



WATER SERVICE IMPACT STUDY

6001 E Cactus Wren Road Lot Split

LDG PROJECT #1605053

Prepared for:

Ms. Susan Shultz
6001 E Cactus Wren Road
Paradise Valley, Arizona 85253

Submitted to:

Town of Paradise Valley
6401 E. Lincoln Drive
Paradise Valley, Arizona 85253

Prepared by:

Land Development Group, LLC
8808 N Central Ave., Ste 288
Phoenix, Arizona 85020
Contact: Nick Prodanov, PE, PMP
P: 602 889 1984



EXPIRES 06/30/2019

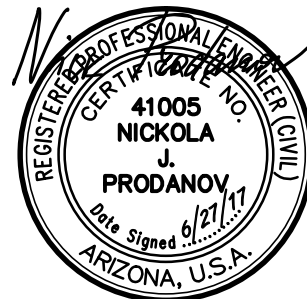
June 27th, 2017

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1. INTRODUCTION

This Water Service Impact Study and related design have been developed in accordance with the current Town of Paradise Valley Design Standards, Codes and adopted Ordinances. It provides engineering analysis and assessment of the required water services and fire flow demand for the proposed lot split development.

The subject property is located at 6001 E Cactus Wren. The 2.35 acre parcel is an unsubdivided land, being a portion of the NW ¼ of the SW ¼ of the NE ¼ of Section 9, T2N, R4E. The property is bounded by 60th Street (west), Cactus Wren (north), Cardinal Drive (east). It is zoned R-43, which in accordance with the Town of Paradise Valley Zoning Ordinance allows for one dwelling unit per acre density. There is an existing 7,337 s.f. house, built in 1957, a guesthouse and a barn. Refer to Appendix A-1 – Vicinity Map.

As a part of the project development process, a lot split plat map subject to the Town of Paradise Valley review and approval is prepared. The owner is proposing to split the parcel into two lots. The prepared lot split map defines the new property divider line, location and distances of new building setback lines and public utility easements. Both lots will exceed the minimum required area of 1 acre. The existing main residence will remain as is, whereas the existing guesthouse and barn will be demolished to provide compliance with the Town of Paradise Valley Code.

The site is located within the EPCOR water and Town of Paradise Valley sewer service areas. There is an existing 6" ACP water line that runs in 73rd Street. There is an existing 6" water main in 60th and a 12" water main Cactus Wren. There is an 8" sewer line that runs in Cactus Wren.

The site's existing terrain slopes southeasterly at a rate of 1.9% and is sparsely vegetated with native trees. There are washes running through the property. On-site stormwater runoff generated by 100-year storm will be retained on-site as required.

2. DOMESTIC WATER AND FIRE SUPPRESSION SYSTEM

There is an existing water service line and water meter near the southwest property corner tapped off the existing 6" ACP line in 60th Street, which supplies domestic water to the existing residence. A new water service line and a water meter, sized in accordance with the currently adopted Plumbing Code will be installed near the northeast property corner and will be tapped off the 12" water main in Cactus Wren. A new sanitary sewer connection will service the new parcel off the sewer main in Cactus Wren. Considering the existing grades and invert elevations of the sewer, a lift station may be required in order to connect to the existing sewer main.

The fire hydrant coverage for this site is provided by an existing fire hydrant located 48 feet southerly from the southwest property corner, east side of 60th Street, and an existing fire hydrant located 193 feet easterly from the northeast corner of the site, north side of Cactus Wren.

