



# FINAL Basis of Design Report

- APPROVED
- APPROVED AS NOTED
- REVISE AND RESUBMIT



Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan

DATE 12/15/2021

**WASTEWATER COLLECTION SYSTEM  
BASIS OF DESIGN REPORT  
FOR  
ONE SCOTTSDALE (STREETLIGHTS RESIDENTIAL)**

November 11, 2021  
WP# 215234



EXPIRES 6-30-24

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EXHIBIT 3 Modeled On-Site Land Use Plan (From Master Report)

EXHIBIT 4 One Scottsdale – StreetLights Residential Wastewater Exhibit



EXPIRES 6-30-24

**1.0 INTRODUCTION**

One Scottsdale (StreetLights Residential) (Site) is 5.69-acres, located south of Legacy Boulevard and approximately 1,100 feet east of Scottsdale Road within the One Scottsdale Planned Community Development. The Site is located in Section 26, Township 4 North, Range 4 East of the Gila and Salt River Meridian. Refer to the attached *Vicinity Map* for project location.

Proposed development for the StreetLights Residential parcel consists of a 314-unit multi-family building that surrounds a 5.5 level parking garage. Proposed site improvements include associated landscape, hardscape, paving and utility services.

Prior to submittal of this Report, a Master Report titled *One Scottsdale (Stacked 40s) Master Onsite Wastewater Plan* was approved by the City of Scottsdale. The proposed site improvements analyzed in this Report are included within the *Planning Unit II* portion of the Master Report. Specifically, the Site is proposed to align with *sub-area 4A* as denoted within the *Modeled On-site Land Use Plan* attached to this Report.

The design criteria used to estimate wastewater flows and evaluate system hydraulics were based on the design criteria used in the *One Scottsdale (Stacked 40s) Master Onsite Wastewater Plan*. The following is a summary of the primary design criteria utilized:

Average Day Wastewater flows, 12-22 DU/ac:.....	100 gpd/person
Population Density, Onsite.....	2.00 persons/DU
Peaking Factor, High Density Condominium: .....	4.0
Minimum Mean Full Flow Velocity: .....	2.50 fps
Minimum Peak Full Flow Velocity: .....	10.0 fps
Minimum Peak Flow d/D Ratio (12-inch diameter or less):.....	d/D = 0.65
Minimum Peak Full Flow Velocity: .....	10.0 fps
Minimum Peak Flow d/D Ratio (12-inch diameter or greater): .....	d/D = 0.70

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Abbreviations: gpd = gallons per day; fps = feet per second

## 2.0 EXISTING WASTEWATER INFRASTRUCTURE

### 2.1 Onsite Infrastructure (Pre-Development)

The existing wastewater infrastructure adjacent to the Site includes a 12-inch sewer line extending east to west within the Legacy Boulevard alignment, and a public 15-inch sewer line on Scottsdale Road. The existing wastewater infrastructure also includes an existing 12-inch sewer line running east to west within Henkel Way. Please refer to attached *Modeled On-Site Wastewater Collection System* for a depiction of the existing wastewater infrastructure.

12-inch sewer approximately 45 feet north of Henkel Way and 8-inch sewer in Henkel Way on the north side of the Henkel property.



## 4.0 CONCLUSIONS

Based on our analysis of the Site, the following conclusions can be made:

1. The design criteria used to estimate wastewater flows and evaluate system hydraulics are based on the approved *One Scottsdale (Stacked 40s) Master Onsite Wastewater Plan*.
2. The projected average-day flow for the proposed Site is calculated to be 62,880 gpd while the peak flow is projected to be 251,200 gpd. The proposed wastewater infrastructure is anticipated to have sufficient capacity for these flows, since they are less than the flows anticipated in the Master Report.

## 5.0 REFERENCES

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

## APPENDIX A – WASTEWATER DEMAND CALCULATIONS



**TABLE 1**  
WASTEWATER MODEL, FULL BUILD-OUT CONDITION

**Project** SLR One Scottsdale  
**Location** Scottsdale, AZ  
**Project Number** 215234  
**Project Engineer** John "Gordy" Ritchie  
**References** City of Scottsdale Design Standards and Policies Manual  
 Arizona Administrative Code, Title 18, Chapter 9

**PROPOSED SITE IMPROVEMENTS**

Multi-Family Residential (DU)	DEMAND VALUE (gpd/DU)	TOTAL ADD (gpd)	PEAKING FACTOR	PEAK FLOW (gpd)	PEAK FLOW (gpm)
314	200	62,800	4.0	251,200	174



**MASTER PLAN DEMAND CALCULATIONS - SUB AREA 4A**

Multi-Family Residential (DU)	Hotel (Room)	UNIT DAILY FLOW		TOTAL ADD (GPD)	PEAKING FACTOR	PEAK FLOW (gpd)	PEAK FLOW (gpm)
		Multi-Family Residential (GPD/DU)	Hotel (GPD/Room)				
279	260	200	100.0	81,800	4.0	327,200	227

**APPENDIX B – EXERPTS OF MASTER REPORT CALCULATIONS RELEVANT TO  
STREETLIGHTS RESIDENTIAL IMPROVEMENTS**

Project: Master On-Site Wastewater Plan for One Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

ONSITE WASTEWATER DESIGN CRITERIA

DESCRIPTION	VALUE	UNITS	Note
<b>GENERAL</b>			
Minimum Mean Full-Flow Velocity:	2.50	ft/s	1
Max. Peak Flow Depth-to-Diameter Ratio (8-12' Dia. Sewers):	0.65	---	1,3
Max. Peak Flow Depth-to-Diameter Ratio (>12' Dia. Sewers):	0.70	---	1
Max. Utilized Capacity:	90	%	---
Minimum Pipe Diameter:	8	in	1
<b>RESIDENTIAL</b>			
Average Day Wastewater Flow per Person, (8-12' Dia. Sewers):	100	gpd/person	2
Average Day Wastewater Flow per Person, (>12' Dia. Sewers):	100	gpd/person	2
Population Density, On-Site:	2.00	persons/DU	2
Population Density, Off-Site Condominiums:	1.70	persons/DU	2
Peaking Factor, Residential:	4.00	---	1
<b>OFFICE</b>			
Average Day Wastewater Flow, Office:	0.10	gpd/SF	2
Peaking Factor, Office:	3.00	n/a	2
<b>RETAIL</b>			
Average Day Wastewater Flow, Retail:	0.60	gpd/sf	2
Peaking Factor, Retail:	3.50	---	2
<b>RESTAURANT</b>			
Average Day Wastewater Flow, Restaurant:	1.20	gpd/sf	
Peaking Factor, Restaurant:	6.00		
<b>HOTEL</b>			
Average Day Wastewater Flow, Hotel:	100	gpd/room	
Peaking Factor, Hotel:	4.00	---	1

OFFSITE WASTEWATER DESIGN CRITERIA

DESCRIPTION	VALUE	UNITS	Note
<b>MIXED USE DEVELOPMENT</b>			
Average Day Wastewater Flow per Acre	1447	gpd/acre	2
Max. Day Wastewater Flow per Acre	2098	gpd/acre	2
Peaking Factor	4	---	2

Notes: 1 -  
 2 -  
 3 -

Project: Master On-Site Wastewater Plan for One  
 Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

**PLANNING UNIT II**

PHASE 1						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DU <sub>s</sub> )	COMMERCIAL			AREA (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
17 (Henkel Building)	---	325,156	---	---	325,156	---
<b>SUBTOTAL</b>	---	<b>325,156</b>	---	---	<b>325,156</b>	---

PHASE 2						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DU <sub>s</sub> )	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
2a	133	---	62,500	26,000	88,500	---
2b	266	---	23,831	---	23,831	---
2c	133	---	62,500	26,000	88,500	---
2d	266	---	23,831	---	23,831	---
<b>SUBTOTAL</b>	<b>798</b>	---	<b>172,662</b>	<b>52,000</b>	<b>224,662</b>	---

PHASE 3						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DU <sub>s</sub> )	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
3a	---	260,000	3,000	5,000	268,000	140
3b	---	140,000	2,000	---	142,000	---
3c	---	260,000	3,000	---	263,000	---
3d	---	140,000	2,000	---	142,000	---
<b>SUBTOTAL</b>	---	<b>800,000</b>	<b>10,000</b>	<b>5,000</b>	<b>815,000</b>	<b>140</b>

Project: Master On-Site Wastewater Plan for One  
 Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

PHASE 4						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
4a	279	---	---	---	---	260
4b	267	---	---	8,000	8,000	---
4c	372	---	---	---	---	---
<b>SUBTOTAL</b>	<b>918</b>	<b>---</b>	<b>---</b>	<b>8,000</b>	<b>8,000</b>	<b>260</b>

PHASE 5						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
5a	---	127,834	21,074	2,500	151,408	---
5b	---	204,533	15,332	2,500	222,365	---
5c	---	204,533	15,332	---	219,865	---
<b>SUBTOTAL</b>	<b>---</b>	<b>536,900</b>	<b>51,738</b>	<b>5,000</b>	<b>593,638</b>	<b>---</b>

PHASE 6						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
6	---	197,089	---	---	197,089	---
<b>SUBTOTAL</b>	<b>---</b>	<b>197,089</b>	<b>---</b>	<b>---</b>	<b>197,089</b>	<b>---</b>

PLANNING UNIT II TOTAL                      1,716                      1,859,145                      234,400                      70,000                      2,163,545                      400

Project: Master On-Site Wastewater Plan for One Scottsdale (Stacked 40s)  
 Location: City of Scottsdale  
 Date: December 4, 2015  
 References: City of Scottsdale Design Standards and Policies Manual

CIVIL ENGINEER • HYDROLOGIST • LAND SURVEYOR  
 Proj Number: 153491  
 Proj Engineer: JGR

