Drainage Reports

Abbreveated Water & Sewer Need Reports

Water Study

Wastewater Study

Stormwater Waiver Application

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

WASTEWATER DISTRIBUTION SYSTEM

BASIS OF DESIGN REPORT

FOR

DIVERSIFIED PARTNERS-MULTI-FAMILY PROJECT

3440 & 3450 E. McDonald Drive
SCOTTSDALE, ARIZONA

OWNER:
DIVERSIFIED PARTNERS, LLC
7500 E. MCDONALD DRIVE STE. 100A
SCOTTSDALE, AZ 85250
480.947.8800

December 19, 2016
Revised: March 16, 2017

PREPARED BY:

JACOBS WALLACE, LLC
2233 W. Bethany Home Rd.
Phoenix, AZ 85015
602.757.5964

File

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

TABLE OF CONTENTS

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

INTRODUCTION

The proposed project consists of a multi-story multi-family building with associated site improvements. The existing conditions include 2-delapidated buildings with associated site improvements sitting on 2 lots. The lots would be combined into one with the proposed project. The 1.085-acre site is located just west of Granite Reef Rd on the north side of McDonald Dr. The site is bordered to the north and west by an existing multi family development, to the east by existing commercial development, to the south by McDonald Drive. The site lies within the Southwest Quarter of Section 12, 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 15" VCP sewer main within McDonald Dr. There are services from this main to each existing lot. The existing services will not be utilized for this project.

PROPOSED CONDITIONS

The proposed project will install a new 6" private sewer to service the project. There will be a new 6" sewer connection made within a new manhole on the existing 15" sewer within McDonald Dr. The proposed sanitary sewer system will consist of a new private 6" line serving the project at 1% minimum slope. The existing sewer services will be capped and abandoned at the right of way line of McDonald Dr.

The private sewer line construction and design will conform to Uniform Plumbing Code.

WASTEWATER ANALYSIS

Number of Units: 25 (3-bedroom assumed)
Unit Daily Flows:
3 Bedroom = 400 gpd
Average Daily Flow:
25*400gpd = 10,000 gpd
Peak Daily Flow:
10,000 gpd * 4.5 = **45,000 gpd = 31.25 gpm**

SUMMARY

A 6" line with a slope of 1.0% flowing at 75% full carries 229 gpm with a velocity of 3.2 fps. A 6" line carrying 32 gpm flows with a velocity of 2.0 fps. See attached calculations in the Appendix. These parameters fall within acceptable ranges as set forth in the City of Scottsdale guidelines.

APPENDIX

Manning Pipe Calculator

75% FULL

Given Input Data:

Shape ..... Circular
Solving for ..... Flowrate
Diameter ..... 6.0000 in
Depth ..... 4.5000 in
Slope ..... 0.0100 ft/ft
Manning's n 0.0130

Computed Results:

Flowrate ..... 229.6492 gpm-US
Area 0.1963 ft2
Wetted Area 0.1580 ft2
Wetted Perimeter ..... 12.5664 in
Perimeter ..... 18.8496 in
Velocity ..... 3.2391 fps
Hydraulic Radius ..... 1.8101 in
Percent Full ..... 75.0000 %
Full flow Flowrate ..... 251.8421 gpm-US
Full flow velocity ..... 2.8577 fps

Critical Information

Critical depth ..... 4.5680 in
Critical slope ..... 0.0096 ft/ft
Critical velocity ..... 3.2437 fps
Critical area 0.1635 ft2
Critical perimeter ..... 12.5609 in
Critical hydraulic radius ..... 1.8745 in
Critical top width ..... 6.0000 in
Specific energy ..... 0.5443 ft
Minimum energy ..... 0.5710 ft
Froude number 1.0266
Flow condition ..... Supercritical

Manning Pipe Calculator

PEAK FLOW

Given Input Data:

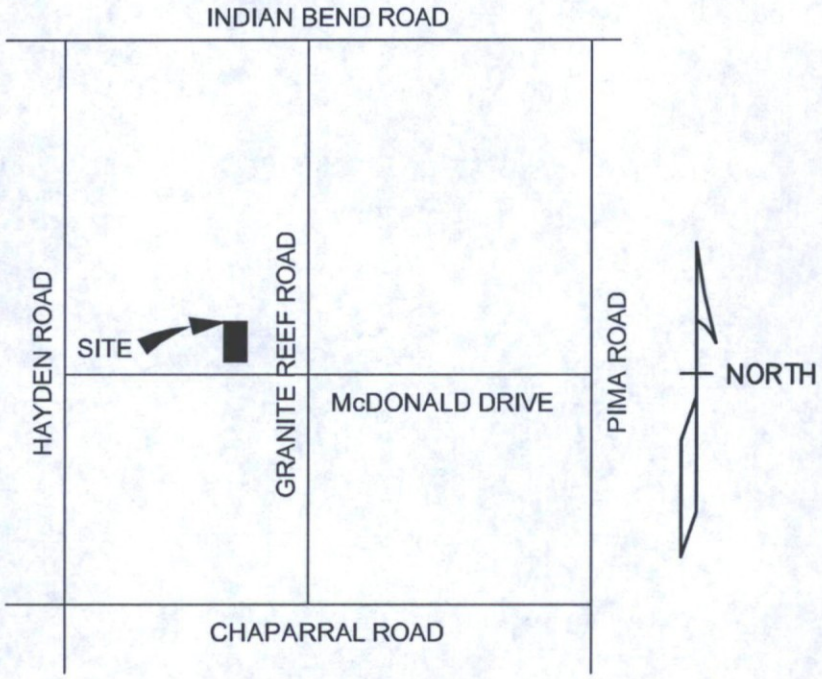
Shape	Circular
Solving for	Depth of Flow
Diameter	6.0000 in
Flowrate	32.0000 gpm-US
Slope	0.0100 ft/ft
Manning's n	0.0130

Computed Results:

Depth	1.4443 in
Area	0.1963 ft2
Wetted Area	0.0364 ft2
Wetted Perimeter	6.1538 in
Perimeter	18.8496 in
Velocity	1.9592 fps
Hydraulic Radius	0.8515 in
Percent Full	24.0719 %
Full flow Flowrate	251.8421 gpm-US
Full flow velocity	2.8577 fps

Critical Information

Critical depth	1.5751 in
Critical slope	0.0071 ft/ft
Critical velocity	1.7340 fps
Critical area	0.0411 ft2
Critical perimeter	6.4552 in
Critical hydraulic radius	0.9172 in
Critical top width	5.2800 in
Specific energy	0.1800 ft
Minimum energy	0.1969 ft
Froude number	1.1839
Flow condition	Supercritical



VICINITY MAP
NOT TO SCALE

DIVERSIFIED PARTNERS
RESIDENTIAL
CONCEPTUAL G&D AND UTILITY PLAN
8340 &8350 E. MCDONALD DRIVE
OF
A PORTION OF THE SW 1/4 OF SECTION 12, T.2N., R.4E.
MARICOPA COUNTY, ARIZONA.

DRAINAGE STATEMENT

THE EXISTING SITE DRAINAGE CONSISTS OF MOSTLY SHEET FLOW FROM NORTH TO SOUTH EVENTUALLY MAKING ITS WAY TO MCDONALD DRIVE. THE SITE IS MOSTLY IMPERVIOUS AREA IN ITS EXISTING CONDITION. A SMALL AREA DRAINS WESTERLY ONTO AN EXISTING CITY OF SCOTTSDALE OWNED PAVED ACCESS DRIVE. THIS DRIVE IS CONTINUOUS ALONG THE WESTERN AND NORTHERN BOUNDARIES OF THE PROJECT. THERE IS CURRENTLY NO RETENTION PROVIDED ON THE PROPERTY. NO OFFSITE RUNOFF AFFECTS THIS PROPERTY.

