



Water Study

PRELIMINARY WATER REPORT

ALTA Raintree Scottsdale

8688 E. Raintree Drive
Scottsdale, AZ 85260

Prepared For:



PRELIMINARY Basis of Design Report

☒ ACCEPTED

☐ ACCEPTED AS NOTED

☐ REVISE AND RESUBMIT



Disclaimer: If accepted, the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.

For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY rsacks

DATE 3/13/2019

Prepared by:



Sustainability Engineering Group

8280 E. Gelding Drive, Suite 101

Scottsdale, AZ 85260

480.588.7226 www.azSEG.com

Project Number: 180961

Submittal Date: February 15, 2019

Case No.: XXX-PA-2018

Plan Check No.: TBD

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1	-	Model Map
2	-	Model Results



1. INTRODUCTION

This report presents the service requirements for a new multi-family apartment with a maximum of 330 units proposed on one lot (Lot 3) surrounded by three private roads frontage of the site. Preparation of this report has been done in accordance with the requirements of the City of Scottsdale Design Standards & Policies Manual (DS&PM) 2018 ¹.

2. LOCATION AND PROJECT DESCRIPTION

2.1 LOCATION:

The project property consists of a parcel of land located in Northsight II, a portion of the SE ¼ of Section 1 and the NE ¼ of Section 12, Township 3 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The current parcel ID numbers is 215-52-034 M. Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets.

2.2 EXISTING AND PROPOSED DEVELOPMENTS SURROUNDING THE SITE:

Existing site context related to surrounding developments is as follows:

- North: To the north is a proposed self-storage building.
- West: The west side is bound by Scottsdale Shops and Northsight Blvd.
- South: The south is Kohls/Scottsdale.
- East: two new proposed retail buildings, North 87th Street public access way, a Chick-fil-A, Jimmy John's, and North Pima Road frontage to State Route 101.

2.3 EXISTING SITE DESCRIPTION:

Land ownership, as defined on the Final Plat by AW Land Surveying, LLC includes 242,067 square feet, 5.56 +/- acres (net) of commercially zoned land. City of Scottsdale zoning maps designate this parcel as C-2.

The proposed lot consist of an existing one-story retail building, two drainage basins, and associated parking fields. The topography generally slopes from the north to the south at approximately 1%. Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

2.4 PROPOSED SITE DEVELOPMENT:

The site will be replatted into five lots. This phase includes development of Lot 3. Lots 2 and 4 to the east are described in a separate report and include an existing retail building and a new restaurant. Lot 1 is proposed as a future self-storage facility and will be developed under separate permit. Lot 5 supports a site sign along the Pima Road frontage. Refer to **FIGURE 3** for the Preliminary Plat.

3. EXISTING INFRASTRUCTURE

3.1 WATER:

Referring to **Figure 6**, 8" water lines exist along the east side of lots 2 and 4 (87th Street public access way), the west side of Lots 2 and 4 in a drive and traversing mid-site thru Lots 1, 2 and 3.

Existing domestic, fire, landscape service lines are tapped off these pipes. The existing meters will be surveyed providing location, size and serial numbers for fee credit.

Fire hydrants exist at the four corners of the site with three additional hydrants located mid-site.

4. DEMANDS

4.1 WATER:

TABLE 1 - AVERAGE DAILY DEMANDS

Land Use	Inside Use (gpm)	Outside Use (gpm)	Total Use (gpm)	Units
High Density Residential	0.22	0.05	0.27	per unit

Peaking factors: MD 2.0, PH 3.5

Table 2 - CALCULATED INSTANTANEOUS DEMANDS

Lot	Land Use	Unit Counts	Total Use (gpm) *	ADD (gpm)	MDD (gpm)	PHD (gpm)	Meter Size
3	High Density Residential	330	0.27	89.1	178.2	311.9	3"

* Reference DS+PM Figure 6-1.2 (in gallons per minute)

4.2 FIRE:

A 2500 gpm fire flow demand will be modeled. Certified hydrant flow testing is included in Figure plans.

5. UTILITY CONNECTIONS

5.1 WATER:

The existing 8" water line crossing mid-lot will be removed and a new pipe installed along the north lot line within a dedicated 20-foot wide water easement connecting the fire line loop at Lot 1 to the existing 8" water line at the west side of the lot.

New taps will be provided for domestic, fire and landscape service off the existing 8" water line loop adjacent to the west boundary of the property or the new 8" water line along the north lot line.

6. WATER MODELING

6.1 SOFTWARE MODELING:

Bentley WaterCAD® Version 8i is the computer modeling tool used in this study.

Network analysis input parameters included the following:

1. Pipe diameters (inches)
2. Pipe lengths (feet)
3. Pipes invert elevations (feet – MSL)
4. A reservoir and a pump to model the fire flow test performed
5. System demands (gpm)
6. Fire flows (gpm)
7. Model piping is ductile iron pipe using Hazen-Williams frictional losses ($C = 130$)

Output parameters included but were not limited to:

1. Pressure (psig)
2. Flow rates (gpm)
3. Velocities (fps)

6.2 MINIMUM PRESSURE REQUIREMENTS:

The following system pressure requirements are in accordance with the City's design standards:

- Average day, maximum day and peak hour flow demands:
 - Minimum pressure = 50 psig
 - At the highest finished floor level to be served by the system pressure during normal daily operating conditions.
 - Maximum pressure = 120 psig
- Maximum day plus coincident fire flow demand:
 - Minimum pressure = 30 psig
 - At the highest ceiling level to be served by the system pressure during normal daily operating conditions.
 - Maximum pressure = 120 psig

Refer to APPENDIX II for computer modeling results.

6.3 WATER SYSTEM ANALYSIS:

A summary of the modeling results is presented below in Table 3. Detailed WaterCAD® results are presented in **APPENDIX II**.

Table 3: WaterCAD® Analysis Results							
Demand Scenario	Water Demand (gpm)	Pressure (psi)				Velocity (ft/s)	Pipe ID
		Min.	Node	Max.	Node		
Average Day	89.1	87	J-11	94	J-14	0.87	P-2
Maximum Day	178.2	87	J-11	93	J-14	1.74	P-2
Peak Hour	311.9	86	J-11	92	J-14	3.05	P-2
Max. Day + Fire Flow	2678.2	29	J-29	57	J-2	-	-

These results indicate that the proposed water system meets the City's criteria for daily water usage and fire flow events.

7. CONCLUSIONS

Water for domestic, irrigation and fire service are available for Lot 3.

