INLET CALCULATIONS

DRAINAGE AREA NO.	DESIGN STORM FREQUENCY (yrs.)	AREA RUNOFF Q = CIA					CARRY-OVER FROM UPSTREAM INLET (C.F.S.)	TOTAL GUTTER FLOW (C.F.S)	DEPTH OF FLOW (FT.)	GUTTER CAPACITY (C.F.S.)	GUTTER SLOPE (FT./100FT.)	CROWN TYPE	INLET CAPACITY (C.F.S.)	SELECTED INLET		CARRY-OVER TO DOWNSTREAM INLET (C.F.S.)
		TIME OF CONC. (min.)	INTENSITY I (in./hr)	RUNOFF COEFF. "C"	AREA (AC.)	"Q" (C.F.S.)								LENGTH "LI" (feet)	TYPE	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
MWB11X	100	10	8.74	0.90	3.37	26.5	31.2 (1)	57.7	0.62	32.0	1.66	1/4"/FT.	47.7	3 NEW 10'	REC	10.0 TO MWB11B
														NEW 4' Y	STD	
MWB11A	100	10	8.74	0.80	8.84	61.8	0	61.8	0.65	30.5	1.50	1/4"/FT.	22.3	NEW 14'	STD	39.5 TO MWB11B
MWB11B	100	5	10.49	0.90	0.19	1.8	49.5	51.3	0.60	32.0	1.66	1/4"/FT.	47.4 (5)	4 NEW 10'	REC.	3.9 TO MWB11
MWB11	100	10	8.74	0.90	1.10	8.7	3.9	12.6	0.37	32.0	1.66	1/4"/FT.	13.2	EX. 10' & NEW 10'	REC.	0
MWB12X	100	5	10.49	0.90	0.26	2.5	66.2 (1)	68.7	0.71	27.0	1.17	1/4"/FT.	63.6	4 NEW 10'	REC.	5.1 TO MWB12
MWB12	100	5	10.49	0.90	0.39	3.7	5.1	8.8	0.31	32.0	1.66	1/4"/FT.	6.0	EX. 10'	REC.	2.8 TO MWB14
LLA1	100	10	8.74	0.70	6.08	37.2	0	37.2	–	N/A	SAG	PARA.	37.2 (4)	EX. 10'	STD	N/A
LLA2	100	10	8.74	0.70	5.33	32.6	0	32.6	–	N/A	SAG	PARA.	32.6 (4)	EX. 10'	STD	N/A
LLA3	100	10	8.74	0.70	8.64	52.8	0	28.7 (6)	0.53	6.5 (2)	1.50	PARA.	22.3	EX. 14'	STD	6.4 TO LLA5
LLA4	100	5	10.49	0.80	0.54	4.5	0	28.6 (6)	0.53	6.5 (2)	1.50	PARA.	22.3	EX. 14'	STD	6.3 TO LLA6
LLA5	100	10	8.74	0.80	1.95	13.6	6.4	20.0	0.41	18.0 (3)	1.50	PARA.	16.8	EX. 14' & NEW 10'	STD	3.2 TO MWB13X
LLA6	100	10	8.74	0.80	0.74	5.2	6.3	11.5	0.35	18.0 (3)	1.50	PARA.	12.8	EX. 10' & NEW 10'	REC.	0
MWB13	100	10	8.74	0.90	1.27	10.0	0	10.0	0.32	32.0	1.66	1/4"/FT.	9.0	EX. 10' & NEW 5'	STD	1.0 TO MWB15
MWB13X	100	10	8.74	0.90	0.46	3.6	3.2	6.8	0.32	32.0	1.66	1/4"/FT.	24.0	EX. 10' & 3 NEW 10'	REC.	0
MWB14	100	10	8.74	0.90	2.19	17.2	2.8	20.0	0.42	32.0	1.66	1/4"/FT.	7.0	EX. 10'	REC.	13.0 TO MWB16
MWB15	100	10	8.74	0.90	2.27	17.9	1.0	18.9	–	N/A	SAG	1/4"/FT.	42.0	EX. 10' & NEW 10'	STD	N/A
MWB16	100	10	8.74	0.90	5.94	46.7	13.0	59.7	–	N/A	SAG	1/4"/FT.	21.0	EX. 10' (7)	REC.	N/A

(1) SEE REPORT "DRAINAGE ANALYSIS FOR MIDWAY ROAD FROM SPRING VALLEY TO BELT LINE ROAD."

