



## Wastewater Study



Engineering and Environmental Consultants, Inc.

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## WASTEWATER DISTRIBUTION SYSTEM

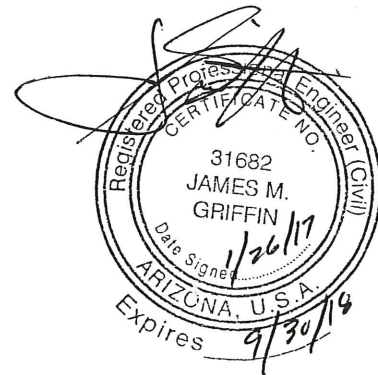
### BASIS OF DESIGN REPORT

FOR

**LOMAS VERDES ESTATES**  
6501 E. Red Bird Road  
Scottsdale, Arizona 85266

#### OWNER:

Lomas Verdes Estates, LLC  
7001 E. Main Street; Suite 101  
Scottsdale, AZ 85251  
Phone: (480) 221-9311



January 25, 2017

City of Scottsdale  
Water Resources Administration  
9379 E. San Salvador  
Scottsdale, AZ 85258

#### PREPARED BY:

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## **INTRODUCTION**

Lomas Verdes Estates is a single family custom and semi-custom residential subdivision to be constructed on approximately 7 acres. The site is located east of 64<sup>th</sup> Street and south of Red Bird Road. The site is bordered to the North, West and South by existing residential properties. The site lies within the North half of the South half of the Southwest Quarter of Section 34, Township 5 North, Range 4 East of Gila and Salt River Base and Meridian. The Assessor's Parcel Number for this property is 212-10-003F. Based on the information provided on the Maricopa County Assessor's Maps, the site has a Latitude of 33°43'45"N and a Longitude 111°56'33"W at the approximate center of the site. The approximate elevation of the site is 1964.00. See the Appendix for a Vicinity Map.

## **EXISTING CONDITIONS**

The property is currently zoned R1-43 and is approximately 8 acres in size. The slope of the land is generally from northeast to southwest. There are approximately 16-feet of fall from the rear (north) of the site to the front (south) of the site. A horse stable and fencing exist along the southeast corner of property. An existing fence follows the south property line and a portion of the east line. The site consists of native desert with a cleared/dirt area in the southeast corner for horse training. The site is in Flood Zone X, as depicted on the FEMA Flood Insurance Rate Map.

There is currently no city owned and operated gravity sewer service to the project area.

## **PROPOSED CONDITIONS**

Lomas Verdes Estates will provide a new public dry sewer main from a predetermined location within 64<sup>th</sup> Street to the roadway cul-de-sac within the subdivision. The dry sewer will provide individual sewer taps to each lot for future connection to public sewer. Temporary individual septic systems will provide residential sanitary sewer disposal until public service is available.

OK ON DRY SEWER  
SHOW SITE PLAN W/SEWER LAYOUT &  
ELEVATIONS

## **WASTEWATER ANALYSIS**

Per City of Scottsdale DS&PM manual, Section 7-1.403, Average Day Wastewater Demand

Residential densities = 2.5 persons per dwelling unit with 100 gpcpd with a peaking factor of 4.

Average Day Wastewater Demand for the 6 lot subdivision =

$$6 \text{ dwellings} \times 2.5 \text{ persons} \times 100 \text{ gpcpd} = 1,500 \text{ gpd or } 1.04 \text{ gpm}$$

$$\text{Peak Demand} = 4 \times 1,500 \text{ gpd} = 6,000 \text{ gpd or } 4.17 \text{ gpm}$$

See Appendix "A" for capacity analysis.

## **CONCLUSION**

8" Capacity at minimum slope = 0.874 cfs

Site Demand = 0.009 cfs

Proposed pipe size provides adequate capacity for the proposed onsite development.

## **APPENDIX "A"**

# APPENDIX A - SEWER CAPACITY: LOMAS VERDES ESTATES

**TABLE 1**  
**MINIMUM PIPE CAPACITY ANALYSIS**

Analysis Condition	LINE SIZE	AREA (FT <sup>2</sup> )	PERIMETER (FT)	R <sub>H</sub>	SLOPE (FT./FT.)	CAPACITY (CFS)	CAPACITY (CFS) AT (d/D=0.65)	Velocity
Standard	8" LINE	0.349	2.094	0.167	0.0052	0.874	0.601	2.50

Minimum Line Slope  
8" = 0.0052 ft./ft.

