

WATER DISTRIBUTION SYSTEM

BASIS OF DESIGN REPORT

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 Idillon

DATE 8/22/2018

FOR

Cadre

4151 N. Craftsman Ct.
SCOTTSDALE, ARIZONA

May 10, 2018

Revised: August 20, 2018



PREPARED BY:

JACOBS WALLACE, LLC

2233 W. Bethany Home Rd.
Phoenix, AZ 85015
602.757.5964

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

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INTRODUCTION

The proposed project consists of a multi-story mixed use building. The bottom floor will be commercial/retail use along with a parking garage. The upper floors will be residential condominiums. The existing conditions include 2 buildings with associated site improvements sitting on 2 lots. The lots would be combined into one with the proposed project. The 0.24-acre site is located at the northeast corner of 3rd Street and Craftsman Ct. The site is bordered to the north by existing commercial development, to the west by Craftsman Ct., to the south by 3rd Street, and to the east by a public alleyway. The site lies within the Southwest Quarter of Section 22, Township 2 North, Range 4 East of Gila and Salt River Base and Meridian. See the Appendix for a vicinity map.

EXISTING CONDITIONS

There is an existing 8" DIP water main within the alley to the east. There are no services from this main to the existing lot. There is also a 8" DIP in Craftsman Ct. There are existing services from this main to the site.

PROPOSED CONDITIONS

The proposed project will install a new 6" fire line service to the proposed building. There will also be 2 new domestic services and master meters to the building as well. The new services will connect to the existing 8" main in the alley. One will be utilized for the residential portion and the other for the commercial portion. The existing service on Craftsman will be utilized for a landscape service.

All water line construction and design will conform to M.A.G. standards and specifications and the latest revision of the City of Scottsdale Design Standards and Policies Manual. All water demands are based on Figure 4.1-3, Average Day Water Demand per Dwelling Unit of the City of Scottsdale Design Standards and Policies Manual.

WATER ANALYSIS

Mixed Use:

Retail: 4,097 sf

Residential: 6 units (2-bedroom assumed)

Average Daily Flow:

Retail: $4,907\text{sf} * 0.8\text{gpd/sf} = 3925.6 \text{ gpd}$

Residential: $6 \text{ units} * 185.3\text{gpd/unit} = 1111.8\text{gpd}$

TOTAL= **5,037.4 GPD=3.5GPM**

Maximum Daily Demand: Average Daily Demand x 2
 $5037\text{gpd} * 2 = 10,074\text{gpd} = \mathbf{7.0 \text{ gpm}}$

Peak Demand: Maximum Daily Demand x 3.5
 $10074\text{gpd} * 3.5 = 35,259\text{gpd} = \mathbf{24.5\text{gpm}}$

Fire Flow Demand: (Per City of Scottsdale DSPM Section 6-1.501)

1,500 gpm @ 30 psi (For commercial, industrial, and multi-family)

Max Daily Demand + Fire Flow = **1,507 gpm @ 30 psi (COS requirement)**

WATER MODEL RESULTS

A water model will not be completed for this project. There are no new fire hydrants being installed. A fire flow test was completed on the existing hydrant located near the southeast corner of the site to ensure adequate supply and fire protection for the site. The results:

EXISTING PRESSURE & FLOW

test taken 7-06-18 by EJ (See Attached)

Raw Data:

Static Pressure: 105 psi

Residual Pressure: 78 psi

Flow: 2,572 gpm

20psi Flow: 4,777 gpm

Data with required 33psi safety Factor:

Static Pressure: 72 psi

Residual Pressure: 45 psi

Flow: 2,572 gpm

20psi Flow: 3,664 gpm

CONCLUSION

Based on the information provided and the flow test results, the city system should be able to handle the proposed project demands. The proposed water usage is minimal and similar to what is being used currently in the existing state. The flow test shows that there is more than adequate flow and pressure for proper fire protection.

It is important to note that the actual available flow can be affected by varying seasonal and diurnal water demands, growth within the City, and system operations. This report solely describes the flow available at a design maximum day condition based on current flow tests.