THE PROPOSED IMPROVEMENTS WILL NOT INCREASE THE IMPERVIOUS AREA. THE IMPERVIOUS SURFACE AREA IS REDUCED WITH THE PROPSOED DEVELOPMENT. SEE CALCULATIONS BELOW. SEEING AS THE PRE VS. POST CONDITIONS ARE DECREASED WITH THE PROPOSED IMPROVEMENTS WE ARE PROPOSING TO PROVIDE NO RETENTION FOR THE PROJECT. THE DRAINAGE WILL BE DIRECTED TO THE CITY OF SCOTTSDALE RIGHTS OF WAY VIA SHEET FLOW WITHIN THE PARKING AREAS. THE ROOF DRAINAGE WILL BE SPLASH BLOCK AND DIRECTED TO THE PAVED PARKING AREAS. THERE WILL BE A SMALL PAVED PORTION ALONG THE WEST SIDE OF THE PROJECT THAT WILL DISCHARGE INTO THE ACCESS DRIVE AS IT CURRENTLY DOES TODAY. THE PRE VS. POST RETENTION CALCULATIONS ARE SHOWN BELOW.

THE SITE OUTFALL OCCURS AT THE SOUTHWEST CORNER OF THE PROJECT AT AN ELEVATION OF 1268.8 WELL BELOW THE FFE OF THE PROPOSED STRUCTURES. THE BUILDINGS ARE SAFE FROM THE 100-YR STORM EVENT.

RETENTION CALCULATIONS

PRE. VS. POST DEVELOPMENT

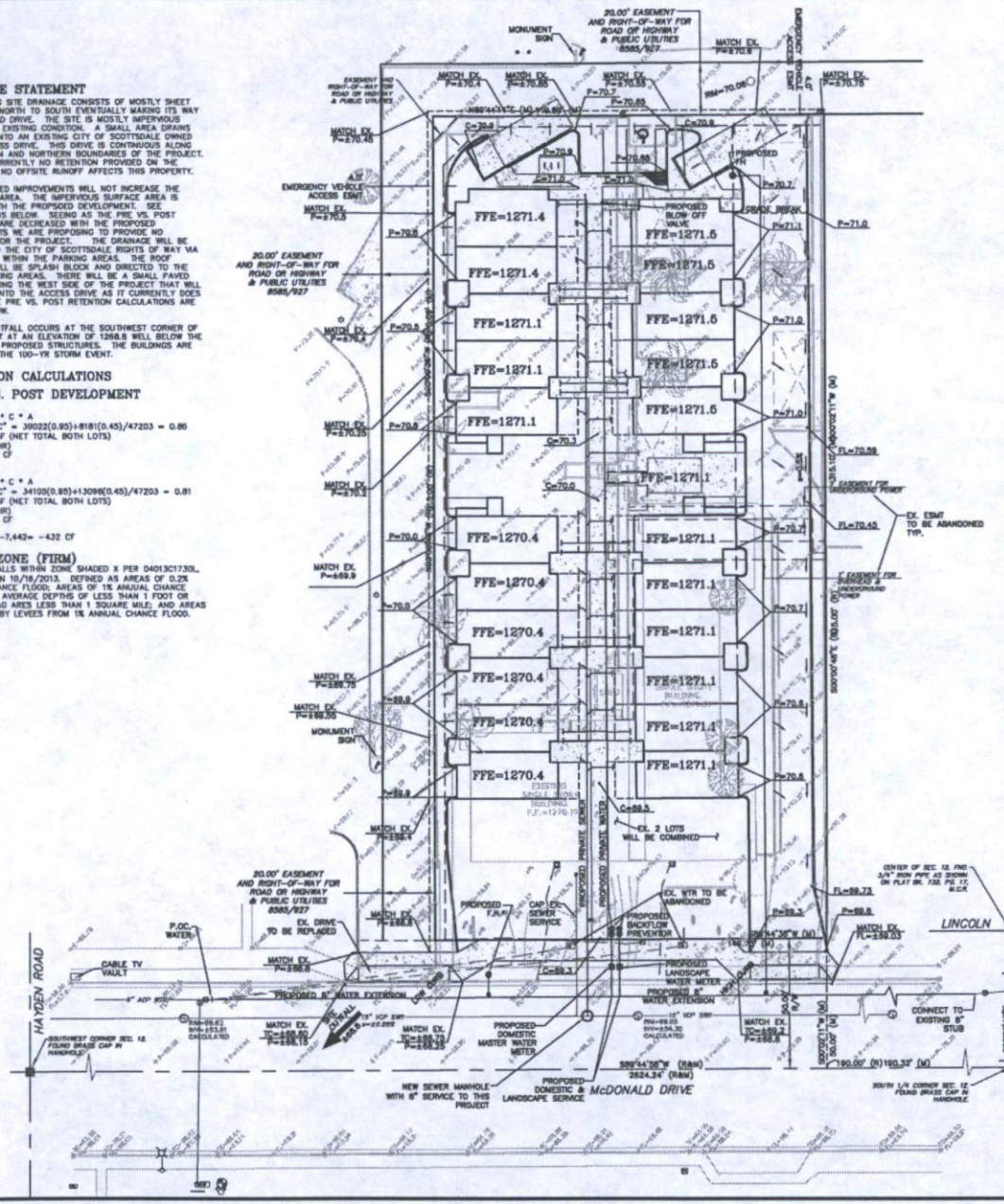
PRE:
VOL=P/12 * C * A
WEIGHTED "C" = 39022(0.95)+8181(0.45)/47203 = 0.86
A=47,203 SF (NET TOTAL BOTH LOTS)
P=2.2 (IN/HR)
VOL=7,442 CF

POST:
VOL=P/12 * C * A
WEIGHTED "C" = 34105(0.95)+13098(0.45)/47203 = 0.81
A=47,203 SF (NET TOTAL BOTH LOTS)
P=2.2 (IN/HR)
VOL=7,009 CF

VOL=7,009-7,442= -432 CF

FLOOD ZONE (FIRM)

THIS SITE FALLS WITHIN ZONE SHADED X PER 04013C1730L, EFFECTIVE ON 10/16/2013. DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAG ARES LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.



VICINITY MAP
NOT TO SCALE

LEGEND

	BRASS CAP IN HANDHOLE
	SEWER CLEAN OUT
	SEWER MANHOLE
	WATER VALVE
	FIRE HYDRANT
	FIRE DEPT. CONNECTION
W	WATER METER
	BACKFLOW PREVENTER
	GAS METER
	STREET LIGHT
	LIGHT POLE
	GROUND LIGHT
E	ELECTIC BOX
	TELEPHONE RISER
CR	CABLE RISER
	SIGN
	PALM TREE
	OLIVE TREE
	NON-DESCRIPT TREE
	SAGUARO CACTUS
	C.M.U. WALL (4 OR 8 INCH BLOCKS)
	BOUNDARY

ARCHITECT
ARCHICON
5055 E. WASHINGTON
STE. 200
PHOENIX, AZ 85034
602.222.4266
JEFF KOSKI

ENGINEER
JACOBS WALLACE, LLC
CHUCK JACOBS
602.757.5864

OWNER
DIVERSIFIED PARTNERS, LLC
7500 E. MCDONALD DRIVE STE. 100A
SCOTTSDALE, AZ 85250
480.947.8800

BENCH MARK
BRASS CAP IN HANDHOLE LOCATED IN THE INTERSECTION OF McDONALD DRIVE AND GRANITE REEF ROAD. GDACS ID # 11028
EL.=1269.425 (NAVD 88 DATUM)

PROJECT DESCRIPTION
DEMO EXISTING BUILDINGS AND SITE IMPROVEMENTS AND CONSTRUCT PROPOSED MULT-STORY MULTI-FAMILY DEVELOPMENT WITH ASSOCIATED SITE IMPROVEMENTS.

