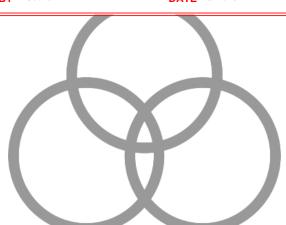
FINAL Basis of Design Report APPROVED APPROVED AS NOTED REVISE AND RESUBMIT



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 RSacks

DATE 5/24/2021





The Toy Barn Scottsdale Water Design Report

3 engineering Job #: 5201 May 24, 2021 COS# 9-DR-2021





TOY BARN SCOTTSDALE

WATER DESIGN REPORT

Prepared for:

Wesley Development PO Box 26768 Scottsdale, Arizona 85255 Contact: Jason Phillips Phone: (602) 920-3998



Expires 12/31/2021
Matthew J. Mancini, P.E.

May 24, 2021

Submittal to:

City of Scottsdale 7447 E. Indian School Road, Suite 105 Scottsdale, Arizona 85251

Prepared by:

3 engineering, L.L.C. 6370 E. Thomas Road, Suite 200 Scottsdale, Arizona 85251 Contact: Matthew J. Mancini, P.E.

Job Number 5201



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1. Introduction

The purpose of this water report is to present the existing and proposed water plan for the project, Toy Barn Scottsdale (Site). It is our opinion the proposed water concept is in accordance with the City of Scottsdale's Design Standards & Policies Manual (Ref. 1).

The Site, is located in Section 11, Township 3 North, Range 4 East of the Gila and Salt River Meridian, Maricopa County, Arizona within the City of Scottsdale, Arizona. The Site is located South of Helm Drive, and East of 73rd Street, Scottsdale, Arizona 85254 (APNs 215-56-029 & 215-56-027C). The Site is bound on the south by existing commercial development, the east by a vacant parcel, on the north by Helm Drive Road, and on the west by 73rd Street. See Appendix A for a Vicinity Map.

The Site is zoned I-1. The Site currently exists as a vacant un-developed parcel. The intent of this project is to construct 52 Garage Storage Condominiums and a Clubhouse, including new site utility, drainage, and circulatory infrastructure.

2. Design Documentation

Demands were calculated using the City of Scottsdale Design Standards and Policies Manual, which will serve as the basis of design for this project, and using Table 6.1-2 Average Day Demands. The site is in accordance with the City of Scottsdale design standards for water design.

3. Existing Conditions

The Site currently exists as a vacant un-developed parcel. See Appendix A for a vicinity map. The existing topography slopes from north to south at approximately 1.3% percent.

The Site is bound on the south by existing commercial development, the east by a vacant parcel, on the north by Helm Drive Road, and on the west by 73rd Street. There is an existing 12" water line in both Helm Drive and 73rd Street. These two 12" water lines will be used to service the proposed project. See Exhibit WE1 for water design.

4. Proposed Conditions

The project consists of a 52 Unit Garage Storage and Clubhouse project on 3.9 acres. The on-site water system will be private. The site proposes 6-inch fire line building connections. Fire Service will be provided by the City of Scottsdale, and is covered by the existing hydrants that are located on both 73rd Street and Helm Drive. See WE1 for the water design. The fire flow demand for the site is 2,750 gpm based on Section B105.1 of the International Fire Code at Type VB construction.

5. Computations

The following demand criteria were used in determining the system demands for the proposed site.

- 1. Domestic Demand (commercial) = 0.8 gallons per day/sf = 0.8 x 81,270 = 65,016 gpd or 45.15 gpm
- 2. Max Day Demand = $2.0 \times 45.15 \text{ gpm} = 90.30 \text{ gpm}$
- 3. Peak Hour Demand = $3.5 \times 45.15 \text{ gpm} = 158.03 \text{ gpm}$



TABLE 1: ON-SITE WATER DEMANDS			
Number of Units 52 w/ clubhouse (total square footage)	81,270 total sf		
Fire flow (5,500 gpm - 40,500 SF (largest building) x 0.5 for sprinkler = 2,750 gpm)	2,750 gpm		
Max Day Demand	28.0 gpm		
Fire flow + Max Day Demand	2,908.03 gpm		

