



Wastewater Study

PRELIMINARY SEWER CAPACITY REPORT

ALTA Raintree Scottsdale

8688 E. Raintree Drive
Scottsdale, AZ 85260

PRELIMINARY Basis of Design Report

- ☒ ACCEPTED
☐ ACCEPTED AS NOTED
☐ REVISE AND RESUBMIT



Prepared For:



Prepared by:



THIS SEWER REPORT IS NOT
FINALIZED WAITING ON
REQUESTED FLOW MONITORING
INFORMATION.



Will not require
monitoring due
to low water
usage of
contributing
users upstream.

Sustainability Engineering Group

8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 180961

Submittal Date: January 25, 2019

Revised: May 17, 2019

Case No.: 2-GP-2019 3-ZN-2019

Plan Check No.: TBD

3-ZN-2019
05/20/19

PRELIMINARY SEWER CAPACITY REPORT

ALTA Raintree Scottsdale

8688 E. Raintree Drive
Scottsdale, AZ 85260

Prepared For:



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: January 25, 2019

Revised: May 17, 2019

Case No.: 2-GP-2019 3-ZN-2019

Plan Check No.: TBD

Table of Contents

1. INTRODUCTION.....	1
2. LOCATION AND PROJECT DESCRIPTION.....	1
3. EXISTING INFRASTRUCTURE.....	2
4. DEMANDS	2
5. UTILITY CONNECTIONS	2
6. SUMMARY	3
6 SUPPORTING MAPS.....	4
7. REFERENCES	4

LIST OF FIGURES:

FIGURE 1	-	Vicinity Map
FIGURE 2	-	Aerial
FIGURE 3	-	Quarter Section Sewer Map (34-48)
FIGURE 4	-	Preliminary Plat



APPENDIX:

APPENDIX I	-	Pipe Hydraulics
APPENDIX II	-	Utility Plan
APPENDIX III	-	Flow Monitoring Results

1. INTRODUCTION

This report presents the service requirements for a new multi-family apartment with 330 units and a pool 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** 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 associate parking. 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 4** for the Preliminary Plat.

3. EXISTING INFRASTRUCTURE

3.1 SEWER

Per **FIGURE 3**, Lot 3 presently has private sewers that run from north to south along the west line then east along the south lines of Lots 3 and 4 where it connects to an existing private 8" sewer in the 87th Street public accessway. This line then flows south to a public 8" pipe in Raintree Drive and east to the 24" trunk line along the Pima Frontage Road. All on-lot sewers are private.

4. DEMANDS

4.1 SEWER:

TABLE 1 - AVERAGE DAILY DEMANDS

Land Use	Demand (gpd)	Units
High Density Residential	140	per unit

Peaking factor: Peak 4.5

Pool backwash rate: 100 gpm

TABLE 2 - CALCULATED DEMANDS

Lot	Land Use	Total Unit Count	ADD (gpd)	ADD (gpm)	PD (gpm)
3	High Density Residential	330	46,200	32.1	144.4
3	Pool Backwash		N/A	100.0	100.0
	Total	330		132.1	244.4

Reference DS+PM Figure 6-1.2

5. UTILITY CONNECTIONS

5.1 PROPOSED SEWER SYSTEM:

Refer to **APPENDIX II** for the Utility Exhibit. The private sewers along the west and south sides of Lot 3 will be modified as needed to accommodate the new building footprint.

5.2 PROPOSED SEWER SERVICE CONNECTIONS:

Sewer services to the proposed residential buildings will be made to the existing 8" pipe along the south line of Lot 3. Two service connections are anticipated.

5.3 MAINTENANCE RESPONSIBILITIES:

The on-site sewer line for the proposed development will remain private, thereby owned and maintained by a property management association. The off-site sewer in Raintree Drive is a public system owned and maintained by the City.

5.4 ONSITE SEWER CAPACITY CALCULATIONS

Sewer pipe capacities have been calculated using FlowMaster V8i. The minimum slope along the existing 8" line is approximately 0.0052 ft/ft. Calculation output for the following pipe flows can be found in **Appendix I** and are summarized in the flowing table.

