Exterior Building Color & Material Samples

Color Drawdowns

Archaeological Resources

Airport Vicinity Development Checklist

Parking Study

Trip Generation Comparison

Parking Master Plan

CERTIFICATE OF NO EFFECT
ARCHAEOLOGICAL RESOURCES

11-ZN-2017

7676 E Pinnacle Peak

APPLICATION INFORMATION			
LOCATION:	7676 E Pinnacle Peak Rd	APPLICANT:	Nick Wood
PARCEL:	212-04-001C	COMPANY:	Snell & Wilmer L.L.P.
Q.S.:	45-46	ADDRESS:	400 E Van Buren St Phoenix, AZ 85004
		PHONE:	602-382-6269

Request by owner for a Zoning District Map Amendment from Service Residential, Environmentally Sensitive Lands (S-R ESL) zoning district, to Single-family Residential, Environmentally Sensitive Lands (R1-10 ESL) zoning district, on a +/- 19.7-acre site, located at 7676 E. Pinnacle Peak Road (incudes parcels 212-04-001B, 212-04-001C, 212-04-001D, and 212-04-001E).

Certificate of No Effect Criteria:
In accordance with Chapter 46, Article VI, of the Scottsdale Revised City Code, the Historic Preservation Officer finds that:

- No archaeological resources are located on the property according to the archaeological survey and report and based upon the city's review of the report.

STIPULATIONS

1. Any development on the property is subject to the requirements of Scottsdale Revised Code, Chapter 46, Article VI, Protection of Archaeological Resources, Section 46-134 - Discoveries of archaeological resources during construction.

SIGNATURE: Steve Venker DATE: August 29, 2017

Steve Venker, City Archaeologist 480-312-2831

PALEO WEST archaeology

Class III Cultural Resources Survey of 20 Acres at the Northeast Corner of Pinnacle Peak Road and Miller Road for Wok HoldCo, LLC, in Scottsdale, Maricopa County, Arizona

Submitted to:

Wok HoldCo, LLC
7676 E. Pinnacle Peak Rd
Scottsdale, AZ 85255

Prepared by:
Jordan Myers, M.A., RPA

Technical Report 17-119
August 9, 2017

602.261.7253 | paleowest.com | 319 E. Palm Lane | Phoenix, AZ 85004

State Historic Preservation Office
Survey Report Summary Form

Section 1. Report Title

1a. Report Title: Class III Cultural Resources Survey of 20 Acres at the Northeast Corner of Pinnacle Peak Road and Miller Road for Wok HoldCo, LLC, in Scottsdale, Maricopa County, Arizona

1b. Report Author(s): Jordan Myers, M.A., RPA

1c. Date: 8/9/2017 **1d. Report No.:** 17-119

Section 2. Project Registration/Permits

2a. ASM Accession Number: N/A

2b. AAA Permit No.: 2017-12bl

2c. ASLD Lease Application No.: N/A

2d. Other Permit Number(s): N/A

Section 3. Organization/Consulting Firm

3a. Name: PaleoWest Archaeology

3b. Internal Project Number: 17-205

3c. Internal Project Name: PF Chang's Class III Scottsdale

3d. Contact Name: Chris North

3e. Contact Address: 319 E. Palm Lane, Phoenix AZ 85004

3f. Contact Phone: 602 261-7253

3g. Contact Email: cnorth@paleowest.com

Section 4. Sponsor/Lead Agency

4a. Sponsor: Wok HoldCo, LLC

4b. Lead Agency: City of Scottsdale

4c. Agency Project Number(s): N/A

4d. Agency Project Name: N/A

4e. Funding Source(s): Private

4f. Other Involved Agencies: N/A

State Historic Preservation Office
Survey Report Summary Form

4g. Applicable Regulations: COS Revised Code, Ord. No. 3243, § 2, 7-13-99

Section 5. Description of Project or Undertaking:

Wok HoldCo, LLC, requested that PaleoWest conduct a Class III pedestrian survey of 20 acres of private land on the northeast corner of Pinnacle Peak Road and Miller Road for a proposed commercial development in Scottsdale, Maricopa County, Arizona.

Section 6. Project Area/Area of Potential Effects:

The project area consists of 20 acres of privately-owned land at the northeast corner of Pinnacle Peak Road and Miller Road in Scottsdale, AZ. The project area measures a maximum of 395 meters by 185 meters.

Section 7. Project Area Information:

7a. Address: 7676 E. Pinnacle Peak Rd

7b. Route: -

7c. Mileposts Limits: -

7d. Nearest City/Town: Scottsdale

7e. County: Maricopa

7f. Project Locator UTMs: (NAD 83, Zone 12) 415154 mE 372930 mN

7g. Baseline & Meridian: G&SRB&M

7h. USGS Quadrangle(s): Currys Corner

7i. Legal Description(s): SW ¼ of the SE ¼ of Section 11, T4N, R4E, Salt and Gila River Baseline and Meridian

Section 8. Survey Area

8a. Total Acres: 20

8b. Survey Area.