8. REFERENCES

1. *Design Standards & Policies Manual, City of Scottsdale – 2018*

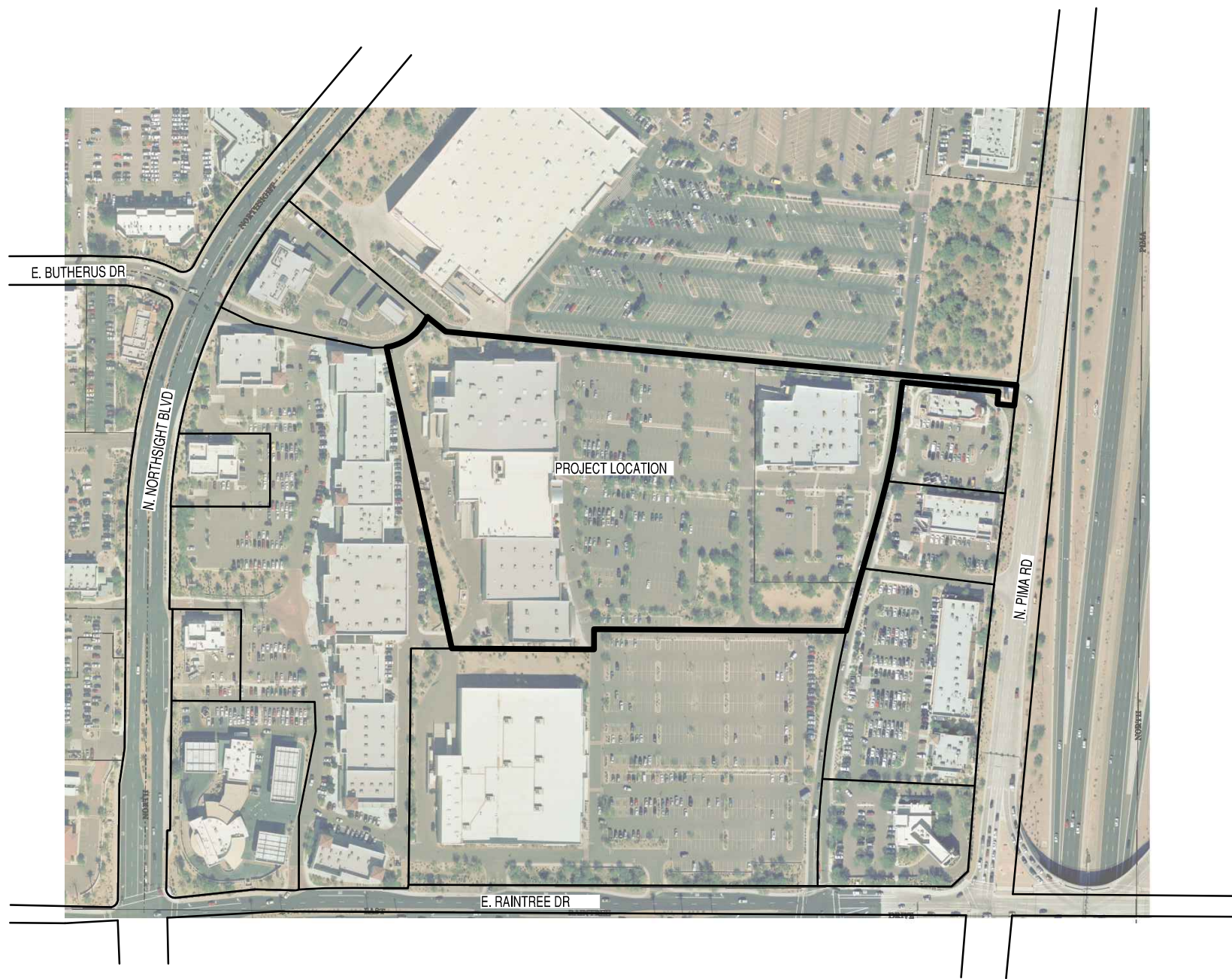


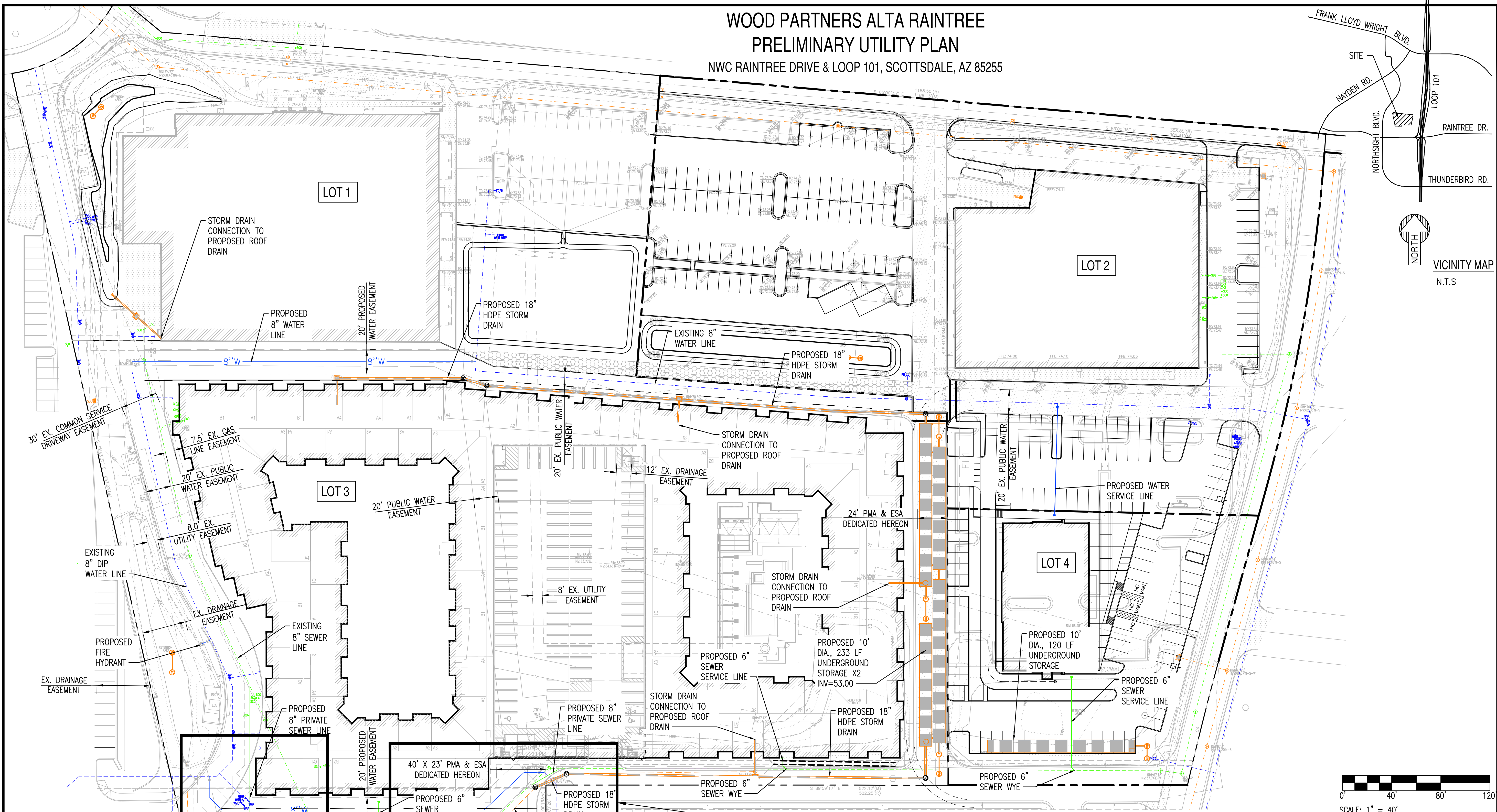
FIGURE 1
Vicinity Map
3-2N-2019
05/20/19



FIGURE 2
Aerial Map

WOOD PARTNERS ALTA RAINTREE
PRELIMINARY UTILITY PLAN

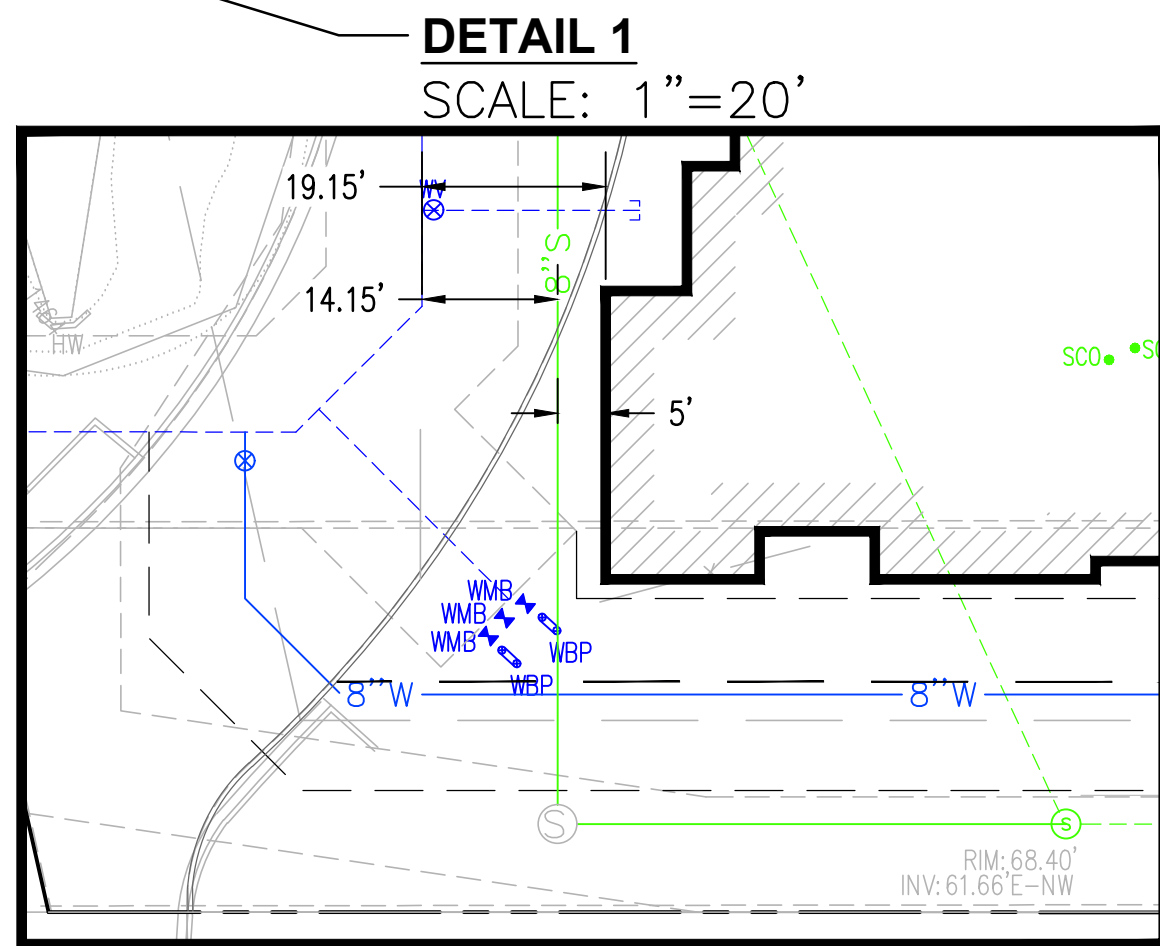
NWC RAINTREE DRIVE & LOOP 101, SCOTTSDALE, AZ 85255



0' 40' 80' 120'

