

DESIGN DATA:

Minimum Pressure : 65 PSI

Standpipe Type : Wet System

Minimum Flow per FHV : 250 GPM

Number of FHV : 02 Nos.

Location of FHV : Mech. Room and 40th Floor, Stair C



PROPOSED MIXED-USED DEVELOPMENT

ADDRESS:
775-783 Vaughan Rd & 670-680
Northcliffe Blvd, York, ON

HYDRAULIC CALCULATIONS

ISOMETRIC DIAGRAM

HIGH PRESSURE ZONE

Project No.: 2127
Scale: As indicated
Date: MAY 13, 2024
Drawn by: STUDIO JCI

Drawing No.:

CALC.01

Standpipe System
Hydraulic Calculations
Project Name: 775 Vaughan

DESIGN DATA:

Available Pressure: 65 PSI

Minimum Flow per FHV : 250 gpm + 250 gpm

System Type: Wet

Location of FHV: On Mech. Room(41th Floor) and Penthouse (40th Floor)

Number of FHV: 02 Nos.

DATE: 6/5/2024 VAUGHAN\HYDRAULIC CALC\STANPIPE SYSTEM - HIGH PRESSURE.SDF

JOB TITLE: 775 Vaughan

DEMAND CALCULATIONS

WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
SRC	60.0	52.0	1082.0	58.1	500.0	25.4

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	500.0 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	0.0 GPM
OTHER HOSE STREAM ALLOWANCES	500.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	0.0 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
F41-D	427.0	HOSE STREAM	65.0	250.0
F40-D	418.8	HOSE STREAM	68.6	250.0
F39-D	404.0	- - - -	75.1	- - -
F38-D	392.0	- - - -	80.4	- - -
F37-D	382.5	- - - -	84.5	- - -
F36-D	373.0	- - - -	88.7	- - -
F35-D	363.5	- - - -	92.8	- - -
F34-D	354.0	- - - -	97.0	- - -
F33-D	344.5	- - - -	101.1	- - -
F32-D	335.0	- - - -	105.3	- - -
F31-D	325.5	- - - -	109.5	- - -
F30-D	316.0	- - - -	113.6	- - -
F29-D	306.5	- - - -	117.8	- - -
F28-D	297.0	- - - -	121.9	- - -
F27-D	287.5	- - - -	126.1	- - -
F26-D	278.0	- - - -	130.2	- - -
F25-D	268.5	- - - -	134.4	- - -
F24-D	259.0	- - - -	138.5	- - -
F23-D	249.5	- - - -	142.7	- - -
F22-D	240.0	- - - -	146.8	- - -
F21-D	230.5	- - - -	151.0	- - -
F20-D	221.0	- - - -	155.1	- - -
F19-D	211.5	- - - -	159.3	- - -
F18-D	202.0	- - - -	163.4	- - -
F17-D	192.5	- - - -	167.6	- - -
F16-D	183.0	- - - -	171.7	- - -
F15-D	173.5	- - - -	175.9	- - -
F14-D	164.0	- - - -	180.0	- - -
UG-1	36.0	- - - -	236.0	- - -
UG-2	36.0	- - - -	236.0	- - -
UG-3	36.0	- - - -	235.8	- - -
UG-4	36.0	- - - -	235.7	- - -
F38-1	400.0	- - - -	76.9	- - -
F38-2	400.0	- - - -	77.0	- - -
F38-3	400.0	- - - -	77.2	- - -
F38-4	400.0	- - - -	77.2	- - -
P1	7.0	- - - -	249.0	- - -
DIS1	7.0	- - - -	249.4	- - -
DIS2	7.0	- - - -	249.9	- - -
DIS3	7.0	- - - -	250.1	- - -
DIS4	7.0	- - - -	250.4	- - -

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NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
DIS5	0.0	- - - -	253.6	- - -
DIS6	0.0	- - - -	254.0	- - -
FP-IN	0.0	- - - -	28.2	- - -
FP-OUT	0.0	- - - -	254.0	- - -
SUC1	0.0	- - - -	28.3	- - -
SUC2	0.0	- - - -	28.4	- - -
SUC3	8.0	- - - -	25.0	- - -
SRC	8.0	SOURCE	25.4	500.0

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JOB TITLE: 775 Vaughan

PIPE DATA

PIPE TAG	END	ELEV.	NOZ.	PT	DISC.	Q (GPM)	VEL (FPS)	DIA (IN)	LENGTH	PRESS.	
	NODES	(FT)	(K)	(PSI)	(GPM)			HW (C)	(FT)	SUM.	
								FL/FT		(PSI)	
Pipe: 1											
F41-D		427.0	H.S.	65.0	250.0	-250.0	2.8	6.065	8.25	PF	0.0
F40-D		418.8	H.S.	68.6	250.0			120	FTG	PE	3.6
								0.003	TL	PV	
Pipe: 2											
F40-D		418.8	H.S.	68.6	250.0	-500.0	5.6	6.065	14.75	PF	0.1
F39-D		404.0	0.0	75.1	0.0			120	FTG	PE	6.4
								0.010	TL	PV	
Pipe: 3											
F39-D		404.0	0.0	75.1	0.0	-500.0	5.6	6.065	4.00	PF	0.0
F38-1		400.0	0.0	76.9	0.0			120	FTG	PE	1.7
								0.010	TL	PV	
Pipe: 4											
F38-1		400.0	0.0	76.9	0.0	-291.4	3.2	6.065	8.00	PF	0.0
F38-D		392.0	0.0	80.4	0.0			120	FTG	PE	3.5
								0.004	TL	PV	
Pipe: 5											
F38-D		392.0	0.0	80.4	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F37-D		382.5	0.0	84.5	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 6											
F37-D		382.5	0.0	84.5	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F36-D		373.0	0.0	88.7	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 7											
F36-D		373.0	0.0	88.7	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F35-D		363.5	0.0	92.8	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 8											
F35-D		363.5	0.0	92.8	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F34-D		354.0	0.0	97.0	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 9											
F34-D		354.0	0.0	97.0	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F33-D		344.5	0.0	101.1	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 10											
F33-D		344.5	0.0	101.1	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F32-D		335.0	0.0	105.3	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 11											
F32-D		335.0	0.0	105.3	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F31-D		325.5	0.0	109.5	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 12											
F31-D		325.5	0.0	109.5	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F30-D		316.0	0.0	113.6	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 13											
F30-D		316.0	0.0	113.6	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F29-D		306.5	0.0	117.8	0.0			120	FTG	PE	4.1
								0.004	TL	PV	
Pipe: 14											
F29-D		306.5	0.0	117.8	0.0	-291.4	3.2	6.065	9.50	PF	0.0
F28-D		297.0	0.0	121.9	0.0			120	FTG	PE	4.1
								0.004	TL	PV	

