Hydraulic Calculations

for

Project Name: MAYNARD CROSSING APARTMENTS: (1450D)

Location: , ,

Drawing Name: Maynard Crossing Apartments 1450D - FP400 Building Calculation Date: 8/6/2026

Design

Remote Area Number:	B04 R1
Occupancy Classification:	Residential
Density	0.05gpm/ft²
Area of Application:	495ft² (Actual 495ft²)
Coverage per Sprinkler:	130ft²
Type of sprinklers calculated:	Pendent, Sidewall
No. of sprinklers calculated:	4
No. of nozzles calculated:	0

In-rack Demand:	N/A gpm	at Node:	N/A		
Hose Streams:	0.0 gpm	at Node:	17	Type:	Allowance at Source

Total Water Required (including Hose Streams where applicable):

From Water Supply at Node 17: 107.49 @ 46.047 (Safety Margin = 7.900)

Type of System:

Volume of Dry/PreAction/Antifreeze/OtherAgent System: N/A

Name of Contractor: MAKSON FIRE

Address: 1306 SPEEDWAY BLVD, SALISBURY, NC 28146

Phone Number: 704-636-5505

Name of designer: D.PORTER

Authority Having Jurisdiction: : HARNETT COUNTY FIRE MARSHAL

Notes:

Summary Notes:

Supply at Node 17

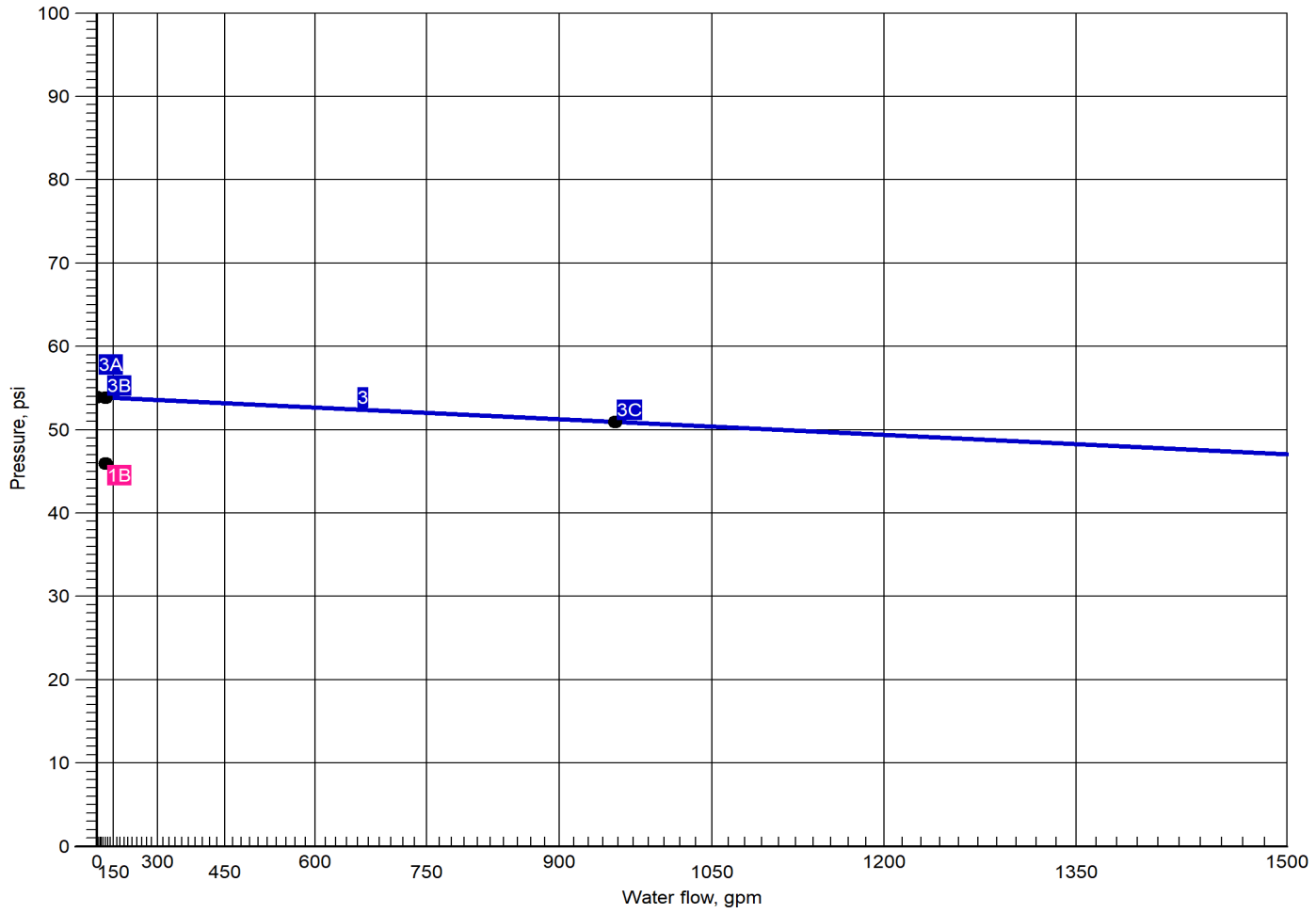
1 System Demand
3 Available Water Supply

Job Name: MAYNARD CROSSING APARTMENTS

Job Number: 1450D

Report Description: Residential (B04 R1)

Remote Area Number: B04 R1



Curve	Data Point	Hydraulic Calculation Results	Additional Data
1	1B	Required Pressure at System Demand: 46.047 @ 107.49	Available Flow @ 20 PSI: 3550.30
3	3A	Available Static Pressure at Supply at Node 17: 54.000	
	3B	Available Residual Pressure at System Demand: 53.947 @ 107.49	
	3C	Available Residual Pressure & Flow at Supply at Node 17: 51.000 @ 957.00	

Summary Of Outflowing Devices

Job Number: 1450D
Report Description: Residential (B04 R1)

Device		Actual Flow (gpm)	Minimum Flow (gpm)	K-Factor (K)	Pressure (psi)			
Floating Node	7	51.00	51.00	0	47.034			
Sprinkler	**S18**	**13.00**	**13.00**	**4**	**10.563**			
Sprinkler	S19	14.06	13.00	4.9	8.229			
Sprinkler	S20	14.31	13.00	4.9	8.529			
Sprinkler	S21	15.12	13.00	4.9	9.527			

Most Demanding Sprinkler Data

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
S18	26'-0	4	13.00	¾	(See Notes)	26'-10	150	10.563	• • • • • **Route 1** • • • • • Sprinkler,
100	18'-6		13.00	0.8740		18'-0 44'-10	0.094407	3.251 4.232	2Tr(1'-0), 3T(3'-0), E(7'-0)
100	18'-6		16.61	2	(See Notes)	38'-10½	150	18.046	Flow (q) from Route 8
101	18'-6		29.61	2.0030		22'-0 60'-10½	0.007629	0.464	11Tr(2'-0)
101	18'-6			2	(See Notes)	8'-6	150	18.511	T(10'-0)
112	10'-0		4.88	2.0030		10'-0 18'-6	0.000272	3.685 0.005	
112	10'-0			2		0'-0	150	22.201	
114	10'-0		4.88	2.0030		0'-0	0.000272	0.000	
114	10'-0			2	(See Notes)	1'-0	150	22.201	
106	9'-0		4.88	2.0030		10'-0 11'-0	0.000272	0.434 0.003	T(10'-0)
106	9'-0		26.88	2	(See Notes)	43'-3½	150	22.637	Flow (q) from Route 2
107	9'-0		31.76	2.0030		18'-0 61'-3½	0.008682	-0.000 0.532	9Tr(2'-0)
107	9'-0		24.73	2	(See Notes)	46'-2	150	23.169	Flow (q) from Route 7
102	4'-3		56.49	2.0030		52'-0 98'-2	0.025197	2.064 2.473	4Tr(2'-0), 4E(11'-0)
102	4'-3			2	(See Notes)	0'-6	120	27.707	
103	3'-1½		56.49	2.0670		3'-6 4'-0	0.032667	0.474 0.131	Tr(3'-6)
103	3'-1½			2	(See Notes)	1'-2	120	28.311	
104	1'-11½		56.49	2.1570		1'-2	0.026544	0.506 0.031	f(-0.000), f
104	1'-11½			2	(See Notes)	4'-0	120	28.848	
105	1'-0		56.49	2.0670		15'-0 19'-0	0.032667	0.424 11.547	T(10'-0), BFP(-10.927), E(5'-0), Gauge 1
105	1'-0			4	(See Notes)	24'-2½	150	40.819	
7	-13'-3		56.49	4.0700		22'-3½ 46'-6	0.000798	6.178 0.037	2GV(3'-2), E(15'-11), FN

