

HYDRAULIC CALCULATIONS FOR
SERVICIO GEOLOGICO COLOMBIANO - UNIVERSIDAD NACIONAL DE COLOMBIA

DRAWING NUMBER: 3954

DATE: MAY 24, 2017

-DESIGN DATA-

REMOTE AREA NUMBER: 6 REMOTE AREA LOCATION: CONEXIONES DE MANGUERA
BLOQUE 2 y 3

HOSE-STREAM DEMAND: 1000 gpm

TOTAL WATER REQUIRED (INCLUDING HOSE): 1000 gpm

FLOW AND PRESSURE (AT BASE OF RISER): 1000 gpm @ 200 psi

TYPE OF SYSTEM: HÚMEDO AUTOMÁTICO

NAME OF DESIGNER: ING. CRISTIAN DANIEL PARRADO

AUTHORITY HAVING JURISDICTION:

NOTES:

Calculations performed by HASS under license # 38011605 ,
granted by HRS SYSTEMS, INC.

(Notes continue after pipe calculations results.)

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF
 JOB TITLE: CENTRO DE EXCELENCIA

WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
	(N/A)	0.0	(N/A)	0.0	1000.0	0.7

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	1000.0 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	0.0 GPM
OTHER HOSE STREAM ALLOWANCES	1000.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	0.0 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
B	1.6	- - - -	-0.3	- - -
C	1.6	- - - -	189.4	- - -
D	8.9	- - - -	183.3	- - -
E	8.9	- - - -	181.7	- - -
F	8.9	- - - -	176.1	- - -
G	8.9	- - - -	172.7	- - -
H	8.9	- - - -	176.1	- - -
I	8.9	- - - -	170.4	- - -
J	8.9	- - - -	172.7	- - -
K	22.0	- - - -	170.4	- - -
L	22.0	- - - -	170.4	- - -
M	40.0	- - - -	162.6	- - -
N	40.0	- - - -	162.6	- - -
O	46.8	- - - -	159.6	- - -
P	51.0	- - - -	157.8	- - -
Q	60.5	- - - -	153.7	- - -
R	64.8	- - - -	151.8	- - -
S	74.3	- - - -	147.7	- - -
T	78.6	- - - -	145.9	- - -
U	88.1	- - - -	141.7	- - -
V	92.4	- - - -	139.9	- - -
W	101.9	- - - -	135.8	- - -
X	106.1	- - - -	133.9	- - -
Y	115.7	- - - -	129.8	- - -
Z	119.9	- - - -	127.9	- - -
AA	129.4	- - - -	123.8	- - -
AB	133.7	- - - -	122.0	- - -
AC	143.2	- - - -	117.8	- - -
AD	147.5	- - - -	116.0	- - -
AE	157.0	- - - -	111.9	- - -
AF	161.3	- - - -	110.0	- - -
AG	170.2	- - - -	106.1	- - -
AH	174.5	- - - -	104.3	- - -

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
AI	184.0	- - - -	100.2	- - -
AJ	188.3	- - - -	98.3	- - -
AK	22.0	- - - -	167.0	- - -
AL	22.0	- - - -	167.0	- - -
AM	27.7	- - - -	164.5	- - -
AN	32.0	- - - -	162.6	- - -
AO	40.0	- - - -	159.2	- - -
AP	46.8	- - - -	156.2	- - -
AQ	51.0	- - - -	154.4	- - -
AR	60.5	- - - -	150.3	- - -
AS	64.8	- - - -	148.4	- - -
AT	74.3	- - - -	144.3	- - -
AU	78.6	- - - -	142.5	- - -
AV	88.1	- - - -	138.3	- - -
AW	92.4	- - - -	136.5	- - -
AX	101.9	- - - -	132.4	- - -
AY	106.1	- - - -	130.5	- - -
AZ	115.7	- - - -	126.4	- - -
BB	119.9	- - - -	124.5	- - -
BC	129.4	- - - -	120.4	- - -
BD	133.7	- - - -	118.6	- - -
BE	143.2	- - - -	114.5	- - -
BF	147.5	- - - -	112.6	- - -
BG	157.0	- - - -	108.5	- - -
BH	161.3	- - - -	106.6	- - -
BI	170.2	- - - -	102.8	- - -
H-1	8.9	- - - -	169.4	- - -
H-2	8.9	- - - -	168.2	- - -
H-3	23.9	- - - -	157.1	- - -
H-4	23.9	- - - -	150.0	- - -
H-5	26.6	HOSE STREAM	144.6	250.0
H-6	26.6	- - - -	128.1	- - -
H-7	26.6	HOSE STREAM	124.0	250.0
H-8	26.6	- - - -	120.7	- - -
H-9	39.3	- - - -	114.5	- - -
H-10	39.3	- - - -	101.9	- - -
H-11	40.3	HOSE STREAM	100.0	250.0
H-12	17.6	HOSE STREAM	135.8	250.0
	0.0	SOURCE	0.7	1000.0

