

PICKETT RAY & SILVER

333 Mid Rivers Mall Dr
St. Peters, MD 63376

Civil Engineers
Planners
Land Surveyors

441-1211
278-1211

PROJECT NAME LOT 14, MIDPOINT IND.
PROJECT #/JOB ORDER # 88-134A
DATE 9-30-94
DESIGNER D. POTTHAST
PAGE 1 OF 4

DETENTION CALCULATIONS FOR 25 YR. STORM

DEVELOPED Q:

$$0.25 \text{ Ac. @ } 4.75 = 1.19 \text{ CFS DEVELOPED}$$

$$0.25 \text{ Ac. @ } 2.31 = 0.58 \text{ CFS UNDEVELOPED}$$

$$\text{TOTAL DEVELOPED Q} = 1.77 \text{ CFS}$$

AREA OF SITE : 0.50 ACRES

$$0.50 \text{ Ac. @ } 2.31 = 1.16 \text{ CFS ORIGINAL Q}$$

$$1.77 \text{ CFS} - 1.16 \text{ CFS} = 0.61 \text{ CFS ALLOWABLE RELEASE}$$

AREA DRAINING TO BASIN :

$$0.32 \text{ Ac. @ } 4.75 = 1.52 \text{ CFS}$$

DETENTION FOR PARKING + BUILDING :

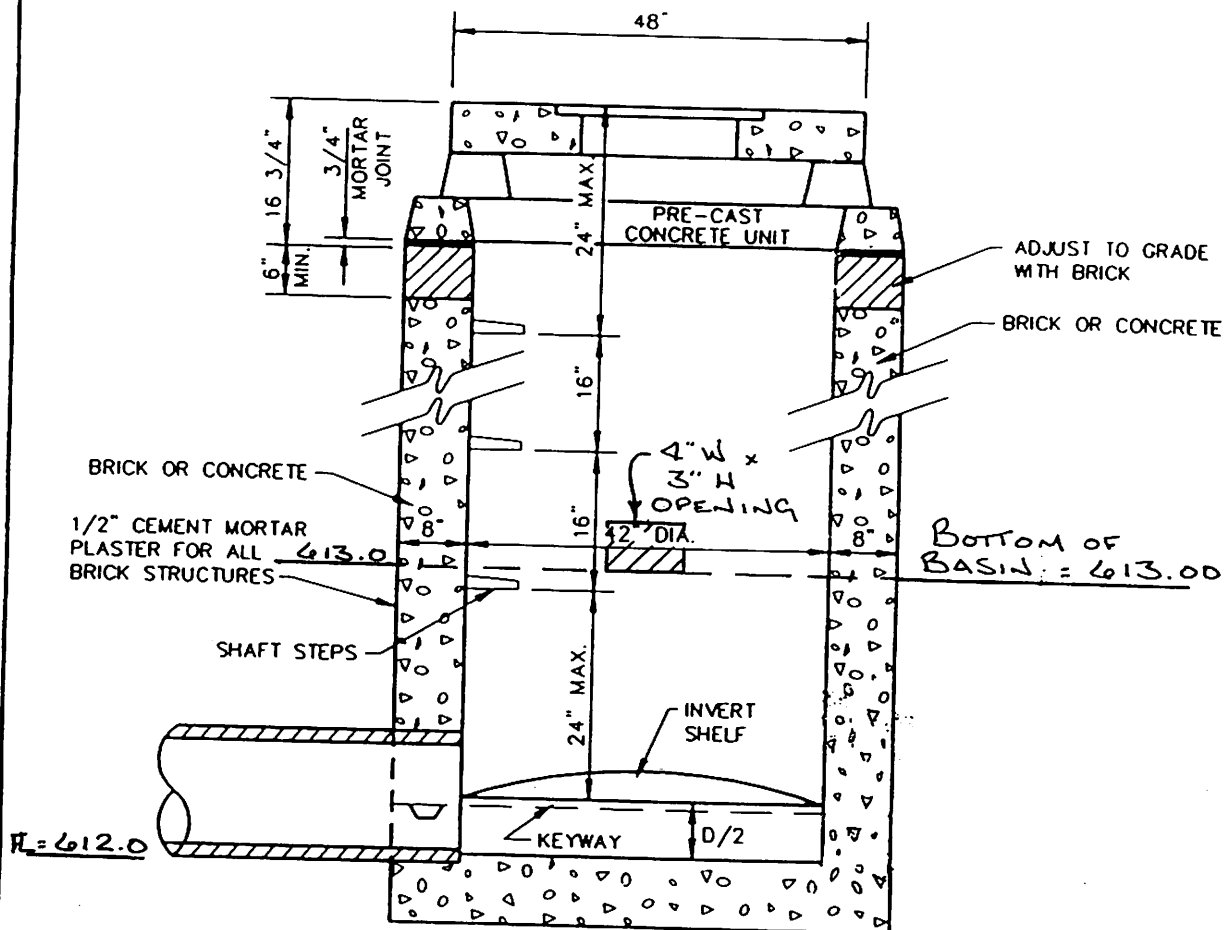
$$0.22 \text{ Ac. @ } 4.75 = 1.04 \text{ CFS}$$

