Shephard Wesnitzer, Inc.

75 Kallof Place
Sedona, AZ 86336

928.282.1061
928.282.72058 fax

www.swiaz.com

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PRELIMINARY
Drainage Report

Saddlerock Hotel

Sedona, Yavapai County, Arizona

Prepared for:
Baney Corporation
475 NE Bellevue Dr. Suite 210
Bend, OR 97701

January 2019
Job # 16034

TABLE OF CONTENTS

APPENDICES

Introduction

Saddlerock Hotel is located south of State Route (SR)-89A and between Saddlerock Circle and Elk Road. The site is located in a portion of sections 12 & 13, Township 17 North, Range 5 East Gila and Salt River Meridian. A vicinity map is in Appendix A.

The proposed project has 86,000 sq. ft. of hotel and retail space consisting of one and two story buildings. The proposed project is located on parcels 408-26-004B, 408-26-004C, 408-26-009A, 408-26-009C, 408-26-010, 408-26-011, 408-26-012, 408-26-013, 408-26-014, 408-26-086A and 408-26-088. The existing site has 70+ trees and shrubs and one concrete driveway entrance on the north of the site from SR-89A. An existing ditch on the west side of the property collects onsite and offsite runoff from the north, south, and east. The ditch has a 36" culvert which takes runoff west under Saddlerock Circle.

The project is located in Zone X of the FEMA Flood Insurance Rate Map, map number 04025C1435G, September 3, 2010. The FIRM map is located in Appendix A. The City of Sedona Flood Plain Management Study dated 1994 places part of the proposed project site in the 100 year floodplain boundary. This study also places the site in basin number 77 with a flow of 134 cfs for the 100 year event. The City of Sedona Storm Water Master Plan places the site in basin B77B with a flow of 256 cfs for the 100 year event. Information for these studies can be found in Appendix A.

Objective

The objective of this report is to determine the impact of the proposed development on the runoff conditions of the basin. The proposed drainage design is based on Sedona Land Development Code Article 8 Grading and Drainage.

Procedure

The site specific Intensity-Duration-Frequency table was generated by NOAA. The rainfall table can be found in Appendix A. The rational C coefficients were determined from the 2015 Yavapai County Drainage Design Manual table 7.6.

Basin I.D.	Parameters		
	Tc (hr)	C	Area (ac)
Pre-developed condition:			
A	.25	0.584	44.98
Post-developed Condition:			
A	.25	0.648	44.98

Flows from the 1994 and 2005 study will differ from the flows presented in this report due to different Tc, area, and coefficients used in each report. These reports also placed the concentration point west of Saddlerock Circle. This report places the concentration point at the 36" pipe.

On-site topographic survey was performed by Shephard Wesnitzer, Inc. in September 2018. Off-site topographic information was used from the 2007 City of Sedona Aerial Survey. The project site slopes west towards Saddlerock Circle with an average slope of 5%. Off-site runoff from commercial property to the east drains west through the site. A catch basin on Saddlerock Circle collects runoff from SR-89A and flows through a 18" pipe to the ditch on the west side of the project site. Off-site flows from the neighborhood to the south of the site are routed through a network of ditches and culverts, which enters the ditch on the southwest corner of the site. Flow also enters the site from the cul-de-sac (end of Saddlerock Lane) and from the two properties to the east of Saddlerock Lane. When the pipe on Saddlerock Lane is full, runoff overtops the ditch on the east of Saddlerock Lane and enters the site at the cul-de-sac. The pre-development drainage map is provided in Appendix A.

The post-development impervious areas were determined from the proposed project site plan. The post-development drainage map is provided in Appendix A. In the post-development off-site flows from SR-89A and the neighborhood to the south will be piped to a manhole at the existing 36" culvert under Saddlerock Circle. The parking lot on the south side of the property will route the 100 year runoff from the south if the ditch at Saddlerock Lane overtops. Off-site flows from the commercial areas to the east of the project will flow through the proposed parking lot and continue west to the existing 36" culvert under Saddlerock Lane. Runoff from the proposed site will flow to catch basins in the proposed parking lots. A proposed underground pipe detention system is located in the parking lots closest to Saddlerock Circle. This system will then outlet to the existing 36" culvert under Saddlerock Circle.

Bentley's Pondpack software was used to calculate the flows for existing and post-development conditions to determine the needed pipe storage volume.

Results

The Pondpack results for pre- and post-development are listed below:

Basin I.D.	Storm Event			
	2-year	10-year	25-year	100-year
Pre-developed Condition:				
A	56.44	92.50	115.90	156.37
Post-developed Condition:				
A	60.65	99.41	124.55	168.04

The required storage based on the Pondpack analysis for the proposed site is estimated to be 12,442 ft^3. The pipe storage will have a 60" diameter and be 1,800' long. The outlet structure will be designed so post-developed flows will be near pre-developed flows. The final pond design and peak flow values will be included in the final drainage report. The Pondpack results can be found in Appendix B.

Table 11.1 – Storage Volume Calculation Summary

Scenario	Peak Flow (cfs)	Water Surface Elevation	Max. Pond Storage (ft^3)
Pre-developed, 2-year	56.44	N/A	N/A
Post-developed, 2-year (outlet controlled)	***56.45***	3.07	4,227
Pre-developed, 10-year	92.50	N/A	N/A
Post-developed, 10-year (outlet controlled)	***92.43***	3.59	7,174
Pre-developed, 25-year	115.90	N/A	N/A
Post-developed, 25-year (outlet controlled)	***115.68***	3.86	9,070
Pre-developed, 100-year	156.37	N/A	N/A
Post-developed, 100-year (outlet controlled)	***155.81***	4.28	12,442

Conclusion and Recommendations

Peak discharges for the 2, 10, 25, and 100 year storm events were determined for the project site for both the pre and post-development. The storage required will be designed to offset the increases in flow for each of the storm events. No further detention of storm water runoff is anticipated. Refer to the Grading and Drainage Plan for details, grades, finished elevations, locations, and notes.

The design concepts in this report will ensure that the drainage integrity of the site is sustained with proper maintenance activity. Activities include frequent clearing of debris and sediment from the storm drain inlets and detention areas, disturbed slope treatment and erosion control. Frequent monitoring will ensure expedient remedies to common problems such as erosion, sedimentation, and flow obstructions.

References

City of Sedona Flood Plain Management Study, 1994

City of Sedona Storm Water Master Plan, 2005

Yavapai County Drainage Design Manual, 2015

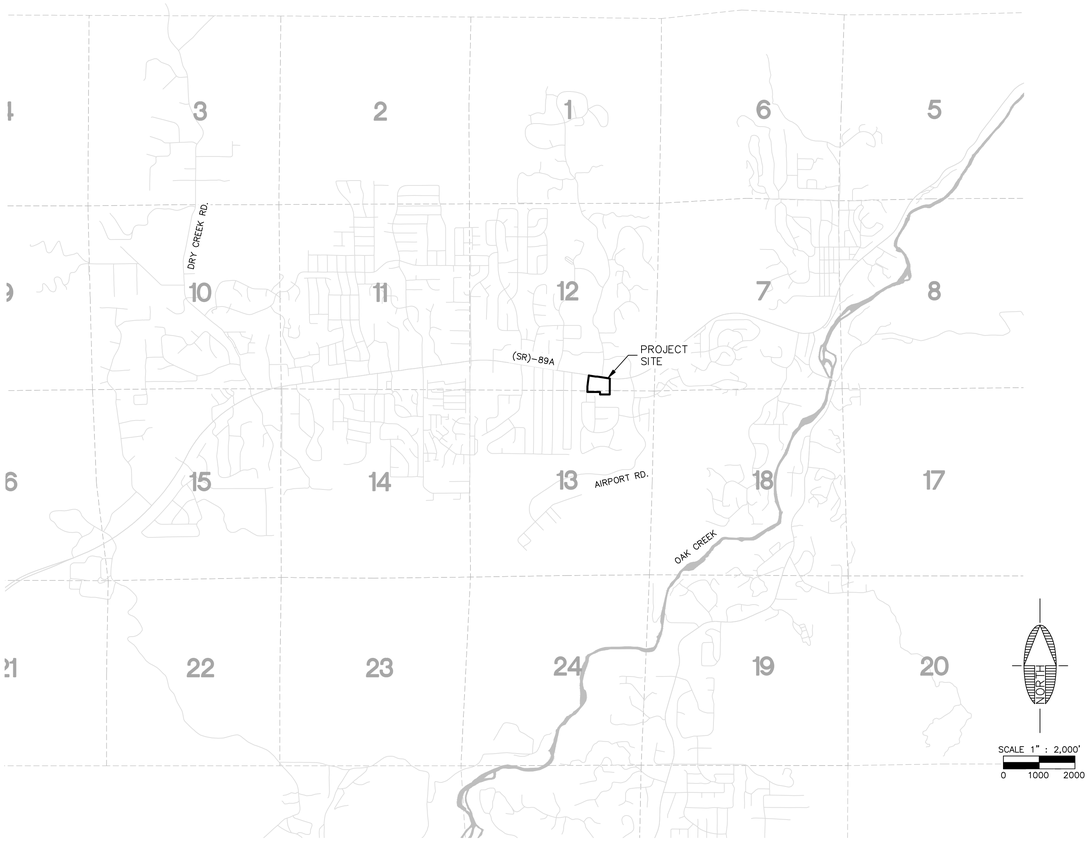
City of Sedona Land Development Code, 2018

Software

PondPack V8i, Bentley Systems, Inc.