(2) GUTTER CAPACITY OF 6.5 CFS BASED ON 1/2 OF PROTON ROAD (13.5') AT 0.28' DEPTH.

(3) GUTTER CAPACITY OF 18.0 CFS BASED ON 1/2 OF PROTON ROAD (20') AT 0.41' DEPTH.

(4) ASSUMES ALL FLOW ENTERS INLET AT THESE DEVELOPED LOCATIONS.

(5) 2 NEW 10' INLETS AT 15.9 CFS EACH PLUS 2 NEW 10' INLETS AT 7.8 CFS EACH EQUALS 47.4 CFS.

(6) GUTTER FLOW EQUAL TO LLA3 AND LLA4 DIVIDED BY 2.

(7) THIS SYSTEM IS SEVERELY UNDERSIZED. HOWEVER, NO IMPROVEMENTS TO THE EAST SIDE OF MIDWAY AT THIS SAG LOCATION ARE PROPOSED WITH THIS PROJECT. SEE NOTE (1).

DRAINAGE CALCULATIONS

MANHOLE INLET OR JUNCTION		DISTANCE BETWEEN POINTS	DRAINAGE AREA "A"			COEFFICENT OF RUNOFF	INCREMENTAL "CA"	ACCUMULATIVE "CA"	TIME OF CONCENTRATION			I (100) INTENSITY	Q (100) RUNOFF QUANTITY	PIPE SIZE	"S" FRICTIONAL GRADIENT	VELOCITY	$V^2/2g$	REMARKS
			INCREMENTAL AREA	ACCUM. AREA					INLET TIME	FLOW TIME IN STORM DRAIN (3÷17)÷60	ACCUM. TIME							
FROM DESIGN POINT	TO DOWN STREAM	FT.	NO.	ACRES	ACRES	"C"			MIN.	MIN.	MIN.	IN/HR	CFS	IN.	FT/FT	FPS	FT.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	21
LINE 'Y'	15+32					0.9	0.40		10			8.74	3.5	–	–	–	–	NO LATERAL
I-H1	J-H2	40			0.44			0.40		–	10.0	8.74	3.5	18	0.0004	1.46	0.03	
I-H2	J-H2		H-2	3.69		0.5	1.84		15			7.52	13.8	21	0.0065	9.77	1.48	
J-H2	J-H3	278			4.13			2.24		–	15.0	7.52	16.8	21	0.0096	12.40	2.39	
I-H3	J-H3		H-3	0.36		0.9	0.32		10			8.74	2.8	18	0.0003	11.93	2.21	
J-H3	LINE J				4.49			2.56		(278/12.40)/60 = 0.4	15.4	7.42	19.0	21	0.0123	15.58	3.77	CONNECT TO LINE J
	LINE I-1																	
OVERLAND	I-I1		I-1	3.10		0.6	1.86		15			7.52	14.0	–	–	–	–	NO LATERAL
I-I1	J-I2	39			3.10			1.86		–	15.0	7.52	14.0	21	0.0067	12.30	2.35	
I-I2	J-I2		I-2	1.21		0.9	1.09		10			8.74	9.5	21	0.0031	8.81	1.21	
J-I2	J-I3	266			4.31			2.95		(39/8.81)/60 = 0.1	15.1	7.50	22.1	24	0.0081	13.78	2.95	
I-I3	J-I3		I-3	0.54		0.9	0.49		10			8.74	4.3	18	0.0014	11.82	2.17	
J-I3	J-I4	40			4.85			3.44		(266/13.78)/60 = 0.3	15.4	7.42	25.5	24	0.0108	12.92	2.59	
I-I4	J-I4		I-4	0.38		0.9	0.34		10			8.74	3.0	18	0.0007	6.60	0.68	
J-I4	LINE J				5.23			3.78		(40/12.92)/60 = 0.1	15.5	7.40	28.0	24	0.0131	13.17	2.69	

NO.	REVISION	BY	DATE

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: NOT TO SCALE
DATE: JULY, 1995
FILE: \MIDWAY\MIDCALC

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DRAINAGE CALCULATIONS

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 13
OF 20 SHEETS
JOB NO. 16285