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PIPE TAG		ELEV. (FT)	NOZ. (K)	PT (PSI)	DISC. (GPM)	Q (GPM)	DIA (IN)		LENGTH	PRESS.	
END	NODES					VEL (FPS)	HW (C)	(FT)	SUM.		
								FL/FT		(PSI)	
Pipe: 15						-291.4	6.065	PL	9.50	PF	0.0
F28-D	297.0	0.0	121.9	0.0	3.2	120	FTG	----	PE	4.1	
F27-D	287.5	0.0	126.1	0.0		0.004	TL	9.50	PV		
Pipe: 16						-291.4	6.065	PL	9.50	PF	0.0
F27-D	287.5	0.0	126.1	0.0	3.2	120	FTG	----	PE	4.1	
F26-D	278.0	0.0	130.2	0.0		0.004	TL	9.50	PV		
Pipe: 17						-291.4	6.065	PL	9.50	PF	0.0
F26-D	278.0	0.0	130.2	0.0	3.2	120	FTG	----	PE	4.1	
F25-D	268.5	0.0	134.4	0.0		0.004	TL	9.50	PV		
Pipe: 18						-291.4	6.065	PL	9.50	PF	0.0
F25-D	268.5	0.0	134.4	0.0	3.2	120	FTG	----	PE	4.1	
F24-D	259.0	0.0	138.5	0.0		0.004	TL	9.50	PV		
Pipe: 19						-291.4	6.065	PL	9.50	PF	0.0
F24-D	259.0	0.0	138.5	0.0	3.2	120	FTG	----	PE	4.1	
F23-D	249.5	0.0	142.7	0.0		0.004	TL	9.50	PV		
Pipe: 20						-291.4	6.065	PL	9.50	PF	0.0
F23-D	249.5	0.0	142.7	0.0	3.2	120	FTG	----	PE	4.1	
F22-D	240.0	0.0	146.8	0.0		0.004	TL	9.50	PV		
Pipe: 21						-291.4	6.065	PL	9.50	PF	0.0
F22-D	240.0	0.0	146.8	0.0	3.2	120	FTG	----	PE	4.1	
F21-D	230.5	0.0	151.0	0.0		0.004	TL	9.50	PV		
Pipe: 22						-291.4	6.065	PL	9.50	PF	0.0
F21-D	230.5	0.0	151.0	0.0	3.2	120	FTG	----	PE	4.1	
F20-D	221.0	0.0	155.1	0.0		0.004	TL	9.50	PV		
Pipe: 23						-291.4	6.065	PL	9.50	PF	0.0
F20-D	221.0	0.0	155.1	0.0	3.2	120	FTG	----	PE	4.1	
F19-D	211.5	0.0	159.3	0.0		0.004	TL	9.50	PV		
Pipe: 24						-291.4	6.065	PL	9.50	PF	0.0
F19-D	211.5	0.0	159.3	0.0	3.2	120	FTG	----	PE	4.1	
F18-D	202.0	0.0	163.4	0.0		0.004	TL	9.50	PV		
Pipe: 25						-291.4	6.065	PL	9.50	PF	0.0
F18-D	202.0	0.0	163.4	0.0	3.2	120	FTG	----	PE	4.1	
F17-D	192.5	0.0	167.6	0.0		0.004	TL	9.50	PV		
Pipe: 26						-291.4	6.065	PL	9.50	PF	0.0
F17-D	192.5	0.0	167.6	0.0	3.2	120	FTG	----	PE	4.1	
F16-D	183.0	0.0	171.7	0.0		0.004	TL	9.50	PV		
Pipe: 27						-291.4	6.065	PL	9.50	PF	0.0
F16-D	183.0	0.0	171.7	0.0	3.2	120	FTG	----	PE	4.1	
F15-D	173.5	0.0	175.9	0.0		0.004	TL	9.50	PV		
Pipe: 28						-291.4	6.065	PL	9.50	PF	0.0
F15-D	173.5	0.0	175.9	0.0	3.2	120	FTG	----	PE	4.1	
F14-D	164.0	0.0	180.0	0.0		0.004	TL	9.50	PV		
Pipe: 29						-291.4	6.065	PL	128.00	PF	0.6
F14-D	164.0	0.0	180.0	0.0	3.2	120	FTG	T	PE	55.5	
UG-1	36.0	0.0	236.0	0.0		0.004	TL	158.00	PV		