UPSTREAM NODE	DOWNSTREAM NODE	LOCATION (PLANNING UNIT)	PLANNING UNIT SUB-AREAS CONTRIBUTING TO FLOW	LAND USE TYPE			AVE. DAILY FLOW (ADF) PER SEGMENT (GPD)					CUMULATIVE AVERAGE DAY FLOW (GPD)					PEAK RESIDENTIAL & HOTEL FLOWS + AVE. DAY COMMERCIAL FLOWS (GPD)					PEAK COMMERCIAL FLOWS + AVE. DAY RESIDENTIAL & HOTEL FLOWS (GPD)					PEAK DESIGN FLOW <sup>1</sup> (GPD)	PIPE DIA. (IN)										
				RESIDENTIAL		COMMERCIAL			HOTEL	RESID.	OFFICE	RETAIL	RESTAURANT	HOTEL	TOTAL (GPD)	RESID.	OFFICE	RETAIL	RESTAURANT	HOTEL	TOTAL ADF (GPD)	INFILT & INFLOW (GPD)	RESID. (PF=4.0)	OFFICE (ADF)	RETAIL (ADF)	RESTAURANT			HOTEL (PF=4.0)	TOTAL MAX DAY FLOW (GPD)	RESID. (ADF)	OFFICE (PF=3.0)	RETAIL (PF=3.0)	RESTAURANT (PF=6.0)	HOTEL (ADF)	TOTAL MAX DAY FLOW (GPD)		
				NO. OF DWELLING UNITS	AREA (SF)	OFF-SITE	ON-SITE	OFFICE																													RETAIL	RESTAURANT
A5	A4	II	4b, 4c, 6	---	422	197,089	---	8,000	205,089	---	84,400	19,709	---	8,800	---	113,709	84,400	19,709	---	8,800	---	113,709	---	337,800	19,709	---	8,800	---	366,309	84,400	59,127	---	57,800	---	201,127	366,309	8	
A4	A3	II	5c	---	---	204,533	15,332	---	219,865	---	---	---	---	---	219,865	84,400	48,162	9,199	9,800	---	143,361	---	337,800	48,162	9,199	9,800	---	366,361	84,400	120,487	32,167	37,800	---	264,684	366,361	8		
A3	A2	II	1	---	---	325,158	---	---	325,158	---	---	---	---	---	325,158	84,400	72,878	9,199	9,800	---	175,877	---	337,800	72,878	9,199	9,800	---	429,677	84,400	218,033	32,167	57,800	---	362,731	429,677	8		
A2	A1 (OUTFALL # 1)	II	---	---	---	---	---	---	---	---	---	---	---	---	---	84,400	72,878	9,199	9,800	---	175,877	---	337,800	72,878	9,199	9,800	---	429,677	84,400	218,033	32,167	57,800	---	362,731	429,677	8		
TOTAL FOR OUTFALL #1				---	422	728,776	15,332	8,000	780,110	---	84,400	72,878	9,199	8,800	---	113,877	84,400	72,878	9,199	8,800	---	113,877	---	337,800	72,878	9,199	9,800	---	428,077	84,400	218,033	32,167	57,800	---	362,231	428,077	8	
B5	B4	II	3a, 4a, 3b	---	278	280,000	4,000	---	284,000	---	55,800	28,000	2,400	---	29,200	113,200	55,800	28,000	2,400	---	20,000	---	223,200	28,000	2,400	---	104,000	357,600	55,800	84,000	8,400	---	28,000	174,200	357,600	10		
B4	B3	II	4b	---	217	---	---	---	---	---	43,400	---	---	---	43,400	99,200	28,000	2,400	---	28,000	---	104,000	531,200	99,200	28,000	2,400	---	390,800	28,000	2,400	---	84,000	8,400	---	28,000	217,600	390,800	10
B3	B2	II	5a, 5b	---	---	332,367	36,408	5,000	373,775	---	---	33,237	21,844	8,000	---	61,080	99,200	61,237	24,244	8,000	28,000	---	386,800	61,237	24,244	8,000	104,000	562,280	99,200	183,710	64,653	36,000	28,000	429,783	562,280	12		
B2	B1 (OUTFALL #2)	II	2b, 2d	---	532	---	---	---	---	---	106,400	---	---	---	134,967	205,600	61,237	52,841	8,000	28,000	---	622,400	61,237	52,841	8,000	104,000	1,048,478	205,600	183,710	184,943	36,000	28,000	636,253	1,048,478	12			
TOTAL FOR OUTFALL #2				---	1,028	612,367	88,068	8,000	708,435	---	205,800	61,237	52,841	8,000	28,000	351,878	205,800	61,237	52,841	8,000	28,000	---	822,400	61,237	52,841	8,000	104,000	1,048,478	205,800	183,710	184,943	36,000	28,000	636,253	1,048,478	12		
C2	C1 (OUTFALL #3)	II	2a, 2c	---	288	---	125,000	52,000	177,000	---	53,200	---	75,000	62,400	---	190,800	53,200	---	75,000	62,400	---	190,800	---	212,800	---	75,000	62,400	---	350,200	53,200	---	262,500	374,400	---	660,100	660,100	10	
TOTAL FOR OUTFALL #3				---	288	---	125,000	52,000	177,000	---	53,200	---	75,000	62,400	---	190,800	53,200	---	75,000	62,400	---	190,800	---	212,800	---	75,000	62,400	---	350,200	53,200	---	262,500	374,400	---	660,100	660,100	10	
D2	D1 (OUTFALL #4)	II	3a, 3c	---	---	520,000	6,000	5,000	531,000	140	---	52,000	3,600	8,000	14,000	75,600	---	52,000	3,600	8,000	14,000	75,600	---	52,000	3,600	8,000	14,000	117,600	---	156,000	12,600	36,000	14,000	218,600	218,600	10		
TOTAL FOR OUTFALL #4				---	---	520,000	6,000	5,000	531,000	140	---	52,000	3,600	8,000	14,000	75,600	---	52,000	3,600	8,000	14,000	75,600	---	52,000	3,600	8,000	14,000	117,600	---	156,000	12,600	36,000	14,000	218,600	218,600	10		
E4	E3	III	Offsite	1,295	---	---	---	---	---	---	220,150	---	---	---	220,150	220,150	---	---	---	---	---	220,150	---	880,600	---	---	---	880,600	220,150	---	---	---	---	220,150	880,600	12		
E10	E9	III	---	---	121	---	---	---	---	---	24,200	---	---	---	24,200	24,200	---	---	---	---	---	24,200	---	98,800	---	---	---	98,800	24,200	---	---	---	24,200	98,800	8			
E3	E2	III	---	---	121	---	---	---	---	---	24,200	---	---	---	24,200	24,200	---	---	---	---	---	24,200	---	98,800	---	---	---	98,800	24,200	---	---	---	24,200	98,800	8			
E5	E4	III	---	---	121	---	---	---	---	---	24,200	---	---	---	24,200	24,200	---	---	---	---	---	24,200	---	98,800	---	---	---	98,800	24,200	---	---	---	24,200	98,800	8			
E7	E1 (OUTFALL #5)	III	---	---	---	---	---	---	---	---	24,200	---	---	---	24,200	24,200	---	---	---	---	---	24,200	---	98,800	---	---	---	98,800	24,200	---	---	---	24,200	98,800	8			
TOTAL FOR OUTFALL #5				1,295	242	---	---	---	---	---	288,550	---	---	---	---	288,550	288,550	---	---	---	---	---	288,550	---	1,074,200	---	---	---	1,074,200	288,550	---	---	---	288,550	1,074,200	12		
F14	F12	III	---	---	194	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F12	F11	III	---	---	183	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F11	F10	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F10	F9	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F10	F8	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F10	F8	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F10	F8	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F10	F8	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F8	F7	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F8	F7	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F8	F7	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F8	F7	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
F2	F1 (OUTFALL #6)	III	---	---	---	---	---	---	---	---	38,800	---	---	---	38,800	38,800	---	---	---	---	---	38,800	---	155,200	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8			
TOTAL FOR OUTFALL #6				---	608	637,100	33,900	30,000	702,800	---	101,800	63,710	21,300	36,000	---	222,810	101,800	63,710	21,300	36,000	---	222,810	---	406,400	63,710	21,300	36,000	---	527,410	101,800	191,130	74,550	216,000	---	583,280	583,280	10	
FULL BUILDOUT TOTAL				1,295	2,468	2,496,245	269,900	100,000	2,866,145	400	713,350	249,825	161,940	120,000	28,000	1,284,915	713,350	249,825	161,940	120,000	40,000																	

**APPENDIX C – APPROVED MASTER WASTEWATER PLAN FOR ONE SCOTTSDALE  
(STACKED 40S BY WOOD, PATEL & ASSOCIATES, INC., REVISED JANUARY  
28, 2016**



**Accepted For:**  
City of Scottsdale  
Water Resources Department  
9379 E. San Salvador  
Scottsdale, Arizona

By: David Mann  
Date: 3.3.2016

20-ZN-2002#3  
2/12/2016

**WOOD/PATEL**  
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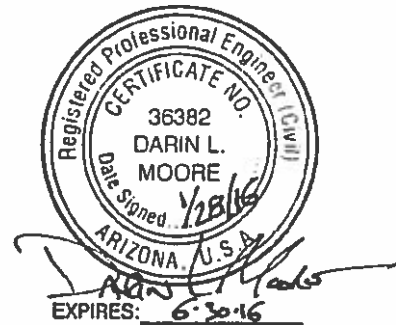
**ONE SCOTTSDALE  
(Stacked 40s)**  
**MASTER ON-SITE WASTEWATER PLAN**

Revised January 28, 2016  
Revised February 10, 2012  
Revised April 16, 2009  
August 25, 2005  
WP# 154391

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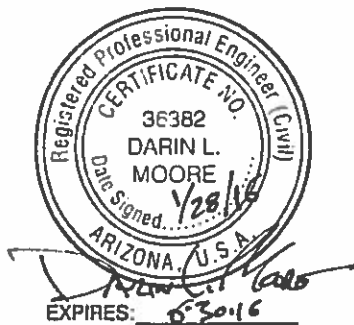
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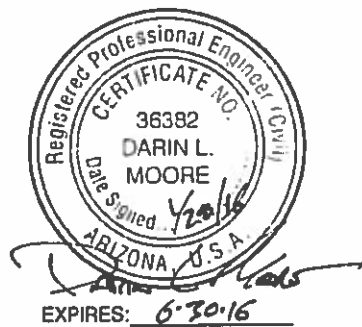
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## 1.0 INTRODUCTION

### 1.1 General Background

This plan has been prepared in accordance with Wood, Patel & Associates, Inc.'s (Wood/Patel's) understanding of City of Scottsdale technical requirements for wastewater collection systems and our understanding of the Master On-Site Wastewater Plan submission requirements as defined in the November 19, 2002 Development Agreement No. 2002-142-COS, between the Corrigan Land & Livestock Company, LLC, Corrigan Real Estate Investment, LLC, DMB Stacked 40s LLC, and the City of Scottsdale (Development Agreement), for the approximate 160-acre (gross) parcel of land formerly known as the Stacked 40s, currently known as One Scottsdale.

