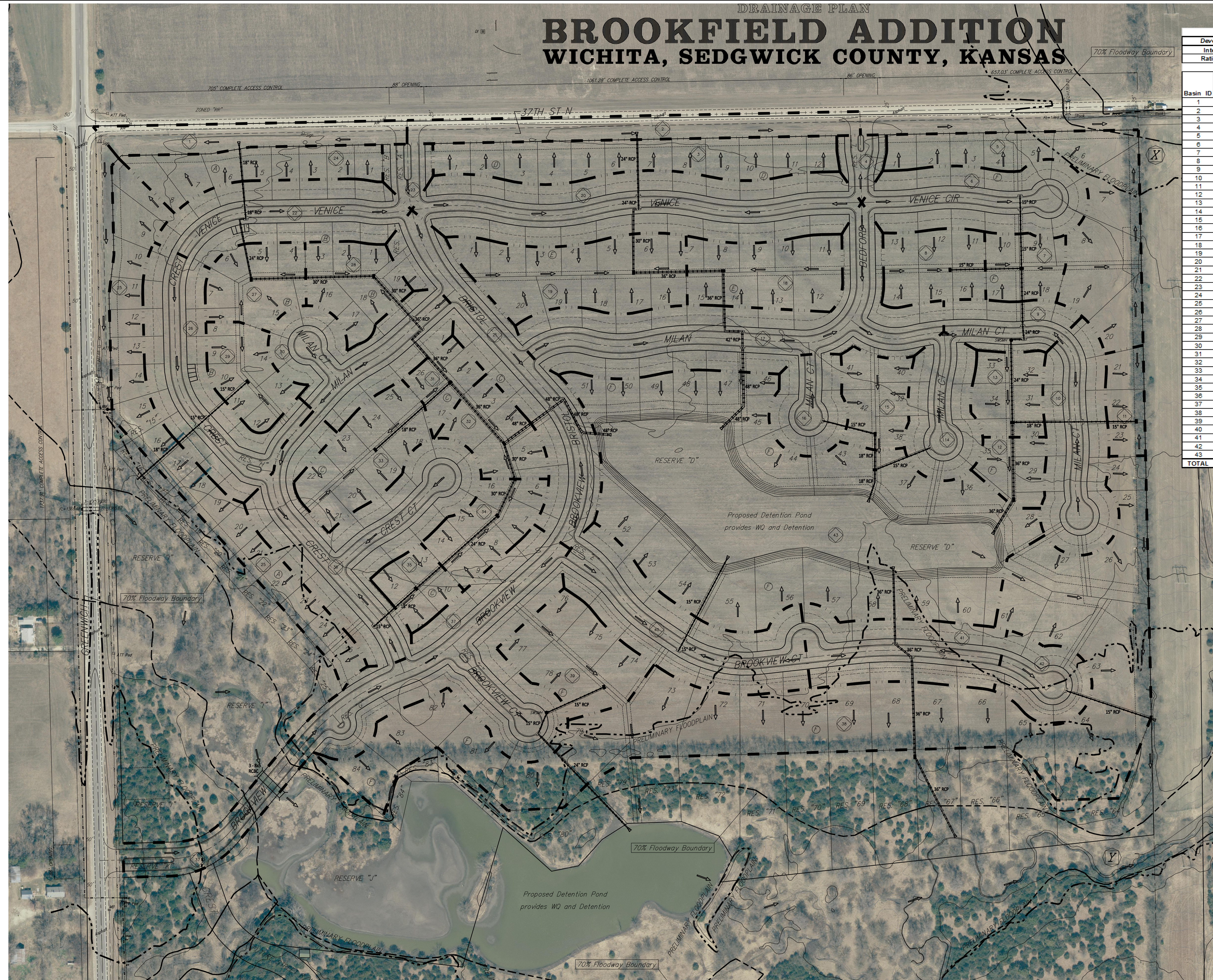


DRAINAGE PLAN BROOKFIELD ADDITION WICHITA, SEDGWICK COUNTY, KANSAS



Developed		2yr	10yr	100yr
Intensity		3.83	5.22	7.37
Rational C		0.48	0.59	0.73

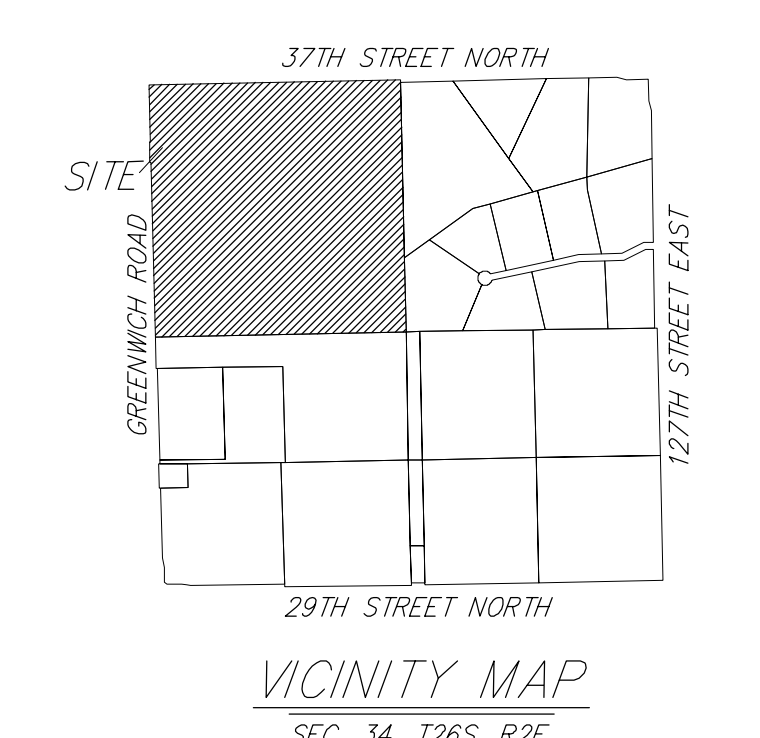
Basin ID	Area (acres)	Developed Flowrates		
		2yr cfs	10-yr cfs	100-yr cfs
1	1.1	1.9	3.4	5.9
2	1.6	2.8	4.9	8.6
3	2.2	3.9	6.8	12
4	0.4	0.7	1.2	2.2
5	3.0	5.3	9.2	16
6	2.0	3.5	6.2	11
7	0.8	1.4	2.5	4.3
8	1.1	1.9	3.4	5.9
9	0.9	1.6	2.8	4.8
10	2.1	3.7	6.5	11
11	0.6	1.1	1.8	3.2
12	0.6	1.1	1.8	3.2
13	0.9	1.6	2.8	4.8
14	1.3	2.3	4.0	7.0
15	0.9	1.6	2.8	4.8
16	0.9	1.6	2.8	4.8
17	4.1	7.2	13	23
18	1.5	2.6	4.5	8.5
19	2.3	4.1	7.1	12
20	3.9	6.9	12	21
21	2.8	4.9	8.6	15
22	2.1	3.7	6.5	11
23	0.4	0.7	1.2	2.2
24	1.3	2.3	4.0	7.0
25	3.1	5.5	9.5	17
26	2.6	4.6	8.0	14
27	1.1	1.9	3.4	5.9
28	1.1	1.9	3.4	5.9
29	1.0	1.8	3.1	5.4
30	2.0	3.5	6.2	11
31	0.5	0.9	1.5	2.7
32	1.1	1.9	3.4	5.9
33	1.5	2.6	4.5	8.1
34	1.1	1.9	3.4	5.9
35	0.6	1.1	1.8	3.2
36	3.5	6.2	11	19
37	4.8	8.5	15	26
38	10.7	19	33	58
39	1.6	2.8	4.9	8.8
40	2.7	4.8	8.3	15
41	1.9	3.3	5.9	10
42	0.9	1.6	2.8	4.8
43	11.3	20	35	61
TOTAL	92.0	162	283	495

0' 120' 240'

DATE OF PREPARATION: 6 JUNE 2016
DATE OF TOPOGRAPHY: 12 DECEMBER 2008, 10 MAY 2016
CONTOUR INTERVALS = 1 FOOT (CONTOURS PROVIDED BY SEDGWICK COUNTY)