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes (Fitting/Device (Equivalent Length); Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.)
7	-13'-3		51.00	4	(See Notes)	36'-3	150	47.034	
						35'-½	0.002622		
12	-13'-3		107.49	4.0700		71'-3		0.187	GV(3'-2), T(31'-10)
12	-13'-3			8	(See Notes)	293'-8½	150	47.221	
						22'-6½	0.000040		
13	-13'-3		59.66	7.6800		316'-3		0.013	2EE(11'-3)
13	-13'-3			8		2'-9	150	47.234	
							0.000040		
14	-13'-3		59.66	7.6800		2'-9		0.000	
14	-13'-3			8		63'-5½	150	47.234	
							0.000040		
15	-13'-3		59.66	7.6800		63'-5½		0.003	
15	-13'-3		47.83	8	(See Notes)	634'-6½	150	47.236	Flow (q) from Route 5
						126'-5½	0.000119		
16	-13'-3		107.49	7.6800		761'-½		0.091	3EE(11'-3), GV(5'-0), 2T(43'-10)
16	-13'-3			6	Supply (See Notes)	20'-11½	150	47.327	Avl.Pressure @ Supply: 53.947
						25'-6½	0.000444	-1.301	
17	-10'-3		107.49	5.8600		46'-6		0.021	2GV(3'-10), E(17'-10½), S
			0.00					46.047	Hose Allowance At Source
17			107.49						Total(Pt) Route 1
S19	26'-4½	4.9	14.06	¾	(See Notes)	26'-5½	150	8.229	• • • • • **Route 2** • • • • •
						29'-0	0.109084	3.391	Sprinkler,
108	18'-6½		14.06	0.8740		55'-5½		6.050	4E(7'-0), Tr(1'-0)
108	18'-6½			2	(See Notes)	3'-4	150	17.670	
						2'-0	0.001922	0.019	
109	18'-6		14.06	2.0030		5'-4		0.010	Tr(2'-0)
109	18'-6		15.12	2	(See Notes)	2'-6½	150	17.700	Flow (q) from Route 4
						2'-0	0.007424	0.002	
110	18'-6		29.18	2.0030		4'-6½		0.034	Tr(2'-0)
110	18'-6		14.31	2	(See Notes)	5'-3	150	17.735	Flow (q) from Route 3
						12'-0	0.015532		
111	18'-6		43.49	2.0030		17'-3		0.268	Tr(2'-0), T(10'-0)

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes: Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
111	18'-6			2	(See Notes)	52'-10½	150	18.003	
106	9'-0		26.88	2.0030		28'-0	0.006375	4.119	T(10'-0), 9Tr(2'-0)
						80'-10½		0.515	
								22.637	Total(Pt) Route 2
S20	26'-4½	4.9	14.31	¾	(See Notes)	22'-4½	150	8.529	• • • • • **Route 3** • • • • • Sprinkler,
110	18'-6		14.31	0.8740		29'-0	0.112758	3.412	3E(7'-0), 2T(3'-0), 2Tr(1'-0)
						51'-4½		5.794	
								17.735	Total(Pt) Route 3
S21	26'-4½	4.9	15.12	¾	(See Notes)	14'-1½	150	9.527	• • • • • **Route 4** • • • • • Sprinkler,
109	18'-6		15.12	0.8740		24'-0	0.124918	3.410	3E(7'-0), T(3'-0)
						38'-1½		4.762	
								17.700	Total(Pt) Route 4
11	-13'-3		47.83	8		148'-9½	150	47.224	• • • • • **Route 5** • • • • • Flow (q) from Route 6
10	-13'-3		47.83	7.6800			0.000027		
						148'-9½		0.004	
10	-13'-3			8	(See Notes)	250'-6	150	47.228	
15	-13'-3		47.83	7.6800		66'-4½	0.000027		2EE(11'-3), T(43'-10)
						316'-10½		0.008	
								47.236	Total(Pt) Route 5
12	-13'-3		59.66	8	(See Notes)	87'-6½	150	47.221	• • • • • **Route 6** • • • • • Flow (q) from Route 1
11	-13'-3		47.83	7.6800		22'-6½	0.000027		2EE(11'-3)
						110'-1		0.003	
								47.224	Total(Pt) Route 6
101	18'-6			2	(See Notes)	52'-9½	150	18.511	• • • • • **Route 7** • • • • • Tr(2'-0)
107	9'-0		24.73	2.0030		46'-0	0.005467	4.119	12Tr(2'-0), 2T(10'-0)
						98'-9½		0.540	
								23.169	Total(Pt) Route 7
111	18'-6			2	(See Notes)	4'-6	150	18.003	• • • • • **Route 8** • • • • • T(10'-0)
100	18'-6		16.61	2.0030		12'-0	0.002619		Tr(2'-0)
						16'-6		0.043	
								18.046	Total(Pt) Route 8

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)

(Actual Inside Diameter / Schedule 40 Steel Pipe Inside Diameter) 4.87 = Factor

C Value Multiplier

Value Of C	100	130	140	150
Multiplying Factor	0.713	1.16	1.33	1.51

Fittings Legend

ALV	Alarm Valve	AngV	Angle Valve	b	Bushing
BalV	Ball Valve	BFP	Backflow Preventer	BV	Butterfly Valve
C	Cross Flow Turn 90°	cplg	Coupling	Cr	Cross Run
CV	Check Valve	DelV	Deluge Valve	DPV	Dry Pipe Valve
E	90° Elbow	EE	45° Elbow	Ee1	11¼° Elbow
Ee2	22½° Elbow	f	Flow Device	fd	Flex Drop
FDC	Fire Department Connection	fE	90° FireLock(TM) Elbow	fEE	45° FireLock(TM) Elbow
flg	Flange	FN	Floating Node	fT	FireLock(TM) Tee
g	Gauge	GloV	Globe Valve	GV	Gate Valve
Ho	Hose	Hose	Hose	HV	Hose Valve
Hyd	Hydrant	LtE	Long Turn Elbow	mecT	Mechanical Tee
Noz	Nozzle	P1	Pump In	P2	Pump Out
PIV	Post Indicating Valve	PO	Pipe Outlet	PrV	Pressure Relief Valve
PRV I	Pressure Reducing Valve In	PRV C	Pressure Reducing Valve Out	red	Reducer/Adapter
S	Supply	sCV	Swing Check Valve	SFx	Seismic Flex
Spr	Sprinkler	St	Strainer	T	Tee Flow Turn 90°
Tr	Tee Run	U	Union	WirF	Wirsbo
WMV	Water Meter Valve	Z	Cap		

Hydraulic Calculations

for

Project Name: MAYNARD CROSSING APARTMENTS: (1450D)

Location: , ,

Drawing Name: Maynard Crossing Apartments 1450D - FP400 Building Calculation Date: 8/6/2026

Design

Remote Area Number:	B04 R2
Occupancy Classification:	Light Hazard
Density	0.10gpm/ft²
Area of Application:	170ft² (Actual 170ft²)
Coverage per Sprinkler:	130ft²
Type of sprinklers calculated:	Sidewall
No. of sprinklers calculated:	2
No. of nozzles calculated:	0

In-rack Demand:	N/A gpm	at Node:	N/A		
Hose Streams:	100.00	at Node:	17	Type:	Allowance at Source

Total Water Required (including Hose Streams where applicable):

From Water Supply at Node 17: 182.47 @ 39.362 (Safety Margin = 14.499)

Type of System:

Volume of Dry/PreAction/Antifreeze/OtherAgent System: N/A

Name of Contractor: MAKSON FIRE

Address: 1306 SPEEDWAY BLVD, SALISBURY, NC 28146

Phone Number: 704-636-5505

Name of designer: D.PORTER

Authority Having Jurisdiction: : HARNETT COUNTY FIRE MARSHAL

Notes:

Summary Notes:

Supply at Node 17

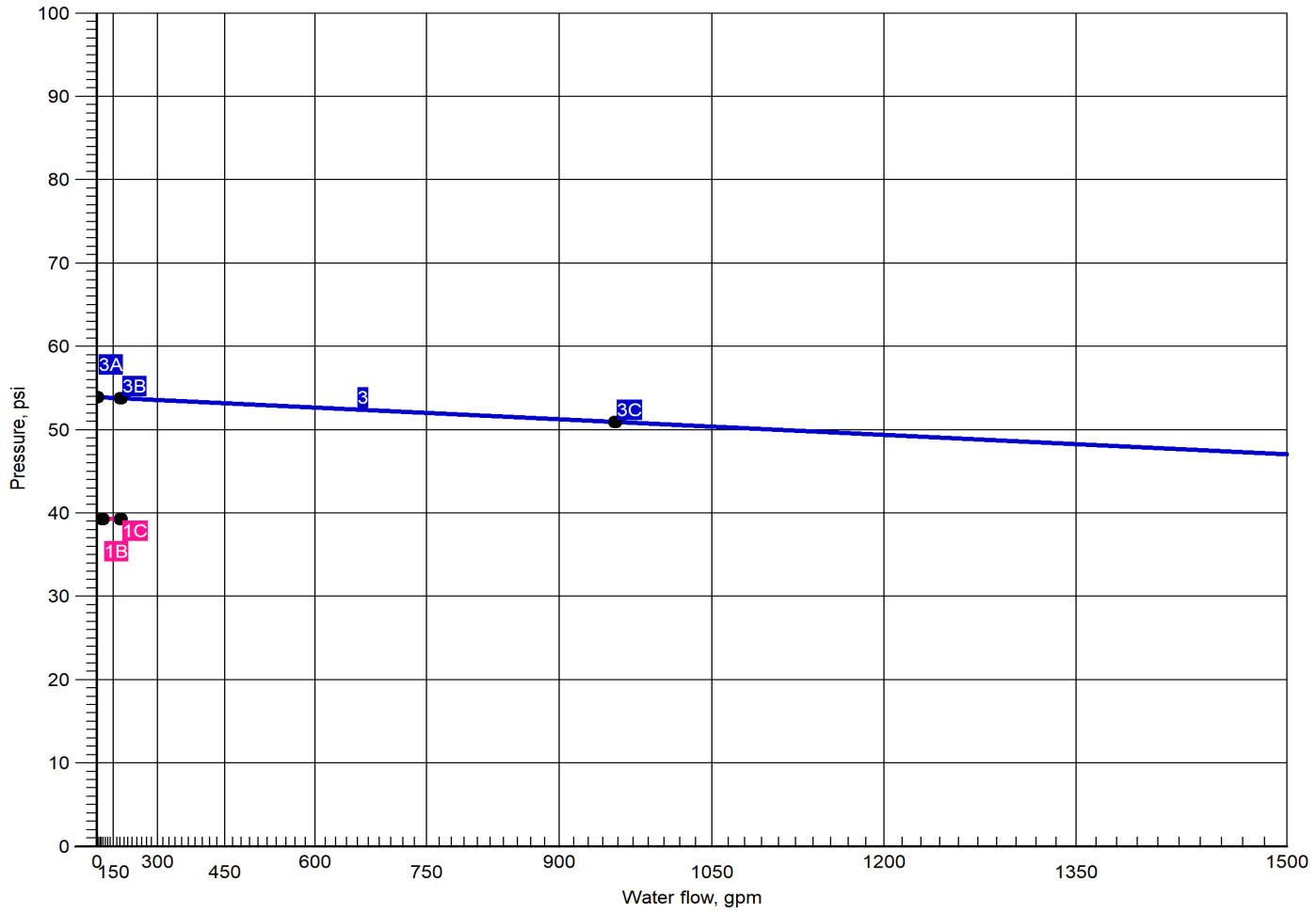
1 System Demand
3 Available Water Supply