One Scottsdale is located at the northeast corner of Scottsdale Road and Union Hills Drive; south of Thompson Peak Parkway and east of Scottsdale Road. It is dissected by the Arizona Department of Transportation (ADOT) State Route 101 Freeway, and bound on the north by the Grayhawk Master Planned Community (hereafter referred to as Grayhawk), and on the east by both Grayhawk and Arizona State Trust Land. Specifically, One Scottsdale is located in the west half of Section 26, Township 4 North, Range 4 East of the Gila and Salt River Meridian. Plate 1 – *Vicinity Map* displays its specific location. Center Drive is now called Legacy Boulevard.

One Scottsdale will be developed on approximately 120 acres north of the State Route 101 Freeway, hereinafter referred to as the Project Area, and is anticipated to be a phased mixed-use development that may include single-family residential, multi-family residential, hotel, mixed-use office, retail, and commercial uses as applicable per the Development Agreement.

For the purposes of this plan, the scope of work per the Development Agreement stipulations is included as follows:

1. *MASTER ON-SITE WASTEWATER PLAN. The Master On-Site Wastewater Plan shall conform to the draft Water and Wastewater Report Guidelines available through the City Water Resources Department and shall include:*
  - a. *A description of the wastewater system requirements for the Planning Unit and the phasing of such requirements.*

- b. *A discussion of the timing of and parties responsible for construction of all wastewater facilities.*
  - c. *The conceptual location, size, type and capacity of the necessary wastewater collection, transmission, and treatment system components needed to serve the Planning Unit, and a preliminary analysis of the impact of the proposed development on the existing system with wastewater demand generation factors base upon land use.*
  - d. *The calculations necessary to substantiate the selection of the size, type, and capacity of the wastewater transmission and treatment facilities.*
  - e. *Compliance with the adopted City's Wastewater System Master Plan for the respective area.*
  - f. *Estimated peak flow from all contributions upstream of the proposed development that may flow through the on-site system shall be assessed for impacts to the entire system.*
2. *MASTER ON-SITE WASTEWATER PLAN APPROVAL. Before the submittal of any basis of design reports to the Plan Review and Permit Services Division, the Master Developer shall have obtained approval from the City Water Resources Department of the Master On-Site Wastewater Plan.*

The intent of this Master Plan revision is to support a proposed amendment to the One Scottsdale zoning. Refer to Section 1.2, Table 1.2 for the revised Conceptual Planning Areas land use budget.

**1.2 Study Area and Planning Units**

One Scottsdale is further described as containing "Planning Unit I", "Planning Unit II" and "Planning Unit III" as shown in Plate 2 – *Modeled On-Site Land Use Plans*. The scope of this Master On-Site Wastewater Plan includes the Project Area consisting of "Planning Unit II" and "Planning Unit III". Mr. John R. Lund and the City of Scottsdale are parties to a separate Development Agreement, Agreement Number 2002-143-COS, relating to the development of the South Parcel also known as Planning Unit I. **Therefore the Stacked 40s Development Agreement (Number 2002-142-COS) shall no longer apply to the South Parcel (Planning Unit I) upon the effective date of Agreement Number 2002-143-COS.** The original Stacked 40s Land Use Budget comparison is provided below in Table 1.1.

**Table 1.1:  
Land Use Budget**

Category	Zoning	Permitted Uses Within Planning Units		Original Total Allowed	Proposed Total Allowed
		II	III		
Residential <sup>2</sup>	PRC PCD	X	X	1,100 Units	2,466 Units
Commercial / Retail / Office	PRC PCD	X	X	1,800,000 SF	2,866,145 SF
Hotel	PRC PCD	X	X	400 Rooms	400 Rooms

**Notes:**

1. Source: Schedule C, Stacked 40s Land Use Budget, Development Agreement
2. A maximum of 750 residential units within Planning Unit III.

According to the Development Agreement, the approved Development Plan for the Project Area is on file with the Planning and Development Services Department at the City of Scottsdale. The two (2) proposed Planning Unit locations are as follows: Planning Unit II will extend north from the State Route 101 Freeway to Legacy Boulevard, and Planning Unit III will extend north from Legacy Boulevard to Thompson Peak Parkway. A summary of proposed planning areas designated for development within the Project Area is provided in Table 1.2 – *Conceptual Planning Areas*. For a detailed breakdown of land-use as used for estimated wastewater flow rates, please refer to the *Modeled On-Site Land Use Plans* in Plate 2 and *Modeled Land Use Calculations* in Appendix A.

**Table 1.2:  
Conceptual Planning Areas<sup>1</sup>**

Description	Residential Dwelling Units <sup>2</sup>	Commercial			Total (Sq. Ft.)	Hotel <sup>2</sup> (Rooms)
		Office (Sq. Ft.)	Retail (Sq. Ft.)	Restaurant (Sq. Ft.)		
Planning Unit II	1716	1,859,145	234,400	70,000	2,163,545	400
Planning Unit III	✓750	✓637,100	35,500	20,000	702,600	0
<b>Total</b>	<b>2,466</b>	<b>2,496,245</b>	<b>269,900</b>	<b>100,000</b>	<b>2,866,145</b>	<b>400</b>

**Notes:**

1. Source: Client-furnished December 2015 land plan for modeling purposes.

608,000 + 25,300 = 633,300 current L-128 III

**1.3 Build-Out Condition**

The design criteria utilized to project wastewater flows and to determine required pipe sizes for the Project Area is based on the maximum number of residences, hotel rooms and square footage of commercial uses allowed. Significant changes in land use and/or projected wastewater flow rates may require an amendment to the Master Plan and/or review and re-approval by the City of Scottsdale. All water and sanitary sewer lines within the Project Area will be constructed by the owner/developer.

**1.4 Construction Phasing**

It is anticipated that Planning Units II and III will be constructed in several phases. On-site sewer line construction will generally coincide with the development phasing, to be modeled with future basis-of-design (BOD) reports for individual phases.

## 2.0 EXISTING CONDITIONS

### 2.1 Topographic Conditions

Currently, the Project Area consists of a mass graded condition for both Planning Units II and III. The Henkel development and associated infrastructure in the southern portion of Planning Unit II is built, along with the Legacy Boulevard improvements that dissect the area. The land generally slopes in a southerly direction at an approximate slope of 1.5 percent from Thompson Peak Parkway to ADOT State Route 101 Freeway. The peak elevation within the area is approximately 1,669 feet, located near Thompson Peak Parkway. The lowest elevation within the Project Area is approximately 1,608 feet near the intersection of Scottsdale Road and State Route 101 Freeway.

### 2.2 Existing Wastewater Infrastructure

City of Scottsdale public wastewater collection systems adjacent to the Project Area include an existing 12-inch gravity sewer located along East Thompson Peak Parkway, north of Planning Unit III, an existing 15-inch gravity sewer located along Scottsdale Road, west of Planning Units II and III, and an existing 12-inch sewer extending from east to west, located in the Legacy Boulevard alignment, from the eastern boundary of the Project Area to Scottsdale Road.

### 3.0 WASTEWATER COLLECTION SYSTEM DESIGN CRITERIA AND FLOW RATES

#### 3.1 Design Criteria

For the purpose of this Master On-Site Wastewater Plan, wastewater design flows and pipe-sizing criteria utilized are based on Wood/Patel's understanding of the following:

- Applicable wastewater system design criteria listed in the *City of Scottsdale Design Standards and Policy Manual, 2004 update*;
- Wastewater 'unit daily design flows' as provided by City of Scottsdale staff, and potential development conditions as provided by the client
- Title 18, Chapter 9 of the *Arizona Administrative Code*;
- City of Scottsdale Water Reuse Masterplan (2012)

Please refer to Appendix B – *Wastewater Collection System Design Criteria*, for detailed information regarding design criteria.

#### 3.2 Peaking Factor Variations

An argument can be made that the reality and potential of residential and commercial wastewater flows peaking simultaneously is unlikely. Therefore, the selected approach utilized in this Master Plan determined wastewater design flows based on commercial and residential sources peaking independently. Results of this analysis are presented in Appendix C – *Modeled Wastewater Design Flows*.

#### 3.3 Wastewater Design Flows

Wastewater design flows were estimated using design criteria listed in Section 3.1, and are summarized in Table 3.1. According to City of Scottsdale staff, the existing sewer main extending along Legacy Boulevard through the area should be designed to accommodate wastewater flows from approximately 1,295 off-site dwelling units east of the area and north of Legacy Boulevard. Wastewater design flows from these off-site dwelling units are included in the calculations. Please refer to Plate 2 – *Modeled On-Site Land Use Plans*. Detailed flow calculations are provided in Appendix C – *Modeled Wastewater Design Flows* and Appendix D – *Pipe Capacity Calculations*.

**Table 3.1:  
Wastewater Design Flows (GPD)**

Outfall Number	Average-Day	Maximum-Day
1	175,877	429,077
2	351,678	1,046,478
3	190,600	690,100
4	75,600	218,600
5	268,550	1,074,200
6	222,610	583,280
<b>Total</b>	<b>1,284,915</b>	<b>4,041,735</b>

737,960 per  
Erickson report  
(one Scottsdale)

**3.4 Off-Site Wastewater Flows to Scottsdale Road (Master Plan Demands)**

Off-Site Wastewater design flows were estimated using design criteria listed in Section 3.1, and are summarized in Table 3.2. See Appendix C for detailed Calculations.