1. Land Jurisdiction	2. Total Acres Surveyed	3. Total Acres Not Surveyed	4. Justification for Areas Not Surveyed
Private	15.6	4.4	Developed area

Section 9. Environmental Contexts

9a. Landform: Alluvial floodplain

9b. Elevation: 1,902 feet above mean sea level

9c. Surrounding Topographic Features: 2.9 miles west of McDowell Mountains and 7.2 miles south of Black Mountain

9d. Nearest Drainage (Distance/Direction):	Cave Creek is 7.66 miles to the northwest of the project area.
9e. Local Geology:	Holocene Surficial deposits (Arizona Geological Survey 2013).
9f. Vegetation:	Sonoran Desertscrub (Brown 1994): saguaro, barrel cactus, stag cholla, creosote, mesquite trees, paloverde, sage, grasses.
9g. Soils/Deposition:	Momoli gravelly sandy loam (USDA Natural Resources Conservation Service 2016)
9h. Buried Deposits:	Not likely
9i. Justification:	Few documented sites in vicinity, no artifacts or features were observed within the project area.

Section 10. Built Environment:

The project area is bordered on the west by Miller Road, the south by Pinnacle Peak Road, and on the east and north by residential developments. Within the project area is a large commercial building with associated parking lots and sidewalks constructed in 1998. Residential and commercial properties are adjacent to the project area.

Section 11. Inventory Class Completed

11a. Class I Inventory:	☒
11b. Researcher(s):	Jordan Myers, M.A., RPA
11c. Class II Survey:	N/A
11d Sampling Strategy:	N/A
11e. Class III Inventory:	☒

Section 12. Background Research Sources

12a. AZSITE:	☒
12b. ASM Archaeological Records Office:	☐
12c. SHPO Inventories and/or SHPO Library:	☐
12d. NRHP Database:	☒
12e. ADOT Portal:	☐
12f. GLO Maps:	Plat 109520, filed 10/21/1915 depicts 10 separate roads, only one of which is inside the project area (running in an east/west direction).
12g. Land-Managing Agency Files:	N/A

12h. Tribal Cultural Resources Files: N/A

12i. Local Government Websites: City of Scottsdale Historic Register (Scottsdale City Council 2013)

12j. Other: USGS maps: Currys Corner, Ariz. (1964) depicts 16 roads and three transmission lines, all of which are outside the project area.

Section 13. Background Research Results

13a. Previous Projects Within Study Area.

1. Project Reference Number	2. Project Name	3. Author(s)	4. Year
1987-243.ASM	North Scottsdale Reconnaissance	Recon	1987
1988-39.ASM	Pinnacle Peak Substation Extension	Hoffman	1988
1989-208.ASM	Core North Project	Breternitz and Landis	1989
1993-110.ASM	Landmark Land/Scottsdale Road	Woodall	1993
1994-303.ASM	Ethan Bindelglas State Land Survey, 53-53753	Foster	1994
1996-228.ASM	Scottsdale LaVista Subdivision	DeMaagd	1996
1997-185.ASM	Pinnacle Peak and Miller Roads	Aguila	1997
1997-221.ASM	Silverado Survey	Ryden	1997
1998-585.ASM	Desierto Vida II Survey	Ellis and Smith	1998
1999-10.ASM	APS: Scottsdale Road and Happy Valley Road	Moreno	1999a
1999-130.ASM	Pinnacle Peak-Rawhide 69kV	Moreno	1999b
2000-84.ASM	Alameda and 76th Survey	Hackbarth	2000
2000-238.ASM	Mardian Archaeology Survey	Bushée	2000
2000-731.ASM	Pinnacle Cemetery Project	Giacobbe and Geller	2000
2001-3.ASM	Scottsdale: Williams Dr & Scottsdale Rd	DeMaagd	2001
2001-392.ASM	Arroyo Paradise Archaeological Project	Schroeder	2001
2001-603.ASM	Happy Valley LLC Survey	Lundin	2001

State Historic Preservation Office
Survey Report Summary Form

Section 13. Background Research Results

13a. Previous Projects Within Study Area.			
1. Project Reference Number	**2. Project Name**	**3. Author(s)**	**4. Year**
2001-611.ASM	Cox Communications 2	Webb	2001
2002-222.ASM	Hayden/Santa Catalina Survey	Hart	2002
2003-422.ASM	Adobe Development	Hackbarth	2002
2004-114.ASM	160ac SEC Scottsdale & Pinnacle Peak	North, Ryden, and Schmidt	2003
2004-455.ASM	Deer Valley and Scottsdale Road Survey	Hackbarth	2003
2004-1721.ASM	Happy Valley Road and Hayden Roads Survey	Cogswell	2004
2004-671.ASM	COS Arsenic Pipeline	Lausten	2004
2004-705.ASM	75th Street and Pinnacle Peak Road Survey	Hart	2003
2005-951.ASM	Scottsdale and Pinnacle Peak Roads Survey	Marshall	2005
2005-984.ASM	Jomax & Hayden Roads Survey	Gage	2004
2006-217.ASM	Pinnacle Peak and Miller Roads Survey	Stahman	2005
2006-475.ASM	Miller Road and Williams Drive Survey	Gage	2006
2006-944.ASM	Pinnacle Peak Road	Rapp	2007
2007-465.ASM	Line 2223 Year 2008 PIP	Hesse	2007
2008-15.ASM	Scottsdale Sewer Main	Jaime	2008
2009-488.ASM	Scottsdale Road Improvement Project (Thompson Peak Parkway to Pinnacle Peak Road)	Hyman	2009
2010-333.ASM	AT&T H080-02	Luchetta and Moses	2010
2010-389.ASM	AT&T Mobility H075-01	Moses and Luchetta	2010
2011-8.ASM	Scottsdale ARRA Survey	Stubing	2011
2011-628.ASM	Sonoran Hills School Site in Scottsdale	Breternitz	2011

State Historic Preservation Office
Survey Report Summary Form

Section 13. Background Research Results

13a. Previous Projects Within Study Area.

