ADDENDUM NO.1
TO THE
MASTER DRAINAGE REPORT
FOR
SILVERSTONE

Revised February 2014
March 2007

WP# 042309

Prepared for:

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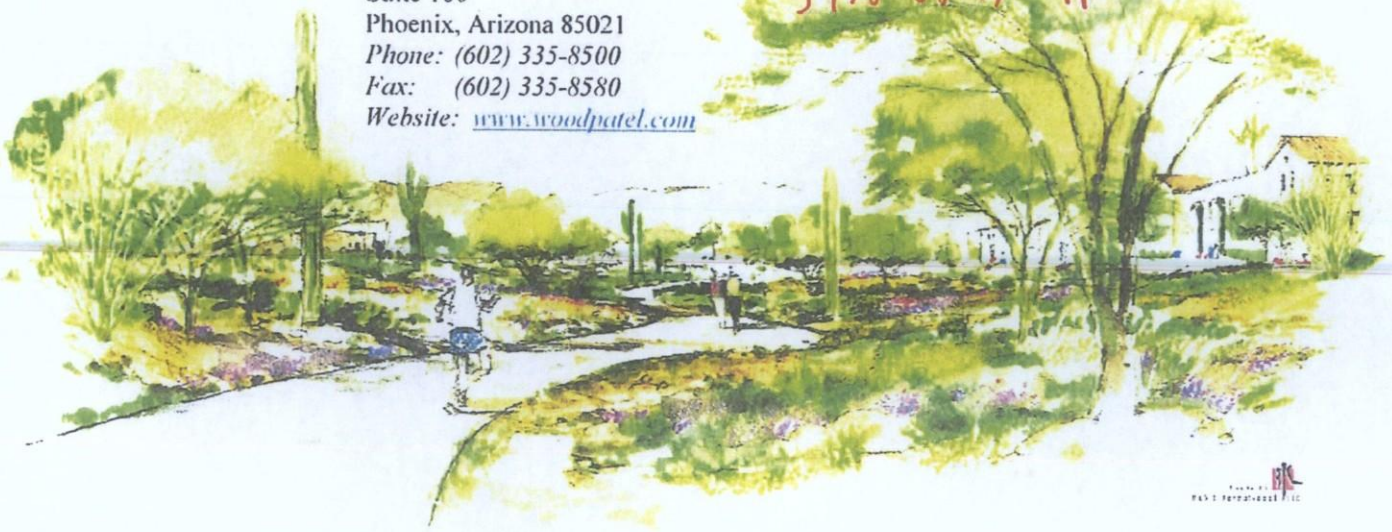
Review Cycle _____ Date 3/6/14

3476-06-17 Approved



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February 13, 2014

ADDENDUM No.1

COS # 425-SA-2006 #15-ZN-2006, 124-NP-2006, PC# 3476-06-2

- Addendum No.1 to the Master Drainage Report
  Silverstone - March 2007, WP# 042309
- City of Scottsdale, Stormwater Management Division, Approved 3/18/07
- Justification #1: In January 2010, City of Scottsdale updated "Design Standards and Policies Manual, Chapter 4. Grading & Drainage, NOAA Atlas 14, Volume 1, Version 5, Point Precipitation Frequency Estimate. The updated rainfall volumes are lower in this area of north Scottsdale. (P=2.41 inches 100-year, 2-hour event)
- Justification #2: During recent correspondence with the City of Scottsdale Stormwater Management Division (COS), Wood, Patel & Associates, Inc. (Wood/Patel) was informed of a recent revision to the COS stormwater storage policy. The policy revision is valid for previously developed sites, such as Silverstone Parcel C (previously a portion of the Rawhide development). Per the revised policy, areas of the proposed development that were previously developed are required to provide a storage volume equal to the increase in runoff volume generated by the proposed development during the design storm event (100-year, 2-hour storm). Areas of the proposed development that were previously undeveloped are required to provide a storage volume equal to the entire runoff volume generated by the proposed development during the design storm event.
- Revisions to the Master Drainage Report (MDR) are as follows:
  - Table 4.1 – *Parcel Detention Requirements* is revised as shown below:

Table 4.1 – Parcel Detention Requirements

Parcel 1 Basin	Tributary Area	Weighted runoff coefficient	Required Volume	Required Volume
	ac		cf	ac-ft
A&B*	4.5	0.9	41274	0.95
C	12.35	**See Appendix B**	**47766**	**1.10**
D**	13.5	0.9	106291	2.44
~~**E****~~	~~16.7~~	~~0.76~~	~~111033~~	~~2.54~~
F**	22.1	0.76	146936	3.37
G**	23.8	0.76	158239	3.63
H*	32.8	0.76	254867	5.85
Park*	1.9	0.33	6998	0.16

* These parcels are built out. Volumes are not updated.

ADDENDUM No.1

COS # 425-SA-2006 #15-ZN-2006, 124-NP-2006, PC# 3476-06-2

** Required detention volumes for these parcels are updated based upon updated rainfall depth data. Recent changes in C.O.S. stormwater storage policy for previously developed sites may allow for a reduction in required storage volume, but this reduction was not explored for these parcels in this addendum.

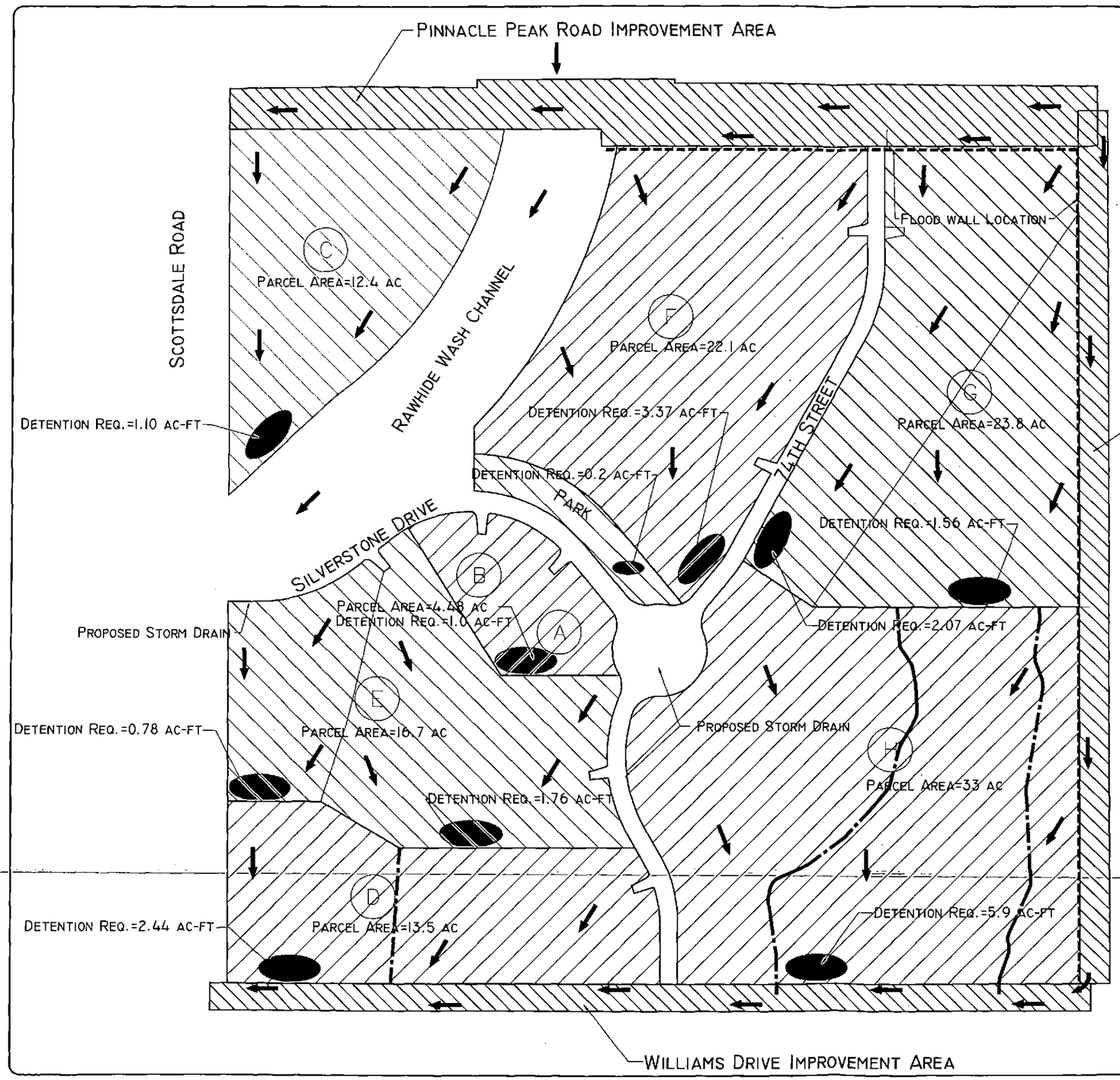
- Plate 3 – *Silverstone Drainage Map*, which displays possible locations of proposed detention basins, is revised. The revised plate is attached and dated December 3, 2013.