APN
174-12-001S & 174-12-001T

ZONING
EXISTING C-1
PROPOSED R-5

CONSTRUCTION TYPE
VB

LEGAL DESCRIPTION
PARCEL NO.1:
THE EAST 340.00 FEET OF THE SOUTH 365.00 FEET AT THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 2 NORTH, RANGE 4 EAST OF GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;
EXCEPT THE EAST OF 265.00 FEET THEREOF.

PARCEL NO.2:
THE EAST 340.00 FEET OF THE SOUTH 365.00 FEET AT THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 2 NORTH, RANGE 4 EAST OF GILA AND SALTRIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;
EXCEPT THE EAST OF 190.00 FEET; AND
EXCEPT THE WEST 75.00 FEET.

SITE AREA
1.085 AC (NET)
1.257 AC (GROSS)

RELEASE	DATE	BY	APP.	DESCRIPTION
1	3-16-17	CSJ	CSJ	PRELIMINARY SUBMITTAL
2	12-05-16	CSJ	CSJ	PRELIMINARY SUBMITTAL

DIVERSIFIED PARTNERS
MULTI-FAMILY PROJECT
8340 &8350 E. MCDONALD DRIVE
SCOTTSDALE, AZ

CONCEPTUAL G & D AND UTILITY PLAN

JACOBS WALLACE, LLC
ENGINEERING - PLANNING - MANAGEMENT
2231 N. BETHANY HOME ROAD
PHOENIX, AZ 85015
602.757.5864

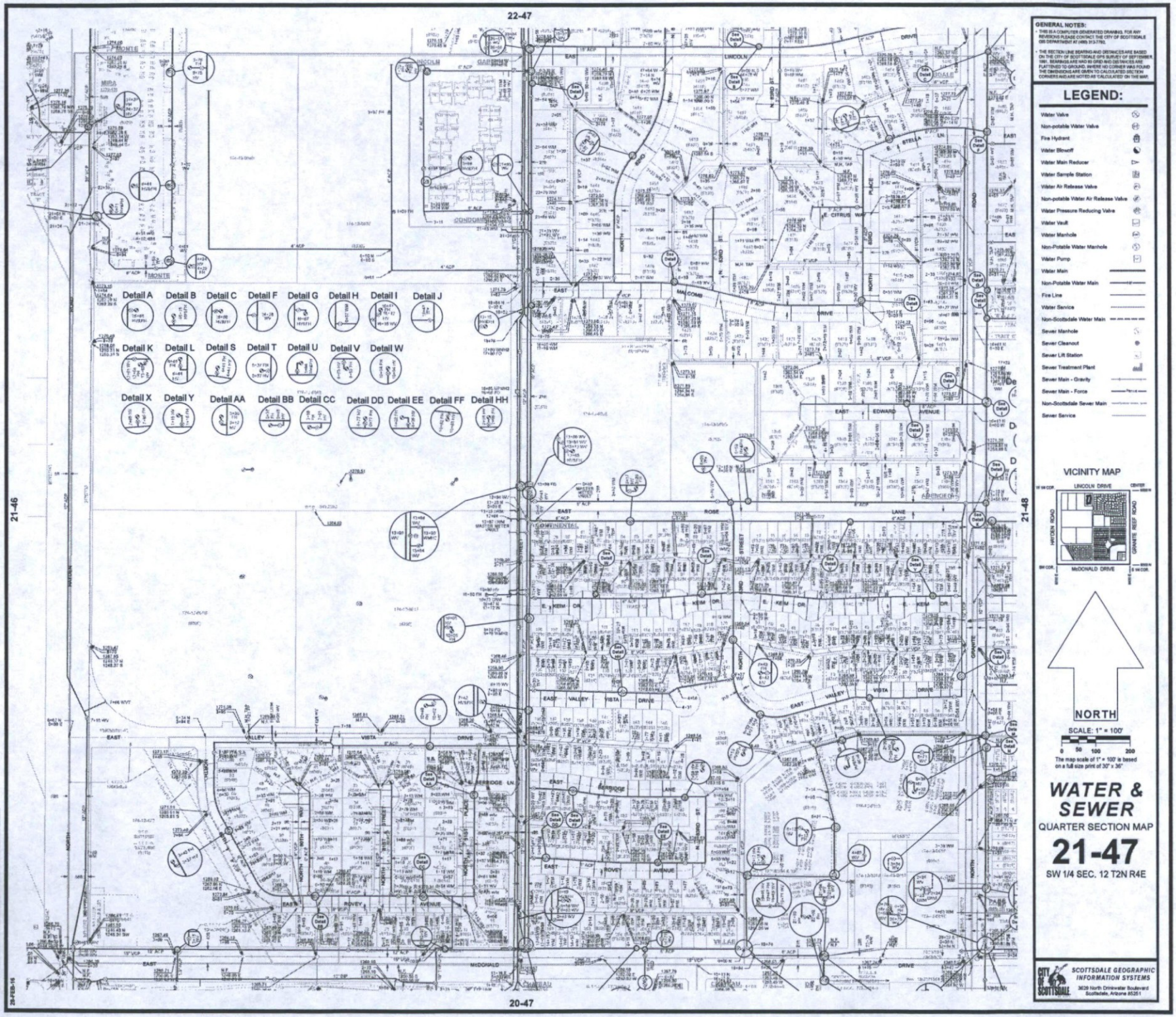
Registered Professional Engineer
10224
CHARLES G. JACOBS
5-16-17
ARIZONA, U.S.A.
Expires: 12/31/18

TRUE NORTH

FEBRUARY 2017

DRAWING NO.
C1.0

JOB: 0068



GENERAL NOTES:

- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7792.
- THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER 1991. BEARINGS ARE NAD 83 GRID AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS 'CALCULATED' ON THE MAP.

LEGEND:

- Water Valve
- Non-potable Water Valve
- Fire Hydrant
- Water Blowoff
- Water Main Reducer
- Water Sample Station
- Water Air Release Valve
- Non-potable Water Air Release Valve
- Water Pressure Reducing Valve
- Water Vault
- Water Manhole
- Non-Potable Water Manhole
- Water Pump
- Water Main
- Non-Potable Water Main
- Fire Line
- Water Service
- Non-Scottsdale Water Main
- Sewer Manhole
- Sewer Cleanout
- Sewer Lift Station
- Sewer Treatment Plant
- Sewer Main - Gravity
- Sewer Main - Force
- Non-Scottsdale Sewer Main
- Sewer Service

VICINITY MAP

NORTH

SCALE: 1" = 100'

0 50 100 200

The map scale of 1" = 100' is based on a full size print of 30" x 36"

WATER & SEWER

QUARTER SECTION MAP

21-47

SW 1/4 SEC. 12 T2N R4E

CITY OF SCOTTSDALE

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS

3629 North Drinkwater Boulevard
Scottsdale, Arizona 85251

23-FEB-16

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

WATER DISTRIBUTION SYSTEM

BASIS OF DESIGN REPORT

FOR

DIVERSIFIED PARTNERS-MIXED USE PROJECT

3440 & 3450 E. McDonald Drive
SCOTTSDALE, ARIZONA

OWNER:
DIVERSIFIED PARTNERS, LLC
7500 E. MCODNALD DRIVE STE. 100A
SCOTTSDALE, AZ 85250
480.947.8800

December 19, 2016
Revised: March 16, 2017

PREPARED BY:

JACOBS WALLACE, LLC
2233 W. Bethany Home Rd.
Phoenix, AZ 85015
602.757.5964

File

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

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Appendix:

- Vicinity Map
- Calculations
- Flow Test Results
- City of Scottsdale Quarter Section Map
- Preliminary Design Plan

JACOBS WALLACE, LLC
ENGINEERING PLANNING MANAGEMENT

INTRODUCTION

The proposed project consists of a multi-story multi-family building with associated site improvements. The existing conditions include 2-delapidated buildings with associated site improvements sitting on 2 lots. The lots would be combined into one with the proposed project. The 1.085-acre site is located just west of Granite Reef Rd on the north side of McDonald Dr. The site is bordered to the north and west by an existing multi family development, to the east by existing commercial development, to the south by McDonald Drive. The site lies within the Southwest Quarter of Section 12, Township 2 North, Range 4 East of Gila and Salt River Base and Meridian. See the Appendix for a vicinity map.