**Table 3.2:  
Off-Site Wastewater Design Flows (GPD)**

Phase	Acres	ADF (GPD)	PEAK Flow Factor (GPD)
Planning Unit II	64.2	92,897	371,590
Planning Unit III	56.7	82,045	328,180
<b>TOTAL</b>	<b>120.9</b>	<b>174,942</b>	<b>699,769</b>

PF OF 4 is  
High for Area  
> 20 AC

485 gpm

737,960 per

Erickson  
report

3.6 million  
knowly report (one Scottsdale)

**3.5 Wastewater Flows from Future Off-Site Development**

It is Wood/Patel's understanding that the City of Scottsdale is currently investigating potential sewerage alignments to serve future development in the area east of Planning Units II and III and north of the State-Route 101 Freeway intersection. These proposed

alignments would convey sewage from this area to the east and/or south, ultimately outfalling into the proposed public sewer line located in the Miller Road alignment. In the event these alignments are not feasible, a portion of future wastewater flows from this area may need to be routed through One Scottsdale. As portions of Phase II are developed along the eastern boundary, the developer shall meet with the City of Scottsdale staff to discuss potential sewer extensions for the state land to the east.

## 4.0 PROPOSED SEWER SYSTEM

### 4.1 Preliminary Sewer Pipe Sizes

Pipes were sized to accommodate peak-flow conditions at ultimate build-out for the Project Area, plus off-site flows as discussed in Section 3.3. Using the design criteria mentioned previously, the resulting conceptual skeleton sewer system includes sewer pipes ranging in diameter from 8-inches to 12-inches, as shown in Plate 2. Please refer to the Appendix D – *Pipe Capacity Calculations* and Plate 2 – *Modeled On-Site Land Use Plans* for the recommended sewer configuration.

### 4.2 Modifications to Existing Sewer

The existing public 12-inch sewer located south of Legacy Boulevard within the Project Area has been abandoned and a new 12-inch line placed within the Legacy Boulevard right-of-way. This line serves an off-site area east of the Project Area (a portion of Grayhawk). This line is currently in operation as of the third quarter of 2007 and is shown in Plate 2.

### 4.3 Deer Valley Road Sewer Interceptor

Per the Development Agreement, an off-site sewer interceptor line was designed and funded by the Stacked 40s (One Scottsdale) developer to connect to the Deer Valley Road sewer that currently flows to the existing 15-inch sewer line in Scottsdale Road, adjacent to the Project Area. This off-site sewer redirects existing wastewater flows and increases the available capacity of the existing 15-inch sewer located along Scottsdale Road to serve the Project Area. This interceptor is in use as of 2006.

### 4.4 Proposed Wastewater Outfall Connections

There are six (6) proposed wastewater-outfall connections that will be made to the existing public 15-inch sewer line located in Scottsdale Road (see Plate 2). It is Wood/Patel's understanding that the City of Scottsdale will review the existing 15-inch line located in Scottsdale Road for capacity issues as the Project Area develops based on demands shown in Table 3.2 and the Off-Site Wastewater Design Flow Calculations (Please refer to Appendix C- *Modeled Wastewater Design Flows*).

4.5 **Legacy Boulevard (Center Drive)**

Center Drive is now called Legacy Boulevard. It is our understanding that the managing partner of One Scottsdale caused Legacy Boulevard through the Site to be constructed to coincide with the adjoining City of Scottsdale sponsored Legacy Boulevard. At this time, ✓ Legacy Boulevard (a public roadway) has been constructed and is in use by the general public.

## 5.0 CONCLUSIONS

The One Scottsdale (Stacked 40s) On-Site Master Wastewater Plan, revised January 28, 2016, is believed to meet City of Scottsdale standards and requirements. It is intended to serve as a guide for construction documents associated with the proposed on-site and off-site (Deer Valley Road sewer re-routing modifications) wastewater collection systems. The following highlights critical conclusions:

1. Planning Units II and III's on-site wastewater collection system is ~~capable of being~~ <sup>to BE</sup> designed in accordance with the City of Scottsdale's current wastewater-system design criteria.
2. Wood/Patel believes that the modeled on-site wastewater system will provide necessary system conveyance and capacity within the previously-defined design, according to calculation results contained in this plan.
3. The work presented models full entitlement build-out per the project zoning case. Full entitlement build-out may or may not occur.
4. The On-Site Master Wastewater Plan for One Scottsdale (Stacked 40s) demonstrates the adequacy of the proposed on-site wastewater collection system to serve the proposed Planning Units II and III.
5. The existing 15-inch public sewer located in Scottsdale Road has more available capacity since the Deer Valley sewer re-routing modifications were completed. It is our understanding that the City of Scottsdale will monitor the performance of the existing 15-inch public sewer in Scottsdale Road as development in the area progresses.
6. City of Scottsdale to evaluate the offsite sewer capacities and implement any necessary capital improvement projects in a future city master plan update.
7. Basis of design reports are required for each phase of development within Planning Units II and III to demonstrate compliance with this master plan.

**APPENDIX A**

**MODELED LAND USE CALCULATIONS**

Project: Master On-Site Wastewater Plan for One  
 Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

**PLANNING UNIT II**

PHASE 1						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DU <sub>s</sub> )	COMMERCIAL			AREA (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
17 (Henkel Building)	---	325,156	---	---	325,156	---
<b>SUBTOTAL</b>	---	<b>325,156</b>	---	---	<b>325,156</b>	---

PHASE 2						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DU <sub>s</sub> )	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
2a	133	---	62,500	26,000	88,500	---
2b	266	---	23,831	---	23,831	---
2c	133	---	62,500	26,000	88,500	---
2d	266	---	23,831	---	23,831	---
<b>SUBTOTAL</b>	<b>798</b>	---	<b>172,662</b>	<b>52,000</b>	<b>224,662</b>	---

PHASE 3						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DU <sub>s</sub> )	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
3a	---	260,000	3,000	5,000	268,000	140
3b	---	140,000	2,000	---	142,000	---
3c	---	260,000	3,000	---	263,000	---
3d	---	140,000	2,000	---	142,000	---
<b>SUBTOTAL</b>	---	<b>800,000</b>	<b>10,000</b>	<b>5,000</b>	<b>815,000</b>	<b>140</b>

Project: Master On-Site Wastewater Plan for One  
 Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

PHASE 4						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
4a	279	---	---	---	---	280
4b	267	---	---	8,000	8,000	---
4c	372	---	---	---	---	---
<b>SUBTOTAL</b>	<b>918</b>	<b>---</b>	<b>---</b>	<b>8,000</b>	<b>8,000</b>	<b>280</b>

PHASE 5						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
5a	---	127,834	21,074	2,500	151,408	---
5b	---	204,533	15,332	2,500	222,365	---
5c	---	204,533	15,332	---	219,865	---
<b>SUBTOTAL</b>	<b>---</b>	<b>536,900</b>	<b>51,738</b>	<b>5,000</b>	<b>593,638</b>	<b>---</b>

PHASE 6						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
6	---	197,089	---	---	197,089	---
<b>SUBTOTAL</b>	<b>---</b>	<b>197,089</b>	<b>---</b>	<b>---</b>	<b>197,089</b>	<b>---</b>

PLANNING UNIT II TOTAL                      1,716                      1,859,145                      234,400                      70,000                      2,163,545                      400

Project: Master On-Site Wastewater Plan for One  
 Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

PLANNING UNIT III

PHASE 1						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
1	388	---	---	---	---	---
<b>SUBTOTAL</b>	<b>388</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>---</b>

PHASE 2						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL AREA (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
2	362	---	---	---	---	---
<b>SUBTOTAL</b>	<b>362</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>---</b>

PHASE 3						
PLANNING UNIT SUB-AREA	RESIDENTIAL (DUs)	COMMERCIAL			TOTAL COMMERCIAL AREA (SF)	HOTEL (ROOMS)
		OFFICE AREA (SF)	RETAIL AREA (SF)	RESTAURANT AREA (SF)		
3a	---	159,275	17,750	15,000	192,025	---
3b	---	159,275	17,750	---	177,025	---
3c	---	159,275	---	15,000	174,275	---
3d	---	159,275	---	---	159,275	---
<b>SUBTOTAL</b>	<b>---</b>	<b>637,100</b>	<b>35,500</b>	<b>30,000</b>	<b>702,600</b>	<b>---</b>

<b>PLANNING UNIT III TOTAL</b>	<b>750</b>	<b>637,100</b>	<b>35,500</b>	<b>30,000</b>	<b>702,600</b>	<b>---</b>
<b>FULL BUILDOUT TOTAL</b>	<b>2,466</b>	<b>2,466,245</b>	<b>269,900</b>	<b>100,000</b>	<b>2,864,145</b>	<b>400</b>

633 300 proposals  
 (TDI + Erickson Reports)

Project: Master On-Site Wastewater Plan for One Scottsdale (Stacked 40s)  
 Location: City of Scottsdale  
 Date: December 4, 2015  
 References: City of Scottsdale Design Standards and Policies Manual

CIVIL ENGINEER • HYDROLOGIST • LAND SURVEYOR  
 Proj Number: 153481  
 Proj Engineer: JGR