1. Project Reference Number	2. Project Name	3. Author(s)	4. Year
2012-528.ASM	Scottsdale Rd, Thompson Peak to Pinnacle Peak	Cox	2012

13b. Previously Recorded Cultural Resources Within Study Area.

1. Site No./ Name	2. Affiliation	3. Site Type	4. Eligibility Status	5. Associated Reference(s)	6. Inside APE?
AZ U:5:238(ASM)	Unknown	Unknown	Unknown	AZSITE	No
AZ U:5:253(ASM)	Archaic (8000 B.C.-A.D. 200); Hohokam (A.D. 200-1500); Historic (A.D. 1500-1950)	Rock features and artifact scatter	Recommended eligible	AZSITE	No
AZ U:5:280(ASM)	Unknown	Unknown	Unknown	AZSITE	No

13c. Historic Buildings/Districts/Neighborhoods.

1. Property Name or Address	2. Year	3. Eligibility Status	4. Inside APE?
N/A	—	—	—

13d. Historic USGS Map and GLO Properties Within Study Area.

1. Property Description	2. Map Year	3. Inside APE?
1 GLO Road	1915	Yes
9 GLO Roads	1915	No
16 roads on USGS Currys Corner, Ariz. Map	1964	No
Three transmission lines on USGS Currys Corner, Ariz. Map	1964	No

Section 14. Cultural Contexts

14a. Prehistoric Culture: Paleoindian, Archaic, Hohokam

14b. Protohistoric Culture: Akimel O'odham (Pima), Xalychidom Piipash (Maricopa), Yavapai

14c. Indigenous Historic Culture: Akimel O'Odham (Pima), Xalychidom Piipash (Maricopa), and Yavapai

14d. Euro-American Culture: A.D. 1880-present

State Historic Preservation Office
Survey Report Summary Form

Section 15. Field Survey Personnel

15a. Principal Investigator: Chris North, M.A., RPA

15b. Field Supervisor: Jordan Myers, M.A., RPA

15c. Crew: Jordan Myers, M.A., RPA

15d. Fieldwork Date(s): 06/01/2017

Section 16. Survey Methods

16a. Transect Intervals: 20 **m apart**

16b. Coverage (%): 100 percent

16c. Site Recording Criteria: ASM (Fish 1995)

16d. Ground Surface Visibility: 76-99 percent

16e. Observed Disturbances: Commercial development and scattered modern trash

Section 17. Field Survey Results

17a. No Cultural Resources Identified: ☒

17b. Isolated Occurrences (IOs) Only: ☐

17c. Number of IOs Recorded: N/A

17d. Table of IOs.

1. IO Number	2. Description	3. Date Range	4. UTMs	
			Easting	Northing
N/A	—	—	—	—

State Historic Preservation Office
Survey Report Summary Form

Section 18. Comments/Recommendations:

This Class III cultural resources survey was completed in compliance with COS Revised Code, Chapter 46, Article VI. Background research indicated that small portions along the project area margins were previously surveyed for projects related to the LaVista Subdivision (DeMaagd 1996), the COS Arsenic Pipeline (Lausten 2004), and a pavement preservation project (Stubing 2011). However, these surveys are more than 5 years old and do not meet current COS Historic Preservation Office standards. Wok HoldCo, LLC, therefore requested that PaleoWest conduct a full pedestrian survey of the 20-acre parcel of private land for proposed commercial development. Background research also identified one historic road that crosses in the project area; however, no evidence of the road was observed during the survey, and it was not evident on aerial images. No IOs were identified and no sites were encountered within the project area. It is recommended that the project proceed with a Certificate of No Effect.

Section 19. Attachments

19a. Project Location Map:	☒ (Figure 1)
19b. Land Jurisdiction Map:	☒ (Figure 1)
19c. Background Research Map(s):	☒ (Figure 2)
19d. GLO Map(s):	☒ (Figure 2)
19e. Project Area Photograph(s):	☒ (Figure 3 and Figure 4)
19f. References:	☒

Section 20. Consultant Certification

I certify the information provided herein has been reviewed for content and accuracy and all work meets applicable agency standards.

[signature] Date: 6/7/2017

Signature

Principal Investigator

Title

Section 21. Discovery Clause

If previously unreported cultural resources are encountered during ground disturbing activities, all work must immediately cease within 30 m (100 ft) until the COS Historic Preservation Office has been notified and the nature and significance of the discovery is evaluated by a qualified archaeologist. Work must not resume in this area without approval of the COS Historic Preservation Office.

If human remains are encountered during ground-disturbing activities, all work must immediately cease within 30 m (100 ft) of the discovery and the area must be secured. The Arizona State Museum (ASM), COS Historic Preservation Office, and appropriate Tribes must be notified of the discovery. All discoveries will be treated in accordance Arizona Revised Statute (A.R.S. § 41-865 and work must not resume in this area without authorization from the ASM.

