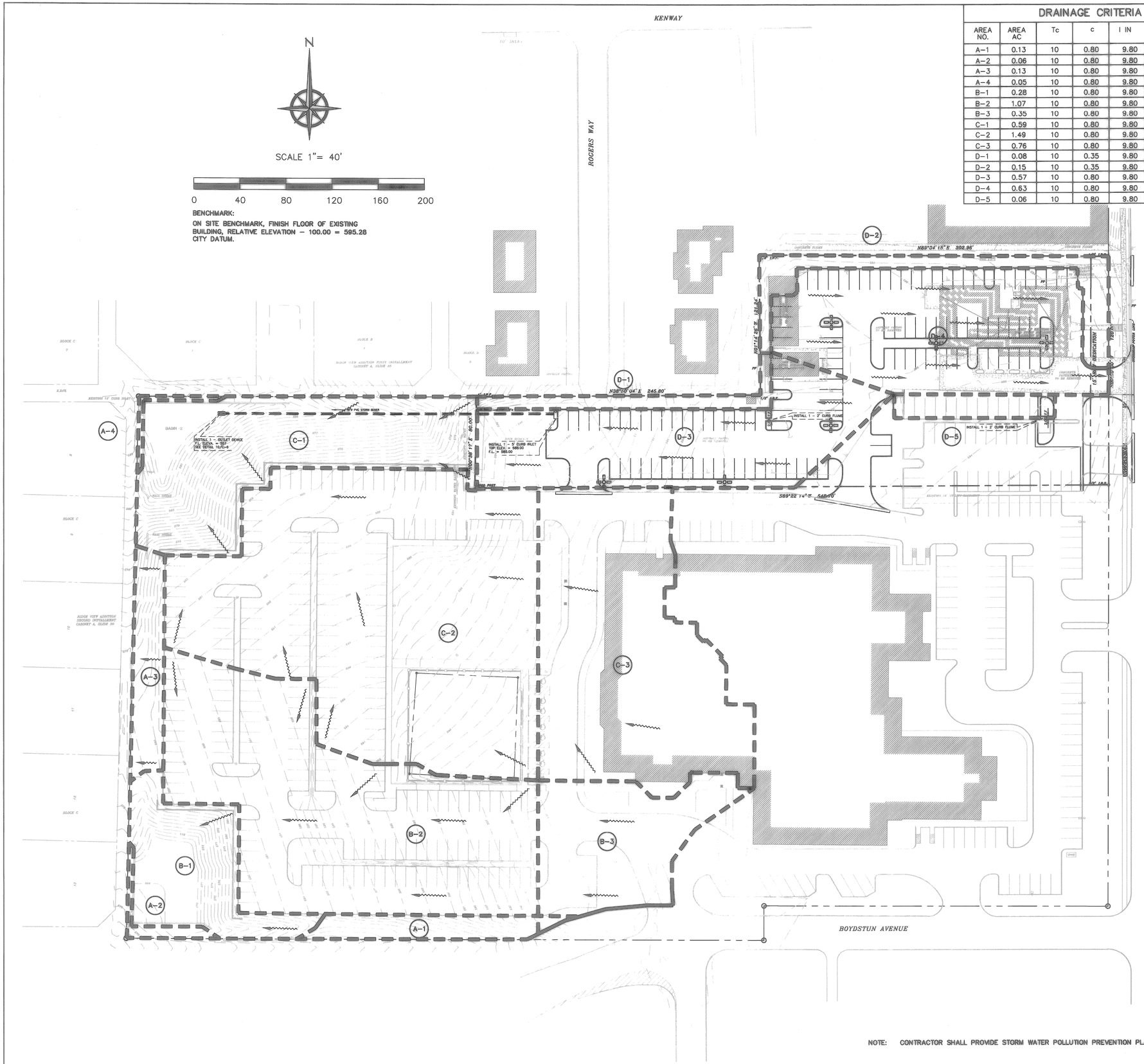
FIRST BAPTIST CHURCH PARKING ADDITION



NOTE: CONTRACTOR SHALL PROVIDE STORM WATER POLLUTION PREVENTION PLAN.

