

# JOHNSON UTILITIES COMPANY,



0000138251

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26 July 2012

2012 JUL 27 PM 1 58

Robert G. Gray  
Executive Consultant III  
Utilities Division  
Arizona Corporation Commission  
1200 W Washington Street  
Phoenix AZ 85007-2927

Re: Docket No. WS-02987A-12-0136; Johnson Utilities, L.L.C. Application for Approval of an Extension of its Certificate of Convenience and Necessity

Dear Mr. Gray:

To further support Johnson Utilities CC&N Application mentioned above, I have attached the Developer's Preliminary Engineering Analysis for Bella Vista Farms as Attachment 1, and the Developer's Preliminary Engineering Analysis for Merrill Ranch Expansion 1 as Attachment 2.

Please feel free to contact me should you need any further information.

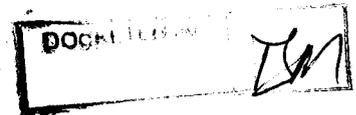
Regards,

Daniel R. Hodges  
JOHNSON UTILITIES, L.L.C.

cc: Docket Control  
Del Smith, Engineering Supervisor  
Brian Bozzo, Compliance Manager  
Lyn Farmer, Chief, Hearing Division  
Jeffrey W. Crockett, Brownstein Hyatt Farber Schreck

Arizona Corporation Commission  
DOCKETED

JUL 27 2012



# Attachment 1

**BELLA VISTA FARMS  
PINAL COUNTY, ARIZONA**

**WATER ANALYSIS  
JOHNSON UTILITIES SERVICE AREA**

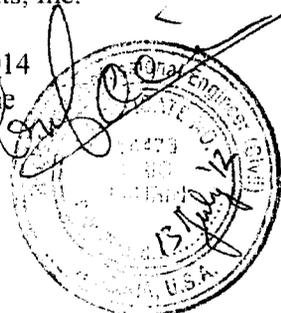
July 13, 2012

*Prepared for:*

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Exp. Date: 5/30/15

CVL Project No. 1.01.0149702



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## 1.0 INTRODUCTION

### 1.1 General

Bella Vista Farms (BVF) consists of approximately 1,309 acres of the Bella Vista Farms Planned Unit Development located in portions of Sections 09, 10, 15, and 16 of Township 3 South, Range 8 East, Pinal County, Arizona. See Figure 1. The property is a mixed-use development planned for a target of 4,430 residential dwelling units and will include commercial, education, and open space parcels. The northeast corner of Bella Vista and the Southern Pacific Railroad will serve as a 200-acre Community College campus for the Central Arizona College.

This report will serve to quantify the water demands and water infrastructure needs for that portion of the development within the contemplated expansion of the Johnson Utilities (JU) water service area. See Figure 2.

### 1.2 Land Use Plan

The Land Use Plan for BVF is summarized in Table 1 below. The initial development phase consists of developing parcels A and B, the Community College Campus and a 17.90-acre commercial site located adjacent to the college campus on the southern boundary of BVF, fronting Bella Vista Road.

Table 1 – Bella Vista Farms Land Use (Johnson Utilities Expansion Area Only)

Parcel Letter	Use	Parcel Acreage	Target Density	Dwelling Units
A	C	208.26	0	0
B	C	17.90	0	0
C	MD	103.68	3.9	404
D	MLD	51.76	2.9	150
E	MD	174.27	3.9	680
F	MLD	36.18	2.9	105
<b>Total</b>		<b>592.05</b>		<b>1,339</b>