Preliminary Drainage Report
For
SADDLEROCK HOTEL
SWI Project # 16034

APPENDIX A
EXHIBITS



PLOTTED: Oct 30, 2018-11:14am

FILE: P:\2016\16034\ENGINEERING\DRAINAGE\DWG\VICINITY MAP.DWG ACORDERO

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

Shephard Wesnitzer, Inc.
75 Kallof Place
Sedona, AZ 86336
928.282.1061
928.282.2058 fax
www.swiaz.com

JOB NO:	16034
DATE:	OCT 18
SCALE:	1" = 2000'
DRAWN:	AKC
DESIGN:	AKC
CHECKED:	JTL

SADDLEROCK HOTEL
SEDONA
ARIZONA

VICINITY MAP

PRELIMINARY
NOT FOR CONSTRUCTION, BIDDING OR RECORDING

DRAWING NO. V1

SHT NO. 1 OF 1

National Flood Hazard Layer FIRMette

FEMA

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/26/2018 at 4:25:24 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

NOAA Atlas 14, Volume 1, Version 5
Location name: Sedona, Arizona, USA*
Latitude: 34.8619°, Longitude: -111.7836°
Elevation: 4438.47 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**2.53** (2.11-3.02)	**3.26** (2.72-3.90)	**4.39** (3.65-5.24)	**5.34** (4.45-6.36)	**6.70** (5.53-7.93)	**7.82** (6.41-9.28)	**9.04** (7.34-10.7)	**10.3** (8.29-12.3)	**12.3** (9.65-14.7)	**13.9** (10.8-16.7)
10-min	**1.93** (1.61-2.30)	**2.48** (2.07-2.96)	**3.34** (2.78-3.99)	**4.07** (3.38-4.84)	**5.09** (4.21-6.04)	**5.95** (4.88-7.06)	**6.88** (5.59-8.17)	**7.87** (6.31-9.37)	**9.34** (7.34-11.2)	**10.5** (8.20-12.7)
15-min	**1.59** (1.33-1.90)	**2.05** (1.71-2.45)	**2.76** (2.30-3.30)	**3.36** (2.80-4.00)	**4.21** (3.48-4.99)	**4.92** (4.03-5.84)	**5.68** (4.62-6.75)	**6.51** (5.22-7.74)	**7.71** (6.07-9.24)	**8.72** (6.77-10.5)
30-min	**1.07** (0.896-1.28)	**1.38** (1.15-1.65)	**1.86** (1.55-2.22)	**2.26** (1.88-2.70)	**2.84** (2.34-3.36)	**3.31** (2.71-3.93)	**3.83** (3.11-4.54)	**4.38** (3.51-5.21)	**5.19** (4.09-6.22)	**5.87** (4.56-7.07)
60-min	**0.664** (0.554-0.791)	**0.855** (0.712-1.02)	**1.15** (0.957-1.37)	**1.40** (1.17-1.67)	**1.75** (1.45-2.08)	**2.05** (1.68-2.43)	**2.37** (1.93-2.81)	**2.71** (2.17-3.23)	**3.21** (2.53-3.85)	**3.63** (2.82-4.38)
2-hr	**0.391** (0.340-0.455)	**0.495** (0.426-0.578)	**0.653** (0.563-0.760)	**0.788** (0.674-0.916)	**0.980** (0.834-1.14)	**1.14** (0.958-1.32)	**1.32** (1.10-1.53)	**1.51** (1.24-1.75)	**1.79** (1.44-2.09)	**2.02** (1.60-2.36)
3-hr	**0.280** (0.246-0.324)	**0.354** (0.312-0.410)	**0.453** (0.397-0.523)	**0.540** (0.471-0.623)	**0.663** (0.573-0.765)	**0.770** (0.660-0.885)	**0.886** (0.750-1.02)	**1.01** (0.846-1.17)	**1.20** (0.984-1.40)	**1.36** (1.09-1.59)
6-hr	**0.170** (0.152-0.189)	**0.212** (0.190-0.235)	**0.263** (0.235-0.292)	**0.308** (0.275-0.343)	**0.373** (0.331-0.415)	**0.426** (0.375-0.474)	**0.484** (0.421-0.539)	**0.544** (0.468-0.610)	**0.635** (0.536-0.717)	**0.707** (0.588-0.805)
12-hr	**0.109** (0.098-0.121)	**0.134** (0.122-0.149)	**0.164** (0.148-0.181)	**0.189** (0.169-0.208)	**0.223** (0.200-0.246)	**0.249** (0.221-0.274)	**0.276** (0.243-0.305)	**0.304** (0.265-0.336)	**0.343** (0.295-0.382)	**0.374** (0.319-0.419)
24-hr	**0.069** (0.062-0.075)	**0.085** (0.078-0.094)	**0.106** (0.097-0.117)	**0.123** (0.112-0.136)	**0.147** (0.132-0.162)	**0.165** (0.148-0.182)	**0.184** (0.164-0.203)	**0.203** (0.181-0.224)	**0.230** (0.202-0.255)	**0.251** (0.219-0.279)
2-day	**0.040** (0.036-0.044)	**0.050** (0.045-0.055)	**0.062** (0.056-0.068)	**0.072** (0.065-0.079)	**0.085** (0.077-0.094)	**0.096** (0.086-0.105)	**0.107** (0.096-0.117)	**0.118** (0.105-0.130)	**0.133** (0.118-0.148)	**0.145** (0.127-0.161)
3-day	**0.029** (0.026-0.032)	**0.036** (0.033-0.039)	**0.044** (0.041-0.049)	**0.052** (0.047-0.057)	**0.062** (0.056-0.068)	**0.070** (0.063-0.076)	**0.078** (0.070-0.085)	**0.086** (0.077-0.095)	**0.098** (0.087-0.109)	**0.108** (0.094-0.119)
4-day	**0.023** (0.021-0.025)	**0.029** (0.026-0.032)	**0.036** (0.033-0.039)	**0.042** (0.038-0.046)	**0.050** (0.045-0.055)	**0.056** (0.051-0.062)	**0.063** (0.057-0.070)	**0.071** (0.063-0.077)	**0.081** (0.071-0.089)	**0.089** (0.077-0.098)
7-day	**0.015** (0.014-0.017)	**0.019** (0.018-0.021)	**0.024** (0.022-0.026)	**0.028** (0.025-0.030)	**0.033** (0.030-0.036)	**0.037** (0.034-0.040)	**0.041** (0.037-0.045)	**0.046** (0.041-0.050)	**0.052** (0.046-0.057)	**0.057** (0.050-0.063)
10-day	**0.012** (0.011-0.013)	**0.015** (0.014-0.017)	**0.019** (0.017-0.021)	**0.022** (0.020-0.024)	**0.025** (0.023-0.028)	**0.028** (0.026-0.031)	**0.031** (0.028-0.034)	**0.034** (0.031-0.038)	**0.038** (0.034-0.042)	**0.041** (0.037-0.045)
20-day	**0.008** (0.007-0.009)	**0.010** (0.009-0.011)	**0.012** (0.011-0.013)	**0.014** (0.012-0.015)	**0.016** (0.014-0.017)	**0.017** (0.016-0.019)	**0.018** (0.017-0.020)	**0.020** (0.018-0.022)	**0.022** (0.020-0.024)	**0.023** (0.021-0.025)
30-day	**0.006** (0.006-0.007)	**0.008** (0.007-0.009)	**0.010** (0.009-0.010)	**0.011** (0.010-0.012)	**0.012** (0.011-0.013)	**0.013** (0.012-0.015)	**0.015** (0.013-0.016)	**0.016** (0.014-0.017)	**0.017** (0.015-0.018)	**0.018** (0.016-0.020)
45-day	**0.005** (0.005-0.006)	**0.006** (0.006-0.007)	**0.008** (0.007-0.008)	**0.009** (0.008-0.009)	**0.010** (0.009-0.011)	**0.011** (0.010-0.012)	**0.012** (0.011-0.013)	**0.013** (0.011-0.014)	**0.014** (0.012-0.015)	**0.014** (0.013-0.016)
60-day	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.007** (0.006-0.007)	**0.007** (0.007-0.008)	**0.008** (0.008-0.009)	**0.009** (0.008-0.010)	**0.010** (0.009-0.011)	**0.010** (0.009-0.011)	**0.011** (0.010-0.012)	**0.012** (0.011-0.013)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