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

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: 13	0.0	6.065	PL 13.35	PF 0.0
M 40.0 0.0 162.6 0.0 0.0 120 FTG 2ET				PE 0.0
N 40.0 0.0 162.6 0.0 0.000 TL 71.35				PV
Pipe: 14	0.0	6.065	PL 6.72	PF 0.0
N 40.0 0.0 162.6 0.0 0.0 120 FTG ----				PE -2.9
O 46.8 0.0 159.6 0.0 0.000 TL 6.72				PV
Pipe: 15	0.0	6.065	PL 4.27	PF 0.0
O 46.8 0.0 159.6 0.0 0.0 120 FTG ----				PE -1.9
P 51.0 0.0 157.8 0.0 0.000 TL 4.27				PV
Pipe: 17	0.0	6.065	PL 9.51	PF 0.0
P 51.0 0.0 157.8 0.0 0.0 120 FTG ----				PE -4.1
Q 60.5 0.0 153.7 0.0 0.000 TL 9.51				PV
Pipe: 18	0.0	6.065	PL 4.27	PF 0.0
Q 60.5 0.0 153.7 0.0 0.0 120 FTG ----				PE -1.9
R 64.8 0.0 151.8 0.0 0.000 TL 4.27				PV
Pipe: 19	0.0	6.065	PL 9.51	PF 0.0
R 64.8 0.0 151.8 0.0 0.0 120 FTG ----				PE -4.1
S 74.3 0.0 147.7 0.0 0.000 TL 9.51				PV
Pipe: 20	0.0	6.065	PL 4.27	PF 0.0
S 74.3 0.0 147.7 0.0 0.0 120 FTG ----				PE -1.9
T 78.6 0.0 145.9 0.0 0.000 TL 4.27				PV
Pipe: 21	0.0	6.065	PL 9.51	PF 0.0
T 78.6 0.0 145.9 0.0 0.0 120 FTG ----				PE -4.1
U 88.1 0.0 141.7 0.0 0.000 TL 9.51				PV
Pipe: 22	0.0	6.065	PL 4.27	PF 0.0
U 88.1 0.0 141.7 0.0 0.0 120 FTG ----				PE -1.9
V 92.4 0.0 139.9 0.0 0.000 TL 4.27				PV
Pipe: 23	0.0	6.065	PL 9.51	PF 0.0
V 92.4 0.0 139.9 0.0 0.0 120 FTG ----				PE -4.1
W 101.9 0.0 135.8 0.0 0.000 TL 9.51				PV
Pipe: 24	0.0	6.065	PL 4.27	PF 0.0
W 101.9 0.0 135.8 0.0 0.0 120 FTG ----				PE -1.9
X 106.1 0.0 133.9 0.0 0.000 TL 4.27				PV
Pipe: 25	0.0	6.065	PL 9.51	PF 0.0
X 106.1 0.0 133.9 0.0 0.0 120 FTG ----				PE -4.1
Y 115.7 0.0 129.8 0.0 0.000 TL 9.51				PV
Pipe: 26	0.0	6.065	PL 4.27	PF 0.0
Y 115.7 0.0 129.8 0.0 0.0 120 FTG ----				PE -1.9
Z 119.9 0.0 127.9 0.0 0.000 TL 4.27				PV

