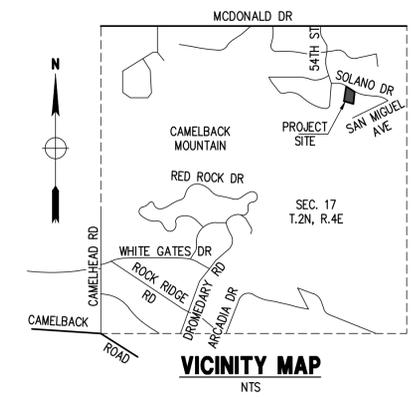
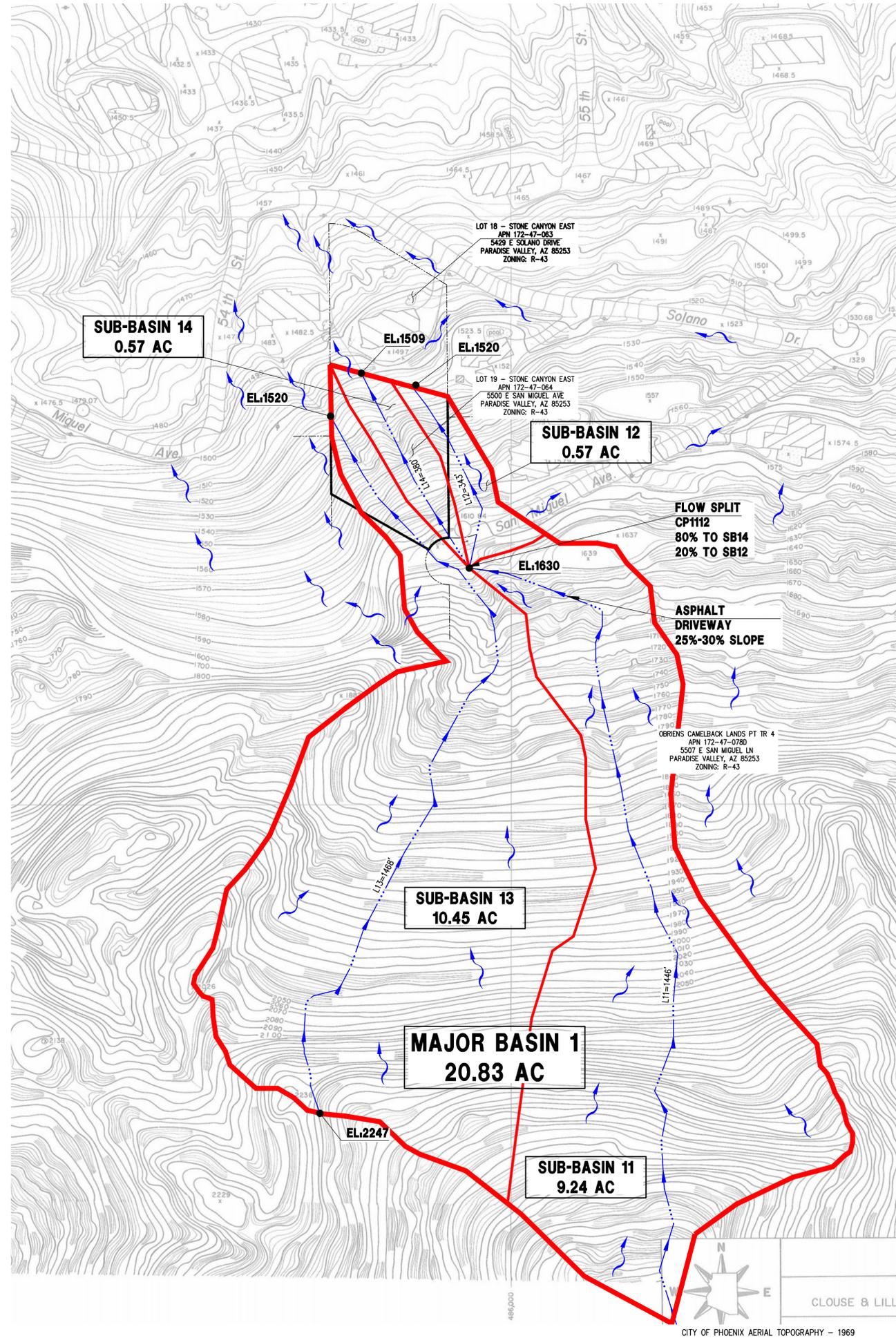