LEGEND

- Floodway
- 100 Year Flood Plain
- 500 Year Flood Plain
- AA — Valley Cross Section
- Reference Mark
- Corporate Limits/ Study Boundary
- County Line
- 3500 — Profile Number
- D ≤ 1' — Average Depth Equal To or Less Than One Foot

Limits of flooding shown may vary from actual locations on the ground and due to inherent aerial photographic displacement the photographic image may vary from true ground location.

0 500 1000
APPROXIMATE SCALE IN FEET

1993 AERIAL PHOTOGRAPHY FURNISHED BY COOPER AERIAL SURVEY COMPANY, TUCSON, ARIZONA

FLOOD BOUNDARY AND FLOODWAY MAP
CITY OF SEDONA
COCONINO AND YAVAPAI COUNTIES, ARIZONA

By The
U. S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
April 1993

SHEET 5 OF 14

45
DA=0.18 Mi²
CN=86
Tc=0.21

SDHEC236.DAT - Notepad

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GR4410.0     0.0  4408.0    30.0  4406.3    80.0  4406.0   120.0  4405.0   150.0
GR4401.6   153.0  4401.6   158.3  4405.0   164.0  4406.0   210.0  4408.0   290.0
GR4410.0   350.0

NH     3   0.075   150.0   0.035   164.0  .0.075   350.0
X13603.9      11     150     164      10      10      10
GR4410.0     0.0  4408.0    30.0  4406.3    80.0  4406.0   120.0  4405.0   150.0
GR4401.6   154.0  4401.6   157.0  4405.0   164.0  4406.0   210.0  4408.0   290.0
GR4410.0   350.0

NC                          0.1     0.3
QT    7.      7.     23.     39.     71.    101.    134.    198.
NH     3    .075   120.0    .035   134.0    .075   380.0
X13604.1       9   120.0   134.0     355     385     366          -0.5
GR4418.0     0.0  4416.0   120.0  4411.4   126.0  4411.4   129.0  4416.0   134.0
GR4415.0   230.0  4415.0   330.0  4416.0   350.0  4418.0   380.0

* CROSS SECTION 3604.2 AT DOWNSTREAM CULVERT FACE- FLOW LIMITED TO CULVERT WIDTH
NC                          0.3     0.5
NH     3    .075   120.0    .035   134.0    .075   380.0
X13604.2       9   126.0   129.0      20      20      20
X3    10                                          4414.2  4414.2
GR4418.0     0.0  4416.0   120.0  4411.4   126.0  4411.4   129.0  4416.0   134.0
GR4415.0   230.0  4415.0   330.0  4416.0   350.0  4418.0   380.0
SC 1.024    0.50     2.8             3.0             50.     2.1  4412.4  4411.4

* CROSS SECTION 3605.1 AT UPSTREAM CULVERT FACE - FLOW LIMITED TO CULVERT WIDTH
NH     3   0.075    115.   0.035    126.   0.075    360.
X13605.1       8    119.    122.     50.     50.     50.
X2                    2         4415.2
X3    10                                          4415.2  4415.2
BT    -8  1000.9  4417.0         1038.3  4416.5          1072.5  4415.7
BT        1110.8  4415.2         1145.9  4415.2          1186.2  4415.5
BT        1223.3  4415.7         1242.6  4416.1
GR4418.0     0.0  4416.0    70.0  4415.7   115.0  4412.4   119.0  4412.4   122.0
GR4415.5   126.0  4416.0   320.0  4418.0   360.0

NH     3   0.075    115.   0.035    126.   0.075    360.
X13605.2       8    115.    126.     10.     10.     10.
GR4418.0     0.0  4416.0    70.0  4415.7   115.0  4412.4   119.0  4412.4   122.0
GR4415.5   126.0  4416.0   320.0  4418.0   360.0

NC                          0.1     0.3
NH     1   0.055  1261.8
X13606.0       8  1184.6  1220.4     345     315     352
GR4426.6  1000.0  4424.6  1061.0  4423.8  1103.7  4423.2  1141.5  4422.7  1184.6
GR4423.0  1220.4  4426.5  1259.6  4426.6  1261.8
EJ
```

Flood Hazard Map*

Floodway

100yr Plain

500yr Plain

City Boundary

Parcel Boundary

Street Centerline

*For more detailed FEMA floodplain information, please look at the effective FEMA Flood Insurance Rate Map(s). In addition to the FEMA flood hazard areas, this map displays flood hazard areas based on the City of Sedona 1994 Soil Conservation Service Floodplain Management Study.

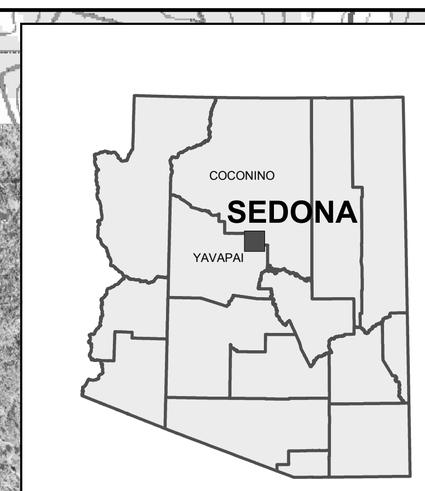
N

0 0.25 0.5 Miles

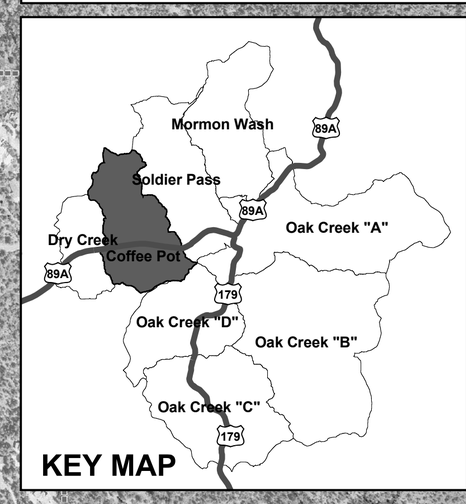
This map is designed to provide as-is information only. The data is not accurate to engineering or surveying standards. The City of Sedona is not liable or responsible for loss or damages rising from the data contained on this map.

Data Source: FEMA flood plain maps digitized; Coconino & Yavapai Counties by the U.S. Dept of Agriculture & the Natural Resources Conservation Service. 1993.
Map Location: g/maps/floodhazard

Flood Hazard Map - Revised 10/05/2010



LOCATION MAP



KEY MAP

B66B
B52B
B56B
B61B
B51B
B52C
B50B
B66C
B61C
A34B
B50B
B51C
B60B
B75B
B65B
B75C
B69B
B60C
B74B
A34C
B50C
B65C
B73B
B48B
B59B
B73C
B42BB
B64B
B72B
B78B
B80B
B42AB
B64C
B72C
B80C
B48C
B59C
B78C
B42BC
B42AB
B70AB
B77C
B47B
B71B
B63B
B76B
B77B
B42B
B47C
B76C
B71C
B81C
B82C
B42C
B46B
B63C
B70B
B81B
B82B
B40B
B45C
B45B
B40C
B44B

N
W
E
S

1 inch equals 500 feet

LEGEND:

- Flow Diversion
- Flow Concentration Points
- Flow Paths
- State Highways
- City Boundary
- Subbasins

PREPARED FOR:

CITY OF SEDONA

COFFEE POT DRAINAGE MAP
EXHIBIT NO. 2

MAP SCALE: 0 0.05 0.1 0.2 0.3 0.4 0.5 Miles

CITY OF SEDONA STORM WATER MASTER PLAN

PREPARED BY:

DIBBLE & ASSOCIATES
CONSULTING ENGINEERS
Since 1962

DATE: SEPTEMBER 22, 2004

HEC-1 INPUT

```
ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.