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

APPENDIX



Flow Test Summary

Project Name: EJE 18150
Project Address: 4100 N Craftsman Ct, Scottsdale, AZ 85251
Date of Flow Test: 2018-07-06
Time of Flow Test: 7:30 AM
Data Reliable Until: 2019-01-06
Conducted By: Tayler Lynch & Cesar Reyna (EJ Flow Tests) 602.999.7637
Witnessed By: Brian Dick (602.228.2187)
City Forces Contacted: City of Scottsdale (602.228.2187)
Permit Number: C55773

Note Scottsdale requires a max static pressure of 72 psi for safety factor

Raw Flow Test Data

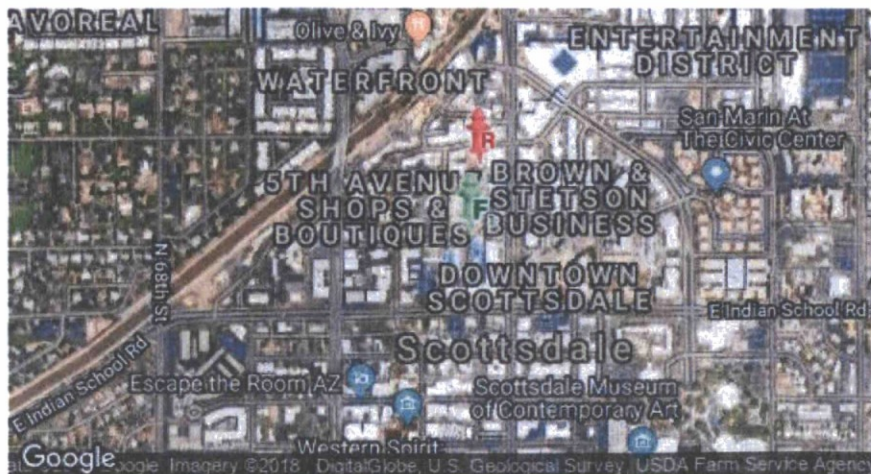
Static Pressure: 105.0 PSI
Residual Pressure: 78.0 PSI
Flowing GPM: 2,572
GPM @ 20 PSI: 4,777

Data with a 33 PSI Safety Factor

Static Pressure: 72.0 PSI
Residual Pressure: 45.0 PSI
Flowing GPM: 2,572
GPM @ 20 PSI: 3,664

Hydrant F₁

Pitot Pressure (1): 52 PSI
Coefficient of Discharge (1): 0.9
Hydrant Orifice Diameter (1): 4 inches
Additional Coefficient 0.83 on orifice #1



Static-Residual Hydrant

Flow Hydrant

Distance Between F₁ and R
504 ft (measured linearly)

Static-Residual Elevation
1269 ft (above sea level)

Flow Hydrant (F₁) Elevation
1267 ft (above sea level)

Elevation & distance values are approximate

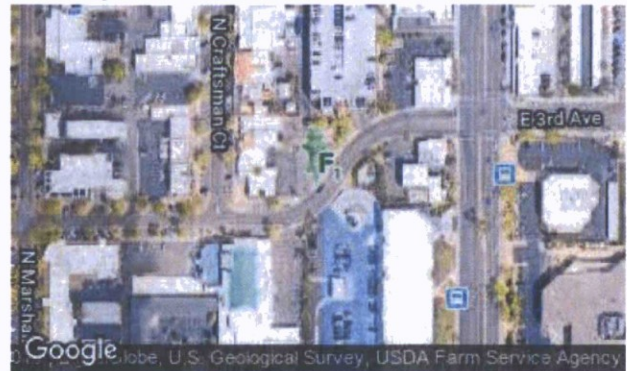
EJ Flow Tests, LLC

21505 North 78th Ave. | Suite 130 | Peoria, Arizona 85382 | (602) 999-7637 | www.ejengineering.com
John L. Echeverri | NICET Level IV 078493 SME | C-16 FP Contractor ROC 271705 AZ | NEPA CEPS 1915