TABLE 3 - ONSITE SEWER HYDRAULICS

Flow Scenario	Flow (gpm)	Depth (in)	Velocity (fps)	d/D
ADD	32.1	1.6	1.5	0.20
ADD + Pool	132.1	3.1	2.3	0.39
PD	144.4	3.4	2.3	0.43
PD + Pool	244.4	4.6	2.6	0.58
Allowable	295.8	5.2	2.7	0.65

5.5 SEWER FLOW MONITORING AND DOWNSTREAM CAPACITIES

Monitored flow results within the first in-line manhole north of Raintree Drive will be included in **APPENDIX III** when they become available (estimated timeframe is mid-June 2019). The downstream 8" line has a 2% slope per City records. Capacity of this pipe at a d/D of 0.65 is 580.2 gpm at 5.4 fps. The shops presently sitting on Lot 3 are presently vacant therefor no flow credit is given to the monitored results. The proposed peak day plus pool backwash flow (244.4 gpm) for Lot 3 will be added to the monitored results and appended to this report when available. No deficiency is anticipated in the onsite sewer system as the slope supports increased flow.

The reach of sewer in Raintree Drive between the private access drive (87th Street alignment) and the 24" trunk line along Pima Road has a slope of 0.0052'/' per City quarter section maps. The capacity of this line at d/D = 0.65 is 296 gpm at 2.7 fps. The proposed flows noted in **Table 3** above will be added to the monitored results and appended to this report when available. A relief sewer will be proposed should the existing sewer line in Raintree Drive not meet the City's requirements.

6. SUMMARY

6.1 SUMMARY OF PROPOSED IMPROVEMENTS:

- The proposed wastewater improvement was designed based on the current City of Scottsdale's design standards and policies.
- The existing onsite private and offsite public infrastructure has enough capacity for the proposed development.

6.2 PROJECT SCHEDULE:

The infrastructure is proposed to be constructed in a single phase.

6 SUPPORTING MAPS

- **FIGURE 3** – quarter section map
- **FIGURE 4** – preliminary plat
- **APPENDIX II** - Utility Exhibit.

7 REFERENCES

1. *COS QS Sewer Plan number 39-49*
2. *City of Scottsdale Design Standards & Policies Manual, 2018 (Chapter 7 – Wastewater)*