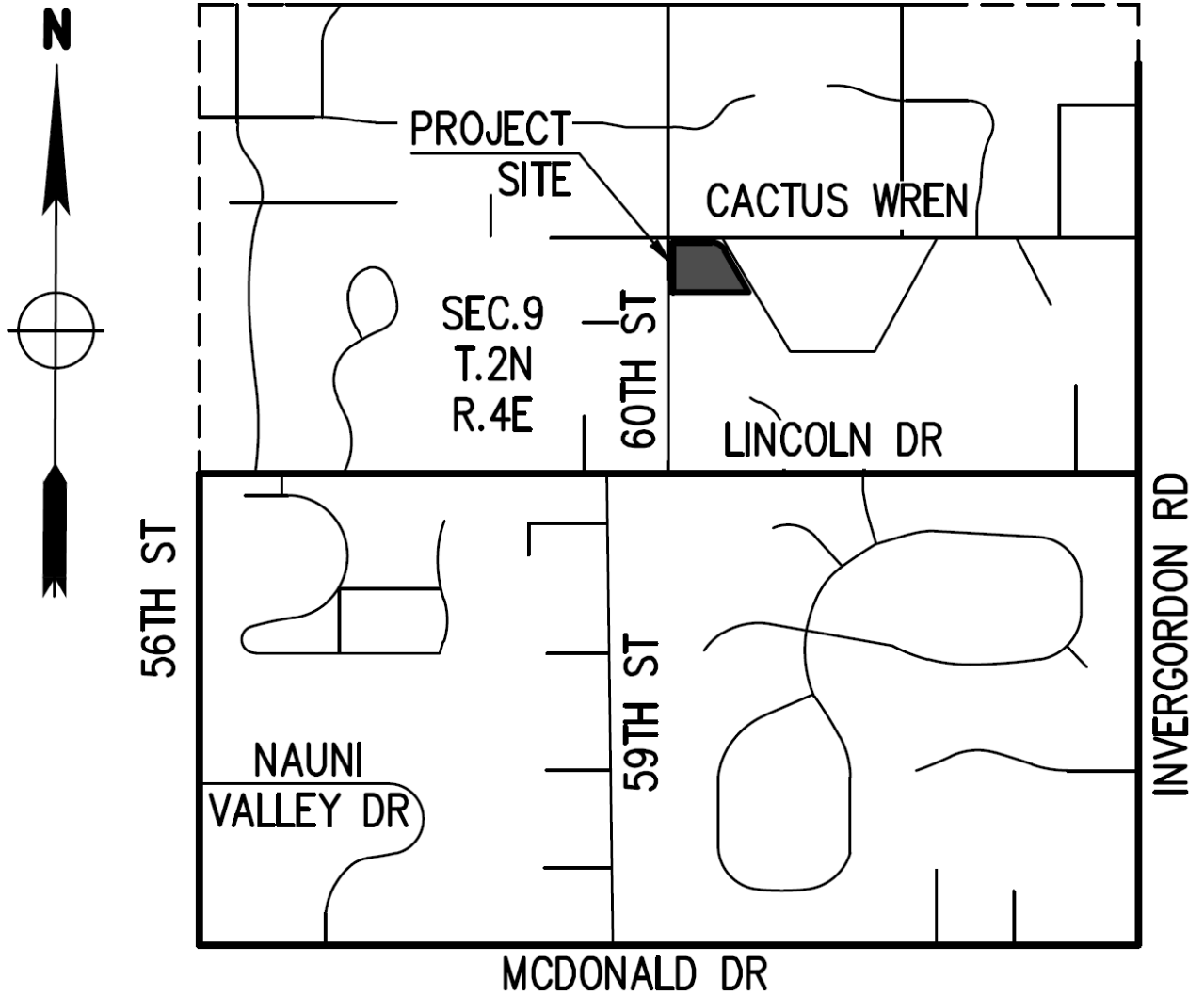
Fire flow test was conducted on June 27th, 2017 by Grantham Design, LLC and witnessed by EPCOR representative. Based on the results of the fire flow test, the existing water infrastructure is capable of supplying the required fire flow protection per the Town Code 13.1.6 (1,500 gpm at 20 psi). Fire sprinklers for the new residence will be fed off the domestic water service.

3. REFERENCES

- Town of Paradise Valley Design Standards & Policies.
- 2015 International Fire Code, Appendix B, Fire Flow Requirements for Buildings.

APPENDIX A-1

Vicinity Map



APPENDIX A-2

Water Flow Test

Hydrant Flow Test Report

Test Date 06/27/2017

Test Time 8:10 am

Location

6001 E. CACTUS WREN ROAD,
PARADISE VALLEY, AZ.

Tested by

GRANTHAM DESIGN, LLC.