DRAINAGE CRITERIA Q = CIA

AREA NO.	AREA AC	Tc	c	I IN	Q_{100}	REMARKS
A–1	0.13	10	0.80	9.80	1.02	SHEET FLOW – OFF SITE
A–2	0.06	10	0.80	9.80	0.47	SHEET FLOW – OFF SITE
A–3	0.13	10	0.80	9.80	1.02	SHEET FLOW – OFF SITE
A–4	0.05	10	0.80	9.80	0.39	SHEET FLOW – OFF SITE
B–1	0.28	10	0.80	9.80	2.20	BASIN 1
B–2	1.07	10	0.80	9.80	8.39	BASIN 1
B–3	0.35	10	0.80	9.80	2.74	BASIN 1
C–1	0.59	10	0.80	9.80	4.63	BASIN 2
C–2	1.49	10	0.80	9.80	11.68	BASIN 2
C–3	0.76	10	0.80	9.80	5.96	BASIN 2
D–1	0.08	10	0.35	9.80	0.27	SHEET FLOW – OFF SITE
D–2	0.15	10	0.35	9.80	0.44	SHEET FLOW – OFF SITE
D–3	0.57	10	0.80	9.80	4.47	BASIN 2
D–4	0.63	10	0.80	9.80	4.94	GOLIAD STREET
D–5	0.06	10	0.80	9.80	0.47	GOLIAD STREET

ORIGINAL DETENTION ANALYSIS
BASIN 2 03JAN05
ROCKWALL BAPTIST CHURCH
MODIFIED RATIONAL

PREDEVELOPMENT CONDITIONS AREA = ORIGINAL PLUS D–1 = 3.07 ac
C = 0.35
Tc = 20 min.
I = 8.40
Q = 0.35 X 8.40 X 3.07 = 6.01 cfs
ADDITIONAL EXISTING PAVEMENT AT 0.40 – .85 X .40 X 9.00 = 3.06 cfs
TOTAL 6.01 + 3.06 = 9.07 cfs

POSTDEVELOPMENT CONDITIONS AREA = 3.47 ac
C = 0.80
Tc = 10 min.
I = 9.80
Q = 0.80 X 9.80 X 3.47 = 27.20 cfs

15 min.	I = 9.00	Q = 0.80 X 9.00 X 3.47 = 24.98 cfs
20 min.	I = 8.30	Q = 0.80 X 8.30 X 3.47 = 23.04 cfs
30 min.	I = 6.80	Q = 0.80 X 6.80 X 3.47 = 18.88 cfs
40 min.	I = 5.80	Q = 0.80 X 5.80 X 3.47 = 16.10 cfs
50 min.	I = 5.00	Q = 0.80 X 5.00 X 3.47 = 13.88 cfs
60 min.	I = 4.50	Q = 0.80 X 4.50 X 3.47 = 12.49 cfs
70 min.	I = 4.20	Q = 0.80 X 4.20 X 3.47 = 11.66 cfs
80 min.	I = 3.80	Q = 0.80 X 3.80 X 3.47 = 10.55 cfs

Storage Volume

15 min. Storm Inflow 15 X 24.98 X 60 sec./min. = 22,482 cf
Outflow 0.5 X 30 X 9.07 X 60 sec./min. = 8,163 cf
14,319 cf

20 min. Storm Inflow 20 X 23.04 X 60 sec./min. = 27,648 cf
Outflow 0.5 X 35 X 9.07 X 60 sec./min. = 9,524 cf
18,125 cf

30 min. Storm Inflow 30 X 18.88 X 60 sec./min. = 33,984 cf
Outflow 0.5 X 45 X 9.07 X 60 sec./min. = 12,245 cf
21,739 cf

40 min. Storm Inflow 40 X 16.10 X 60 sec./min. = 38,640 cf
Outflow 0.5 X 55 X 9.07 X 60 sec./min. = 14,966 cf
23,674 cf

50 min. Storm Inflow 50 X 13.88 X 60 sec./min. = 41,640 cf
Outflow 0.5 X 65 X 9.07 X 60 sec./min. = 17,687 cf
23,953 cf

60 min. Storm Inflow 60 X 12.49 X 60 sec./min. = 44,964 cf
Outflow 0.5 X 75 X 9.07 X 60 sec./min. = 20,408 cf
24,556 cf

70 min. Storm Inflow 70 X 11.66 X 60 sec./min. = 48,972 cf
Outflow 0.5 X 85 X 9.07 X 60 sec./min. = 23,129 cf
25,843 cf

80 min. Storm Inflow 80 X 10.55 X 60 sec./min. = 50,640 cf
Outflow 0.5 X 95 X 9.07 X 60 sec./min. = 25,850 cf
24,790 cf

PEAK VOLUME = 25,843 ft^3 at 70 min. Storm

NEW DETENTION ANALYSIS
BASIN 2 03JAN05A
ROCKWALL BAPTIST CHURCH
MODIFIED RATIONAL

PREDEVELOPMENT CONDITIONS AREA = ORIGINAL PLUS D–1 = 3.07 ac
C = 0.35
Tc = 20 min.
I = 8.30
Q = 0.35 X 8.30 X 3.07 = 8.92 cfs
ADDITIONAL EXISTING PAVEMENT AT 0.40 = 0.85 X 0.40 X 8.30 = 2.82 cfs