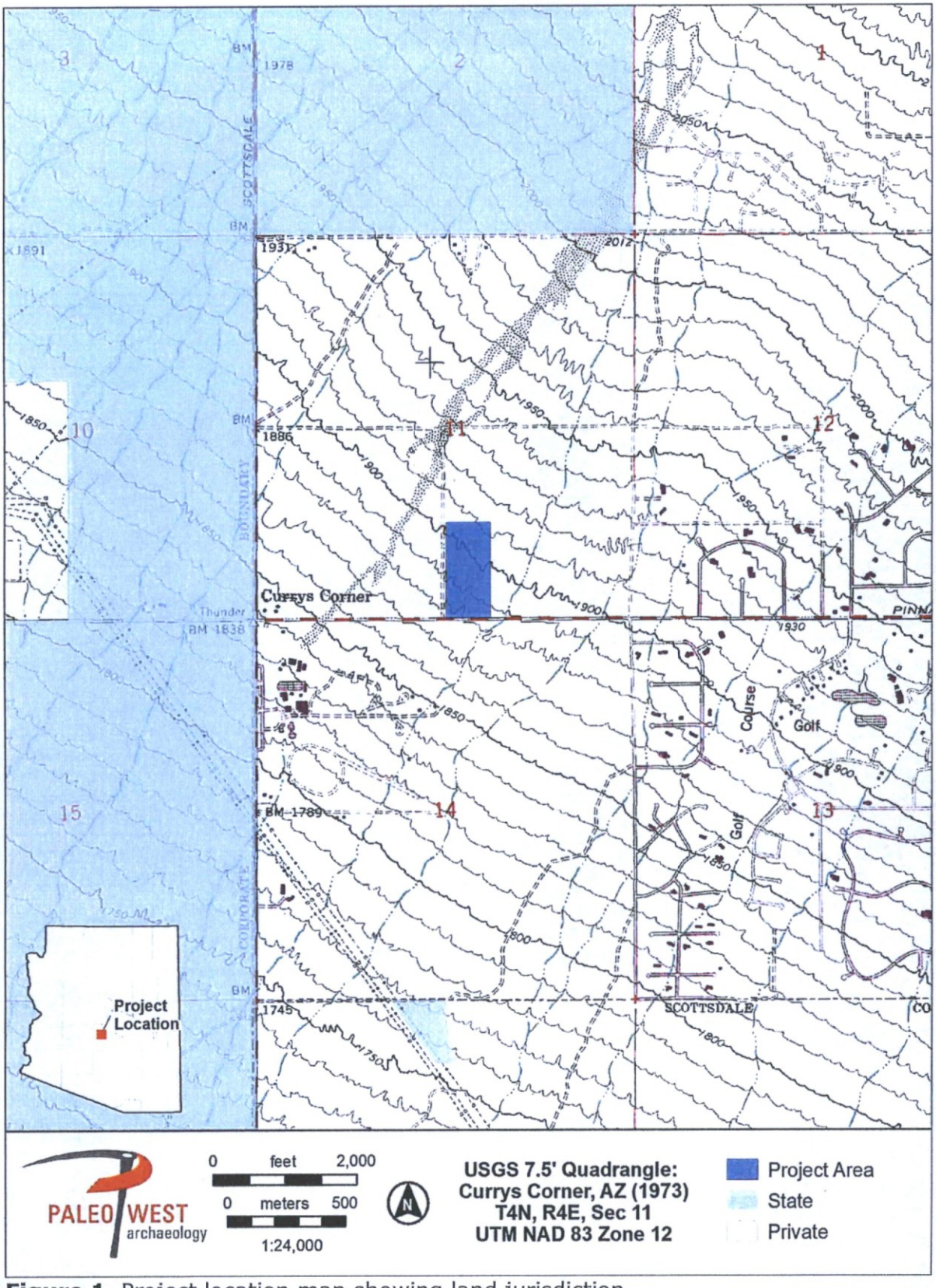

Figure 1. Project location map showing land jurisdiction.