UPSTREAM NODE	DOWNSTREAM NODE	LOCATION (PLANNING UNIT)	PLANNING UNIT SUB-AREAS CONTRIBUTING TO FLOW	LAND USE TYPE			AVE. DAILY FLOW (ADF) PER SEGMENT (GPD)					CUMULATIVE AVERAGE DAY FLOW (GPD)					PEAK RESIDENTIAL & HOTEL FLOWS + AVE. DAY COMMERCIAL FLOWS (GPD)					PEAK COMMERCIAL FLOWS + AVE. DAY RESIDENTIAL & HOTEL FLOWS (GPD)					PEAK DESIGN FLOW <sup>1</sup> (GPD)	PIPE DIA. (IN)																
				RESIDENTIAL		COMMERCIAL			HOTEL	RESID.	OFFICE	RETAIL	RESTAURANT	HOTEL	TOTAL (GPD)	RESID.	OFFICE	RETAIL	RESTAURANT	HOTEL	TOTAL ADF (GPD)	INFILT & INFLOW (GPD)	RESID. (PF=4.0)	OFFICE (ADF)	RETAIL (ADF)	RESTAURANT			HOTEL (PF=4.0)	TOTAL MAX DAY FLOW (GPD)	RESID. (ADF)	OFFICE (PF=3.0)	RETAIL (PF=3.0)	RESTAURANT (PF=6.0)	HOTEL (ADF)	TOTAL MAX DAY FLOW (GPD)								
				NO. OF DWELLING UNITS	AREA (SF)	OFF-SITE	ON-SITE	OFFICE																													RETAIL	RESTAURANT	TOTAL	NO. OF ROOMS				
A5	A4	II	4b, 4c, 6	---	422	197,089	---	8,000	205,089	---	---	84,400	19,709	---	9,800	---	113,709	84,400	19,709	---	9,800	---	113,709	---	337,600	19,709	---	9,800	---	366,809	84,400	59,127	---	57,600	---	201,127	366,809	8						
A4	A3	II	5c	---	---	204,533	15,332	---	219,865	---	---	---	20,453	9,199	---	---	29,653	84,400	49,162	9,199	9,800	---	143,361	---	337,600	49,162	9,199	9,800	---	396,561	84,400	120,487	32,167	37,600	---	264,684	396,561	8						
A3	A2	II	1	---	---	325,158	---	---	325,158	---	---	---	32,516	---	---	---	32,516	84,400	72,678	9,199	9,800	---	175,877	---	337,600	72,678	9,199	9,800	---	429,077	84,400	218,033	32,167	57,600	---	362,731	429,077	8						
A2	A1 (OUTFALL # 1)	II	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	84,400	72,678	9,199	9,800	---	175,877	---	337,600	72,678	9,199	9,800	---	429,077	84,400	218,033	32,167	57,600	---	362,731	429,077	8						
TOTAL FOR OUTFALL #1				---	422	728,776	15,332	8,000	780,110	---	---	---	84,400	72,678	9,199	9,800	---	175,877	84,400	72,678	9,199	9,800	---	175,877	---	337,600	72,678	9,199	9,800	---	429,077	84,400	218,033	32,167	57,600	---	362,731	429,077	8					
B5	B4	II	3d, 4a, 3b	---	276	280,000	4,000	---	284,000	260	---	55,800	28,000	2,400	---	26,000	112,200	55,800	28,000	2,400	---	26,000	112,200	---	223,200	28,000	2,400	---	104,000	357,600	55,800	84,000	8,400	---	26,000	174,200	357,600	10						
B4	B3	II	4b	---	217	---	---	---	---	---	---	43,400	---	---	---	---	43,400	99,200	28,000	2,400	---	26,000	173,200	---	398,800	28,000	2,400	---	104,000	531,200	99,200	84,000	8,400	---	26,000	217,600	531,200	10						
B3	B2	II	5a, 5b	---	---	332,367	36,406	5,000	373,773	---	---	---	33,237	21,844	6,000	---	61,080	99,200	61,237	24,244	6,000	---	26,000	173,200	---	398,800	61,237	24,244	6,000	104,000	592,260	99,200	163,710	64,653	36,000	26,000	429,783	592,260	12					
B2	B1 (OUTFALL #2)	II	2b, 2d	---	532	---	---	---	---	---	---	106,400	---	---	---	---	134,967	205,600	61,237	52,841	6,000	---	26,000	308,278	---	822,400	61,237	52,841	6,000	104,000	1,048,478	205,600	163,710	184,943	36,000	26,000	636,253	1,048,478	12					
TOTAL FOR OUTFALL #2				---	1,028	612,367	88,068	8,000	708,435	260	---	---	205,800	61,237	52,841	6,000	26,000	351,678	205,600	61,237	52,841	6,000	---	26,000	351,678	---	822,400	61,237	52,841	6,000	104,000	1,048,478	205,600	163,710	184,943	36,000	26,000	636,253	1,048,478	12				
C2	C1 (OUTFALL #3)	II	2a, 2c	---	266	---	125,000	52,000	177,000	---	---	53,200	---	75,000	62,400	---	190,600	53,200	---	75,000	62,400	---	190,600	---	212,800	---	75,000	62,400	---	350,200	53,200	---	262,500	374,400	---	660,100	660,100	10						
TOTAL FOR OUTFALL #3				---	266	---	125,000	52,000	177,000	---	---	53,200	---	75,000	62,400	---	190,600	53,200	---	75,000	62,400	---	190,600	---	212,800	---	212,800	---	75,000	62,400	---	350,200	53,200	---	262,500	374,400	---	660,100	660,100	10				
D2	D1 (OUTFALL #4)	II	3a, 3c	---	---	520,000	6,000	5,000	531,000	140	---	52,000	3,600	6,000	14,000	75,600	---	52,000	3,600	6,000	14,000	75,600	---	52,000	3,600	6,000	14,000	75,600	---	52,000	3,600	6,000	56,000	117,600	---	156,000	12,600	36,000	14,000	218,600	218,600	10		
TOTAL FOR OUTFALL #4				---	---	520,000	6,000	5,000	531,000	140	---	52,000	3,600	6,000	14,000	75,600	---	52,000	3,600	6,000	14,000	75,600	---	52,000	3,600	6,000	14,000	75,600	---	52,000	3,600	6,000	56,000	117,600	---	156,000	12,600	36,000	14,000	218,600	218,600	10		
E4	E3	III	Offsite	1,295	---	---	---	---	---	---	---	220,150	---	---	---	---	220,150	220,150	---	---	---	---	220,150	---	880,600	---	---	---	---	880,600	220,150	---	---	---	---	220,150	880,600	12						
E10	E9	III	---	---	121	---	---	---	---	---	---	24,200	---	---	---	---	24,200	24,200	---	---	---	---	24,200	---	98,800	---	---	---	---	98,800	24,200	---	---	---	24,200	98,800	8							
E9	E7	III	---	---	121	---	---	---	---	---	---	24,200	---	---	---	---	24,200	24,200	---	---	---	---	24,200	---	98,800	---	---	---	---	98,800	24,200	---	---	---	24,200	98,800	8							
E7	E1 (OUTFALL #5)	III	---	---	---	---	---	---	---	---	---	24,200	---	---	---	---	24,200	24,200	---	---	---	---	24,200	---	98,800	---	---	---	---	98,800	24,200	---	---	---	24,200	98,800	8							
TOTAL FOR OUTFALL #5				1,295	242	---	---	---	---	---	---	---	268,550	---	---	---	---	268,550	268,550	---	---	---	---	268,550	---	1,074,200	---	---	---	---	1,074,200	268,550	---	---	---	268,550	1,074,200	12						
F14	F12	III	---	---	194	---	---	---	---	---	---	38,800	---	---	---	---	38,800	38,800	---	---	---	---	38,800	---	155,200	---	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8							
F12	F11	III	---	---	183	---	---	---	---	---	---	38,800	---	---	---	---	38,800	38,800	---	---	---	---	38,800	---	155,200	---	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8							
F11	F10	III	---	---	---	---	---	---	---	---	---	38,800	---	---	---	---	38,800	38,800	---	---	---	---	38,800	---	155,200	---	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8							
F10	F9	III	---	---	---	---	---	---	---	---	---	38,800	---	---	---	---	38,800	38,800	---	---	---	---	38,800	---	155,200	---	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8							
F9	F8	III	---	---	---	---	---	---	---	---	---	38,800	---	---	---	---	38,800	38,800	---	---	---	---	38,800	---	155,200	---	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8							
F8	F7	III	---	---	---	---	---	---	---	---	---	38,800	---	---	---	---	38,800	38,800	---	---	---	---	38,800	---	155,200	---	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8							
F7	F6	III	---	---	---	---	---	---	---	---	---	38,800	---	---	---	---	38,800	38,800	---	---	---	---	38,800	---	155,200	---	---	---	---	155,200	38,800	---	---	---	38,800	155,200	8							
F6	F5	III	3a	---	---	159,275	17,750	15,000	192,025	---	---	15,928	10,650	18,000	---	44,578	---	15,928	10,650	18,000	---	44,578	---	15,928	---	15,928	10,650	18,000	---	44,578	---	47,783	37,275	108,000	---	193,058	193,058	8						
F5	F4	III	3b	---	---	159,275	17,750	15,000	192,025	---	---	15,928	10,650	18,000	---	44,578	---	15,928	10,650	18,000	---	44,578	---	15,928	---	15,928	10,650	18,000	---	44,578	---	47,783	37,275	108,000	---	193,058	193,058	8						
F4	F3	III	---	---	---	---	---	---	---	---	---	15,928	10,650	18,000	---	26,578	---	15,928	10,650	18,000	---	26,578	---	15,928	---	15,928	10,650	18,000	---	26,578	---	31,855	21,300	18,000	---	71,155	---	95,565	74,550	108,000	---	278,115	278,115	8
F3	F2	III	---	---	---	---	---	---	---	---	---	15,928	10,650	18,000	---	26,578	---	15,928	10,650	18,000	---	26,578	---	15,928	---	15,928	10,650	18,000	---	26,578	---	31,855	21,300	18,000	---	71,155	---	95,565	74,550	108,000	---	278,115	278,115	8
F2	F1 (OUTFALL #6)	III	---	---	---	---	---	---	---	---	---	15,928	10,650	18,000	---	26,578	---	15,928	10,650	18,000	---	26,578	---	15,928	---	15,928	10,650	18,000	---	26,578	---	31,855	21,300	18,000	---	71,155	---	95,565	74,550	108,000	---	278,115	278,115	8
TOTAL FOR OUTFALL #6				---	---	---	---	---	---	---	---	---	101,600	63,710	21,300	36,000	---	267,1																										

**APPENDIX B**

**WASTEWATER COLLECTION SYSTEM DESIGN CRITERIA**

Project: Master On-Site Wastewater Plan for One Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

ONSITE WASTEWATER DESIGN CRITERIA

DESCRIPTION	VALUE	UNITS	Note
<b>GENERAL</b>			
Minimum Mean Full-Flow Velocity:	2.50	ft/s	1
Max. Peak Flow Depth-to-Diameter Ratio (8-12' Dia. Sewers):	0.65	---	1,3
Max. Peak Flow Depth-to-Diameter Ratio (>12' Dia. Sewers):	0.70	---	1
Max. Utilized Capacity:	90	%	---
Minimum Pipe Diameter:	8	in	1
<b>RESIDENTIAL</b>			
Average Day Wastewater Flow per Person, (8-12' Dia. Sewers):	100	gpd/person	2
Average Day Wastewater Flow per Person, (>12' Dia. Sewers):	100	gpd/person	2
Population Density, On-Site:	2.00	persons/DU	2
Population Density, Off-Site Condominiums:	1.70	persons/DU	2
Peaking Factor, Residential:	4.00	---	1
<b>OFFICE</b>			
Average Day Wastewater Flow, Office:	0.10	gpd/SF	2
Peaking Factor, Office:	3.00	n/a	2
<b>RETAIL</b>			
Average Day Wastewater Flow, Retail:	0.60	gpd/sf	2
Peaking Factor, Retail:	3.50	---	2
<b>RESTAURANT</b>			
Average Day Wastewater Flow, Restaurant:	1.20	gpd/sf	
Peaking Factor, Restaurant:	6.00		
<b>HOTEL</b>			
Average Day Wastewater Flow, Hotel:	100	gpd/room	
Peaking Factor, Hotel:	4.00	---	1