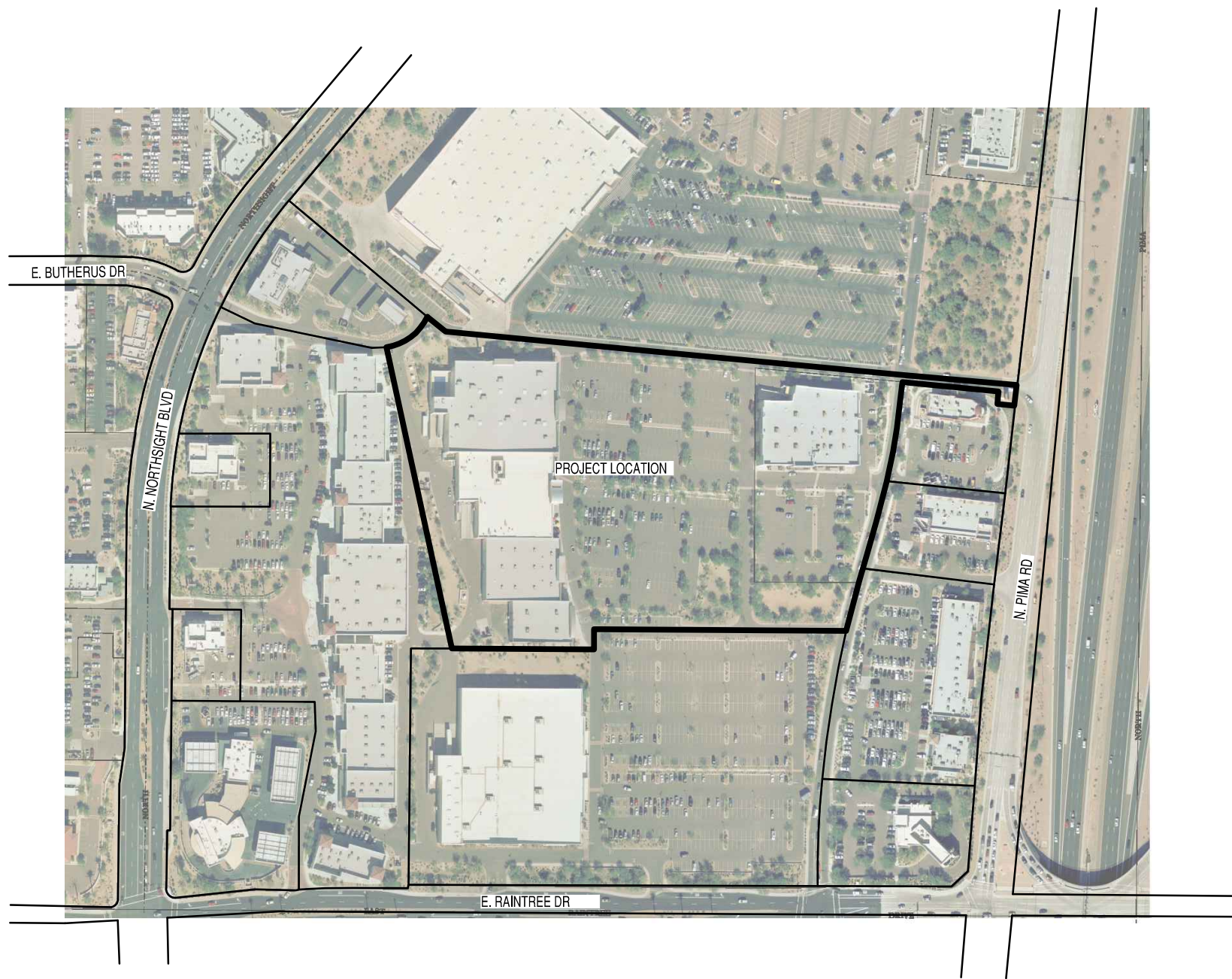
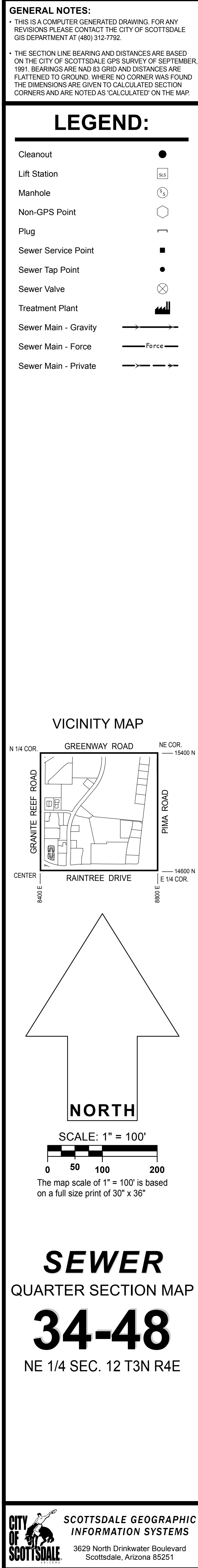


FIGURE 1
Vicinity Map
3-2N-2019
05/20/19



3-ZN-2019
05/20/19



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.