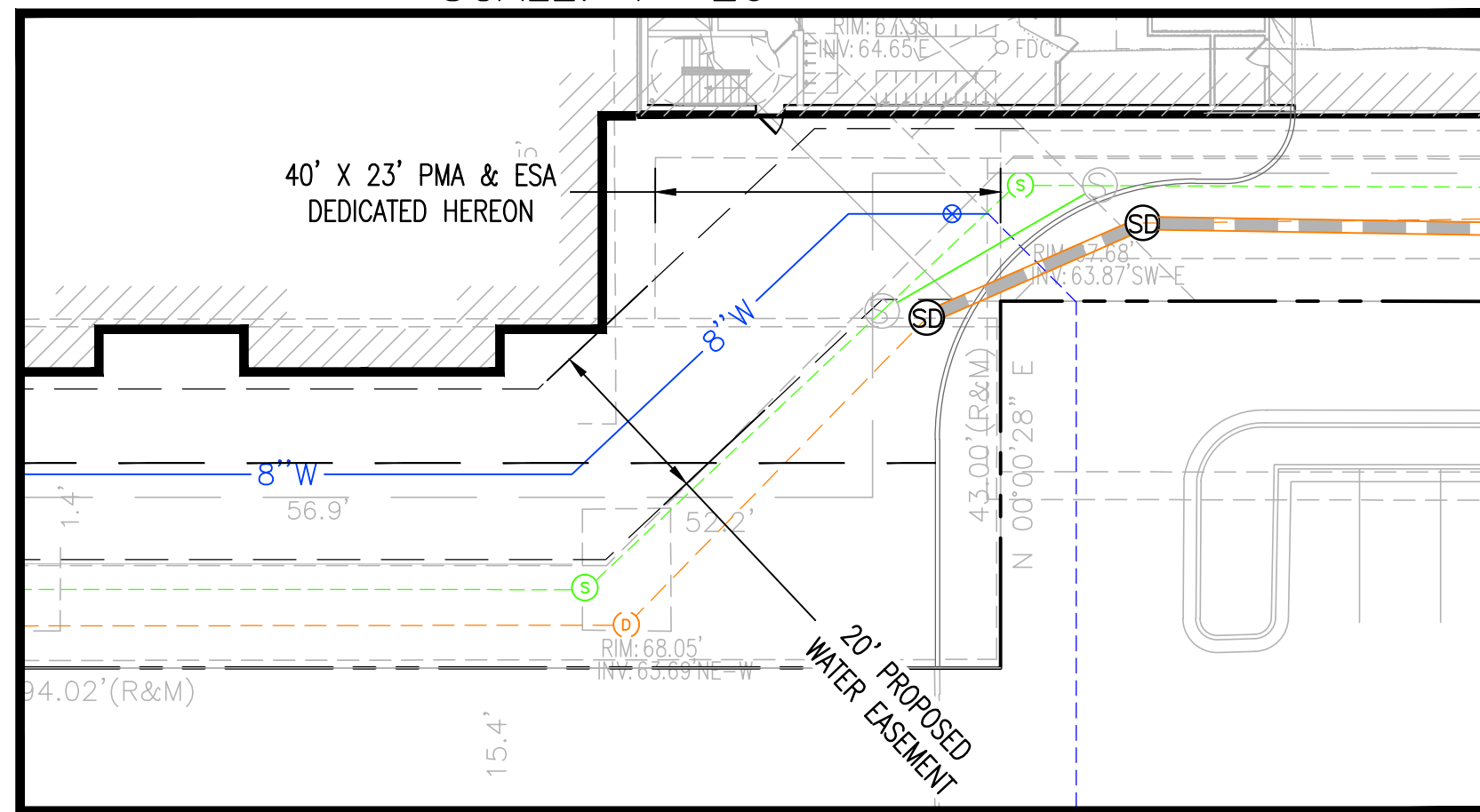
SCALE: 1" = 40'

DETAIL 2
SCALE: 1"=20'



BENCHMARK:
BENCHMARK IS A CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE BEING THE SOUTH 1/4 CORNER OF SECTION 21, T3N, R4E.

ELEVATION = 1434.36' NAVD88
(CITY OF SCOTTSDALE DATUM)



LEGEND

- — — — — PROPERTY LINE
 - - - - - EXISTING WATER LINE
 - - - - - EXISTING SEWER DRAIN
 - - - - - EXISTING STORM LINE
 - - - - - EXISTING UTILITY EASEMENT
 ————— PROPOSED WATER LINE
 ————— PROPOSED SEWER LINE
 ————— PROPOSED STORM LINE
 - - - - - PROPOSED UTILITY EASEMENT

Call at least two full working days
before you begin excavation.

ARIZONA 811
Arizona Blue Stakes, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (762-5348)
In Maricopa County: (602) 263-1100

NOTE TO CONTRACTOR:
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT. IT IS NOT TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING FEDERAL, S.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE

PROJECT
WOOD PARTNERS ALTA RAIN TREE
SCOTTS DALE

LOCATION
NWC RAINTREE DRIVE & LOOP 101
SCOTTSDALE, ARIZONA

DRAWN _____ AVINA
DESIGNED _____ JUNKER
CHECKED _____
PROJ. MGR. _____ JUNKER

DATE: 5/15/2019
ISSUED FOR: PRELIMINARY DESIGN

REVISION NO.:	DATE:	
1		
2		
3		
4		

JOB NO.: 180961

SHEET TITLE:

PRELIMINARY
UTILITY EXHIBIT

SHEET NO.:

The SEG logo is located in the bottom right corner. It consists of the letters "SEG" in a bold, sans-serif font, positioned above a circular emblem. The emblem features a stylized tree with multiple branches and leaves, set against a background of concentric circles and a crosshair-like design.

8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL. 480.588.7226

The logo for Wood Partners, featuring a stylized circular emblem with blue and green segments to the left of the text "WOOD PARTNERS" in a serif font.

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND THE PROPERTY OF SUSTAINABILITY ENGINEERING GROUP, AND SHALL REMAIN THEIR PROPERTY. THE USE OF THIS DRAWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH IT IS PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE.

MINOR LAND DIVISION PLAT
NORTHSIGHT CROSSING PROPERTY AMENDED

DEDICATION

STATE OF ARIZONA)
COUNTY OF MARICOPA) SS
KNOW ALL MEN BY THESE PRESENTS:

101 MEGA RAINTREE, LLC AND 101 ENVY RAINTREE LLC, OWNERS, HEREBY SUBDIVIDES LOTS 1 AND 6, NORTHSIGHT CROSSING PROPERTY, AS RECORDED IN BOOK 688, PAGE 12, MARICOPA COUNTY RECORDS LYING WITHIN THE NORTHEAST QUARTER OF SECTION 12, TOWNSHIP 3 NORTH, RANGE 4 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, UNDER THE NAME "NORTHSIGHT CROSSING PROPERTY AMENDED", AS SHOWN ON THIS FINAL PLAT. THIS PLAT SETS FORTH THE LOCATION AND GIVES THE DIMENSIONS OF THE LOTS, TRACTS, STREETS AND EASEMENTS CONSTITUTING THE SUBDIVISION. EACH LOT, TRACT, STREET AND EASEMENT SHALL BE KNOWN BY THE NUMBER, LETTER, NAME OR DESCRIPTION GIVEN EACH RESPECTIVELY ON THIS PLAT. THE EASEMENTS ARE DEDICATED FOR THE PURPOSES, AND SUBJECT TO THE CONDITIONS, STATED.
101 MEGA RAINTREE, LLC AND 101 ENVY RAINTREE LLC, OWNERS, GRANTOR, DEDICATES, IN FEE, TO THE CITY OF SCOTTSDALE, AN ARIZONA MUNICIPAL CORPORATION, GRANTEE, THE PUBLIC STREETS AS SHOWN HEREON. SEE SRC, CHAPTER 47, AS AMENDED, FOR GRANTOR'S MAINTENANCE OBLIGATIONS. WITHOUT LIMITATION, GRANTEE MAY (1) GRADE, FILL, DRAIN, PAVE, CONSTRUCT, OPERATE, MAINTAIN, REPAIR, AND REBUILD ROADS, HIGHWAYS, UTILITY LINES, PIPES AND RELATED FACILITIES, WITH BRIDGES, CULVERTS, DRAINAGE WAYS, RAMPS, SIDEWALKS, CURBS, GUTTERS, CUTS AND OTHER RELATED IMPROVEMENTS, AND (2) CUT AND TRIM BRANCHES, TREES AND GROWTH THAT EXTEND INTO THE IMPROVEMENTS, TO PREVENT INTERFERENCE WITH THE EFFICIENT MAINTENANCE AND OPERATION OF THE IMPROVEMENTS.