A fire flow test was completed on the existing hydrants adjacent to the site, and show, with safety factors, and flow rate of 5,325 gpm at 20-psi. See Appendix B for the fire flow test results

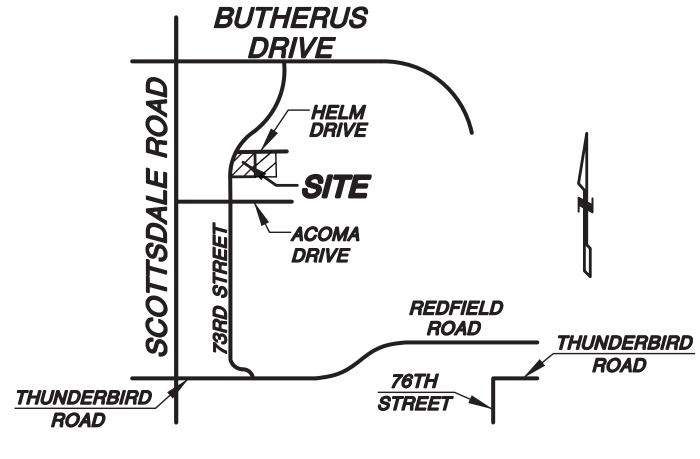
6. Summary

The Max Day Plus Fire Flow demand for the proposed site is 2,908.03 gpm. Per the fire flow test, the existing system provides adequate flow and pressure for the anticipated project demands. Therefore, this site meets the requirements for fire flow.



APPENDIX A

Vicinity Map



VICINITY MAP

NOT TO SCALE



APPENDIX B

Fire Flow Test

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Helm Drive and 73rd Street Project Name:

7301 East Helm Drive, Scottsdale, Arizona 85260 **Project Address:**

Arizona Flow Testing Project No.: 21051 Client Project No.: 3E#5201 Flow Test Permit No.: C64384

Date and time flow test conducted: February 4, 2021 at 7:15 AM

August 4, 2021 Data is current and reliable until:

Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154) Conducted by: Witnessed by: Jared Berry – City of Scottsdale-Inspector (602-541-4942)

Raw Test Data

Static Pressure: 94.0 PSI (Measured in pounds per square inch)

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

Pitot Pressure: 43.0 PSI (Measured in pounds per square inch)

Diffuser Orifice Diameter: 4 Inch Pollard Diffuser

(Measured in inches)

Coefficient of Diffuser: 0.9

Flowing GPM: 2,818 GPM

(Measured in gallons per minute)

GPM @ 20 PSI:

Data with 22 PSI Safety Factor

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

56.0 PSI Residual Pressure:

(Measured in pounds per square inch)

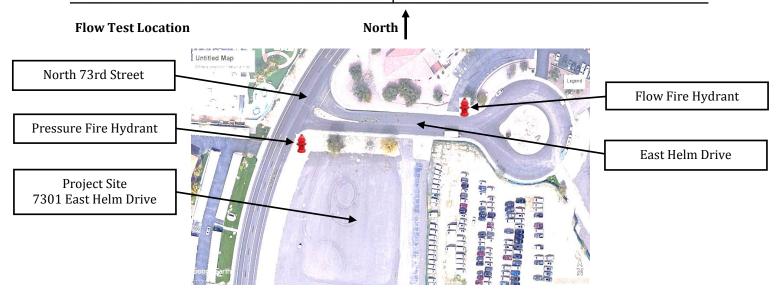
Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

Distance between hydrants: Approx. 390 Feet

Main size: Not Provided

Flowing GPM: 2,818 GPM

6,443 GPM GPM @ 20 PSI: 5,325 GPM



Arizona Flow Testing LLC 480-250-8154 www.azflowtest.com floyd@azflowtest.com



EXHIBIT 1

Water Design