(STORE FOR 1.04 CFS)

$$\text{STORAGE REQUIRED : } 1.04 \times 60 \times 30 = 1872 \text{ CU. FT.}$$

$$\text{STORAGE PROVIDED : } 2019 \text{ CU. FT.}$$

NOTE
 FOR SEWERS 27" THRU 36"
 SEE DETAIL SHEET 9 FOR BOTTOM SECTION



OUTFALL STRUCTURE
 AREA INLET MANHOLE
 (12" THRU 24")

METROPOLITAN ST. LOUIS SEWER DISTRICT
 Standard Details of Sewer Construction

Dr. R.G.W.
 Ch. J.C.K.

1992

SHEET 25

PICKETT RAY & SILVER

333 Mid Rivers Mall Dr
St. Peters, MO 63376

Civil Engineers
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PROJECT NAME LOT 14, MIDPOINT INDUSTRIAL

PROJECT #/JOB ORDER # 88-134A-12

DATE 7-7-94

DESIGNER D. BYRD

PAGE _____

① DETENTION CALCULATIONS For 15 yr. STORM

DEVELOPED Q:

$$0.25 \text{ Ac. @ } 3.85 = 0.96 \text{ CFS DEVELOPED}$$

$$0.25 \text{ Ac. @ } 1.87 = \underline{0.47} \text{ CFS UNDEVELOPED}$$

$$\text{TOTAL DEVELOPED Q } 1.43 \text{ CFS}$$

AREA OF SITE = 0.50 ACRES

$$0.50 \text{ Ac. @ } 1.87 = 0.93 \text{ CFS ORIGINAL Q}$$

$$1.43 \text{ CFS} - 0.93 \text{ CFS} = 0.50 \text{ CFS ALLOWABLE RELEASE}$$

$$\text{AREA DRAINING TO BASIN: } 0.32 \text{ Ac. @ } 3.85 = 1.23 \text{ CFS}$$

DETENTION FOR PARKING AREA:

$$0.22 \text{ Ac. OF PARKING @ } 3.85 = 0.85 \text{ CFS}$$

(STORE FOR 0.85 CFS)

$$\text{STORAGE REQUIRED: } 0.85 \times 60 \times 30 = 1530 \text{ cu. Ft.}$$

$$\text{STORAGE PROVIDED: } 2019 \text{ cu. Ft.}$$

PEAK OUTFLOW = .52 CFS AT 32 MINUTES

MIN	INFLOW	STORAGE	OUTFLOW	NET DEL.	ELEV.
1	3.69	3.69	0.00	3.69	613.01
2	7.38	11.07	0.07	11.00	613.04
3	11.07	22.07	0.37	21.70	613.07
4	14.76	36.46	1.02	35.44	613.12
5	18.45	53.89	2.13	51.76	613.17
6	22.14	73.90	3.76	70.14	613.24
7	25.83	95.97	5.94	90.03	613.30
8	29.52	119.55	10.30	109.25	613.37
9	33.21	142.46	12.03	130.43	613.44
10	36.90	167.33	13.69	153.64	613.52
11	40.59	194.23	15.30	178.93	613.60
12	44.28	223.21	16.88	206.33	613.69
13	47.97	254.30	18.44	235.86	613.79
14	51.66	287.52	19.98	267.54	613.90
15	55.35	322.89	21.52	301.37	614.01
16	59.04	360.41	22.96	337.45	614.06
17	62.73	400.18	23.70	376.48	614.12
18	66.42	442.90	24.46	418.44	614.19
19	70.11	488.55	25.26	463.29	614.26
20	73.80	537.09	26.09	511.00	614.34
21	77.49	581.11	26.94	554.17	614.41
22	81.18	620.59	27.69	592.90	614.47
23	84.87	655.63	28.35	627.28	614.52
24	88.56	686.32	28.92	657.40	614.57
25	92.25	712.75	29.40	683.35	614.61
26	95.94	735.01	29.82	705.19	614.64
27	99.63	753.16	30.16	723.00	614.67
28	103.32	767.28	30.44	736.84	614.69
29	107.01	777.43	30.66	746.77	614.71
30	110.70	783.67	30.81	752.86	614.72
31	114.39	786.07	30.90	755.17	614.72
32	118.08	784.69	30.94	753.75	614.72
33	121.77	779.58	30.92	748.66	614.71
34	125.46	770.80	30.84	739.96	614.70
35	129.15	758.41	30.70	727.71	614.68
36	132.84	742.47	30.52	711.95	614.65
37	136.53	723.02	30.27	692.75	614.62
38	140.22	700.13	29.97	670.16	614.59
39	143.91	673.85	29.61	644.24	614.55
40	147.60	644.24	29.19	615.05	614.50

10-24-94 SUBMITTAL DATE: 10-24-94

 *
 * RECTANGULAR ORIFICE
 * 4 in W X 3 in H ELEV= 613
 *
 * Outlet Pipe - 24 ft - 12 in pipe
 * UFL= 612 LFL= 611.45 n = .013
 *
 *