- Additions to MDR are as follows:
  - Appendix B is added to the MDR and includes the following:
    - Table B1 – *Parcel C Required Stormwater Detention Volume*
    - Table B2 – *Parcel C Pre-Existing Condition Weighted Runoff Coefficients*
    - Table B3 – *Parcel C Post-Developed Condition Weighted Runoff Coefficients*
    - Exhibit 1 – *Pre-Existing Condition Map*
    - Exhibit 2 – *Post-Developed Condition Map*

Darrel E. Wood, P.E., R.L.S.
Principal

PLATE 3

Silverstone Drainage Map



N

150 0 75 150

1 inch = 150 ft.

LEGEND

- FLOW DIRECTION
- PROPOSED STORM DRAIN SYSTEM
- PROPOSED CATCH BASIN
- PROPOSED DETENTION BASIN (POSSIBLE LOCATIONS)
- TEMPORARY/PROPOSED DRAINAGE CORRIDOR PER FINAL PARCEL DETAILS (APPROXIMATE LOCATION)
- APPROXIMATE PROPOSED FLOODWALL LOCATION

UPDATED 12/3/2013

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SILVERSTONE
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DRAWN	DF
CHECKED	
DATE	MARCH 07
SCALE	1"=150'
JOB NO.	042309.10
SHEET	1 OF 1

APPENDIX B

Table B1 – Parcel C Required Stormwater Detention Volume
Table B2 – Parcel C Pre-Existing Condition Weighted Runoff Coefficients
Table B3 – Parcel C Post-Developed Condition Weighted Runoff Coefficients
Exhibit 1 – Pre-Existing Condition Map
Exhibit 2 – Post-Developed Condition Map

Table B1 - Parcel C Required Stormwater Detention Volume, $V_{REQ'D}$

Project: Addendum to Master Drainage Report for Silverstone
Location: Scottsdale, Arizona
Description: Calculation of required stormwater detention volume
References: Design Standards and Policies Manual, Chapter 4 - Grading & Drainage, City of Scottsdale, January 2010
NOAA Atlas 14, Volume 1, Version 5, Point Precipitation Frequency Estimates

Known Values: Design storm: 100-year, 2-hour
Rainfall, P: 2.41 inches

Calc. Values[1]: $V_{REQ'D} = \frac{P}{12} \; x \; A \; x \; C$

Where:
$V_{REQ'D}$ = Required stormwater detention volume
P = Rainfall depth for design storm event
A = Area of watershed contributing
C = Runoff coefficient (see below for calculation)

For Pre-Existing Developed Areas[2]: $C = C_{POST} - C_{PRE}$ **For Pre-Existing Undeveloped Areas[3]:** $C = C_{POST}$