UA      0.0      5.0     16.0     30.0     65.0     77.0     84.0     90.0     94.0
UA    100.0

KK     B78C    CNAME     B78R
KO        0        0      0.0        0       22
HC        2

KK     B78R    CNAME     B78C
KO        0        0      0.0        0       22
RM        1   0.0175      0.2

KK     B77B
KO        0        0      0.0        1       22
BA   0.0780
LG    0.166     0.25    3.976     0.47   66.811
UC    0.121 Tc 0.073
* Curve A
UA      0.0      5.0     16.0     30.0     65.0     77.0     84.0     90.0     94.0
UA    100.0

KK     B77C    CNAME     B77R
KO        0        0      0.0        0       22
HC        2

KK     B77R    CNAME     B77C
```

	2 COMBINED AT						
+		B72C	874.	12.00	78.	25.	12.	.28
	ROUTED TO						
+		B72R	859.	12.05	78.	25.	12.	.28
	HYDROGRAPH AT						
+		B80B	131.	11.90	10.	3.	2.	.04
	ROUTED TO						
+		B80R	132.	11.95	10.	3.	2.	.04
	HYDROGRAPH AT						
+		B78B	204.	12.00	17.	5.	3.	.07
	2 COMBINED AT						
+		B78C	332.	11.95	27.	9.	4.	.10
	ROUTED TO						
+		B78R	327.	12.00	27.	9.	4.	.10
	HYDROGRAPH AT						
+		B77B	256.	11.95	23.	8.	4.	.08
	2 COMBINED AT						
+		B77C	578.	11.95	50.	16.	8.	.18
	ROUTED TO						
+		B77R	578.	12.00	50.	16.	8.	.18
	HYDROGRAPH AT						
+		B76B	153.	12.00	15.	5.	2.	.06
	HYDROGRAPH AT						
+		B70AB	97.	11.95	9.	3.	1.	.03
	4 COMBINED AT						
+		B76C	1637.	12.05	152.	50.	24.	.55
	ROUTED TO						
+		B76R	1614.	12.05	152.	50.	24.	.55
	HYDROGRAPH AT						
+		B66B	523.	12.15	73.	22.	11.	.35
	ROUTED TO						
+		B66R	511.	12.25	73.	22.	11.	.35
	HYDROGRAPH AT						
+		B69B	212.	11.95	18.	6.	3.	.07
	HYDROGRAPH AT						
+		B65B	200.	12.05	20.	6.	3.	.09
	3 COMBINED AT						
+		B65C	664.	12.20	111.	34.	16.	.51
	ROUTED TO						
+		B65R	661.	12.25	111.	34.	16.	.51
	HYDROGRAPH AT						
+		B64B	208.	12.00	20.	7.	3.	.07
	2 COMBINED AT						
+		B64C	761.	12.10	131.	41.	20.	.58
	ROUTED TO						
+		B64R	755.	12.20	131.	41.	20.	.58
	HYDROGRAPH AT						
+		B82B	375.	11.95	26.	8.	4.	.12
	ROUTED TO						
+		B82R	369.	12.00	26.	8.	4.	.12
	HYDROGRAPH AT						
+		B81B	179.	11.95	14.	4.	2.	.05
	2 COMBINED AT						
+		B81C	532.	12.00	40.	12.	6.	.17
	ROUTED TO						
+		B81R	518.	12.05	40.	12.	6.	.17
	HYDROGRAPH AT						
+		B71B	118.	11.95	11.	4.	2.	.03
	ROUTED TO						
+		B71R	117.	12.00	11.	4.	2.	.03
	HYDROGRAPH AT						

PEAK FLOW

PLOTTED: Oct 31, 2018-1:35pm

HWY 89A

EXISTING 18" CMP PIPE

EXISTING 36" CMP PIPE

100 YEAR FLOODPLAIN

SADDLEROCK HOTEL PROPOSED SITE

JUNEBUG CIRCLE

SADDLEROCK CIR

VALLEY VIEW DR.

SADDLEROCK LN.

A
44.98
0.607

SUNSET CIR

ROCKRIDGE DR.

ROCKRIDGE DR.

AIRPORT RD.

100 YEAR FLOODPLAIN

LEGEND

X
A
C

DRAINAGE BASIN IDENTIFIER:
X = BASIN DESIGNATION
A = APPROXIMATE BASIN AREA (ACRES)
C = "C" COEFFICIENT (PRE/POST)

MAJOR BASIN BOUNDARY

PROJECT BOUNDARY

100 YEAR FLOODPLAIN

FLOW DIRECTION

SCALE 1" : 100'
0 50 100

NOTES:

1. ONSITE TOPOGRAPHIC DATA PROVIDED BY SHEPHARD WESNITZER, INC.
2. OFFSITE TOPOGRAPHIC DATA FROM THE 2007 CITY OF SEDONA AERIAL SURVEY. CONTOUR INTERVAL = 2'

PRE-DEVELOPMENT CONDITION PEAK FLOWS

BASIN	"C" COEFFICIENT	Tc (hr)	AREA (ACRES)	Q2 (CFS)	Q10 (CFS)	Q25 (CFS)	Q100 (CFS)
A	0.607	0.25	44.98	56.44	92.50	115.90	156.37

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SWI
Shephard Wesnitzer, Inc.
75 Kallof Place
Sedona, AZ 86336
928.282.1061
928.282.2058 fax
www.swiaz.com

JOB NO:	16034
DATE:	OCT 18
SCALE:	1"=100
DRAWN:	AKC
DESIGN:	AKC
CHECKED:	AHB

SADDLEROCK HOTEL
SEDONA
ARIZONA

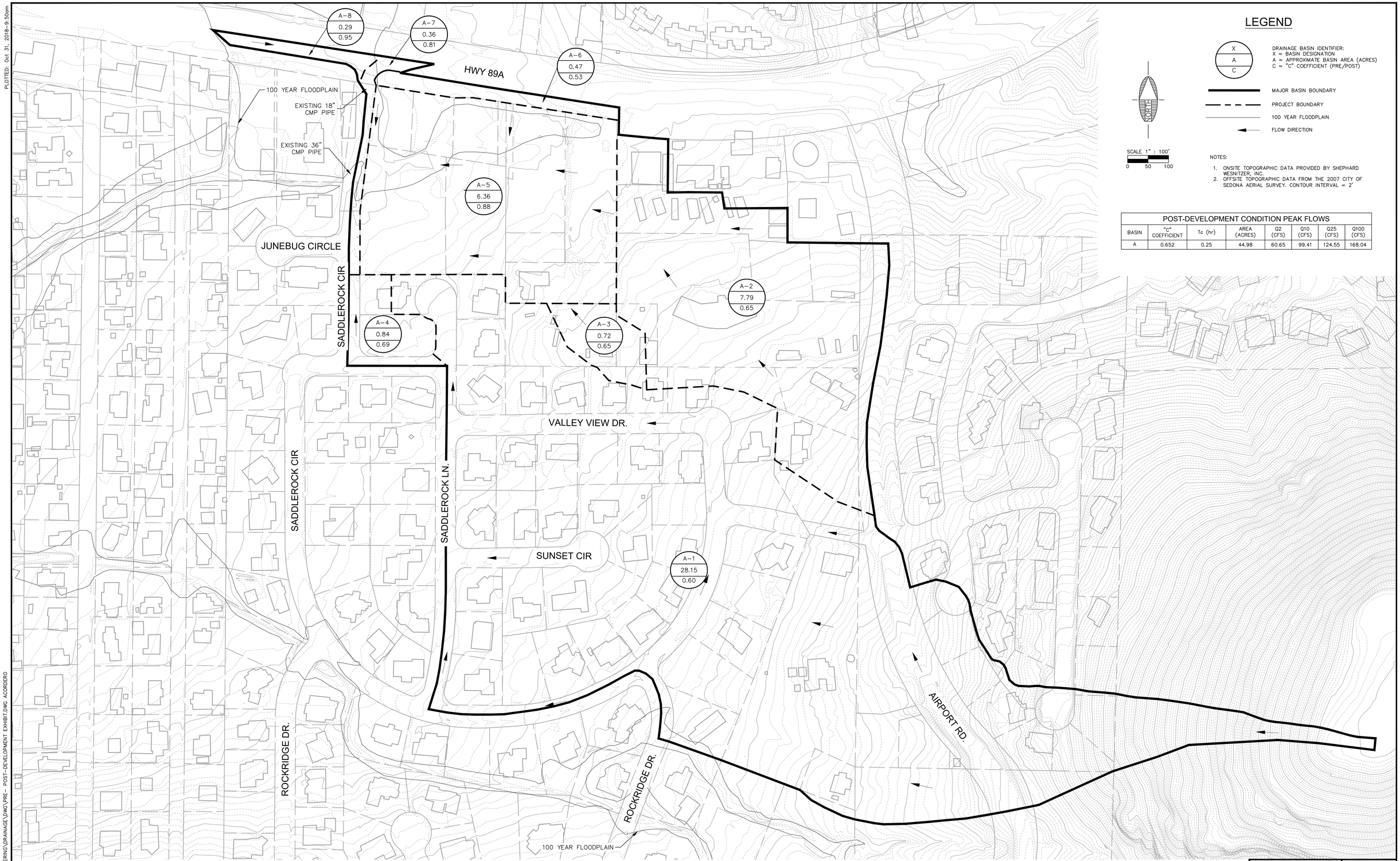
PRELIMINARY DRAINAGE REPORT
DRAINAGE MAP
PRE-DEVELOPMENT

PRELIMINARY
NOT FOR CONSTRUCTION, BIDDING OR RECORDING

DRAWING NO. D1

SHT NO. 1 OF 2

FILE: P:\2016\16034\ENGINEERING\DRAINAGE\DWG\PRE- POST-DEVELOPMENT EXHIBIT.DWG ACORDERO



LEGEND

X
A
C

DRAINAGE BASIN IDENTIFIER:
X = BASIN DESIGNATION
A = APPROXIMATE BASIN AREA (ACRES)
C = "C" COEFFICIENT (PRE/POST)

MAJOR BASIN BOUNDARY

PROJECT BOUNDARY