Static-Residual Hydrant



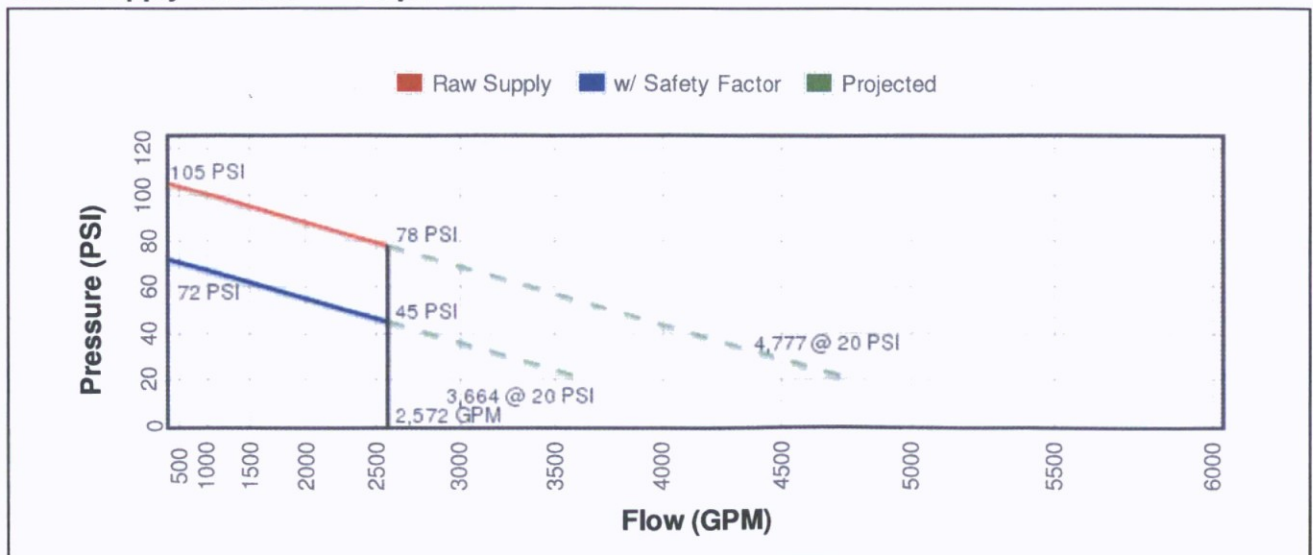
Flow Hydrant (only hydrant F1 shown for clarity)



