

APPENDIX B

Pipe & Pump Station Sizing Calculations (Hybrid System)

P.S. #1 -

$$108 \text{ homes} \times 200 \text{ gpd/home} = 21,600 \text{ gpd ADF} \therefore P.F = 5.6$$

$$21,600 \text{ gpd} \times 5.6 = 120,960 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$7,210 \text{ ft} / 5280 = 1.37 \text{ mi} \times 8 \text{ inch} = 10.9 \text{ inch} \cdot \text{mi}$$

$$500 \text{ gpd/in} \cdot \text{mi} \times 10.9 \text{ in} \cdot \text{mi} = 5,462 \text{ gpd} \text{ SAY } \underline{5,500 \text{ gpd}}$$

$$\text{TOTAL} = 120,960 \text{ gpd} + 5,500 \text{ gpd} = \underline{126,460 \text{ gpd PEAK}}$$

$$Q = 0.1957 \text{ cfs} ; V = 3 \text{ fps (assumed)}$$

$$A = Q/V$$

$$\pi d^2/4 = 0.1957/3$$

$$d = 0.29 \text{ ft} = 3.45 \text{ in}$$

USE 3" Ø FM (V = 4.0 fps)

P.S. #2 -

$$52 \text{ homes} \times 200 \text{ gpd/home} = 10,400 \text{ gpd ADF} \therefore P.F = 5.6 \text{ gpd}$$

$$10,400 \text{ gpd} \times 5.6 = 58,240 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$6,030 / 5280 = 1.14 \text{ mi} \times 8 \text{ inch} = 9.1 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 4,568 \text{ gpd}$$

SAY 4,600 gpd

$$\text{TOTAL} = 58,240 \text{ gpd} + 4,600 \text{ gpd} = \underline{62,840 \text{ gpd PEAK}}$$

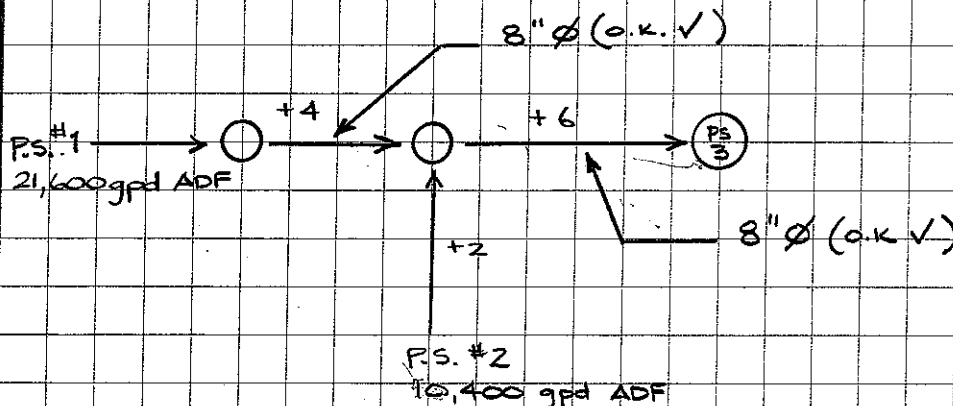
$$Q = 0.0972 \text{ cfs} ; V = 3 \text{ fps (assumed)}$$

$$A = Q/V$$

$$\pi d^2/4 = 0.0972/3$$

$$d = 0.20 \text{ ft} = 2.44 \text{ inch}$$

USE 2" Ø FM (V = 4.5 fps)



P.S. #3 -

$$112 \text{ homes} \times 200 \text{ gpd/home} = 22,400 \text{ gpd ADF} + \text{P.S. \#1} + \text{P.S. \#2}$$

$$\text{TOTAL} = 22,400 \text{ gpd} + 21,600 \text{ gpd} + 10,400 \text{ gpd} = 54,400 \text{ gpd ADF}$$

$$\therefore \text{P.F.} = 5.6$$

$$54,400 \text{ gpd} \times 5.6 = 304,640 \text{ gpd} = 0.4714 \text{ cfs PEAK}$$

1/1 ALLOWANCE -

$$7210 + 6030 + 6740 = 19,980 / 5280 = 3.78 \text{ mi} \times 8 \text{ inch} = 30.3 \text{ inch} \cdot \text{mi}$$

$$30.3 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 15,136 \text{ gpd SAY } 15,140 \text{ gpd}$$

$$\text{TOTAL PEAK} = 304,640 \text{ gpd} + 15,140 \text{ gpd} = 319,780 \text{ gpd} = 0.4948 \text{ cfs}$$

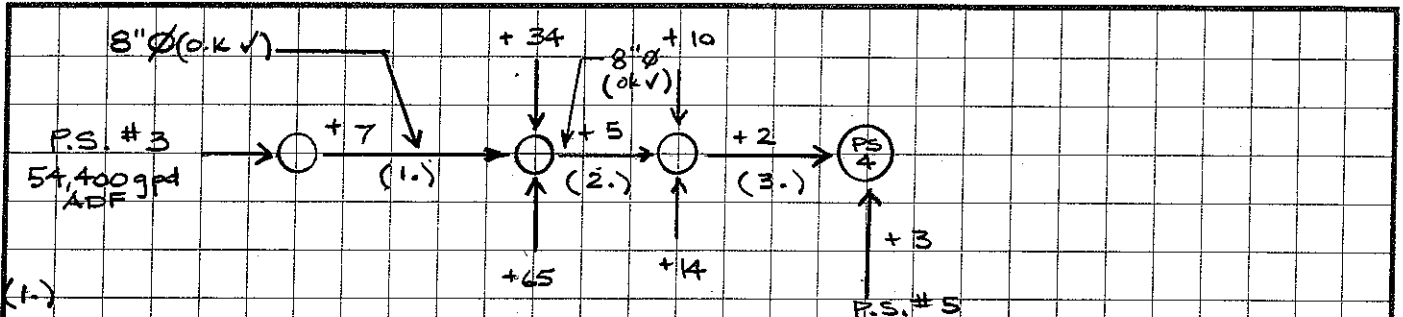
$$Q = 0.4948 \text{ cfs}; V = 3 \text{ fps (assumed)}$$

$$A = Q/V$$

$$\pi d^2/4 = 0.4948/3$$

$$d = 0.45 \text{ ft} = 5.5 \text{ in}$$

USE 4" Ø FM (V ≈ 5.6 fps)



(1.)

$$54,400 \text{ gpd} + 1400 \text{ gpd} = 55,800 \text{ gpd} \times 5.6 = 312,480 \text{ gpd} + 15,140 \text{ gpd}$$

$$= 327,620 \text{ gpd} = 0.507 \text{ cfs}$$

$$A = Q/V = 0.507/2 = 0.57 \text{ ft} = 6.8 \text{ inch} \quad \underline{\underline{\text{USE } 8" \text{ Ø}}}$$

(2.)

$$55,800 \text{ gpd} + (99 \text{ homes} \times 200 \text{ gpd/home}) + (5 \text{ homes} \times 200 \text{ gpd/home})$$

$$= 55,800 \text{ gpd} + 19,800 \text{ gpd} + 1,000 \text{ gpd} = 76,600 \text{ gpd} \quad \therefore \text{P.F.} = 5.6$$

$$76,600 \text{ gpd} \times 5.6 = 428,960 \text{ gpd} + 15,140 \text{ gpd} + 8,130 \text{ gpd}$$

$$= 452,230 \text{ gpd} = 0.7 \text{ cfs}$$

$$< 490,000 \text{ gpd} \Rightarrow \underline{\underline{\text{USE } 8" \text{ Ø}}} \quad (\text{P.F.} = 4)$$

(3.)

$$76,600 \text{ gpd} + (24 \text{ homes} \times 200 \text{ gpd/home}) + (2 \text{ homes} \times 200 \text{ gpd/home})$$

$$76,600 \text{ gpd} + 4,800 \text{ gpd} + 400 \text{ gpd} = 81,800 \text{ gpd} \quad \therefore \text{P.F.} = 5.6$$

$$81,800 \text{ gpd} \times 5.6 = 458,080 \text{ gpd} + 15,140 + 8,130 + 1,600 \text{ gpd} =$$

$$= 474,820 \text{ gpd}$$

$$< 490,000 \text{ gpd} \Rightarrow \underline{\underline{\text{USE } 8" \text{ Ø}}} \quad (\text{P.F.} = 4)$$

P.S. # 5 -

$$147 \text{ homes} \times 200 \text{ gpd/home} = 29,400 \text{ gpd} \quad \therefore \text{P.F.} = 5.6$$

$$29,400 \text{ gpd} \times 5.6 = 164,640 \text{ gpd}$$

1/1 ALLOWANCE -

$$\frac{6,055}{5,280} = 1.15 \text{ mi} \times 8 \text{ inch} = 9.17 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/inch} \cdot \text{mi} = 4,587 \text{ gpd}$$

SAY 4,600 gpd

TOTAL = 164,640 gpd + 4,600 gpd = 169,240 gpd PEAK = 0.2619 cfs

$A = Q/V$ $Q = 0.2619 \text{ cfs}$; $V = 3 \text{ fps}$ (assumed)

