

Hydrology Calculations

The following calculations are based on Albuquerque's Development Process Manual, Section 22.2

Runoff Rate:

Treatment Type Areas

Subbasin	Area _a (ac)	Area _b (ac)	Area _c (ac)	Area _d (ac)	Total (ac)
Subbasin-1	0	0.0728	0.0728	0.5822	0.7277
Subbasin-2	0	0.2375	0.2375	1.8996	2.3745

Peak Discharge values based on Zone 3 from Table A-9

$Q_a = 1.87$ cfs/ac $Q_b = 2.60$ cfs/ac $Q_c = 3.45$ cfs/ac $Q_d = 5.02$ cfs/ac

Peak Discharge calculation for a 100-yr, 24-hr storm event from equation A-10

Subbasin	Discharge (cfs)
Subbasin-1	3.4
Subbasin-2	11.0
Tract A-1	4.1
Total	15.1

8-2' SIDEWALK CULVERTS MANNING'S CAPACITY

Rectangular Channel

Input

Flow: 15.1 cfs
Slope: 0.02 ft/ft
Manning's n: 0.013
Base Width: 16 ft
Right Side Slope: 0:1
Left Side Slope: 0:1

Output

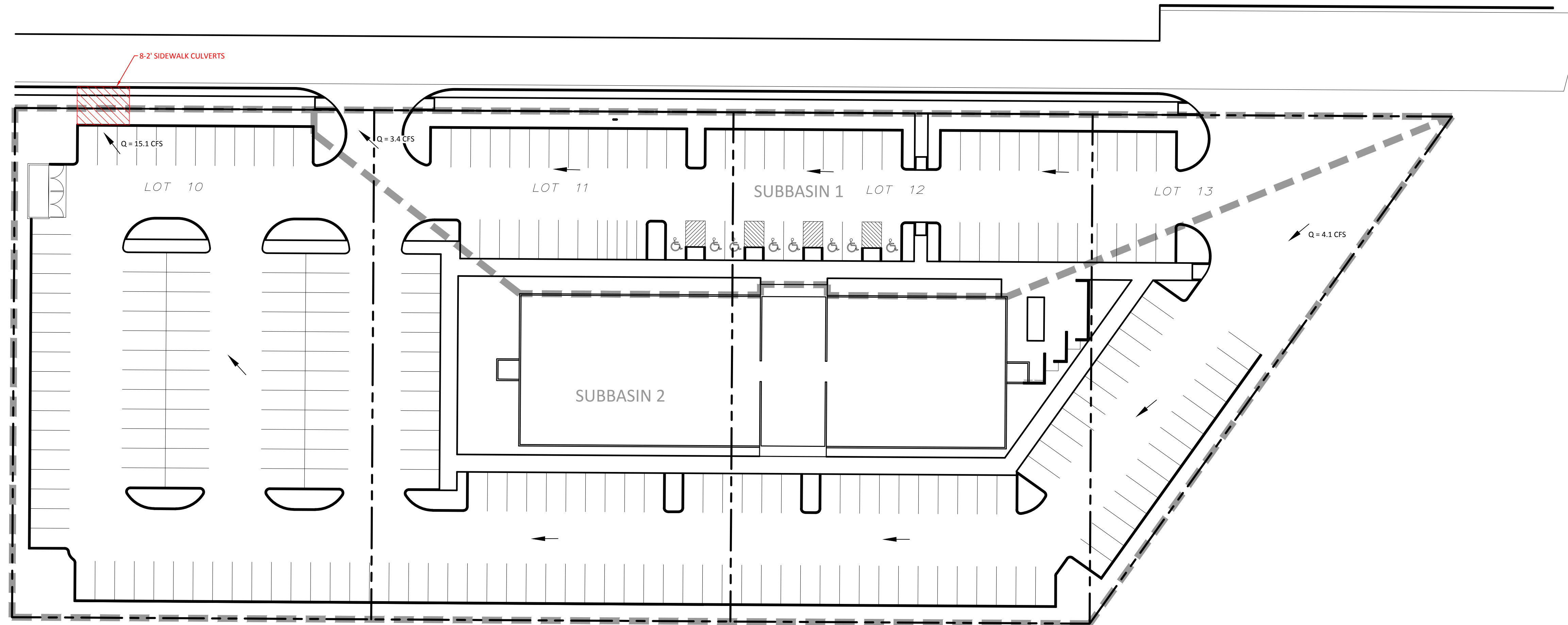
Depth: 0.184 ft
Flow Area: 2.94 sf
Velocity: 5.14 fps
Velocity Head: 0.411 ft
Top Width: 16.0 ft
Froude Number: 2.12
Critical Depth: 0.303 ft
Critical Slope: 0.00385 ft/ft

Weir Calculation for 8-2' Sidewalk Culverts

Weir:

Head Water Depth (h): 0.5 ft
Discharge Coeff. (C_w): 3.33
Length (L): 16 ft
Flow (Q) = C_w · L · h^{1.5} (1.5)

Flow (Q) = **18.8 cfs** > 15.1 cfs [OK]



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RESPEC
WATER & NATURAL RESOURCES

DESIGNED	HF
DRAWN	JS
CHECKED	HF
DATE	8/3/17

STAMP

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**I-25 WEST FRONTAGE ROAD
VENICE & PASADENA
UNIVERSITY OF PHOENIX**



SHEET NUMBER:
C-3