Notes

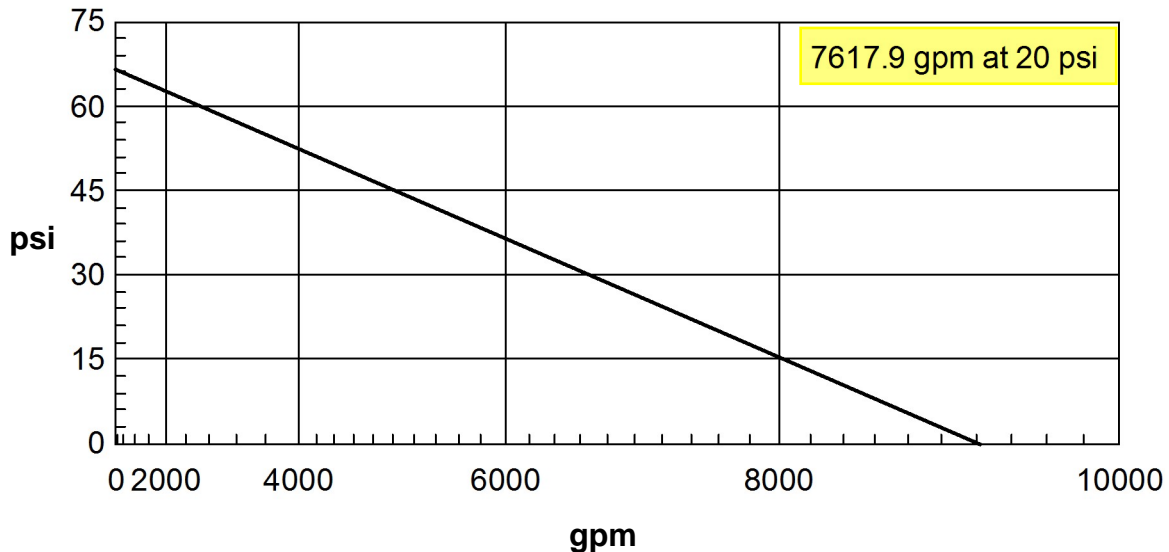
Read Hydrant

67 psi static pressure
66 psi residual pressure
2 ft hydrant elevation

Flow Hydrant(s)

Outlet	Elev	Size	C	Pitot Pressure	Flow
#1	2	2.5	.9	25	950.6 gpm

Flow Graph



Disclaimer: The fire hydrant flow test results can vary based on time, date, seasonal fluctuation and other circumstances. Verify water pressures prior/during any project. Grantham Design, LLC. will not be held responsible for any changes in the results.

APPENDIX A-3

Will Serve Letter



2355 West Pinnacle Peak Road, Suite 300
Phoenix, AZ 85027 USA
epcor.com

June 1st, 2017

Susan Shultz
6001 E Cactus Wren Road
Paradise Valley, AZ 85253

Sent via e-mail to: dustin@ldgeng.com

Re: Will-Serve Letter for Water Service
APN 169-37-009

Dear Susan Shultz;

This letter is in response to LDG Engineering's request to EPCOR Water Arizona Inc. ("EPCOR") regarding EPCOR's willingness to provide water service to APN 169-37-009 (the "Development"). The Development is a residential project that will split one residential lot creating two lots, located in the Town of Paradise Valley as shown in Exhibit A. EPCOR provides the following information for your consideration:

1. EPCOR has confirmed that the Development is located within the area encompassed by EPCOR's Certificate of Convenience & Necessity ("CC&N") as issued by the Arizona Corporation Commission.
2. Based on water service currently provided by EPCOR in the CC&N, EPCOR will have adequate water capacity for normal use in the Development. Please note that EPCOR does not guarantee the adequacy of its water capacity for fire protection.
3. Developer will be required, as a condition to EPCOR providing water service to the Development, to pay all required fees pursuant to EPCOR's then-current tariffs.