$\pi d^2/4 = 0.2619/3$

$d = 0.33 \text{ ft} = 4 \text{ inch}$

USE 4" Ø FM

P.S. # 4

$$206 \text{ homes} \times 200 \text{ gpd/home} = 41,200 \text{ gpd} + \text{P.S. \# 1} + \text{P.S. \# 2} + \text{P.S. \# 3} + \text{P.S. \# 5}$$

$$= 41,200 \text{ gpd} + 21,600 \text{ gpd} + 10,400 \text{ gpd} + 22,400 \text{ gpd} + 29,400 \text{ gpd}$$

$$= 125,000 \text{ gpd} \quad \therefore \text{P.F.} = 5.4$$

$$= 125,000 \text{ gpd} \times 5.4 = 675,000 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$7,210 + 6,030 + 6,740 + 18,265 + 6,055 = 44,300 \text{ ft} / 5,280 = 8.39 \text{ mi}$$

$$8.39 \text{ mi} \times 8 \text{ inch} = 67.1 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/inch} \cdot \text{mi}$$

$$= 33,560 \text{ gpd} \quad \text{SAY } 33,600 \text{ gpd}$$

TOTAL PEAK = 675,000 gpd + 33,600 gpd = 708,600 gpd = 1.0964 cfs

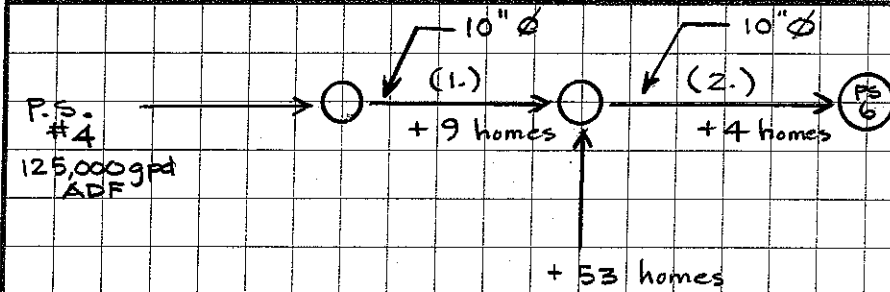
$A = Q/V$ $Q = 1.0964 \text{ cfs}$; $V = 3 \text{ fps}$ (assumed)

$\pi d^2/4 = 1.0964/3$

$d = 0.68 \text{ ft} = 8.2 \text{ inch}$

TRY 6" Ø FM - $V = Q/A = 1.0964 / \pi \left(\frac{6}{2}\right)^2 = 5.6 \text{ fps}$

USE 6" Ø FM (V ≈ 5.6 fps) - OR - 8" Ø FM (V ≈ 3.1 fps)



(1.) $125,000 \text{ gpd} + 1,800 \text{ gpd} = 126,800 \text{ gpd} \times 5.4 = 684,720 \text{ gpd}$
 $684,720 \text{ gpd} + 33,600 \text{ gpd} = 718,320 \text{ gpd} = 1.11 \text{ cfs}$
 $A = Q/V; \pi d^2/4 = 1.11/2; d = 0.84 \text{ ft} = 10 \text{ inch}$
USE 10" Ø

(2.) $53 \text{ homes} \times 200 \text{ gpd/home} = 10,600 \text{ gpd} + 126,800 \text{ gpd} = 137,400 \text{ gpd}$
 $\therefore \text{P.F.} = 5.2$
 $137,400 \text{ gpd} \times 5.2 = 714,480 \text{ gpd} + 33,600 \text{ gpd} = 748,080 \text{ gpd} = 1.157 \text{ cfs}$
 $A = Q/V; \pi d^2/4 = 1.157/2; d = 0.85 = 10.3 \text{ inch}$
USE 10" Ø (P.F. = 4.9)

P.S. #6 -

$155 \text{ homes} \times 200 \text{ gpd/home} = 31,000 \text{ gpd} + \text{P.S. #4}$
 $= 31,000 \text{ gpd} + 125,000 \text{ gpd} = 156,000 \text{ gpd} \therefore \text{P.F.} = 5$
 $= 156,000 \text{ gpd} \times 5 = 780,000 \text{ gpd PEAK}$

1/1 ALLOWANCE -

$8,745 + 43,550 = 52,295/5280 = 9.9 \text{ mi} \times 8 \text{ inch} = 79.2 \text{ inch} \cdot \text{mi}$
 $750/5280 = 0.14 \text{ mi} \times 10 \text{ inch} = 1.42 \text{ inch} \cdot \text{mi}$
 $79.2 \text{ in} \cdot \text{mi} + 1.42 \text{ in} \cdot \text{mi} = 80.66 \text{ in} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi}$
 $= 40,327 \text{ SAY } 40,330 \text{ gpd}$

TOTAL PEAK = 780,000 gpd + 40,330 gpd = 820,330 gpd = 1.27 cfs

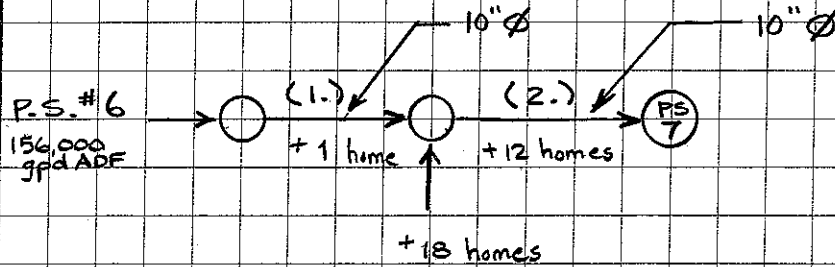
$A = Q/V \quad Q = 1.27 \text{ cfs}; V = 3 \text{ fps (assumed)}$

$\pi d^2/4 = 1.27 \text{ cfs}/3; d = 0.73 \text{ ft} = 8.8 \text{ inch}$

TRY 8" Ø FM $V = Q/A = 1.27/\pi(8/12)^2/4 = 3.6 \text{ fps}$

USE 8" Ø FM (V ≈ 3.6 fps)

6" Ø FM (P.F. = 3.8)



(1.) $156,000 \text{ gpd} + 200 \text{ gpd} = 156,200 \text{ gpd} \times 5 = 781,000 \text{ gpd}$
 $781,000 \text{ gpd} + 40,330 \text{ gpd} (1/1) = 821,330 \text{ gpd} = 1.27 \text{ cfs}$
 $A = Q/V ; \pi d^2/4 = 1.27/2 ; d = 0.9 \text{ ft} = 10.8 \text{ inch}$

TRY 10" ϕ : $Q = AV = \left(\frac{\pi (10/12)^2}{4} \right) (2) = 1.09 \text{ cfs} = 704,970 \text{ gpd}$
 $704,970 \text{ gpd} - 40,330 = 664,640 \text{ gpd} / 156,200 \text{ gpd} = 4.2$
USE 10" ϕ (P.F. = 4.2)

(2.) $156,200 \text{ gpd} + (30 \text{ homes} \times 200 \text{ gpd/home}) = 162,200 \text{ gpd} \times 5 = 811,000 \text{ gpd}$
 $811,000 \text{ gpd} + 40,330 \text{ gpd} (1/1) + 2,100 (1/1) = 853,430 \text{ gpd}$
 $= 1.321 \text{ cfs}$

$A = Q/V ; \pi d^2/4 = 1.321/2 ; d = 0.92 \text{ ft} = 11 \text{ inch}$

TRY 10" ϕ : $704,970 \text{ gpd} - 42,430 \text{ gpd} = 662,540 \text{ gpd} / 162,200 \text{ gpd}$
 $= 4.1$

USE 10" ϕ (P.F. = 4.1)

P.S. #17 -

63 homes × 275 gpd/home = 17,325 gpd ∴ P.F. = 5.6

17,325 gpd × 5.6 = 97,020 gpd

1/1 ALLOWANCE -

3,450 / 5,280 = 0.65 mi × 8 inch = 5.23 inch-mi × 500 gpd/in-mi = 2,613 gpd

SAY 2,600 gpd

TOTAL PEAK = 97,020 gpd + 2,600 gpd = 99,620 gpd = 0.154 cfs

$A = Q/V$ $Q = 0.154 \text{ cfs}$; $V = 3 \text{ fps (assumed)}$

$\pi d^2/4 = 0.154/3$

$d = 0.256 \text{ ft} = 3.1 \text{ inch}$

USE 3" Ø FM (V = 3.1 fps)

P.S. #7 HOUSES IN NAUSET WATERSHED -

	GRAVITY		LPSS
FINLAY ROAD	350	19	
GIDDIAN HILL ROAD	320	2	
COMMERCE DRIVE	540	6	
LOTS HOLLOW RD		4	430
DALEY TERRACE	600	4	
S. ORLEANS ROAD	1840	17	
POND ROAD	800	9	
LAKE FARM LANE		10	1025
NAUSET V.	7610	71	1455
PLEASANT BAY	2,200*	39	1490

* 10" Ø PIPE

(71 homes + 63 homes = 134 homes)
NORTH OF P.S. #7 (INCL. P.S. #17)

P.S. #7 -

39 homes x 200 gpd/home = 7,800 gpd

71 homes x 275 gpd/home = 19,525 gpd

27,325 gpd + P.S. #6 + P.S. #17

= 27,325 gpd + 156,000 gpd = ~~183,325 gpd~~ ∴ P.F = 4.8
 + 17,325 gpd 200,650 gpd