Where:
C_{PRE} = Weighted runoff coefficient for pre-existing condition
C_{POST} = Weighted runoff coefficient for post-developed condition

Notes:
1. Based upon current C.O.S. stormwater storage requirements, areas of the proposed development that were previously developed are required to provide a storage volume equal to the increase in runoff volume generated by the proposed development during the design storm event (100-year, 2-hr storm). Areas of the proposed development that were previously undeveloped are required to provide storage volume equal to the entire runoff volume generated by the proposed development during the design storm event.
2. For previously developed areas, the required storage volume is calculated using a runoff coefficient equal to the inrease in the runoff coefficient from the pre-existing to the post-developed condition ($C=C_{POST}-C_{PRE}$)
3. For previously undeveloped areas, the required storage volume is calculated using a runoff coefficient equal to the post-developed runoff coefficient ($C=C_{POST}$)

Table B1 - Parcel C Required Stormwater Detention Volume, $V_{REQ'D}$

Project: Addendum to Master Drainage Report for Silverstone
Location: Scottsdale, Arizona
Description: Calculation of required stormwater detention volume
References: Design Standards and Policies Manual, Chapter 4 - Grading & Drainage, City of Scottsdale, January 2010
NOAA Atlas 14, Volume 1, Version 5, Point Precipitation Frequency Estimates

Drainage Area ID[4]	Area, A (sq ft)	Area, A (ac)	Pre-Existing Weighted Runoff Coefficient, C_{PRE}	Post-Developed Weighted Runoff Coefficient, C_{POST}	C_{POST} - C_{PRE} or C_{POST}	$V_{REQ'D}$ (cu ft)	$V_{REQ'D}$ (ac ft)
1	383,950	8.81	0.47	0.76	0.29	22,362	0.51
2	19,470	0.45	0.46	0.84	0.38	1,486	0.03
3	118,440	2.72	---	0.90	0.90	21,408	0.49
4	11,280	0.26	---	0.86	0.86	1,948	0.04
5	4,740	0.11	---	0.59	0.59	562	0.01
Total	**537,880**	**12.35**				**47,766**	**1.10**

Notes:
4. Refer to Exhibit 1 - *Pre-Existing Condition Map* and Exhibit 2 - *Post-Developed Condition Map* for area delineation.

Table B2 - Parcel C Pre-Existing Condition Weighted Runoff Coefficients, C_{PRE} - 100 Year Storm Event

Project: Addendum to Master Drainage Report for Silverstone
Location: Scottsdale, Arizona
Description: Calculation of pre-existing runoff coefficients, C_{PRE}, for the 100-year storm event
References: Design Standards and Policies Manual, Chapter 4 - Grading & Drainage, City of Scottsdale, January 2010
Figure 4.1-4 Runoff Coefficients for use with Rational Method

AREA ID[1]	DESCRIPTION	SURFACE TYPE[2]	100-YR C VALUE[2,3,4]	AREA (SF)	AREA (AC)	WEIGHTED C_{PRE} VALUE[4]
1	PRE-EXISTING COMPACTED GRAVEL PARKING LOT, DIRT PATHWAYS AND VARIOUS STRUCTURES	ROOF	0.95	14040	0.32	0.47
		COMPACTED GRAVEL AND DIRT	0.45	369910	8.49	
2	PRE-EXISTING DIRT PATHWAYS AND VARIOUS STRUCTURES	ROOF	0.95	430	0.01	0.46
		DIRT	0.45	19040	0.44	
3	PRE-EXISTING UNDEVELOPED AREA	UNDEVELOPED	---	118440	2.72	---
4	PRE-EXISTING UNDEVELOPED AREA	UNDEVELOPED	---	11280	0.26	---
5	PRE-EXISTING UNDEVELOPED AREA	UNDEVELOPED	---	4740	0.11	---
				537880	**12.35**	