This letter does not independently create any rights or obligations in either developer or EPCOR, and is provided to developer for information only.

For additional information, please contact me at (623) 445-2495 or at jvig@epcor.com

Sincerely,

A handwritten signature in black ink, appearing to read "Josh Vig", is written over a light blue horizontal line.

Josh Vig
Project Manager

EXHIBIT A

LOT SPLIT MAP REDWING ESTATES II

BEING A LOT SPLIT OF PARCEL NO. 169-37-009
LOCATED IN A PORTION OF THE NW 1/4 OF THE SW 1/4 OF THE NE 1/4 OF SECTION 9, T.2N, R.4E
OF THE GILA & SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

OWNER: SUSAN SHULTZ

LEGEND		ABBREVIATIONS	
	SECTION CORNER	BSL	BUILDING SETBACK LINE
	1/4 QUARTER	C	CENTERLINE
	BRASS CAP IN HANDHOLE	D/W	DRIVEWAY
	BRASS CAP FLUSH	E	EAST
	FOUND 1" IRON PIPE	EMT	EASEMENT
	SET 1/2" REBAR & TAG OR AS NOTED	EX. EXIST.	EXISTING
	CALCULATED POINT	M	MEASURED
	PROPERTY LINE	MCR	MARICOPA COUNTY RECORDER
	ADJACENT PROPERTY LINE	N	NORTH
	EASEMENT LINE	PUE	PUBLIC UTILITY EASEMENT
	MONUMENT LINE	(R), REC.	RECORDED
		R	RADIUS
		R/W	RIGHT OF WAY
		S	SOUTH
		T	TANGENT
		W	WEST

DRAINAGE EASEMENT RESTRICTIONS
PURSUANT TO A.R.S. §§ 46-101 (C) AND SECTIONS 6-4 (D) (1), 6-7-1 (E) 2.D., AND 6-3-8 OF THE CODE OF ORDINANCES OF THE TOWN OF PARADISE VALLEY, DRAINAGE EASEMENTS ARE FOR THE PURPOSE OF ALLOWING STORM FLOOD, AND OTHER WATERS TO PASS OVER, UNDER OR THROUGH THE LAND SET ASIDE FOR SUCH EASEMENTS, AND NOTHING WHICH MAY, TO ANY DEGREE, HINDER OR OBSTRUCT THE FLOW OF SUCH WATERS. SHALL BE CONSTRUCTED, PLACED, PLANTED, OR ALLOWED TO GROW ON IN SUCH EASEMENTS. THE MAINTENANCE AND CLEARING OF THESE DRAINAGE EASEMENTS SHALL BE THE SOLE RESPONSIBILITY AND DUTY OF THE OWNER OF THE PROPERTY ON WHICH SAID EASEMENTS ARE PLATED. HOWEVER, THE TOWN OF PARADISE VALLEY, A MUNICIPAL CORPORATION, MAY, IF THE TOWN DEEMS IT TO BE IN THE BEST INTERESTS OF THE HEALTH, SAFETY, OR WELFARE OF THE TOWN OF PARADISE VALLEY, CONSTRUCT AND/OR MAINTAIN DRAINAGE FACILITIES ON OR UNDER SUCH EASEMENTS. AGENTS AND EMPLOYEES OF THE TOWN OF PARADISE VALLEY SHALL HAVE FREE ACCESS TO AND FROM ALL PORTIONS OF SUCH EASEMENTS AT ALL TIMES.