EXHIBIT 1 DRAINAGE MAPS

DRAINAGE MAP HISTORIC CONDITIONS

LOT 18, OF STONE CANYON EAST

RECORDED IN BOOK 81 OF MAPS, PAGE 34, M.C.R.,
 LOCATED IN A PORTION OF THE NW 1/4 OF THE SE 1/4 NE 1/4 OF SECTION 17,
 T.2N, R.4E OF THE GILA & SALT RIVER BASE AND MERIDIAN,
 MARICOPA COUNTY, ARIZONA



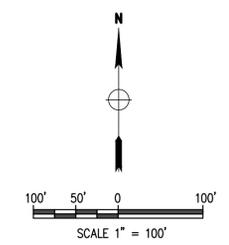
OWNER
 SCOTT & TRACY TONN
 4350 E. CAMELBACK RD.
 PHOENIX, AZ. 85018

SITE DATA
 APN: 172-47-063
 ADDRESS: 5429 E SOLANO DRIVE
 PARADISE VALLEY, AZ 85253
 ZONING: R-43 (HILLSIDE)
 LOT AREA: 44,542 S.F. (1.0225 AC.)

LEGAL DESCRIPTION
 LOT 18, OF STONE CANYON EAST, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA. RECORDED IN BOOK 81 OF MAPS, PAGE 34.

BENCHMARK
 BRASS CAP IN HANDHOLE LOCATED AT THE INTERSECTION OF McDONALD DRIVE AND N. 56TH STREET SAID POINT ALSO BEING THE N.E. CORNER SECTION 17, T. 2N., R. 4E., G.&S.R.B.&M.; ELEVATION = 1417.53 TOWN OF PARADISE VALLEY (NGVD'88) DATUM
 T.B.M.: BRASS CAP FLUSH LOCATED AT A POINT OF TANGENCY ALONG E. SOLANO DRIVE CENTERLINE NORTH OF LOT 18 OF STONE CANYON EAST, SHOWN HEREON. ELEVATION = 1468.84