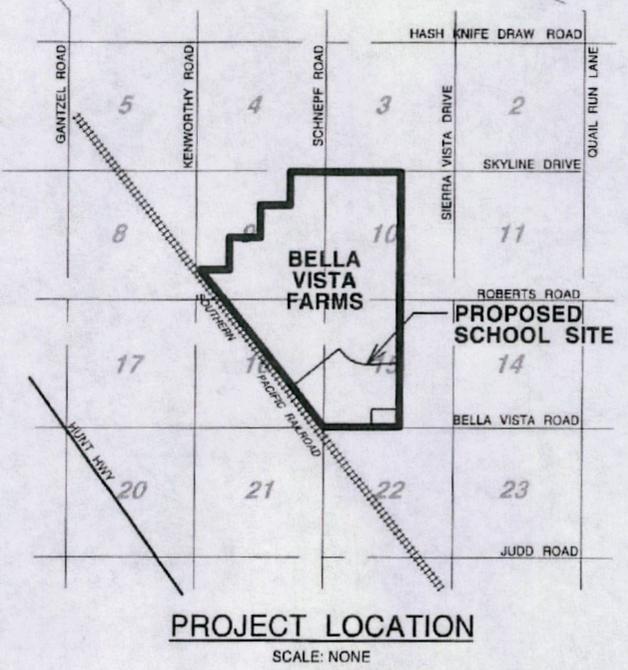
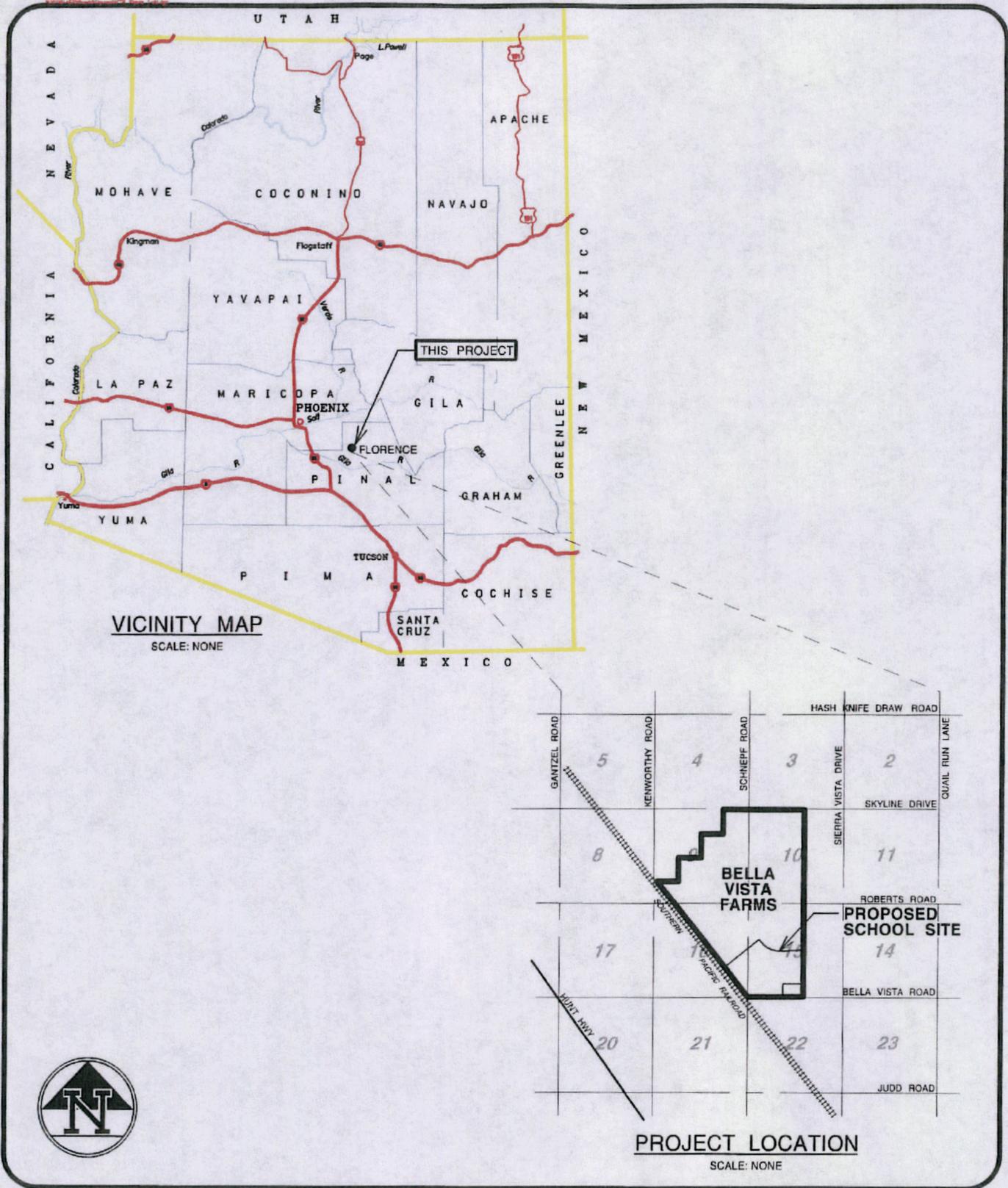
From Hadley Design Group – Exhibit II-3; Bella Vista Farms Conceptual Land Use, May 25, 2012.

See Figure 3 for a land use map obtained from Harvard Investments.

### 1.3 Site Conditions

The 1,309-acre parcel is currently undeveloped and under active cultivation with the exception of two-small areas on the northwest boundary of the site in Section 9. The Southern Pacific Railroad forms the boundary of the development.