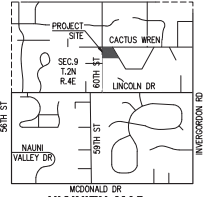
LOT 1 - LEGAL DESCRIPTION
THAT PORTION OF THE NW 1/4 OF THE SW 1/4 OF THE NE 1/4 OF SECTION 9, T.2N, R.4E OF THE GILA & SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE PLATTED INTERSECTION OF CACTUS WREN ROAD AND 60TH STREET;
THENCE CONTINUING ALONG MONUMENT LINE OF CACTUS WREN ROAD NORTH 90°00'00" EAST, A DISTANCE OF 255.76 FEET TO A POINT;
THENCE LEAVING SAID MONUMENT LINE, SOUTH 00°00'00" WEST, A DISTANCE OF 34.31 FEET, TO THE NORTHEASTERLY PROPERTY CORNER ALSO BEING THE TRUE POINT OF BEGINNING;
THENCE SOUTH 18°49'00" WEST, A DISTANCE OF 303.93 FEET;
THENCE NORTH 90°00'00" WEST, A DISTANCE OF 133.10 FEET;
THENCE NORTH 00°04'00" EAST, A DISTANCE OF 289.00 FEET;
THENCE NORTH 90°00'00" EAST, A DISTANCE OF 214.99 FEET;
THENCE CONTINUING ALONG SAID PROPERTY LINE ALSO BEING THE SOUTHERLY RIGHT OF WAY CURVE OF CACTUS WREN ROAD, HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 09°05'58", A TANGENT LENGTH OF 7.95 FEET, THE CHORD OF WHICH BEARS SOUTH 80°44'00" EAST, A DISTANCE OF 18.86 FEET, FOR AN ARC LENGTH OF 15.87 FEET; TO THE NORTHEASTERLY PROPERTY CORNER; BEING THE TRUE POINT OF BEGINNING;
CONTAINING 52,640 S.F.; MORE OR LESS.

LOT 2 - LEGAL DESCRIPTION
THAT PORTION OF THE NW 1/4 OF THE SW 1/4 OF THE NE 1/4 OF SECTION 9, T.2N, R.4E OF THE GILA & SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE PLATTED INTERSECTION OF CACTUS WREN ROAD AND 60TH STREET;
THENCE CONTINUING ALONG MONUMENT LINE OF CACTUS WREN ROAD NORTH 90°00'00" EAST, A DISTANCE OF 255.76 FEET TO A POINT;
THENCE LEAVING SAID MONUMENT LINE, SOUTH 00°00'00" WEST, A DISTANCE OF 34.31 FEET, TO THE NORTHEASTERLY PROPERTY CORNER ALSO BEING THE TRUE POINT OF BEGINNING;
THENCE SOUTH 18°49'00" WEST, A DISTANCE OF 303.93 FEET;
THENCE NORTH 90°00'00" WEST, A DISTANCE OF 133.10 FEET;
THENCE NORTH 00°04'00" WEST, A DISTANCE OF 275.64 FEET;
THENCE CONTINUING ALONG SAID PROPERTY LINE ALSO BEING THE SOUTHERLY RIGHT OF WAY CURVE OF CACTUS WREN ROAD, HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 50°55'07", A TANGENT LENGTH OF 47.61 FEET, THE CHORD OF WHICH BEARS SOUTH 52°12'28" EAST, A DISTANCE OF 85.97 FEET, FOR AN ARC LENGTH OF 88.87 FEET; TO THE NORTHEASTERLY PROPERTY CORNER; BEING THE TRUE POINT OF BEGINNING;
CONTAINING 49,710 S.F.; MORE OR LESS.