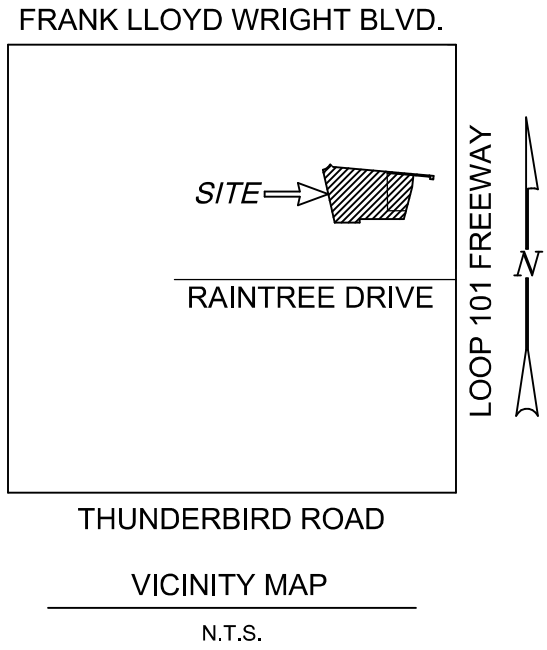
IN WITNESS WHEREOF, I HEREUNTO SET MY HAND AND OFFICIAL SEAL

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

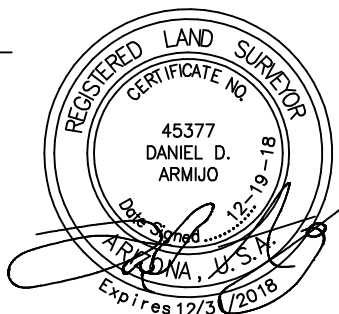
BASIS OF BEARING

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

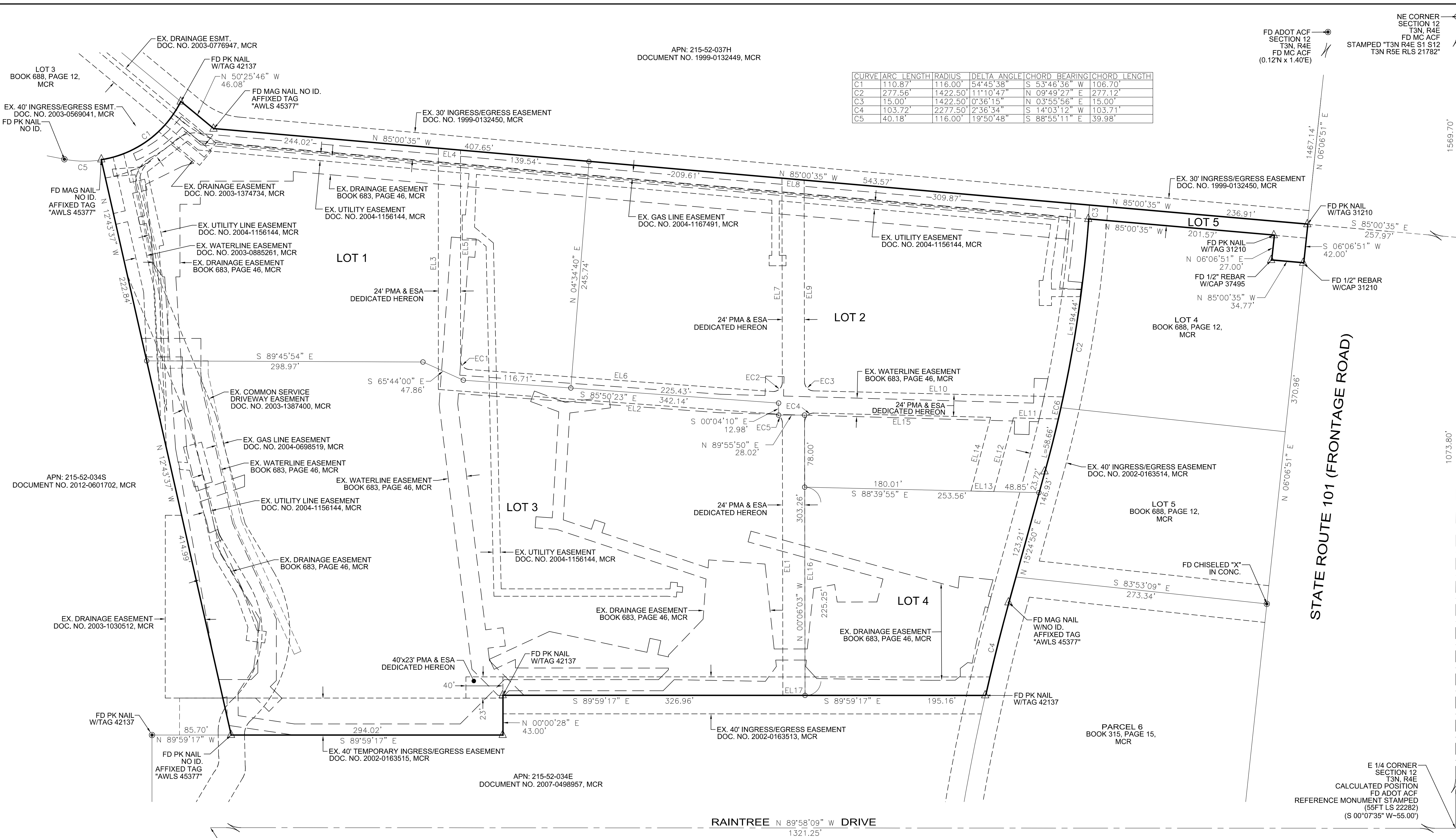


SHEET INDEX

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.

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. JOB NO.: 18-073, SHEET NO. 1 OF 2.