The topography may be characterized as gently sloping from the east to west. The highest point of the property is located on the northwest corner of the development with elevation 1,530 feet above MSL. The lowest point is located at the southwest corner of Section 9, near the intersection of the railroad and Roberts Road, with an elevation of 1,495 feet. The cross slope is approximately 0.45 percent.



VICINITY MAP	<b>BELLA VISTA FARMS</b>	JOB NO 1.01.0149702
4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	<b>COE &amp; VAN LOO</b> PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE	FIGURE 1



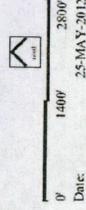
# Bella Vista Farms

## CONCEPTUAL LAND USE & OPEN SPACE PLAN

### EXHIBIT II-3

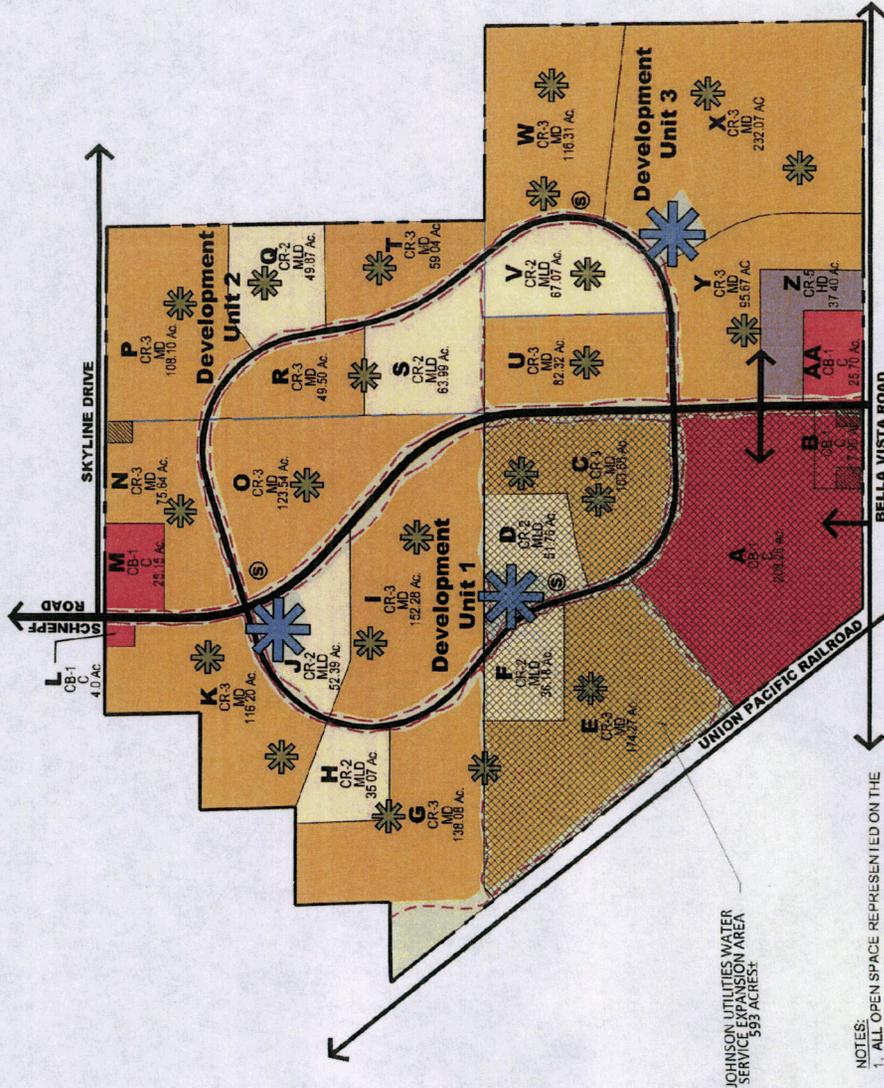
- LEGEND**
- PEDESTRIAN PATH OR TRAIL
  - G** PARCEL DESIGNATION
  - CR-3 ZONING CATEGORY
  - MD LAND USE
  - 12 AC. NUMBER OF ACRES
  - ☼ COMMUNITY PARK (1.0-20 ACRES)
  - ☼ FOCAL PARK (1/2 ACRE - 1 1/2 ACRES)
  - LINEAR PARK / OPEN SPACE
  - CR-2 - MEDIUM LOW DENSITY RESIDENTIAL (1.6 - 4.0 DU/AC., 2.9 DU/AC. TARGET)
  - CR-3 - MEDIUM DENSITY RESIDENTIAL (3.1 - 5.6 DU/AC., 3.9 DU/AC. TARGET)
  - CR-5 - HIGH DENSITY RESIDENTIAL (10.1 - 20.0 DU/AC., 15.1 DU/AC. TARGET)
  - CB-1 - COMMUNITY COMMERCIAL
  - POTENTIAL K-8 SCHOOL LOCATION
  - POTENTIAL SRP SUBSTATION LOCATION

Note:  
\* The total units allowed within the Bella Vista Farms PAD is capped at 7,505 Units.