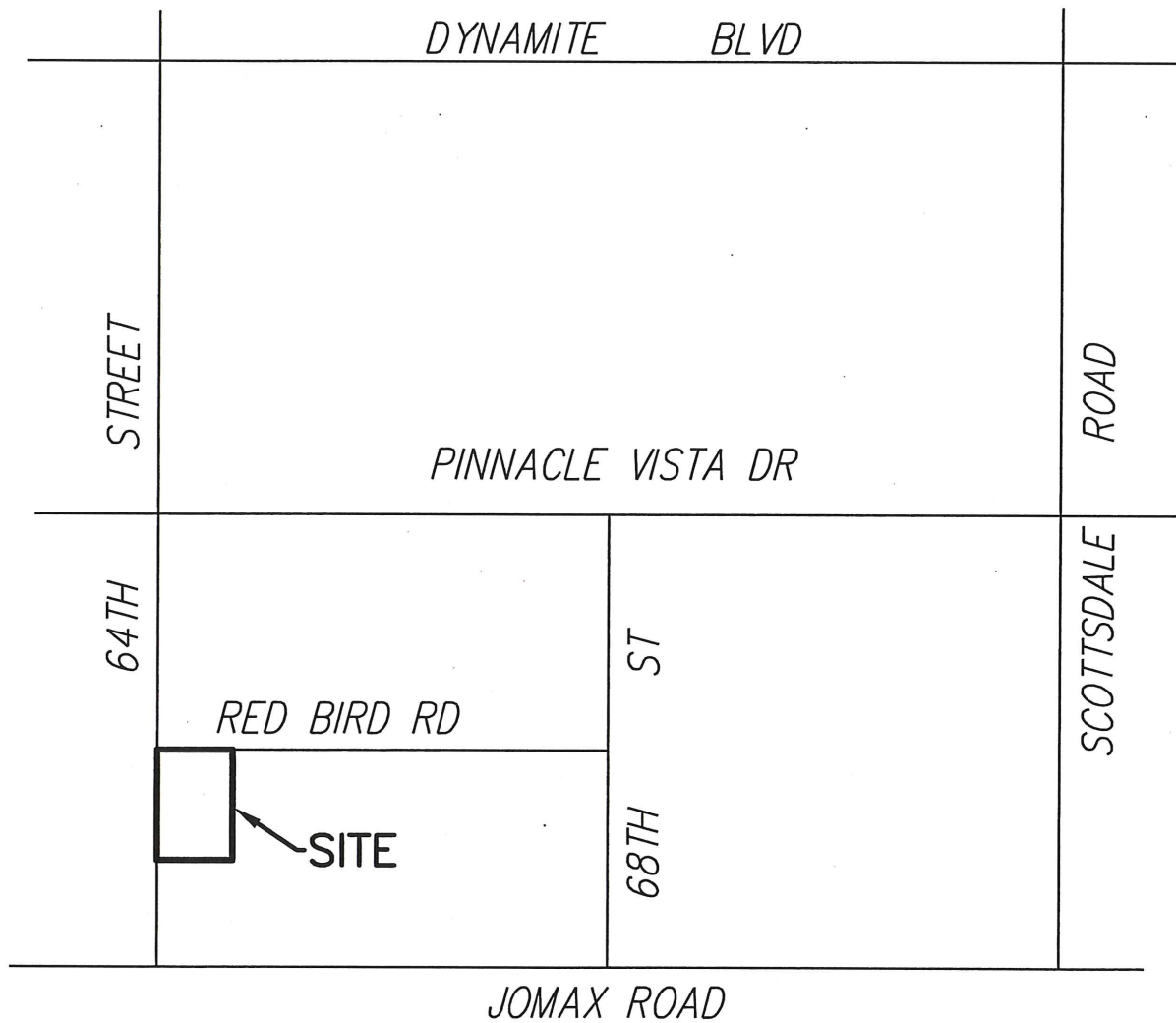
**MAXIMUM PIPE CAPACITY ANALYSIS**

Analysis Condition	LINE SIZE	AREA (FT <sup>2</sup> )	PERIMETER (FT)	R <sub>H</sub>	SLOPE (FT./FT.)	CAPACITY (CFS)	CAPACITY (CFS) AT (d/D=0.65)	Velocity
Standard	8" LINE	0.349	2.094	0.167	0.082	3.470	2.387	9.94

Maximum Line Slope  
8" = 0.0820 ft./ft.

**PEAK FLOWS VS. PIPE CAPACITY ANALYSIS**

PIPE (MH# - MH#)	LINE SIZE (IN.)	# OF UNITS	POPULATION	AVE. DAILY FLOW (GPD)	PEAKING FACTOR	PEAK FLOW (CFS)	CAPACITY (CFS) MIN SLOPE	CAPACITY (CFS) AT (d/D=0.65)
MH#1 - MH#2	8	6	15	1,500	4	0.0093	0.874	0.601
MH#2 - MH#3	8	4	10	1,000	4	0.0062	0.874	0.601
MH#3 - MH#4	8	3	7.5	750	4	0.0046	0.874	0.601



## VICINITY MAP