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

EASEMENT CURVE TABLE						
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
- PROPERTY LINE

LOT LINE

EASEMENT LINE AS NOTED

- △

SUBDIVISION CORNER

SET 1/2\"

REBAR W/CAP

*AWLS 45377\"

UNLESS

OTHERWISE NOTED
- LOT/TRACT CORNER

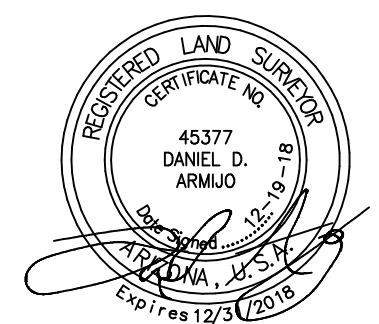
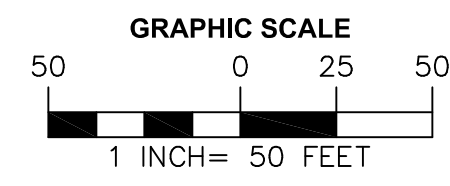
SET 1/2\"

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



"LEED®ing and Developing Smart Projects"

APPENDIX I

Pipe Hydraulics

Average Day Design Flow

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00520	ft/ft
Diameter	8	in
Discharge	32.10	gal/min

Results

Normal Depth	1.55	in
Flow Area	6.85	in ²
Wetted Perimeter	7.30	in
Hydraulic Radius	0.94	in
Top Width	6.33	in
Critical Depth	1.46	in
Percent Full	19.4	%
Critical Slope	0.00669	ft/ft
Velocity	1.50	ft/s
Velocity Head	0.04	ft
Specific Energy	0.16	ft
Froude Number	0.88	
Maximum Discharge	420.70	gal/min
Discharge Full	391.09	gal/min
Slope Full	0.00004	ft/ft
Flow Type	SubCritical	

Average Day Design Flow w/ Pool Backwash

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00520	ft/ft
Diameter	8	in
Discharge	132.1	gal/min

Results

Normal Depth	3.21	in
Flow Area	0.13	ft ²
Wetted Perimeter	0.91	ft
Hydraulic Radius	1.72	in
Top Width	0.65	ft
Critical Depth	0.25	ft
Percent Full	40.1	%
Critical Slope	0.00653	ft/ft
Velocity	2.25	ft/s
Velocity Head	0.08	ft
Specific Energy	0.35	ft
Froude Number	0.89	
Maximum Discharge	420.70	gal/min
Discharge Full	391.1	gal/min
Slope Full	0.00059	ft/ft
Flow Type	SubCritical	

Peak Design Flow

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00520	ft/ft
Diameter	8	in
Discharge	144.40	gal/min

Results

Normal Depth	3.36	in
Flow Area	20.07	in ²
Wetted Perimeter	11.29	in
Hydraulic Radius	1.78	in
Top Width	7.90	in
Critical Depth	3.16	in
Percent Full	42.1	%
Critical Slope	0.00657	ft/ft
Velocity	2.31	ft/s
Velocity Head	0.08	ft
Specific Energy	0.36	ft
Froude Number	0.88	
Maximum Discharge	420.70	gal/min
Discharge Full	391.09	gal/min
Slope Full	0.00071	ft/ft
Flow Type	SubCritical	

Peak Design Flow w/ Pool Backwash

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00520	ft/ft
Diameter	8	in
Discharge	244.4	gal/min

Results

Normal Depth	4.58	in
Flow Area	0.21	ft²
Wetted Perimeter	1.14	ft
Hydraulic Radius	2.17	in
Top Width	0.66	ft
Critical Depth	0.35	ft
Percent Full	57.3	%
Critical Slope	0.00714	ft/ft
Velocity	2.63	ft/s
Velocity Head	0.11	ft
Specific Energy	0.49	ft
Froude Number	0.83	
Maximum Discharge	420.70	gal/min
Discharge Full	391.1	gal/min
Slope Full	0.00203	ft/ft
Flow Type	SubCritical	

8" pipe with d/D = 0.65

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00520	ft/ft
Normal Depth	5.20	in
Diameter	8	in

Results

Discharge	295.82	gal/min
Flow Area	34.59	in ²
Wetted Perimeter	15.00	in
Hydraulic Radius	2.31	in
Top Width	7.63	in
Critical Depth	4.59	in
Percent Full	65.0	%
Critical Slope	0.00757	ft/ft
Velocity	2.74	ft/s
Velocity Head	0.12	ft
Specific Energy	0.55	ft
Froude Number	0.79	
Maximum Discharge	420.70	gal/min
Discharge Full	391.09	gal/min
Slope Full	0.00298	ft/ft
Flow Type	SubCritical	

