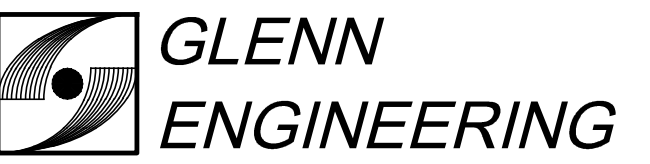


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Notes



8 - RFI #40	RAH	CMG	2020.05.13
7 - RFI #79 - FC 20 - REV	RAH	CMG	2020.03.13
6 - RFI #116 AND #117	RAH	CMG	2020.01.13
5 - RFI #20 AND #21	RAH	CMG	2019.07.23
4 - RFI #16	RAH	CMG	2019.07.12
3 - CITY COMMENTS	RAH	CMG	2019.04.30
2 - ASI #1 - CITY COMMENTS	RAH	CMG	2019.04.02

Revision	By	Appd	YYYY.MM.DD
100%CD - For Bidding and Construction	RAH	CMG	2019.03.01

Issued

Permit-Seal



The seal appearing on this document was authorized by Mike Glenn, P.E. 35059, on May 13, 2020

Client/Project

Rockwall ISD

Elementary School #15

2911 Greenway Drive  
Rockwall, TX 75087

Title **PROPOSED DRAINAGE CALCULATIONS**

Project No. 214000654 Scale AS SHOWN

Revision Drawing No.



C  
04.11

**Detention Calculations 100yr**

Present Conditions			
Q=CIA			
A =	11.17		
C =	0.35		
Tc =	20		
I <sub>50</sub> =	8.3		
Q <sub>100</sub> =	32.44885		
Site Conditions (Developed) To EX INLET			
A =	11.3		
C =	0.7		
Tc =	10		
I <sub>50</sub> =	9.8		
Q <sub>100</sub> =	77.52		
ALLOWABLE RELEASE TO EXISTING SYSTEM = 37.3 CFS			
Flow for Storm Durations (Developed)			
Time	L	C	Q
10 min	9.80	0.7	77.5180
15 min	9.00	0.7	71.1900
20 min	8.30	0.7	65.6530
30 min	6.90	0.7	54.5790
40 min	5.80	0.7	45.8780
50 min	5.00	0.7	39.5500
60 min	4.50	0.7	35.5950
70 min	4.00	0.7	31.6400
80 min	3.70	0.7	29.2670
90 min	3.50	0.7	27.6850
100 min	3.40	0.7	26.8940
110 min	3.20	0.7	25.3120
Storage Calculations			
10 min			
Inflow	46510.8	Storage	27041.49
Outflow	19469.31		
15 min			
Inflow	64071	Storage	39734.36
Outflow	24336.638		
20 min			
Inflow	78783.6	Storage	49579.64
Outflow	29203.965		
30 min			
Inflow	98242.2	Storage	59303.58
Outflow	38938.62		
40 min			
Inflow	110107.2	Storage	61433.93 *
Outflow	48673.275		
50 min			
Inflow	118650	Storage	60242.07
Outflow	58407.93		
60 min			
Inflow	128142	Storage	59999.42
Outflow	68142.585		
70 min			
Inflow	132888	Storage	55010.76
Outflow	77877.24		
80 min			
Inflow	140481.6	Storage	52869.71
Outflow	87611.895		
90 min			
Inflow	149499	Storage	52152.45
Outflow	97346.55		
100 min			
Inflow	145227.6	Storage	38146.40
Outflow	107081.21		
110 min			
Inflow	136684.8	Storage	19868.94
Outflow	116815.86		
Required Storage = 61433.93 cfs			
Provided Storage = 81878 cf			

**Detention Calculations 50yr**

Present Conditions			
Q=CIA			
A =	11.17		
C =	0.35		
Tc =	20		
I <sub>50</sub> =	7.50		
Q <sub>50</sub> =	29.32125		
Site Conditions (Developed) To EX INLET			
A =	11.3		
C =	0.7		
Tc =	10		
I <sub>50</sub> =	9		
Q <sub>50</sub> =	71.19		
ALLOWABLE RELEASE TO EXISTING SYSTEM = 29.32 CFS			
Flow for Storm Durations (Developed)			
Time	L	C	Q
10 min	9.00	0.7	71.1900
15 min	8.10	0.7	64.0710
20 min	7.50	0.7	59.3250
30 min	6.10	0.7	48.2510
40 min	5.20	0.7	41.1320
50 min	4.50	0.7	35.5950
60 min	3.90	0.7	30.8490
70 min	3.70	0.7	29.2670
80 min	3.50	0.7	27.6850
90 min	3.30	0.7	26.1030
100 min	3.00	0.7	23.7300
110 min	2.90	0.7	22.9390
Storage Calculations			
10 min			
Inflow	42714	Storage	25121.25
Outflow	17592.75		
15 min			
Inflow	57663.9	Storage	35672.96
Outflow	21990.94		
20 min			
Inflow	71190	Storage	44800.88
Outflow	26389.13		
30 min			
Inflow	86851.8	Storage	51666.30
Outflow	35185.5		
40 min			
Inflow	98716.8	Storage	54734.93 *
Outflow	43981.88		
50 min			
Inflow	106785	Storage	54006.75
Outflow	52778.25		
60 min			
Inflow	111056.4	Storage	49481.78
Outflow	61574.63		
70 min			
Inflow	122921.4	Storage	52550.40
Outflow	70371		
80 min			
Inflow	132888	Storage	53720.63
Outflow	79167.38		
90 min			
Inflow	140956.2	Storage	52992.45
Outflow	87963.75		
100 min			
Inflow	128142	Storage	31381.88
Outflow	96760.13		
110 min			
Inflow	123870.6	Storage	18314.10
Outflow	105596.5		
Required Storage = 54734.93 cfs			
Provided Storage = 81878 cf			