ELEVATION	AREA	VOLUME	CUM. VOLUME
613.00	213	298	298
614.00	383	632	930
615.00	882	1089	2019
616.00	1296		

10-24-94 SUBMITTAL DATE: 10-24-94

IS yr. Storm

100 Y2. STORM

SUBMITTAL DATE:

ELEVATION	AREA	VOLUME	CUM. VOLUME
613.00	213		
614.00	383	298	298
615.00	882	632	930
616.00	1296	1089	2019

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*****
*
* RECTANGULAR ORIFICE
* 4 in W X 3 in H ELEV= 613
*
* Outlet Pipe - 24 ft - 12 in pipe
* UFL= 612 LFL= 611.45 n= .013
*
*****

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SUBMITTAL DATE:

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	117.00	117.00	0.00	117.00	613.39
2	117.00	234.00	12.66	221.34	613.74
3	117.00	338.34	19.24	319.10	614.03
4	117.00	436.10	23.33	412.77	614.18
5	117.00	529.77	25.16	504.61	614.33
6	117.00	621.61	26.83	594.78	614.47
7	117.00	711.78	28.38	683.40	614.61
8	117.00	800.40	29.82	770.58	614.75
9	117.00	887.58	31.17	856.41	614.88
10	117.00	973.41	32.45	940.96	615.01
11	117.00	1057.96	33.60	1024.36	615.09
12	117.00	1141.36	34.28	1107.08	615.16
13	117.00	1224.08	34.93	1189.15	615.24
14	117.00	1306.15	35.57	1270.58	615.31
15	117.00	1387.58	36.20	1351.38	615.39
16	117.00	1468.38	36.81	1431.57	615.46
17	117.00	1548.57	37.40	1511.17	615.53
18	117.00	1628.17	37.98	1590.19	615.61
19	117.00	1707.19	38.55	1668.64	615.68
20	117.00	1785.64	39.11	1746.53	615.75
21	0.00	1746.53	39.65	1706.88	615.71
22	0.00	1706.88	39.38	1667.51	615.68

PEAK OUTFLOW= .66 CFS AT 21 MINUTES

ELEVATION	AREA	VOLUME	CUM. VOLUME
613.00	213		
614.00	383	298	298
615.00	882	632	930
616.00	1296	1089	2019

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*****
*
* RECTANGULAR ORIFICE
* 4 in W X 3 in H ELEV= 613
*
* Outlet Pipe - 24 ft - 12 in pipe
* UFL= 612 LFL= 611.45 n= .013
*
*****

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SUBMITTAL DATE:

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	4.56	4.56	0.00	4.56	613.02
2	9.12	13.68	0.10	13.58	613.05
3	13.68	27.26	0.51	26.75	613.09
4	18.24	44.99	1.40	43.57	613.15
5	22.80	66.39	2.91	63.4	613.21
6	27.36	90.84	5.11	85.73	613.29
7	31.92	117.65	9.87	107.78	613.36
8	36.48	144.26	11.91	132.35	613.44
9	41.04	173.39	13.83	159.5	613.54
10	45.60	205.16	15.68	189.4	613.64
11	50.16	239.64	17.49	222.15	613.75
12	54.72	276.87	19.28	257.59	613.86
13	59.28	316.87	21.05	295.82	613.99
14	63.84	359.66	22.80	336.86	614.06
15	68.40	405.26	23.69	381.57	614.13
16	72.96	454.53	24.56	429.97	614.21
17	77.52	507.49	25.48	482.01	614.29
18	82.08	564.09	26.43	537.66	614.38
19	86.64	624.30	27.41	596.89	614.47
20	91.20	688.09	28.41	659.68	614.57
21	86.64	746.32	29.44	716.88	614.66
22	82.08	798.96	30.35	768.61	614.74
23	77.52	846.13	31.14	814.99	614.82
24	72.96	887.95	31.84	856.11	614.88
25	68.40	924.51	32.45	892.06	614.94
26	63.84	955.90	32.97	922.93	614.99
27	59.28	982.21	33.41	948.80	615.02
28	54.72	1003.52	33.67	969.86	615.04
29	50.16	1020.02	33.84	986.18	615.05
30	45.60	1031.78	33.97	997.81	615.06
31	41.04	1038.85	34.06	1004.79	615.07
32	36.48	1041.27	34.12	1007.15	615.07
33	31.92	1039.07	34.14	1004.93	615.07
34	27.36	1032.29	34.12	998.17	615.06
35	22.80	1020.97	34.07	986.90	615.05
36	18.24	1005.14	33.98	971.16	615.04
37	13.68	984.84	33.85	950.99	615.02
38	9.12	960.11	33.68	926.43	614.99
39	4.56	930.99	33.46	897.53	614.95
40	0.00	897.53	33.05	864.48	614.90

PEAK OUTFLOW= .57 CFS AT 33 MINUTES

25 YR. STORM