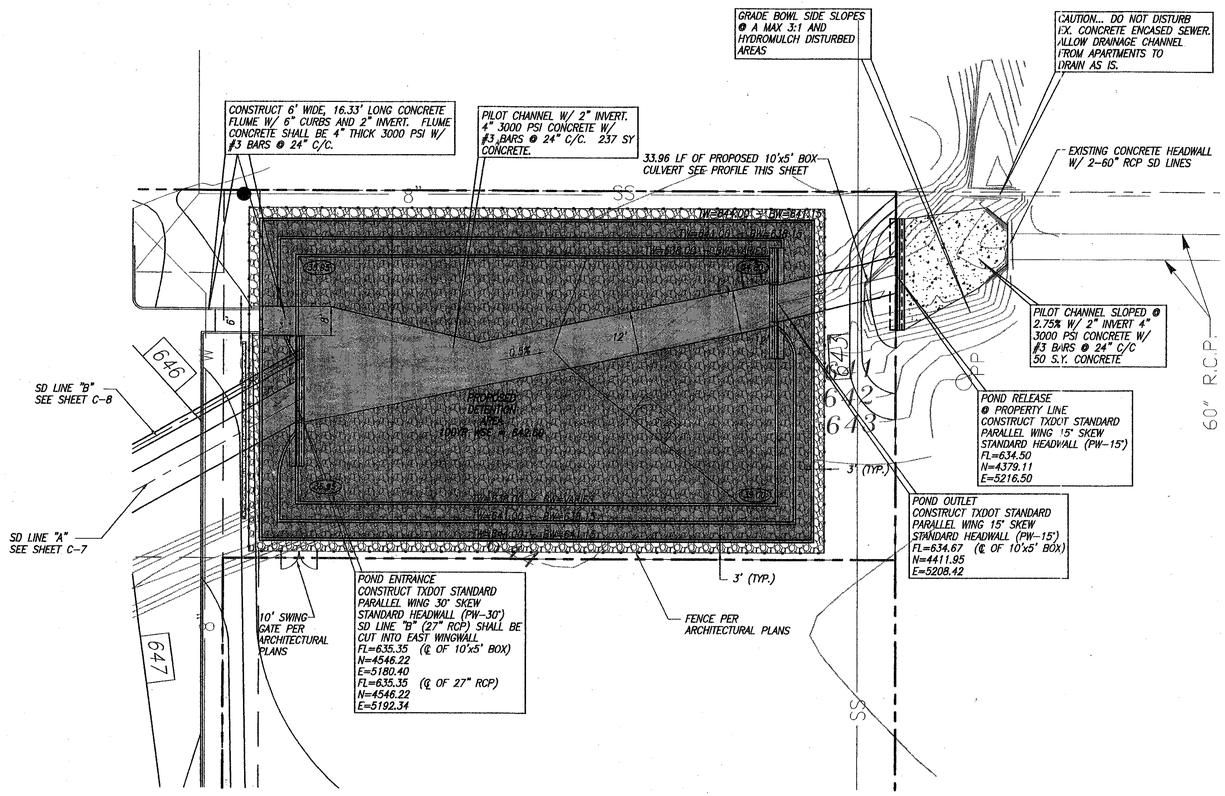
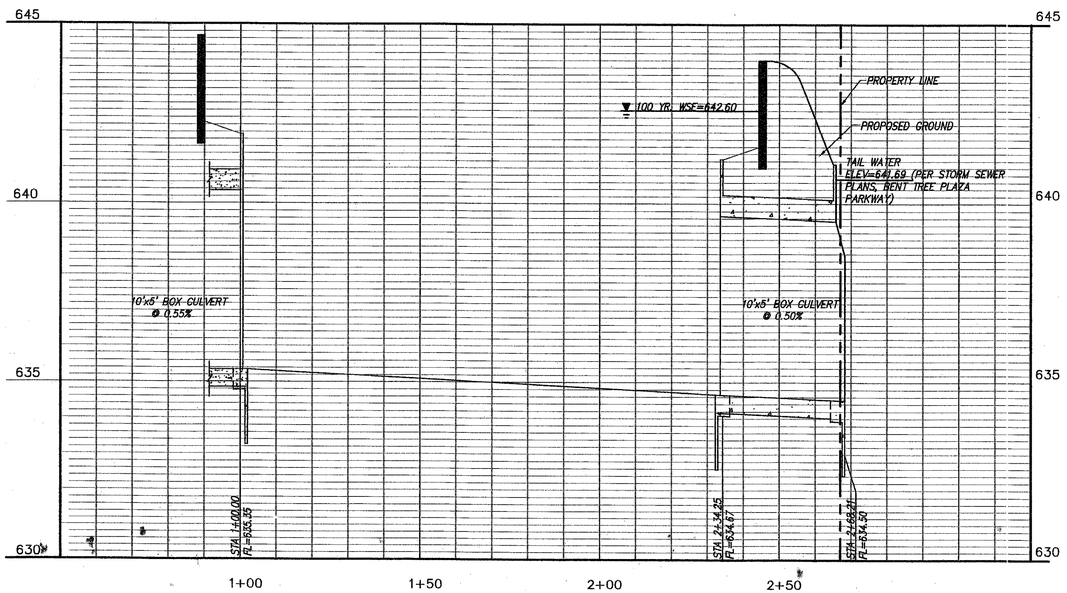