EXISTING CONDTIONS

There is an existing 6" water line in McDonald Drive that is stubbed approximately 85' west of the western edge of the proposed project. Currently there are 2-1" meters and service connections that service the exiting buildings that will be abandoned. These services extend over to the 6" water main west of the property.

PROPOSED CONDITIONS

The project is proposing to extend an 8" public waterline across the frontage of the property within McDonald Drive and connect to the Granite Reef waterline. Construction of the proposed offsite waterline will include stubs to the property as a part of the water main extension. There will be 2-6" fire hydrant line services, 1 domestic service connection and master meter, and a landscape service connection and meter stubbed to the proposed property. There will be backflow preventers associated with each service. The project will be services by private waterlines and private sub meters. There will be a master public meter for the site and then private waterline services to each unit with private sub-meters at each unit.

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. The offsite waterline construction will be reimbursable by agreement with the City after completion of construction.

WATER ANALYSIS

Number of Units: 25
Average Daily Demand: 185.3 gpd/unit
25 units * 185.3gpd/unit = 4,633gpd = **3.2gpm**
Maximum Daily Demand: Average Daily Demand x 2
4,633gpd*2=9,266gpd = **6.4 gpm**
Peak Demand: Maximum Daily Demand x 3.5
9,266gpd*3.5 = 32,431gpd = **22.5gpm**
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 = **1,510 gpm @ 30 psi (COS requirement)**

WATER MODEL RESULTS

A water model was completed based on the City of Scottsdale requirement of 1,500 gpm + Max daily demand at 30 psi. The water model simulated the design of the proposed waterline using the required flow of 1,510 gpm for the fire analysis scenario and 10gpm for the domestic demand scenario. As shown on the attached modeling results, when a demand of 1,510gpm is placed on the junctions J11 &J13 the available flows are 1,602 gpm and 1,618 gpm respectively with a residual pressure of 30 psi. Both of these flows are greater than the required 1,510 gpm at 30 psi per the City of Scottsdale requirements.

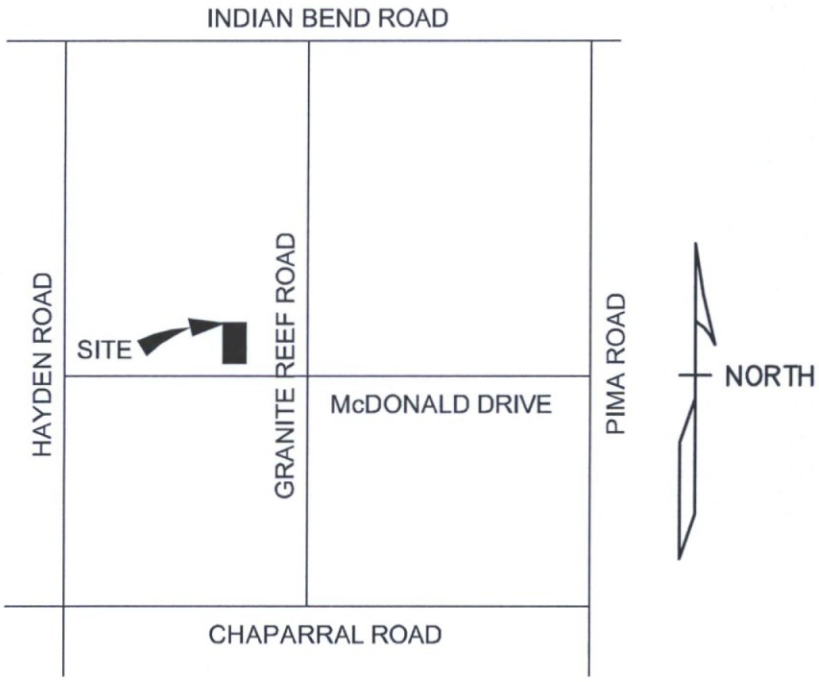
Please note the model is solely based on the current fire flow test. (See attached) The model is built from this point thru the new development. It is not modeled back to the water source, which would give more accurate results. The elevations are negligible on this site as the elevations differences are minimal.

CONCLUSION

Based on the information provided, the flow simulation indicates that the 6" waterline feeding the proposed onsite hydrant provides acceptable velocities, pressures and flows.

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.

APPENDIX



VICINITY MAP
NOT TO SCALE

E·J | Flow Test Summary

EJ Project ID:	16060
Project Address:	8355 E McDonald Dr, Scottsdale, AZ, 85250
Date of Flow Test:	2016-03-16
Time of Flow Test:	8:34 AM
Data Reliable Until:	2016-09-16
Conducted By:	Austin Gourley (EJ Flow Test), Eder Cueva (EJ Flow Test), & John Echeverri (EJ Flow Test)
Witnessed By:	Phil Cipolla (City of Scottsdale) 602.828.0847
City Forces Contacted:	City of Scottsdale
Permit Number:	C50025

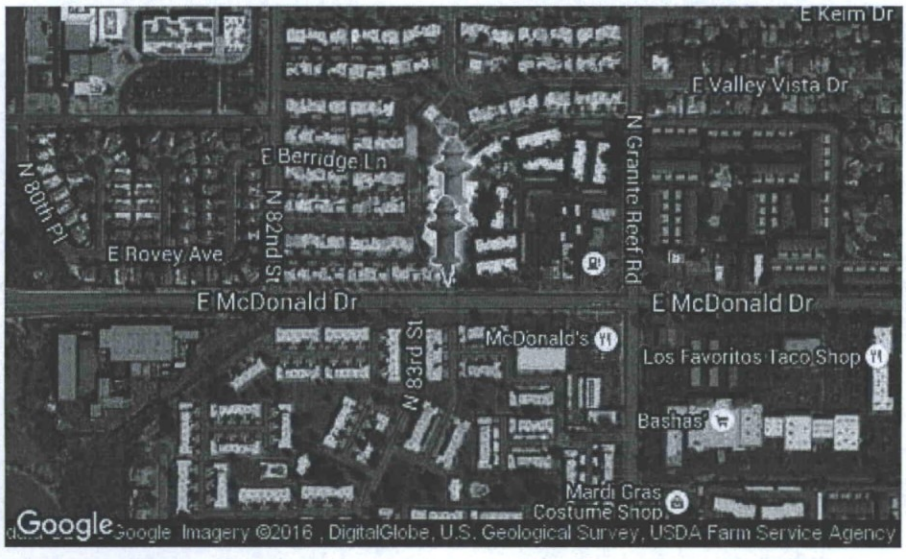
Raw Flow Test Data:

Static Pressure:	78.0	PSI
Residual Pressure:	50.0	PSI
Flowing GPM:	1,513	
GPM @ 20 PSI:	2,242	
Pitot Pressure One:	18	PSI
Hydrant Orifice Diameter:	4.0	inches
Coefficient of Discharge:	0.9	

extra coefficient of 0.83 factored in for pumper outlet per NFPA-291

Data with a 10 % Safety Factor

Static Pressure:	70.2	PSI
Residual Pressure:	42.2	PSI
Flowing GPM:	1,513	
GPM @ 20 PSI:	2,074	



Static-Residual Hydrant

Flow Hydrant

Distance Between Hydrants
217 ft (measured linearly)

Static-Residual Elevation
1271 ft (above sea level)

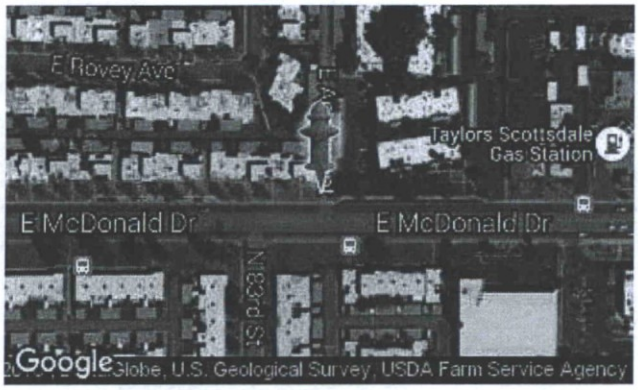
Flow Hydrant Elevation
1274 ft (above sea level)

Elevation & distance values are approximate

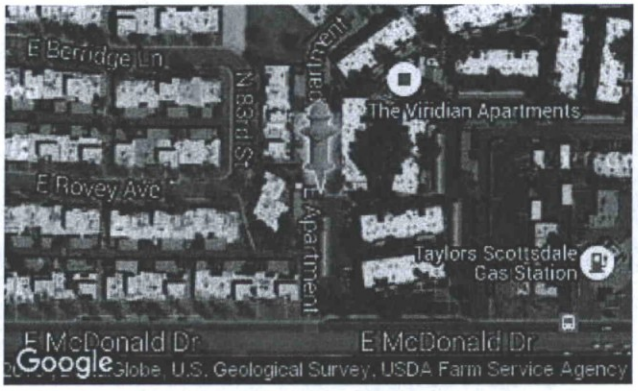
EJ Flow Tests, LLC
21505 North 78th Ave. | Suite 125 | Peoria, Arizona 85382 | (602) 999-7637 | www.ejengineering.com
John L. Echeverri | NICET Level IV 078493 SME | C-16 FP Contractor ROC 271705 AZ | NFPA CFPS 1915

E·J | Flow Test Summary

Static-Residual Hydrant:

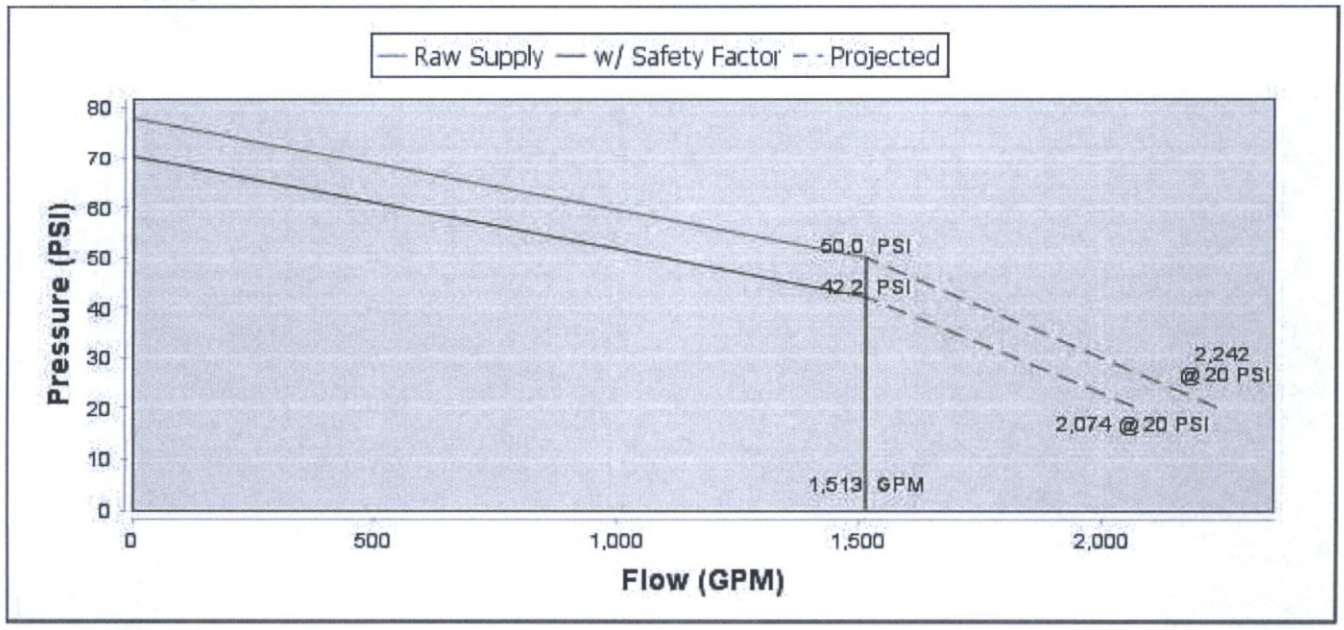


Flow Hydrant:

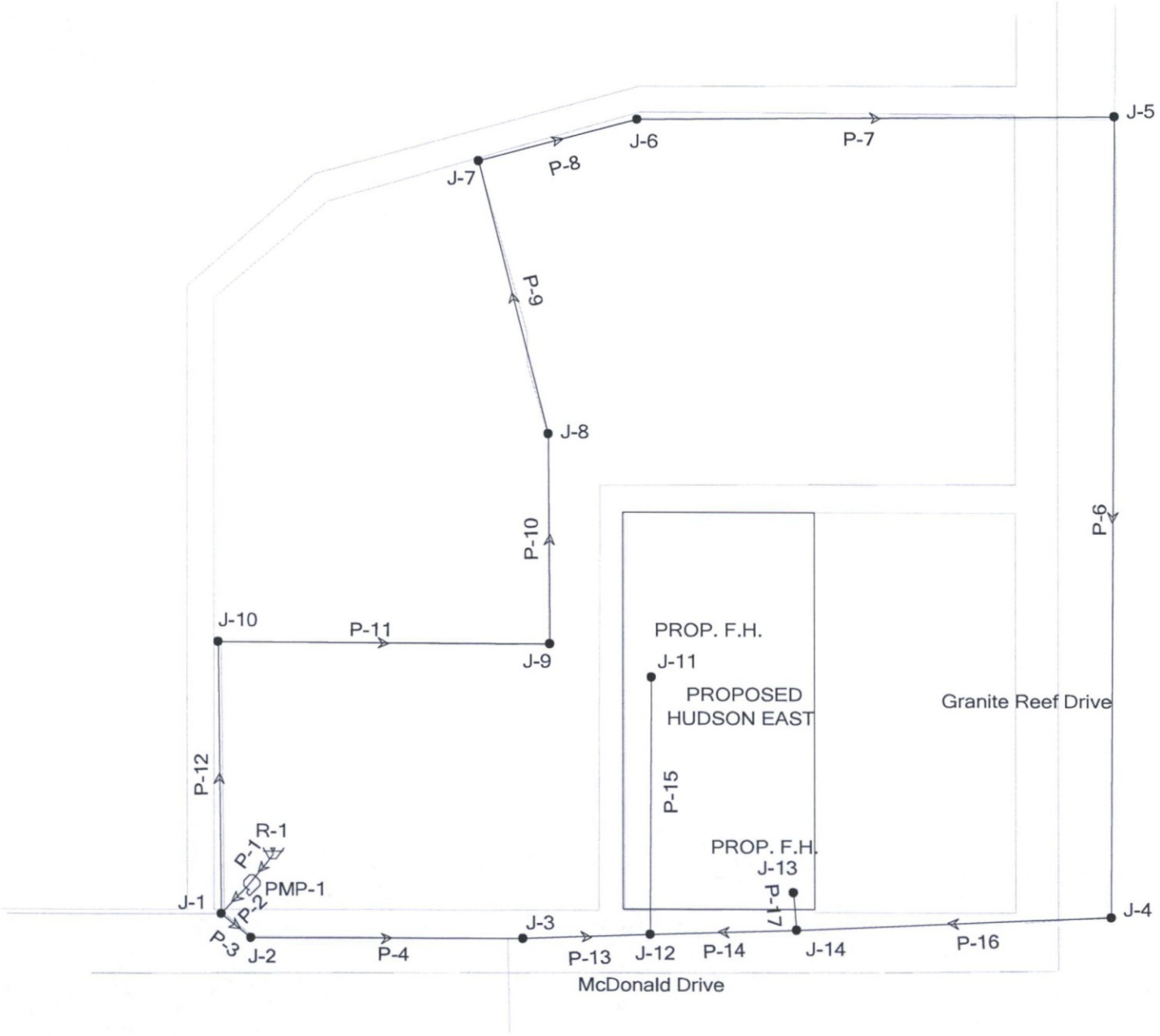


Approximate Project Site:

Water Supply Curve:



Scenario: Base



Scenario: Base
Fire Flow Analysis
Fire Flow Report

Label	Satisfies Fire Flow Constraints?	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Total Flow Available (gpm)	Calculated Residual Pressure (psi)	Minimum Pressure (psi)
J-1	true	1,510.00	1,935.68	1,935.68	30.00	77.95
J-2	true	1,510.00	1,883.95	1,883.95	30.00	77.95
J-10	true	1,510.00	1,712.31	1,712.31	30.00	77.95
J-3	true	1,510.00	1,693.16	1,693.16	30.00	77.95
J-12	true	1,510.00	1,686.97	1,686.97	30.03	77.95
J-14	true	1,510.00	1,661.63	1,661.63	30.00	77.95
J-4	true	1,510.00	1,632.19	1,632.19	30.00	77.95
J-13	true	1,510.00	1,618.45	1,618.45	30.00	77.95
J-11	true	1,510.00	1,602.82	1,602.82	30.00	77.95
J-9	true	1,510.00	1,599.29	1,599.29	30.02	77.95
J-5	true	1,510.00	1,584.21	1,584.21	30.02	77.95
J-8	true	1,510.00	1,562.49	1,562.49	30.01	77.95
J-7	true	1,510.00	1,539.51	1,539.51	30.01	77.95
J-6	true	1,510.00	1,537.98	1,537.98	30.01	77.95

Scenario: Base
Fire Flow Analysis
Pipe Report

Label	From Node	To Node	Length (ft)	Diameter (in)	Hazen-Williams C	Material	Downstream Calculated Pressure (psi)	Upstream Calculated Pressure (psi)	Velocity (ft/s)	Discharge (gpm)
P-1	R-1	PMP-1	1.00	48.0	140.0	Ductile Iron	-0.00	0.00	0.27	1,510.00
P-2	PMP-1	J-1	35.00	6.0	140.0	Asbestos Cement	47.97	50.07	17.13	1,510.00
P-3	J-1	J-2	31.00	6.0	140.0	Asbestos Cement	46.95	47.97	12.43	1,095.17
P-4	J-2	J-3	214.00	6.0	140.0	Asbestos Cement	39.86	46.95	12.43	1,095.17
P-6	J-4	J-5	635.00	8.0	140.0	Asbestos Cement	40.35	39.49	2.65	-414.83
P-7	J-5	J-6	375.00	6.0	140.0	Asbestos Cement	42.40	40.35	4.71	-414.83
P-8	J-6	J-7	129.00	6.0	130.0	Ductile Iron	43.21	42.40	4.71	-414.83
P-9	J-7	J-8	223.00	6.0	140.0	Asbestos Cement	44.44	43.21	4.71	-414.83
P-10	J-8	J-9	167.00	6.0	140.0	Asbestos Cement	45.35	44.44	4.71	-414.83
P-11	J-9	J-10	262.00	6.0	140.0	Asbestos Cement	46.79	45.35	4.71	-414.83
P-12	J-10	J-1	216.00	6.0	140.0	Asbestos Cement	47.97	46.79	4.71	-414.83
P-13	J-3	J-12	100.00	8.0	130.0	Ductile Iron	38.93	39.86	6.99	1,095.17
P-15	J-11	J-12	204.00	8.0	130.0	Ductile Iron	38.93	35.47	9.64	-1,510.00
P-14	J-12	J-14	115.00	8.0	130.0	Ductile Iron	39.11	38.93	2.65	-414.83
P-16	J-14	J-4	247.00	8.0	130.0	Ductile Iron	39.49	39.11	2.65	-414.83
P-17	J-13	J-14	29.00	6.0	130.0	Ductile Iron	39.11	39.11	0.00	0.00

Scenario: Base
Fire Flow Analysis
Pipe Report

Label	From Node	To Node	Length (ft)	Diameter (in)	Hazen-Williams C	Material	Downstream Calculated Pressure (psi)	Upstream Calculated Pressure (psi)	Velocity (ft/s)	Discharge (gpm)
P-1	R-1	PMP-1	1.00	48.0	140.0	Ductile Iron	-0.00	0.00	0.27	1,510.00
P-2	PMP-1	J-1	35.00	6.0	140.0	Asbestos Cement	47.97	50.07	17.13	1,510.00
P-3	J-1	J-2	31.00	6.0	140.0	Asbestos Cement	46.99	47.97	12.18	1,073.35
P-4	J-2	J-3	214.00	6.0	140.0	Asbestos Cement	40.16	46.99	12.18	1,073.35
P-6	J-4	J-5	635.00	8.0	140.0	Asbestos Cement	39.59	38.64	2.79	-436.65
P-7	J-5	J-6	375.00	6.0	140.0	Asbestos Cement	41.85	39.59	4.95	-436.65
P-8	J-6	J-7	129.00	6.0	130.0	Ductile Iron	42.74	41.85	4.95	-436.65
P-9	J-7	J-8	223.00	6.0	140.0	Asbestos Cement	44.08	42.74	4.95	-436.65
P-10	J-8	J-9	167.00	6.0	140.0	Asbestos Cement	45.09	44.08	4.95	-436.65
P-11	J-9	J-10	262.00	6.0	140.0	Asbestos Cement	46.67	45.09	4.95	-436.65
P-12	J-10	J-1	216.00	6.0	140.0	Asbestos Cement	47.97	46.67	4.95	-436.65
P-13	J-3	J-12	100.00	8.0	130.0	Ductile Iron	39.26	40.16	6.85	1,073.35
P-15	J-11	J-12	204.00	8.0	130.0	Ductile Iron	39.26	39.26	0.00	0.00
P-14	J-12	J-14	115.00	8.0	130.0	Ductile Iron	38.22	39.26	6.85	1,073.35
P-16	J-14	J-4	247.00	8.0	130.0	Ductile Iron	38.64	38.22	2.79	-436.65
P-17	J-13	J-14	29.00	6.0	130.0	Ductile Iron	38.22	36.23	17.13	-1,510.00

DIVERSIFIED PARTNERS

RESIDENTIAL
CONCEPTUAL G&D AND UTILITY PLAN

8340 &8350 E. MCDONALD DRIVE

OF
A PORTION OF THE SW 1/4 OF SECTION 12, T.2N., R.4E.
MARICOPA COUNTY, ARIZONA.