= ~~183,325 gpd~~ x 4.8 = ~~898,293 gpd~~ PEAK
 200,650 gpd 963,120 gpd

1/1 ALLOWANCE -

8": 7,610 + 52,295 = 59,905 / 5,280 = 11.3 mi x 8-inch = 90.77 inch·mi

10": 2,200 + 750 = 2,950 / 5,280 = 0.56 mi x 10-inch = 5.59 inch·mi

96.36 inch·mi

96.36 in·mi x 500 gpd/in·mi = 48,176 gpd SAY 48,200 gpd

TOTAL PEAK = ~~898,293 gpd~~ + 48,176 gpd = ~~946,469 gpd~~ = 1.465 cfs
 963,120 50,800 1,013,920 gpd = 50,800 gpd
 1,013,920 gpd = 1.465 cfs

A = Q/V Q = 1.465 cfs ; V = 3 fps
 $\pi d^2/4 = 1.465/3$

d = 0.79 ft = 9.46 inch
 0.82 ft = 9.8 inch

TRY 8" Ø FM : V = Q/A = 1.465 / $\pi (8/12)^2/4$ = 4.2 fps

USE 8" Ø FM (V = 4.2 fps)

P.S. #18 -

$$142 \text{ homes} \times 200 \text{ gpd/home} = 28,400 \text{ gpd ADF} \quad \therefore \text{P.F.} = 5.6$$

$$28,400 \text{ gpd} \times 5.6 = 159,040 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$7,440 / 5,280 = 1.41 \text{ mi} \times 8 \text{ inch} = 11.27 \text{ in. mile}$$

$$11.27 \text{ in. mi} \times 500 \text{ gpd/in. mi} = 5,636 \text{ gpd SAY } 5,640 \text{ gpd}$$

$$\text{TOTAL PEAK} = 159,040 \text{ gpd} + 5,640 \text{ gpd} = \underline{\underline{164,680 \text{ gpd}}} = 0.255 \text{ cfs}$$

$$A = Q/V \quad Q = 0.255 \text{ cfs}; \quad V = 3 \text{ fps (assumed)}$$

$$\pi d^2/4 = 0.255/3$$

$$d = 0.329 \text{ ft} = 3.9 \text{ inch}$$

USE 3" Ø FM (V ≈ 5.2 fps)

P.S. #13 -

$$275 \text{ homes} \times 200 \text{ gpd/home} = 55,000 \text{ gpd ADF} \quad \therefore \text{P.F.} = 5.6$$

$$55,000 \text{ gpd} \times 5.6 = 308,000 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$11,290 / 5,280 = 2.14 \text{ mi} \times 8 \text{ inch} = 17.11 \text{ inch mi}$$

$$17.11 \text{ inch mi} \times 500 \text{ gpd/in. mi} = 8,553 \text{ gpd SAY } 8,550 \text{ gpd}$$

$$\text{TOTAL PEAK} = 308,000 \text{ gpd} + 8,550 \text{ gpd} = \underline{\underline{316,550 \text{ gpd}}} = 0.49 \text{ cfs}$$

$$A = Q/V \quad Q = 0.49 \text{ cfs}; \quad V = 3 \text{ fps (assumed)}$$

$$\pi d^2/4 = 0.49/3$$

$$d = 0.46 \text{ ft} = 5.5 \text{ inch}$$

$$\text{TRY 4" Ø FM} : V = Q/A = 0.49 / \pi \left(\frac{4}{12}\right)^2 = 5.6 \text{ fps}$$

USE 4" Ø FM (V = 5.6 fps)

P.S. #14 -

$$181 \text{ homes} \times 275 \text{ gpd/home} = 49,775 \text{ gpd} \therefore \text{P.F.} = 5.6$$

$$49,775 \text{ gpd} \times 5.6 = 278,740 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$10,310/5,280 = 1.95 \text{ mi} \times 8 \text{-inch} = 15.62 \text{ inch} \cdot \text{mi}$$

$$15.62 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/inch} \cdot \text{mi} = 7,810 \text{ gpd SAY } \underline{7,800 \text{ gpd}}$$

$$\text{TOTAL PEAK} = 278,740 \text{ gpd} + 7,800 \text{ gpd} = \underline{\underline{286,540 \text{ gpd} = 0.44 \text{ cfs}}}$$

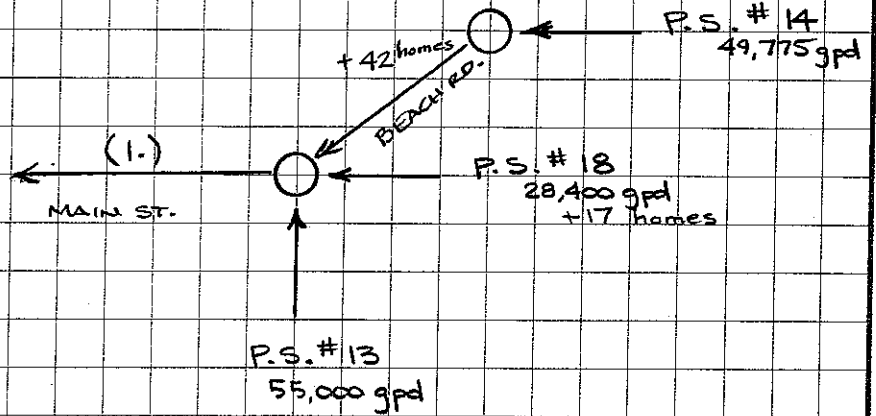
$$A = Q/V \quad Q = 0.44 \text{ cfs}, \quad V = 3 \text{ fps (assumed)}$$

$$\pi d^2/4 = 0.44/3$$

$$d = 0.43 \text{ ft} = 5.2 \text{ inch}$$

$$\text{TRY } 4" \text{ } \varnothing \text{ FM: } \quad V = Q/A = 0.44 / \left(\pi (4/12)^2 / 4 \right) = 5.1 \text{ fps}$$

$$\underline{\underline{\text{USE } 4" \text{ } \varnothing \text{ FM } (V \approx 5.1 \text{ fps})}}$$



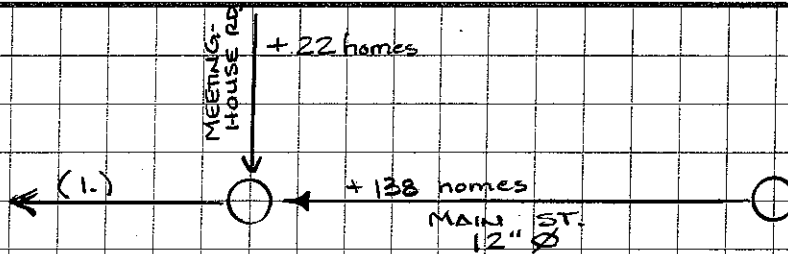
$$\begin{aligned}
 (1.) \quad & 49,775 + (42 \text{ homes} \times 200 \text{ gpd/home}) = 58,175 \text{ gpd} \\
 & 28,400 + (17 \text{ homes} \times 200 \text{ gpd/home}) = 31,800 \text{ gpd} \\
 & \quad \quad \quad 55,000 \text{ gpd} \\
 & \hline
 & 144,975 \text{ gpd} \quad \text{ADF} \therefore \text{P.F.} = 5.2
 \end{aligned}$$

$$\begin{aligned}
 144,975 \text{ gpd} \times 5.2 &= 753,870 \text{ gpd} + 8,550 \text{ gpd} + 5,640 \text{ gpd} + 7,800 \text{ gpd} + 1,200 \text{ gpd} \\
 &= 777,060 \text{ gpd} = 1.20 \text{ cfs}
 \end{aligned}$$

$$\begin{aligned}
 A &= Q/V \quad Q = 1.20 \text{ cfs} \quad V = 2 \text{ fps} \\
 \pi d^2/4 &= 1.20/2
 \end{aligned}$$

$$d = 0.87 \text{ ft} = 10.5 \text{ inch}$$

USE 12" Ø



STREETS BETWEEN MEETINGHOUSE RD. & BEACH RD. -

	<u>GRAVITY</u>	<u>HOMES/V.L.</u>	<u>LPSS</u>
LEWIS ROAD		6	620
CHENEY ROAD	680	11	460
MANITO WAY		10	790
LOOMIS LANE		9	1850
DEERWOOD PARK		9	900
GREAT OAK ROAD (N)	1920	27 (N)	
PINE RIDGE LANE (N)	880	10 (N)	
OAK LANE (N)	490	7 (N)	120
WOODLAND PK LANE (N)	470	8 (N)	
MAIN STREET	2500	33	
KAREN WAY		8	1150
	<u>4440</u>	<u>138</u>	<u>5890</u>
HOPKINS LANE (N)	610	10 (N)	-
MEETINGHOUSE ROAD (N)	2070	12 (N)	-
	<u>2680</u>	<u>22</u>	<u>-</u>

(1.) NAUSET: 74 homes x 275 gpd/home = 20,350 gpd

PLEAS. BAY: 86 homes x 200 gpd/home = 17,200 gpd

37,550 gpd + 144,975 gpd = 182,525 gpd

∴ P.F. = 4.9

182,525 gpd x 4.9 = 894,373 gpd PEAK

$7120/5280 = (1.35 \text{ mi} \times 8 \text{ inch}) + [(2.500/5280) \times 12 \text{ inch}] = 7.03 \text{ in. mi} \times 500 \text{ gpd/in. mi} = 3,515 \text{ gpd}$
SAY 3,520 gpd