101 MEGA RAINTREE, LLC AND 101 ENVY RAINTREE LLC, OWNERS, GRANTOR, DEDICATES TO THE CITY OF SCOTTSDALE, AN ARIZONA MUNICIPAL CORPORATION, GRANTEE:

DRAINAGE AND FLOOD CONTROL (DFC):

A PERPETUAL, NON-EXCLUSIVE EASEMENT SHOWN HEREON , UPON, OVER, UNDER AND ACROSS THE PROPERTY ON THIS PLAT, FOR DRAINAGE AND FLOOD CONTROL AND ALL RELATED PURPOSES, INCLUDING WITHOUT LIMITATION, CONSTRUCTION, MAINTENANCE, OPERATION, REPLACEMENT, AND REPAIR OF LEVEES, DIKES, DAMS, STORMWATER STORAGE BASINS, STORM DRAINS (SD), CHANNELS, IMPROVEMENTS, WASHES, WATERCOURSES AND OTHER DRAINAGE OR FLOOD CONTROL FACILITIES (COLLECTIVELY, "DRAINAGE FACILITIES"), SUBJECT TO THE FOLLOWING:
1.) GRANTOR IS RESPONSIBLE FOR ALL DRAINAGE FACILITIES ON THE PROPERTY. DRAINAGE FACILITIES ON THE PROPERTY MIGHT NOT BE OBVIOUS. LACK OF AWARENESS OF DRAINAGE FACILITIES DOES NOT EXCUSE FAILURE TO PERFORM THE REQUIREMENTS OF THIS DOCUMENT.
2.) GRANTOR SHALL NOT CONSTRUCT, OBSTRUCT OR ALTER ANY DRAINAGE FACILITIES ON THE PROPERTY WITHOUT GRANTEE'S PRIOR WRITTEN CONSENT.
3.) AT GRANTOR'S EXPENSE, GRANTOR SHALL MAINTAIN DRAINAGE FACILITIES IN GOOD CONDITION; REPLACE AND REPAIR DRAINAGE FACILITIES AS NECESSARY TO MAINTAIN THEIR FLOOD CARRYING OR STORAGE CAPACITY; PREVENT EROSION; AND PREVENT ANY REFUSE, DEBRIS, SEDIMENT, VEGETATION, OR OTHER OBSTRUCTION FROM ACCUMULATING IN DRAINAGE FACILITIES. GRANTEE IS NOT OBLIGATED TO PERFORM ANY SUCH WORK.
4.) IF, IN GRANTEE'S OPINION, GRANTOR FAILS TO DO SUCH WORK, THEN GRANTEE MAY DO THE WORK AT GRANTOR'S EXPENSE. IN ADDITION TO GRANTEE'S OTHER REMEDIES, THE COST OF THE WORK SHALL BE SECURED BY A LIEN THAT GRANTOR HEREBY GRANTS AGAINST THE PROPERTY, WITH INTEREST AT THE ANNUAL RATE OF EIGHT PERCENT (8%).
5.) GRANTOR SHALL INDEMNIFY, DEFEND AND HOLD GRANTEE HARMLESS AGAINST GRANTOR'S FAILURE TO PERFORM UNDER THIS DOCUMENT.

WATER FACILITIES (WF) AND SEWER FACILITIES (SF):

A PERPETUAL, NON-EXCLUSIVE EASEMENT AS SHOWN HEREON, FOR WATER AND SEWER PIPES AND OTHER RELATED FACILITIES, AND FOR CONSTRUCTION, OPERATION, USE, MAINTENANCE, REPAIR, MODIFICATION AND REPLACEMENT OF PIPES AND OTHER RELATED FACILITIES.

PUBLIC MOTORIZED ACCESS (PMA):

A PERPETUAL, NON-EXCLUSIVE EASEMENT SHOWN HEREON UPON, OVER, UNDER AND ACROSS THE PROPERTY ON THIS PLAT, FOR ALL MANNER OF PEDESTRIAN AND MOTORIZED AND NON-MOTORIZED VEHICULAR ACCESS, AND FOR CONSTRUCTION, OPERATION, USE, MAINTENANCE, REPAIR, MODIFICATION AND REPLACEMENT FROM TIME TO TIME OF IMPROVEMENTS RELATED THERETO.

EMERGENCY AND SERVICE ACCESS (ESA):

A PERPETUAL, NON-EXCLUSIVE EASEMENT SHOWN HEREON UPON, OVER, UNDER AND ACROSS THE PROPERTY ON THIS PLAT, FOR ACCESS FOR EMERGENCY, PUBLIC SAFETY, REFUSE COLLECTION, UTILITY, AND OTHER SERVICE PERSONNEL AND VEHICLES AND FOR THE RIGHT TO CONSTRUCT, OPERATE, USE, MAINTAIN, REPAIR AND REPLACE IMPROVEMENTS RELATED TO ACCESS AS CITY DEEMS NECESSARY FOR ACCESS PURPOSES.

GRANTOR WARRANTS AND COVENANTS TO GRANTEE AND ITS SUCCESSORS AND ASSIGNS THAT GRANTOR IS LAWFULLY SEIZED AND POSSESSED OF THE PROPERTY; THAT GRANTOR HAS A GOOD AND LAWFUL RIGHT TO MAKE THE CONVEYANCE DESCRIBED HEREIN; AND THAT GRANTEE SHALL HAVE TITLE AND QUIET POSSESSION AGAINST THE CLAIMS OF ALL PERSONS.

THE PERSON EXECUTING THIS DOCUMENT ON BEHALF OF A CORPORATION, TRUST OR OTHER ORGANIZATION WARRANTS HIS OR HER AUTHORITY TO DO SO AND THAT ALL PERSONS NECESSARY TO BIND GRANTOR HAVE JOINED IN THIS DOCUMENT. THIS DOCUMENT RUNS WITH THE LAND IN FAVOR OF GRANTEE'S SUCCESSORS AND ASSIGNS.

IN WITNESS WHEREOF, OWNER HAS HEREUNTO CAUSED ITS NAME TO BE AFFIXED AND THE SAME TO BE ATTESTED BY ITS DULY AUTHORIZED SIGNATORY.

GRANTOR: 101 MEGA RAINTREE, LLC AND 101 ENVY RAINTREE LLC

BY: IB NEW VENTURES, LLC, AN ARIZONA LIMITED LIABILITY COMPANY
ITS: MANAGER

BY: _____

ITS: _____

ACKNOWLEDGEMENT

STATE OF _____ }
COUNTY OF _____ } SS

BEFORE ME THIS _____ DAY OF _____, 2018, _____ PERSONALLY APPEARED
BEFORE ME, THE UNDERSIGNED

NOTARY PUBLIC, WHO ACKNOWLEDGED HIMSELF TO BE _____ OF _____, THE LEGAL OWNER OF THE PROPERTY PLATTED HEREON AND
ACKNOWLEDGED THAT _____ AS _____, EXECUTED THIS INSTRUMENT
FOR THE PURPOSES HEREIN CONTAINED.

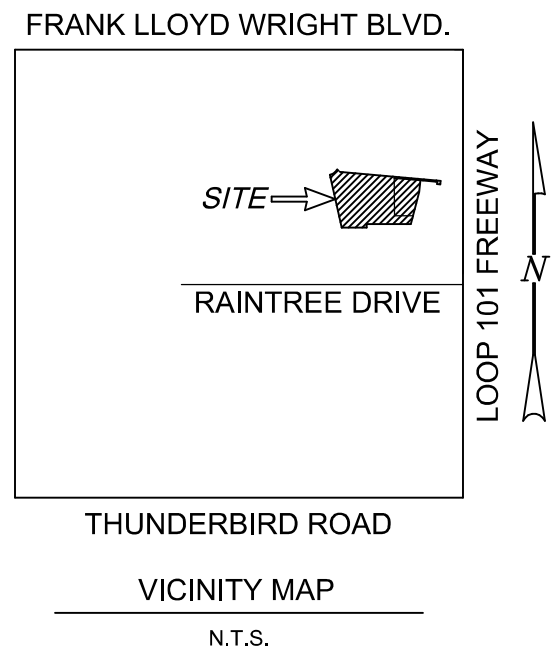
IN WITNESS WHEREOF, I HEREUNTO SET MY HAND AND OFFICIAL SEAL

NOTARY PUBLIC _____ EXPIRES _____

BEING A REPLAT OF LOT 1 AND LOT 6,
NORTHSIGHT CROSSING PROPERTY,
AS RECORDED IN BOOK 688, PAGE 12, MARICOPA COUNTY RECORDS,
BEING A PORTION OF THE NORTHEAST QUARTER OF
SECTION 12, TOWNSHIP 3 NORTH, RANGE 4 EAST,
OF THE GILA AND SALT RIVER BASE AND MERIDIAN,
MARICOPA COUNTY, ARIZONA.