- LEGEND**
- DRAINAGE FLOW
 - SPOT ELEVATION
 - TRIBUTARY AREA BOUNDARY
 - FLOW LINE
 - STORM DRAIN PIPE



DATE:	05/27/16
DESIGNED BY:	NP
DRAWN BY:	DW
CHECKED BY:	JJ
DATE:	05/27/16
JOB:	151217
VERSION:	1.1
PLOT DATE:	05/27/16

**DRAINAGE MAP
 HISTORIC CONDITIONS**

**TONN RESIDENCE
 LOT 18-STONE CANYON EAST
 5429 E SOLANO DRIVE
 PARADISE VALLEY, AZ 85253**

P. 602.889.1984 | F. 602.445.9482
 8808 N CENTRAL AVE., SUITE 288
 PHOENIX, AZ 85020
 phoenix@tdgeng.com

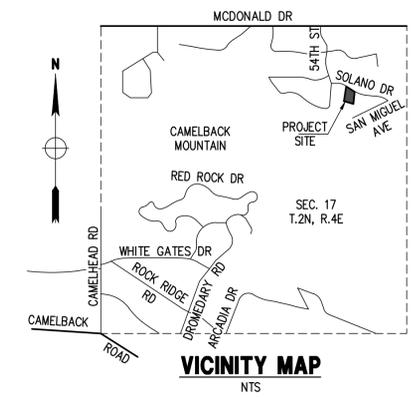
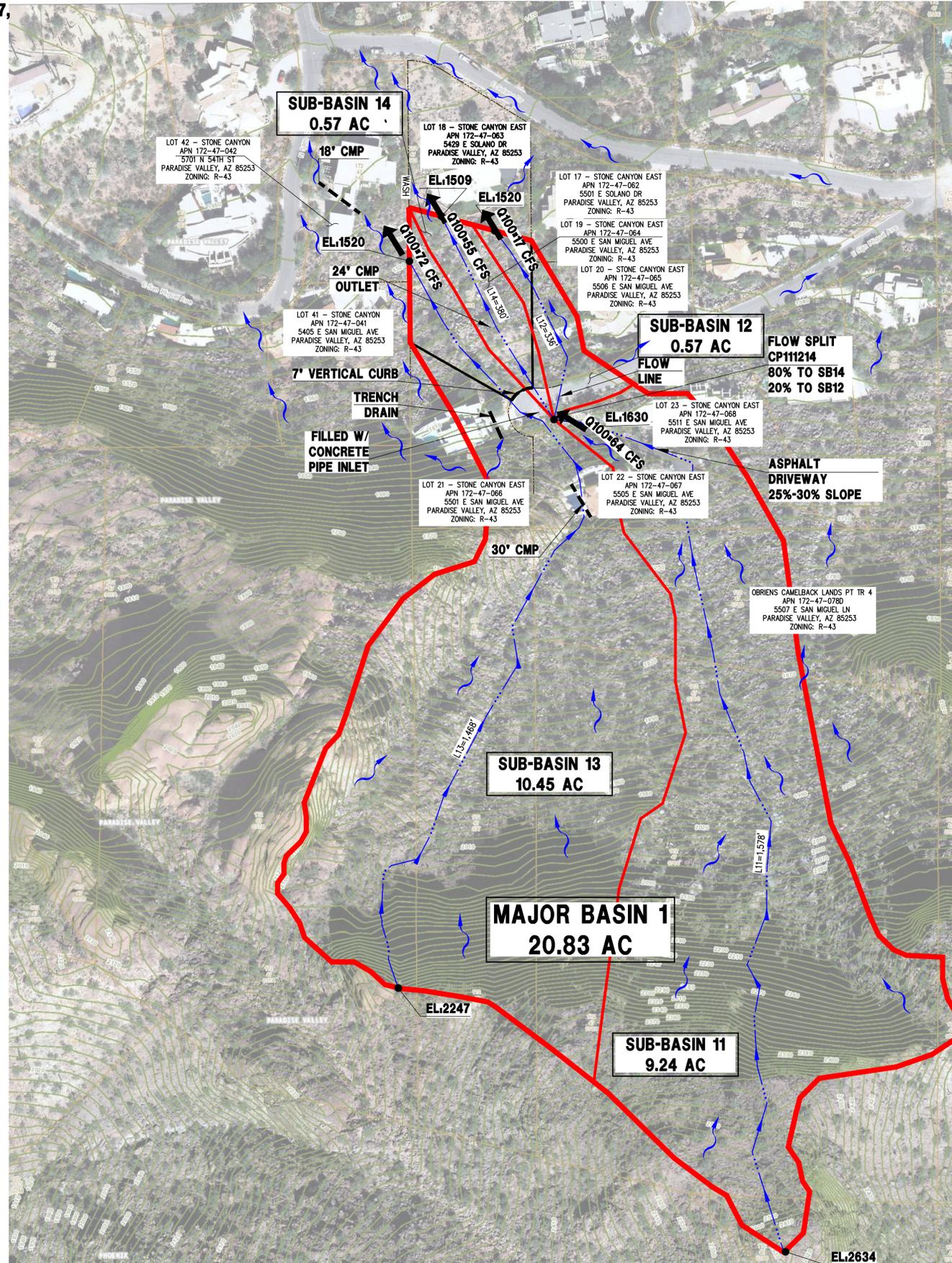
DM
 1 OF 2

CITY OF PHOENIX AERIAL TOPOGRAPHY - 1969

DRAINAGE MAP CURRENT CONDITIONS

LOT 18, OF STONE CANYON EAST

RECORDED IN BOOK 81 OF MAPS, PAGE 34, M.C.R.,
 LOCATED IN A PORTION OF THE NW 1/4 OF THE SE 1/4 NE 1/4 OF SECTION 17,
 T.2N, R.4E OF THE GILA & SALT RIVER BASE AND MERIDIAN,
 MARICOPA COUNTY, ARIZONA