PARENT LEGAL DESCRIPTION
PARCEL NO. 1:
THAT PORTION OF THE NORTH HALF OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SECTION 9, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, LYING WESTERLY OF THE WESTERLY LINE OF SCHERER HEIGHTS PLAT 1, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA, IN BOOK 53 OF MAPS, PAGE 3, RECORDED AS FOLLOWS:
BEGINNING AT THE NORTHWEST CORNER OF THE NORTH HALF OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SECTION 9;
THENCE SOUTH 0 DEGREES 04 MINUTES WEST ALONG THE WEST LINE OF SAID NORTH HALF OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SAID SECTION 9, A DISTANCE OF 322 FEET;
THENCE EAST 33 FEET TO TRUE POINT OF BEGINNING;
THENCE EAST 431.62 FEET;
THENCE NORTH 30 DEGREES 00 MINUTES WEST 275.97 FEET;
THENCE 104.22 FEET ALONG THE ARC OF A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 60 DEGREES 00 MINUTES, A TANGENT OF 20 FEET AND A RADIUS OF 57.74 FEET AND A RADIUS OF 100 FEET;
THENCE WEST 186.69 FEET;
THENCE 31.42 FEET ALONG THE ARC OF A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 89 DEGREES 56 MINUTES, A TANGENT OF 20 FEET AND A RADIUS OF 20.02 FEET;
THENCE SOUTH 0 DEGREES 04 MINUTES WEST 269 FEET TO THE TRUE POINT OF BEGINNING.
PARCEL NO. 2:
THAT PORTION OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9, TOWNSHIP 2 NORTH, RANGE 4 EAST OF GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING FURTHER DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 9;
THENCE SOUTH ALONG THE WEST LINE OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER, A DISTANCE OF 322.00 FEET;
THENCE EAST 33 FEET TO THE TRUE POINT OF BEGINNING;
THENCE NORTH, A DISTANCE OF 269.00 FEET;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 20.02 FEET, A TANGENT LENGTH OF 20 FEET, AN ANGLE OF 89 DEGREES 56 MINUTES 00 SECONDS AND AN ARC LENGTH OF 31.42 FEET;
THENCE WEST, A DISTANCE OF 28.00 FEET;
THENCE SOUTH, A DISTANCE OF 289.00 FEET;

OWNER
SUSAN SHULTZ
6001 E CACTUS WREN RD
PARADISE VALLEY, AZ 85253

SITE DATA
APN: 169-37-009
ADDRESS: 6001 E CACTUS WREN RD
PARADISE VALLEY, AZ 85253
ZONING: R-43
PARENT LOT AREA: 102,350 S.F. (2.35 AC.)
LOT 1 AREA: 52,640 S.F. (1.21 AC.)
LOT 2 AREA: 49,710 S.F. (1.14 AC.)



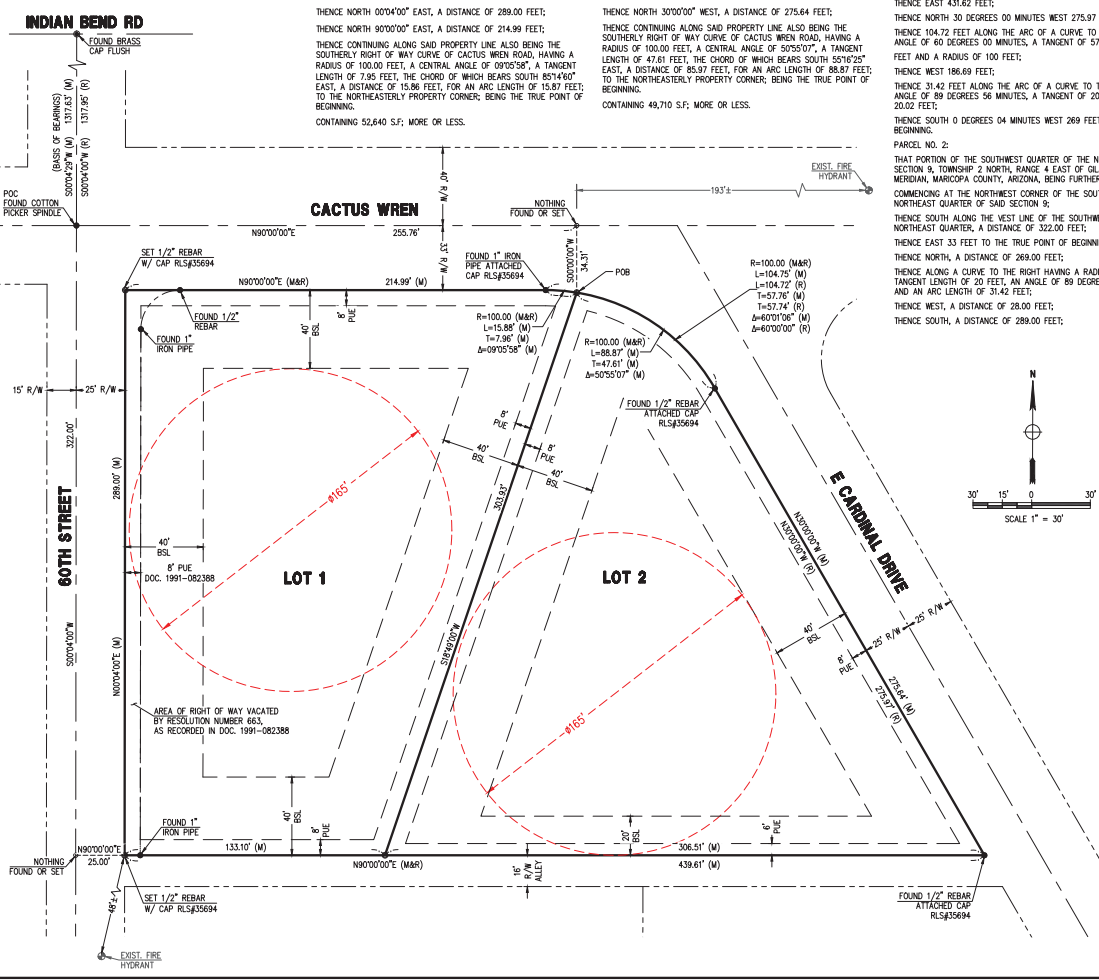
DATE: 12/05/16	SCALE: 1" = 30'
JOB: 1605003	DESIGNED BY: NP
VERSION: 2.2	DRAWN BY: DM
PLOT DATE: 12/05/16	CHECKED BY: JF