100 YEAR FLOODPLAIN

FLOW DIRECTION

SCALE 1" : 100'
0 50 100

NOTES:

1. ONSITE TOPOGRAPHIC DATA PROVIDED BY SHEPHARD WESNITZER, INC.
2. OFFSITE TOPOGRAPHIC DATA FROM THE 2007 CITY OF SEDONA AERIAL SURVEY. CONTOUR INTERVAL = 2'

POST-DEVELOPMENT CONDITION PEAK FLOWS

BASIN	"C" COEFFICIENT	Tc (hr)	AREA (ACRES)	Q2 (CFS)	Q10 (CFS)	Q25 (CFS)	Q100 (CFS)
A	0.652	0.25	44.98	60.65	99.41	124.55	168.04

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SWI
Shephard Wesnitzer, Inc.
75 Kallof Place
Sedona, AZ 86336
928.282.1061
928.282.2058 fax
www.swiaz.com

JOB NO:	16034
DATE:	OCT 18
SCALE:	1"=100
DRAWN:	AKC
DESIGN:	AKC
CHECKED:	AHB

SADDLEROCK HOTEL
SEDONA ARIZONA

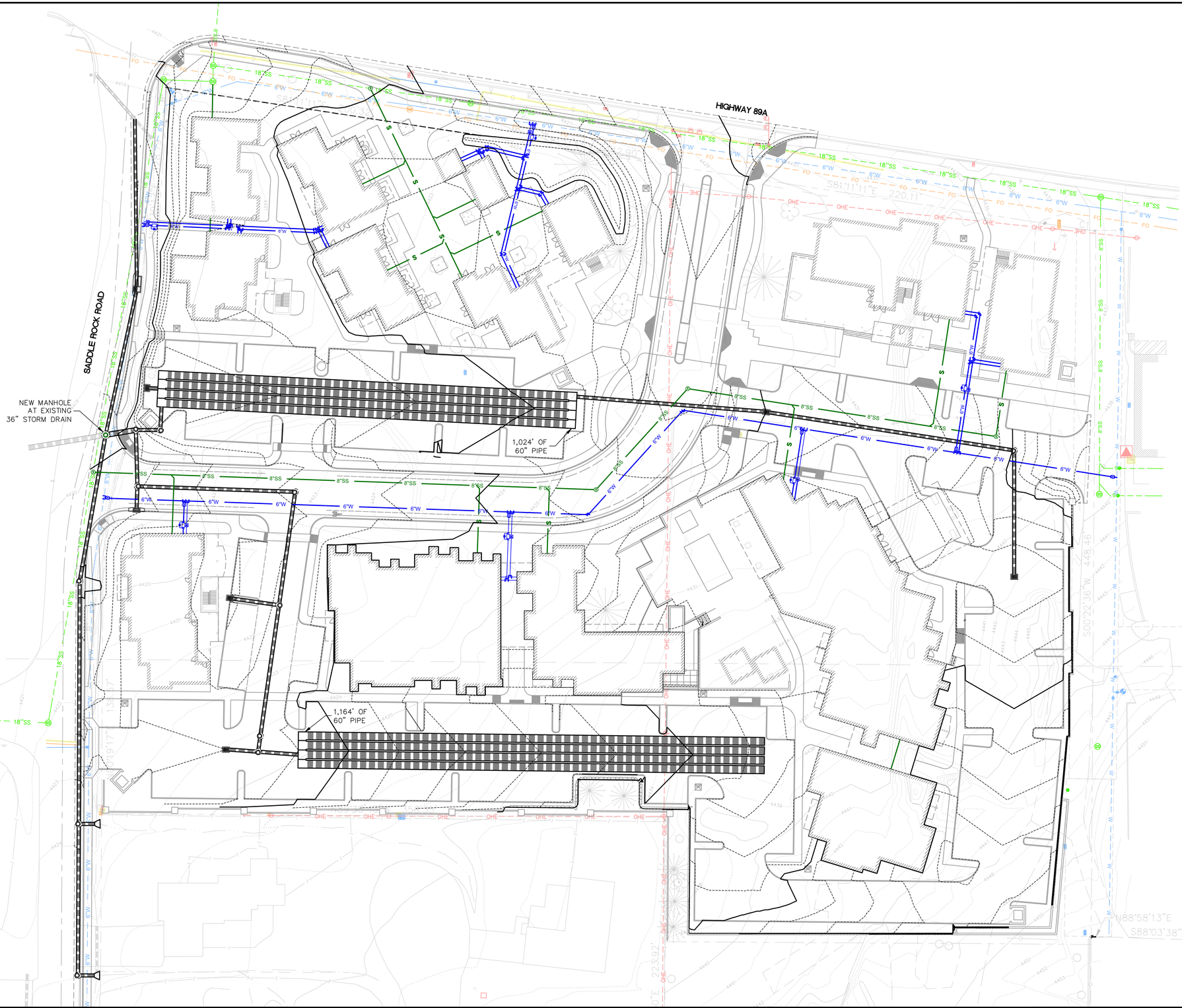
PRELIMINARY DRAINAGE REPORT
DRAINAGE MAP
POST-DEVELOPMENT

PRELIMINARY
NOT FOR CONSTRUCTION, BIDDING OR RECORDING

DRAWING NO. D2

SHT NO. 2 OF 2

PLOTTED: Jan 22, 2019 - 2:00pm



Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

Shephard Wesnitzer, Inc.
75 Kallof Place
Sedona, AZ 86336
928.282.1061
928.282.2058 fax
www.swiaz.com

JOB NO:	16034
DATE:	JAN 19
SCALE:	1" = 30'
DRAWN:	AKC
DESIGN:	AHB
CHECKED:	AHB

SADDLEROCK HOTEL
SEDONA ARIZONA

STORM DRAIN LAYOUT

PRELIMINARY
NOT FOR CONSTRUCTION, BIDDING OR RECORDING

DRAWING NO. 1
SHT NO. 1 OF 1

FILE: P:\2016\16034\DRAWINGS\XREF\XG-16034.DWG ACORDERO

Preliminary Drainage Report
For
SADDLEROCK HOTEL
SWI Project # 16034

APPENDIX B
CALCULATIONS

Project Summary	
Title	16034 - Saddlerock Hotel
Engineer	Adam Cordero
Company	Shephard Wesnitzer, Inc.
Date	10/29/2018

Notes	Detention pond calculations for proposed storage.

Table of Contents

Subsection: Modified Rational Grand Summary

Modified Rational Method

Q = CiA * Units Conversion; Where conversion = 43560 / (12 * 3600)

Frequency (years)	Area (acres)	Adjusted C Coefficient	Duration (hours)	Intensity (in/h)	Flow (Peak) (ft^3/s)	Flow (Allowable) (ft^3/s)	Volume (inflow) (ft^3)	Volume (Storage) (ft^3)
2	6.360	0.880	0.167	2.483	14.01	11.70	8,407.919	1,737.975
10	6.360	0.880	0.167	4.075	23.00	19.16	13,798.345	2,868.186
25	6.360	0.880	0.167	5.096	28.76	24.04	17,256.699	3,552.653
100	6.360	0.880	0.167	6.889	38.88	32.43	23,325.144	4,827.599
2	6.360	0.400	0.083	3.257	8.35	8.35	8,407.919	0.000
10	6.360	0.400	0.083	5.335	13.69	13.69	13,798.345	0.000
25	6.360	0.400	0.083	6.694	17.17	17.17	(N/A)	(N/A)
100	6.360	0.400	0.083	9.031	23.17	23.17	(N/A)	(N/A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
CM-2	Pre-Development 2 Year	2	0.000	0.000	0.00
CM-2	Post-Development 2 Year	2	8,064.000	0.084	14.01
CM-2	Pre-Development 10 Year	10	0.000	0.000	0.00
CM-2	Post-Development 10 Year	10	13,234.000	0.084	23.00
CM-2	Pre-Development 25 Year	25	0.000	0.000	0.00
CM-2	Post-Development 25 Year	25	16,551.000	0.084	28.76
CM-2	Post-Development 100 Year	100	22,371.000	0.084	38.88
CM-2	Pre-Development 100 Year	100	0.000	0.000	0.00

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
O-2	Pre-Development 2 Year	2	0.000	0.000	0.00
O-2	Post-Development 2 Year	2	8,236.000	0.200	7.41
O-2	Pre-Development 10 Year	10	0.000	0.000	0.00
O-2	Post-Development 10 Year	10	13,517.000	0.200	12.04
O-2	Pre-Development 25 Year	25	0.000	0.000	0.00
O-2	Post-Development 25 Year	25	16,905.000	0.200	14.95
O-2	Post-Development 100 Year	100	22,849.000	0.200	19.88
O-2	Pre-Development 100 Year	100	0.000	0.000	0.00

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ft³)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft^3)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ft^3)
PO-1 (IN)	Post-Development 2 Year	2	8,236.000	0.100	14.01	(N/A)	(N/A)
PO-1 (OUT)	Post-Development 2 Year	2	8,236.000	0.200	7.41	3.07	4,227.000
PO-1 (IN)	Post-Development 10 Year	10	13,517.000	0.100	23.00	(N/A)	(N/A)
PO-1 (OUT)	Post-Development 10 Year	10	13,517.000	0.200	12.04	3.59	7,174.000
PO-1 (IN)	Post-Development 25 Year	25	16,905.000	0.100	28.76	(N/A)	(N/A)