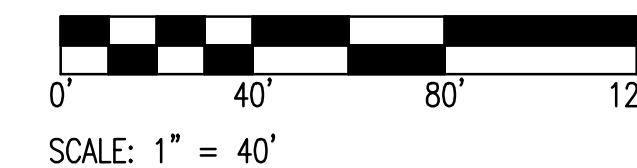
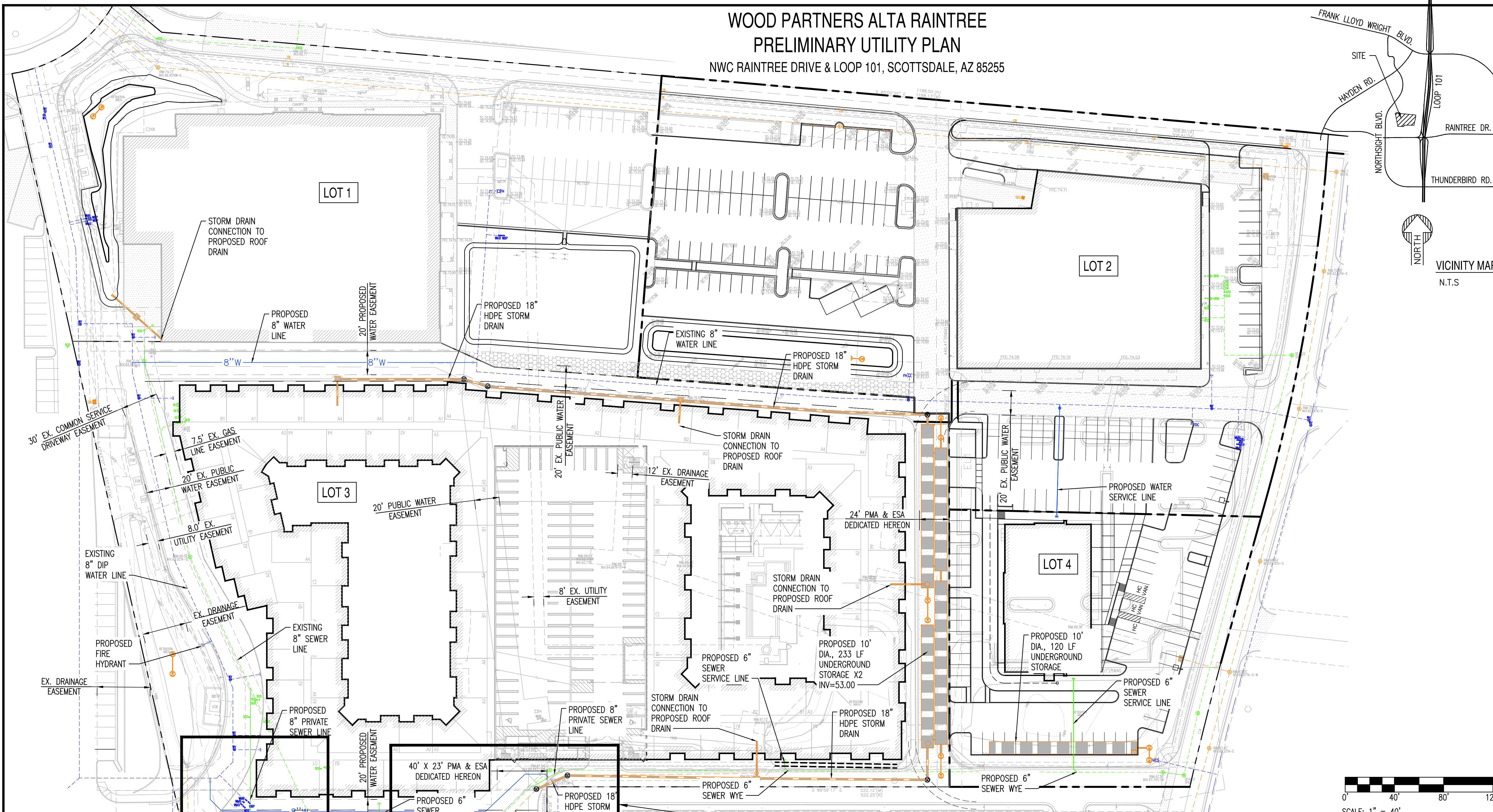


"LEED®ing and Developing Smart Projects"

