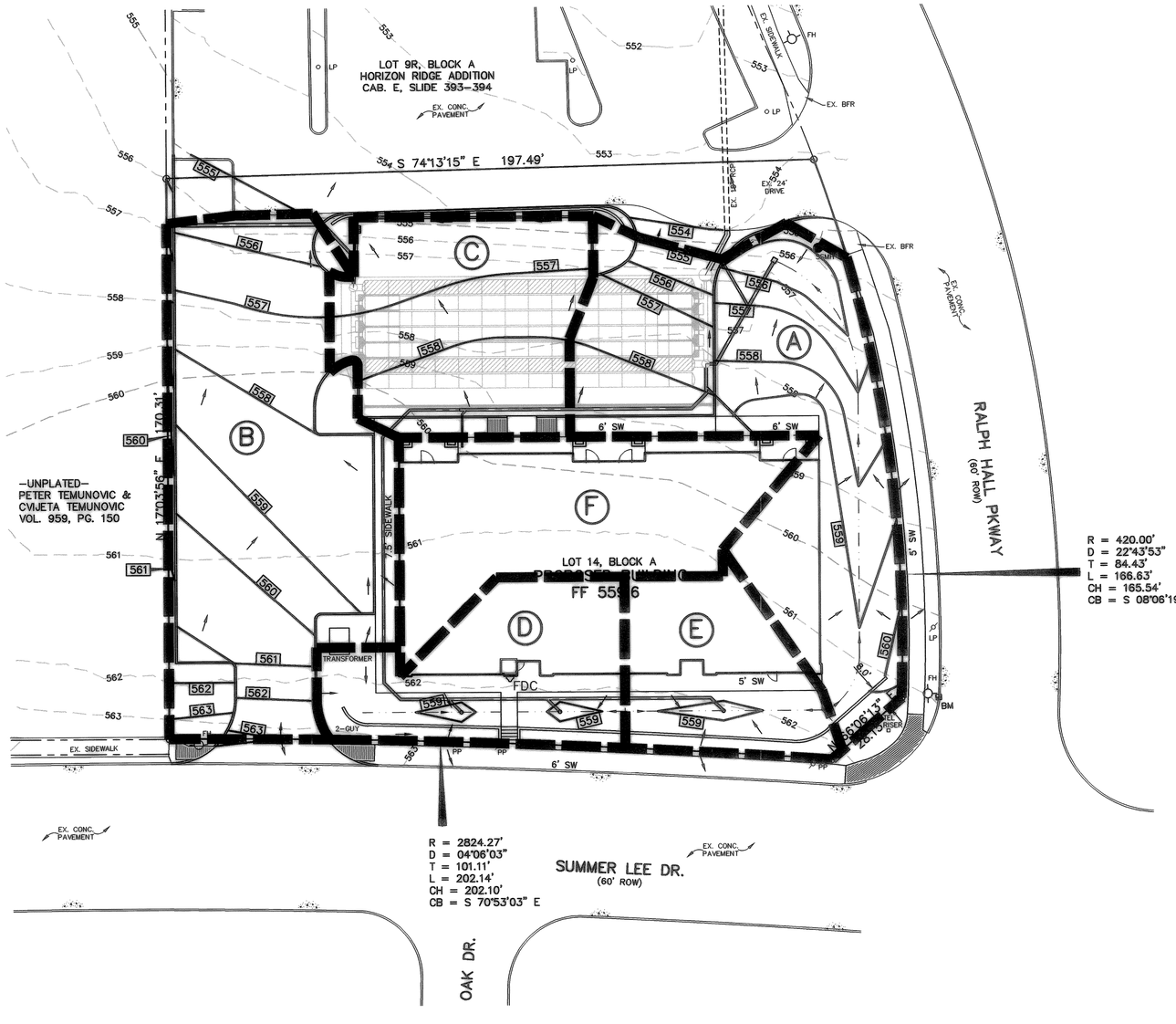

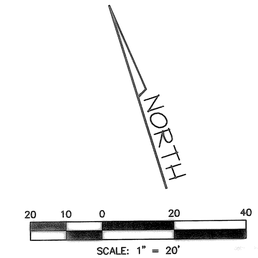

STORM WATER RUNOFF CALCULATIONS

AREA NO.	ACRES	TC (min)	"C"	"I100" (IN./HR.)	"Q100" (cfs)	DISCHARGE TO
A	0.19	10	0.9	9.8	1.7	DETENTION SYSTEM
B	0.21	10	0.9	9.8	1.9	DETENTION SYSTEM
C	0.11	10	0.9	9.8	1.0	DETENTION SYSTEM
D	0.09	10	0.9	9.8	0.8	DETENTION SYSTEM
E	0.07	10	0.9	9.8	0.6	DETENTION SYSTEM
F	0.12	10	0.9	9.8	1.1	DETENTION SYSTEM