OWNERS:

101 MEGA RAINTREE, LLC AND
101 ENVY RAINTREE LLC
9393 N 90TH STREET, STE. 102-259
SCOTTSDALE, AZ 85258
CONTACT: JIM RIGGS



NOTES

- 1. THIS DEVELOPMENT IS LOCATED WITHIN THE CITY OF SCOTTSDALE WATER SERVICE AND HAS BEEN DESIGNATED AS HAVING AN ASSURED WATER SUPPLY.
2. ALL NEW OR RELOCATED UTILITIES WILL BE CONSTRUCTED UNDERGROUND AS REQUIRED BY THE ARIZONA CORPORATION COMMISSION.
3. CONSTRUCTION WITHIN PUBLIC UTILITY EASEMENTS, EXCEPT BY PUBLIC AGENCIES AND UTILITY COMPANIES, SHALL BE LIMITED TO WOOD, WIRE OR REMOVABLE SECTION-TYPE FENCING AND MUST BE IN CONFORMANCE WITH THE APPLICABLE CC&Rs.
4. AFFIDAVITS OF CORRECTION OR AMENDMENT TYPE LETTERS CONCERNING THIS PLAT ARE NOT VALID. THERE WILL BE NO REVISIONS TO THIS PLAT WITHOUT THE DEVELOPMENT ENGINEERING MANAGER'S APPROVAL.
5. THE MAINTENANCE OF LANDSCAPING WITHIN THE PUBLIC RIGHT-OF-WAY TO BACK OF CURB SHALL BE THE RESPONSIBILITY OF THE COMMUNITY ASSOCIATION OR ABUTTING PROPERTY OWNER.
6. ALL EXISTING WATERLINE EASEMENTS MUST BE MAINTAINED.

PERTINENT DOCUMENTS

- 1. NORTHSIGHT CROSSING PROPERTY
BOOK 688, PAGE 12, MARICOPA COUNTY RECORDS
2. RECORD OF SURVEY LOT 6
BOOK 1090, PAGE 20, MARICOPA COUNTY RECORDS
3. RECORD OF SURVEY
BOOK 1400, PAGE 39, MARICOPA COUNTY RECORDS
4. RECORD OF SURVEY
BOOK 1345, PAGE 14, MARICOPA COUNTY RECORDS
5. MINOR LAND DIVISION PLAT
BOOK 1401, PAGE 16, MARICOPA COUNTY RECORDS

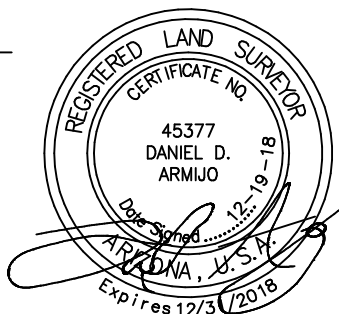
BASIS OF BEARING

THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE NORTH LINE OF LOT 1 OF NORTHSIGHT CROSSING PROPERTY USING A BEARING OF SOUTH 85 DEGREES 00 MINUTES 35 SECONDS EAST, AS SHOWN ON THE FINAL PLAT RECORDED IN BOOK 688, PAGE 12, MARICOPA COUNTY RECORDS.

LAND SURVEYOR'S CERTIFICATION

- This is to certify that
1. I am a land surveyor registered to practice in Arizona
2. This plat was made under my direction
3. This plat meets the "Minimum Standards for Arizona Land Boundary Surveys"
4. The survey and division of the subject property described and platted hereon were made during the month of July 2018.
5. The survey is true and complete as shown
6. All monuments as shown exist and their positions are correctly shown. Said monuments are sufficient to enable the survey to be retraced.

DANIEL D. ARMIJO
RLS 45377
AW LAND SURVEYING, LLC
PO BOX 2170
CHANDLER, AZ 85244
(480) 244-7630



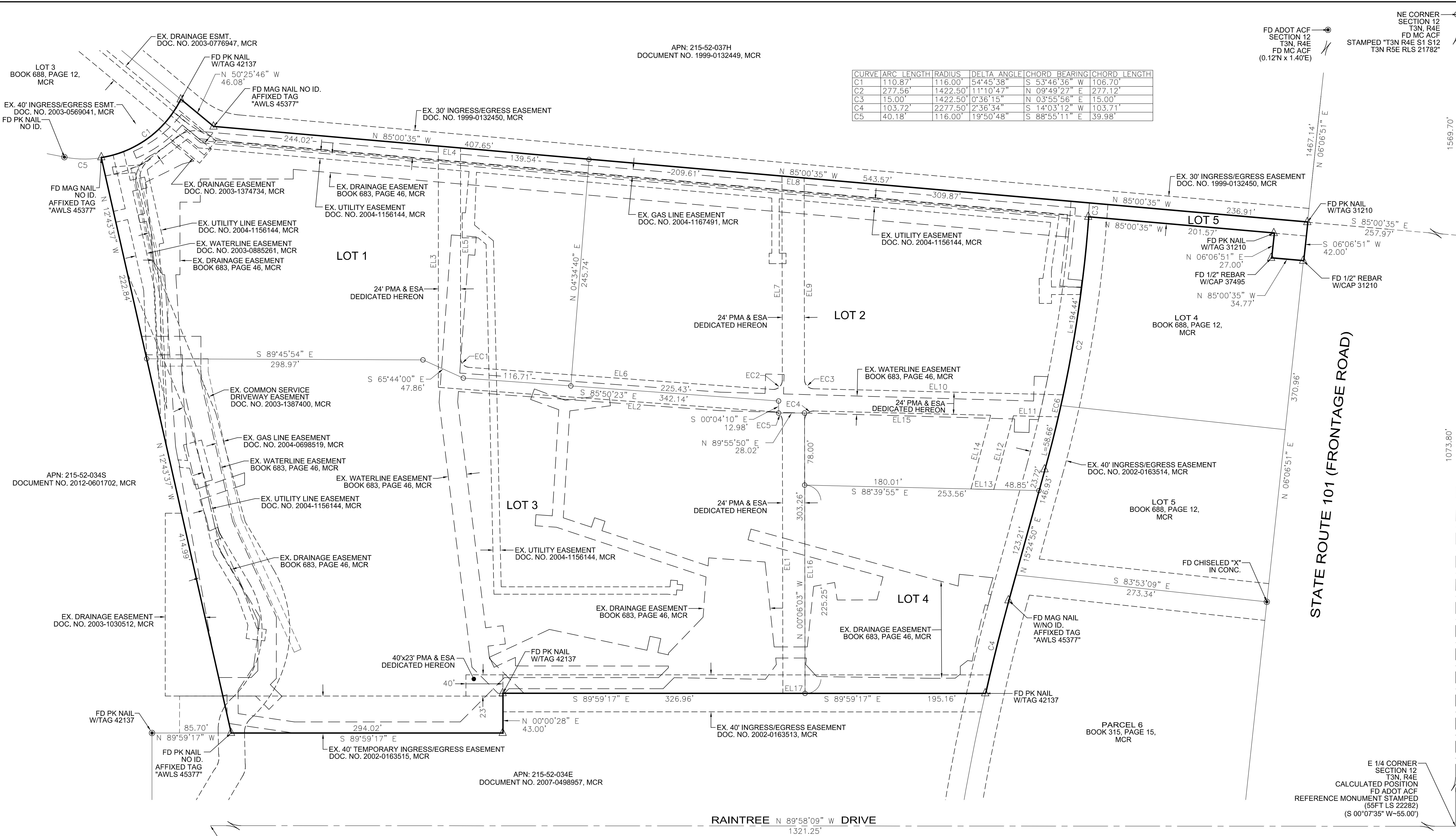
SHEET INDEX

Table with 2 columns: SHEET, DESCRIPTION. Row 1: 1, COVER SHEET. Row 2: 2, LOTS AND EASEMENTS.

Table with 4 columns: DRAWN BY: DDA, CHECKED BY: DDA, DATE: 12/19/18, COVERSHEET. Row 1: JOB NO.: 18-073, SHEET NO. 1 OF 2.

MINOR LAND DIVISION PLAT
NORTHSIGHT CROSSING PROPERTY
AMENDED
SECTION 12
TOWNSHIP 3 NORTH
RANGE 4 EAST
OF THE G.S.R.B. & M.
MARICOPA COUNTY, ARIZONA

AW LAND SURVEYING, LLC
P.O. BOX 2170, CHANDLER, AZ 85244
(480) 244-7630 (480) 243-4287



CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	110.87'	116.00'	54°45'38"	S 53°46'36" W	106.70'
C2	277.56'	1422.50'	11°10'47"	N 09°49'27" E	277.12'
C3	15.00'	1422.50'	0°36'15"	N 03°55'56" E	15.00'
C4	103.72'	2277.50'	2°36'34"	S 14°03'12" W	103.71'
C5	40.18'	116.00'	19°50'48"	S 88°55'11" E	39.98'

EASEMENT LINE	BEARING	DISTANCE
EL1	N 00°06'03" W	294.64'
EL2	N 85°50'23" W	363.97'
EL3	N 00°00'00" W	260.79'
EL4	S 85°00'35" E	24.09'
EL5	S 00°00'00" E	227.08'
EL6	S 85°50'23" E	329.08'
EL7	N 00°06'03" W	220.56'
EL8	S 85°00'35" E	24.10'
EL9	S 00°06'03" E	217.77'
EL10	S 88°37'13" E	270.06'
EL11	N 88°37'13" W	48.33'
EL12	S 14°55'20" W	82.52'
EL13	N 88°39'55" W	24.69'
EL14	S 14°55'20" E	82.54'
EL15	N 88°37'13" W	191.16'
EL16	S 00°06'03" E	295.41'
EL17	S 89°53'57" W	24.00'