DRAINAGE STATEMENT

THE EXISTING SITE DRAINAGE CONSISTS OF MOSTLY SHEET FLOW FROM NORTH TO SOUTH EVENTUALLY MAKING ITS WAY TO MCDONALD DRIVE. THE SITE IS MOSTLY IMPERVIOUS AREA IN ITS EXISTING CONDITION. A SMALL AREA DRAINS WESTERLY ONTO AN EXISTING CITY OF SCOTTSDALE OWNED PAVED ACCESS DRIVE. THIS DRIVE IS CONTINUOUS ALONG THE WESTERN AND NORTHERN BOUNDARIES OF THE PROJECT. THERE IS CURRENTLY NO RETENTION PROVIDED ON THE PROPERTY. NO OFFSITE RUNOFF AFFECTS THIS PROPERTY.

THE PROPOSED IMPROVEMENTS WILL NOT INCREASE THE IMPERVIOUS AREA. THE IMPERVIOUS SURFACE AREA IS REDUCED WITH THE PROPSOED DEVELOPMENT. SEE CALCULATIONS BELOW. SEEING AS THE PRE VS. POST CONDITIONS ARE DECREASED WITH THE PROPOSED IMPROVEMENTS WE ARE PROPOSING TO PROVIDE NO RETENTION FOR THE PROJECT. THE DRAINAGE WILL BE DIRECTED TO THE CITY OF SCOTTSDALE RIGHTS OF WAY VIA SHEET FLOW WITHIN THE PARKING AREAS. THE ROOF DRAINAGE WILL BE SPLASH BLOCK AND DIRECTED TO THE PAVED PARKING AREAS. THERE WILL BE A SMALL PAVED PORTION ALONG THE WEST SIDE OF THE PROJECT THAT WILL DISCHARGE INTO THE ACCESS DRIVE AS IT CURRENTLY DOES TODAY. THE PRE VS. POST RETENTION CALCULATIONS ARE SHOWN BELOW.

THE SITE OUTFALL OCCURS AT THE SOUTHWEST CORNER OF THE PROJECT AT AN ELEVATION OF 1268.8 WELL BELOW THE FFE OF THE PROPOSED STRUCTURES. THE BUILDINGS ARE SAFE FROM THE 100-YR STORM EVENT.

RETENTION CALCULATIONS

PRE. VS. POST DEVELOPMENT

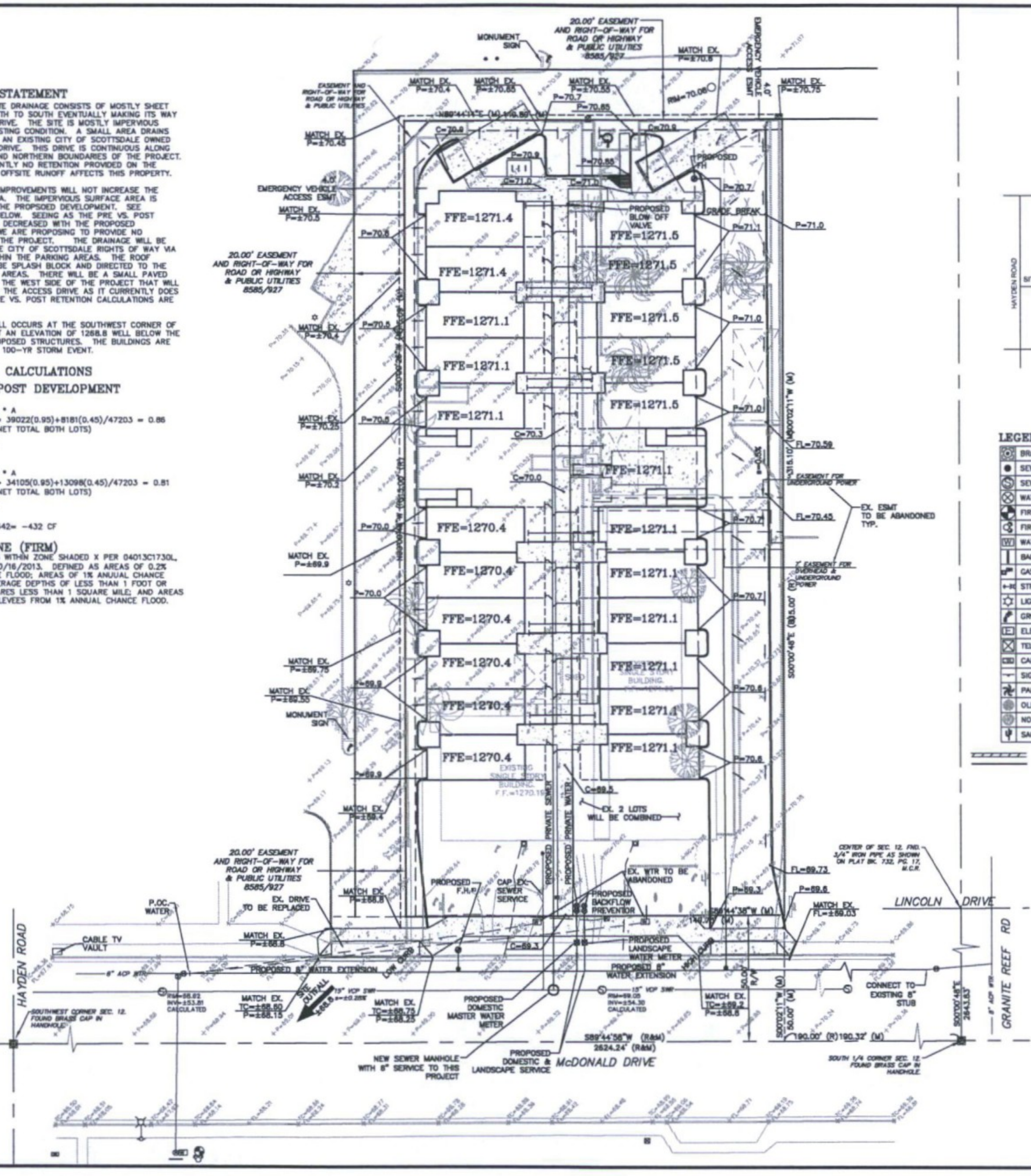
PRE:
VOLr=P/12 * C * A
WEIGHTED "C" = 39022(0.95)+8181(0.45)/47203 = 0.86
A=47,203 SF (NET TOTAL BOTH LOTS)
P=2.2 (IN/HR)
VOLr=7,442 CF

POST:
VOLr=P/12 * C * A
WEIGHTED "C" = 34105(0.95)+13098(0.45)/47203 = 0.81
A=47,203 SF (NET TOTAL BOTH LOTS)
P=2.2 (IN/HR)
VOLr=7,009 CF

VOLr=7,009-7,442= -432 CF

FLOOD ZONE (FIRM)

THIS SITE FALLS WITHIN ZONE SHADED X PER 04013C1730L, EFFECTIVE ON 10/16/2013. DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANUUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAG ARES LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.



