

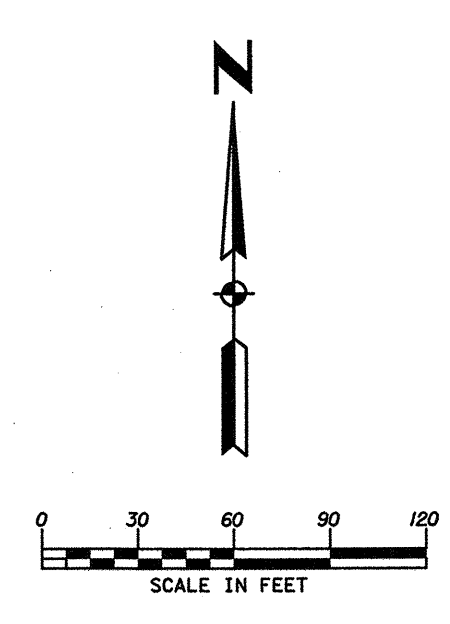
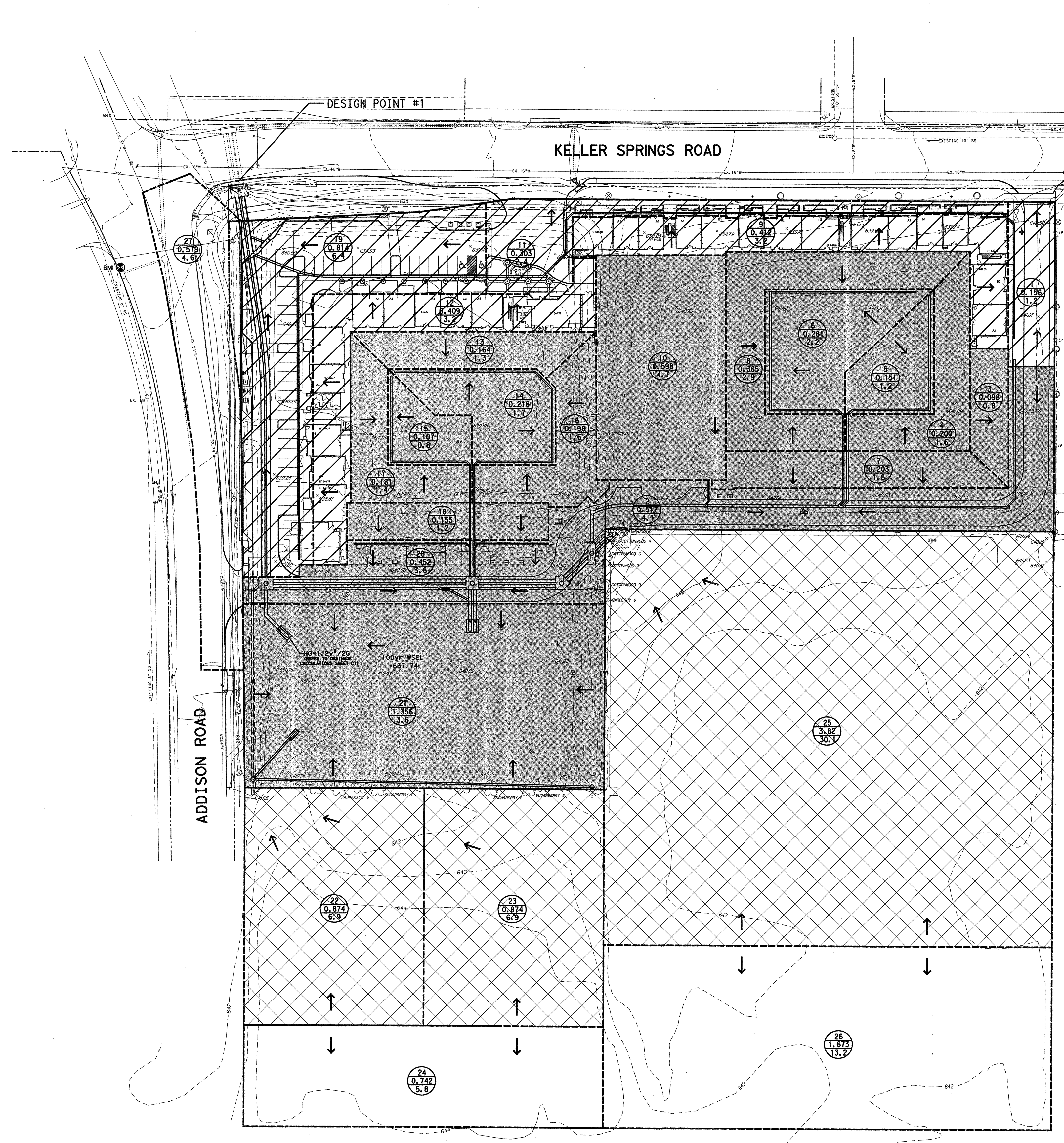
Keller Springs Lofts Loft Apartments in Addison