**Detention Calculations 25yr**

Present Conditions			
Q=CIA			
A =	11.17		
C =	0.35		
Tc =	20		
I <sub>25</sub> =	6.6		
Q <sub>25</sub> =	25.8027		
Site Conditions (Developed) To EX INLET			
A =	11.3		
C =	0.7		
Tc =	10		
I <sub>25</sub> =	6.6		
Q <sub>25</sub> =	52.21		
ALLOWABLE RELEASE TO EXISTING SYSTEM = 25.80 CFS			
Flow for Storm Durations (Developed)			
Time	L	C	Q
10 min	8.30	0.7	65.6530
15 min	7.50	0.7	59.3250
20 min	6.60	0.7	52.2060
30 min	5.50	0.7	43.5050
40 min	4.60	0.7	36.3860
50 min	4.00	0.7	31.6400
60 min	3.50	0.7	27.6850
70 min	3.30	0.7	26.1030
80 min	3.10	0.7	24.5210
90 min	2.90	0.7	22.9390
100 min	2.70	0.7	21.3570
110 min	2.50	0.7	19.7750
Storage Calculations			
10 min			
Inflow	39391.8	Storage	23910.18
Outflow	15481.62		
15 min			
Inflow	53392.5	Storage	34040.48
Outflow	19352.03		
20 min			
Inflow	62647.2	Storage	39424.77
Outflow	23222.43		
30 min			
Inflow	78309	Storage	47345.76
Outflow	30963.24		
40 min			
Inflow	87326.4	Storage	48622.35 *
Outflow	38704.05		
50 min			
Inflow	94920	Storage	48475.14
Outflow	46444.86		
60 min			
Inflow	99666	Storage	45480.33
Outflow	54185.67		
70 min			
Inflow	109632.6	Storage	47706.12
Outflow	61926.48		
80 min			
Inflow	117700.8	Storage	48033.51
Outflow	69667.29		
90 min			
Inflow	123870.6	Storage	46462.50
Outflow	77408.1		
100 min			
Inflow	115327.8	Storage	30178.89
Outflow	85148.91		
110 min			
Inflow	106785	Storage	13895.28
Outflow	92889.72		
Required Storage = 48622.35 cfs			
Provided Storage = 81878 cf			

**Detention Calculations 10YR**

Present Conditions			
Q=CIA			
A =	11.17		
C =	0.35		
Tc =	10		
I <sub>10</sub> =	5.9		
Q <sub>10</sub> =	23.06605		
Site Conditions (Developed) To EX INLET			
A =	11.3		
C =	0.7		
Tc =	10		
I <sub>10</sub> =	5.9		
Q <sub>10</sub> =	46.67		
ALLOWABLE RELEASE TO EXISTING SYSTEM = 23.07 CFS			
Flow for Storm Durations (Developed)			
Time	L	C	Q
10 min	7.10	0.7	56.1610
15 min	6.50	0.7	51.4150
20 min	5.90	0.7	46.6690
30 min	4.60	0.7	36.3860
40 min	4.00	0.7	31.6400
50 min	3.50	0.7	27.6850
60 min	3.00	0.7	23.7300
70 min	2.80	0.7	22.1480
80 min	2.60	0.7	20.5660
90 min	2.50	0.7	19.7750
100 min	2.40	0.7	18.9840
110 min	2.30	0.7	18.1930
Storage Calculations			
10 min			
Inflow	33696.6	Storage	19856.97
Outflow	13839.63		
15 min			
Inflow	46273.5	Storage	28973.96
Outflow	17299.54		
20 min			
Inflow	56002.8	Storage	35243.36
Outflow	20759.45		
30 min			
Inflow	65494.8	Storage	37815.54
Outflow	27679.26		
40 min			
Inflow	75936	Storage	41336.93
Outflow	34599.08		
50 min			
Inflow	83055	Storage	41536.11 *
Outflow	41518.89		
60 min			
Inflow	85428	Storage	36989.30
Outflow	48438.71		
70 min			
Inflow	93021.6	Storage	37663.08
Outflow	55358.52		
80 min			
Inflow	98716.8	Storage	36438.47
Outflow	62278.34		
90 min			
Inflow	106785	Storage	37586.85
Outflow	69198.15		
100 min			
Inflow	102513.6	Storage	26395.64
Outflow	76117.97		
110 min			
Inflow	98242.2	Storage	15204.42
Outflow	83037.78		