Native Resources
INTERNATIONAL

Native Plant Inventory

Pinnacle Peak & Miller
7676 E. Pinnacle Peak Road
Scottsdale, AZ

6/2/2017

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1	Blue Palo Verde	7	S	
2	Blue Palo Verde	6	NS	Cambium Damage / Leaning
3	Foothills Palo Verde	14	S	
4	Barrel	3	S	
5	Foothills Palo Verde	6	NS	Wash / On Slope
6	Foothills Palo Verde	7	S	
7	Mesquite	7	S	
8	Mesquite	5	S	
9	Mesquite	14	S	
10	Saguaro	6	S	
11	Blue Palo Verde	14	NS	Mistletoe
12	Blue Palo Verde	20	NS	Witches Broom
13	Mesquite	16	S	
14	Barrel	3	S	
15	Blue Palo Verde	16	S	
16	Blue Palo Verde	9	S	
17	Barrel	4	S	
18	Blue Palo Verde	12	NS	Witches Broom
19	Barrel	5	S	
20	Foothills Palo Verde	5	NS	Proximity to Water Valve
21	Mesquite	6	S	
22	Foothills Palo Verde	10	NS	Cambium Damage
23	Barrel	3	S	
24	Mesquite	9	S	
25	Foothills Palo Verde	4	S	
26	Barrel	3	S	
27	Foothills Palo Verde	14	S	
28	Foothills Palo Verde	12	S	
29	Blue Palo Verde	6	S	
30	Foothills Palo Verde	7	NS	Trunk Form / Leaning
31	Ocotillo	14	S	
32	Blue Palo Verde	8	S	
33	Foothills Palo Verde	7	S	
34	Foothills Palo Verde	4	S	
35	Barrel	3	S	
36	Foothills Palo Verde	10	S	
37	Barrel	3	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
38	Foothills Palo Verde	8	NS	Proximity to Headwall
39	Foothills Palo Verde	8	S	Prune Mistletoe
40	Barrel	4	S	
41	Foothills Palo Verde	20	NS	Cambium Damage
42	Mesquite	20	NS	Trunk Form / Cambium Damage
43	Mesquite	18	S	
44	Saguaro	72	S	6 arms
45	Mesquite	4	S	
46	Foothills Palo Verde	16	NS	Leaning / Cambium Damage
47	Saguaro	134	NS	7 arms / Declining
48	Mesquite	8	S	
49	Mesquite	7	S	
50	Whitethorn Acacia	7	NS	Proximity to Headwall
51	Whitethorn Acacia	7	S	
52	Whitethorn Acacia	9	NS	Trunk Form / Leaning
53	Whitethorn Acacia	8	NS	Trunk Form / Leaning
54	Mesquite	10	S	
55	Desert Willow	8	NS	Cambium Damage
56	Mesquite	6	NS	Trunk Form / Leaning
57	Whitethorn Acacia	10	NS	Trunk Form / Poor Structure
58	Mesquite	4	NS	Trunk Form / Leaning
59	Mesquite	10	S	
60	Blue Palo Verde	6	NS	Cluster / Sucker Growth
61	Mesquite	14	S	
62	Mesquite	10	S	
63	Mesquite	4	NS	Trunk Form / Leaning
64	Whitethorn Acacia	20	NS	Leaning / Poor Structure
64	Mesquite	14	S	
65	Mesquite	8	S	
66	Foothills Palo Verde	20	NS	Branch Dieback
67	Foothills Palo Verde	12	NS	Cambium Damage / Leaning
68	Foothills Palo Verde	5	S	
69	Foothills Palo Verde	8	NS	Branch Dieback
70	Foothills Palo Verde	4	S	
71	Whitethorn Acacia	12	NS	Trunk Form / Poor Structure
72	Foothills Palo Verde	18	S	
73	Whitethorn Acacia	6	NS	Trunk Form / Leaning
74	Mesquite	16	S	
75	Whitethorn Acacia	11	NS	Trunk Form / Leaning
76	Whitethorn Acacia	8	NS	Trunk Form / Leaning
77	Whitethorn Acacia	8	NS	Exposed Roots / Leaning
78	Mesquite	6	NS	Trunk Form / Leaning
79	Blue Palo Verde	7	NS	Leaning / Poor Structure
80	Catclaw Acacia	8	NS	Leaning / Poor Structure
81	Foothills Palo Verde	4	S	
82	Foothills Palo Verde	5	S	
83	Catclaw Acacia	6	S	
84	Foothills Palo Verde	4	NS	Cambium Damage
85	Whitethorn Acacia	10	NS	Branch Dieback / Cambium Damage

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
86	Foothills Palo Verde	4	S	
87	Foothills Palo Verde	4	S	
88	Foothills Palo Verde	4	S	
89	Foothills Palo Verde	4	NS	Proximity to Wall
90	Foothills Palo Verde	4	NS	Proximity to Wall
91	Whitethorn Acacia	12	NS	Leaning / Poor Structure
92	Whitethorn Acacia	6	NS	Leaning / Poor Structure
93	Whitethorn Acacia	16	NS	Leaning / Poor Structure
95	Whitethorn Acacia	14	NS	Leaning / Poor Structure
96	Whitethorn Acacia	7	S	
97	Blue Palo Verde	4	S	
98	Mesquite	7	S	
99	Foothills Palo Verde	14	NS	Mistletoe / Declining
100	Foothills Palo Verde	12	S	
101	Foothills Palo Verde	9	NS	Proximity to #100
102	Barrel	4	S	
103	Foothills Palo Verde	4	S	
104	Foothills Palo Verde	14	NS	Mistletoe
105	Foothills Palo Verde	8	S	
106	Saguaro	33	S	2 arms
107	Foothills Palo Verde	8	S	
108	Mesquite	10	S	
109	Mesquite	6	S	
110	Desert Willow	16	NS	Form / Poor Structure
111	Foothills Palo Verde	12	NS	Cambium Damage / Poor Structure
112	Mesquite	20	S	
113	Whitethorn Acacia	8	NS	Form / Poor Structure
114	Mesquite	10	NS	Exposed Roots / Leaning
115	Whitethorn Acacia	8	NS	Trunk Form / Leaning
116	Whitethorn Acacia	14	NS	Trunk Form / Cambium Damage
117	Mesquite	22	NS	Exposed Roots
118	Blue Palo Verde	5	NS	Trunk Form / Leaning
119	Whitethorn Acacia	12	NS	Trunk Form / Leaning
120	Whitethorn Acacia	16	NS	Trunk Form / Poor Structure
121	Foothills Palo Verde	14	S	
122	Mesquite	16	S	
123	Mesquite	12	NS	Leaning / Poor Structure
124	Whitethorn Acacia	8	NS	Cambium Damage
125	Mesquite	9	NS	Trunk Form / Leaning
126	Mesquite	8	S	
127	Mesquite	7	S	
128	Foothills Palo Verde	5	S	
129	Mesquite	20	S	
130	Mesquite	14	S	
131	Saguaro	90	S	10 arms
132	Foothills Palo Verde	8	S	
133	Saguaro	40	S	5 arms
134	Foothills Palo Verde	18	NS	Mistletoe
135	Saguaro	25	S	4 arms