Town of Addison, Texas

DETENTION POND CALCULATIONS

DATE: FEBRUARY 28, 2013
 DESIGN: KHA
 DRAWN: KHA
 CHECKED: KHA
 KHA NO.: 064362003
 CITY NO.:

SHEET
C6



- LEGEND**
- EXISTING CONTOUR -500-
 - DRAINAGE DIVIDE LINE
 - SURFACE FLOW DIRECTION →
 - DRAINAGE AREA AREA NO. XXXX
AREA (AC) XXXX
Q100
 - AREAS FLOWING TO POND AND BEING DETAINED
 - AREAS FLOWING TO POND AND NOT BEING DETAINED
 - AREAS BYPASSING POND AND BEING DETAINED FOR

REQUIRED STORAGE

**MODIFIED RATIONAL METHOD (DETENTION VOLUME CALCULATIONS)
FOR A FLOW-THROUGH SYSTEM**

INPUT: Keller Springs Lofts Area (Flowing to pond) 10.85 acres
 Tc 10 min
 Runoff Coefficient 0.9
 Peak Inflow 86.0 cfs
 Max. Outflow 37.7 cfs

RAINFALL INTENSITIES (I)	
Storm Event (yr)	Intensity (in/hr)
10	4.7
15	5.5
20	6.8
30	8.8
40	10.0
50	11.0
60	11.8
70	12.5
80	13.0
100	13.5

OUTPUT:

Interval	Duration (min)	Intensity (in/hr)	Qin (cfs)	Volume (in) (cf)	Volume (out) (cf)	Volume (storage) (cf)
1	10	3.7	85.3	61,208	22,620	26,588
2	15	7.6	73.4	68,695	29,276	37,815
3	20	6.8	66.4	79,682	33,930	45,752
4	30	5.8	55.1	101,068	45,240	55,628
5	40	5.0	49.9	117,180	55,550	60,030
6	50	4.4	43.0	128,898	67,880	61,018
7	60	3.9	38.2	137,452	79,170	58,282
8	70	3.6	35.2	147,847	90,480	57,167
9	80	3.3	32.2	154,676	101,790	52,886

Existing Discharge (Design Point #1)
 Total Area Flowing to Existing Culverts = 12.91 ac
 Existing Weighted 'C' = 0.56
 Existing Intensity @ 15 min = 7.5 in/hr
 Existing Discharge = 12.91 ac * 0.56 * 7.5 in/hr = 54.2 cfs

Bypass Discharge
 Bypass Area = 2.10 ac
 Proposed 'C' = 0.80
 Proposed Intensity @ 10 min = 8.74 in/hr
 Bypass Discharge = 2.10 ac * 0.80 * 8.74 in/hr = 16.6 cfs

Maximum Outflow
 Existing Discharge - Bypass Discharge = Maximum Outflow
 54.2 cfs - 16.6 cfs = **37.7 cfs**

PROVIDED STORAGE

Elevation	Surface Area		Detention Pond Volume by Elevation		Accumulated Volume	
	ft²	Ac	ft³	Ac-Ft	ft³	Ac-Ft
634.18	0	0.00			0.00	0.00
635	22302	0.51	6096	0.14	6096	0.14
636	25700	0.59	23981	0.55	30077	0.69
637	27791	0.64	26739	0.61	56815	1.30
637.1	27810	0.64	2780	0.06	59596	1.37
637.15	27910	0.64	1393	0.03	60989	1.40
637.17	27947	0.64	559	0.01	61547	1.41
637.2	27985	0.64	839	0.02	61547	1.41
637.3	28456	0.65	2822	0.06	64369	1.48
638	30448	0.70	20612	0.47	84982	1.95
639	34281	0.79	32346	0.74	117327	2.69

BENCH MARKS:
 BM5 SQUARE CUT ON INLET, SOUTHWEST CORNER OF RATLIFF LANE AND ADDISON ROAD.
 ELEVATION 637.20
 BM8 SQUARE CUT ON INLET, SOUTHWEST CORNER OF AIRPORT PKWY. AND QUORUM DRIVE.
 ELEVATION 631.15
 BM1 BRASS DISK FOUND AT NORTHWEST CORNER OF INLET, SOUTHWEST CORNER OF KELLER SPRINGS AND ADDISON ROAD.
 ELEVATION 638.91