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

PIPE TAG	Q (GPM)	DIA (IN)	LENGTH	PRESS.
END ELEV. NOZ. PT DISC. VEL (FPS) HW (C) (FT) SUM. (PSI)				
NODES (FT) (K) (PSI) (GPM) FL/FT				
Pipe: 27	0.0	6.065	PL 9.51	PF 0.0
Z 119.9 0.0 127.9 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
AA 129.4 0.0 123.8 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 28	0.0	6.065	PL 4.27	PF 0.0
AA 129.4 0.0 123.8 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
AB 133.7 0.0 122.0 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 29	0.0	6.065	PL 9.51	PF 0.0
AB 133.7 0.0 122.0 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
AC 143.2 0.0 117.8 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 30	0.0	6.065	PL 4.27	PF 0.0
AC 143.2 0.0 117.8 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
AD 147.5 0.0 116.0 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 31	0.0	6.065	PL 9.51	PF 0.0
AD 147.5 0.0 116.0 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
AE 157.0 0.0 111.9 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 32	0.0	6.065	PL 4.27	PF 0.0
AE 157.0 0.0 111.9 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
AF 161.3 0.0 110.0 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 33	0.0	6.065	PL 9.51	PF 0.0
AF 161.3 0.0 110.0 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
AG 170.2 0.0 106.1 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 34	0.0	6.065	PL 4.27	PF 0.0
AG 170.2 0.0 106.1 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
AH 174.5 0.0 104.3 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 35	0.0	6.065	PL 9.51	PF 0.0
AH 174.5 0.0 104.3 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
AI 184.0 0.0 100.2 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 36	0.0	6.065	PL 4.27	PF 0.0
AI 184.0 0.0 100.2 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
AJ 188.3 0.0 98.3 0.0 0.0 0.000 TL	0.0	6.065	PL 13.12	PF 0.0
Pipe: 37	0.0	6.065	PL 13.12	PF 0.0
J 8.9 0.0 172.7 0.0 0.0 120 FTG	0.0	6.065	PL 13.12	PF 0.0
AK 22.0 0.0 167.0 0.0 0.0 0.000 TL	0.0	6.065	PL 19.26	PF 0.0
Pipe: 38	0.0	6.065	PL 19.26	PF 0.0
AK 22.0 0.0 167.0 0.0 0.0 120 FTG	0.0	6.065	PL 19.26	PF 0.0
AL 22.0 0.0 167.0 0.0 0.0 0.000 TL	0.0	6.065	PL 5.74	PF 0.0
Pipe: 39	0.0	6.065	PL 5.74	PF 0.0
AL 22.0 0.0 167.0 0.0 0.0 120 FTG	0.0	6.065	PL 5.74	PF 0.0
AM 27.7 0.0 164.5 0.0 0.0 0.000 TL	0.0	6.065	PL 5.74	PF 0.0

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

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: 40	0.0	6.065	PL 4.27	PF 0.0
AM 27.7 0.0 164.5 0.0 0.0 120	0.0	6.065	FTG ----	PE -1.9
AN 32.0 0.0 162.6 0.0 0.0 0.000			TL 4.27	PV
Pipe: 41	0.0	6.065	PL 12.04	PF 0.0
AN 32.0 0.0 162.6 0.0 0.0 120	0.0	6.065	FTG 2E	PE -3.5
AO 40.0 0.0 159.2 0.0 0.0 0.000			TL 40.04	PV
Pipe: 43	0.0	6.065	PL 6.72	PF 0.0
AO 40.0 0.0 159.2 0.0 0.0 120	0.0	6.065	FTG ----	PE -2.9
AP 46.8 0.0 156.2 0.0 0.0 0.000			TL 6.72	PV
Pipe: 44	0.0	6.065	PL 4.27	PF 0.0
AP 46.8 0.0 156.2 0.0 0.0 120	0.0	6.065	FTG ----	PE -1.9
AQ 51.0 0.0 154.4 0.0 0.0 0.000			TL 4.27	PV
Pipe: 45	0.0	6.065	PL 9.51	PF 0.0
AQ 51.0 0.0 154.4 0.0 0.0 120	0.0	6.065	FTG ----	PE -4.1
AR 60.5 0.0 150.3 0.0 0.0 0.000			TL 9.51	PV
Pipe: 46	0.0	6.065	PL 4.27	PF 0.0
AR 60.5 0.0 150.3 0.0 0.0 120	0.0	6.065	FTG ----	PE -1.9
AS 64.8 0.0 148.4 0.0 0.0 0.000			TL 4.27	PV
Pipe: 47	0.0	6.065	PL 9.51	PF 0.0
AS 64.8 0.0 148.4 0.0 0.0 120	0.0	6.065	FTG ----	PE -4.1
AT 74.3 0.0 144.3 0.0 0.0 0.000			TL 9.51	PV
Pipe: 48	0.0	6.065	PL 4.27	PF 0.0
AT 74.3 0.0 144.3 0.0 0.0 120	0.0	6.065	FTG ----	PE -1.9
AU 78.6 0.0 142.5 0.0 0.0 0.000			TL 4.27	PV
Pipe: 49	0.0	6.065	PL 9.51	PF 0.0
AU 78.6 0.0 142.5 0.0 0.0 120	0.0	6.065	FTG ----	PE -4.1
AV 88.1 0.0 138.3 0.0 0.0 0.000			TL 9.51	PV
Pipe: 50	0.0	6.065	PL 4.27	PF 0.0
AV 88.1 0.0 138.3 0.0 0.0 120	0.0	6.065	FTG ----	PE -1.9
AW 92.4 0.0 136.5 0.0 0.0 0.000			TL 4.27	PV
Pipe: 51	0.0	6.065	PL 9.51	PF 0.0
AW 92.4 0.0 136.5 0.0 0.0 120	0.0	6.065	FTG ----	PE -4.1
AX 101.9 0.0 132.4 0.0 0.0 0.000			TL 9.51	PV
Pipe: 52	0.0	6.065	PL 4.27	PF 0.0
AX 101.9 0.0 132.4 0.0 0.0 120	0.0	6.065	FTG ----	PE -1.9
AY 106.1 0.0 130.5 0.0 0.0 0.000			TL 4.27	PV
Pipe: 53	0.0	6.065	PL 9.51	PF 0.0
AY 106.1 0.0 130.5 0.0 0.0 120	0.0	6.065	FTG ----	PE -4.1
AZ 115.7 0.0 126.4 0.0 0.0 0.000			TL 9.51	PV