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
136	Ironwood	8	S	
137	Foothills Palo Verde	12	S	
138	Ironwood	10	S	
139	Hackberry	24	NS	Wide Base
140	Foothills Palo Verde	16	S	
141	Saguaro	12	S	
142	Ocotillo	16	NS	Dead
143	Foothills Palo Verde	6	S	
144	Foothills Palo Verde	16	S	
145	Foothills Palo Verde	14	S	
146	Foothills Palo Verde	5	S	
146	Saguaro	20	S	
148	Mesquite	14	S	
149	Mesquite	8	S	
150	Saguaro	11	S	
151	Barrel	3	S	
152	Ironwood	24	S	
153	Saguaro	51	S	5 arms
154	Ocotillo	14	S	
155	Barrel	3	S	
156	Foothills Palo Verde	16	S	
157	Barrel	3	S	
158	Saguaro	11	S	
159	Ironwood	18	S	
160	Barrel	3	S	
161	Barrel	3	S	
162	Mesquite	12	NS	Exposed Roots / Leaning
163	Barrel	4	S	
164	Barrel	3	S	
164	Ironwood	24	S	
166	Ironwood	34	S	
167	Ocotillo	19	S	
168	Barrel	3	S	
169	Saguaro	8	S	
170	Foothills Palo Verde	16	S	
171	Foothills Palo Verde	14	S	
172	Saguaro	20	S	
173	Foothills Palo Verde	12	NS	Cambium Damage / Leaning
174	Saguaro	35	S	3 arms
175	Foothills Palo Verde	22	NS	Branch Dieback
176	Barrel	3	S	
177	Barrel	3	S	
178	Foothills Palo Verde	12	NS	Cambium Damage / Poor Structure
179	Foothills Palo Verde	16	NS	Cambium Damage / Poor Structure
180	Blue Palo Verde	6	NS	Witches Broom
181	Blue Palo Verde	6	NS	Trunk Form / Leaning
182	Barrel	4	S	
183	Saguaro	13	S	
184	Ironwood	24	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
185	Foothills Palo Verde	20	NS	Cambium Damage
186	Ironwood	22	S	
187	Foothills Palo Verde	12	S	
188	Foothills Palo Verde	14	NS	Cambium Damage
189	Foothills Palo Verde	10	NS	Cambium Damage
190	Foothills Palo Verde	18	S	
191	Ocotillo	13	S	
192	Saguaro	31	NS	1 arm / Declining
193	Foothills Palo Verde	18	NS	Cambium Damage
194	Ironwood	14	S	
195	Saguaro	29	S	7 arms
196	Ironwood	18	S	
197	Saguaro	18	S	1 arm
198	Saguaro	55	S	6 arms
199	Saguaro	16	S	
200	Ironwood	20	S	
201	Saguaro	9	S	
202	Mesquite	4	S	
203	Foothills Palo Verde	6	S	
204	Saguaro	101	S	11 arms
205	Graythorn	7	S	
206	Foothills Palo Verde	10	NS	Cambium Damage
207	Foothills Palo Verde	16	S	
208	Foothills Palo Verde	14	NS	Cambium Damage
209	Saguaro	54	S	8 arms
210	Foothills Palo Verde	22	S	
211	Saguaro	15	S	
212	Ironwood	10	S	
213	Foothills Palo Verde	4	S	
214	Foothills Palo Verde	4	S	
215	Foothills Palo Verde	5	S	
216	Blue Palo Verde	7	NS	Cambium Damage
217	Blue Palo Verde	14	S	
218	Ocotillo	15	S	
219	Saguaro	40	S	2 arms
220	Barrel	3	S	
221	Ocotillo	14	S	
222	Foothills Palo Verde	18	S	
223	Blue Palo Verde	15	NS	Cambium Damage / Poor Structure
224	Barrel	3	S	
225	Blue Palo Verde	18	NS	Cambium Damage / Poor Structure
226	Blue Palo Verde	16	S	
227	Saguaro	35	S	2 arms
228	Ironwood	20	NS	Proximity to Structure
229	Saguaro	25	NS	Declining
230	Mesquite	7	S	
231	Ocotillo	11	S	
232	Mesquite	13	NS	Proximity to Asphalt / Structure
233	Foothills Palo Verde	16	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
234	Foothills Palo Verde	20	NS	Proximity to Structure
235	Foothills Palo Verde	20	S	
236	Mesquite	24	NS	Cambium Damage / Access Issue
237	Catclaw Acacia	14	NS	Form / Access Issue
238	Catclaw Acacia	12	NS	Form / Access Issue
239	Catclaw Acacia	8	NS	Form / Access Issue
240	Hackberry	20	NS	Wide Base
241	Hackberry	20	NS	Wide Base
242	Blue Palo Verde	18	S	
243	Saguaro	9	S	
244	Mesquite	17	S	
245	Saguaro	11	S	
246	Barrel	3	S	
247	Mesquite	5	S	
248	Barrel	3	S	
249	Mesquite	28	NS	Proximity to Asphalt / Structure
250	Mesquite	16	NS	Cambium Damage / Poor Structure
251	Barrel	3	S	
252	Saguaro	12	S	
253	Mesquite	8	S	
254	Mesquite	18	NS	Exposed Roots / Poor Structure
255	Saguaro	4	S	
256	Mesquite	8	NS	Trunk Form / Leaning
257	Saguaro	5	S	
258	Barrel	3	S	
259	Barrel	4	S	
260	Barrel	4	S	
261	Mesquite	18	S	
262	Barrel	3	S	
263	Mesquite	20	S	
264	Barrel	3	S	
265	Barrel	3	S	
266	Mesquite	18	S	
267	Barrel	3	S	
268	Mesquite	8	NS	Exposed Roots
269	Barrel	3	S	Multiple heads
270	Barrel	3	S	
271	Barrel	5	S	
272	Mesquite	13	NS	Exposed Roots / Leaning
273	Mesquite	14	S	
274	Ocotillo	10	S	
275	Mesquite	18	S	
276	Saguaro	6	S	
277	Foothills Palo Verde	18	NS	Proximity to Sidewalk
278	Ironwood	22	NS	Trunk Form / Access Issue
279	Foothills Palo Verde	16	NS	Cambium Damage / Access Issue
280	Foothills Palo Verde	8	NS	Proximity to Wall / Curb
281	Blue Palo Verde	18	NS	Cambium Damage / Proximity to Wall
282	Ironwood	9	NS	Form / Poor Structure

