

STORM WATER RUNOFF CALCULATIONS

AREA NO.	ACRES	TC (min)	"C"	"100" (IN./HR.)	"Q _{100"} (cfs)	DISCHARGE TO
A	0.31	10	0.9	9.8	2.7	ADJACENT PROPERTY
B	0.20	10	0.9	9.8	1.7	ADJACENT PROPERTY
C	0.86	10	0.9	9.8	7.6	DETENTION POND
D	0.38	10	0.9	9.8	3.3	DETENTION POND
E	0.25	10	0.9	9.8	2.2	DETENTION POND

* - INDICATES AREAS TO REMAIN GRASS AND UNDEVELOPED

DETENTION CALCULATIONS

Undeveloped Discharge
 Area = 2.0 Acres
 Cres = 0.35
 100 = 8.3
 TC = 20 min

Q(undeveloped) = 5.8 cfs

Bypass Discharge
 Area = 0.51 Acres
 Cres = 0.9
 100 = 9.8
 TC = 10 min

Q(bypass) = 4.5 cfs

Q(allowable) = 5.8 cfs - 4.5 cfs = 1.3 cfs

Storm Duration calculations CA = (0.9)(1.49) = 1.34

10min = 9.8	Q = 13.14
20min = 8.3	Q = 11.13
30min = 6.9	Q = 9.25
40min = 5.8	Q = 7.78
50min = 5.0	Q = 6.71
60min = 4.5	Q = 6.03
70min = 4.1	Q = 5.50
80min = 3.9	Q = 5.23
90min = 3.6	Q = 4.83
100min = 3.3	Q = 4.43
110min = 2.9	Q = 3.89

Volume Determination

10min	10 x 13.14 x 60	= 7884
	0.5 x 20 x 1.3 x 60	= 792
		7092 c.f.
20min	20 x 11.13 x 60	= 13356
	0.5 x 30 x 1.3 x 60	= 1188
		12168 c.f.
30min	30 x 9.25 x 60	= 16650
	0.5 x 40 x 1.3 x 60	= 1584
		15066 c.f.
40min	40 x 7.78 x 60	= 18672
	0.5 x 50 x 1.3 x 60	= 1980
		16692 c.f.
50min	50 x 6.71 x 60	= 20130
	0.5 x 60 x 1.3 x 60	= 2376
		17754 c.f.
60min	60 x 6.03 x 60	= 21708
	0.5 x 70 x 1.3 x 60	= 2772
		18936 c.f.
70min	70 x 5.50 x 60	= 23100
	0.5 x 80 x 1.3 x 60	= 3168
		19932 c.f.
80min	80 x 5.23 x 60	= 25104
	0.5 x 90 x 1.3 x 60	= 3564
		21540 c.f.
90min	90 x 4.83 x 60	= 26082
	0.5 x 100 x 1.3 x 60	= 3960
		22122 c.f.
100min	100 x 4.43 x 60	= 26580
	0.5 x 110 x 1.3 x 60	= 4356
		22224 c.f.*
110min	110 x 3.89 x 60	= 23340
	0.5 x 120 x 1.3 x 60	= 4752
		18588 c.f.

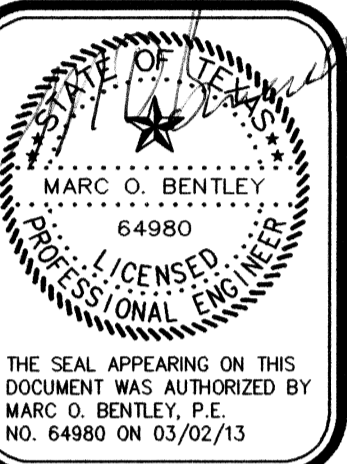
* Volume Required: 22,224 cf
 Volume Provided: 22,225 cf

- LEGEND**
- DRAINAGE AREA BOUNDARY
 - DRAINAGE AREA DESIGNATION
 - EXISTING CONTOUR
 - PROPOSED CONTOUR

BENCHMARK: NORTHWEST CORNER OF CURB INLET SOUTH SIDE OF W RUSK ST. INLET LOCATED NORTH OF THE NORTHWEST PROPERTY CORNER.
 ELEV. 501.54

RECORD DRAWING

IMPROVEMENTS INDICATED ON THESE PLANS WERE REVISED IN ACCORDANCE WITH THE ASBUILT SURVEY PERFORMED BY JAMES ANDERSON AND PROVIDED TO BENTLEY ENGINEERING, INC. ON 02/14/14.
 DATE: FEBRUARY 19, 2014



DRAINAGE AREA MAP
 CHILDREN'S PARK
 CITY OF ROCKWALL, TEXAS

RECORD DRAWING

Scale: 1"=30'
 File Name: ROSESTE
 Date: DEC 2012
 Project No.: 2012109

Sheet **C3**

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