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JOB TITLE: 775 Vaughan

PIPE TAG	END	ELEV.	NOZ.	PT	DISC.	Q (GPM)	DIA (IN)	LENGTH	PRESS.	
NODES	(FT)	(K)	(PSI)	(GPM)	VEL (FPS)	HW (C)	FL/FT	(FT)	SUM.	
									(PSI)	
Pipe: 30					208.6	6.065	PL	9.58	PF	0.0
UG-1	36.0	0.0	236.0	0.0	2.3	120	FTG	E	PE	0.0
UG-2	36.0	0.0	236.0	0.0		0.002	TL	23.58	PV	
Pipe: 31					208.6	6.065	PL	98.91	PF	0.2
UG-2	36.0	0.0	236.0	0.0	2.3	120	FTG	E	PE	0.0
UG-3	36.0	0.0	235.8	0.0		0.002	TL	112.91	PV	
Pipe: 32					208.6	6.065	PL	9.58	PF	0.1
UG-3	36.0	0.0	235.8	0.0	2.3	120	FTG	EG	PE	0.0
UG-4	36.0	0.0	235.7	0.0		0.002	TL	26.58	PV	
Pipe: 33					208.6	6.065	PL	364.00	PF	0.8
UG-4	36.0	0.0	235.7	0.0	2.3	120	FTG	T	PE	157.7
F38-4	400.0	0.0	77.2	0.0		0.002	TL	394.00	PV	
Pipe: 59					208.6	6.065	PL	8.50	PF	0.0
F38-4	400.0	0.0	77.2	0.0	2.3	120	FTG	E	PE	0.0
F38-3	400.0	0.0	77.2	0.0		0.002	TL	22.50	PV	
Pipe: 60					208.6	6.065	PL	98.83	PF	0.2
F38-3	400.0	0.0	77.2	0.0	2.3	120	FTG	E	PE	0.0
F38-2	400.0	0.0	77.0	0.0		0.002	TL	112.83	PV	
Pipe: 61					208.6	6.065	PL	8.50	PF	0.1
F38-2	400.0	0.0	77.0	0.0	2.3	120	FTG	T	PE	0.0
F38-1	400.0	0.0	76.9	0.0		0.002	TL	38.50	PV	
Pipe: 62					-500.0	6.065	PL	29.00	PF	0.4
UG-1	36.0	0.0	236.0	0.0	5.6	120	FTG	EG	PE	12.6
P1	7.0	0.0	249.0	0.0		0.010	TL	46.00	PV	
Pipe: 63					-500.0	6.065	PL	25.41	PF	0.4
P1	7.0	0.0	249.0	0.0	5.6	120	FTG	E	PE	0.0
DIS1	7.0	0.0	249.4	0.0		0.010	TL	39.41	PV	
Pipe: 64					-500.0	6.065	PL	20.33	PF	0.5
DIS1	7.0	0.0	249.4	0.0	5.6	120	FTG	T	PE	0.0
DIS2	7.0	0.0	249.9	0.0		0.010	TL	50.33	PV	
Pipe: 65					-500.0	6.065	PL	6.25	PF	0.2
DIS2	7.0	0.0	249.9	0.0	5.6	120	FTG	E	PE	0.0
DIS3	7.0	0.0	250.1	0.0		0.010	TL	20.25	PV	
Pipe: 66					-500.0	6.065	PL	12.00	PF	0.3
DIS3	7.0	0.0	250.1	0.0	5.6	120	FTG	E	PE	0.0
DIS4	7.0	0.0	250.4	0.0		0.010	TL	26.00	PV	
Pipe: 67					-500.0	6.065	PL	7.00	PF	0.2
DIS4	7.0	0.0	250.4	0.0	5.6	120	FTG	E	PE	3.0
DIS5	0.0	0.0	253.6	0.0		0.010	TL	21.00	PV	
Pipe: 68					500.0	6.065	PL	3.00	PF	0.4
DIS6	0.0	0.0	254.0	0.0	5.6	120	FTG	CG	PE	0.0
DIS5	0.0	0.0	253.6	0.0		0.010	TL	38.00	PV	
Pipe: 69					500.0	6.065	PL	1.00	PF	0.0
FP-OUT	0.0	0.0	254.0	0.0	5.6	120	FTG	---	PE	0.0
DIS6	0.0	0.0	254.0	0.0		0.010	TL	1.00	PV	

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JOB TITLE: 775 Vaughan

PIPE TAG	Q (GPM)	DIA (IN)	LENGTH	PRESS.
END ELEV. NOZ. PT DISC. VEL (FPS) HW (C) (FT) SUM.				
NODES (FT) (K) (PSI) (GPM) FL/FT (PSI)				
Pipe: 70	FIRE PUMP	Rating:	750.0 gpm @ 225.0 psi	
FP-IN 0.0 0.0 28.2 0.0	Avail.:	500.0 gpm @ 225.0 psi		
FP-OUT 0.0 0.0 254.0 0.0	Req'd.:	500.0 gpm @ 225.0 psi		
Pipe: 71	500.0	7.981 PL	4.00 PF	0.0
SUC1 0.0 0.0 28.3 0.0 3.2	120 FTG	G	PE	0.0
FP-IN 0.0 0.0 28.2 0.0	0.003 TL	8.00	PV	
Pipe: 72	-500.0	7.981 PL	15.00 PF	0.1
SUC1 0.0 0.0 28.3 0.0 3.2	120 FTG	EG	PE	0.0
SUC2 0.0 0.0 28.4 0.0	0.003 TL	37.00	PV	
Pipe: 73	-500.0	7.981 PL	11.00 PF	0.1
SUC2 0.0 0.0 28.4 0.0 3.2	120 FTG	2E	PE	-3.5
SUC3 8.0 0.0 25.0 0.0	0.003 TL	47.00	PV	
Pipe: 74	500.0	7.981 PL	19.83 PF	0.3
SRC 8.0 SRCE 25.4 (N/A) 3.2	120 FTG	E2C2G	PE	0.0
SUC3 8.0 0.0 25.0 0.0	0.003 TL	135.83	PV	

NOTES (HASS):

- Calculations were performed by the HASS 2023 D computer program in accordance with (2020) under license no. 65699794 granted by
HRS Systems, Inc.
208 Southside Square
Petersburg, TN 37144
(931) 659-9760
- The system has been calculated to provide an average imbalance at each node of 0.001 gpm and a maximum imbalance at any node of 0.007 gpm.
- Total pressure at each node is used in balancing the system. Maximum water velocity is 5.6 ft/sec at pipe 3.
- The Minimum pump suction pressure under maximum calculated demand is 28.24 (psi)
- Items listed in bold print on the cover sheet
are automatically transferred from the calculation report.
- Available pressure at source node SRC under full flow conditions is 58.08 psi with a flow of 500.00 gpm.
- PIPE FITTINGS TABLE