OFFSITE WASTEWATER DESIGN CRITERIA

DESCRIPTION	VALUE	UNITS	Note
<b>MIXED USE DEVELOPMENT</b>			
Average Day Wastewater Flow per Acre	1447	gpd/acre	2
Max. Day Wastewater Flow per Acre	2098	gpd/acre	2
Peaking Factor	4	---	2

Notes: 1 -  
 2 -  
 3 -

**APPENDIX C**

**MODELED WASTEWATER DESIGN FLOWS**

**WOOD/PATEL**

**OFFSITE WASTEWATER DESIGN FLOWS**

CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS • CONSTRUCTION MANAGERS

Project: Master On-Site Wastewater Plan to One Scottsdale  
Location: Scottsdale, Arizona  
Date: January 29, 2016  
References: City of Scottsdale Water Reuse Master Plan (2012)

Proj Number: 154391  
Proj. Engineer: John Gordy Ritchie, P.E.

PHASE	APPLICABLE UNIT	NUMBER OF UNITS	ADF/ APPLICABLE UNIT (GPAD) <sup>1</sup>	TOTAL ADF (GPD)	MAX ADF/ APPLICABLE UNIT (GPAD) <sup>1</sup>	TOTAL MAX ADF (GPD)	F.A.R. PEAKING FACTOR <sup>1</sup>	PEAK ADF (GPD) <sup>1</sup>
Planning Unit II	Acres	64.2	1447	92,897	2098	134,692	4	371,590
Planning Unit III	Acres	56.7	1447	82,045	2098	118,957	4	328,180
<b>Totals</b>		<b>120.9</b>		<b>174,942</b>		<b>253,648</b>		<b>699,769</b>

**Notes:**

1. Wastewater design flow rates and peaking factors established from the City of Scottsdale Water Reuse Master Plan (2012)

So 4041735 gpd (DST/AM)  
vs. 699769 gpd (MP)  
(5.8 factor)

**APPENDIX D**

**PIPE CAPACITY CALCULATIONS**

Project: Master On-Site Wastewater Plan for One Scottsdale (Stacked 40s)  
 Location: Scottsdale, Arizona  
 Date: December 4, 2015

Proj. Number: 154391  
 Proj. Engineer: JGR

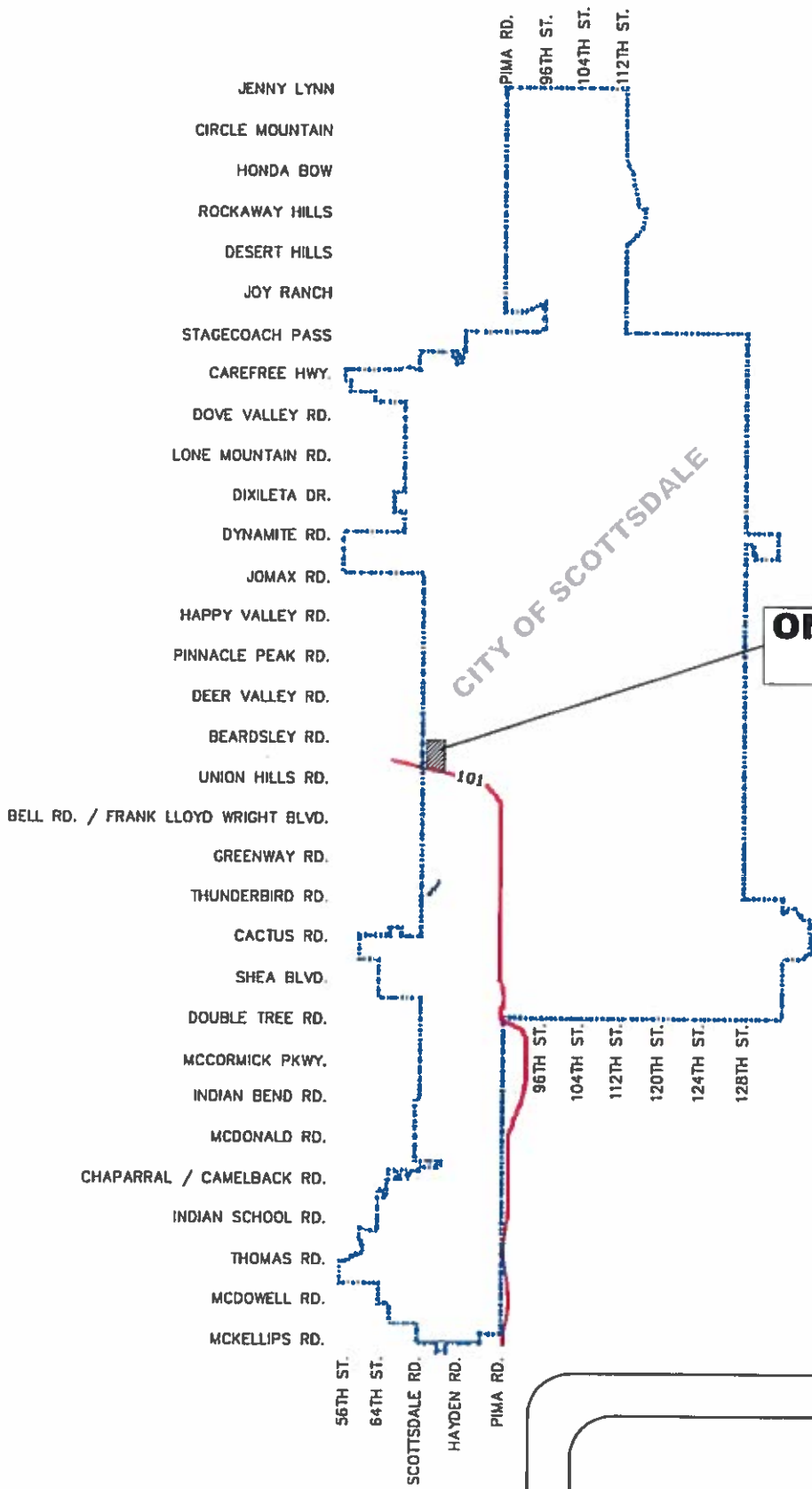
UPSTREAM NODE	DOWNSTREAM NODE	MAX DAY FLOW (GPD)	PIPE DIA. (IN.)	PIPE SLOPE (FT / FT)	d/D RATIO	FULL FLOW VELOCITY (FPS)	PIPE CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	PERCENT OF CAPACITY
A5	A4	368,909	8	0.00550	57.7%	2.6	580,390	213,481	63.2%
A4	A3	396,561	8	0.00550	60.7%	2.6	580,390	183,829	68.3%
A2	A1 (OUTFALL # 1)	429,077	8	0.00550	64.0%	2.6	580,390	151,313	73.9%
B5	B4	357,600	10	0.00430	43.0%	2.6	930,533	572,933	38.4%
B3	B2	592,280	12	0.00300	48.1%	2.5	1,263,964	671,684	46.9%
B2	B1 (OUTFALL #2)	1,046,478	12	0.00300	69.4%	2.5	1,263,964	217,487	82.8%
C2	C1 (OUTFALL #3)	690,100	10	0.00430	64.1%	2.6	930,533	240,433	74.2%
D2	D1 (OUTFALL #4)	218,600	10	0.00430	33.0%	2.6	930,533	711,933	23.5%
E4	E3	880,600	12	0.00310	60.8%	2.5	1,284,858	404,258	68.5%
E10	E3	96,800	8	0.00550	27.7%	2.6	580,390	483,590	16.7%
E3	E2	977,400	12	0.00360	62.0%	2.7	1,384,603	407,203	70.6%
E5	E2	96,800	8	0.00550	27.7%	2.6	580,390	483,590	16.7%
E2	E1 (OUTFALL #5)	1,074,200	12	0.00310	69.9%	2.5	1,284,858	210,658	83.6%
F14	F12	155,200	8	0.00550	35.3%	2.6	580,390	425,190	26.7%
F12	F11	155,200	8	0.00550	35.3%	2.6	580,390	425,190	26.7%
F17	F11	154,400	8	0.00550	35.2%	2.6	580,390	425,990	26.6%
F11	F10	309,600	8	0.00550	52.0%	2.6	580,390	270,790	53.3%
F10	F9	309,600	10	0.00430	39.7%	2.6	930,533	620,933	33.3%
F19	F9	96,800	8	0.00550	27.7%	2.6	580,390	483,590	16.7%
F9	F8	406,400	10	0.00430	46.3%	2.6	930,533	524,133	43.7%
F5	F4	193,058	8	0.00550	39.7%	2.6	580,390	387,333	33.3%
F4	F6	278,115	8	0.00550	48.8%	2.6	580,390	302,275	47.9%
F6	F10	278,115	8	0.00550	48.8%	2.6	580,390	302,275	47.9%
F10	F8	325,898	8	0.00550	53.6%	2.6	580,390	254,493	56.2%
F7	F8	155,783	8	0.00550	27.1%	2.6	580,390	424,608	26.8%
F8	F2	583,280	10	0.00430	57.4%	2.6	930,533	347,253	62.7%
F2	F1 (OUTFALL #6)	583,280	10	0.00430	57.4%	2.6	930,533	347,253	62.7%

A1  $d/D = 0.7$   $486720 - 429077 = 57643$  gpd  
 Avail to OFFSITE

B1  $d/D = 0.7$   $1058400 - 1046478 = 11922$  gpd  
 Avail to OFFSITE  
 (Not much)