APPENDIX II

Utility Plan

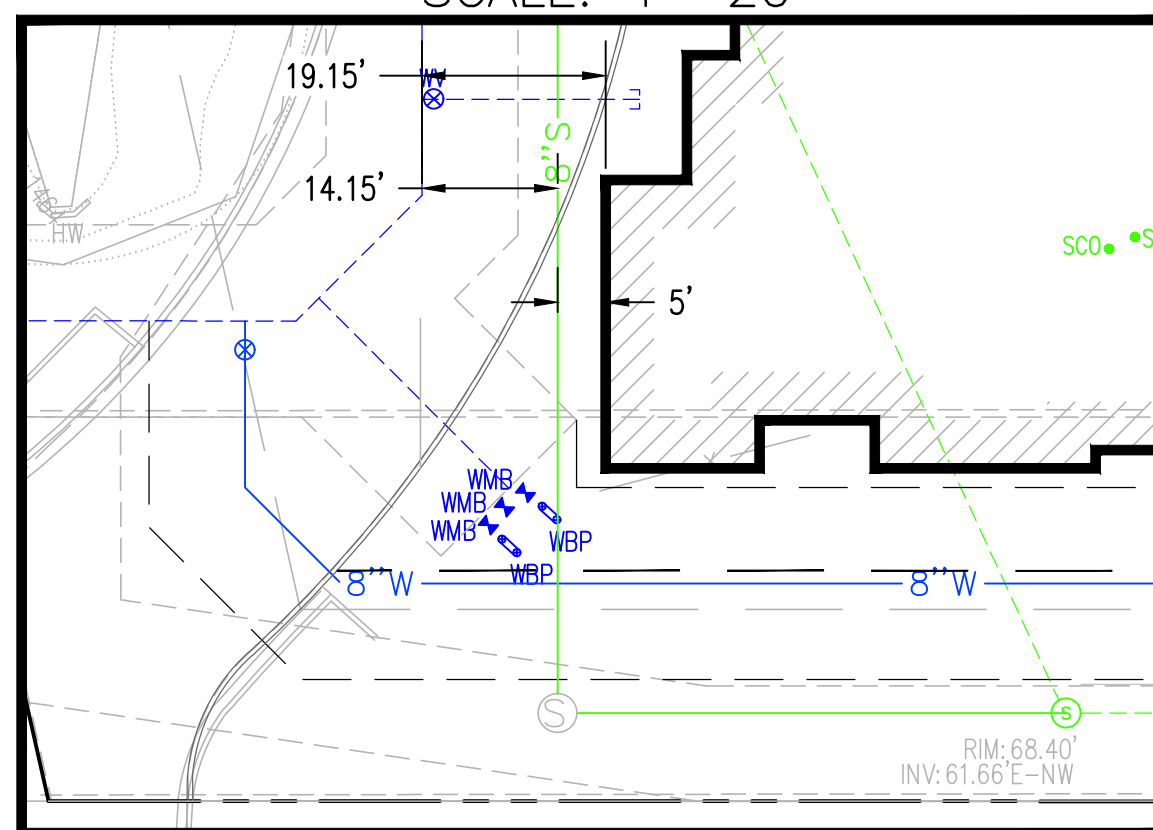
WOOD PARTNERS ALTA RAINTREE
PRELIMINARY UTILITY PLAN
NWC RAINTREE DRIVE & LOOP 101, SCOTTSDALE, AZ 85255