HASS Pipe Table Name: standard

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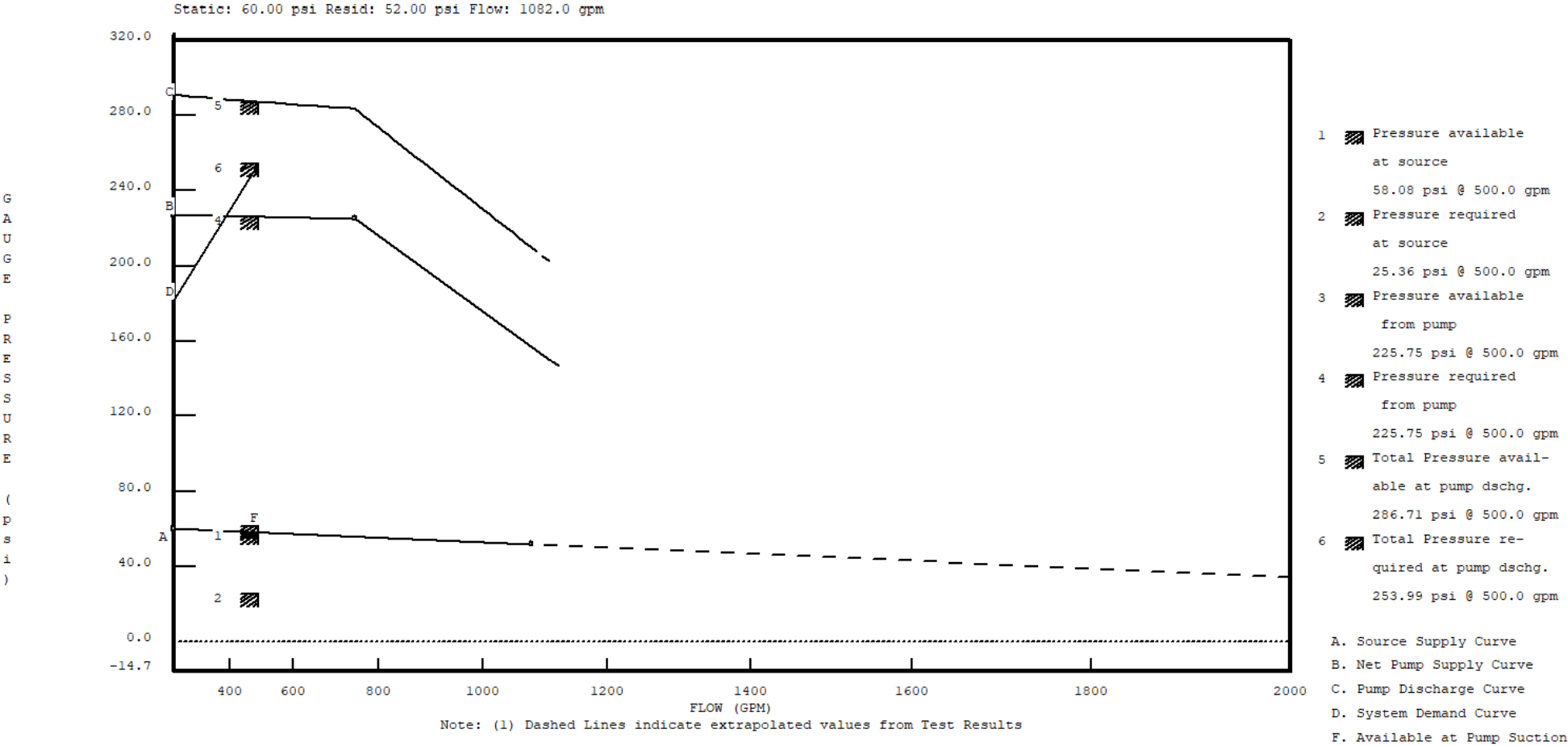
JOB TITLE: 775 Vaughan

PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NTee

	F								
	F45Ell								
6.065	14.00	30.00	9.00	32.00	10.00	3.00	28.00	28.00	30.00
	7.00								
7.981	18.00	35.00	13.00	45.00	12.00	4.00	31.00	31.00	35.00
	9.00								