**PLATE 1**

**VICINITY MAP**



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<b>PLATE 1</b>	
<b>ONE SCOTTSDALE (Stacked 40s) VICINITY MAP</b>	<b>WOOD/PATEL &amp; ASSOCIATES</b> Civil Engineers Hydrologists Land Surveyors Construction Managers (602) 335-8500

**PLATE 2**

**MODELED ON-SITE LAND USE PLANS**

EAST THOMPSON PEAK PARKWAY



PLANNING UNIT III

LEGACY BLVD

SCOTTSDALE ROAD

PLANNING UNIT II

OUTER LOOP 101 FREEWAY

PLANNING UNIT I (NOT A PART)

3 PHASE AREA IN PLANNING UNIT III

1 PHASE AREA IN PLANNING UNIT II

--- PLANNING UNIT LINE

PLATE 2

JANUARY 2016

ONE SCOTTSDALE  
MODELED ON-SITE  
LAND USE PLAN

WOOD/PATEL  
ASSOCIATES  
Civil Engineers  
Hydrologists  
Land Surveyors  
Construction Managers  
(602) 956-8600

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30-DR-2021\_V3

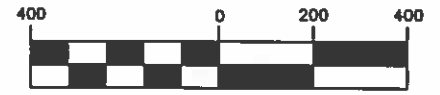
11/23/2021

**PLATE 3**

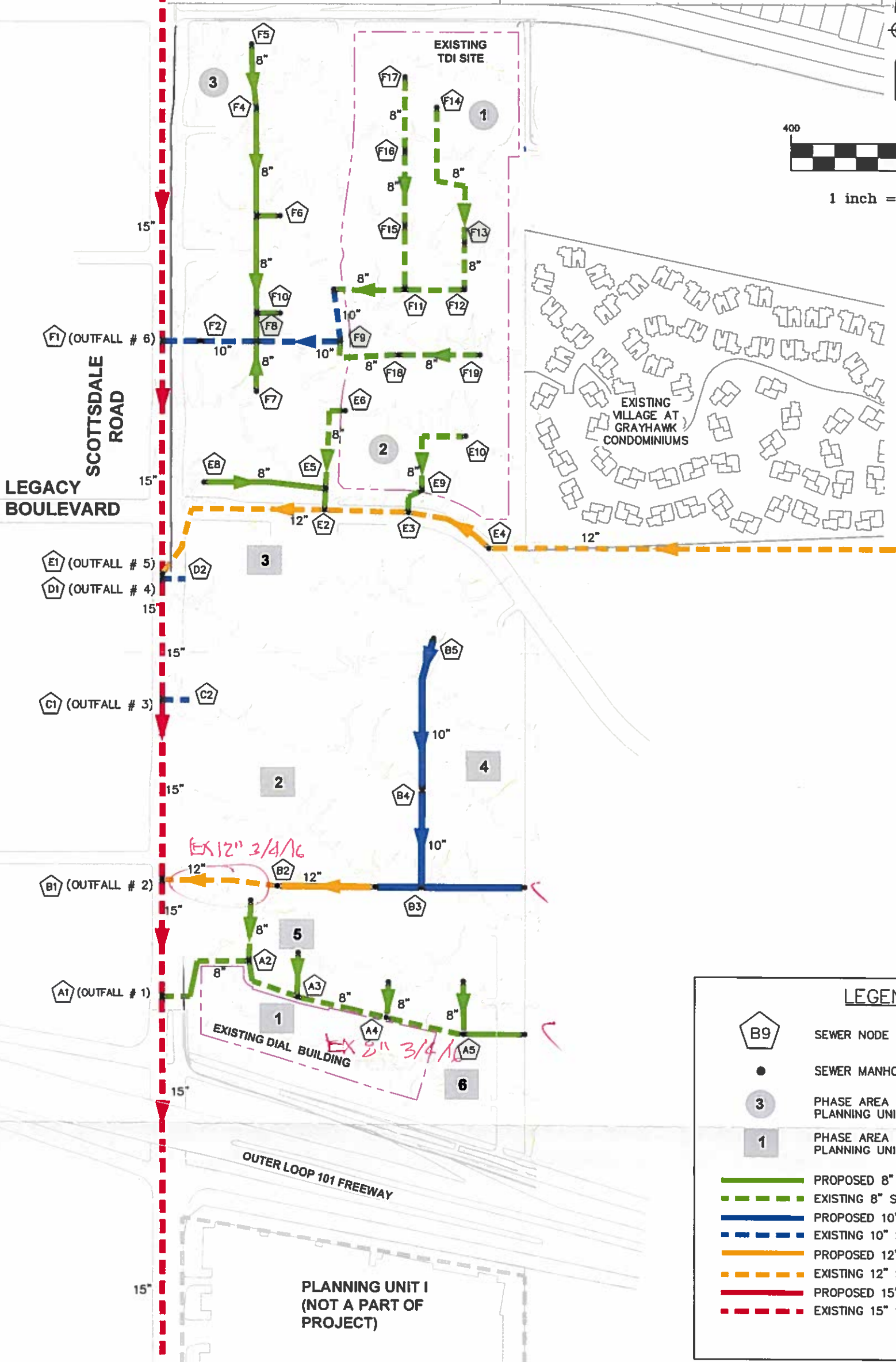
**MODELED ON-SITE WASTEWATER COLLECTION SYSTEM**

PRELIMINARY  
NOT FOR  
CONSTRUCTION  
OR RECORDING

EAST THOMPSON PEAK PARKWAY



1 inch = 400 ft.

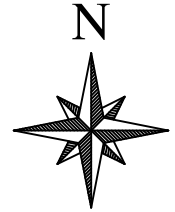
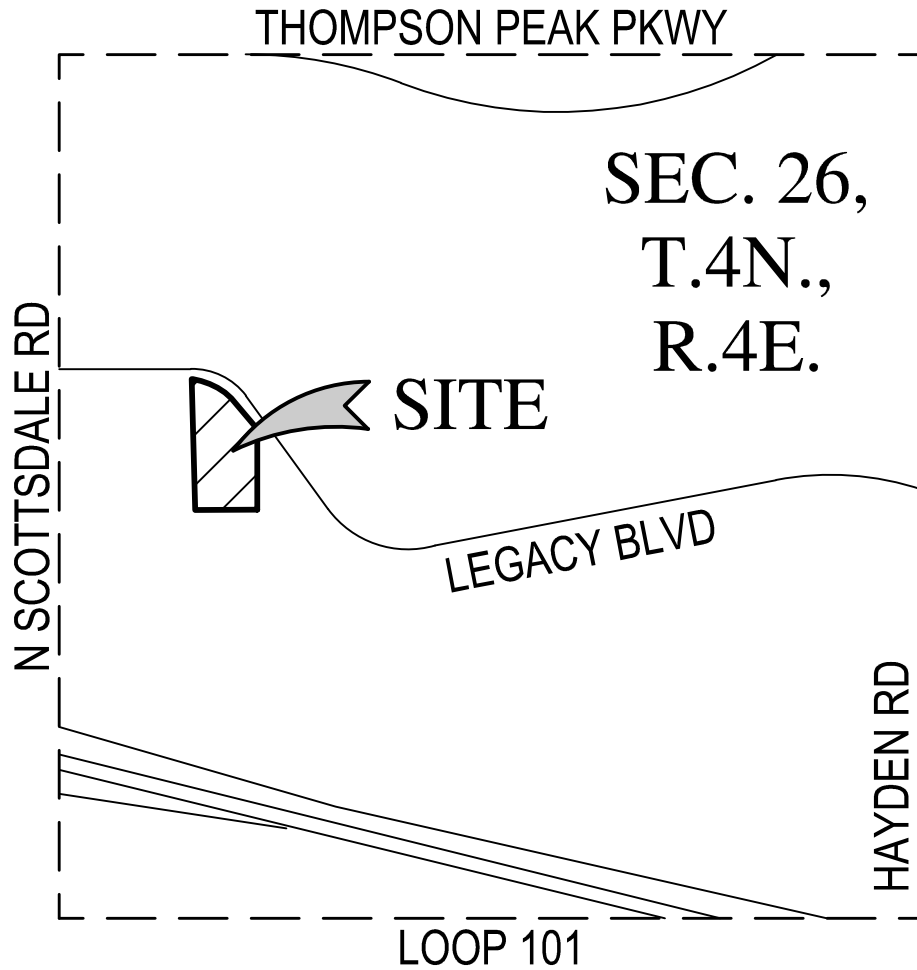


LEGEND	
	SEWER NODE
	SEWER MANHOLE
	PHASE AREA IN PLANNING UNIT III
	PHASE AREA IN PLANNING UNIT II
	PROPOSED 8" SEWER LINE
	EXISTING 8" SEWER LINE
	PROPOSED 10" SEWER LINE
	EXISTING 10" SEWER LINE
	PROPOSED 12" SEWER LINE
	EXISTING 12" SEWER LINE
	PROPOSED 15" SEWER LINE
	EXISTING 15" SEWER LINE

**PLATE 3**  
JANUARY 2016

<p><b>ONE SCOTTSDALE ON-SITE WASTEWATER COLLECTION SYSTEM</b></p>	<p><b>WOOD/PATEL ASSOCIATES</b> Civil Engineers Hydrologists Land Surveyors Construction Managers (802) 836-8900</p>
---	--

**EXHIBIT 1 – VICINITY MAP**



**VICINITY MAP**

N.T.S.