RESERVES "A", "E", "F", "G", "H", "K" AND "L" ARE RESERVED FOR OPEN SPACE, LANDSCAPING, ENTRY MONUMENTS, STREETS, DRAINAGE PURPOSES, AND UTILITIES.
RESERVES "B" AND "C" ARE RESERVED FOR OPEN SPACE, LANDSCAPING, ENTRY MONUMENTS, DRAINAGE PURPOSES, AND UTILITIES AS CONFIRMED TO EASEMENTS.
RESERVES "D" AND "J" ARE RESERVED FOR OPEN SPACE, LAKES, LANDSCAPING, AND DRAINAGE PURPOSES.
RESERVE "I" IS RESERVED FOR OPEN SPACE, LANDSCAPING, ENTRY MONUMENTS, SANITARY SEWER LIFT STATION AS CONFIRMED TO EASEMENT, DRAINAGE PURPOSES AND UTILITIES AS CONFIRMED TO EASEMENTS.

NOTE: FEMA Floodplain Boundaries are scaled per location per the Preliminary FEMA FIRM Panel 240 & 377 of 690, for Sedgwick County, Kansas, Map Number 20073C0240G AND 20173C0377G.



LEGEND

- Proposed SWS
- Proposed Flow Direction
- Future Effective FEMA FP

NORTHEAST DISCHARGE POINT

EXISTING	PROPOSED**
Area = 6.2 acres	Area = 3.3 acres
CN = 80	CN = 88
Tc = 22 min*	Tc = 15 min
Qs = 11 cfs	Qs = 9.4 cfs
Q10 = 16 cfs	Q10 = 14 cfs
Q25 = 26 cfs	Q25 = 19 cfs
Q100 = 36 cfs	Q100 = 25 cfs

*Tc calculated using 1.2% basin slope with a length of 750'.
**Proposed includes total developed area draining to this point after development. Basin size will be reduced.