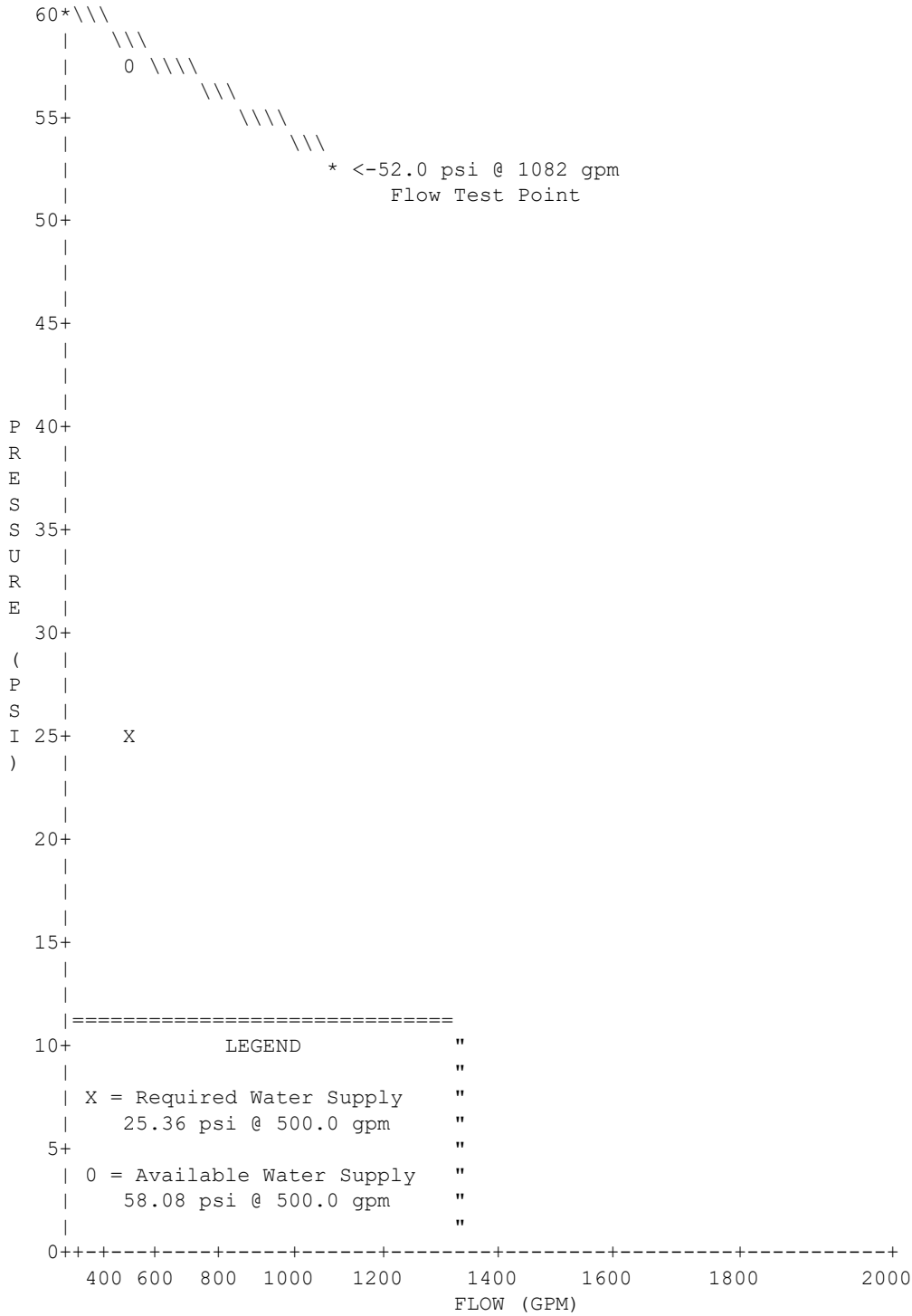
WATER SUPPLY ANALYSIS



DATE: 6/5/2024 VAUGHAN\HYDRAULIC CALC\STANPIPE SYSTEM - HIGH PRESSURE.SDF

JOB TITLE: 775 Vaughan

WATER SUPPLY CURVE



Standpipe System
Hydraulic Calculations
Project Name: 775 Vaughan

DESIGN DATA:

Available Pressure: 65 PSI

Minimum Flow per FHV : 250 gpm + 250 gpm

System Type: Wet

Location of FHV: On Mech. Room(41th Floor) and Penthouse (40th Floor)

Number of FHV: 02 Nos.

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SUPPLY CALCULATIONS

WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
SRC	60.0	52.0	1082.0	58.1	500.0	

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	500.0 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	0.0 GPM
OTHER HOSE STREAM ALLOWANCES	500.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	0.0 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
F41-D	427.0	HOSE STREAM	97.7	250.0
F40-D	418.8	HOSE STREAM	101.3	250.0
F39-D	404.0	- - - -	107.9	- - -
F38-D	392.0	- - - -	113.1	- - -
F37-D	382.5	- - - -	117.3	- - -
F36-D	373.0	- - - -	121.4	- - -
F35-D	363.5	- - - -	125.6	- - -
F34-D	354.0	- - - -	129.7	- - -
F33-D	344.5	- - - -	133.9	- - -
F32-D	335.0	- - - -	138.0	- - -
F31-D	325.5	- - - -	142.2	- - -
F30-D	316.0	- - - -	146.3	- - -
F29-D	306.5	- - - -	150.5	- - -
F28-D	297.0	- - - -	154.6	- - -
F27-D	287.5	- - - -	158.8	- - -
F26-D	278.0	- - - -	162.9	- - -
F25-D	268.5	- - - -	167.1	- - -
F24-D	259.0	- - - -	171.2	- - -
F23-D	249.5	- - - -	175.4	- - -
F22-D	240.0	- - - -	179.5	- - -
F21-D	230.5	- - - -	183.7	- - -
F20-D	221.0	- - - -	187.8	- - -
F19-D	211.5	- - - -	192.0	- - -
F18-D	202.0	- - - -	196.1	- - -
F17-D	192.5	- - - -	200.3	- - -
F16-D	183.0	- - - -	204.4	- - -
F15-D	173.5	- - - -	208.6	- - -
F14-D	164.0	- - - -	212.7	- - -
UG-1	36.0	- - - -	268.8	- - -
UG-2	36.0	- - - -	268.7	- - -
UG-3	36.0	- - - -	268.5	- - -
UG-4	36.0	- - - -	268.4	- - -
F38-1	400.0	- - - -	109.6	- - -
F38-2	400.0	- - - -	109.7	- - -
F38-3	400.0	- - - -	109.9	- - -
F38-4	400.0	- - - -	110.0	- - -
P1	7.0	- - - -	281.8	- - -
DIS1	7.0	- - - -	282.2	- - -
DIS2	7.0	- - - -	282.6	- - -
DIS3	7.0	- - - -	282.8	- - -
DIS4	7.0	- - - -	283.1	- - -

DATE: 6/5/2024 VAUGHAN\HYDRAULIC CALC\STANPIPE SYSTEM - HIGH PRESSURE.SDF

JOB TITLE: 775 Vaughan

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
DIS5	0.0	- - - -	286.3	- - -
DIS6	0.0	- - - -	286.7	- - -
FP-IN	0.0	- - - -	61.0	- - -
FP-OUT	0.0	- - - -	286.7	- - -
SUC1	0.0	- - - -	61.0	- - -
SUC2	0.0	- - - -	61.1	- - -
SUC3	8.0	- - - -	57.7	- - -
SRC	8.0	SOURCE	58.1	500.0