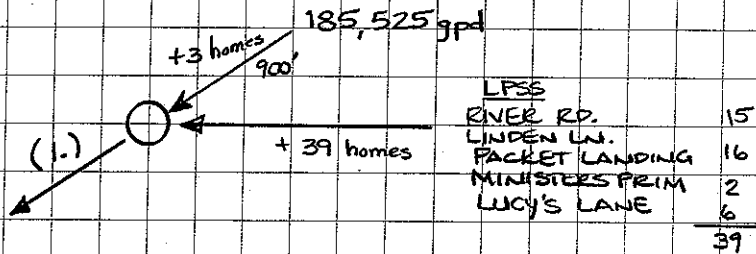
1/1 = 3,520 gpd + 8,550 gpd + 5,640 gpd + 7,800 gpd + 1,200 gpd = 26,710 gpd

894,373 gpd + 26,710 gpd = 921,083 gpd PEAK = 1.43 cfs

$$A = Q/V \quad Q = 1.43 \text{ cfs}; \quad V = 2 \text{ fps}$$

$$\pi d^2/4 = 1.43/2$$

$$d = 0.95 \text{ ft} = 11.4 \text{ inch} \quad \underline{\underline{\text{USE } 12" \text{ } \phi}}$$



$$(1.) \quad 39 \text{ homes} \times 275 \text{ gpd/home} = 10,725 \text{ gpd} + (3 \text{ homes} \times 275 \text{ gpd/home}) = 11,550 \text{ gpd}$$

$$11,550 \text{ gpd} + 185,525 \text{ gpd} = 197,075 \text{ gpd} \quad \therefore \text{P.F.} = 4.9$$

$$= 197,075 \text{ gpd} \times 4.9 = 965,668 \text{ gpd}$$

$$900/5280 = 0.17 \text{ mi} \times 12 \text{ inch} = 2.04 \text{ in. mi} \times 500 \text{ gpd/in. mi} = 1,022 \text{ gpd} \text{ SAY } 1,025 \text{ gpd}$$

$$\underline{\underline{1/L}}: \quad 26,710 \text{ gpd} + 1,025 \text{ gpd} = \underline{\underline{27,735 \text{ gpd}}}$$

$$\text{TOTAL PEAK} = 965,668 \text{ gpd} + 27,735 \text{ gpd} = 993,403 \text{ gpd PEAK}$$

$$= \underline{\underline{1.54 \text{ cfs PEAK}}}$$

$$A = Q/V \quad Q = 1.54 \text{ cfs}; \quad V = 2 \text{ fps}$$

$$\pi d^2/4 = 1.54/2$$

$$d = 0.99 \text{ ft} = 11.9 \text{ ft}$$

$$\underline{\underline{\text{USE } 15" \text{ } \phi}}$$

P.S. #19 -

$$90 \text{ homes} \times 275 \text{ gpd/home} = 24,750 \text{ gpd ADF} \therefore \text{P.F.} = 5.6$$

$$24,750 \text{ gpd} \times 5.6 = 138,600 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$5725/5280 = 1.08 \text{ mi} \times 8 \text{ inch} = 8.67 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 4,337 \text{ gpd}$$

SAY 4,340 gpd

$$\text{TOTAL PEAK} = 138,600 \text{ gpd} + 4,340 \text{ gpd} = \underline{\underline{142,940 \text{ gpd PEAK} = 0.22 \text{ cfs}}}$$

$$A = Q/V \quad Q = 0.22 \text{ cfs}; V = 3 \text{ fps}$$

$$\pi d^2/4 = 0.22/3$$

$$d = 0.31 \text{ ft} = 3.68 \text{ inch}$$

USE 3" Ø FM (V = 4.5 fps)

P.S. #16 -

$$142 \text{ homes} \times 275 \text{ gpd/home} = 39,050 \text{ gpd} + \text{P.S. #19}$$

$$39,050 \text{ gpd} + 24,750 \text{ gpd} = 63,800 \text{ gpd ADF} \therefore \text{P.F.} = 5.6$$

$$63,800 \text{ gpd} \times 5.6 = 357,280 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$7440/5280 = 1.41 \text{ mi} \times 8 \text{ inch} = 11.27 \text{ in} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 5,636 \text{ gpd SAY } 5,640 \text{ gpd}$$

$$5,640 \text{ gpd} + 4,340 \text{ gpd} = 9,980 \text{ gpd}$$

$$\text{TOTAL PEAK} = 357,280 \text{ gpd} + 9,980 \text{ gpd} = \underline{\underline{367,260 \text{ gpd PEAK} = 0.568 \text{ cfs}}}$$

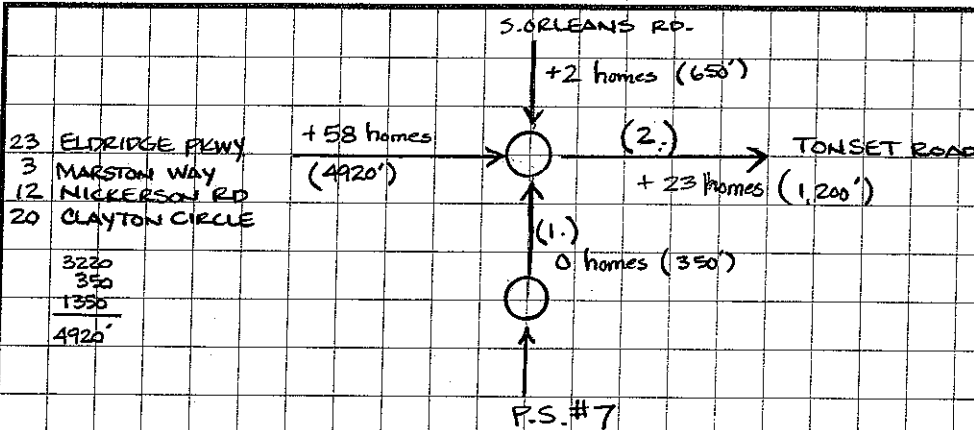
$$A = Q/V \quad Q = 0.568 \text{ cfs}; V = 3 \text{ fps}$$

$$\pi d^2/4 = 0.568/3$$

$$d = 0.49 \text{ ft} = 5.89 \text{ inch}$$

$$\text{TRY } 4" \text{ Ø FM} = \frac{0.568}{\pi (4/12)^2/4} = 65 \text{ fps}$$

USE 6" Ø FM



(1.) $Q = 1.465 \text{ cfs}$; $V = 2 \text{ fps}$

$A = Q/V$
 $\pi d^2/4 = 1.465/2$

$d = 0.96 \text{ ft} = 11.5 \text{ inch}$ USE 12" Ø

(2.) $(58 \text{ homes} + 23 \text{ homes} + 2 \text{ homes}) \times 275 \text{ gpd/home} = 22,825 \text{ gpd} + \text{P.S. \#7}$
 $22,825 \text{ gpd} + 183,325 \text{ gpd} = 206,150 \text{ gpd ADF} \therefore \text{P.F.} = 4.8$
 $200,650 \text{ gpd} \quad 223,475 \text{ gpd}$
 $= 206,150 \text{ gpd} \times 4.8 = 989,520 \text{ gpd PEAK}$
 $223,475 \text{ gpd} \quad 1,072,680 \text{ gpd}$

1/ ALLOWANCE -

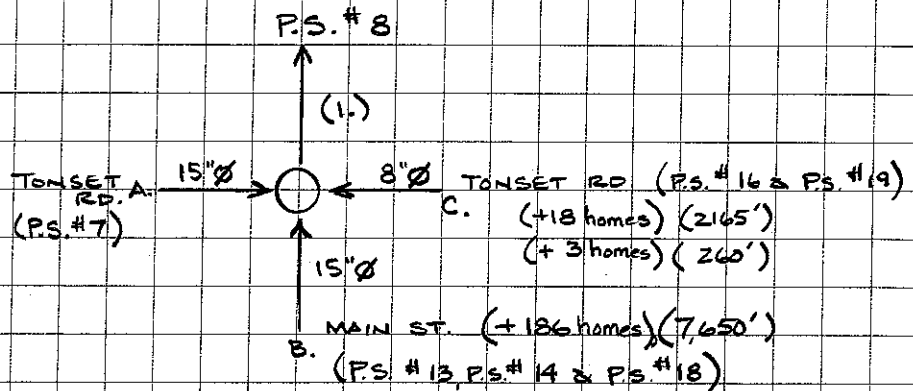
8": $7610' + 52,295' + 4920' + 650' = 65,475/5280 = 12.4 \text{ mi} \times 8 \text{ in} = 99.2 \text{ inch} \cdot \text{mi}$
 10": $750 = 750/5280 = 0.14 \text{ mi} \times 10 \text{ in} = 1.42 \text{ inch} \cdot \text{mi}$
 12": $2,200 + 350 = 2550/5280 = 0.48 \text{ mi} \times 12 \text{ in} = 5.8 \text{ inch} \cdot \text{mi}$
 106.42 inch · mi

$106.42 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/inch} \cdot \text{mi} = 53,210 \text{ gpd}$