DEDICATION
STATE OF ARIZONA }
COUNTY OF MARICOPA } SS
KNOW ALL MEN BY THESE PRESENTS:
SUSAN SHULTZ, AS LEGAL OWNER OF SAID REAL PROPERTY, HAS SUBDIVIDED PARCEL NO. 169-37-009, MARICOPA COUNTY RECORDS, LOCATED WITHIN THE NORTHEAST QUARTER OF SECTION 9, TOWNSHIP 2 NORTH, RANGE 4 EAST, OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA UNDER THE NAME OF "REDWING ESTATES II", AS SHOWN AND PLATTED HEREON AND HEREBY PUBLISHES THIS LOT SPLIT AND HEREBY DECLARES THAT THIS LOT SPLIT SETS FORTH THE LOCATION AND DIMENSIONS OF THE LOTS AND STREETS CONSTITUTING SAME AND THAT EACH LOT AND STREET SHALL BE KNOWN BY THE NUMBER OR NAME GIVEN EACH RESPECTIVELY ON THIS PLAT.
IN WITNESS WHEREOF: I, SUSAN SHULTZ, AS OWNER, HAS HERETOBY AFFIXED HER SIGNATURE THIS DAY OF _____, 2016.

ACKNOWLEDGEMENT
STATE OF ARIZONA }
COUNTY OF MARICOPA } SS
ON THIS _____ OF _____, 2016, BEFORE ME, THE UNDERSIGNED, PERSONALLY APPEARED SUSAN SHULTZ, WHO ACKNOWLEDGED SELF TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE INSTRUMENT WITHIN, AND WHO EXECUTED THE FOREGOING INSTRUMENT FOR THE PURPOSES THEREIN CONTAINED.
IN WITNESS WHEREOF: I HERETOBY SET MY HAND AND OFFICIAL SEAL.
NOTARY PUBLIC DATE _____
MY COMMISSION EXPIRES _____, 20____

PROPERTY OWNERS RATIFICATION
BY THIS RATIFICATION _____ (PRINTED NAME)
DULY ELECTED _____ (NAME OF PROPERTY OWNERS ASSOCIATION)
ACKNOWLEDGES THE RESPONSIBILITIES IDENTIFIED HEREON.