Job Name: MAYNARD CROSSING APARTMENTS

Job Number: 1450D

Report Description: Light Hazard (B04 R2)

Remote Area Number: B04 R2



Curve	Data Point	Hydraulic Calculation Results	Additional Data
1	1B	Required Pressure at System Demand: 39.362 @ 82.47	Available Flow @ 20 PSI: 3550.30
	1C	Required Pressure at System Demand (Including Hose Allowance at Source): 39.362 @ 182.47	
3	3A	Available Static Pressure at Supply at Node 17: 54.000	
	3B	Available Residual Pressure at System Demand: 53.860 @ 182.47	
	3C	Available Residual Pressure & Flow at Supply at Node 17: 51.000 @ 957.00	

Summary Of Outflowing Devices

Job Number: 1450D
Report Description: Light Hazard (B04 R2)

Device		Actual Flow (gpm)	Minimum Flow (gpm)	K-Factor (K)	Pressure (psi)			
Floating Node	7	51.00	51.00	0	40.470			
Sprinkler	**S22**	**14.82**	**14.82**	**5.6**	**7.000**			
Sprinkler	S23	16.65	14.82	5.6	8.841			

Most Demanding Sprinkler Data

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
S22	26'-0	5.6	14.82	1	(See Notes)	1'-0	100	7.000	• • • • • **Route 1** • • • • •
						3'-7	0.104671	0.027	Sprinkler,
113	25'-11		14.82	1.0490		4'-7		0.478	T(3'-7)
113	25'-11			¾	(See Notes)	24'-4½	150	7.505	
						9'-0	0.120247	3.221	
100	18'-6		14.82	0.8740		33'-4½		4.011	3T(3'-0)
100	18'-6			2	(See Notes)	57'-4½	150	14.737	
						38'-0	0.001655	4.119	
106	9'-0		12.96	2.0030		95'-4½		0.158	2T(10'-0), 9Tr(2'-0)
106	9'-0		4.62	2	(See Notes)	43'-3½	150	19.013	Flow (q) from Route 2
						18'-0	0.002909	-0.000	
107	9'-0		17.59	2.0030		61'-3½		0.178	9Tr(2'-0)
107	9'-0		13.88	2	(See Notes)	46'-2	150	19.191	Flow (q) from Route 5
						52'-0	0.008536	2.064	
102	4'-3		31.47	2.0030		98'-2		0.838	4Tr(2'-0), 4E(11'-0)
102	4'-3			2	(See Notes)	0'-6	120	22.093	
						3'-6	0.011066	0.474	
103	3'-1½		31.47	2.0670		4'-0		0.044	Tr(3'-6)
103	3'-1½			2	(See Notes)	1'-2	120	22.612	
							0.008992	0.506	
104	1'-11½		31.47	2.1570		1'-2		0.010	f(-0.000), f
104	1'-11½			2	(See Notes)	4'-0	120	23.128	
						15'-0	0.011066	0.424	
105	1'-0		31.47	2.0670		19'-0		10.728	T(10'-0), BFP(-10.518), E(5'-0), Gauge 1
105	1'-0			4	(See Notes)	24'-2½	150	34.280	
						22'-3½	0.000270	6.178	
7	-13'-3		31.47	4.0700		46'-6		0.013	2GV(3'-2), E(15'-11), FN
7	-13'-3		51.00	4	(See Notes)	36'-3	150	40.470	
						35'-½	0.001606		
12	-13'-3		82.47	4.0700		71'-3		0.114	GV(3'-2), T(31'-10)
12	-13'-3			8	(See Notes)	293'-8½	150	40.585	
						22'-6½	0.000025		
13	-13'-3		45.77	7.6800		316'-3		0.008	2EE(11'-3)

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes (Fitting/Device (Equivalent Length); Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.)
13	-13'-3			8		2'-9	150	40.592	
14	-13'-3		45.77	7.6800		2'-9	0.000025	0.000	
14	-13'-3			8		63'-5½	150	40.592	
15	-13'-3		45.77	7.6800		63'-5½	0.000025	0.002	
15	-13'-3		36.69	8	(See Notes)	634'-6½	150	40.594	Flow (q) from Route 3
16	-13'-3		82.47	7.6800	(See Notes)	126'-5½ 761'-½	0.000073	0.055	3EE(11'-3), GV(5'-0), 2T(43'-10)
16	-13'-3			6	Supply (See Notes)	20'-11½	150	40.649	Avl.Pressure @ Supply: 53.860
17	-10'-3		82.47	5.8600	Supply (See Notes)	25'-6½ 46'-6	0.000272	-1.301 0.013	2GV(3'-10), E(17'-10½), S
			100.00					39.362	Hose Allowance At Source
17			182.47						Total(Pt) Route 1
S23	26'-0	5.6	16.65	1	(See Notes)	1'-0	100	8.841	• • • • • **Route 2** • • • • • Sprinkler,
115	25'-11		16.65	1.0490	(See Notes)	3'-7 4'-7	0.129910	0.027 0.593	T(3'-7)
115	25'-11			¾	(See Notes)	7'-9	150	9.462	
116	18'-6		16.65	0.8740	(See Notes)	6'-0 13'-9	0.149241	3.221 2.055	2T(3'-0)
116	18'-6		1.85	2	(See Notes)	30'-11	150	14.737	Flow (q) from Route 6
101	18'-6		18.50	2.0030	(See Notes)	16'-0 46'-11	0.003196	0.150	8Tr(2'-0)
101	18'-6			2	(See Notes)	8'-6	150	14.887	T(10'-0)
112	10'-0		4.62	2.0030	(See Notes)	10'-0 18'-6	0.000246	3.685 0.005	
112	10'-0			2		0'-0	150	18.577	
114	10'-0		4.62	2.0030		0'-0	0.000246	0.000	
114	10'-0			2	(See Notes)	1'-0	150	18.577	
106	9'-0		4.62	2.0030	(See Notes)	10'-0 11'-0	0.000246	0.434 0.003	T(10'-0)

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes
								19.013	Total(Pt) Route 2
11	-13'-3		36.69	8		148'-9½	150	40.586	**• • • • • Route 3 • • • • •** Flow (q) from Route 4
10	-13'-3		36.69	7.6800		148'-9½	0.000016	0.002	
10	-13'-3			8	(See Notes)	250'-6	150	40.589	
15	-13'-3		36.69	7.6800		66'-4½ / 316'-10½	0.000016	0.005	2EE(11'-3), T(43'-10)
								40.594	Total(Pt) Route 3
12	-13'-3		45.77	8	(See Notes)	87'-6½	150	40.585	**• • • • • Route 4 • • • • •** Flow (q) from Route 1
11	-13'-3		36.69	7.6800		22'-6½ / 110'-1	0.000016	0.002	2EE(11'-3)
								40.586	Total(Pt) Route 4
101	18'-6			2	(See Notes)	52'-9½	150	14.887	**• • • • • Route 5 • • • • •** Tr(2'-0)
107	9'-0		13.88	2.0030		46'-0 / 98'-9½	0.001878	4.119 / 0.185	12Tr(2'-0), 2T(10'-0)
								19.191	Total(Pt) Route 5
100	18'-6		12.96	2	(See Notes)	7'-11½	150	14.737	**• • • • • Route 6 • • • • •** Flow (q) from Route 1
116	18'-6		1.85	2.0030		6'-0 / 13'-11½	0.000045	0.001	3Tr(2'-0)
								14.737	Total(Pt) Route 6

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)