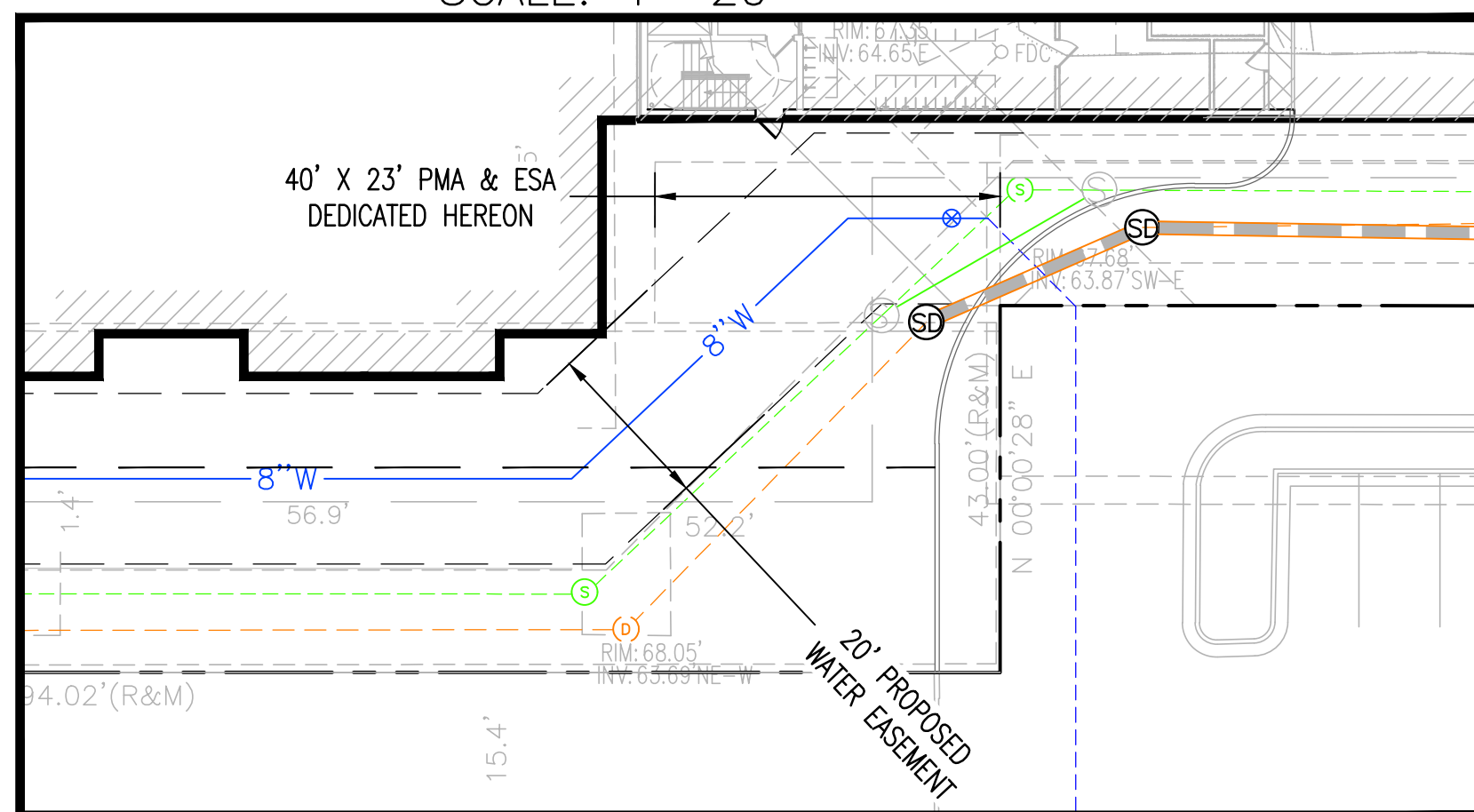
LEGEND

- 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

DETAIL 1
SCALE: 1"=20'



DETAIL 2
SCALE: 1"=20'

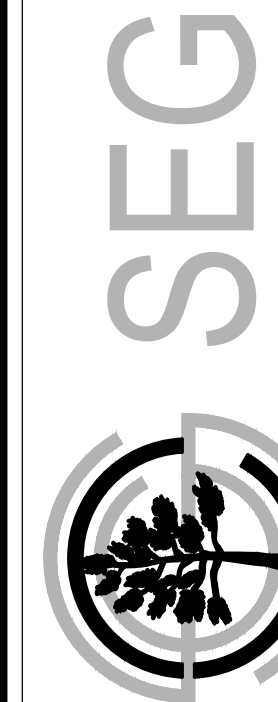


BENCHMARK:
BENCHMARK IS A CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE BEING THE SOUTH 1/4 CORNER OF SECTION 21, T3N, R4E.

ELEVATION = 1434.36' NAVD88
(CITY OF SCOTTSDALE DATUM)



NOTE TO CONTRACTOR:
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE INTENDED 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 AND ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR OBTAINING ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS NEEDED ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.



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



PROJECT
WOOD PARTNERS ALTA RAINTREE
SCOTTSDALE

LOCATION
NWC RAINTREE DRIVE & LOOP 101
SCOTTSDALE, ARIZONA

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

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

REVISION NO.: DATE:
1
2
3

JOB NO.: 180961

SHEET TITLE:

PRELIMINARY
UTILITY EXHIBIT

SHEET NO.:

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.



"LEED®ing and Developing Smart Projects"

APPENDIX III

Sewer Flow Monitoring Results