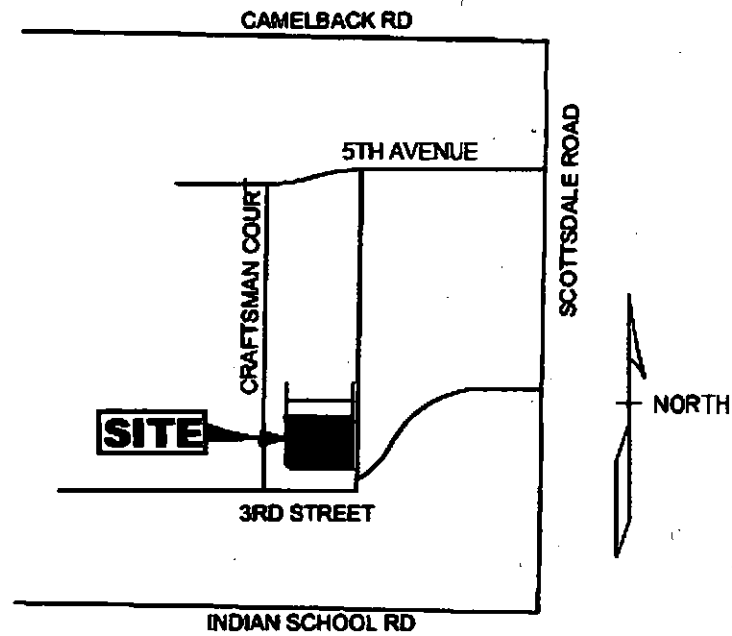
Approximate Project Site



Water Supply Curve $N^{1.85}$ Graph



Vicinity Map



VICINITY MAP
NOT TO SCALE

DRAINAGE STATEMENT

THERE IS NO RETENTION REQUIRED FOR THIS SITE. THE PROPOSED FLOOR ELEVATION IS SET 1' LOWER THAN THE EXISTING BUILDING FLOOR ELEVATION. THIS SHOULD MINIMIZE THE IMPACT ON THE EXISTING DRAINAGE PATTERNS OF THE SITE. THE PROPOSED BUILDING WILL HAVE ROOF DRAINAGE OUTLET TO THE SOUTH TO ASSIST WITH REMOVING THE IMPACT OF THE ROOF DRAINAGE. THE EXISTING BUILDING AND SITE IMPROVEMENTS WILL BE REMOVED. THE PROPOSED FLOOR ELEVATION IS SET AT THE EXISTING BACK OF SIDEWALK ELEVATION AT THE HIGH CORNER OF THE SITE. THIS PUTS THE PROPOSED FLOOR ELEVATION 1.5' ABOVE LOW CURB.

FLOOD ZONE (FIRM)

THIS SITE FALLS WITHIN ZONE X PER 010100000000, EXPIRING ON 10/26/2014. DESIGN AS AREAS OF 0.5% ANNUAL CHANCE FLOOD. AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE POND LESS THAN 1 DEEP. AREAS PROTECTED BY LEASES FROM 1% ANNUAL CHANCE FLOOD.

SITE AREA

LOT 12
SITE AREA 7,000.00 SQUARE FEET OR 0.16 ACRES
MORE OR LESS.

LOT 13
SITE AREA 3,333.33 SQUARE FEET OR 0.08 ACRES
MORE OR LESS.

BOUNDARY OF DRAWING

THE MONUMENT LINE OF CRAFTSMAN COURT BETWEEN 5TH AVENUE AND 3RD AVENUE.

BEARING - N 89°07'00" E AS RECORDED IN BOOK 22, PAGE 25 S.C.A.

BOUNDARY MARK

BRASS CAP IN HAND HOLE AT THE INTERSECTION OF SCOTTSDALE RD. AND BROWN SCHOOL RD.

ELEVATION - 1200.00 (MAYORS)

PROJECT DESCRIPTION

EXISTING BUILDING AND SITE IMPROVEMENTS AND CONSTRUCTED PROPOSED MULTI-STORY MIXED USE DEVELOPMENT WITH ASSOCIATED SITE IMPROVEMENTS.

ADDITION

175-00-001A

175-00-002

BOUNDARY

C-3

CONSTRUCTION TYPE

VI

LEGAL DESCRIPTION

PARCEL NO. 2
LOTS 22 AND 23, CRAFTSMAN COURT, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF MARICOPA COUNTY, ARIZONA, RECORDED IN BOOK 22 OF MAPS, PAGE 25, AND SUPPLEMENTAL AGREEMENT OF CONVEYANCE RECORDED AS DOCUMENT NO. 2007-111000, OF OFFICIAL RECORDS.

PARCEL NO. 3
THAT PORTION OF THE ALLEY LING IMMEDIATELY EAST AND ADJACENT TO LOTS 22 AND 23, CRAFTSMAN COURT, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF MARICOPA COUNTY, ARIZONA, RECORDED IN BOOK 22 OF MAPS, PAGE 25, AS AMENDED BY THE CITY OF SCOTTSDALE RESOLUTION NO. 188, RECORDED JUNE 11, 1971 AS PUBLICITY 579A, PAGE 696, OF OFFICIAL RECORDS.