**HADLEY DESIGN GROUP**  
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PAGE 11



JOHNSON UTILITIES WATER SERVICE EXPANSION AREA  
593 ACRES

- NOTES:**
1. ALL OPEN SPACE REPRESENTED ON THE CONCEPTUAL MASTER PLAN IS CONCEPTUAL IN NATURE AND HAS AN UNDERLYING RESIDENTIAL ZONING DESIGNATION.
  2. ALL INFRASTRUCTURE LOCATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE.

## 2.0 WATER SYSTEM REQUIREMENTS

Water system demands for BVF were calculated using unit factor and design criteria presented in the Johnson Utilities, LLC, Design Guide and Standard Details, November 2005.

Population Density	2.6 people/ DU
Average Day Demand	260 gals/DU-day
Maximum Day Demand	ADD x 2.0
Peak Hour Demand	ADD x 3.0
Commercial/Schools	1,500 gal/day-acre
Park	1,800 gal/day-acre
Fire Flow (Residential)	1,000 gpm/2 hrs
Fire Flow (Commercial)	1,500 gpm/3 hrs
Storage Domestic	0.48 x MDD
Storage Fire	Highest Flow + duration (e.g., 1,500 gpm x 3 hrs = 270,000 gal)

Expected demands for the area to be served by an expansion of the Johnson Utilities service area are summarized in Table 2.

Table 2 – Water Demands

Parcel Letter	Acreage	Dwelling Units	Unit Factor	ADD (gpd)	MDD (gpd)	PH (gpd)
A	208.26	-	1,500 gpad	312,390	624,780	937,170
B	17.90	-	1,500 gpad	26,850	53,700	80,550
C – F	365.89	1,339	260 gal/du-day	348,140	696,280	1,044,420
<b>Totals</b>	<b>592.05</b>	<b>1,339</b>	-	<b>687,380</b> <b>(477.3 gpm)</b>	<b>1,374,760</b> <b>(954.7 gpm)</b>	<b>2,062,140</b> <b>(1,432.0 gpm)</b>

The above demands must be met by the installation of additional water production, storage, pumping, and distribution infrastructure and by connection to the Johnson Utilities water distribution system. The infrastructure requirements are summarized below as taken from Johnson Utilities design criteria.

### BVF + Full Campus

Well Production (gpm)	955 gpm
Storage (gal)	930,000 gal
Booster Pump Capacity <sup>1</sup>	2,460 gpm

<sup>1</sup> Taken as the greater of MDD + 1,500 gpm Fire Flow or PH Demands, from Table 2.

### **3.0 EXISTING WATER SYSTEM INFRASTRUCTURE**

#### **3.1 Johnson Utilities**

A portion of JU water system infrastructure is shown in Figure 2. It is noted that a collection of wells have been installed throughout the distribution system that pumps directly into the distribution system. The Johnson Ranch Main Water Plant (POE 001) is located on Hunt Highway, approximately one-half mile south of Bella Vista Road. The JU water system within the Johnson Ranch area has one pressure zone. Low pressures are noted in the Cooper Mine Road area and high pressures in the Circle Cross subdivision located in the vicinity of Hash Knife Draw and Gantzel Roads. JU has indicated that a zonal split will be made at this location in the near future to reduce current line pressures of 100+ psi.

JU has indicated that it will shortly begin distribution system improvements in the eastern portion of its service area along Attaway Road, south of Bella Vista Road, to complete the looping of its distribution system. Also under consideration is a new water plant in the southwest corner of Section 23 consisting of a well and 1 MG storage with booster pumps.

It is also noted that a new 12-inch waterline will parallel an existing 8-inch main along Bella Vista Road from Tourmaline Drive, east, to the proposed entrance to the Central Arizona Campus entrance and the realigned Schnepf Road. This line will provide water service to the development.

## 4.0 WATER SERVICE IMPROVEMENTS

### 4.1 Line Extension

There currently exists an 8-inch waterline in Bella Vista Road along the south side of the BVF property. See Figure 4. The line extends east to Attaway Road and west to Hunt Highway (12-inch main west of the Southern Pacific Railroad). Waterline pressures in this line are reputed to be approximately 80 psi.