**NOT  
FOR  
CONSTRUCTION  
OR RECORDING**



**ONE SCOTTSDALE**

**VICINITY MAP**

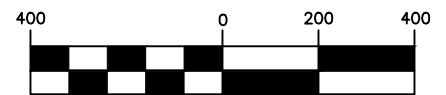
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JOB NO.	215234	DESIGN	ZR		
		DRAWN	JRS		

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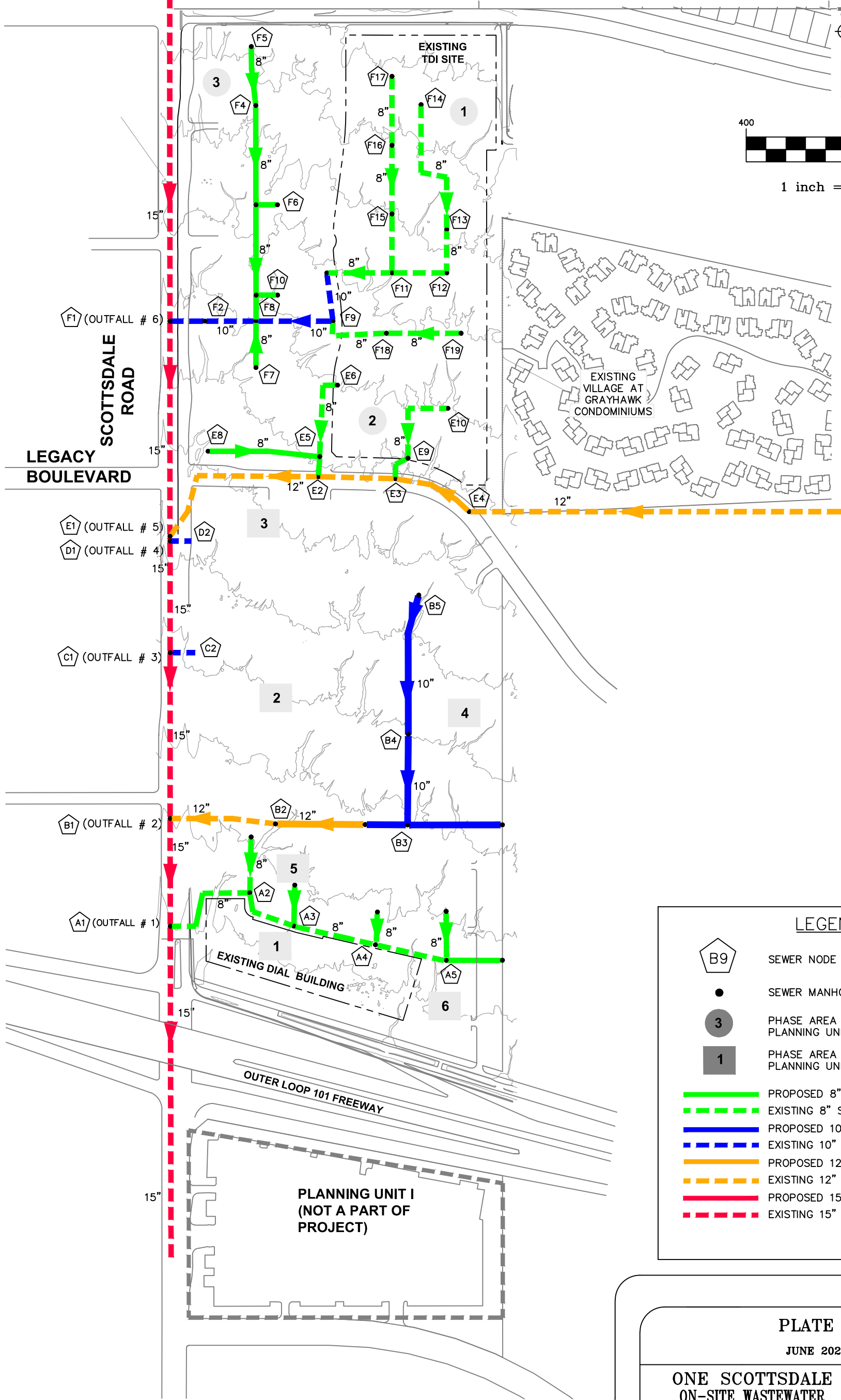
**EXHIBIT 2 – ONSITE WASTEWATER COLLECTION SYSTEM EXHIBIT (FROM MASTER REPORT)**

PRELIMINARY  
NOT FOR  
CONSTRUCTION  
OR RECORDING

EAST THOMPSON PEAK PARKWAY



1 inch = 400 ft.



**LEGEND**

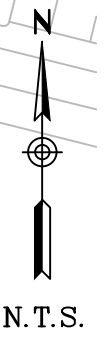
	SEWER NODE
	SEWER MANHOLE
	PHASE AREA IN PLANNING UNIT III
	PHASE AREA IN PLANNING UNIT II
	PROPOSED 8" SEWER LINE
	EXISTING 8" SEWER LINE
	PROPOSED 10" SEWER LINE
	EXISTING 10" SEWER LINE
	PROPOSED 12" SEWER LINE
	EXISTING 12" SEWER LINE
	PROPOSED 15" SEWER LINE
	EXISTING 15" SEWER LINE

**PLATE 3**  
JUNE 2021

<b>ONE SCOTTSDALE ON-SITE WASTEWATER COLLECTION SYSTEM</b>	<b>WOOD/PATEL ASSOCIATES</b> Civil Engineers Hydrologists Land Surveyors Construction Managers (602) 335-3400
--	--

**EXHIBIT 3 – MODELED ON-SITE LAND USE PLAN (FROM MASTER REPORT)**

EAST THOMPSON PEAK PARKWAY



PLANNING UNIT III

LEGACY BLVD

SCOTTSDALE ROAD

PLANNING UNIT II

OUTER LOOP 101 FREEWAY

PLANNING UNIT I (NOT A PART)

3

PHASE AREA IN PLANNING UNIT III

1

PHASE AREA IN PLANNING UNIT II



PLANNING UNIT LINE

PLATE 2

JUNE 2021

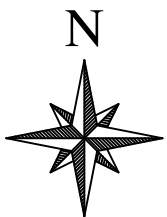
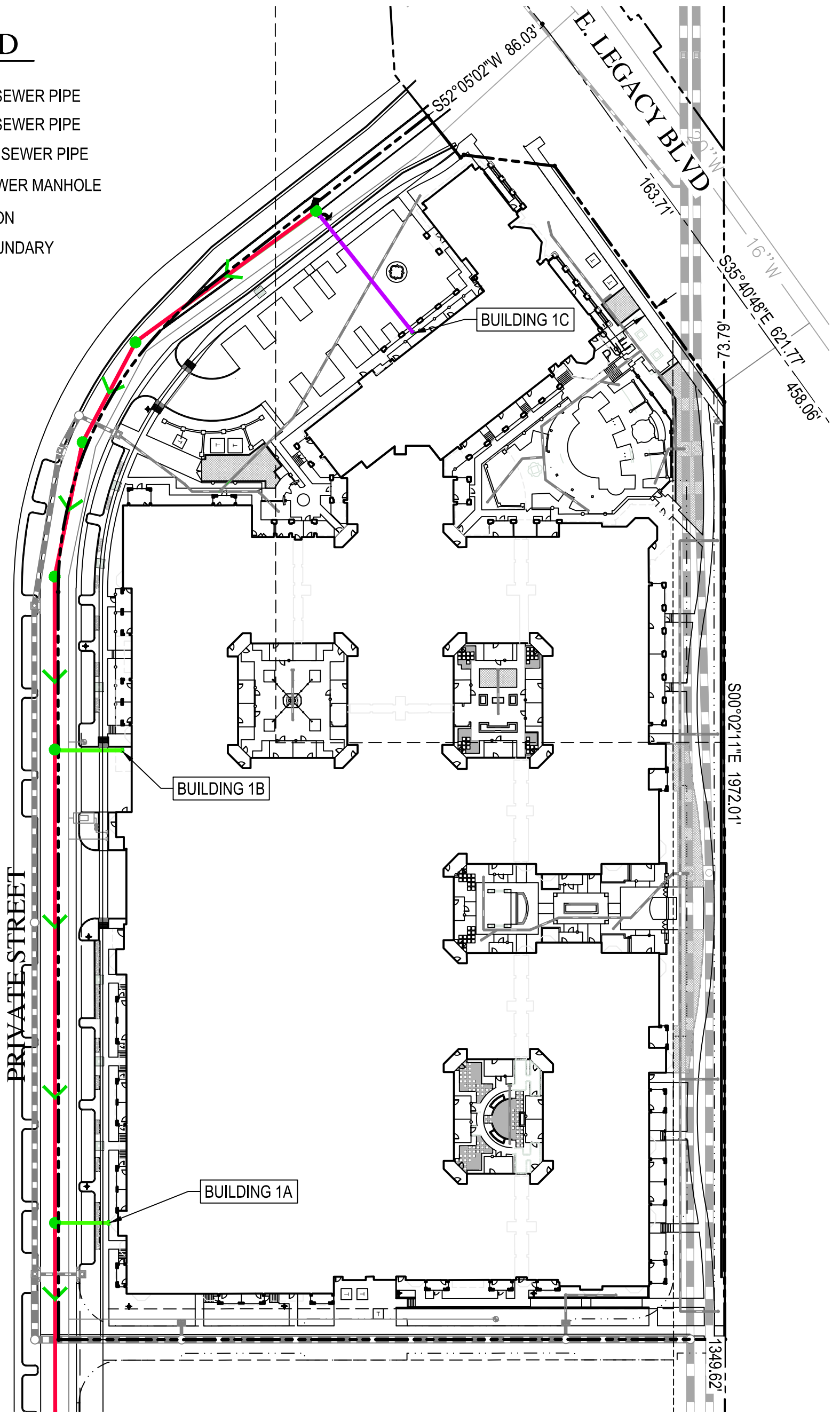
ONE SCOTTSDALE  
MODELED ON-SITE  
LAND USE PLAN

WOOD/PATEL  
ASSOCIATES  
Civil Engineers  
Hydrologists  
Land Surveyors  
Construction Managers  
(602) 335-6500

**EXHIBIT 4 – ONE SCOTTSDALE – STREETLIGHTS RESIDENTIAL WASTEWATER EXHIBIT**

# LEGEND

- PROPOSED 6" SEWER PIPE
- PROPOSED 8" SEWER PIPE
- PROPOSED 10" SEWER PIPE
- PROPOSED SEWER MANHOLE
- < FLOW DIRECTION
- - - - - PROPERTY BOUNDARY



0 30 60  
 Horz. 1 in. = 60 ft.

**NOT  
 FOR  
 CONSTRUCTION  
 OR RECORDING**



## SLR ONE SCOTTSDALE

### WASTEWATER EXHIBIT

DATE	11-11-21	SCALE	1" = 60'	SHEET	1 OF 1
JOB NO.	215234	DESIGN	CJT	DRAWN	CJT

Z:\2021\215234\Project Support\Reports\Sewer BOD\Exhibits\5234-EX2 WASTEWATER EXHIBIT.dwg 30-DR-2021 V3