PREPARED BY

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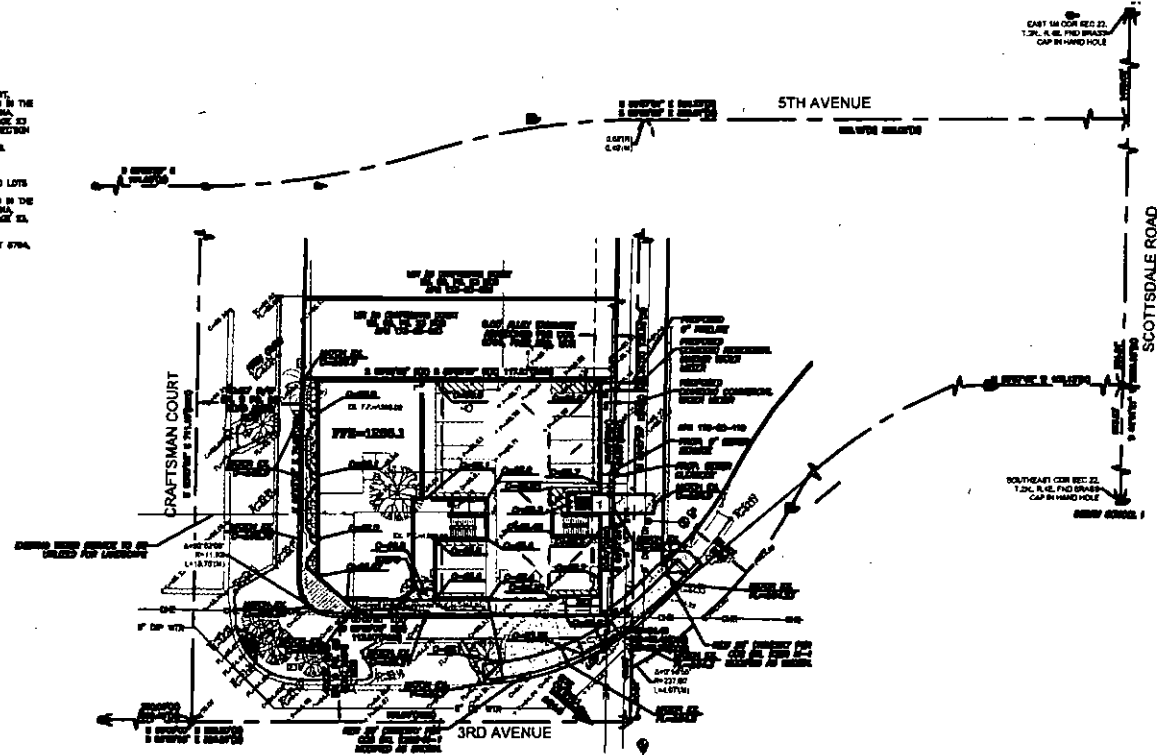
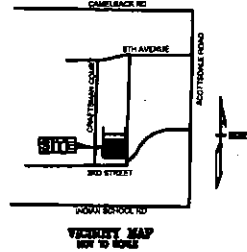
TOMERSON DESIGN, P.C.
4305 NORTH ONE CENTER PLAZA
SUITE 201
SCOTTSDALE, ARIZONA 85251
PHONE: 480.444.7777
CONTACT: MARK TOMERSON

OWNER

4151 CRAFTSMAN LLC
1200 E CLARK RD
SUITE 100
TOLSON, AZ 85261-1700

CRAFTSMAN COURT MIXED USE DEVELOPMENT CONCEPTUAL G&D AND UTILITY PLAN 4151 N CRAFTSMAN CT. SCOTTSDALE, AZ 85261

A PORTION OF SOUTHEAST QUARTER OF SECTION 22, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE 24TH AND 34TH MERIDIAN, MARICOPA COUNTY, ARIZONA.



LEGEND

- 1. 10\"/>

1\"/>

NO.	DATE	BY	CHKD.	DESCRIPTION
1	04/18/18	JW		ISSUED FOR PERMIT
2	04/18/18	JW		REVISION
3	04/18/18	JW		REVISION
4	04/18/18	JW		REVISION
5	04/18/18	JW		REVISION
6	04/18/18	JW		REVISION
7	04/18/18	JW		REVISION
8	04/18/18	JW		REVISION
9	04/18/18	JW		REVISION
10	04/18/18	JW		REVISION

CRAFTSMAN COURT
MIXED USE DEVELOPMENT
SCOTTSDALE, AZ
CONCEPTUAL G&D
AND
UTILITY PLAN

JACOBS WALLACE, LLC
ARCHITECTS - PLANNERS - ENGINEERS
210 W. MOUNTAIN VIEW BLVD.
PHOENIX, AZ 85016



APRIL 2018

DRAWING NO.
C1.0

JOB: 0062