For this development, a new 12-inch main will be installed in Bella Vista Road from the College Campus west, across the railroad, connecting to the existing 12-inch main west of the railroad as shown in Figure 4. A single 12-inch main is capable of delivering the proposed demands with the following hydraulic characteristics:

	<b>Demand</b>	<b>Velocity</b>	<b>Head Loss@ C=130</b>	<b>Total Head Loss<sup>1</sup></b>
MDD + FF	2,460	6.98 fps	1.39 ft/100 ft	48.2 psi
PII	1,432	4.07 fps	0.51 ft/100 ft	17.7 psi

<sup>1</sup> Computed from Kenworthy/Bella Vista, the point at which the system is looped. Approximately 8,000 feet.

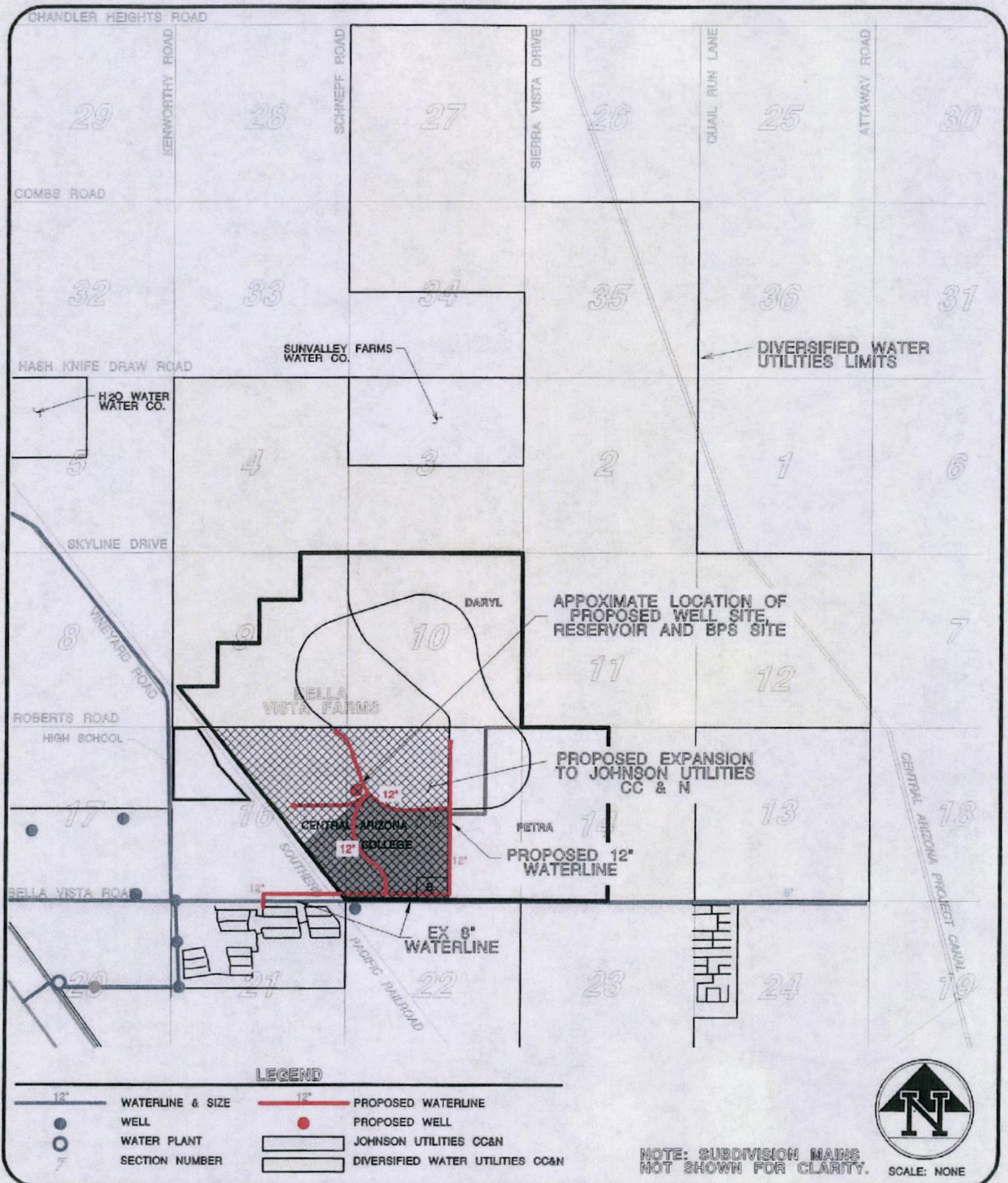
Given a normal static system pressure of approximately 80 psi, as reported above, the residual pressures during MDD plus fire flow conditions would be well above the required 20 psi at the property and delivery of water of sufficient quantity and pressure from JU appears feasible given the information provided.

