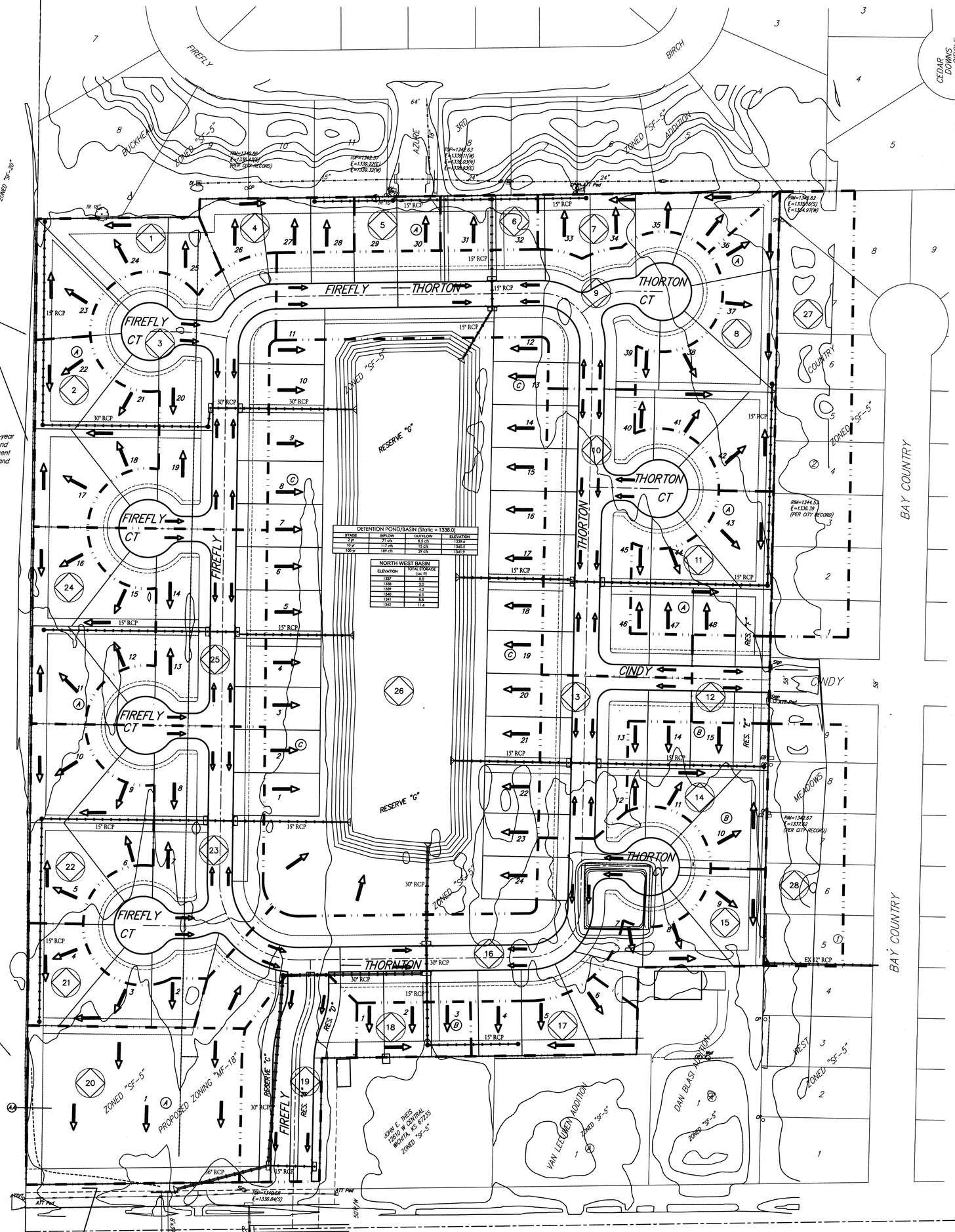
DRAINAGE PLAN

CASTLEGATE ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS



Developed	2yr	10yr	100yr
Intensity	3.8	5.19	7.36
Rational C	0.55	0.64	0.73

Basin ID	Area	Developed Flowrates		
	acres	2-yr cfs	10-yr cfs	100-yr cfs
1	0.5	1.0	1.7	2.7
2	0.7	1.4	2.2	3.5
3	1.5	3.1	5.0	8.1
4	0.3	0.6	1.0	1.6
5	0.1	0.3	0.4	0.6
6	0.2	0.4	0.7	1.1
7	0.4	0.8	1.3	2.1
8	0.9	1.9	3.0	4.8
9	1.7	3.6	5.6	9.1
10	1.4	2.9	4.7	7.5
11	0.6	1.3	2.0	3.2
12	0.3	0.5	0.8	1.3
13	0.6	1.3	2.1	3.3
14	0.6	1.3	2.0	3.2
15	0.4	0.8	1.3	2.1
16	1.8	3.8	6.0	10
17	0.4	0.8	1.2	2.0
18	0.2	0.5	0.8	1.2
19	0.7	1.4	2.2	3.5
20	1.3	2.7	4.3	7.0
21	0.4	0.9	1.4	2.3
22	0.7	1.4	2.2	3.6
23	1.4	2.9	4.7	7.5
24	0.7	1.4	2.2	3.5
25	1.1	2.3	3.7	5.9
26	6.0	12.5	19.9	32.2
27*	1.2	2.5	4.0	6.4
28*	0.8	1.7	2.7	4.3
TOTAL	26.8	55.9	88.9	143.7

Basins 27 & 28 are offsite to the east which will flow into this subdivisions' detention pond for detention as well as water quality treatment

Table 4-13 Volumetric Runoff Coefficients by Land Use and Hydrologic Soil Group

Land Use	Hydrologic Soil Group A	B	C	D	Land Use	Hydrologic Soil Group A	B	C	D
Undisturbed	0.02	0.03	0.04	0.05	Undisturbed	55	71	80	84
Turf or Disturbed Soils	0.15	0.20	0.22	0.25	Turf or Disturbed Soils	71	80	84	88
Impervious Cover	0.95	0.95	0.95	0.95	Impervious Cover	98	98	98	98

Weighted Volumetric Runoff Coef. (R_v) (eq. 4-24*)

Basin #	Undist. ft²	Dist. ft²	Red. Imp. ft²	New Imp. ft²	Total Area ft²	U %	D %	Redev. I %	I %	R_v %	WQ, h' eq. 4-25*
Total Site	0	468,270	0	468,270	936,540	0.000	0.125	0.000	0.475	0.6000	96,192
CN		42	0	49	91						

Pond Volume Below Static Pool

Basin	Static Sq.Ft.	Static Acre	Pond Bottom Area Sq. FL	Pond Bottom Area Acre	Depth Feet	Volume Acre-Ft.
Pond	80000	1.8	58000	1.3	10	15.8
Totals:		1.8		1.3		15.8

Pond Volume > WQv		
Pond	WQv	Check
15.8	1.3	Yes

The proposed pond is approximately 3.5 acres in surface area and is not included in the total basin area. Basins 19 & 20 will flow from the site untreated. To make up for this, the onsite detention pond will accept and treat the same area from Basins 27 & 28 from developed offsite to offset the aforementioned untreated flow.

TYPICAL DETAIL — PROPOSED CHANNEL — NOT TO SCALE

BRENT WOOLEN LICENSED 8470 KANSAS PROFESSIONAL ENGINEER

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