TOTAL PEAK = $989,520 \text{ gpd} + 53,210 \text{ gpd} = 1,042,730 \text{ gpd PEAK}$
 $= 1.61 \text{ cfs PEAK}$
1.75 cfs

$A = Q/V$ $Q = 1.75 \text{ cfs}$; $V = 2 \text{ fps}$
 $\pi d^2/4 = 1.75/2$

$d = 1.01 \text{ ft} = 12.2 \text{ inch}$ USE 15" Ø ✓
 $1.05 \text{ ft} \quad 12.6 \text{ inch}$



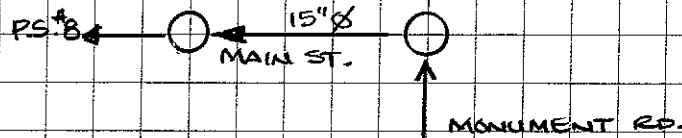
	ACF	1/1
A. -	$\frac{223,475}{206,150}$ gpd	$\frac{55,810}{52,210}$ gpd
B. -	197,075 gpd	27,735 gpd
C. -	163,800 gpd	9,980 gpd

ADDT'L FLOW FROM B. -

MAIN STREET	1700	14	
QUAIL HILL LANE	-	12	900
ARENA DRIVE	240	2	
OWL'S HILL ROAD	150	1	
MONUMENT ROAD	2940	47	1620
GENEER ROAD		4	380
MESS LANE		14	800
HERRING BROOK WAY		23	2800
ALEWIFE WAY		4	330
FROST FISH LANE		8	1000
SPIDER WEB LANE		2	330
KEZIAH'S LANE		7	1640
ETIAS WAY		7	375
POND ROAD	1540	22	
UNCLE VICK WAY		12	990
MISTY LANE		1	350
	<u>6570</u>	<u>180 homes</u>	<u>11,515</u>
SCHOOL ROAD	1080	6	
	<u>7,650</u>	<u>186 homes</u>	

186 homes x 200 gpd/home = 37,200 gpd

CONFIRM MAIN ST. PIPE SIZE -



$$197,075 \text{ gpd} + 37,200 \text{ gpd} = 234,275 \text{ gpd}$$

$$\therefore \text{P.F.} = 4.6$$

$$234,275 \text{ gpd} \times 4.6 = 1,077,665 \text{ gpd PEAK}$$

$$7650/5280 = 1.45 \text{ mi} \times 8 \text{ inch} = 11.59 \text{ in} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 5,795 \text{ gpd}$$

SAY 5,800 gpd

$$1/1 = 5,800 \text{ gpd} + 27,735 \text{ gpd} = 33,535 \text{ gpd}$$

$$\text{TOTAL PEAK} = 1,077,665 \text{ gpd} + 33,535 \text{ gpd} = \underline{\underline{1,111,200 \text{ gpd PEAK}}} = \underline{\underline{1.719 \text{ cfs}}}$$

$$\Delta = Q/V \quad Q = 1.719 \text{ cfs}; V = 2 \text{ fps}$$

$$\pi d^2/4 = 1.719/2$$

$$d = 1.04 \text{ ft} = 12.6 \text{ inch} \quad \underline{\underline{15" \phi \text{ O.K.}}}$$

ADDT'L FLOW FROM C.

$$21 \text{ homes} \times 275 \text{ gpd/home} = 5,775 \text{ gpd ADF}$$

$$1/1 \quad 2425/5280 = 0.46 \text{ mi} \times 8 \text{ inch} = 3.67 \text{ in. mi} \times 500 \text{ gpd/in. mi} = 1,837 \text{ gpd}$$

SAY 1,840 gpd

A. $\frac{223,475}{206,150} \text{ gpd}$

B. $97,075 \text{ gpd} + 37,200 \text{ gpd} = 234,275 \text{ gpd}$

C. $63,800 \text{ gpd} + 5,775 \text{ gpd} = 69,575 \text{ gpd}$

(1.) $\frac{223,475}{206,150} \text{ gpd} + 234,275 \text{ gpd} + 69,575 \text{ gpd} = \frac{527,325}{510,000} \text{ gpd ADF}$

$\therefore \text{P.F.} = 4.2$

$$\frac{527,325}{510,000} \text{ gpd} \times 4.2 = \frac{2,214,765}{2,142,000} \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$53,210 \text{ gpd} + 27,735 \text{ gpd} + 9,980 \text{ gpd} + 5,800 \text{ gpd} + 1,840 \text{ gpd} = 98,565 \text{ gpd}$$

+ 2600 101,165

$$\text{TOTAL PEAK} = \frac{2,214,765}{2,142,000} \text{ gpd} + 98,565 \text{ gpd} = \frac{2,315,930}{2,240,565} \text{ gpd PEAK}$$

= 3.47 cfs PEAK

3.58

$A = Q/V$ $Q = \frac{3.58}{3.47} \text{ cfs}$ $V = 2 \text{ fps}$

$$\frac{\pi d^2}{4} = \frac{3.58}{1.5/2}$$

$$d = 1.48 \text{ ft} = 17.8 \text{ inch}$$

USE 21" Ø

P.S. #15 -

157 homes x 600 gpd/home = 94,200 gpd ADF ∴ P.F. = 5.6

94,200 gpd x 5.6 = 527,520 gpd PEAK

1/1 ALLOWANCE -

6,360/5280 = 1.20 mi x 8 inch = 9.64 inch-mi x 500 gpd/in-mi = 4,818 gpd
 SAY 4,820 gpd

TOTAL PEAK = 527,520 gpd + 4,820 gpd = 532,340 gpd PEAK
 = 0.8237 cfs PEAK

A = Q/V Q = 0.8237 cfs ; V = 3 fps

$\pi d^2/4 = 0.8237/3$

d = 0.59 ft = 7.1 inch

TRY 6" FM : $0.8237 / \frac{\pi (6/12)^2}{4} = 4.2 \text{ fps}$

USE 6" Ø FM

P.S. #12 -

57 parcels x 600 gpd/parcels = 34,200 gpd ADF ∴ P.F. = 5.6

34,200 gpd x 5.6 = 191,520 gpd PEAK

1/1 ALLOWANCE -

4,060/5280 = 0.77 mi x 8 inch = 6.15 inch-mi x 500 gpd/in-mi = 3,075 gpd SAY 3,100 gpd

TOTAL PEAK = 191,520 gpd + 3,100 gpd = 194,620 gpd PEAK = 0.301 cfs

A = Q/V Q = 0.301 cfs ; V = 3 fps

$\pi d^2/4 = 0.301/3$

d = 0.358 ft. = 4.29 inch

USE 4" Ø FM (V=3.45 fps)

P.S. # 11 -

$$132 \text{ parcels} \times 600 \text{ gpd/parcel} = 79,200 \text{ gpd} + \text{P.S. \#15}$$

$$79,200 \text{ gpd} + 94,200 \text{ gpd} = 173,400 \text{ gpd} \text{ ADF} \therefore \text{P.F} = 5$$

$$173,400 \text{ gpd} \times 5 = 867,000 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$12,690 + 6360 = 19,050 / 5280 = 3.61 \text{ mi} \times 8 \text{ inch} = 28.86 \text{ in} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi}$$

$$= 14,431 \text{ gpd} \text{ SAY } \underline{14,430 \text{ gpd}}$$

$$\text{TOTAL PEAK} = 867,000 \text{ gpd} + 14,430 \text{ gpd} = 881,430 \text{ gpd PEAK}$$

$$= \underline{\underline{1.36 \text{ cfs PEAK}}}$$

$$A = Q/V \quad Q = 1.36 \text{ cfs} \quad V = 3 \text{ fps}$$

$$\pi d^2/4 = 1.36/3$$

$$d = 0.76 \text{ ft} = 9.13 \text{ inch}$$

$$\text{TRY } 8" \text{ } \varnothing \text{ FM} : V = Q/A = 1.36 / \pi (8/12)^2 / 4 = 3.9 \text{ fps}$$

USE 8" } \varnothing \text{ FM}

P.S. #9 -

$$61 \text{ parcels} \times 600 \text{ gpd/parcel} = 36,600 \text{ gpd ADF} \quad \therefore \text{P.F.} = 5.6$$

$$36,600 \text{ gpd} \times 5.6 = 204,960 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$3025/5280 = 0.57 \text{ mi} \times 8 \text{ inch} = 4.58 \text{ inch mi} \times 500 \text{ gpd/inch mi} = 2,291 \text{ gpd SAY } \underline{2,300 \text{ gpd}}$$

$$\text{TOTAL PEAK} = 204,960 \text{ gpd} + 2,300 \text{ gpd} = 207,260 \text{ gpd PEAK} = \underline{\underline{0.321 \text{ cfs PEAK}}}$$

$$A = Q/V \quad Q = 0.321 \text{ cfs}; V = 3 \text{ fps}$$

$$\frac{\pi d^2}{4} = \frac{0.321}{3}$$

$$d = 0.36 \text{ ft} = 4.4 \text{ inch} \quad \underline{\underline{\text{USE } 4" \text{ } \varnothing \text{ FM (V} = 3.68 \text{ fps)}}}$$