ACKNOWLEDGEMENT
STATE OF ARIZONA }
COUNTY OF MARICOPA } SS
ON THIS _____ OF _____, 2016, BEFORE ME, THE UNDERSIGNED, PERSONALLY APPEARED TIM BEVINS, WHO ACKNOWLEDGED SELF TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE INSTRUMENT WITHIN, AND WHO EXECUTED THE FOREGOING INSTRUMENT FOR THE PURPOSES THEREIN CONTAINED.
IN WITNESS WHEREOF: I HERETOBY SET MY HAND AND OFFICIAL SEAL.
NOTARY PUBLIC DATE _____
MY COMMISSION EXPIRES _____, 20____



- NOTES**
- THIS IS NOT AN ALTA/ACSM TITLE SURVEY.
 - NO COAS'S ARE CREATED WITH THIS MAP EXISTING COAS'S AFFECTING THE SUBJECT PROPERTIES ARE LISTED UNDER SECTION "SURVEY REFERENCES" ABOVE.
 - BUILDING SETBACK LINES, ZONING, FLOOD AREA ZONES, OWNERSHIP INFORMATION, AND ADDRESSES THAT MAY BE SHOWN ARE SUPPLIED BY THE GOVERNING AGENCY OR TAKEN FROM THE BEST AVAILABLE RECORDS. THE SURVEYOR WILL NOT ACCEPT RESPONSIBILITY FOR THE ACCURACY OF ANY INFORMATION SUPPLIED BY OTHERS.
 - EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS MAP, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE: EASEMENTS, OTHER THAN POSSIBLE EASEMENTS, WHICH WERE VISIBLE AT THE TIME OF MAKING THIS SURVEY; BUILDING SETBACK LINES; RESTRICTIVE COVENANTS; SUBDIVISION RESTRICTIONS; ZONING OR OTHER LAND USE REGULATIONS, AND ANY OTHER FACTS WHICH AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.
 - THE DESCRIPTION OF PROPERTY BOUNDARIES AND EASEMENTS SHOWN HEREON, REPRESENT THAT INFORMATION PROVIDED IN WARRANTY DEED RECORDED IN DOC. NO. 1987-075160, M.C.R. & RESOLUTION OF ABANDONMENT NUMBER 663 RECORDED IN REC. NO. 91-082386, M.C.R.
 - EVERY DOCUMENT OF RECORD REVIEWED AND CONSIDERED AS A PART OF THIS SURVEY IS NOTED HEREON, UNLESS THE DOCUMENTS NOTED HEREON WERE SUPPLIED OR AVAILABLE TO THE SURVEYOR AT THE TIME OF THE SURVEY.
 - ANY INFORMATION SHOWN WHICH MAY VARY FROM THE CONTENTS OF THE REPORT(S) NOTED ABOVE, REPRESENTS INFORMATION AND MEASUREMENTS FOUND DURING THE COURSE OF THE SURVEY, UNLESS OTHERWISE NOTED. ALL DIMENSIONS SHOWN ARE MEASURED.
 - THE EXISTING STRUCTURES ON THE LOT ALONG CARDINAL DRIVE WILL BE DEMOLISHED, THIS INCLUDES THE QUONSETT BARN AND ANY FOUNDING. THE TOWN WILL NOT RECORD A PLAT UNTIL A DEAD PERMIT IS APPLIED, ISSUED, AND FINALIZED.
 - ALL LANDSCAPING WITHIN THE RIGHTS-OF-WAY WILL BE LANDSCAPED IN ACCORDANCE WITH SECTION 5-10-7.0 OF THE TOWN CODE AND THE TOWN LANDSCAPE GUIDELINES.
 - FOLLOWING RECORDING DOCUMENTS REFERENCE CERTAIN COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS ASSOCIATED WITH THIS PROPERTY:
REC. DOC. 1325, PAGE 111, MCR
REC. DOC. 1991-50852, MCR
REC. DOC. 1991-50868, MCR



LOT SPLIT MAP
REDWING ESTATES II
6001 E CACTUS WREN RD
PARADISE VALLEY, AZ 85253

DATE: 12/05/16
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VERSION: 2.2
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SCALE: 1" = 30'
DESIGNED BY: NP
DRAWN BY: DM
CHECKED BY: JF

DATE: 12/05/2018
DATE: 11/07/16