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
EC1	14.98'	10.00'	85°50'23"	S 42°55'12" E	13.62'
EC2	16.45'	10.00'	94°15'40"	S 47°01'47" W	14.66'
EC3	15.45'	10.00'	88°31'10"	S 44°21'38" E	13.96'
EC4	15.97'	10.00'	91°28'50"	N 45°38'22" E	14.32'
EC5	14.96'	10.00'	85°44'20"	S 42°58'13" E	13.61'
EC6	24.46'	1422.50'	0°59'07"	N 12°33'31" E	24.46'

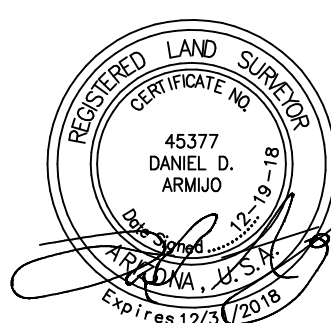
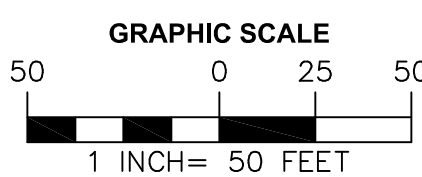
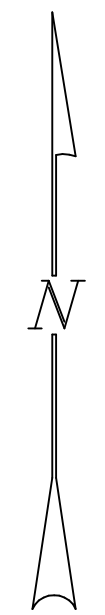
MCR
APN
DOC.
NO.
FD
ID
COS
BCHH
ADOT
ACF
MC
PMA
ESA

MARICOPA COUNTY RECORDS
ASSESSOR PARCEL NUMBER
DOCUMENT
NUMBER
FOUND
IDENTIFICATION
CITY OF SCOTTSDALE
BRASS CAP IN HANDHOLE
ARIZONA DEPARTMENT OF TRANSPORTATION
ALUMINUM CAP FLUSH
MARICOPA COUNTY
PUBLIC MOTORIZED ACCESS EASEMENT
EMERGENCY SERVICE ACCESS EASEMENT

LEGEND

PROPERTY LINE
LOT LINE
EASEMENT LINE AS NOTED

△ SUBDIVISION CORNER
SET 1/2" REBAR W/CAP
"AWLS 45377" UNLESS
OTHERWISE NOTED
○ LOT/TRACT CORNER
SET 1/2" REBAR W/CAP
"AWLS 45377" UNLESS
OTHERWISE NOTED
● FOUND MONUMENT AS NOTED



MINOR LAND DIVISION PLAT
NORTHSIGHT CROSSING PROPERTY
AMENDED
SECTION 12
TOWNSHIP 3 NORTH
RANGE 4 EAST
OF THE G.S.R.B. & M.
MARICOPA COUNTY, ARIZONA

AW LAND SURVEYING, LLC
P.O. BOX 2170, CHANDLER, AZ 85244
(480) 244-7630 (480) 243-4287

DRAWN BY: DDA CHECKED BY: DDA DATE: 12/19/18 JOB NO.: 18-073 SHEET NO. 2 OF 2

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name: 101 Mega Raintree
Project Address: 87th Street and Raintree, Scottsdale, Arizona, 85260
Client Project No.: 180816
Arizona Flow Testing Project No.: 19019
Flow Test Permit No.: C57100
Date and time flow test conducted: January 15, 2019 at 8:45 AM
Data is current and reliable until: July 15, 2019
Conducted by: Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by: Jared Berry – City of Scottsdale-Inspector (602-541-4942)

Raw Test Data

Static Pressure: **88.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **76.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **21.0 PSI**
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch Hose Monster
(Measured in inches)

Coefficient of Diffuser: 0.7875

Flowing GPM: **1,723 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **4,396 GPM**

Data with 16 PSI Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **60.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx. 500 Feet

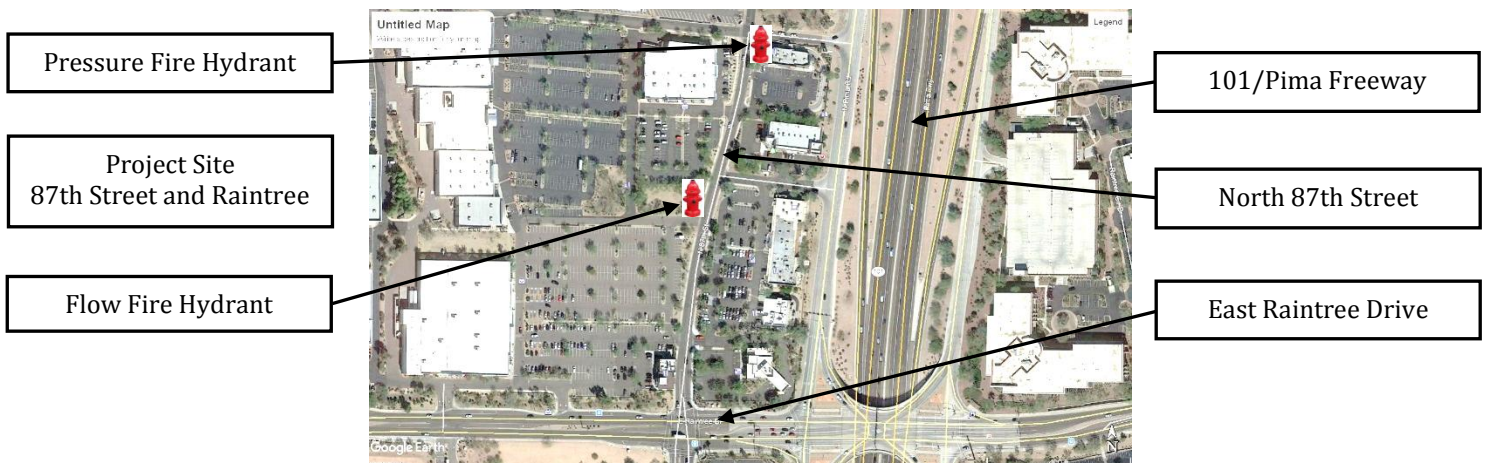
Main size: Not Provided

Flowing GPM: **1,723 GPM**

GPM @ 20 PSI: **3,803 GPM**

Flow Test Location

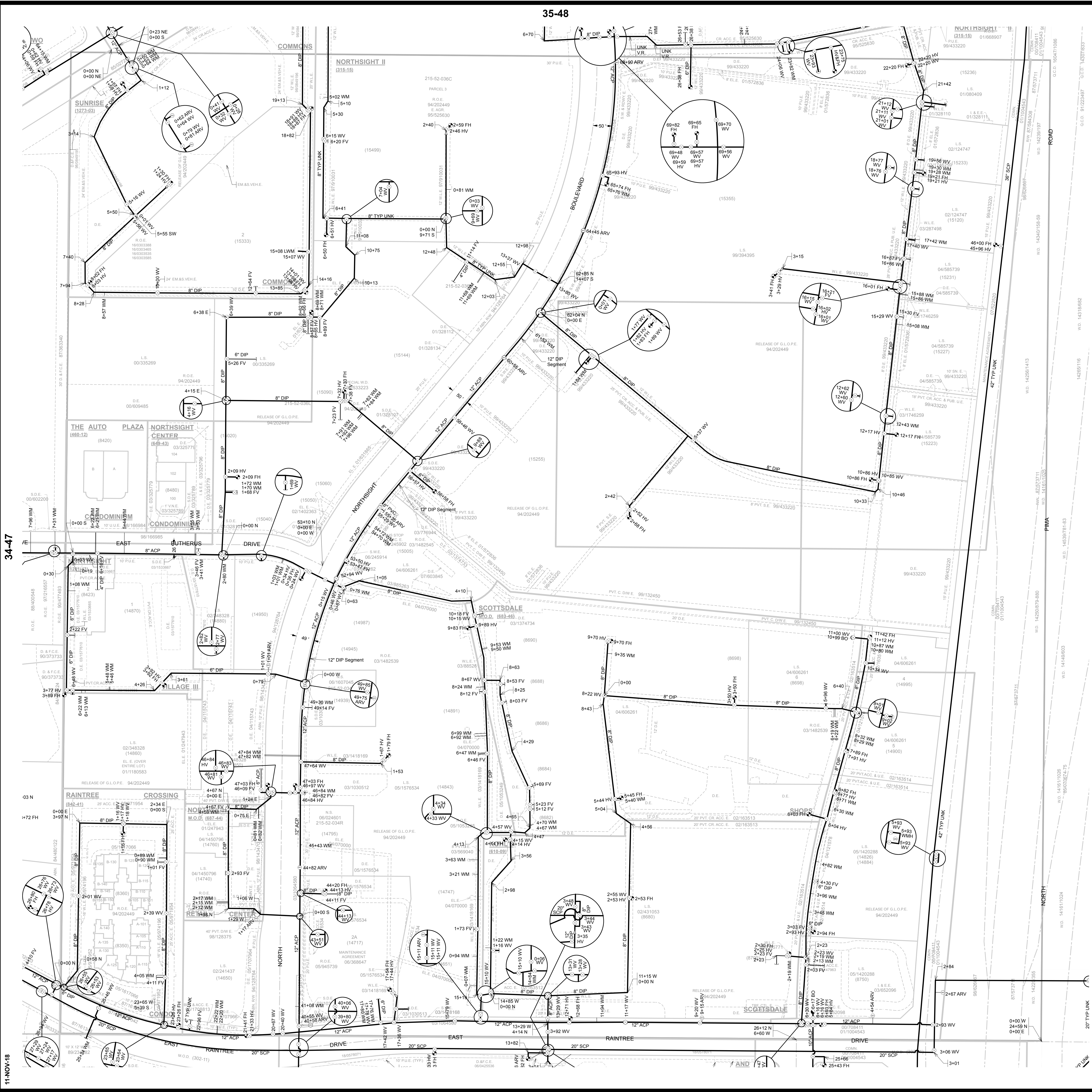
North ↑



NOTICE

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THE CITY OF SCOTTSDALE



GENERAL NOTES:

- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7792.
- THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER 1991. BEARINGS ARE NAD 83 GRID AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS "CALCULATED" ON THE MAP.