VICINITY MAP
NOT TO SCALE

LEGEND

- BRASS CAP IN HANDHOLE
- SEWER CLEAN OUT
- SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- FIRE DEPT. CONNECTION
- WATER METER
- BACKFLOW PREVENTER
- GAS METER
- STREET LIGHT
- LIGHT POLE
- GROUND LIGHT
- ELECTIC BOX
- TELEPHONE RISER
- CABLE RISER
- SIGN
- PALM TREE
- OLIVE TREE
- NON-DESCRIPT TREE
- SAGUARO CACTUS
- C.M.U. WALL (4 OR 8 INCH BLOCKS)
- BOUNDARY

ARCHITECT
ARCHICON
5055 E. WASHINGTON
STE. 200
PHOENIX, AZ 85034
602.222.4266
JEFF KOSKI

ENGINEER
JACOBS WALLACE, LLC
CHUCK JACOBS
602.757.5964

OWNER
DIVERSIFIED PARTNERS, LLC
7500 E. MCDONALD DRIVE STE. 100A
SCOTTSDALE, AZ 85250
480.947.8800

BENCH MARK
BRASS CAP IN HANDHOLE LOCATED IN THE INTERSECTION OF McDONALD DRIVE AND GRANITE REEF ROAD. GDACS ID # 11028
EL.=1269.425 (NAVD 88 DATUM)

PROJECT DESCRIPTION
DEMO EXISTING BUILDINGS AND SITE IMPROVEMENTS AND CONSTRUCT PROPOSED MULT-STORY MULTI-FAMILY DEVELOPMENT WITH ASSOCIATED SITE IMPROVEMENTS.

APN
174-12-001S & 174-12-001T

ZONING
EXISTING C-1
PROPOSED R-5

CONSTRUCTION TYPE
VB

LEGAL DESCRIPTION
PARCEL NO.1:
THE EAST 340.00 FEET OF THE SOUTH 365.00 FEET AT THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 2 NORTH, RANGE 4 EAST OF GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;
EXCEPT THE EAST OF 265.00 FEET THEREOF.

PARCEL NO.2:
THE EAST 340.00 FEET OF THE SOUTH 365.00 FEET AT THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 2 NORTH, RANGE 4 EAST OF GILA AND SALTRIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;
EXCEPT THE EAST OF 190.00 FEET; AND
EXCEPT THE WEST 75.00 FEET.

SITE AREA
1.085 AC (NET)
1.257 AC (GROSS)

RELEASE	DATE	BY	APP.	DESCRIPTION
4	12-05-16	CGJ	CGJ	PRELIMINARY SUBMITTAL
3	3-16-17	CGJ	CGJ	PRELIMINARY RE-SUBMITTAL

DIVERSIFIED PARTNERS
MULTI-FAMILY PROJECT
8340 &8350 E. MCDONALD DRIVE
SCOTTSDALE, AZ

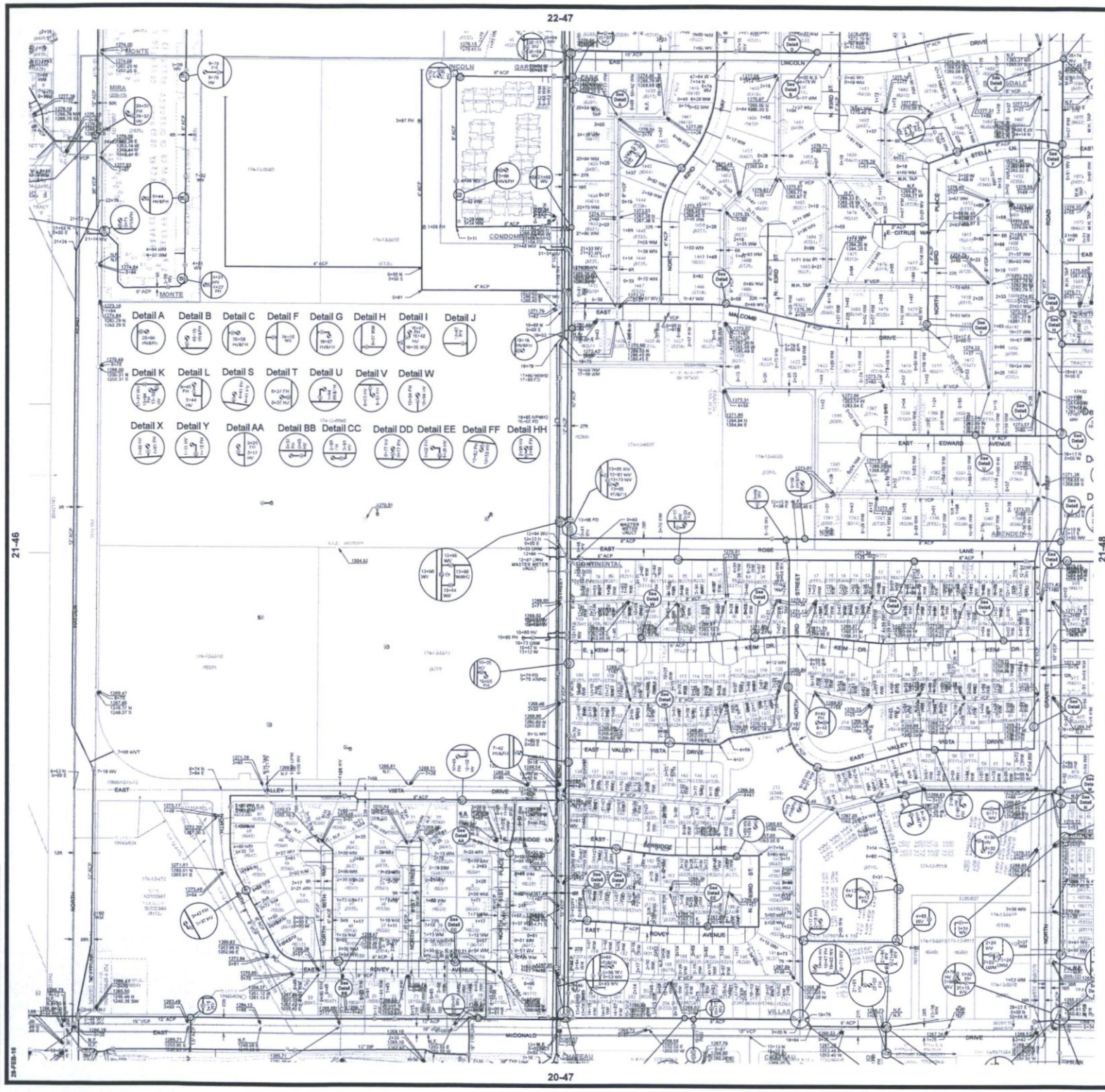
CONCEPTUAL G & D AND UTILITY PLAN

JACOBS WALLACE, LLC
ENGINEERING - PLANNING - MANAGEMENT

TRUE NORTH

FEBRUARY 2017

DRAWING NO.
C1.0
JOB: 0068



GENERAL NOTES:

- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7792.
- THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER, 1991. BEARINGS ARE HAD 83 GRID AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS 'CALCULATED' ON THE MAP.

LEGEND:

- Water Valve
- Non-potable Water Valve
- Fire Hydrant
- Water Blowoff
- Water Main Reducer
- Water Sample Station
- Water Air Release Valve
- Non-potable Water Air Release Valve
- Water Pressure Reducing Valve
- Water Vault
- Water Manhole
- Non-Potable Water Manhole
- Water Pump
- Water Main
- Non-Potable Water Main
- Fire Line
- Water Service
- Non-Scottsdale Water Main
- Sewer Manhole
- Sewer Cleanout
- Sewer Lift Station
- Sewer Treatment Plant
- Sewer Main - Gravity
- Sewer Main - Force
- Non-Scottsdale Sewer Main
- Sewer Service

VICINITY MAP

NORTH

SCALE: 1" = 100'

0 50 100 200

The map scale of 1" = 100' is based on a full size print of 30" x 36"

WATER & SEWER

QUARTER SECTION MAP

21-47

SW 1/4 SEC. 12 T2N R4E

CITY OF SCOTTSDALE

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS

3626 North Drinkwater Boulevard
Scottsdale, Arizona 85251

28-FEB-18