PO-1 (OUT)	Post-Development 25 Year	25	16,905.000	0.200	14.95	3.86	9,070.000
PO-1 (IN)	Post-Development 100 Year	100	22,849.000	0.100	38.88	(N/A)	(N/A)
PO-1 (OUT)	Post-Development 100 Year	100	22,849.000	0.200	19.88	4.29	12,442.000

Subsection: I-D-F Table

Label: User Defined IDF Table - 1

Return Event: 10 years

Storm Event: User Defined IDF Table - 1 - 10 Year

I-D-F Curve

Time (hours)	Intensity (in/h)
0.083	5.340
0.167	4.070
0.250	3.360
0.500	2.260
1.000	1.400
2.000	0.788
3.000	0.540
6.000	0.308
12.000	0.189
24.000	0.123

Subsection: I-D-F Table

Label: User Defined IDF Table - 1

Return Event: 100 years

Storm Event: User Defined IDF Table - 1 - 100 Year

I-D-F Curve

Time (hours)	Intensity (in/h)
0.083	9.040
0.167	6.880
0.250	5.680
0.500	3.830
1.000	2.370
2.000	1.320
3.000	0.886
6.000	0.484
12.000	0.276
24.000	0.184

Subsection: I-D-F Table

Label: User Defined IDF Table - 1

Return Event: 2 years

Storm Event: User Defined IDF Table - 1 - 2 Year

I-D-F Curve

Time (hours)	Intensity (in/h)
0.083	3.260
0.167	2.480
0.250	2.050
0.500	1.380
1.000	0.855
2.000	0.495
3.000	0.354
6.000	0.212
12.000	0.134
24.000	0.085

Subsection: I-D-F Table

Label: User Defined IDF Table - 1

Return Event: 25 years

Storm Event: User Defined IDF Table - 1 - 25 Year

I-D-F Curve

Time (hours)	Intensity (in/h)
0.083	6.700
0.167	5.090
0.250	4.210
0.500	2.840
1.000	1.750
2.000	0.980
3.000	0.663
6.000	0.373
12.000	0.223
24.000	0.147

Requested Pond Water Surface Elevations	
Minimum (Headwater)	1.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	5.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 1	Forward	TW	1.00	5.00
Culvert-Circular	Culvert - 2	Forward	TW	2.34	5.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	12.0 in
Length	15.00 ft
Length (Computed Barrel)	15.00 ft
Slope (Computed)	0.005 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.031
Kr	0.200
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.093
T2 ratio (HW/D)	1.195
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	2.09 ft	T1 Flow	2.75 ft³/s
T2 Elevation	2.19 ft	T2 Flow	3.14 ft³/s

Structure ID: Culvert - 2 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	24.0 in
Length	15.00 ft
Length (Computed Barrel)	15.06 ft
Slope (Computed)	0.089 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.012
Kr	0.200
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.051
T2 ratio (HW/D)	1.153
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	4.44 ft	T1 Flow	15.55 ft³/s
T2 Elevation	4.64 ft	T2 Flow	17.77 ft³/s

Structure ID: TW
Structure Type: TW Setup, DS Channel

Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: C and Area (Pre-Development)

Label: CM-2

Return Event: 2 years

Storm Event: User Defined IDF Table - 1 - 2 Year

C and Area Results (Pre-Development)

Soil/Surface Description	C Coefficient	Area (acres)	Area (Adjusted) (acres)
Project Site	0.560	6.360	(N/A)
Weighted C & Total Area --->	0.560	6.360	3.562

Subsection: C and Area (Post-Development)

Label: CM-2

Return Event: 2 years

Storm Event: User Defined IDF Table - 1 - 2 Year

C and Area Results

Soil/Surface Description	C Coefficient	Area (acres)	Area (Adjusted) (acres)
Project Site	0.880	6.360	(N/A)
Weighted C & Total Area --->	0.880	6.360	5.597

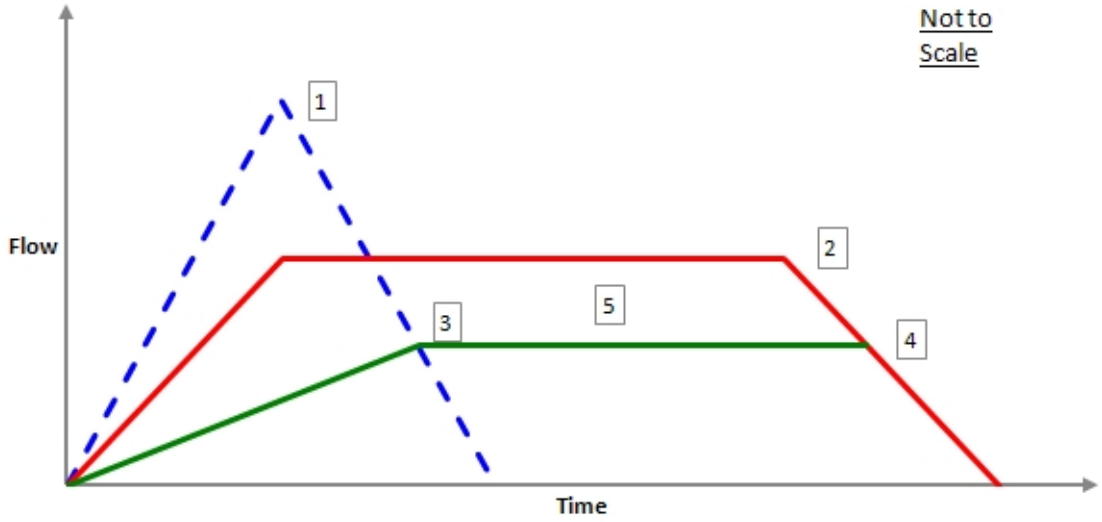
Subsection: Modified Rational Graph

Label: CM-2

Return Event: 2 years

Storm Event: User Defined IDF Table - 1 - 2 Year

Method Type	Method T
Time of Duration (Modified Rational, Critical)	0.167 hours



[1]			[2]		
Time of Concentration (Modified Rational, Composite)	0.083	hours	Time of Duration (Modified Rational, Critical)	0.167	hours
Intensity (Modified Rational, Peak)	3.257	in/h	Intensity (Modified Rational, Critical)	2.483	in/h
Flow (Modified Rational, Peak)	18.38	ft³/s	Flow (Modified Rational, Critical)	14.01	ft³/s

[3]	
First Outflow Breakpoint (Modified Rational, Method T)	0.180 hours
Flow (Modified Rational, Allowable)	11.70 ft³/s