### 4.2 System Improvements Within Parcel

The proposed improvements are shown in Figure 4. Ultimate service to BVF would require the establishment of 12-inch looping connection to the JU system. Our analysis indicates the following requirements:

- Production must be provided by the development by the drilling of at least one 500 gpm well, provided the JU system is capable of supplying spare capacity should the BVF well be out of service.
- Provide a water campus with a 1.00 MG storage reservoir with 2,500 gpm of booster pumping capacity.
- Integrating the BVF system with JU's system will require a modeling effort.

The costs of this alternative are estimated to be approximately \$3,744,000 as shown in Table 3.



<p><b>PROPOSED WATER SERVICE</b></p>	<p>BELLA VISTA FARMS</p>	<p>JOB NO 1.01.0149702</p>
<p>4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6931</p>	<p><b>COE &amp; VAN LOO</b> PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE</p>	<p>FIGURE 4</p>

**Table 3 – System Improvements Johnson Utilities Portion**

Description	Quantity	Unit	Unit Cost	Total Cost	Remarks
Connection to Exist	1	LS	LS	\$210,000	See Figure 4
12" Water Extension	5,280	LF	\$50/LF	\$264,000	Class 350 DIP
500 gpm Wells	1	EA	\$1,500,000	\$1,500,000	
1.00 MG Steel Tank	1	LS	LS	\$950,000	Coated, Cathodic Protection
Package Booster Pump Station + Controls	1	LS	LS	\$400,000	3,200 gpm – 4 Pumps
Emergency Generator	1	LS	LS	\$80,000	Diesel Powered
			<i>Subtotal</i>	<i>\$3,404,000</i>	
			10% Contingency	\$340,000	
			<b>TOTAL</b>	<b>\$3,744,000</b>	

# Attachment 2



**Mr. Daniel Hodges  
Johnson Utilities  
5230 E. Shea Blvd Suite #200  
Scottsdale, AZ 85254**

**July 17, 2012**

**Subject: Johnson Utilities Water & Sewer CC&N Request**  
Preliminary Engineering Analysis

Mr. Hodges:

Baxter Design has been requested by the South West Valley Partners to perform a preliminary engineering analysis of an area in Florence, AZ that is proposed to be serviced by Johnson Utilities for both drinking water and sanitary sewer services (see attached Exhibit "A").

The area for the proposed CC&N expansion is a 348(±) acre mixed use residential and commercial development located in south central Pinal County, Arizona approximately 6 miles northwest of Florence, Arizona. The area is located adjacent to the Anthem at Merrill Ranch Planned Unit Development (P.U.D.) in the Northwest quarter of Section 29 and Section 30, Township 4 South, Range 9 East of the Gila and Salt River Meridian.

The area consists of approximately 227 acres of single-family residential lots (900 lots) and 121 acres of commercial development.

### **Drinking Water Service**

Currently, the adjacent area is serviced by the Johnson Utilities water tanks and well sites in the Anthem at Merrill Ranch Master Planned Development (see attached Exhibit "B"). It is anticipated that the existing infrastructure has the required capacity to serve the expanded area or can be upgraded to provide the necessary drinking water and fire flow requirements for the area that is proposed to be included in the CC&N expansion.

### **Sanitary Sewer**

Currently, the adjacent area is serviced by the Johnson Utilities – Anthem at Merrill Ranch Water Reclamation Plant in the Anthem at Merrill Ranch Master Planned Development (see attached Exhibit "B"). It is anticipated that the existing Water Reclamation Plant and the corresponding sanitary sewer trunk lines have the required capacity for the expansion area.



The projected sanitary sewer flow produced by the expansion area is 308,200 gpd (gallons per day) or 0.35 MGD (million gallons per day) based on 4 lots/per acre with an ADF/Lot of 208 (gpd) and commercial flows of 1000 gpd (gallons per day) per acre.

Approximately 59% of residential area (137 acres) are planned to be conveyed by gravity sewer line to an existing trunk line located in American Way. The remainder of the residential and the commercial area will be conveyed by gravity sewer to a lift station to be located near Hunt Highway and then lifted to the trunk line in American Way (see attached Exhibit "A").