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

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: 54	0.0	6.065	PL 4.27	PF 0.0
AZ 115.7 0.0 126.4 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
BB 119.9 0.0 124.5 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 55	0.0	6.065	PL 9.51	PF 0.0
BB 119.9 0.0 124.5 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
BC 129.4 0.0 120.4 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 56	0.0	6.065	PL 4.27	PF 0.0
BC 129.4 0.0 120.4 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
BD 133.7 0.0 118.6 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 57	0.0	6.065	PL 9.51	PF 0.0
BD 133.7 0.0 118.6 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
BE 143.2 0.0 114.5 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 58	0.0	6.065	PL 4.27	PF 0.0
BE 143.2 0.0 114.5 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
BF 147.5 0.0 112.6 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 59	0.0	6.065	PL 9.51	PF 0.0
BF 147.5 0.0 112.6 0.0 0.0 120 FTG	0.0	6.065	PL 4.27	PF 0.0
BG 157.0 0.0 108.5 0.0 0.0 0.000 TL	0.0	6.065	PL 4.27	PF 0.0
Pipe: 60	0.0	6.065	PL 4.27	PF 0.0
BG 157.0 0.0 108.5 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
BH 161.3 0.0 106.6 0.0 0.0 0.000 TL	0.0	6.065	PL 9.51	PF 0.0
Pipe: 61	0.0	6.065	PL 9.51	PF 0.0
BH 161.3 0.0 106.6 0.0 0.0 120 FTG	0.0	6.065	PL 9.51	PF 0.0
BI 170.2 0.0 102.8 0.0 0.0 0.000 TL	0.0	6.065	PL 1.64	PF 1.0
Pipe: 62	1000.0	6.065	PL 1.64	PF 1.0
I 8.9 0.0 170.4 0.0 11.1 120 FTG	1000.0	6.065	PL 2.93	PF 1.2
H-1 8.9 0.0 169.4 0.0 11.1 120 FTG	1000.0	6.065	PL 2.93	PF 1.2
H-2 8.9 0.0 168.2 0.0 11.1 0.035 TL	1000.0	6.065	PL 89.55	PF 4.6
Pipe: 63	1000.0	6.065	PL 89.55	PF 4.6
H-1 8.9 0.0 169.4 0.0 11.1 120 FTG	1000.0	6.065	PL 7.49	PF 7.1
H-2 8.9 0.0 168.2 0.0 11.1 120 FTG	1000.0	6.065	PL 7.49	PF 7.1
H-3 23.9 0.0 157.1 0.0 11.1 0.035 TL	1000.0	6.065	PL 7.49	PF 7.1
Pipe: 64	1000.0	6.065	PL 7.49	PF 7.1
H-2 8.9 0.0 168.2 0.0 11.1 120 FTG	1000.0	6.065	PL 7.49	PF 7.1
H-3 23.9 0.0 157.1 0.0 11.1 0.035 TL	1000.0	6.065	PL 7.49	PF 7.1
Pipe: 65	1000.0	4.026	PL 7.49	PF 7.1
H-3 23.9 0.0 157.1 0.0 25.2 120 FTG	1000.0	4.026	PL 7.49	PF 7.1
H-4 23.9 0.0 150.0 0.0 25.2 0.259 TL	750.0	6.065	PL 132.19	PF 4.2
Pipe: 66	750.0	6.065	PL 132.19	PF 4.2
H-3 23.9 0.0 157.1 0.0 25.2 120 FTG	750.0	6.065	PL 132.19	PF 4.2
H-4 23.9 0.0 150.0 0.0 8.3 120 FTG	750.0	6.065	PL 132.19	PF 4.2
H-5 26.6 H.S. 144.6 250.0 8.3 0.021 TL	750.0	6.065	PL 132.19	PF 4.2