[4]			[5]		
Second Outflow Breakpoint (Modified Rational)	0.114	hours	Storage (Modified Rational, Estimated)	1,737.975	ft³
Flow (Modified Rational, Allowable)	11.70	ft³/s			

Modified Rational Method
--- Summary for Single Storm Frequency ---

Q = CiA * Units Conversion; Where Conversion = 43560 / (12 * 3600)

C Coefficient (Weighted)	C Coefficient (Adjusted)	Duration (hours)	Intensity (in/h)	Area (acres)	Flow (Peak) (ft^3/s)	Volume (Inflow) (ft^3)	Volume (Storage) (ft^3)
0.880	0.880	0.083	3.257	6.360	18.38	5,514.044	2,005.107
							Storage Maximum
0.880	0.880	0.167	2.483	6.360	14.01	8,407.919	1,737.975
0.880	0.880	0.250	2.050	6.360	11.57	(N/A)	(N/A)

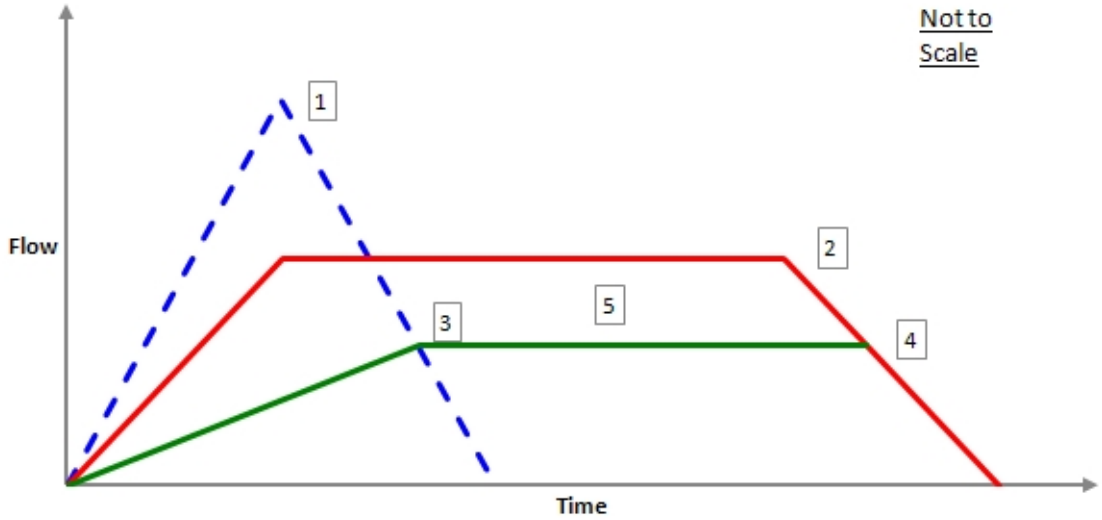
Subsection: Modified Rational Graph

Label: CM-2

Return Event: 10 years

Storm Event: User Defined IDF Table - 1 - 10 Year

Method Type	Method T
Time of Duration (Modified Rational, Critical)	0.167 hours



[1]			[2]		
Time of Concentration (Modified Rational, Composite)	0.083	hours	Time of Duration (Modified Rational, Critical)	0.167	hours
Intensity (Modified Rational, Peak)	5.335	in/h	Intensity (Modified Rational, Critical)	4.075	in/h
Flow (Modified Rational, Peak)	30.11	ft³/s	Flow (Modified Rational, Critical)	23.00	ft³/s

[3]	
First Outflow Breakpoint (Modified Rational, Method T)	0.181 hours
Flow (Modified Rational, Allowable)	19.16 ft³/s

[4]			[5]		
Second Outflow Breakpoint (Modified Rational)	0.114	hours	Storage (Modified Rational, Estimated)	2,868.186	ft³
Flow (Modified Rational, Allowable)	19.16	ft³/s			

Modified Rational Method
--- Summary for Single Storm Frequency ---

Q = CiA * Units Conversion; Where Conversion = 43560 / (12 * 3600)

C Coefficient (Weighted)	C Coefficient (Adjusted)	Duration (hours)	Intensity (in/h)	Area (acres)	Flow (Peak) (ft^3/s)	Volume (Inflow) (ft^3)	Volume (Storage) (ft^3)
0.880	0.880	0.083	5.335	6.360	30.11	9,032.259	3,284.458
							Storage Maximum
0.880	0.880	0.167	4.075	6.360	23.00	13,798.345	2,868.186
0.880	0.880	0.250	3.360	6.360	18.96	(N/A)	(N/A)

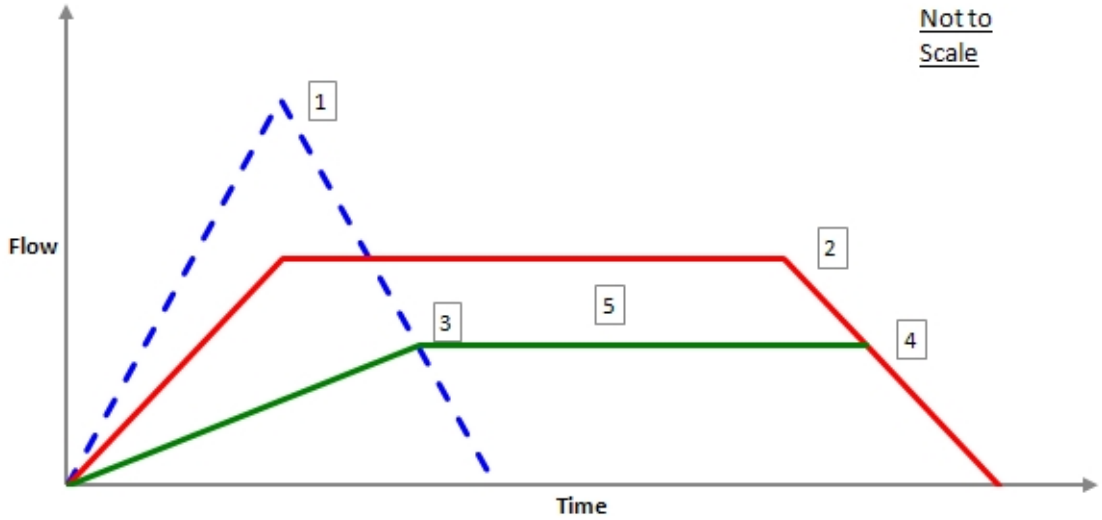
Subsection: Modified Rational Graph

Label: CM-2

Return Event: 25 years

Storm Event: User Defined IDF Table - 1 - 25 Year

Method Type	Method T
Time of Duration (Modified Rational, Critical)	0.167 hours



[1]			[2]		
Time of Concentration (Modified Rational, Composite)	0.083	hours	Time of Duration (Modified Rational, Critical)	0.167	hours
Intensity (Modified Rational, Peak)	6.694	in/h	Intensity (Modified Rational, Critical)	5.096	in/h
Flow (Modified Rational, Peak)	37.77	ft³/s	Flow (Modified Rational, Critical)	28.76	ft³/s

[3]	
First Outflow Breakpoint (Modified Rational, Method T)	0.180 hours
Flow (Modified Rational, Allowable)	24.04 ft³/s

[4]			[5]		
Second Outflow Breakpoint (Modified Rational)	0.114	hours	Storage (Modified Rational, Estimated)	3,552.653	ft³
Flow (Modified Rational, Allowable)	24.04	ft³/s			

Modified Rational Method
--- Summary for Single Storm Frequency ---

Q = CiA * Units Conversion; Where Conversion = 43560 / (12 * 3600)

C Coefficient (Weighted)	C Coefficient (Adjusted)	Duration (hours)	Intensity (in/h)	Area (acres)	Flow (Peak) (ft^3/s)	Volume (Inflow) (ft^3)	Volume (Storage) (ft^3)
0.880	0.880	0.083	6.694	6.360	37.77	11,332.498	4,120.908
							Storage Maximum
0.880	0.880	0.167	5.096	6.360	28.76	17,256.699	3,552.653
0.880	0.880	0.250	4.210	6.360	23.76	(N/A)	(N/A)

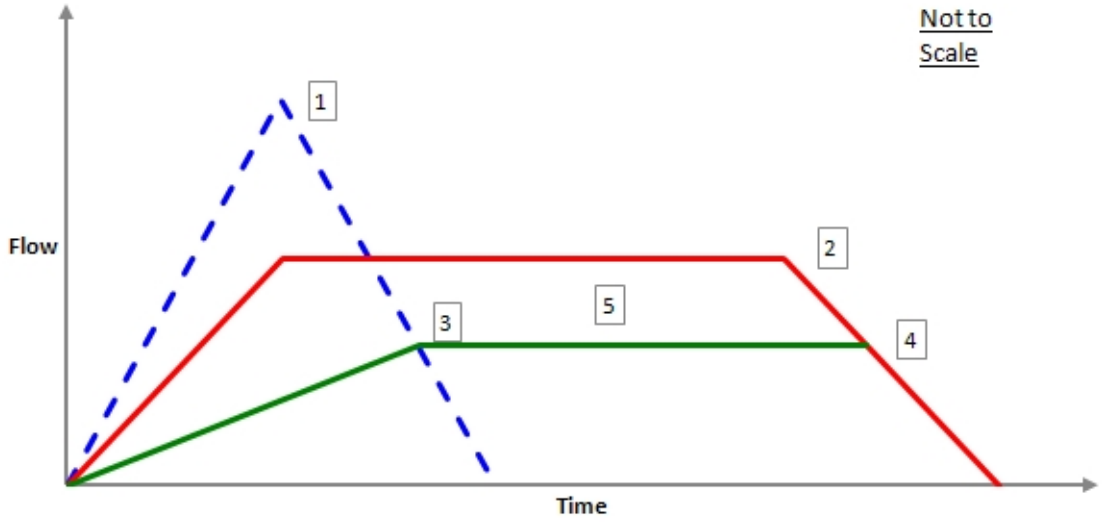
Subsection: Modified Rational Graph

Label: CM-2

Return Event: 100 years

Storm Event: User Defined IDF Table - 1 - 100 Year

Method Type	Method T
Time of Duration (Modified Rational, Critical)	0.167 hours



[1]			[2]		
Time of Concentration (Modified Rational, Composite)	0.083	hours	Time of Duration (Modified Rational, Critical)	0.167	hours
Intensity (Modified Rational, Peak)	9.031	in/h	Intensity (Modified Rational, Critical)	6.889	in/h