P.S. #10 -

$$23 \text{ parcels} \times 600 \text{ gpd/parcel} = 13,800 \text{ gpd} + \text{P.S. #9}$$

$$13,800 \text{ gpd} + 36,600 \text{ gpd} = 50,400 \text{ gpd ADF} \quad \therefore \text{P.F.} = 5.6$$

$$50,400 \text{ gpd} \times 5.6 = 282,240 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$3,025 + 2750 = 5775 / 5280 = 1.09 \text{ mi} \times 8 \text{ inch} = 8.75 \text{ inch mi} \times 500 \text{ gpd/inch mi}$$

$$= 4,375 \text{ gpd SAY } \underline{\underline{4,400 \text{ gpd}}}$$

$$\text{TOTAL PEAK} = 282,240 \text{ gpd} + 4,400 \text{ gpd} = 286,640 \text{ gpd PEAK}$$

$$= \underline{\underline{0.444 \text{ cfs PEAK}}}$$

$$A = Q/V \quad Q = 0.444 \text{ cfs}; V = 3 \text{ fps}$$

$$\frac{\pi d^2}{4} = \frac{0.444}{3}$$

$$d = 0.43 \text{ ft} = 5.21 \text{ inch}$$

$$\underline{\underline{\text{USE } 4" \text{ } \varnothing \text{ FM (V} = 5.1 \text{ fps)}}}$$

P.S. # 8 -

$$696 \text{ parcels} \times 275 \text{ gpd/parcel} = 191,400 \text{ gpd ADF}$$

$$191,400 \text{ gpd} + \text{P.S. \#7} + \text{P.S. \#11} + \text{P.S. \#12} + \text{P.S. \#13} + \text{P.S. \#14} + \text{P.S. \#16} + \text{P.S. \#18}$$

$$191,400 \text{ gpd} + 200,650 \text{ gpd} + 173,400 \text{ gpd} + 34,200 \text{ gpd} + 55,000 \text{ gpd} + 49,775 \text{ gpd} \\ + 63,800 \text{ gpd} + 28,400 \text{ gpd}$$

$$= 796,625 \text{ gpd ADF} \quad \therefore \text{P.F.} = 3.7$$

$$796,625 \text{ gpd} \times 3.7 = 2,947,513 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$38,415 / 5280 = 7.28 \text{ mi} \times 8 \text{ inch} = 58.2 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 29,102 \text{ gpd}$$

SAY 29,100 gpd

$$29,100 \text{ gpd} + 50,800 \text{ gpd} + 14,430 \text{ gpd} + 3,100 \text{ gpd} + 8,550 \text{ gpd} + 7,800 \text{ gpd} + 9,980 \text{ gpd} + 5,640 \text{ gpd} \\ = 129,400 \text{ gpd}$$

$$\text{TOTAL PEAK} = 2,947,513 \text{ gpd} + 129,400 \text{ gpd} = 3,076,913 \text{ gpd PEAK}$$

4.76 cfs PEAK

$$A = Q/V \quad Q = 4.76 \text{ cfs} ; V = 3 \text{ fps}$$

$$\pi d^2 / 4 = 4.76 / 3$$

$$d = 1.42 \text{ ft} = 17 \text{ inch}$$

$$\text{TRY } 15" \text{ } \varnothing \text{ FM} \quad V = 4.76 / \pi (15/12)^2 / 4 = 3.88 \text{ fps}$$

USE 15" } \varnothing \text{ FM (V = 3.9 fps)

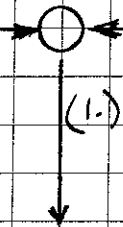
+7 parcels
(500')

+23 parcels
(1300') (2.)

P.S. # 11

173,400 gpd

1/1 = 14,430 gpd



$$(1.) \quad (7 \text{ parcels} \times 600 \text{ gpd/parcel}) + (23 \text{ parcels} \times 600 \text{ gpd/parcel}) + \text{P.S. \# 11}$$

$$= 4,200 \text{ gpd} + 13,800 \text{ gpd} + 173,400 \text{ gpd}$$

$$= 191,400 \text{ gpd ADF} \quad \therefore \text{P.F.} = 4.9$$

$$191,400 \text{ gpd} \times 4.9 = 937,860 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$1800/5280 = 0.341 \text{ mi} \times 8 \text{ inch} = 2.73 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 1,364 \text{ gpd}$$

SAY 1,365 gpd

$$\text{TOTAL PEAK} = 937,860 \text{ gpd} + 14,430 \text{ gpd} + 1,365 \text{ gpd}$$

$$= \underline{\underline{953,655 \text{ gpd PEAK} = 1.48 \text{ cfs PEAK}}}$$

$$A = Q/V \quad Q = 1.48 \text{ cfs} ; V = 2 \text{ fps}$$

$$\pi d^2/4 = 1.48/2$$

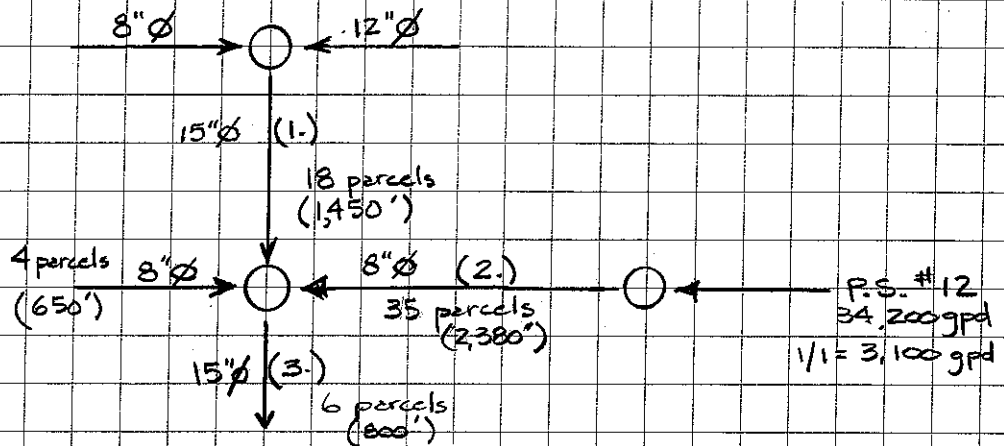
$$d = 0.969 \text{ ft} = 11.6 \text{ inch} \quad \underline{\underline{\text{USE } 15" \text{ } \phi \text{ } \checkmark}}$$

$$(2.) \quad 881,430 \text{ gpd PEAK} = 1.36 \text{ cfs PEAK}$$

$$A = Q/V \quad Q = 1.36 \text{ cfs} ; V = 2 \text{ fps}$$

$$\pi d^2/4 = 1.36/2$$

$$d = 0.93 \text{ ft} = 11.2 \text{ inch} \quad \underline{\underline{\text{USE } 12" \text{ } \phi \text{ } \checkmark}}$$



$$(1.) \quad 191,400 \text{ gpd} + (18 \text{ parcels} \times 600 \text{ gpd/parcel}) = 202,200 \text{ gpd ADF}$$

$$\therefore \text{P.F.} = 4.9$$

$$= 202,200 \text{ gpd} \times 4.9 = 990,780 \text{ gpd PEAK}$$

1/1 ALLOWANCE -

$$1450/5280 = 0.27 \text{ mi} \times 15 \text{ in} = 4.12 \text{ inch} \cdot \text{mi} \times 500 \text{ gpd/in} \cdot \text{mi} = 2,059 \text{ gpd SAY } 2,060 \text{ gpd}$$

$$2,060 + 1,480 \text{ gpd} + 380 \text{ gpd} = 4,300 \text{ gpd} + 14,430 \text{ gpd}$$

$$= 18,730 \text{ gpd}$$

$$\text{TOTAL PEAK} = 990,780 \text{ gpd} + 18,730 \text{ gpd} = 1,009,510 \text{ gpd PEAK}$$

$$= \underline{\underline{1.562 \text{ cfs PEAK}}}$$

$$A = Q/V \quad Q = 1.562 \quad ; \quad V = 2 \text{ fps}$$

$$\pi d^2/4 = 1.562/2$$

$$d = 0.997 \text{ ft} = 11.97 \text{ inch} \quad \underline{\underline{\text{USE } 15" \phi}}$$

(2.) $(35 \text{ parcels} \times 600 \text{ gpd/parcel}) + 34,200 \text{ gpd} = 55,200 \text{ gpd ADF}$

$55,200 \text{ gpd} \times 5.6 = 309,120 \text{ gpd PEAK}$

1/1 ALLOWANCE -

$2386/5280 = 0.45 \text{ mi} \times 8 \text{ inch} = 3.6 \text{ in. mi} \times 500 \text{ gpd/in. mi} = 1,803 \text{ gpd}$

SAY 1,800 gpd

$1,800 \text{ gpd} + 3,100 \text{ gpd} = 4,900 \text{ gpd}$

TOTAL PEAK = $309,120 \text{ gpd} + 4,900 \text{ gpd} = 314,020 \text{ gpd PEAK}$

USE 8" Ø

(3.) $202,200 \text{ gpd} + 2,400 \text{ gpd} + 55,200 \text{ gpd} + 3,600 \text{ gpd} = 263,400 \text{ gpd} \therefore \text{P.F.} = 4.7$