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

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: 67	500.0	4.026	PL 189.24	PF 16.5
H-5 26.6 H.S. 144.6 250.0 12.6 120 FTG 2ET				PE 0.0
H-6 26.6 0.0 128.1 0.0 0.072 TL 229.24				PV
Pipe: 68	500.0	4.026	PL 37.24	PF 4.1
H-6 26.6 0.0 128.1 0.0 12.6 120 FTG T				PE 0.0
H-7 26.6 H.S. 124.0 250.0 0.072 TL 57.24				PV
Pipe: 69	250.0	4.026	PL 86.99	PF 3.3
H-7 26.6 H.S. 124.0 250.0 6.3 120 FTG 6ET				PE 0.0
H-8 26.6 0.0 120.7 0.0 0.020 TL 166.99				PV
Pipe: 70	250.0	4.026	PL 12.77	PF 0.7
H-8 26.6 0.0 120.7 0.0 6.3 120 FTG T				PE -5.5
H-9 39.3 0.0 114.5 0.0 0.020 TL 32.77				PV
Pipe: 71	250.0	2.469	PL 34.45	PF 12.6
H-9 39.3 0.0 114.5 0.0 16.8 120 FTG 4E				PE 0.0
H-10 39.3 0.0 101.9 0.0 0.215 TL 58.45				PV
Pipe: 72	250.0	2.469	PL 0.98	PF 1.5
H-10 39.3 0.0 101.9 0.0 16.8 120 FTG E				PE -0.4
H-11 40.3 H.S. 100.0 250.0 0.215 TL 6.98				PV
Pipe: 73	250.0	2.469	PL 66.50	PF 16.9
H-4 23.9 0.0 150.0 0.0 16.8 120 FTG 2E				PE 2.7
H-12 17.6 H.S. 135.8 250.0 0.215 TL 78.50				PV

NOTES (HASS):

- (1) Calculations were performed by the HASS 8.6 computer program in accordance with NFPA13 (2016) under license no. 38011605 granted by
 HRS Systems, Inc.
 208 Southside Square
 Petersburg, TN 37144
 (931) 659-9760
- (2) 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 0.027 gpm.
- (3) Total pressure at each node is used in balancing the system. Maximum water velocity is 25.2 ft/sec at pipe 65.
- (4) The Minimum pump suction pressure under maximum calculated demand is -0.26 (psi)
- (5) Items listed in bold print on the cover sheet are automatically transferred from the calculation report.

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

(6) Available pressure at source node under full flow conditions is 0.00 psi compared to the minimum required pressure of 0.00 psi.