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
283	Foothills Palo Verde	24	NS	Cambium Damage / Access Issue
284	Ironwood	18	S	
285	Blue Palo Verde	14	NS	Exposed Roots
286	Foothills Palo Verde	8	NS	Cambium Damage / Poor Structure
287	Foothills Palo Verde	6	S	
288	Mesquite	5	S	
289	Mesquite	15	S	
290	Mesquite	14	S	
291	Blue Palo Verde	14	S	
292	Blue Palo Verde	5	S	
293	Foothills Palo Verde	6	S	
294	Foothills Palo Verde	4	S	
295	Foothills Palo Verde	5	S	
296	Foothills Palo Verde	4	S	
297	Foothills Palo Verde	5	S	
298	Foothills Palo Verde	6	S	
299	Blue Palo Verde	5	S	
300	Blue Palo Verde	9	S	
301	Blue Palo Verde	4	S	
302	Blue Palo Verde	12	S	
303	Blue Palo Verde	7	NS	Cambium Damage / Leaning
304	Blue Palo Verde	6	NS	Cambium Damage / Leaning
305	Ocotillo	13	S	
306	Saguaro	5	S	
307	Blue Palo Verde	14	NS	Cambium Damage / Leaning
308	Foothills Palo Verde	5	S	
309	Yucca elata	10	NS	3 arms / Leaning / Form
310	Yucca elata	10	NS	3 arms / Leaning / Declining
311	Yucca elata	16	NS	2 heads / Declining
312	Foothills Palo Verde	7	S	
313	Blue Palo Verde	8	NS	Cambium Damage / Leaning
314	Foothills Palo Verde	9	NS	Trunk Form / Access Issue
315	Blue Palo Verde	8	NS	Exposed Roots / Cambium Damage
316	Blue Palo Verde	5	S	
317	Foothills Palo Verde	5	S	
318	Mesquite	26	NS	Exposed Roots
319	Blue Palo Verde	15	S	
320	Mesquite	12	S	
321	Blue Palo Verde	7	NS	Leaning / Cambium Damage
322	Ocotillo	16	S	
323	Saguaro	5	S	
324	Saguaro	11	S	
325	Foothills Palo Verde	7	S	
325	Ocotillo	9	S	
326	Blue Palo Verde	10	NS	Cambium Damage / Access Issue
327	Mesquite	8	S	
329	Mesquite	5	NS	Leaning / Cambium Damage
330	Catclaw Acacia	9	NS	Leaning / Access Issue
331	Catclaw Acacia	12	NS	Leaning / Access Issue