DETENTION POND RELEASE PIPE
SCALE: HORIZ: 1"=20'
VERT: 1"=2'

DETENTION BASIN SIZING FOR SOJOURN PLAZA
FOR THE CITY OF CARROLLTON

PROJECT: Addison - Sojourn Plaza **DATE:** 04/29/99
PARAMETER: Pond Allowable Outflow = 328.92 cfs
Pond Actual Outflow = 305.00 cfs

MODIFIED RATIONAL METHOD FOR SIZING DETENTION BASINS

EXISTING CONDITIONS	Q_{100} - OFFSITE (NON-DETAINED FLOW)	Q_{100} - SITE (DETAINED FLOW)	Q_{100} - TOTAL OFFSITE AND ONSITE
Area*	38.60 Acres	13.86 Acres	52.46 Acres
Cumulative CI*CA	34.62	9.53	44.15
Time of Concentration*	15.50 Min		15.50 Min
Rainfall Intensity	7.45 in/hr		7.45 in/hr
Allowable Flow (Qd)			328.92 cfs

DEVELOPED CONDITIONS	Q_{100} - OFFSITE (NON-DETAINED FLOW)	Q_{100} - SITE (DETAINED FLOW)	Q_{100} - TOTAL OFFSITE AND ONSITE
Area*	38.60 Acres	13.86 Acres	52.46 Acres
Cumulative CA	34.62	13.86	48.48
Time of Concentration (Tod)*	15.50 Min		15.50 Min
Rainfall Intensity	7.45 in/hr		7.45 in/hr
Developed Flows			361.18 cfs

A Dur (Min)	B Intensity	C Flow	(A*C*60) Inflow	(Qd)(Tod+A)/2(60) Outflow	Storage
5.0	10.50	509.04	152,712	187,575	-34,863
10.0	8.82	427.59	256,556	233,325	23,231
15.0	7.52	364.57	328,113	279,075	49,038
20.0	6.80	329.66	395,597	324,825	70,772
25.0	6.20	300.58	450,864	370,575	80,289
30.0	5.74	278.28	500,895	416,325	84,570
35.0	5.20	252.10	529,402	462,075	67,327
40.0	5.00	242.40	581,760	507,825	73,935
45.0	4.80	232.70	628,301	553,575	74,726
50.0	4.40	213.31	639,936	599,325	40,611
55.0	4.10	198.77	655,934	645,075	10,859
60.0	3.90	189.07	680,659	690,825	-10,166
65.0	3.85	186.65	727,927	736,575	-8,648
70.0	3.65	176.95	743,198	782,325	-39,127
75.0	3.45	167.26	752,652	828,075	-75,423
80.0	3.30	159.98	767,923	873,825	-105,902
85.0	3.20	155.14	791,194	919,575	-128,381
90.0	3.10	150.29	811,555	965,325	-153,770

Volume = 84,570 CF
1.94 AC. FT.

Volume Provided = 84,663 CF
1.94 AC. FT.

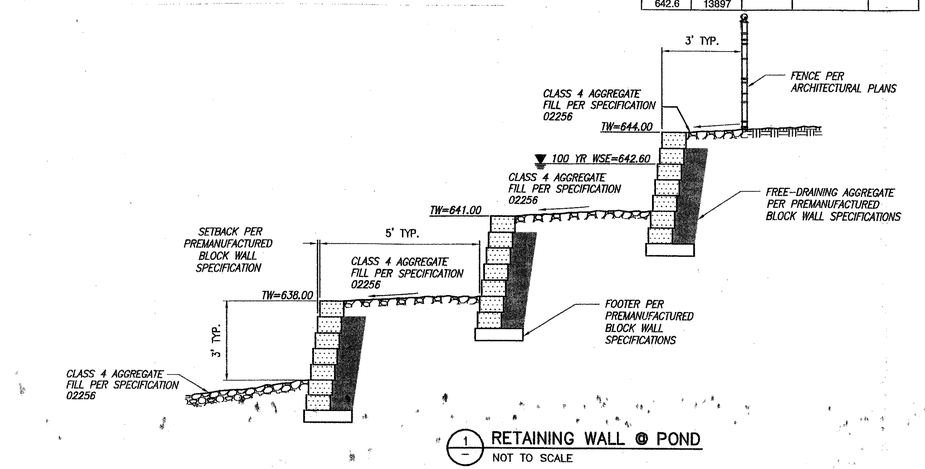
BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