(7) PIPE FITTINGS TABLE

Pipe Table Name: STANDARD.PIP

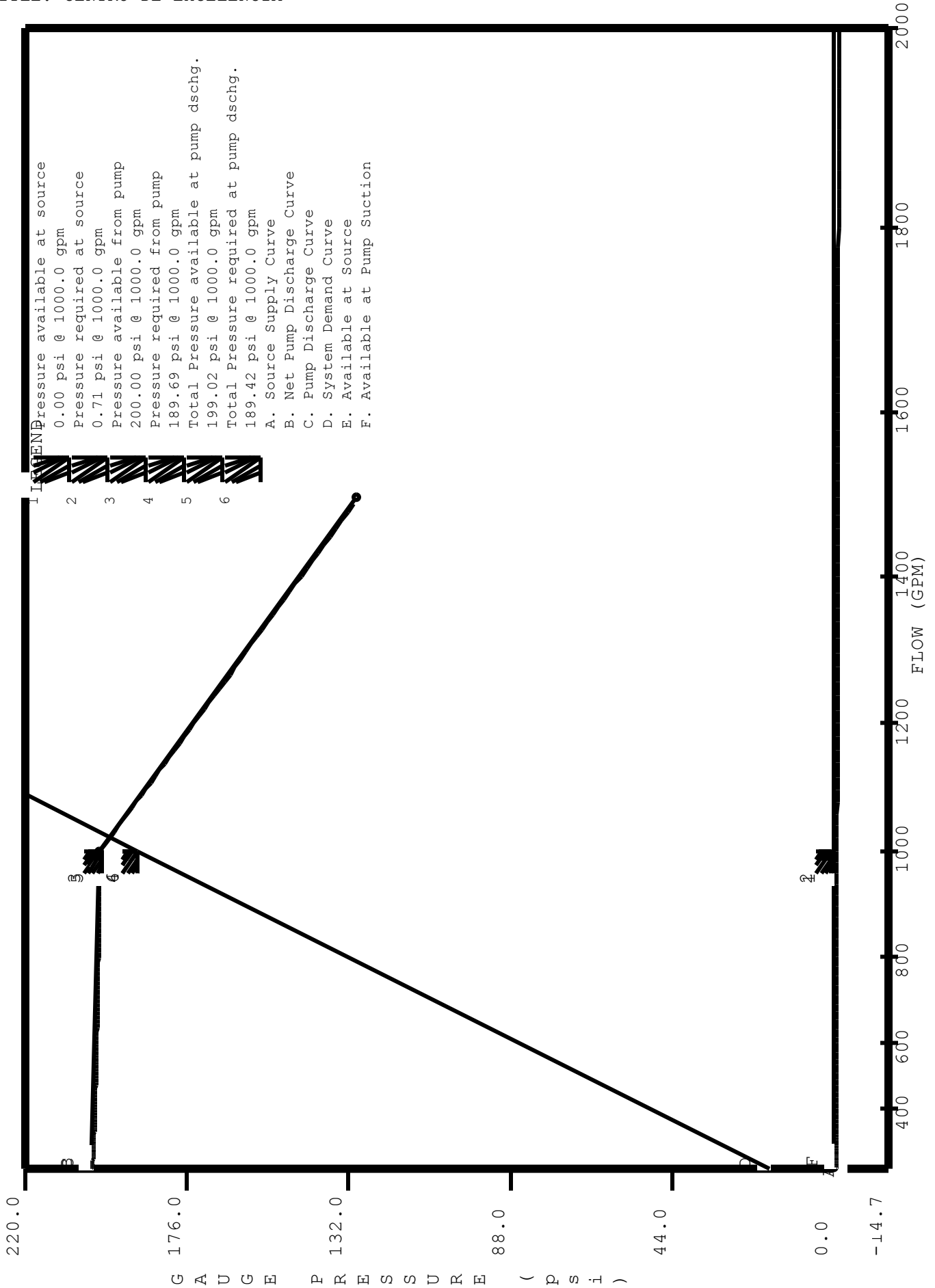
PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NPTee
2.469	6.00	12.00	4.00	14.00	7.00	1.00	10.00	10.00	12.00
4.026	10.00	20.00	6.00	22.00	12.00	2.00	20.00	20.00	20.00
6.065	14.00	30.00	9.00	32.00	10.00	3.00	28.00	28.00	30.00
7.981	18.00	35.00	13.00	45.00	12.00	4.00	31.00	31.00	35.00

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF
 JOB TITLE: CENTRO DE EXCELENCIA

WATER SUPPLY ANALYSIS

Fixed Source Pressure: 0.00 psi



Note: (1) Dashed Lines indicate extrapolated values from Test Results
 (2) On Site pressures are based on hose stream deduction at the source

DATE: 5/24/2017IA\6. RUTA CRÍTICA CONEXIONES DE MANGUERA-BLOQUE 2 Y 3.SDF

JOB TITLE: CENTRO DE EXCELENCIA

WATER SUPPLY CURVE