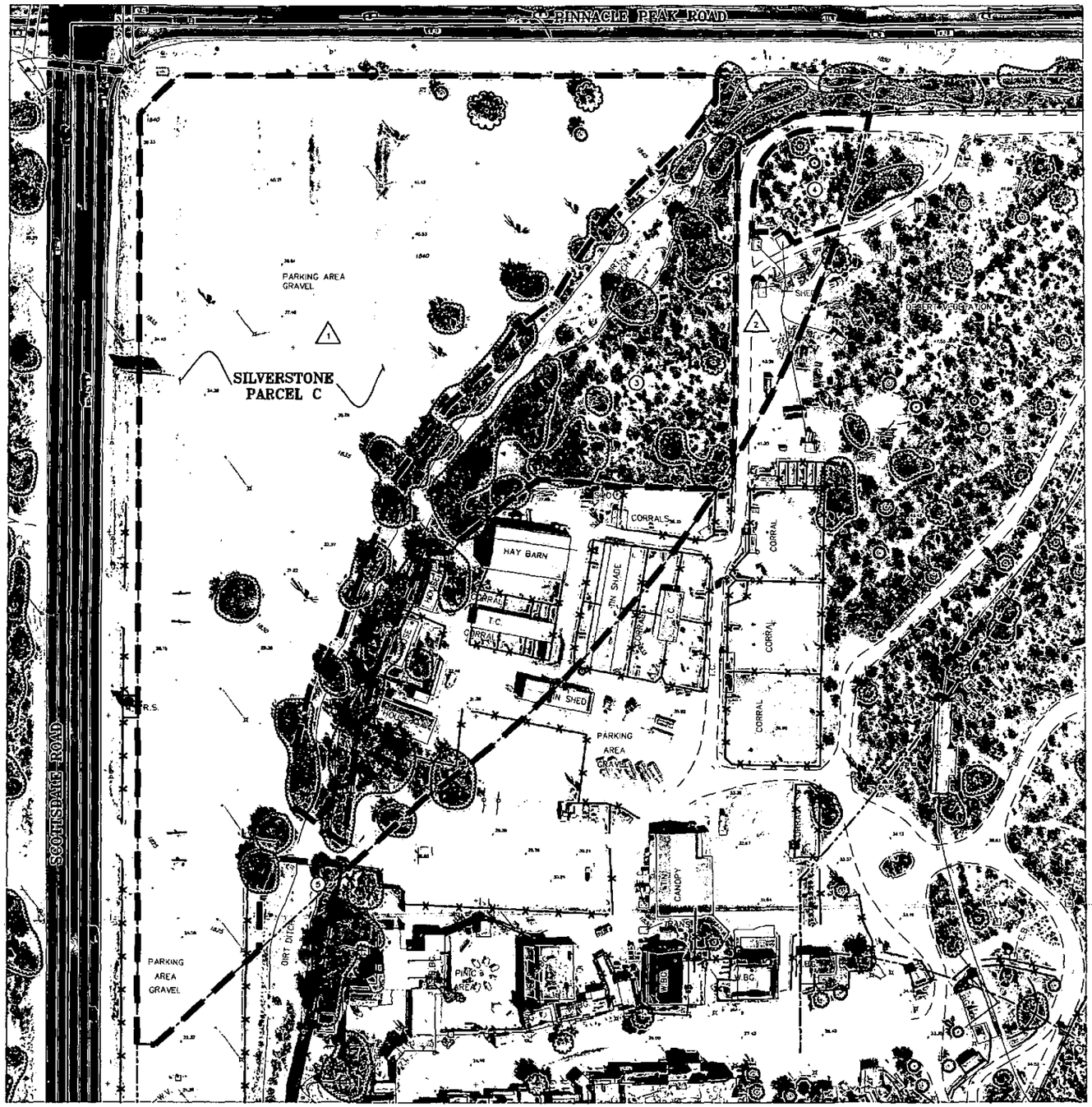
Notes:
1. Refer to Exhibit 1 - *Pre-Existing Condition Map* for area delineation.
2. Surface type and associated C value per Figure 4.1-4 - *Runoff Coefficients for use with Rational Method* of the C.O.S. Design Standards and Policies Manual.
3. For pre-existing compacted gravel parking areas and dirt/gravel pathway areas a C value equivalent to the C.O.S. C value for desert landscaping is utilized.
4. C values are not reported for pre-existing undeveloped areas.