(Actual Inside Diameter / Schedule 40 Steel Pipe Inside Diameter) 4.87 = Factor

C Value Multiplier

Value Of C	100	130	140	150
Multiplying Factor	0.713	1.16	1.33	1.51

Fittings Legend

ALV	Alarm Valve	AngV	Angle Valve	b	Bushing
BalV	Ball Valve	BFP	Backflow Preventer	BV	Butterfly Valve
C	Cross Flow Turn 90°	cplg	Coupling	Cr	Cross Run
CV	Check Valve	DelV	Deluge Valve	DPV	Dry Pipe Valve
E	90° Elbow	EE	45° Elbow	Ee1	11¼° Elbow
Ee2	22½° Elbow	f	Flow Device	fd	Flex Drop
FDC	Fire Department Connection	fE	90° FireLock(TM) Elbow	fEE	45° FireLock(TM) Elbow
flg	Flange	FN	Floating Node	fT	FireLock(TM) Tee
g	Gauge	GloV	Globe Valve	GV	Gate Valve
Ho	Hose	Hose	Hose	HV	Hose Valve
Hyd	Hydrant	LtE	Long Turn Elbow	mecT	Mechanical Tee
Noz	Nozzle	P1	Pump In	P2	Pump Out
PIV	Post Indicating Valve	PO	Pipe Outlet	PrV	Pressure Relief Valve
PRV I	Pressure Reducing Valve In	PRV C	Pressure Reducing Valve Out	red	Reducer/Adapter
S	Supply	sCV	Swing Check Valve	SFx	Seismic Flex
Spr	Sprinkler	St	Strainer	T	Tee Flow Turn 90°
Tr	Tee Run	U	Union	WirF	Wirsbo
WMV	Water Meter Valve	Z	Cap		

Hydraulic Calculations

for

Project Name: MAYNARD CROSSING APARTMENTS: (1450D)

Location: , ,

Drawing Name: Maynard Crossing Apartments 1450D - FP400 Building Calculation Date: 8/6/2026

Design

Remote Area Number:	B04 R3
Occupancy Classification:	Residential
Density	0.05gpm/ft²
Area of Application:	527ft² (Actual 527ft²)
Coverage per Sprinkler:	130ft²
Type of sprinklers calculated:	Pendent, Sidewall
No. of sprinklers calculated:	4
No. of nozzles calculated:	0

In-rack Demand:	N/A gpm	at Node:	N/A		
Hose Streams:	0.0 gpm	at Node:	17	Type:	Allowance at Source

Total Water Required (including Hose Streams where applicable):

From Water Supply at Node 17: 102.76 @ 45.165 (Safety Margin = 8.787)

Type of System:

Volume of Dry/PreAction/Antifreeze/OtherAgent System: N/A

Name of Contractor: MAKSON FIRE

Address: 1306 SPEEDWAY BLVD, SALISBURY, NC 28146

Phone Number: 704-636-5505

Name of designer: D.PORTER

Authority Having Jurisdiction: : HARNETT COUNTY FIRE MARSHAL

Notes:

Summary Notes:

Supply at Node 17

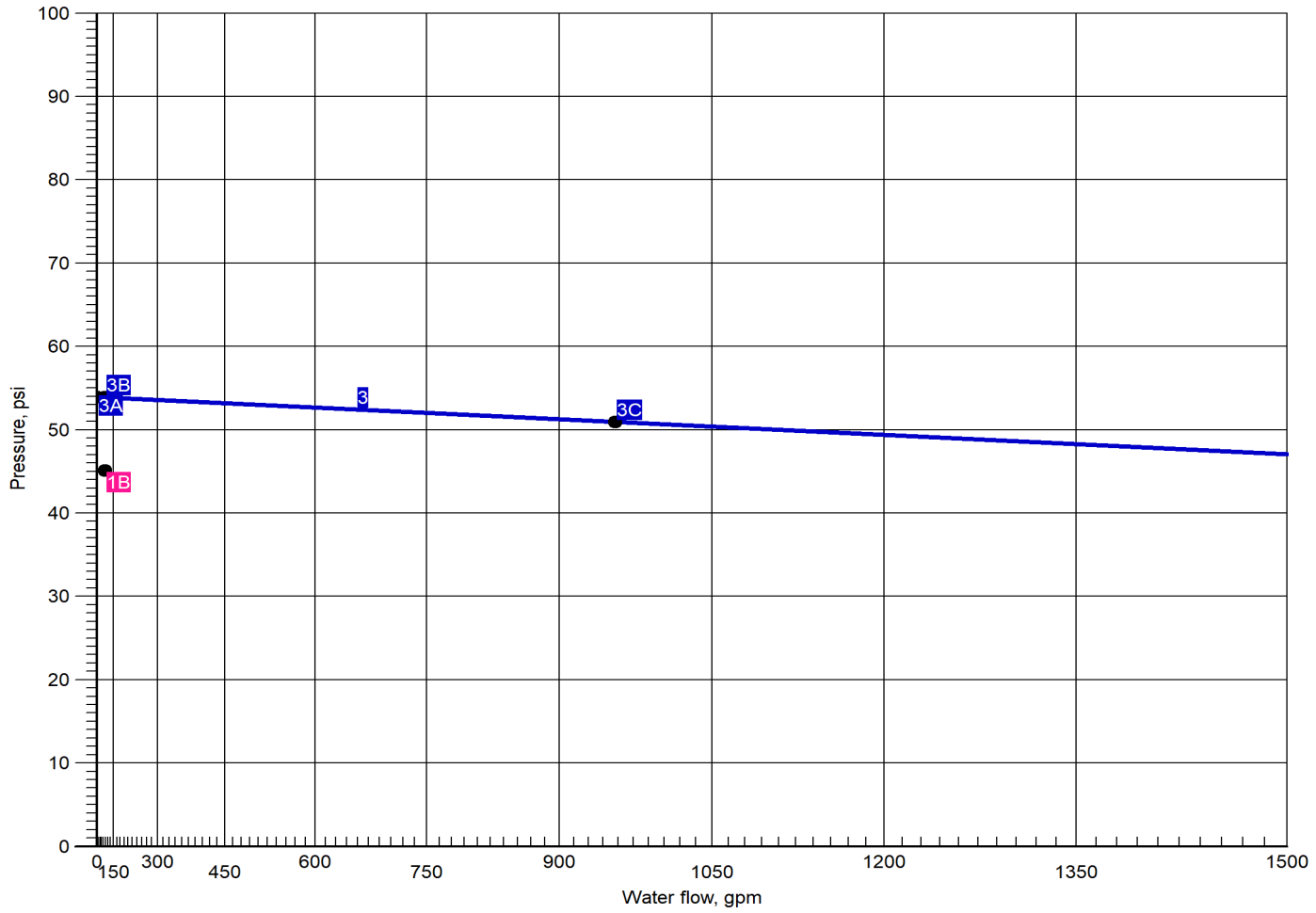
1 System Demand
3 Available Water Supply

Job Name: MAYNARD CROSSING APARTMENTS

Job Number: 1450D

Report Description: Residential (B04 R3)

Remote Area Number: B04 R3



Curve	Data Point	Hydraulic Calculation Results	Additional Data
1	1B	Required Pressure at System Demand: 45.165 @ 102.76	Available Flow @ 20 PSI: 3550.30
3	3A	Available Static Pressure at Supply at Node 17: 54.000	
	3B	Available Residual Pressure at System Demand: 53.952 @ 102.76	
	3C	Available Residual Pressure & Flow at Supply at Node 17: 51.000 @ 957.00	

Summary Of Outflowing Devices

Job Number: 1450D
Report Description: Residential (B04 R3)

Device		Actual Flow (gpm)	Minimum Flow (gpm)	K-Factor (K)	Pressure (psi)			
Floating Node	7	51.00	51.00	0	46.177			
Sprinkler	**S24**	**13.00**	**13.00**	**4**	**10.563**			
Sprinkler	S25	12.27	12.00	4	9.405			
Sprinkler	S26	13.35	12.00	4	11.131			
Sprinkler	S27	13.15	13.00	4.9	7.200			

⇨ Most Demanding Sprinkler Data

Pipe Information

Node 1 / Node 2	Elev 1 / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
S24	26'-0	4	13.00	¾	(See Notes)	27'-9½	150	10.563	• • • • • **Route 1** • • • • •
117	18'-6		13.00	0.8740		18'-0 45'-9½	0.094407	3.251 4.321	Sprinkler, 2Tr(1'-0), 3T(3'-0), E(7'-0)
117	18'-6			2	(See Notes)	3'-9½	150	18.135	
118	18'-6		0.03	2.0030		4'-0 7'-9½	0.000000	0.000	2Tr(2'-0)
118	18'-6		13.35	2	(See Notes)	6'-½	150	18.135	Flow (q) from Route 4
119	18'-6		13.38	2.0030		2'-0 8'-½	0.001754	0.000 0.014	Tr(2'-0)
119	18'-6		25.42	2	(See Notes)	6'-8½	150	18.150	Flow (q) from Route 2
101	18'-6		38.80	2.0030		4'-0 10'-8½	0.012573	0.135	2Tr(2'-0)
101	18'-6			2	(See Notes)	8'-6	150	18.284	T(10'-0)
112	10'-0		15.25	2.0030		10'-0 18'-6	0.002234	3.685 0.041	
112	10'-0			2		0'-0	150	22.010	
114	10'-0		15.25	2.0030		0'-0	0.002234	0.000	
114	10'-0			2	(See Notes)	1'-0	150	22.010	
106	9'-0		15.25	2.0030		10'-0 11'-0	0.002234	0.434 0.025	T(10'-0)
106	9'-0		12.97	2	(See Notes)	43'-3½	150	22.469	Flow (q) from Route 8
107	9'-0		28.21	2.0030		18'-0 61'-3½	0.006974	-0.000 0.427	9Tr(2'-0)
107	9'-0		23.55	2	(See Notes)	46'-2	150	22.896	Flow (q) from Route 7
102	4'-3		51.76	2.0030		52'-0 98'-2	0.021433	2.064 2.104	4Tr(2'-0), 4E(11'-0)
102	4'-3			2	(See Notes)	0'-6	120	27.064	
103	3'-1½		51.76	2.0670		3'-6 4'-0	0.027787	0.474 0.111	Tr(3'-6)
103	3'-1½			2	(See Notes)	1'-2	120	27.649	
104	1'-11½		51.76	2.1570		1'-2	0.022579	0.506 0.026	f(-0.000), f