$263,400 \text{ gpd} \times 4.7 = 1,237,980 \text{ gpd}$

1/1 ALLOWANCE -

$18,730 \text{ gpd} + 3,100 \text{ gpd} + 1800 \text{ gpd} + 500 \text{ gpd} + 1360 \text{ gpd} = 25,490 \text{ gpd}$

TOTAL PEAK = $1,237,980 \text{ gpd} + 25,490 \text{ gpd} = 1,263,470 \text{ gpd PEAK}$

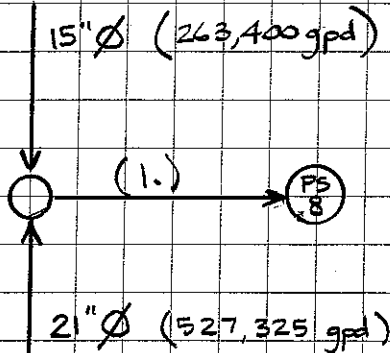
= 1.96 cfs PEAK

$A = Q/V \quad Q = 1.96 \text{ cfs} ; V = 2 \text{ fps}$

$\pi d^2/4 = 1.96/2$

$d = 1.12 \text{ ft} = 13.39 \text{ inch}$

USE 15" Ø



(1.) $527,325 \text{ gpd} + 263,400 \text{ gpd} = 790,725 \text{ gpd} \quad \therefore \text{P.F.} = 3.9$

$790,725 \text{ gpd} \times 3.9 = 3,083,828$

1/1 ALLOWANCE = $25,490 \text{ gpd} + 101,165 \text{ gpd} = 126,655 \text{ gpd}$

TOTAL PEAK = $3,083,828 \text{ gpd} + 126,655 \text{ gpd}$
 $= 3,210,483 \text{ gpd PEAK} = 4.97 \text{ cfs PEAK}$

$A = Q/V \quad Q = 4.97 \text{ cfs}; V = 2 \text{ fps}$

$\pi d^2/4 = 4.97/2$

$d = 1.78 \text{ ft} = 21.3 \text{ inch}$

USE 24" Ø

24 LOT = 2" Ø AND ABOVE

<h1>Weston & Sampson®</h1>	PROJECT:	DATE:	PAGE:
	LPSS PIPE SIZES	BY:	
		CHKD BY:	

PUMP STATION # 1 -

TOWHEE LANE	2400 LF	27 LOTS	2" Ø	3" Ø
WHIPPORWILL LANE	775 LF	1 LOT	1 1/2" Ø	1 1/2" Ø
NORTHWOOD DRIVE	330 LF	3 LOTS	1 1/2" Ø	1 1/2" Ø

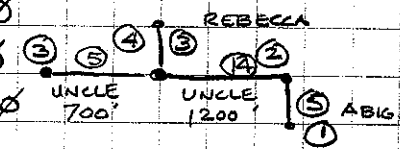
PUMP STATION # 2 -

8 LOTS

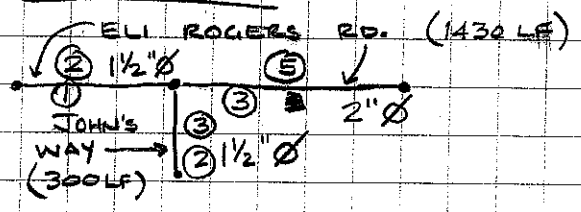
LAKE DRIVE "A"		1 LOT	1 1/2" Ø	
DEEP POND CIRCLE		4 LOT	2" Ø	
LAKE DRIVE "B"		1 LOTS	2" Ø	
BOULDER LANE		5 LOTS	2" Ø	
LAKE DRIVE "C"				

PUMP STATION # 3 -

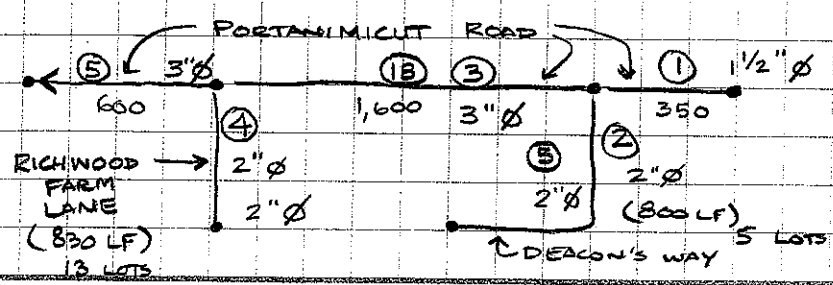
HALF CAPE WAY	350 LF	3 LOTS	1 1/2" Ø	
CRESCENT RIDGE WAY	790 LF	9 LOTS	2" Ø	
BLACKBERRY LANE	250 LF	4 LOTS	2" Ø	
GRANNY LANE	1440 LF	14 LOT	2" Ø	3" Ø
AUNT ABIGAILS WAY	330 LF	5 LOTS	2" Ø	
UNCLE ISRAELS ROAD	1900 LF	18 LOTS	3" Ø	
REBECCA WAY	180 LF	3 LOTS	1 1/2" Ø	2 1/2" Ø



PUMP STATION # 4 -

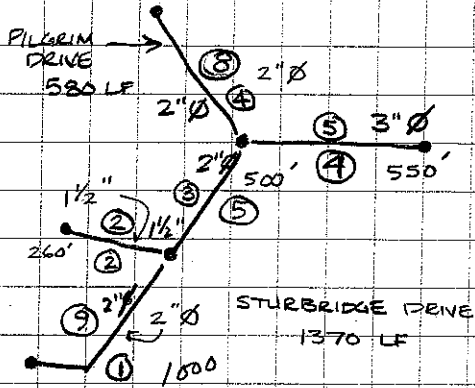


HUCKLEBERRY DRIVE	370 LF	8 LOTS	2" Ø
WINDHAMMER WAY	615 LF	8 LOTS	2" Ø

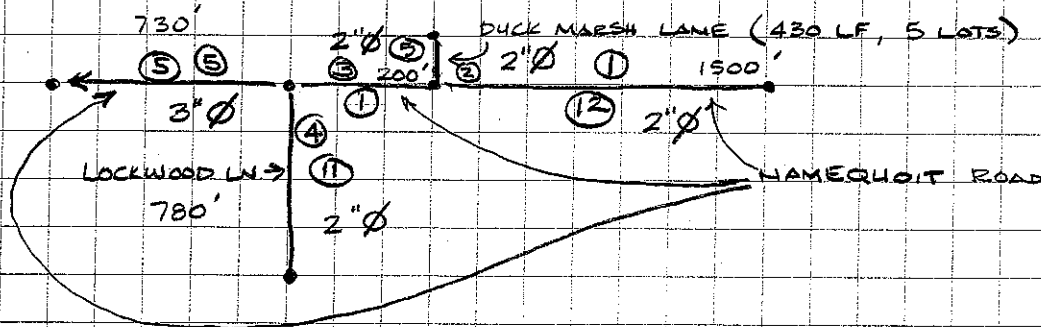


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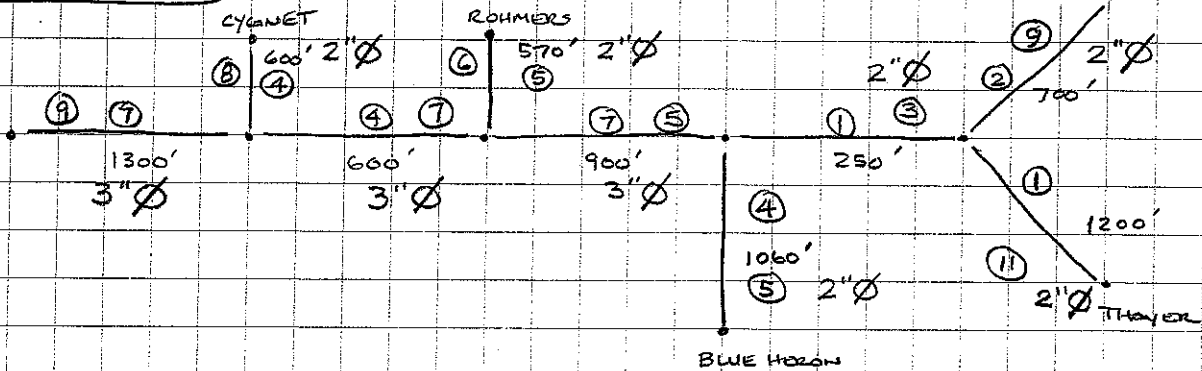
PUMP STATION # 5