RELEASE RATE CALCULATION

STORM EVENT	VOLUME REQ.	DEPTH OF POND	ALLOWABLE DISCHARGE	ACTUAL DISCHARGE
10 yr	4,644	1.5'	1.6 cfs	1.5 cfs
25 yr	5,436	2.1'	1.9 cfs	1.9 cfs
50 yr	5,940	2.5'	2.1 cfs	2.1 cfs
100 yr	7,224	3.0'	2.3 cfs	2.3 cfs

DETENTION CALCULATIONS

Allowable Discharge
Area = 0.8 Acres
Cres = 0.35
I100 = 8.3
TC = 20 min

Q(allowable) = 2.32 cfs

Storm Duration calculations CA = (0.9)(0.8) = 0.72
10min = 9.8 Q = 7.06
20min = 8.3 Q = 5.98
30min = 6.9 Q = 4.97
40min = 5.8 Q = 4.18
50min = 5.0 Q = 3.60
60min = 4.5 Q = 3.24
70min = 4.1 Q = 2.95
80min = 3.9 Q = 2.81
90min = 3.6 Q = 2.59

Volume Determination

10min
10 x 7.06 x 60 = 4,236
0.5 x 20 x 2.3 x 60 = 1,392
2,844 c.f.

20min
20 x 5.98 x 60 = 7,176
0.5 x 30 x 2.3 x 60 = 2,088
5,088 c.f.

30min
30 x 4.97 x 60 = 8,946
0.5 x 40 x 2.3 x 60 = 2,784
6,162 c.f.

40min
40 x 4.18 x 60 = 10,032
0.5 x 50 x 2.3 x 60 = 3,480
6,552 c.f.

50min
50 x 3.60 x 60 = 10,800
0.5 x 60 x 2.3 x 60 = 4,176
6,624 c.f.

60min
60 x 3.24 x 60 = 11,664
0.5 x 70 x 2.3 x 60 = 4,872
6,792 c.f.

70min
70 x 2.95 x 60 = 12,390
0.5 x 80 x 2.3 x 60 = 5,568
6,822 c.f.

80min
80 x 2.81 x 60 = 13,488
0.5 x 90 x 2.3 x 60 = 6,264
7,224 c.f. *

90min
90 x 2.59 x 60 = 13,986
0.5 x 100 x 2.3 x 60 = 6,960
7,026 c.f.

* Volume Required: 7,224 cf

Volume Provided: 7,265 cf

Normal 100 Year Pool Elev. – 554.00

RATING TABLE

DEPTH (ft)	DISCHARGE (cfs)
0.0	N/A
0.5	0.8
1.0	1.2
1.5	1.5
2.0	1.9
2.5	2.1
3.0	2.3

LEGEND

DRAINAGE AREA BOUNDARY

(A) DRAINAGE AREA DESIGNATION

—565— EXISTING CONTOUR

565 PROPOSED CONTOUR

RECORD DRAWING

IMPROVEMENTS INDICATED ON THESE PLANS ARE BASED ON VISUAL OBSERVATION AND SURVEY WORK PERFORMED AT THE SITE BY BEI OR SURVEY SUBCONTRATOR.

DATE: DECEMBER 19, 2008

Bentley ENGINEERING, INC.
4125 BROADWAY BLVD.
SUITE A230
GARLAND, TEXAS 75043
PH.: 972-240-0922
FAX: 972-240-0922

MARC O. BENTLEY
64980
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MARC O. BENTLEY, P.E. NO. 64980 ON 3/12/08

DRAINAGE AREA MAP

HORIZON RIDGE ADDITION
CITY OF ROCKWALL, TEXAS

RECORD DRAWING

No.	Date	Revision
3	4/10/08	ISSUED FOR CONSTRUCTION
2	4/02/08	PER CITY COMMENTS
1	3/12/08	PER CITY COMMENTS

Scale:	1"=20'
File Name:	ARISTASITE
Date:	JAN. 2008
Project No.:	27160

Sheet C3

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