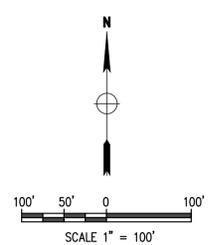
OWNER
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- LEGEND**
- DRAINAGE FLOW
 - SPOT ELEVATION
 - TRIBUTARY AREA BOUNDARY
 - FLOW LINE
 - STORM DRAIN PIPE



DATE:	05/27/16
DESIGNED BY:	NP
DRAWN BY:	DW
CHECKED BY:	JF
DATE:	05/27/16
JOB:	151217
VERSION:	1.1
PLOT DATE:	05/27/16

DRAINAGE MAP
CURRENT CONDITIONS
TOWN RESIDENCE
LOT 18-STONE CANYON EAST
5429 E SOLANO DRIVE
PARADISE VALLEY, AZ 85253

P. 602.889.1984 | F. 602.445.9482
 8808 N CENTRAL AVE., SUITE 288
 PHOENIX, AZ 85020
 phoenix@dgang.com

REGISTERED PROFESSIONAL ENGINEER
 41005
 NICKOLA
 J. PRODANOV
 State of ARIZONA U.S.A.
 Expires 08/31/2019

DM
 2 OF 2

EXHIBIT 2 AERIAL MAPS

1961 Aerial
Pre-disturbed
Conditions

PROJECT SITE

20-40



1964 Aerial
Disturbed
Conditions

PROJECT SITE

20-40
8-21-64



**PROJECT
SITE**

PROJECT
SITE



PROJECT
SITE



PROJECT
SITE



EXHIBIT 3 DRAINAGE CALCULATIONS

Flood Control District of Maricopa County
Drainage Design Management System

MAJOR BASINS

Project Reference: 1512117

Page 1

8/8/2016

Major Basin	Area (acres)	Description
01	20.83	Major Basin 01

Flood Control District of Maricopa County
 Drainage Design Management System
RAINFALL DATA
 Project Reference: 1512117

ID	Method	Duration	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
DEFAULT	NOAA14	5 MIN	0.243	0.330	0.398	0.487	0.557	0.627
	NOAA14	10 MIN	0.370	0.503	0.605	0.742	0.847	0.955
	NOAA14	15 MIN	0.458	0.623	0.750	0.920	1.050	1.184
	NOAA14	30 MIN	0.617	0.840	1.009	1.238	1.414	1.594
	NOAA14	1 HOUR	0.764	1.039	1.249	1.532	1.750	1.972
	NOAA14	2 HOUR	0.875	1.174	1.398	1.707	1.943	2.188
	NOAA14	3 HOUR	0.945	1.243	1.477	1.807	2.069	2.342
	NOAA14	6 HOUR	1.125	1.444	1.696	2.041	2.312	2.594
	NOAA14	12 HOUR	1.264	1.602	1.867	2.225	2.499	2.783
	NOAA14	24 HOUR	1.526	1.979	2.336	2.833	3.226	3.636

Flood Control District of Maricopa County
 Drainage Design Management System
 LAND USE
 Project Reference: 1512117

Sub Basin	Land Use Code	Area (acres)	Area (%)	Kb	Runoff Coefficient C						Description
					2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	
Major Basin ID: 01											
11	730	9.24	100.0	0.171	0.55	0.80*	0.90*	0.90*	0.95*	0.95*	Passive Open Space (Includes mountain preserves and washes)
		9.240	100.0								
12	730	0.57	100.0	0.207	0.55	0.80*	0.90*	0.90*	0.95*	0.95*	Passive Open Space (Includes mountain preserves and washes)
		0.570	100.0								
13	730	10.45	100.0	0.169	0.55	0.80*	0.90*	0.90*	0.95*	0.95*	Passive Open Space (Includes mountain preserves and washes)
		10.450	100.0								
14	730	0.57	100.0	0.207	0.55	0.80*	0.90*	0.90*	0.95*	0.95*	Passive Open Space (Includes mountain preserves and washes)
		0.570	100.0								

* Non default value

Flood Control District of Maricopa County
 Drainage Design Management System
RATIONAL METHOD FLOW SUMMARY - ALL
 Project Reference: 1512117