Pipe Information

Node 1 / Node 2	Elev 1 / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes: Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
104	1'-11½			2	(See Notes)	4'-0	120	28.181	
105	1'-0		51.76	2.0670		15'-0 19'-0	0.027787	0.424 11.362	T(10'-0), BFP(-10.835), E(5'-0), Gauge 1
105	1'-0			4	(See Notes)	24'-2½	150	39.967	
7	-13'-3		51.76	4.0700		22'-3½ 46'-6	0.000678	6.178 0.032	2GV(3'-2), E(15'-11), FN
7	-13'-3		51.00	4	(See Notes)	36'-3	150	46.177	
12	-13'-3		102.76	4.0700		35'-½ 71'-3	0.002413	 0.172	GV(3'-2), T(31'-10)
12	-13'-3			8	(See Notes)	293'-8½	150	46.349	
13	-13'-3		57.04	7.6800		22'-6½ 316'-3	0.000037	 0.012	2EE(11'-3)
13	-13'-3			8		2'-9	150	46.360	
14	-13'-3		57.04	7.6800		 2'-9	0.000037	 0.000	
14	-13'-3			8		63'-5½	150	46.360	
15	-13'-3		57.04	7.6800		 63'-5½	0.000037	 0.002	
15	-13'-3		45.72	8	(See Notes)	634'-6½	150	46.363	Flow (q) from Route 5
16	-13'-3		102.76	7.6800		126'-5½ 761'-½	0.000110	 0.083	3EE(11'-3), GV(5'-0), 2T(43'-10)
16	-13'-3			6	Supply (See Notes)	20'-11½	150	46.446	Avl.Pressure @ Supply: 53.952
17	-10'-3		102.76	5.8600		25'-6½ 46'-6	0.000409	-1.301 0.019	2GV(3'-10), E(17'-10½), S
			0.00					45.165	Hose Allowance At Source
17			102.76						Total(Pt) Route 1
S27	26'-4½	4.9	13.15	¾	(See Notes)	17'-8½	150	7.200	• • • • • **Route 2** • • • • • Sprinkler,
401	18'-6		13.15	0.8740		38'-0 55'-8½	0.096411	3.412 5.371	5E(7'-0), T(3'-0)
401	18'-6		12.27	1	(See Notes)	15'-5½	150	15.983	Flow (q) from Route 3
119	18'-6		25.42	1.1010		5'-0 20'-5½	0.105999	0.000 2.166	T(5'-0)

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes: Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
								18.150	Total(Pt) Route 2
S25	26'-0	4	12.27	¾	(See Notes)	22'-2½	150	9.405	• • • • • **Route 3** • • • • • Sprinkler,
401	18'-6		12.27	0.8740		17'-0 39'-2½	0.084798	3.251 3.327	3Tr(1'-0), 2E(7'-0)
								15.983	Total(Pt) Route 3
S26	26'-0	4	13.35	¾	(See Notes)	17'-10½	150	11.131	• • • • • **Route 4** • • • • • Sprinkler,
118	18'-6		13.35	0.8740		20'-0 37'-10½	0.099099	3.251 3.753	2E(7'-0), 3Tr(1'-0), T(3'-0)
								18.135	Total(Pt) Route 4
11	-13'-3		45.72	8		148'-9½	150	46.351	• • • • • **Route 5** • • • • • Flow (q) from Route 6
10	-13'-3		45.72	7.6800		 148'-9½	0.000024	 0.004	
10	-13'-3			8	(See Notes)	250'-6	150	46.355	
15	-13'-3		45.72	7.6800		66'-4½ 316'-10½	0.000024	 0.008	2EE(11'-3), T(43'-10)
								46.363	Total(Pt) Route 5
12	-13'-3		57.04	8	(See Notes)	87'-6½	150	46.349	• • • • • **Route 6** • • • • • Flow (q) from Route 1
11	-13'-3		45.72	7.6800		22'-6½ 110'-1	0.000024	 0.003	2EE(11'-3)
								46.351	Total(Pt) Route 6
101	18'-6			2	(See Notes)	52'-9½	150	18.284	• • • • • **Route 7** • • • • • Tr(2'-0)
107	9'-0		23.55	2.0030		46'-0 98'-9½	0.004993	4.119 0.493	12Tr(2'-0), 2T(10'-0)
								22.896	Total(Pt) Route 7
117	18'-6		0.03	2	(See Notes)	79'-8	150	18.135	• • • • • **Route 8** • • • • • Flow (q) from Route 1
106	9'-0		12.97	2.0030		50'-0 129'-8	0.001655	4.119 0.215	15Tr(2'-0), 2T(10'-0)
								22.469	Total(Pt) Route 8

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)

(Actual Inside Diameter / Schedule 40 Steel Pipe Inside Diameter) 4.87 = Factor

C Value Multiplier

Value Of C	100	130	140	150
Multiplying Factor	0.713	1.16	1.33	1.51

Fittings Legend

ALV	Alarm Valve	AngV	Angle Valve	b	Bushing
BalV	Ball Valve	BFP	Backflow Preventer	BV	Butterfly Valve
C	Cross Flow Turn 90°	cplg	Coupling	Cr	Cross Run
CV	Check Valve	DelV	Deluge Valve	DPV	Dry Pipe Valve
E	90° Elbow	EE	45° Elbow	Ee1	11¼° Elbow
Ee2	22½° Elbow	f	Flow Device	fd	Flex Drop
FDC	Fire Department Connection	fE	90° FireLock(TM) Elbow	fEE	45° FireLock(TM) Elbow
flg	Flange	FN	Floating Node	fT	FireLock(TM) Tee
g	Gauge	GloV	Globe Valve	GV	Gate Valve
Ho	Hose	Hose	Hose	HV	Hose Valve
Hyd	Hydrant	LtE	Long Turn Elbow	mecT	Mechanical Tee
Noz	Nozzle	P1	Pump In	P2	Pump Out
PIV	Post Indicating Valve	PO	Pipe Outlet	PrV	Pressure Relief Valve
PRV I	Pressure Reducing Valve In	PRV C	Pressure Reducing Valve Out	red	Reducer/Adapter
S	Supply	sCV	Swing Check Valve	SFx	Seismic Flex
Spr	Sprinkler	St	Strainer	T	Tee Flow Turn 90°
Tr	Tee Run	U	Union	WirF	Wirsbo
WMV	Water Meter Valve	Z	Cap		

Hydraulic Calculations

for

Project Name: MAYNARD CROSSING APARTMENTS: (1450D)

Location: , ,

Drawing Name: Maynard Crossing Apartments 1450D - FP400 Building Calculation Date: 8/6/2026

Design

Remote Area Number:	B04 R4
Occupancy Classification:	Residential
Density	0.05gpm/ft²
Area of Application:	494ft² (Actual 494ft²)
Coverage per Sprinkler:	130ft²
Type of sprinklers calculated:	Pendent
No. of sprinklers calculated:	4
No. of nozzles calculated:	0

In-rack Demand:	N/A gpm	at Node:	N/A		
Hose Streams:	0.0 gpm	at Node:	17	Type:	Allowance at Source

Total Water Required (including Hose Streams where applicable):

From Water Supply at Node 17: 123.83 @ 48.961 (Safety Margin = 4.971)

Type of System:

Volume of Dry/PreAction/Antifreeze/OtherAgent System: N/A

Name of Contractor: MAKSON FIRE

Address: 1306 SPEEDWAY BLVD, SALISBURY, NC 28146

Phone Number: 704-636-5505

Name of designer: D.PORTER

Authority Having Jurisdiction: : HARNETT COUNTY FIRE MARSHAL

Notes:

Summary Notes:

Supply at Node 17

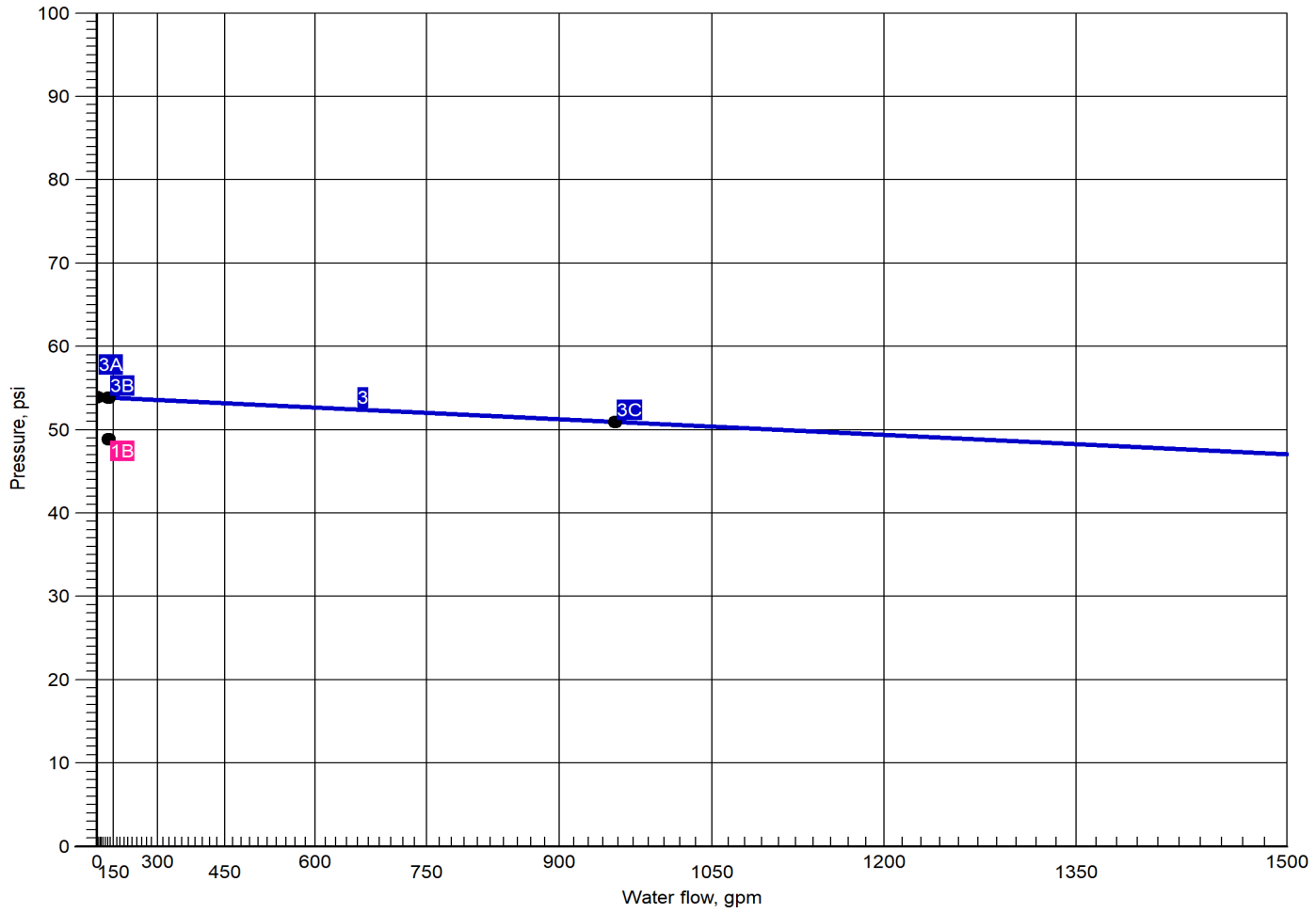
1 System Demand
3 Available Water Supply

Job Name: MAYNARD CROSSING APARTMENTS

Job Number: 1450D

Report Description: Residential (B04 R4)

Remote Area Number: B04 R4



Curve	Data Point	Hydraulic Calculation Results	Additional Data
1	1B	Required Pressure at System Demand: 48.961 @ 123.83	Available Flow @ 20 PSI: 3550.30
3	3A	Available Static Pressure at Supply at Node 17: 54.000	
	3B	Available Residual Pressure at System Demand: 53.932 @ 123.83	
	3C	Available Residual Pressure & Flow at Supply at Node 17: 51.000 @ 957.00	

Summary Of Outflowing Devices

Job Number: 1450D
Report Description: Residential (B04 R4)

Device		Actual Flow (gpm)	Minimum Flow (gpm)	K-Factor (K)	Pressure (psi)			
Floating Node	7	51.00	51.00	0	49.854			
Sprinkler	**S28**	**20.00**	**20.00**	**4.9**	**16.660**			
Sprinkler	S29	16.89	13.00	4.9	11.878			
Sprinkler	S30	17.14	13.00	4.9	12.242			
Sprinkler	S31	18.80	13.00	4.9	14.720			

⇨ Most Demanding Sprinkler Data

Pipe Information

Node 1 / Node 2	Elev 1 / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
S28	17'-6	4.9	20.00	1	(See Notes)	10'-5½	150	16.660	• • • • • **Route 1** • • • • •
						12'-0	0.068041	-0.454	Sprinkler,
108	18'-6½		20.00	1.1010		22'-5½		1.529	E(7'-0), T(5'-0)
108	18'-6½			2	(See Notes)	5'-10	150	17.734	
						4'-0	0.003691	0.021	
110	18'-6		20.00	2.0030		9'-10		0.036	2Tr(2'-0)
110	18'-6		16.89	2	(See Notes)	3'-2	150	17.791	Flow (q) from Route 2
						2'-0	0.011453		
122	18'-6		36.89	2.0030		5'-2		0.059	Tr(2'-0)
122	18'-6		18.80	2	(See Notes)	2'-1	150	17.851	Flow (q) from Route 4
						10'-0	0.024537		
111	18'-6		55.69	2.0030		12'-1		0.297	T(10'-0)
111	18'-6			2	(See Notes)	52'-10½	150	18.148	
						28'-0	0.010187	4.119	
106	9'-0		34.62	2.0030		80'-10½		0.824	T(10'-0), 9Tr(2'-0)
106	9'-0		6.32	2	(See Notes)	43'-3½	150	23.090	Flow (q) from Route 3
						18'-0	0.013891	-0.000	
107	9'-0		40.94	2.0030		61'-3½		0.851	9Tr(2'-0)
107	9'-0		31.89	2	(See Notes)	46'-2	150	23.941	Flow (q) from Route 7
						52'-0	0.040315	2.064	
102	4'-3		72.83	2.0030		98'-2		3.957	4Tr(2'-0), 4E(11'-0)
102	4'-3			2	(See Notes)	0'-6	120	29.962	
						3'-6	0.052268	0.474	
103	3'-1½		72.83	2.0670		4'-0		0.209	Tr(3'-6)
103	3'-1½			2	(See Notes)	1'-2	120	30.645	
							0.042471	0.506	
104	1'-11½		72.83	2.1570		1'-2		0.050	f(-0.000), f
104	1'-11½			2	(See Notes)	4'-0	120	31.201	
						15'-0	0.052268	0.424	
105	1'-0		72.83	2.0670		19'-0		11.992	T(10'-0), BFP(-11.000), E(5'-0), Gauge 1
105	1'-0			4	(See Notes)	24'-2½	150	43.617	
						22'-3½	0.001276	6.178	
7	-13'-3		72.83	4.0700		46'-6		0.059	2GV(3'-2), E(15'-11), FN

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
7	-13'-3		51.00	4	(See Notes)	36'-3	150	49.854	
						35'-½	0.003407		
12	-13'-3		123.83	4.0700		71'-3		0.243	GV(3'-2), T(31'-10)
12	-13'-3			8	(See Notes)	293'-8½	150	50.097	
						22'-6½	0.000052		
13	-13'-3		68.73	7.6800		316'-3		0.016	2EE(11'-3)
13	-13'-3			8		2'-9	150	50.113	
							0.000052		
14	-13'-3		68.73	7.6800		2'-9		0.000	
14	-13'-3			8		63'-5½	150	50.113	
							0.000052		
15	-13'-3		68.73	7.6800		63'-5½		0.003	
15	-13'-3		55.10	8	(See Notes)	634'-6½	150	50.117	Flow (q) from Route 5
						126'-5½	0.000155		
16	-13'-3		123.83	7.6800		761'-½		0.118	3EE(11'-3), GV(5'-0), 2T(43'-10)
16	-13'-3			6	Supply (See Notes)	20'-11½	150	50.234	Avl.Pressure @ Supply: 53.932
						25'-6½	0.000577	-1.301	
17	-10'-3		123.83	5.8600		46'-6		0.027	2GV(3'-10), E(17'-10½), S
			0.00					48.961	Hose Allowance At Source
17			123.83						Total(Pt) Route 1
S29	17'-6	4.9	16.89	¾	(See Notes)	21'-5½	150	11.878	• • • • • **Route 2** • • • • •
						20'-0	0.153177	-0.434	Sprinkler,
110	18'-6		16.89	0.8740		41'-5½		6.347	2E(7'-0), 3Tr(1'-0), T(3'-0)
								17.791	Total(Pt) Route 2
S30	17'-6	4.9	17.14	¾	(See Notes)	21'-8	150	12.242	• • • • • **Route 3** • • • • •
						19'-0	0.157521	-0.434	Sprinkler,
100	18'-6		17.14	0.8740		40'-8		6.406	2E(7'-0), 2Tr(1'-0), T(3'-0)
100	18'-6		21.06	2	(See Notes)	38'-10½	150	18.215	Flow (q) from Route 8
						22'-0	0.012222		
101	18'-6		38.21	2.0030		60'-10½		0.744	11Tr(2'-0)