DATE: 6/5/2024 VAUGHAN\HYDRAULIC CALC\STANPIPE SYSTEM - HIGH PRESSURE.SDF

JOB TITLE: 775 Vaughan

PIPE DATA

PIPE TAG	END	ELEV.	NOZ.	PT	DISC.	Q (GPM)	DIA (IN)	LENGTH	PRESS.	
	NODES	(FT)	(K)	(PSI)	(GPM)	VEL (FPS)	HW (C)	(FT)	SUM.	
							FL/FT		(PSI)	
Pipe: 1										
F41-D		427.0	H.S.	97.7	250.0	-250.0 2.8	6.065 120	PL FTG	8.25 ----	PF PE 0.0 3.6
F40-D		418.8	H.S.	101.3	250.0		0.003	TL	8.25	PV
Pipe: 2										
F40-D		418.8	H.S.	101.3	250.0	-500.0 5.6	6.065 120	PL FTG	14.75 ----	PF PE 0.1 6.4
F39-D		404.0	0.0	107.9	0.0		0.010	TL	14.75	PV
Pipe: 3										
F39-D		404.0	0.0	107.9	0.0	-500.0 5.6	6.065 120	PL FTG	4.00 ----	PF PE 0.0 1.7
F38-1		400.0	0.0	109.6	0.0		0.010	TL	4.00	PV
Pipe: 4										
F38-1		400.0	0.0	109.6	0.0	-291.4 3.2	6.065 120	PL FTG	8.00 ----	PF PE 0.0 3.5
F38-D		392.0	0.0	113.1	0.0		0.004	TL	8.00	PV
Pipe: 5										
F38-D		392.0	0.0	113.1	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F37-D		382.5	0.0	117.3	0.0		0.004	TL	9.50	PV
Pipe: 6										
F37-D		382.5	0.0	117.3	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F36-D		373.0	0.0	121.4	0.0		0.004	TL	9.50	PV
Pipe: 7										
F36-D		373.0	0.0	121.4	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F35-D		363.5	0.0	125.6	0.0		0.004	TL	9.50	PV
Pipe: 8										
F35-D		363.5	0.0	125.6	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F34-D		354.0	0.0	129.7	0.0		0.004	TL	9.50	PV
Pipe: 9										
F34-D		354.0	0.0	129.7	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F33-D		344.5	0.0	133.9	0.0		0.004	TL	9.50	PV
Pipe: 10										
F33-D		344.5	0.0	133.9	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F32-D		335.0	0.0	138.0	0.0		0.004	TL	9.50	PV
Pipe: 11										
F32-D		335.0	0.0	138.0	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F31-D		325.5	0.0	142.2	0.0		0.004	TL	9.50	PV
Pipe: 12										
F31-D		325.5	0.0	142.2	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F30-D		316.0	0.0	146.3	0.0		0.004	TL	9.50	PV
Pipe: 13										
F30-D		316.0	0.0	146.3	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F29-D		306.5	0.0	150.5	0.0		0.004	TL	9.50	PV
Pipe: 14										
F29-D		306.5	0.0	150.5	0.0	-291.4 3.2	6.065 120	PL FTG	9.50 ----	PF PE 0.0 4.1
F28-D		297.0	0.0	154.6	0.0		0.004	TL	9.50	PV

DATE: 6/5/2024 VAUGHAN\HYDRAULIC CALC\STANPIPE SYSTEM - HIGH PRESSURE.SDF

JOB TITLE: 775 Vaughan

PIPE TAG					Q (GPM)	DIA (IN)	LENGTH	PRESS.	
END	ELEV.	NOZ.	PT	DISC.	VEL (FPS)	HW (C)	(FT)	SUM.	
NODES	(FT)	(K)	(PSI)	(GPM)		FL/FT		(PSI)	
Pipe: 15					-291.4	6.065	PL	9.50	PF 0.0
F28-D	297.0	0.0	154.6	0.0	3.2	120	FTG	----	PE 4.1
F27-D	287.5	0.0	158.8	0.0		0.004	TL	9.50	PV
Pipe: 16					-291.4	6.065	PL	9.50	PF 0.0
F27-D	287.5	0.0	158.8	0.0	3.2	120	FTG	----	PE 4.1
F26-D	278.0	0.0	162.9	0.0		0.004	TL	9.50	PV
Pipe: 17					-291.4	6.065	PL	9.50	PF 0.0
F26-D	278.0	0.0	162.9	0.0	3.2	120	FTG	----	PE 4.1
F25-D	268.5	0.0	167.1	0.0		0.004	TL	9.50	PV
Pipe: 18					-291.4	6.065	PL	9.50	PF 0.0
F25-D	268.5	0.0	167.1	0.0	3.2	120	FTG	----	PE 4.1
F24-D	259.0	0.0	171.2	0.0		0.004	TL	9.50	PV
Pipe: 19					-291.4	6.065	PL	9.50	PF 0.0
F24-D	259.0	0.0	171.2	0.0	3.2	120	FTG	----	PE 4.1
F23-D	249.5	0.0	175.4	0.0		0.004	TL	9.50	PV
Pipe: 20					-291.4	6.065	PL	9.50	PF 0.0
F23-D	249.5	0.0	175.4	0.0	3.2	120	FTG	----	PE 4.1
F22-D	240.0	0.0	179.5	0.0		0.004	TL	9.50	PV
Pipe: 21					-291.4	6.065	PL	9.50	PF 0.0
F22-D	240.0	0.0	179.5	0.0	3.2	120	FTG	----	PE 4.1
F21-D	230.5	0.0	183.7	0.0		0.004	TL	9.50	PV
Pipe: 22					-291.4	6.065	PL	9.50	PF 0.0
F21-D	230.5	0.0	183.7	0.0	3.2	120	FTG	----	PE 4.1
F20-D	221.0	0.0	187.8	0.0		0.004	TL	9.50	PV
Pipe: 23					-291.4	6.065	PL	9.50	PF 0.0
F20-D	221.0	0.0	187.8	0.0	3.2	120	FTG	----	PE 4.1
F19-D	211.5	0.0	192.0	0.0		0.004	TL	9.50	PV
Pipe: 24					-291.4	6.065	PL	9.50	PF 0.0
F19-D	211.5	0.0	192.0	0.0	3.2	120	FTG	----	PE 4.1
F18-D	202.0	0.0	196.1	0.0		0.004	TL	9.50	PV
Pipe: 25					-291.4	6.065	PL	9.50	PF 0.0
F18-D	202.0	0.0	196.1	0.0	3.2	120	FTG	----	PE 4.1
F17-D	192.5	0.0	200.3	0.0		0.004	TL	9.50	PV
Pipe: 26					-291.4	6.065	PL	9.50	PF 0.0
F17-D	192.5	0.0	200.3	0.0	3.2	120	FTG	----	PE 4.1
F16-D	183.0	0.0	204.4	0.0		0.004	TL	9.50	PV
Pipe: 27					-291.4	6.065	PL	9.50	PF 0.0
F16-D	183.0	0.0	204.4	0.0	3.2	120	FTG	----	PE 4.1
F15-D	173.5	0.0	208.6	0.0		0.004	TL	9.50	PV
Pipe: 28					-291.4	6.065	PL	9.50	PF 0.0
F15-D	173.5	0.0	208.6	0.0	3.2	120	FTG	----	PE 4.1
F14-D	164.0	0.0	212.7	0.0		0.004	TL	9.50	PV
Pipe: 29					-291.4	6.065	PL	128.00	PF 0.6
F14-D	164.0	0.0	212.7	0.0	3.2	120	FTG	T	PE 55.5
UG-1	36.0	0.0	268.8	0.0		0.004	TL	158.00	PV