MAIN POND (Static = 1367.0)

STAGE	INFLOW	OUTFLOW	ELEVATION
2 yr	158 cfs	16 cfs	1368.5
5 yr	219 cfs	24 cfs	1369.2
10 yr	283 cfs	28 cfs	1369.6
25 yr	519 cfs	39 cfs	1370.1
100 yr	823 cfs	74 cfs	1371.0

STAGE (elev)	TOTAL STORAGE (ac-ft)	DISCHARGE (cfs)
1367	0.00	0.0
1368	4.12	0.0
1369	4.34	2.2
1370	4.58	3.5
1371	4.82	7.5
1372	5.05	13.0

Pond modeled using a water elevation of 1368.0 based on the outfall pipe discharging to the floodplain.

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

Land Use	Hydrologic Soil Group				Land Use	Hydrologic Soil Group			
	A	B	C	D		A	B	C	D
Undisturbed	0.02	0.03	0.04	0.05	Undisturbed	0.55	0.71	0.80	0.84
Turf or Disturbed Soils	0.15	0.20	0.22	0.25	Turf or Disturbed Soils	0.71	0.80	0.84	0.88
Impervious Cover	0.95	0.95	0.95	0.95	Impervious Cover	0.98	0.98	0.98	0.98

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

Basin #	Undist.	Dist.	Red. Imp.	Total	U	D	Redev. I	R _v	WQ, ft*		
Total Brookfield	0	2,548,260	0	1,372,740	3,920,400	0.000	0.163	0.000	0.333	0.450	194,060

*Total TL is the entire 150 acres of Tyler's Landing Addition(s) which drain through the currently developed drainage and pond systems.

Pond Volume Below Static Pool

Basin	Static		Pond Bottom Area		Depth Feet	Volume Acre-Feet
	Sq. Ft.	Acre	Sq. Ft.	Acre		
Main Pond	175500	4.0	118300	2.7	8	27.0
South Pond	270000	6.2	209000	4.8	8	44.0
Totals:		10.2		7.5		71.0

Pond Volume > WQv Check

Pond	WQv	Check	
	71.0	4.5	Yes

Pond Volumes were estimated using a depth of 8' of water surface with 3:1 sideslopes below the static water surface. The pond volumes far exceed the water quality volume needed for the entire Brookfield development.

DRY CREEK DISCHARGE

EXISTING	PROPOSED**
Area = 78 acres	Area = 85 acres
CN = 80	CN = 88
Tc = 45 min*	Post Detention
Qs = 45 cfs	Qs = 26 cfs
Q10 = 125 cfs	Q10 = 37 cfs
Q25 = 157 cfs	Q10 = 45 cfs
Q100 = 220 cfs	Q25 = 54 cfs
	Q100 = 73 cfs

*Tc calculated using 0.75% basin slope with a length of 190'.
**Proposed includes total developed area after detention. These figures are for on-site runoff only, not total basin runoff. These figures are for comparison purposes only.



DRAINAGE PLAN BROOKFIELD ADDITION

29 August 2016

Baughman Company, P.A.
315 Ellis St., Wichita, KS 67211 P 316-262-7271 F 316-262-0149
Baughman ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

NOTES: FEMA Floodplain and Floodway Boundaries were provided by AMEC for this reach and represent the boundaries that will be effective December 22, 2016. Properties located within the floodplain boundaries will require a LOMR-F and all applicable permitting before development in these areas.

Water quality will be performed in the wet surface of the two detention ponds. Storage and calculations are provided per this sheet. Channel protection is provided in the detention portion of the upper pond. The peak flows for this site have been greatly reduced in the detention areas.

Lots located in the floodplain, as shown, will need to be permitted for a floodplain fill with the Kansas Dept of Water Resources. Once permitted, the site can be filled and elevations raised above the BFE. After filling, the lots can be removed via a LOMR-F. We expect the site to develop in phases in which no lots in the 1st phase are expected to be located in the future effective floodplain.

SOUTH (EXISTING) POND (Static = 1366.0)

STAGE	INFLOW	OUTFLOW	ELEVATION
2 yr	45 cfs	4 cfs	1367.2
5 yr	74 cfs	14 cfs	1367.5
10 yr	90 cfs	20 cfs	1367.7
25 yr	111 cfs	27 cfs	1367.8
100 yr	147 cfs	46 cfs	1368.1

POND

STAGE (Hwy)	TOTAL STORAGE (ac-ft)	DISCHARGE (cfs)
1366	0.00	0.0
1367	5.71	2.67
1368	11.7	41.8
1369	18.0	131.5

Peak flow assumes 0.75% basin slope with a length of 190' as it enters a major flooding source. The outflow and peak elevations are for existing developed conditions only. Base flood elevations of the creek are much higher and are used for engineering design.