TOT 8.92 + 2.82 = 11.74 cfs > ORIGINAL DISCHARGE USE 9.07 cfs

POSTDEVELOPMENT CONDITIONS AREA = 2.82 ac (PAVED) + 0.59 ac (POND)
C = 0.80
Tc = 10 min.
I = 9.80
Q = 0.80 X 9.80 X 2.82 + 0.35 X 9.80 X 0.59 = 24.12 cfs
FOR WEIGHTED "C" (2.82 + 0.59) x 0.80 x 9.80 = 26.73 cfs 24.12/26.73 = 0.90

10 min.	I = 9.80	Q = 0.80 X 9.80 X 3.41 = 26.73 X 0.90 = 24.06 cfs
15 min.	I = 9.00	Q = 0.80 X 9.00 X 3.41 = 24.55 X 0.90 = 22.10 cfs
20 min.	I = 8.30	Q = 0.80 X 8.30 X 3.41 = 22.64 X 0.90 = 20.38 cfs
30 min.	I = 6.80	Q = 0.80 X 6.80 X 3.41 = 18.55 X 0.90 = 16.70 cfs
40 min.	I = 5.80	Q = 0.80 X 5.80 X 3.41 = 15.82 X 0.90 = 14.24 cfs
50 min.	I = 5.00	Q = 0.80 X 5.00 X 3.41 = 13.64 X 0.90 = 12.28 cfs
60 min.	I = 4.50	Q = 0.80 X 4.50 X 3.41 = 12.28 X 0.90 = 11.05 cfs
70 min.	I = 4.20	Q = 0.80 X 4.20 X 3.41 = 11.46 X 0.90 = 10.31 cfs
80 min.	I = 3.80	Q = 0.80 X 3.80 X 3.41 = 10.37 X 0.90 = 9.33 cfs

Storage Volume

10 min. Storm Inflow 10 X 24.06 X 60 sec./min. = 14,436 cf
Outflow 0.5 X 20 X 9.07 X 60 sec./min. = 5,442 cf
8,994 cf

15 min. Storm Inflow 15 X 22.10 X 60 sec./min. = 19,890 cf
Outflow 0.5 X 25 X 9.07 X 60 sec./min. = 6,803 cf
13,087 cf

20 min. Storm Inflow 20 X 20.38 X 60 sec./min. = 24,456 cf
Outflow 0.5 X 30 X 9.07 X 60 sec./min. = 8,163 cf
16,293 cf

30 min. Storm Inflow 30 X 16.70 X 60 sec./min. = 30,060 cf
Outflow 0.5 X 40 X 9.07 X 60 sec./min. = 10,884 cf
19,176 cf

40 min. Storm Inflow 40 X 14.24 X 60 sec./min. = 34,176 cf
Outflow 0.5 X 50 X 9.07 X 60 sec./min. = 13,605 cf
20,571 cf

50 min. Storm Inflow 50 X 12.28 X 60 sec./min. = 36,840 cf
Outflow 0.5 X 60 X 9.07 X 60 sec./min. = 16,326 cf
20,514 cf

60 min. Storm Inflow 60 X 11.05 X 60 sec./min. = 39,780 cf
Outflow 0.5 X 70 X 9.07 X 60 sec./min. = 19,047 cf
20,733 cf

70 min. Storm Inflow 70 X 10.31 X 60 sec./min. = 43,302 cf
Outflow 0.5 X 80 X 9.07 X 60 sec./min. = 21,768 cf
21,534 cf

80 min. Storm Inflow 80 X 9.33 X 60 sec./min. = 44,784 cf
Outflow 0.5 X 90 X 9.07 X 60 sec./min. = 24,489 cf
20,295 cf

PEAK VOLUME = 21,571 ft^3 at 40 min. Storm
RAISE WALL 2.3 FEET

STATE OF TEXAS
JOSEPH T. PITT
33944
REGISTERED
PROFESSIONAL ENGINEER

SEAL AUTHORIZED BY JOSEPH T. PITT ON JANUARY 5, 2005

TMBP
CONSULTING ENGINEERS INC.
2301 NORTH AKARD ST. SUITE 405
DALLAS, TEXAS 75201
(214) 871-2302 (214) 871-8716 FAX

REV. NO.	TYPE OF WORK	ENG.	DATE	CITY OF ROCKWALL	DATE

DRAINAGE AREA MAP

2004 PARKING ADDITION

FIRST BAPTIST CHURCH – ROCKWALL, TX

PUBLIC WORKS DEPARTMENT

CITY OF ROCKWALL, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
J. PITT	R.MITCH	FEB 2005	1"=40'			C–4

FIRST BAPTIST CHURCH PARKING ADDITION