April 30, 1999
SOJOURN PLAZA OFFICE CENTER - OMP99206
DETENTION POND
RELEASE BOX CULVERT

```
PROGRAM INPUT DATA:
DESCRIPTION                                                  VALUE
-------------------------------------------------------------------
Culvert Span (Width of Opening) (feet).....                  10.00
Culvert Rise (Height of Opening) (feet).....                  5.00
FHWA Chart Number (8,9,10,11,12 or 13).....                     10
Scale Number on Chart (Type of Culvert Entrance).....            1
Manning's Roughness Coefficient (n-value).....              0.0120
Entrance Loss Coefficient of Culvert Opening.....             0.50
Culvert Length (feet).....                                    33.9
Culvert Slope (feet per foot).....                          0.0050
```

```
PROGRAM RESULTS:
   Flow  Tailwater  Headwater (ft)  Normal  Critical  Depth at   Outlet
   Rate      Depth  Inlet   Outlet  Depth     Depth     Outlet  Velocity
  (cfs)       (ft)  Control Control  (ft)      (ft)      (ft)    (fps)
-------------------------------------------------------------------
  305.0       7.19   5.03    7.93    2.48      3.07      5.00     6.10
```

BOX CULVERT ANALYSIS COMPUTER PROGRAM Version 1.6 Copyright (c) 1986 Dodson & Associates, Inc., 7015 W. Tidwell, #107, Houston, TX 77092 (713) 895-8322. All Rights Reserved.



1 RETAINING WALL @ POND
NOT TO SCALE

"AS-BUILTS"

N

0 10' 20' 40'
1"=20'

RECORD DRAWING
BASED ON THE INFORMATION SHOWN HEREON
DATED: 3-8-00 TO: TRH

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TRICIA H. MITLET TEXAS REGISTRATION NO. 83282
DATE: OCT. 6, 1999

BENCHMARK:

SQUARE CUT ON INLET AT S.W. CORNER OF SOJOURN DR. AND ADDISON RD. ELEV. 641.95

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
BUILDING LINE		
CONTOUR ELEV.	562	561
TOP OF CURB ELEV.	1/C 61.30	50.25
PAVEMENT OR GROUND ELEV.	61.30	50.00
GRAVEL CLASS 4 AGGREGATE FILL PER SPECIFICATION 02256		
100 YR. WATER SURFACE ELEVATION IN DETENTON PONDS		
FLOW DIRECTION		
TOP OF WALL		TW=
BOTTOM OF WALL		BW=

NOTES

1. BOTTOM OF POND SHALL SLOPE TO DRAIN AS NOTED ON PLANS.
2. DETENTION POND DESIGN IS BASED ON THE CITY CARROLLTON DRAINAGE DESIGN STANDARDS.

Detention Pond Capacities

Stage	Area (sf)	Volume (cf)	Cumulative Vol. (cf)	Storage acre-ft
634.67	0			
635	3003	495	495	0.01
636	9410	6207	6,702	0.15
637	9410	9410	16,112	0.37
638	11554	10482	26,594	0.61
639	11554	11554	38,148	0.88
640	11554	11554	49,702	1.14
641	13897	12725	62,427	1.43
642	13897	13897	76,324	1.75
642.6	13897	8338	84,663	1.94

OMNIPLAN ARCHITECTS
SOJOURN OFFICE CENTER
ADDISON, TEXAS
SITEWORK PLANS
DETENTION POND PLAN & CALCULATIONS

FREESE • NICHOLS
1341 W. Mockingbird Lane•Suite 230-E
Dallas, Texas 75247
214-630-2500

NO.	REVISION	BY	DATE
1	PER CONTRACTOR RFI "1" AND "2"	MDW	4/30/99

F&N JOB NO. OMP99206
FILE 206POND
DATE 7-26-99
DESIGNED MDW
DRAWN GAH
REVISED
CHECKED THH

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET C-9
SEQ. 12 of 16