LEGEND:

Air Release Valve	
Non-potable Air Release Valve	
Blowoff	
Cap	
Cathodic Protection	
Fill Drain	
Fire Hydrant	
Non-GPS Point	
Pressure Reducing Valve	
Pump	
Reducer	
Sample Station	
Water Manhole	
Non-Potable Manhole	
Well	
Valve	
Non-potable Valve	
Vault	
Water Main	
Non-Potable Main	
Fire / Private Main	
Non-Scottsdale Main	

VICINITY MAP

NORTH

SCALE: 1" = 100'

0 50 100 200

The map scale of 1" = 100' is based on a full size print of 30" x 36"

WATER

QUARTER SECTION MAP

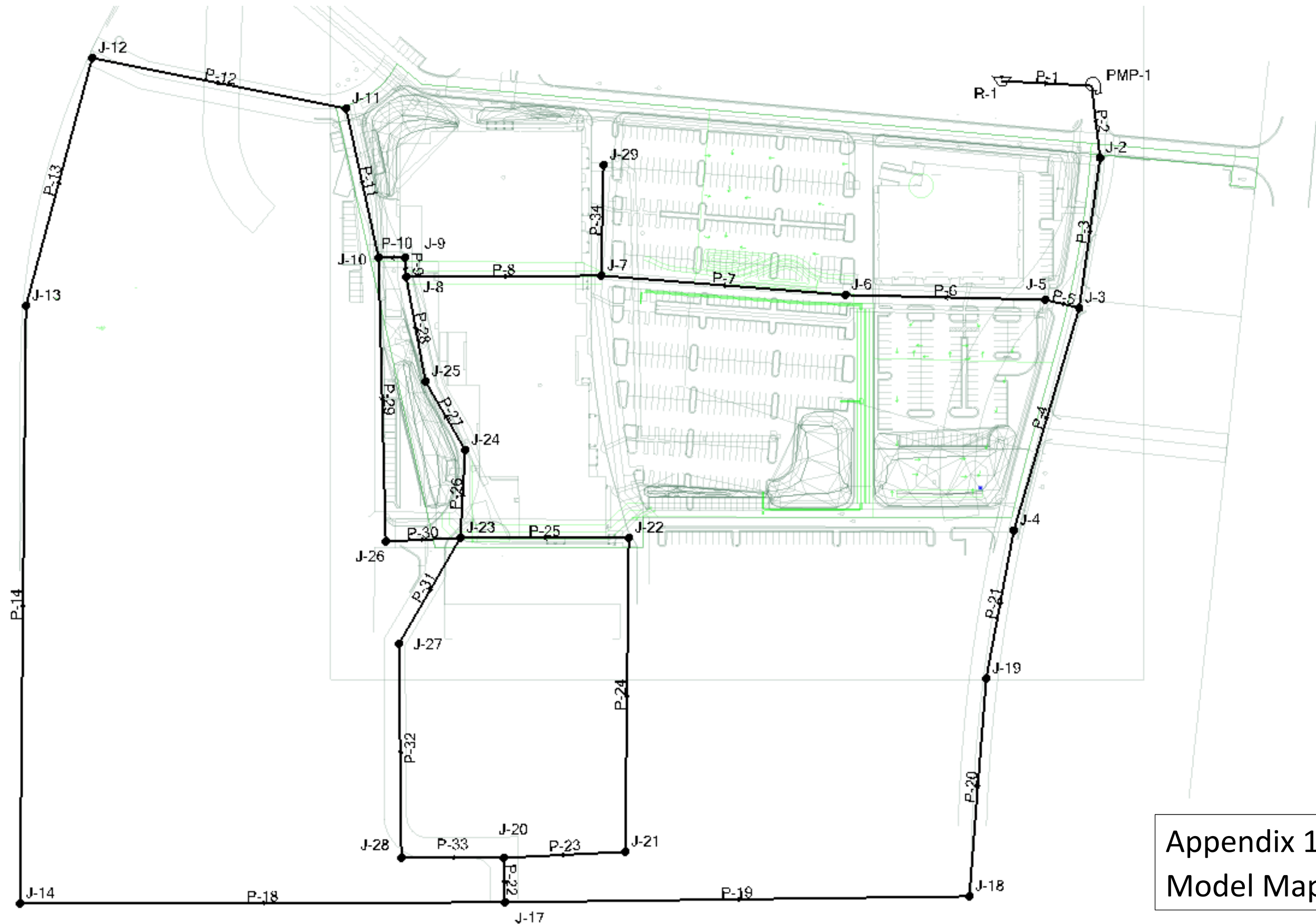
34-48

NE 1/4 SEC. 12 T3N R4E

CITY OF SCOTTSDALE

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS

3629 North Drinkwater Boulevard
Scottsdale, Arizona 85251



Appendix 1 –
Model Map

Alta Raintree.wtg
Active Scenario: Avg. Day
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-2	1,474.10	33	1,678.21	88
J-3	1,471.30	0	1,678.15	89
J-4	1,467.20	15	1,678.12	91
J-5	1,473.10	0	1,678.14	89
J-6	1,472.50	20	1,678.12	89
J-7	1,471.50	15	1,678.11	89
J-8	1,472.10	0	1,678.10	89
J-9	1,472.90	0	1,678.10	89
J-10	1,471.50	0	1,678.10	89
J-11	1,476.00	0	1,678.10	87
J-12	1,475.00	0	1,678.10	88
J-13	1,473.00	0	1,678.10	89
J-14	1,461.00	0	1,678.10	94
J-17	1,463.00	0	1,678.10	93
J-18	1,462.00	0	1,678.10	93
J-19	1,464.00	0	1,678.12	93
J-20	1,464.00	0	1,678.10	93
J-21	1,464.00	0	1,678.10	93
J-22	1,467.10	34	1,678.10	91
J-23	1,466.90	0	1,678.10	91
J-24	1,468.40	0	1,678.10	91
J-25	1,469.10	20	1,678.10	90
J-26	1,465.70	0	1,678.10	92
J-27	1,465.00	0	1,678.10	92
J-28	1,464.00	0	1,678.10	93
J-29	1,473.20	0	1,678.11	89

Alta Raintree.wtg
Active Scenario: Avg. Day
FlexTable: Pipe Table

Label	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	24.0	127	130.0	137	0.10
P-2	8.0	103	130.0	137	0.87
P-3	8.0	215	130.0	104	0.66
P-4	8.0	328	130.0	49	0.32
P-5	8.0	50	130.0	55	0.35
P-6	8.0	283	130.0	55	0.35
P-7	8.0	347	130.0	35	0.22
P-8	8.0	276	130.0	20	0.13
P-9	8.0	27	130.0	1	0.01
P-10	8.0	37	130.0	1	0.01
P-11	8.0	216	130.0	-9	0.05
P-12	8.0	366	130.0	-9	0.05
P-13	12.0	363	130.0	-9	0.02
P-14	12.0	846	130.0	-9	0.02
P-18	20.0	686	130.0	-9	0.01
P-19	20.0	657	130.0	-34	0.04
P-20	8.0	309	130.0	-34	0.22
P-21	8.0	213	130.0	-34	0.22
P-22	8.0	63	130.0	26	0.17
P-23	8.0	172	130.0	16	0.10
P-24	8.0	445	130.0	16	0.10
P-25	8.0	238	130.0	-18	0.12
P-26	8.0	125	130.0	1	0.01
P-27	8.0	112	130.0	1	0.01
P-28	8.0	151	130.0	-19	0.12
P-29	8.0	402	130.0	10	0.06
P-30	8.0	106	130.0	10	0.06
P-31	8.0	173	130.0	-10	0.07
P-32	8.0	303	130.0	-10	0.07
P-33	8.0	145	130.0	-10	0.07
P-34	8.0	157	130.0	0	0.00