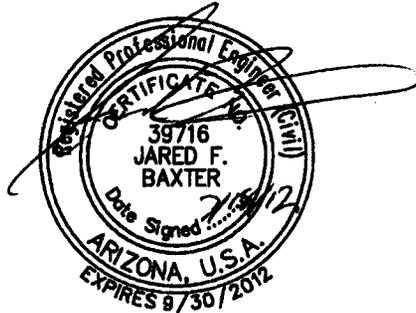
In summary, Baxter Design Group has reviewed the existing conditions and topography of the proposed expansion area along with the existing infrastructure that currently serves that Anthem at Merrill Ranch Community. We anticipate that the wet utility infrastructures that Johnson Utilities provides in the area are viable solutions to serve the proposed CC&N expansion area.

Feel free to contact me with any questions regarding this preliminary engineering review.

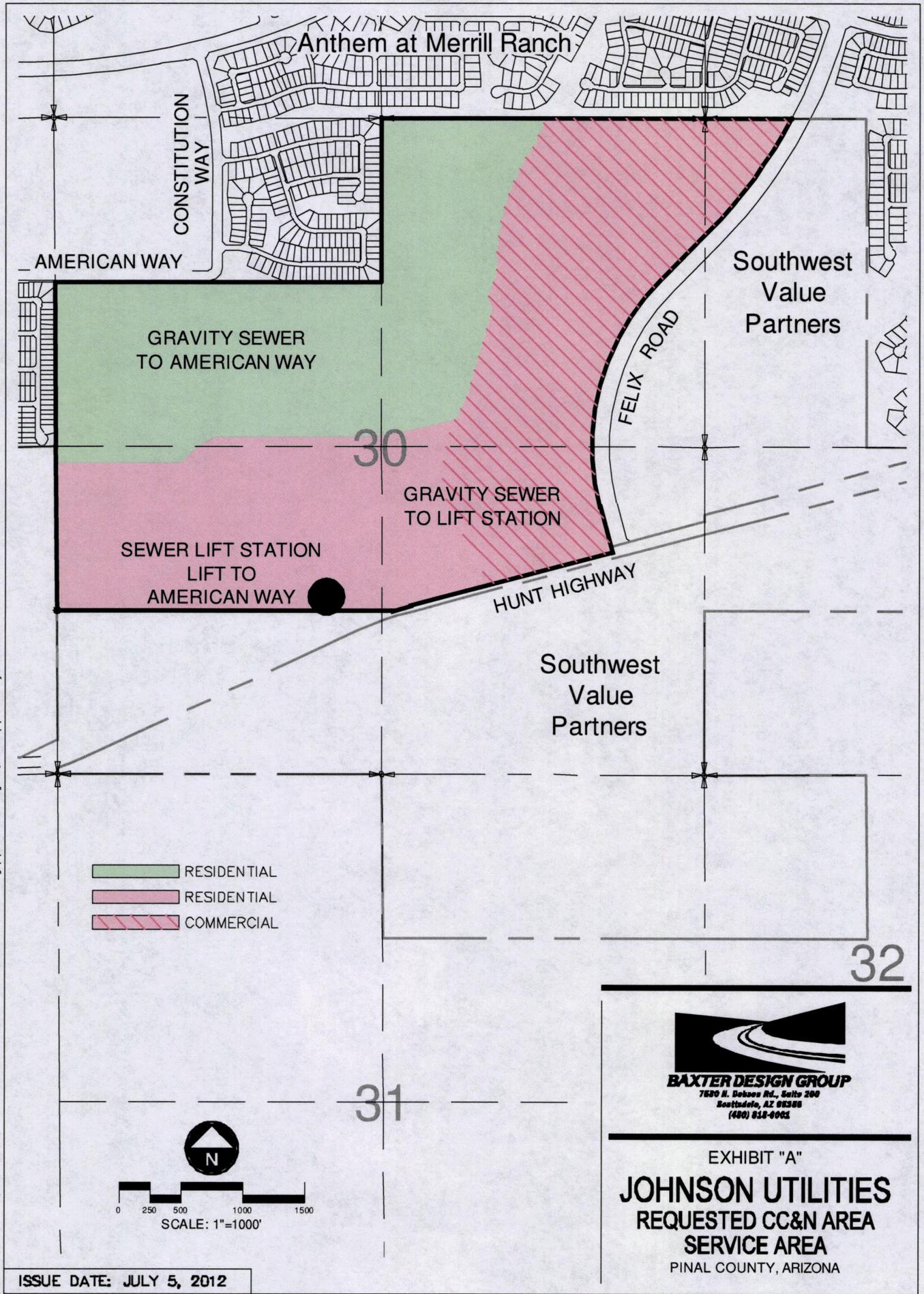
Sincerely,



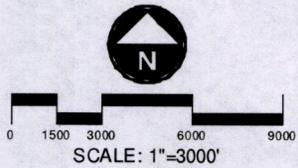
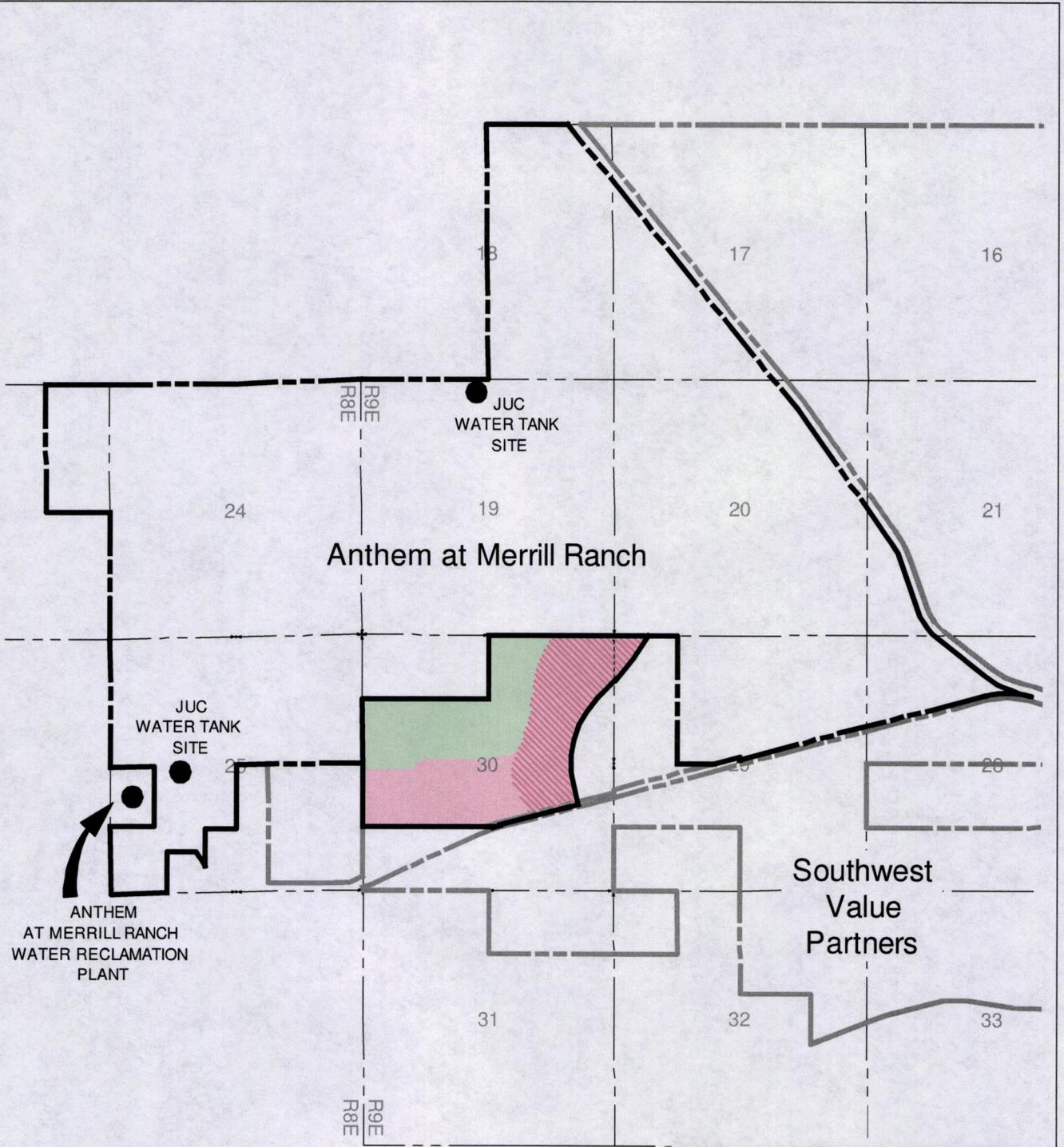
Jared Baxter, P.E.



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ISSUE DATE: JULY 5, 2012



EXHIBIT "B"

**JOHNSON UTILITIES**  
 REQUESTED CC&N AREA  
 SERVICE AREA  
 PINAL COUNTY, ARIZONA