

**TALKING ROCK RANCH
PHASE 27**

**SEWER SYSTEM
DESIGN REPORT**

Prepared for:

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Introduction

General Description

The Talking Rock Ranch Subdivision consists of residential and recreational facilities. This planned area development (PAD) was approved by the Yavapai County Board of Supervisors on October 6, 1999 and Amended on May 8, 2000.

The site encompasses about 3500 acres of undeveloped and newly developed land that slopes towards Inscription Canyon. The site is divided by Williamson Valley Road. The site consists of forested areas with, sometimes, extreme slopes.

Project Location

The project site is located in portions of Sections 15 and 22, Township 16 North, Range 3 West, Gila and Salt River - Meridian, Yavapai County, Arizona. The project is generally located in the Southern portion of Williamson Valley and straddles Williamson Valley Road. See Appendix "A" for site map.

Objective

This report will address the gravity sewer system design for Phase 27. All lots within this phase of the project will be constructed using 8" SDR 35 PVC pipe.

Phase 27 will be serviced entirely by gravity sewer system. This system will connect with the existing sewer in Talking Rock Ranch Road constructed for Phase 1. See attached Phase 27 Sewer Collection System drawings in Appendix "B" for the sewer layout for this phase.

System Analysis

The estimated sewage flow from each unit is an average of 250 GAL/Day, slightly less than the estimated water usage of 270 GAL/unit/Day. The average flow from Phase 27 is $39 \text{ units} \times 250 \text{ GAL/unit/Day} = 9750 \text{ Gal/Day}$. Using a conservative peaking factor of 4.0, peak flow will be 39,000 GAL/Day or 27.1 gpm.

The capacity of an 8" gravity sewer using $n = 0.013$ at the minimum slope in this phase of 0.50 % is 0.43 cfs or 193 gpm (See Appendix "C"). This is much greater than the peak load of 27.1 gpm.

Conclusion

The gravity sewer system chosen for this phase of the project is the preferred system based on the slope characteristics of the site.

This system will adequately serve 39 single-family lots with gravity sewer to maintain a balance between initial costs and operation and maintenance costs.