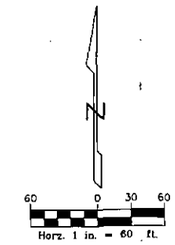
Table B3 - Parcel C Post-Developed Condition Weighted Runoff Coefficients, C_{POST} - 100 Year Storm Event

Project: Addendum to Master Drainage Report for Silverstone
Location: Scottsdale, Arizona
Description: Calculation of post-developed runoff coefficients, C_{POST}, for the 100-year storm event
References: Design Standards and Policies Manual, Chapter 4 - Grading & Drainage, City of Scottsdale, January 2010
Figure 4.1-4 Runoff Coefficients for use with Rational Method

AREA ID[1]	DESCRIPTION	SURFACE TYPE[2]	100-YR C VALUE[2]	AREA (SF)	AREA (AC)	WEIGHTED C_{POST} VALUE
1	COMMERCIAL DEVELOPMENT & SCENIC COORIDOR	PAVEMENT, CONCRETE & ROOF	0.95	235070	5.40	0.76
		DESERT LANDSCAPE	0.45	148880	3.42	
2	COMMERCIAL DEVELOPMENT	PAVEMENT, CONCRETE & ROOF	0.95	15080	0.35	0.84
		DESERT LANDSCAPE	0.45	4390	0.10	
3	COMMERCIAL DEVELOPMENT	PAVEMENT, CONCRETE & ROOF	0.95	107180	2.46	0.90
		DESERT LANDSCAPE	0.45	11260	0.26	
4	COMMERCIAL DEVELOPMENT	PAVEMENT, CONCRETE & ROOF	0.95	9250	0.21	0.86
		DESERT LANDSCAPE	0.45	2030	0.05	
5	COMMERCIAL DEVELOPMENT	PAVEMENT, CONCRETE & ROOF	0.95	1330	0.03	0.59
		DESERT LANDSCAPE	0.45	3410	0.08	
				537880	**12.35**	

Notes:
1. Refer to Exhibit 2 - *Post-Developed Condition Map* for area delineation.
2. Surface type and associated C value per Figure 4.1-4 - *Runoff Coefficients for use with Rational Method* of the C.O.S. Design Standards and Policies Manual.





LEGEND

- 1 — PRE-EXISTING DEVELOPED AREA ID
- PRE-EXISTING DEVELOPED AREA BOUNDARY
- 3 — PRE-EXISTING UNDEVELOPED AREA ID
- PROPERTY LINE

NOTES:
1. AERIAL IMAGE FROM ALTA/ACSM LAND TITLE SURVEY FOR SILVERSTONE PREPARED BY WOOD, PATEL & ASSOCIATES, INC. DATED DECEMBER 6, 2005. AERIAL IMAGE PROVIDED BY KENNEY AERIAL MAPPING INC. DATED OCTOBER 5, 2005.