Flow (Modified Rational, Peak)	50.97	ft³/s	Flow (Modified Rational, Critical)	38.88	ft³/s

[3]	
First Outflow Breakpoint (Modified Rational, Method T)	0.180 hours
Flow (Modified Rational, Allowable)	32.43 ft³/s

[4]			[5]		
Second Outflow Breakpoint (Modified Rational)	0.114	hours	Storage (Modified Rational, Estimated)	4,827.599	ft³
Flow (Modified Rational, Allowable)	32.43	ft³/s			

Modified Rational Method
--- Summary for Single Storm Frequency ---

Q = CiA * Units Conversion; Where Conversion = 43560 / (12 * 3600)

C Coefficient (Weighted)	C Coefficient (Adjusted)	Duration (hours)	Intensity (in/h)	Area (acres)	Flow (Peak) (ft^3/s)	Volume (Inflow) (ft^3)	Volume (Storage) (ft^3)
0.880	0.880	0.083	9.031	6.360	50.97	15,290.498	5,560.181
							Storage Maximum
0.880	0.880	0.167	6.889	6.360	38.88	23,325.144	4,827.599
0.880	0.880	0.250	5.680	6.360	32.05	(N/A)	(N/A)

PLOTTED: Jan 22, 2019 - 1:26pm

HIGHWAY 89A

SADDLE ROCK CIRCLE

ELK ROAD

VALLEY VIEW DR.

MULTI-FAMILY F.F. 4424.00

MULTI-FAMILY F.F. 4426.00

MULTI-FAMILY F.F. 4424.00

RETAIL F.F. 4426.00

RETAIL F.F. 4426.00

CAFE F.F. 4435.00

RETAIL

RETAIL F.F. 4435.00

RESTAURANT F.F. 4432.00

LOBBY F.F. 4432.00

HOTEL F.F. 4423.00

HOTEL F.F. 4425.00

HOTEL F.F. 4427.00

HOTEL 1ST FLOOR F.F. 4432.00

HOTEL BASEMENT F.F. 4432.00

PARKING 1

PARKING 2

PARKING 3

PARKING 4

PARKING 5

PARKING 6

ROAD 1

INGRESS/EGRESS EASEMENT BK. 2920, PG. 338

STAIRS 8 RISERS @ 6" BOTTOM=19.0 TOP=23.0

STAIRS 4 RISERS @ 6" BOTTOM=24.0 TOP=26.0

STAIRS 4 RISERS @ 6" BOTTOM=19.0 TOP=23.0

STAIRS 4 RISERS @ 6" BOTTOM=32.57 TOP=34.57

STAIRS 3 RISERS @ 6" BOTTOM=33.25 TOP=34.75

STAIRS 8 RISERS @ 6" BOTTOM=28.0 TOP=32.0

STAIRS 4 RISERS @ 6" BOTTOM=28.0 TOP=30.0

STAIRS 4 RISERS @ 6" BOTTOM=32.0 TOP=34.0

SCALE 1" : 30'
0 15 30

NOTES TO CONTRACTOR:

1. The Engineer has used his best judgment in the estimation of the earthwork for this Project. The earthwork (cut/fill) for this project is designed to balance. The Soils Report has several shrinkage values based on compaction requirements. The Engineer has no control over varying field conditions and construction methods involved in the site grading. Consequently, actual quantities, cost and time required for this Project may be affected by many factors beyond the Engineer's control, and Engineer shall not be held liable for any deviation from its estimated quantities. It is the responsibility of the Contractor to verify the earthwork quantities based on the Soils Report. The following is the Engineer's estimate of raw earthwork quantities for this Project. (No shrinkage values are taken into consideration in these quantities).

Cut = 16,245 C.Y. Fill = 11,077 C.Y. NET = 5,168 (EXPORT)

LEGEND

- PARCEL BOUNDARIES
- EXISTING EASEMENTS
- EXISTING INDEX CONTOURS
- EXISTING INTERMEDIATE CONTOURS
- PROPOSED INDEX CONTOURS
- PROPOSED INTERMEDIATE CONTOURS
- FLOW DIRECTION
- BUILDINGS
- MONUMENT AS NOTED
- 1/2" REBAR AS NOTED
- PK NAIL
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- SEWER MANHOLE
- SEWER CLEANOUT
- CATCH BASIN
- ELECTRIC TRANSFORMER
- ELECTRIC JUNCTION BOX
- UTILITY POLE
- GUY WIRE
- TRAFFIC SIGNAL WITH MAST
- TRAFFIC SIGNAL JUNCTION BOX
- TELEPHONE RISER
- TELEPHONE MANHOLE
- FIBER OPTIC LINE MARKER
- GAS METER
- SIGN
- TREE / DENSELY VEGETATED AREA

01.00 P PAVEMENT GRADE
01.00 TC TOP OF CURB GRADE
01.00 TW TOP OF WALL GRADE
01.00 FINISH GRADE

MATCH LINE

MATCH LINE

PRELIMINARY

NOT FOR CONSTRUCTION, BIDDING OR RECORDING

SEDONA ARIZONA

SADDLEROCK HOTEL

PRELIMINARY GRADING & DRAINAGE PLAN

JOB NO:	16034
DATE:	JAN 19
SCALE:	1" = 30'
DRAWN:	MWJ
DESIGN:	AHB
CHECKED:	AHB

75 Kallof Place
Sedona, AZ 86336
928.282.1061
928.282.2058 fax
www.swiaz.com

Shephard Wesnitzer, Inc.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

DRAWING NO.
C1

SHT NO. 1 OF 2

FILE: P:\2016\16034\DRAWINGS\SITE PLANS\GRADING & DRAINAGE PLAN.DWG MJONG