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JOB TITLE: 775 Vaughan

PIPE TAG	Q (GPM)	DIA (IN)	LENGTH	PRESS.
END ELEV. NOZ. PT DISC. VEL (FPS) HW (C) (FT) SUM.				
NODES (FT) (K) (PSI) (GPM) FL/FT (PSI)				
Pipe: 30	208.6	6.065	PL 9.58	PF 0.0
UG-1 36.0 0.0 268.8 0.0 2.3 120 FTG E				PE 0.0
UG-2 36.0 0.0 268.7 0.0 0.002 TL 23.58				PV
Pipe: 31	208.6	6.065	PL 98.91	PF 0.2
UG-2 36.0 0.0 268.7 0.0 2.3 120 FTG E				PE 0.0
UG-3 36.0 0.0 268.5 0.0 0.002 TL 112.91				PV
Pipe: 32	208.6	6.065	PL 9.58	PF 0.1
UG-3 36.0 0.0 268.5 0.0 2.3 120 FTG EG				PE 0.0
UG-4 36.0 0.0 268.4 0.0 0.002 TL 26.58				PV
Pipe: 33	208.6	6.065	PL 364.00	PF 0.8
UG-4 36.0 0.0 268.4 0.0 2.3 120 FTG T				PE-157.7
F38-4 400.0 0.0 110.0 0.0 0.002 TL 394.00				PV
Pipe: 59	208.6	6.065	PL 8.50	PF 0.0
F38-4 400.0 0.0 110.0 0.0 2.3 120 FTG E				PE 0.0
F38-3 400.0 0.0 109.9 0.0 0.002 TL 22.50				PV
Pipe: 60	208.6	6.065	PL 98.83	PF 0.2
F38-3 400.0 0.0 109.9 0.0 2.3 120 FTG E				PE 0.0
F38-2 400.0 0.0 109.7 0.0 0.002 TL 112.83				PV
Pipe: 61	208.6	6.065	PL 8.50	PF 0.1
F38-2 400.0 0.0 109.7 0.0 2.3 120 FTG T				PE 0.0
F38-1 400.0 0.0 109.6 0.0 0.002 TL 38.50				PV
Pipe: 62	-500.0	6.065	PL 29.00	PF 0.4
UG-1 36.0 0.0 268.8 0.0 5.6 120 FTG EG				PE 12.6
P1 7.0 0.0 281.8 0.0 0.010 TL 46.00				PV
Pipe: 63	-500.0	6.065	PL 25.41	PF 0.4
P1 7.0 0.0 281.8 0.0 5.6 120 FTG E				PE 0.0
DIS1 7.0 0.0 282.2 0.0 0.010 TL 39.41				PV
Pipe: 64	-500.0	6.065	PL 20.33	PF 0.5
DIS1 7.0 0.0 282.2 0.0 5.6 120 FTG T				PE 0.0
DIS2 7.0 0.0 282.6 0.0 0.010 TL 50.33				PV
Pipe: 65	-500.0	6.065	PL 6.25	PF 0.2
DIS2 7.0 0.0 282.6 0.0 5.6 120 FTG E				PE 0.0
DIS3 7.0 0.0 282.8 0.0 0.010 TL 20.25				PV
Pipe: 66	-500.0	6.065	PL 12.00	PF 0.3
DIS3 7.0 0.0 282.8 0.0 5.6 120 FTG E				PE 0.0
DIS4 7.0 0.0 283.1 0.0 0.010 TL 26.00				PV
Pipe: 67	-500.0	6.065	PL 7.00	PF 0.2
DIS4 7.0 0.0 283.1 0.0 5.6 120 FTG E				PE 3.0
DIS5 0.0 0.0 286.3 0.0 0.010 TL 21.00				PV
Pipe: 68	500.0	6.065	PL 3.00	PF 0.4
DIS6 0.0 0.0 286.7 0.0 5.6 120 FTG CG				PE 0.0
DIS5 0.0 0.0 286.3 0.0 0.010 TL 38.00				PV
Pipe: 69	500.0	6.065	PL 1.00	PF 0.0
FP-OUT 0.0 0.0 286.7 0.0 5.6 120 FTG ---				PE 0.0
DIS6 0.0 0.0 286.7 0.0 0.010 TL 1.00				PV

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JOB TITLE: 775 Vaughan

PIPE TAG	Q (GPM)	DIA (IN)	LENGTH	PRESS.
END ELEV. NOZ. PT DISC. VEL (FPS) HW (C) FL/FT SUM.				
NODES (FT) (K) (PSI) (GPM) (FL/FT) (PSI)				
Pipe: 70	FIRE PUMP	Rating:	750.0 gpm @ 225.0 psi	
FP-IN 0.0 0.0 61.0 0.0	Avail.:	500.0 gpm @ 225.0 psi		
FP-OUT 0.0 0.0 286.7 0.0	Req'd.:	500.0 gpm @ 225.0 psi		
Pipe: 71	500.0	7.981 PL	4.00 PF	0.0
SUC1 0.0 0.0 61.0 0.0 3.2	120 FTG	G	PE	0.0
FP-IN 0.0 0.0 61.0 0.0	0.003 TL	8.00	PV	
Pipe: 72	-500.0	7.981 PL	15.00 PF	0.1
SUC1 0.0 0.0 61.0 0.0 3.2	120 FTG	EG	PE	0.0
SUC2 0.0 0.0 61.1 0.0	0.003 TL	37.00	PV	
Pipe: 73	-500.0	7.981 PL	11.00 PF	0.1
SUC2 0.0 0.0 61.1 0.0 3.2	120 FTG	2E	PE	-3.5
SUC3 8.0 0.0 57.7 0.0	0.003 TL	47.00	PV	
Pipe: 74	500.0	7.981 PL	19.83 PF	0.3
SRC 8.0 SRCE 58.1 (N/A) 3.2	120 FTG	E2C2G	PE	0.0
SUC3 8.0 0.0 57.7 0.0	0.003 TL	135.83	PV	