HERTAGE DRIVE	710 LF	7 LOTS	2" Ø
RIDGEWOOD ROAD	985 LF	12 LOTS	2" Ø



PUMP STATION # 6

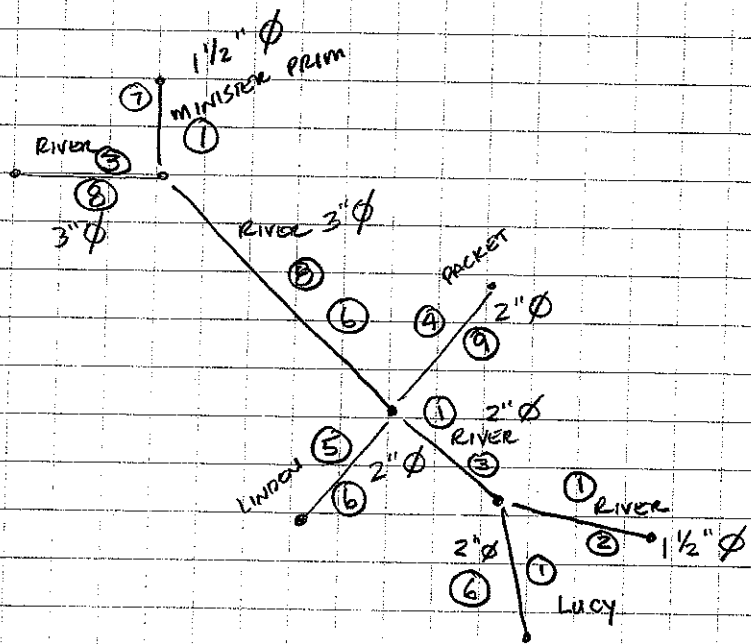
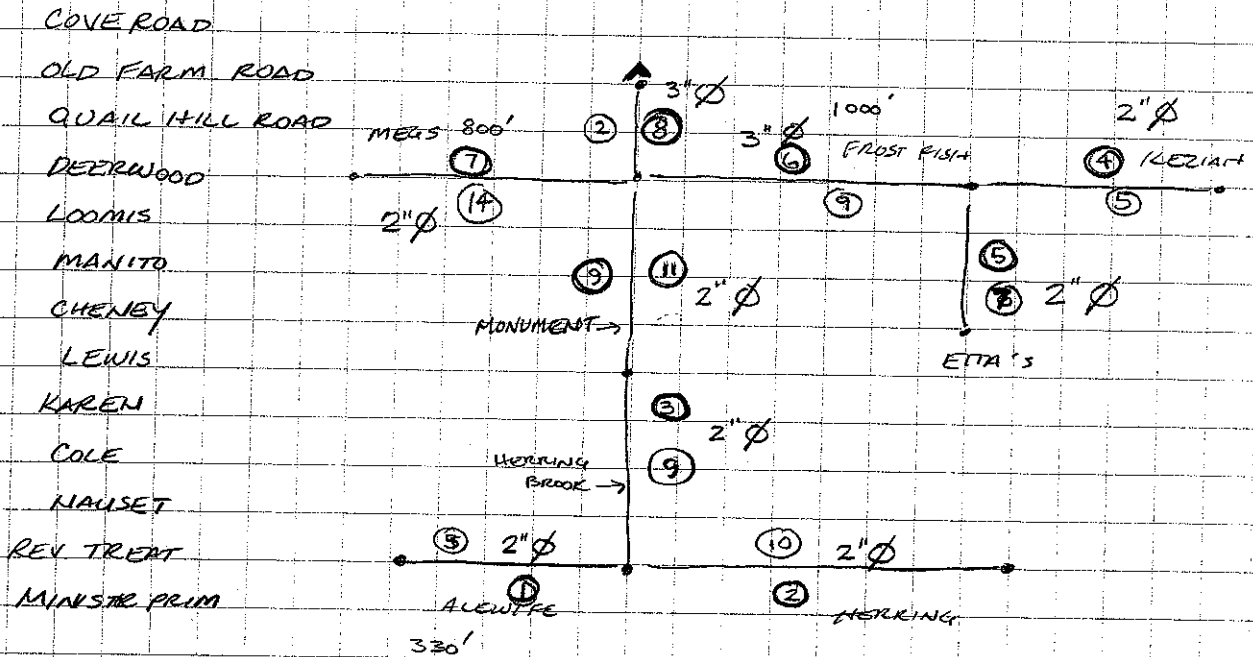


PILGRIM LAKE TERRACE EAST	750'	5 LOTS	2" Ø
COUNTRY LANE	530'	3 LOTS	1 1/2" Ø
POMPONS TRAIL	550	7 LOTS	2" Ø
OLD TIMERS LANE	970'	6 LOTS	2" Ø
PARADISE LANE	280	3 LOTS	1 1/2" Ø

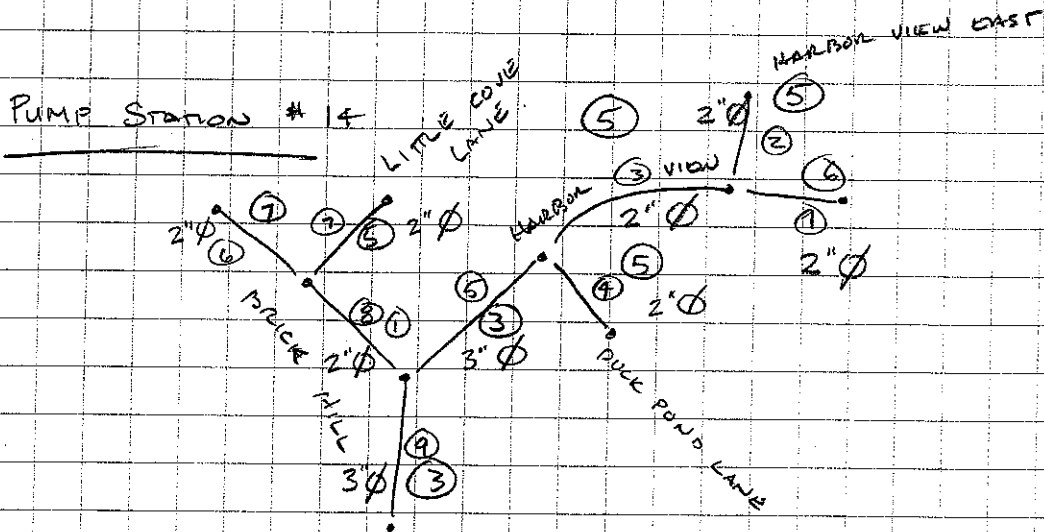
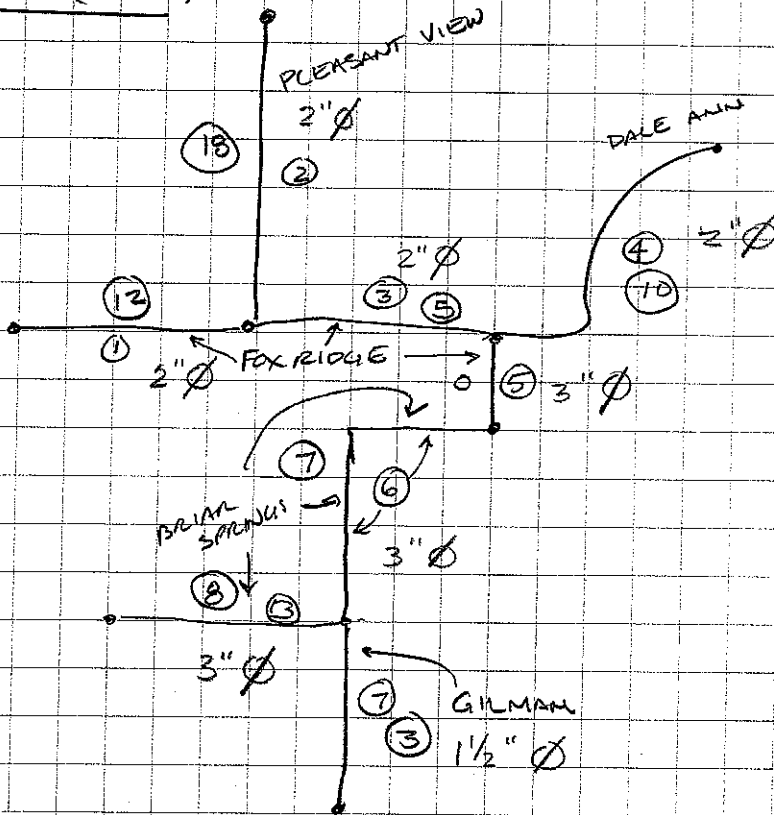
PUMP STATION # 7

CRYSTAL LAKE DRIVE	1490 LF	18	3" ϕ
LAKE FARM LANE	1025 LF	10	2" ϕ
LOTS HOLLOW ROAD	430 LF	4	2" ϕ

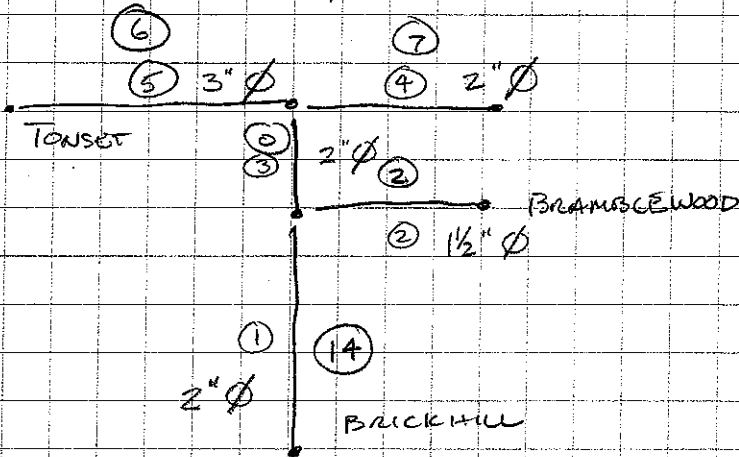
PUMP STATION # 8



RS. #13 (cont'd)



PUMP STATION #16



PUMP STATION #18