Alta Raintree.wtg
Active Scenario: Avg. Day
FlexTable: Pump Table

Label	Elevation (ft)	Pump Status	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,474.65	On	1,475.50	1,678.25	137	202.75

Alta Raintree.wtg
Active Scenario: Avg. Day
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,475.50	137	1,475.50

Alta Raintree.wtg
Active Scenario: Max Day
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-2	1,474.10	65	1,677.43	88
J-3	1,471.30	0	1,677.22	89
J-4	1,467.20	30	1,677.14	91
J-5	1,473.10	0	1,677.20	88
J-6	1,472.50	40	1,677.12	89
J-7	1,471.50	30	1,677.07	89
J-8	1,472.10	0	1,677.06	89
J-9	1,472.90	0	1,677.06	88
J-10	1,471.50	0	1,677.06	89
J-11	1,476.00	0	1,677.06	87
J-12	1,475.00	0	1,677.07	87
J-13	1,473.00	0	1,677.07	88
J-14	1,461.00	0	1,677.07	93
J-17	1,463.00	0	1,677.07	93
J-18	1,462.00	0	1,677.07	93
J-19	1,464.00	0	1,677.11	92
J-20	1,464.00	0	1,677.06	92
J-21	1,464.00	0	1,677.06	92
J-22	1,467.10	68	1,677.05	91
J-23	1,466.90	0	1,677.06	91
J-24	1,468.40	0	1,677.06	90
J-25	1,469.10	40	1,677.06	90
J-26	1,465.70	0	1,677.06	91
J-27	1,465.00	0	1,677.06	92
J-28	1,464.00	0	1,677.06	92
J-29	1,473.20	0	1,677.07	88

Alta Raintree.wtg
Active Scenario: Max Day
FlexTable: Pipe Table

Label	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	24.0	127	130.0	273	0.19
P-2	8.0	103	130.0	273	1.74
P-3	8.0	215	130.0	208	1.33
P-4	8.0	328	130.0	99	0.63
P-5	8.0	50	130.0	109	0.70
P-6	8.0	283	130.0	109	0.70
P-7	8.0	347	130.0	69	0.44
P-8	8.0	276	130.0	39	0.25
P-9	8.0	27	130.0	2	0.01
P-10	8.0	37	130.0	2	0.01
P-11	8.0	216	130.0	-17	0.11
P-12	8.0	366	130.0	-17	0.11
P-13	12.0	363	130.0	-17	0.05
P-14	12.0	846	130.0	-17	0.05
P-18	20.0	686	130.0	-17	0.02
P-19	20.0	657	130.0	-69	0.07
P-20	8.0	309	130.0	-69	0.44
P-21	8.0	213	130.0	-69	0.44
P-22	8.0	63	130.0	52	0.33
P-23	8.0	172	130.0	31	0.20
P-24	8.0	445	130.0	31	0.20
P-25	8.0	238	130.0	-37	0.24
P-26	8.0	125	130.0	3	0.02
P-27	8.0	112	130.0	3	0.02
P-28	8.0	151	130.0	-37	0.24
P-29	8.0	402	130.0	19	0.12
P-30	8.0	106	130.0	19	0.12
P-31	8.0	173	130.0	-21	0.13
P-32	8.0	303	130.0	-21	0.13
P-33	8.0	145	130.0	-21	0.13
P-34	8.0	157	130.0	0	0.00

Alta Raintree.wtg
Active Scenario: Max Day
FlexTable: Pump Table

Label	Elevation (ft)	Pump Status	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,474.65	On	1,475.50	1,677.60	273	202.10

Alta Raintree.wtg
Active Scenario: Peak Hour
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-2	1,474.10	114	1,675.49	87
J-3	1,471.30	0	1,674.88	88
J-4	1,467.20	52	1,674.65	90
J-5	1,473.10	0	1,674.84	87
J-6	1,472.50	70	1,674.60	87
J-7	1,471.50	53	1,674.47	88
J-8	1,472.10	0	1,674.44	88
J-9	1,472.90	0	1,674.44	87
J-10	1,471.50	0	1,674.44	88
J-11	1,476.00	0	1,674.44	86
J-12	1,475.00	0	1,674.45	86
J-13	1,473.00	0	1,674.45	87
J-14	1,461.00	0	1,674.46	92
J-17	1,463.00	0	1,674.46	91
J-18	1,462.00	0	1,674.46	92
J-19	1,464.00	0	1,674.57	91
J-20	1,464.00	0	1,674.44	91
J-21	1,464.00	0	1,674.43	91
J-22	1,467.10	119	1,674.39	90
J-23	1,466.90	0	1,674.42	90
J-24	1,468.40	0	1,674.42	89
J-25	1,469.10	70	1,674.42	89
J-26	1,465.70	0	1,674.42	90
J-27	1,465.00	0	1,674.43	91
J-28	1,464.00	0	1,674.44	91
J-29	1,473.20	0	1,674.47	87

Alta Raintree.wtg
Active Scenario: Peak Hour
FlexTable: Pipe Table

Label	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	24.0	127	130.0	478	0.34
P-2	8.0	103	130.0	478	3.05
P-3	8.0	215	130.0	364	2.32
P-4	8.0	328	130.0	173	1.10
P-5	8.0	50	130.0	191	1.22
P-6	8.0	283	130.0	191	1.22
P-7	8.0	347	130.0	121	0.77
P-8	8.0	276	130.0	69	0.44
P-9	8.0	27	130.0	4	0.02
P-10	8.0	37	130.0	4	0.02
P-11	8.0	216	130.0	-30	0.19
P-12	8.0	366	130.0	-30	0.19
P-13	12.0	363	130.0	-30	0.08
P-14	12.0	846	130.0	-30	0.08
P-18	20.0	686	130.0	-30	0.03
P-19	20.0	657	130.0	-121	0.12
P-20	8.0	309	130.0	-121	0.77
P-21	8.0	213	130.0	-121	0.77
P-22	8.0	63	130.0	91	0.58
P-23	8.0	172	130.0	55	0.35
P-24	8.0	445	130.0	55	0.35
P-25	8.0	238	130.0	-65	0.41
P-26	8.0	125	130.0	5	0.03
P-27	8.0	112	130.0	5	0.03
P-28	8.0	151	130.0	-65	0.42
P-29	8.0	402	130.0	33	0.21
P-30	8.0	106	130.0	33	0.21
P-31	8.0	173	130.0	-36	0.23
P-32	8.0	303	130.0	-36	0.23
P-33	8.0	145	130.0	-36	0.23
P-34	8.0	157	130.0	0	0.00

Alta Raintree.wtg
Active Scenario: Peak Hour
FlexTable: Pump Table

Label	Elevation (ft)	Pump Status	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,474.65	On	1,475.50	1,675.96	478	200.47

Alta Raintree.wtg

Active Scenario: Max Day+Fire

Fire Flow Node FlexTable: Fire Flow Report

Label	Fire Flow (Needed) (gpm)	Flow (Total Needed) (gpm)	Pressure (Calculated Residual @ Total Flow Needed) (psi)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)	Pressure (Calculated System Lower Limit) (psi)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-2	2,500	2,532	57	3,532	J-11	31	P-2	23.21
J-3	2,500	2,500	49	3,023	J-11	30	P-2	20.17
J-4	2,500	2,515	43	2,846	J-11	30	P-2	18.94
J-5	2,500	2,500	46	2,982	J-11	30	P-2	19.90
J-6	2,500	2,520	40	2,841	J-29	30	P-2	18.87
J-7	2,500	2,515	37	2,678	J-29	30	P-2	17.87
J-8	2,500	2,500	36	2,626	J-11	30	P-2	17.63
J-9	2,500	2,500	35	2,617	J-11	30	P-2	17.57
J-10	2,500	2,500	35	2,605	J-11	30	P-2	17.50
J-11	2,500	2,500	31	2,607	J-12	30	P-2	17.51
J-12	2,500	2,500	32	2,591	J-13	30	P-2	17.41
J-13	2,500	2,500	33	2,566	J-12	30	P-2	17.25
J-14	2,500	2,500	41	2,625	J-12	30	P-2	17.62
J-17	2,500	2,500	40	2,629	J-12	30	P-2	17.65
J-18	2,500	2,500	40	2,632	J-12	30	P-2	17.67
J-19	2,500	2,500	41	2,745	J-12	30	P-2	18.39
J-20	2,500	2,500	39	2,633	J-11	30	P-2	17.68
J-21	2,500	2,500	35	2,631	J-11	30	P-2	17.66
J-22	2,500	2,534	33	2,665	J-11	30	P-2	17.66
J-23	2,500	2,500	37	2,628	J-11	30	P-2	17.65
J-24	2,500	2,500	35	2,627	J-11	30	P-2	17.64
J-25	2,500	2,520	35	2,645	J-11	30	P-2	17.62
J-26	2,500	2,500	36	2,624	J-11	30	P-2	17.62
J-27	2,500	2,500	35	2,630	J-11	30	P-2	17.66
J-28	2,500	2,500	36	2,631	J-11	30	P-2	17.66
J-29	2,500	2,500	29	2,681	J-7	30	P-2	17.98