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes: Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
101	18'-6			2	(See Notes)	8'-6	150	18.958	T(10'-0)
112	10'-0		6.32	2.0030		10'-0	0.000438	3.685	
						18'-6		0.008	
112	10'-0			2		0'-0	150	22.651	
114	10'-0		6.32	2.0030		0'-0	0.000438	0.000	
114	10'-0			2	(See Notes)	1'-0	150	22.651	
106	9'-0		6.32	2.0030		10'-0	0.000438	0.434	T(10'-0)
						11'-0		0.005	
								23.090	Total(Pt) Route 3
S31	17'-6	4.9	18.80	¾	(See Notes)	6'-1	150	14.720	• • • • • **Route 4** • • • • • Sprinkler,
122	18'-6		18.80	0.8740		13'-0	0.186800	-0.434	2T(3'-0), E(7'-0)
						19'-1		3.564	
								17.851	Total(Pt) Route 4
11	-13'-3		55.10	8		148'-9½	150	50.101	• • • • • **Route 5** • • • • • Flow (q) from Route 6
10	-13'-3		55.10	7.6800		148'-9½	0.000035	0.005	
10	-13'-3			8	(See Notes)	250'-6	150	50.106	
15	-13'-3		55.10	7.6800		66'-4½ 316'-10½	0.000035	0.011	2EE(11'-3), T(43'-10)
								50.117	Total(Pt) Route 5
12	-13'-3		68.73	8	(See Notes)	87'-6½	150	50.097	• • • • • **Route 6** • • • • • Flow (q) from Route 1
11	-13'-3		55.10	7.6800		22'-6½ 110'-1	0.000035	0.004	2EE(11'-3)
								50.101	Total(Pt) Route 6
101	18'-6			2	(See Notes)	52'-9½	150	18.958	• • • • • **Route 7** • • • • • Tr(2'-0)
107	9'-0		31.89	2.0030		46'-0 98'-9½	0.008748	4.119 0.864	12Tr(2'-0), 2T(10'-0)
								23.941	Total(Pt) Route 7
111	18'-6			2	(See Notes)	4'-6	150	18.148	• • • • • **Route 8** • • • • • T(10'-0)
100	18'-6		21.06	2.0030		12'-0 16'-6	0.004061	0.067	Tr(2'-0)
								18.215	Total(Pt) Route 8

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)

(Actual Inside Diameter / Schedule 40 Steel Pipe Inside Diameter) 4.87 = Factor

C Value Multiplier

Value Of C	100	130	140	150
Multiplying Factor	0.713	1.16	1.33	1.51

Fittings Legend

ALV	Alarm Valve	AngV	Angle Valve	b	Bushing
BalV	Ball Valve	BFP	Backflow Preventer	BV	Butterfly Valve
C	Cross Flow Turn 90°	cplg	Coupling	Cr	Cross Run
CV	Check Valve	DelV	Deluge Valve	DPV	Dry Pipe Valve
E	90° Elbow	EE	45° Elbow	Ee1	11¼° Elbow
Ee2	22½° Elbow	f	Flow Device	fd	Flex Drop
FDC	Fire Department Connection	fE	90° FireLock(TM) Elbow	fEE	45° FireLock(TM) Elbow
flg	Flange	FN	Floating Node	fT	FireLock(TM) Tee
g	Gauge	GloV	Globe Valve	GV	Gate Valve
Ho	Hose	Hose	Hose	HV	Hose Valve
Hyd	Hydrant	LtE	Long Turn Elbow	mecT	Mechanical Tee
Noz	Nozzle	P1	Pump In	P2	Pump Out
PIV	Post Indicating Valve	PO	Pipe Outlet	PrV	Pressure Relief Valve
PRV I	Pressure Reducing Valve In	PRV C	Pressure Reducing Valve Out	red	Reducer/Adapter
S	Supply	sCV	Swing Check Valve	SFx	Seismic Flex
Spr	Sprinkler	St	Strainer	T	Tee Flow Turn 90°
Tr	Tee Run	U	Union	WirF	Wirsbo
WMV	Water Meter Valve	Z	Cap		

Hydraulic Calculations

for

Project Name: MAYNARD CROSSING APARTMENTS: (1450D)

Location: , ,

Drawing Name: Maynard Crossing Apartments 1450D - FP400 Building Calculation Date: 8/6/2026

Design

Remote Area Number:	B04 R5
Occupancy Classification:	Residential
Density	0.05gpm/ft²
Area of Application:	525ft² (Actual 525ft²)
Coverage per Sprinkler:	130ft²
Type of sprinklers calculated:	Pendent
No. of sprinklers calculated:	3
No. of nozzles calculated:	0

In-rack Demand:	N/A gpm	at Node:	N/A		
Hose Streams:	0.0 gpm	at Node:	17	Type:	Allowance at Source

Total Water Required (including Hose Streams where applicable):

From Water Supply at Node 17: 108.60 @ 46.880 (Safety Margin = 7.066)

Type of System:

Volume of Dry/PreAction/Antifreeze/OtherAgent System: N/A

Name of Contractor: MAKSON FIRE

Address: 1306 SPEEDWAY BLVD, SALISBURY, NC 28146

Phone Number: 704-636-5505

Name of designer: D.PORTER

Authority Having Jurisdiction: : HARNETT COUNTY FIRE MARSHAL

Notes:

Summary Notes:

Supply at Node 17

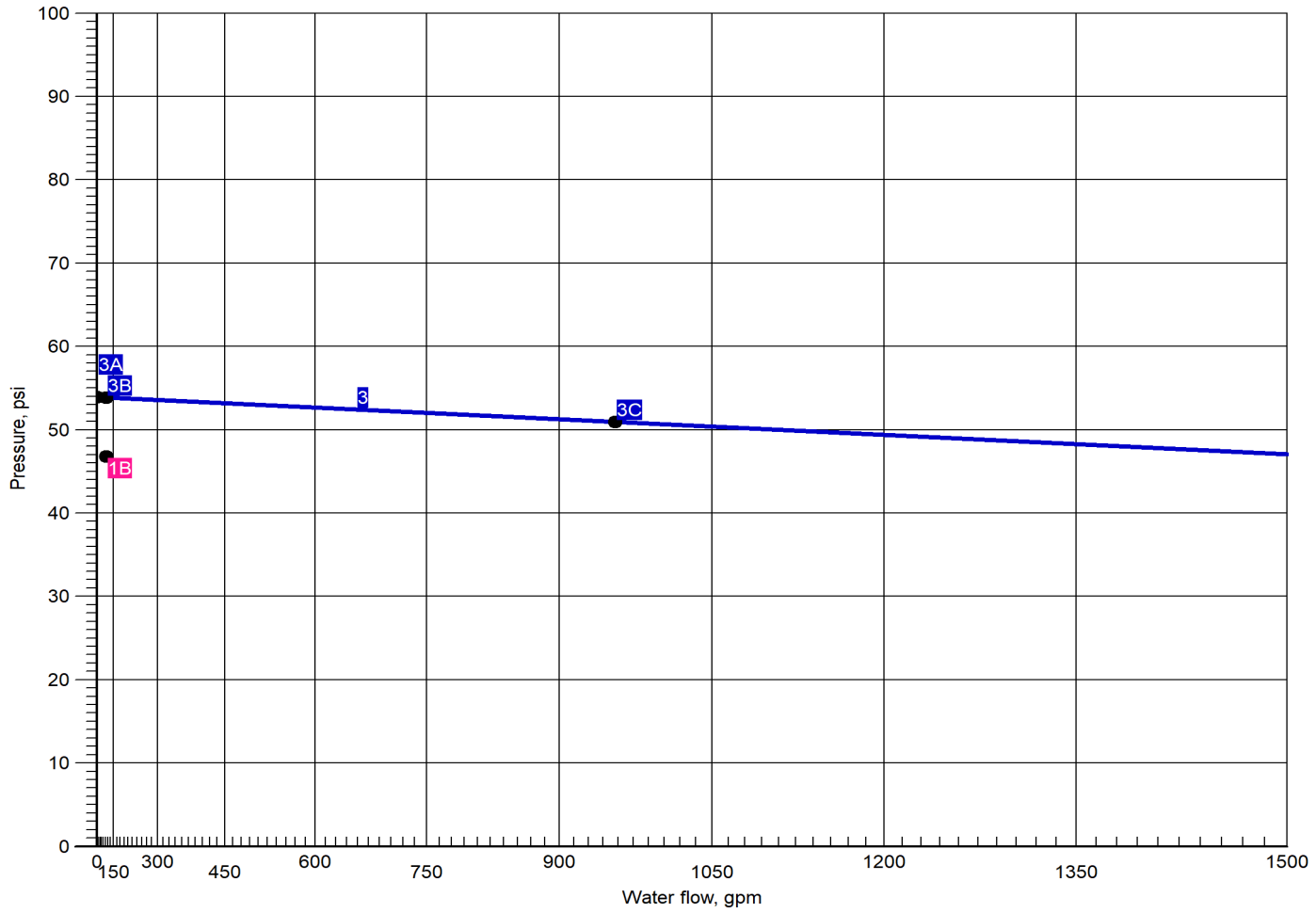
1 System Demand
3 Available Water Supply

Job Name: MAYNARD CROSSING APARTMENTS

Job Number: 1450D

Report Description: Residential (B04 R5)

Remote Area Number: B04 R5



Curve	Data Point	Hydraulic Calculation Results	Additional Data
1	1B	Required Pressure at System Demand: 46.880 @ 108.60	Available Flow @ 20 PSI: 3550.30
3	3A	Available Static Pressure at Supply at Node 17: 54.000	
	3B	Available Residual Pressure at System Demand: 53.946 @ 108.60	
	3C	Available Residual Pressure & Flow at Supply at Node 17: 51.000 @ 957.00	

