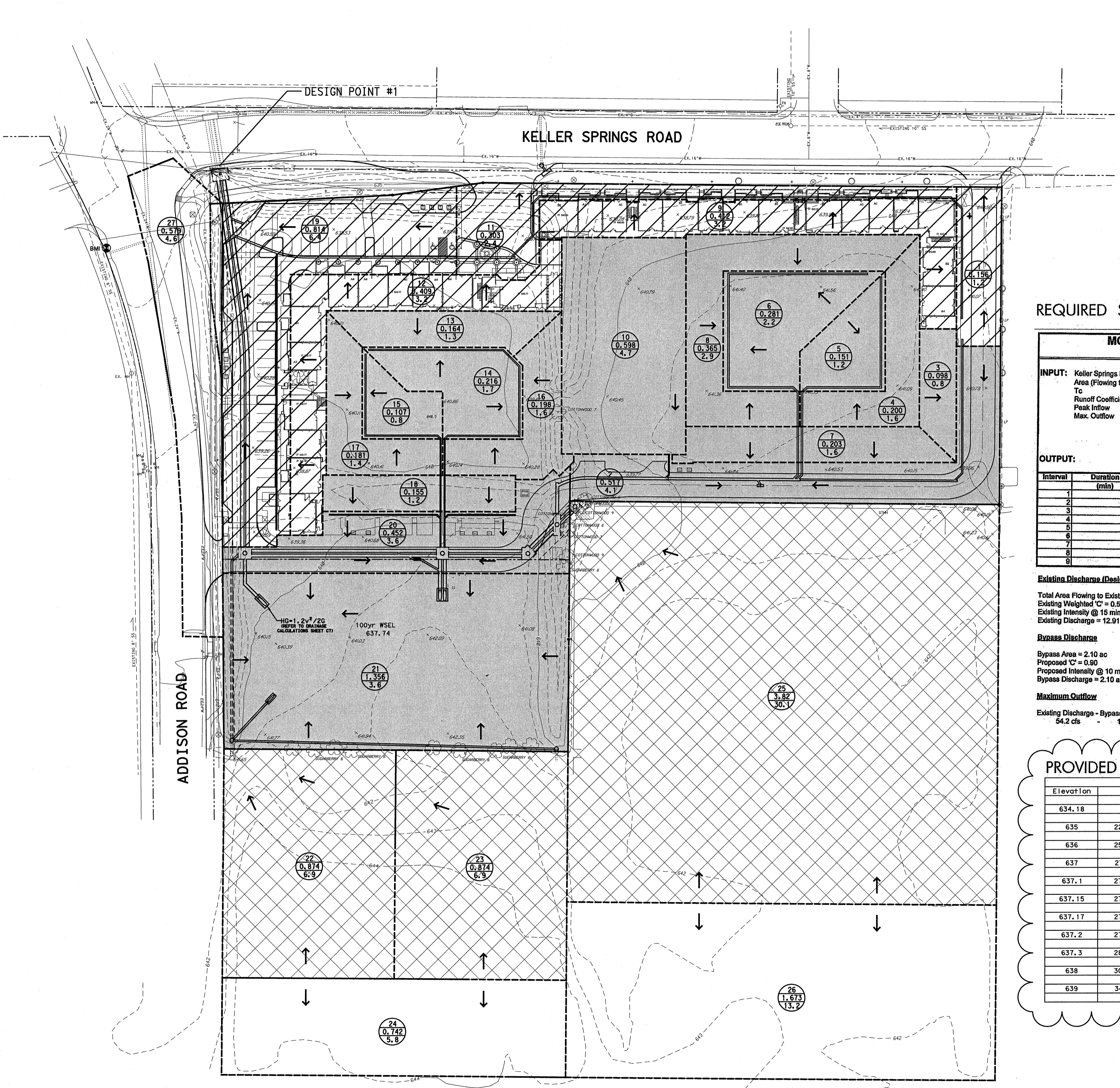


Keller Springs Lofts
Loft Apartments in Addison
 Town of Addison, Texas

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. (X) AREA (AC) (XXX) Q100
- AREAS FLOWING TO POND AND BEING DETAINED [Solid Grey Box]
- AREAS FLOWING TO POND AND NOT BEING DETAINED [Cross-hatched Box]
- AREAS BYPASSING POND AND BEING DETAINED FOR [Diagonal-hatched Box]

REQUIRED STORAGE

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

INPUT: Keller Springs Lofts Area (Flowing to pond) 10.85 acre
 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	6.7
15	7.5
20	6.8
30	5.9
40	5.0
50	4.4
60	3.9
70	3.6
80	3.3

OUTPUT:

Interval (min)	Duration (min)	Intensity (in/hr)	Qin (cfs)	Volume (in) (cf)	Volume (out) (cf)	Volume (storage) (cf)
1	10	8.7	85.3	51,208	22,620	28,588
2	15	7.5	73.4	68,000	28,275	37,815
3	20	6.8	66.4	79,582	33,850	45,732
4	30	5.8	56.1	101,068	46,240	55,828
5	40	5.0	48.8	117,180	56,550	60,630
6	50	4.4	43.0	128,898	67,280	61,618
7	60	3.9	38.2	137,452	75,170	62,282
8	70	3.6	35.2	147,847	80,450	67,187
9	80	3.3	32.2	154,678	101,790	52,888

Existing Discharge (Design Point #1)

Total Area Flowing to Existing Culverts = 12.91 ac
 Existing Weighted 'C' = 0.66
 Existing Intensity @ 15 min = 7.5 in/hr
 Existing Discharge = 12.91 ac * 0.66 * 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 = 16.5 cfs

Maximum Outflow

Existing Discharge - Bypass Discharge = Maximum Outflow
 54.2 cfs - 16.5 cfs = **37.7 cfs**

PROVIDED STORAGE

Detention Pond Volume by Elevation

Elevation	Surface Area (ft ²)	Ac	Incremental Volume (ft ³)	Ac-Ft	Accumulated Volume (ft ³)	Acc-Ft
634.18	0	0.00	6096	0.14	0.00	0.00
635	22302	0.51	23981	0.55	6096	0.14
636	25700	0.59	26739	0.61	30077	0.69
637	27791	0.64	2780	0.06	56815	1.30
637.1	27810	0.64	1393	0.03	59596	1.37
637.15	27910	0.64	559	0.01	60989	1.40
637.17	27947	0.64	839	0.02	61547	1.41
637.2	27985	0.64	2822	0.06	61547	1.41
637.3	28456	0.65	20612	0.47	64369	1.48
638	30448	0.70	32346	0.74	84982	1.95
639	34281	0.79			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