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SILVERSTONE

PARCEL C

EXHIBIT 1 - PRE-EXISTING CONDITION MAP

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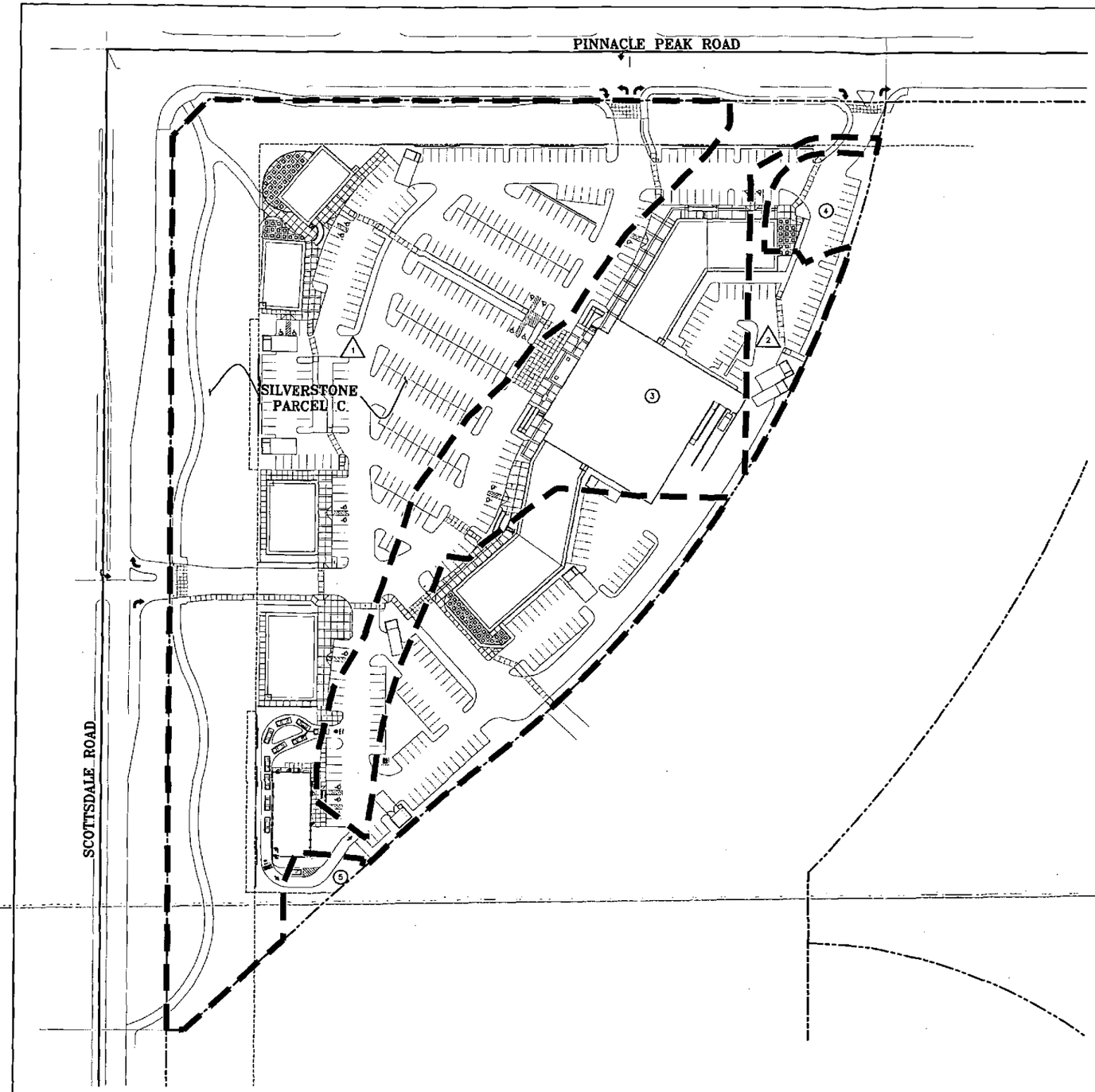
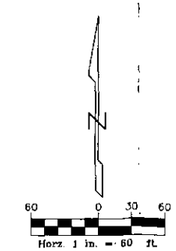
ENGINEER	D.WOOD
DESIGNER	D.NICHOLS
CAD TECHNICIAN	D.NICHOLS
SCALE (HORIZ)	1"=60'
SCALE (VERT)	N/A
DATE	12/3/13
JOB NUMBER	134000
SHEET	1 OF 1





LEGEND

- 1 — PRE-EXISTING DEVELOPED AREA ID
- PRE-EXISTING DEVELOPED AREA BOUNDARY
- 3 — PRE-EXISTING UNDEVELOPED AREA ID
- PROPERTY LINE

SILVERSTONE
PARCEL C
EXHIBIT 2 - POST-DEVELOPED CONDITION MAP

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