Summary Of Outflowing Devices

Job Number: 1450D
Report Description: Residential (B04 R5)

Device		Actual Flow (gpm)	Minimum Flow (gpm)	K-Factor (K)	Pressure (psi)			
Floating Node	7	51.00	51.00	0	47.861			
Sprinkler	**S32**	**20.00**	**20.00**	**4.9**	**16.660**			
Sprinkler	S33	18.09	17.00	4.9	13.628			
Sprinkler	S34	19.51	13.00	4.9	15.862			

⇨ Most Demanding Sprinkler Data

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
S32	17'-6	4.9	20.00	¾	(See Notes)	2'-5½	150	16.660	• • • • • **Route 1** • • • • •
						4'-0	0.209466	-0.434	Sprinkler,
401	18'-6		20.00	0.8740		6'-5½		1.357	T(3'-0), Tr(1'-0)
401	18'-6			1	(See Notes)	15'-5½	150	17.583	
						5'-0	0.068041	0.000	
119	18'-6		20.00	1.1010		20'-5½		1.391	T(5'-0)
119	18'-6		22.74	2	(See Notes)	6'-8½	150	18.974	Flow (q) from Route 2
						4'-0	0.015036		
101	18'-6		42.74	2.0030		10'-8½		0.161	2Tr(2'-0)
101	18'-6			2	(See Notes)	8'-6	150	19.135	T(10'-0)
						10'-0	0.002607	3.685	
112	10'-0		16.57	2.0030		18'-6		0.048	
112	10'-0			2		0'-0	150	22.868	
							0.002607		
114	10'-0		16.57	2.0030		0'-0		0.000	
114	10'-0			2	(See Notes)	1'-0	150	22.868	
						10'-0	0.002607	0.434	
106	9'-0		16.57	2.0030		11'-0		0.029	T(10'-0)
106	9'-0		14.87	2	(See Notes)	43'-3½	150	23.330	Flow (q) from Route 7
						18'-0	0.008523	-0.000	
107	9'-0		31.44	2.0030		61'-3½		0.522	9Tr(2'-0)
107	9'-0		26.16	2	(See Notes)	46'-2	150	23.853	Flow (q) from Route 6
						52'-0	0.026123	2.064	
102	4'-3		57.60	2.0030		98'-2		2.564	4Tr(2'-0), 4E(11'-0)
102	4'-3			2	(See Notes)	0'-6	120	28.481	
						3'-6	0.033868	0.474	
103	3'-1½		57.60	2.0670		4'-0		0.135	Tr(3'-6)
103	3'-1½			2	(See Notes)	1'-2	120	29.090	
							0.027520	0.506	
104	1'-11½		57.60	2.1570		1'-2		0.032	f(-0.000), f
104	1'-11½			2	(See Notes)	4'-0	120	29.628	
						15'-0	0.033868	0.424	
105	1'-0		57.60	2.0670		19'-0		11.593	T(10'-0), BFP(-10.950), E(5'-0), Gauge 1

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
105	1'-0			4	(See Notes)	24'-2½	150	41.645	
						22'-3½	0.000827	6.178	
7	-13'-3		57.60	4.0700		46'-6		0.038	2GV(3'-2), E(15'-11), FN
7	-13'-3		51.00	4	(See Notes)	36'-3	150	47.861	
						35'-½	0.002673		
12	-13'-3		108.60	4.0700		71'-3		0.190	GV(3'-2), T(31'-10)
12	-13'-3			8	(See Notes)	293'-8½	150	48.052	
						22'-6½	0.000041		
13	-13'-3		60.28	7.6800		316'-3		0.013	2EE(11'-3)
13	-13'-3			8		2'-9	150	48.065	
							0.000041		
14	-13'-3		60.28	7.6800		2'-9		0.000	
14	-13'-3			8		63'-5½	150	48.065	
							0.000041		
15	-13'-3		60.28	7.6800		63'-5½		0.003	
15	-13'-3		48.32	8	(See Notes)	634'-6½	150	48.067	Flow (q) from Route 4
						126'-5½	0.000121		
16	-13'-3		108.60	7.6800		761'-½		0.092	3EE(11'-3), GV(5'-0), 2T(43'-10)
16	-13'-3			6	Supply (See Notes)	20'-11½	150	48.160	Avl.Pressure @ Supply: 53.946
						25'-6½	0.000453	-1.301	
17	-10'-3		108.60	5.8600		46'-6		0.021	2GV(3'-10), E(17'-10½), S
			0.00					46.880	Hose Allowance At Source
17			108.60						Total(Pt) Route 1
S33	17'-6	4.9	18.09	¾	(See Notes)	21'-0	150	13.628	• • • • • **Route 2** • • • • •
						12'-0	0.173954	-0.434	Sprinkler,
117	18'-6		18.09	0.8740		33'-0		5.740	E(7'-0), 2Tr(1'-0), T(3'-0)
117	18'-6			2	(See Notes)	3'-9½	150	18.935	
						4'-0	0.000126		
118	18'-6		3.22	2.0030		7'-9½		0.001	2Tr(2'-0)
118	18'-6		19.51	2	(See Notes)	6'-½	150	18.936	Flow (q) from Route 3
						2'-0	0.004678	0.000	
119	18'-6		22.74	2.0030		8'-½		0.038	Tr(2'-0)

Pipe Information

Node 1 / Node 2	Elev 1 (Foot) / Elev 2 (Foot)	K-Factor	Flow added this step (q) / Total Flow (Q)	Nominal ID / Actual ID	Fittings & Devices / Equiv. Length (Foot)	Length (Foot) / Fitting (Foot) / Total (Foot)	C Factor / Pf Friction Loss Per Unit (psi)	Total(Pt) / Elev(Pe) / Friction(Pf)	Notes: Fitting/Device (Equivalent Length) Fixed Pressure Losses, when applicable, are added directly to (Pf) and shown as a negative value.
								18.974	Total(Pt) Route 2
S34	17'-6	4.9	19.51	¾	(See Notes)	4'-6½	150	15.862	• • • • • **Route 3** • • • • • Sprinkler,
118	18'-6		19.51	0.8740		13'-0 / 17'-6½	0.200166	-0.434 / 3.508	E(7'-0), 2T(3'-0)
								18.936	Total(Pt) Route 3
11	-13'-3		48.32	8		148'-9½	150	48.055	• • • • • **Route 4** • • • • • Flow (q) from Route 5
10	-13'-3		48.32	7.6800		148'-9½	0.000027	0.004	
10	-13'-3			8	(See Notes)	250'-6	150	48.059	
15	-13'-3		48.32	7.6800		66'-4½ / 316'-10½	0.000027	0.009	2EE(11'-3), T(43'-10)
								48.067	Total(Pt) Route 4
12	-13'-3		60.28	8	(See Notes)	87'-6½	150	48.052	• • • • • **Route 5** • • • • • Flow (q) from Route 1
11	-13'-3		48.32	7.6800		22'-6½ / 110'-1	0.000027	0.003	2EE(11'-3)
								48.055	Total(Pt) Route 5
101	18'-6			2	(See Notes)	52'-9½	150	19.135	• • • • • **Route 6** • • • • • Tr(2'-0)
107	9'-0		26.16	2.0030		46'-0 / 98'-9½	0.006066	4.119 / 0.599	12Tr(2'-0), 2T(10'-0)
								23.853	Total(Pt) Route 6
117	18'-6		3.22	2	(See Notes)	79'-8	150	18.935	• • • • • **Route 7** • • • • • Flow (q) from Route 2
106	9'-0		14.87	2.0030		50'-0 / 129'-8	0.002132	4.119 / 0.277	15Tr(2'-0), 2T(10'-0)
								23.330	Total(Pt) Route 7

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)

(Actual Inside Diameter / Schedule 40 Steel Pipe Inside Diameter) 4.87 = Factor

C Value Multiplier

Value Of C	100	130	140	150
Multiplying Factor	0.713	1.16	1.33	1.51

Fittings Legend

ALV	Alarm Valve	AngV	Angle Valve	b	Bushing
BalV	Ball Valve	BFP	Backflow Preventer	BV	Butterfly Valve
C	Cross Flow Turn 90°	cplg	Coupling	Cr	Cross Run
CV	Check Valve	DelV	Deluge Valve	DPV	Dry Pipe Valve
E	90° Elbow	EE	45° Elbow	Ee1	11¼° Elbow
Ee2	22½° Elbow	f	Flow Device	fd	Flex Drop
FDC	Fire Department Connection	fE	90° FireLock(TM) Elbow	fEE	45° FireLock(TM) Elbow
flg	Flange	FN	Floating Node	fT	FireLock(TM) Tee
g	Gauge	GloV	Globe Valve	GV	Gate Valve
Ho	Hose	Hose	Hose	HV	Hose Valve
Hyd	Hydrant	LtE	Long Turn Elbow	mecT	Mechanical Tee
Noz	Nozzle	P1	Pump In	P2	Pump Out
PIV	Post Indicating Valve	PO	Pipe Outlet	PrV	Pressure Relief Valve
PRV I	Pressure Reducing Valve In	PRV C	Pressure Reducing Valve Out	red	Reducer/Adapter
S	Supply	sCV	Swing Check Valve	SFx	Seismic Flex
Spr	Sprinkler	St	Strainer	T	Tee Flow Turn 90°
Tr	Tee Run	U	Union	WirF	Wirsbo
WMV	Water Meter Valve	Z	Cap		