VERIFY ANY DISCREPANCIES AFFECTING THE WORK PRIOR TO FABRICATION.