NOTES (HASS):

- Calculations were performed by the HASS 2023 D computer program in accordance with (2020) under license no. 65699794 granted by
HRS Systems, Inc.
208 Southside Square
Petersburg, TN 37144
(931) 659-9760
- The system has been calculated to provide an average imbalance at each node of 0.001 gpm and a maximum imbalance at any node of 0.007 gpm.
- Total pressure at each node is used in balancing the system. Maximum water velocity is 5.6 ft/sec at pipe 69.
- The Minimum pump suction pressure under maximum calculated demand is 60.96 (psi)
- Items listed in bold print on the cover sheet
are automatically transferred from the calculation report.
- Available pressure at source node SRC under full flow conditions is 58.08 psi with a flow of 500.00 gpm.
- PIPE FITTINGS TABLE

HASS Pipe Table Name: standard

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JOB TITLE: 775 Vaughan

PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NTee

	F F45Ell								
6.065	14.00	30.00	9.00	32.00	10.00	3.00	28.00	28.00	30.00
	7.00								
7.981	18.00	35.00	13.00	45.00	12.00	4.00	31.00	31.00	35.00
	9.00								

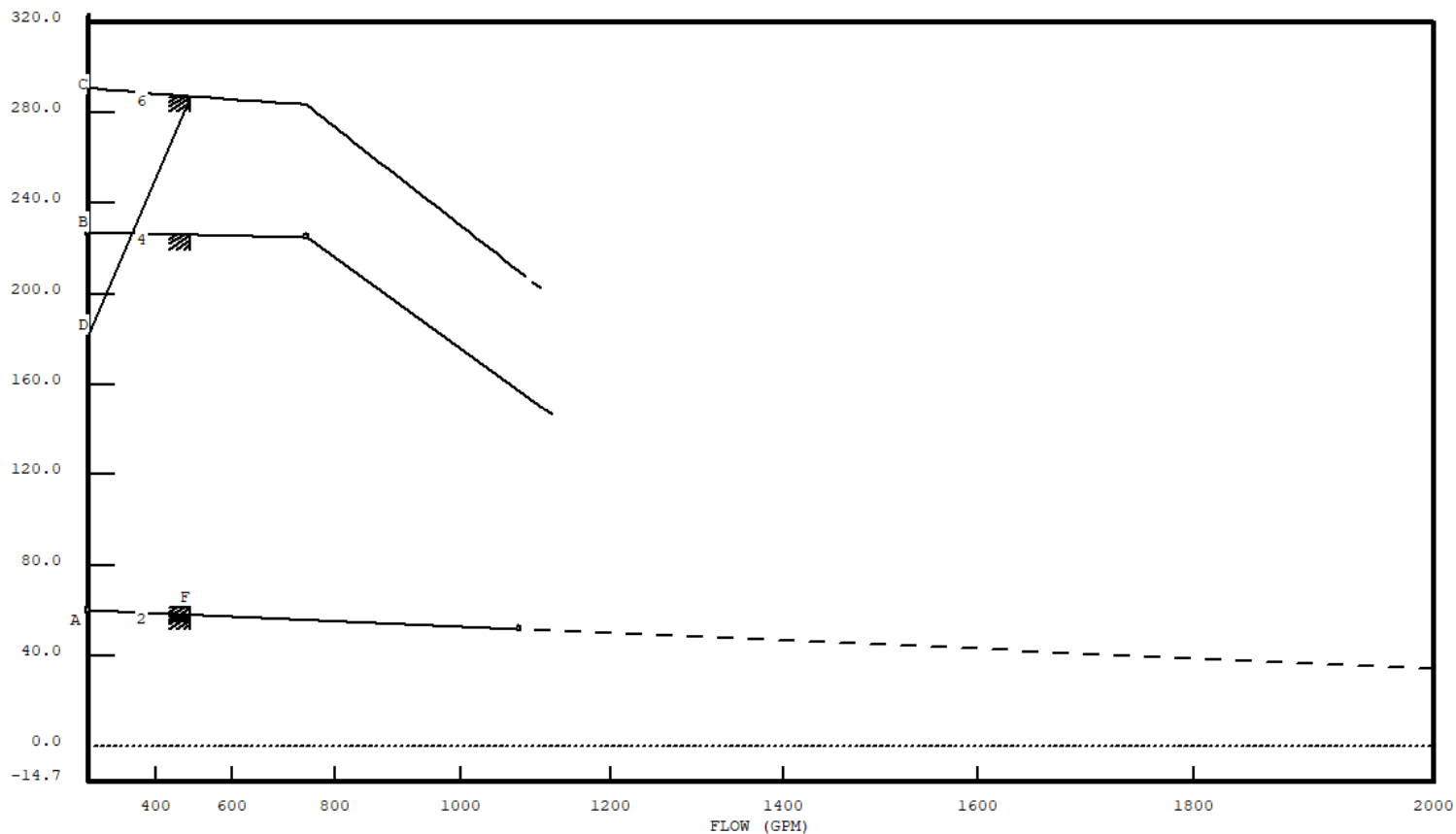
WATER SUPPLY ANALYSIS

Static: 60.00 psi Resid: 52.00 psi Flow: 1082.0 gpm

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Note: (1) Dashed Lines indicate extrapolated values from Test Results

- 1 Pressure available at source
58.08 psi @ 500.0 gpm
 - 2 Pressure required at source
58.08 psi @ 500.0 gpm
 - 3 Pressure available from pump
225.75 psi @ 500.0 gpm
 - 4 Pressure required from pump
225.75 psi @ 500.0 gpm
 - 5 Total Pressure available at pump dschg.
286.71 psi @ 500.0 gpm
 - 6 Total Pressure required at pump dschg.
286.71 psi @ 500.0 gpm
- A. Source Supply Curve
B. Net Pump Supply Curve
C. Pump Discharge Curve
D. System Demand Curve
F. Available at Pump Suction

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JOB TITLE: 775 Vaughan

WATER SUPPLY CURVE