Page 1

8/8/2016

Type ID	Conveyance			Combine	Return Period (Years)						
	Length (ft)	Velocity (ft/sec)	Tpipe (min)		2	5	10	25	50	100	
Maior Basin ID: 01											
Sub Basin	-	-	-	-	Q (cfs)	-	-	-	-	-	63.9
11					CA (ac)	5.08	7.39	8.32	8.32	8.78	8.78
					Tc (min)	8.5	7.4	6.8	6.2	5.9	5.6
					i (in/hr)	2.41	3.48	4.33	5.47	6.36	7.28
Divert	-	-	-	-	Q (cfs)	-	-	-	-	-	12.8
1112					CA (ac)	-	-	-	-	-	1.76
					Tc (min)	-	-	-	-	-	5.6
					i (in/hr)	-	-	-	-	-	-
Retrieve Diversion	-	-	-	-	Q (cfs)	-	-	-	-	-	12.8
1112					CA (ac)	-	-	-	-	-	1.76
					Tc (min)	-	-	-	-	-	5.6
					i (in/hr)	-	-	-	-	-	-
Sub Basin	-	-	-	-	Q (cfs)	-	-	-	-	-	4.1
12					CA (ac)	0.31	0.46	0.51	0.51	0.54	0.54
					Tc (min)	5.0	5.0	5.0	5.0	5.0	5.0
					i (in/hr)	2.92	3.96	4.78	5.84	6.68	7.52
Combine	-	-	-	2	Q (cfs)	-	-	-	-	-	16.4
12					CA (ac)	-	-	-	-	-	2.30
					Tc (min)	-	-	-	-	-	-
					i (in/hr)	-	-	-	-	-	-

* First Pipe

Flood Control District of Maricopa County
 Drainage Design Management System
SUB BASINS
 Project Reference: 1512117

ID	Sub Basin Data						Sub Basin Hydrology Summary						
	Area (acres)	Length (ft)	USGE	DSGE	Slope (ft/mi)	Kb	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	
Major Basin ID: 01													
11	9.2	1,578	2,634.00	1,630.00	3,359.4	0.171	Q (cfs)	12.2	25.7	36.0	45.5	55.8	63.9
							C	0.55	0.80	0.90	0.90	0.95	0.95
							CA (ac)	5.08	7.39	8.32	8.32	8.78	8.78
							Tc (min)	9	7	7	6	6	6
							i (in/hr)	2.41	3.48	4.33	5.47	6.36	7.28
12	0.6	336	1,630.00	1,520.00	1,728.6	0.207	Q (cfs)	0.9	1.8	2.4	3.0	3.6	4.1
							C	0.55	0.80	0.90	0.90	0.95	0.95
							CA (ac)	0.31	0.46	0.51	0.51	0.54	0.54
							Tc (min)	5	5	5	5	5	5
							i (in/hr)	2.92	3.96	4.78	5.84	6.68	7.52
13	10.5	1,468	2,247.00	1,520.00	2,614.8	0.169	Q (cfs)	13.6	28.6	40.1	50.7	62.5	71.5
							C	0.55	0.80	0.90	0.90	0.95	0.95
							CA (ac)	5.75	8.36	9.41	9.41	9.93	9.93
							Tc (min)	9	8	7	7	6	6
							i (in/hr)	2.36	3.42	4.26	5.39	6.29	7.20
14	0.6	380	1,630.00	1,509.00	1,681.3	0.207	Q (cfs)	0.9	1.8	2.4	3.0	3.6	4.1
							C	0.55	0.80	0.90	0.90	0.95	0.95
							CA (ac)	0.31	0.46	0.51	0.51	0.54	0.54
							Tc (min)	5	5	5	5	5	5
							i (in/hr)	2.87	3.96	4.78	5.84	6.68	7.52

* Non default value

Channel Report

Capacity of Wash

Triangular

Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 2.00

Invert Elev (ft) = 1487.00
Slope (%) = 16.00
N-Value = 0.035

Calculations

Compute by: Q vs Depth
No. Increments = 10

Highlighted

Depth (ft) = 2.00
Q (cfs) = 196.76
Area (sqft) = 12.00
Velocity (ft/s) = 16.40
Wetted Perim (ft) = 12.65
Crit Depth, Yc (ft) = 2.00
Top Width (ft) = 12.00
EGL (ft) = 6.18