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
332	Hackberry	12	NS	Wide Base
333	Blue Palo Verde	14	NS	Cambium Damage
334	Mesquite	30	S	
335	Foothills Palo Verde	5	S	
336	Foothills Palo Verde	8	NS	Branch Dieback / Cambium Damage
337	Mesquite	6	NS	Trunk Form / Leaning
338	Mesquite	6	S	
339	Foothills Palo Verde	8	S	
340	Blue Palo Verde	18	NS	Proximity to Wall / On Slope
341	Ironwood	28	S	
342	Foothills Palo Verde	5	S	
343	Foothills Palo Verde	7	NS	Proximity to Wall / On Slope
344	Foothills Palo Verde	7	NS	Proximity to Wall / On Slope
345	Foothills Palo Verde	14	NS	Proximity to Wall / On Slope
346	Blue Palo Verde	14	NS	Proximity to Wall / On Slope
347	Mesquite	4	S	
348	Mesquite	6	S	
349	Foothills Palo Verde	9	NS	Exposed Roots
350	Foothills Palo Verde	14	NS	Exposed Roots
351	Foothills Palo Verde	7	NS	Exposed Roots
352	Saguaro	46	NS	4 arms / Declining
353	Saguaro	39	NS	6 arms / Declining
354	Foothills Palo Verde	15	NS	Cambium Damage
355	Hackberry	8	NS	Branch Dieback / Cambium Damage
356	Saguaro	4	NS	Damaged
357	Saguaro	85	S	10 arms
358	Saguaro	3	S	
359	Foothills Palo Verde	12	S	
360	Foothills Palo Verde	8	NS	Branch Dieback / Cambium Damage
361	Barrel	3	S	
362	Barrel	4	NS	Damaged
363	Saguaro	63	NS	5 arms / Damaged
364	Barrel	4	S	
365	Saguaro	3	S	
366	Saguaro	4	S	
367	Saguaro	5	S	2 arms
368	Saguaro	5	S	
369	Foothills Palo Verde	13	S	
370	Foothills Palo Verde	12	NS	Cambium Damage
371	Foothills Palo Verde	7	S	
372	Foothills Palo Verde	8	NS	Exposed Roots
373	Foothills Palo Verde	6	S	
374	Foothills Palo Verde	8	NS	Exposed Roots / Cambium Damage
375	Foothills Palo Verde	6	NS	Exposed Roots / Cambium Damage
376	Foothills Palo Verde	12	NS	Branch Dieback / Cambium Damage
377	Foothills Palo Verde	8	NS	Exposed Roots / Cambium Damage
378	Ironwood	30	NS	Branch Dieback / Cambium Damage
379	Ironwood	50	NS	Wide Base / Cambium Damage
380	Barrel	3	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
381	Barrel	4	S	
382	Foothills Palo Verde	4	S	
383	Foothills Palo Verde	8	NS	Leaning / On Slope
384	Foothills Palo Verde	6	S	
385	Mesquite	16	S	
386	Mesquite	4	S	
387	Ironwood	12	NS	Trunk Form / Leaning
388	Foothills Palo Verde	8	NS	Cambium Damage
389	Blue Palo Verde	4	S	
390	Foothills Palo Verde	12	NS	Trunk Form / Leaning
391	Foothills Palo Verde	8	NS	Trunk Form / Leaning
392	Foothills Palo Verde	6	NS	Trunk Form / Leaning
393	Blue Palo Verde	10	NS	Branch Dieback / Leaning
394	Saguaro	43	S	5 arms
395	Barrel	4	S	
396	Foothills Palo Verde	4	S	
397	Barrel	5	NS	Damaged
398	Barrel	3	S	
399	Saguaro	4	S	
400	Barrel	4	S	
401	Foothills Palo Verde	4	NS	Leaning / On Slope
402	Foothills Palo Verde	22	NS	Branch Dieback / Cambium Damage
403	Foothills Palo Verde	12	NS	Branch Dieback / Cambium Damage
404	Foothills Palo Verde	6	NS	Exposed Roots / Cambium Damage
405	Foothills Palo Verde	14	S	
406	Foothills Palo Verde	20	S	
407	Foothills Palo Verde	8	S	
408	Foothills Palo Verde	10	NS	Cambium Damage
409	Foothills Palo Verde	7	NS	Cambium Damage
410	Foothills Palo Verde	16	NS	Branch Dieback / Cambium Damage
411	Foothills Palo Verde	4	NS	Exposed Roots / Cambium Damage
412	Ironwood	10	NS	Branch Dieback / Cambium Damage
413	Foothills Palo Verde	10	NS	Branch Dieback / Cambium Damage
414	Foothills Palo Verde	4	S	
415	Saguaro	70	S	5 arms
416	Saguaro	3	S	
417	Saguaro	3	S	
418	Saguaro	6	S	
419	Saguaro	43	NS	3 arms / Damaged
420	Foothills Palo Verde	5	NS	Trunk Form / Leaning
421	Foothills Palo Verde	7	NS	Branch Dieback / Cambium Damage
422	Foothills Palo Verde	6	NS	Branch Dieback / Cambium Damage
423	Foothills Palo Verde	14	NS	Branch Dieback / Cambium Damage
424	Foothills Palo Verde	7	NS	Branch Dieback / Cambium Damage
425	Foothills Palo Verde	8	NS	Trunk Form / Cambium Damage
426	Foothills Palo Verde	8	NS	Trunk Form / Cambium Damage
427	Foothills Palo Verde	4	NS	Trunk Form / Cambium Damage
428	Foothills Palo Verde	14	NS	Branch Dieback / Cambium Damage
429	Foothills Palo Verde	7	NS	Exposed Roots

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
430	Foothills Palo Verde	10	NS	Branch Dieback / Cambium Damage
431	Barrel	3	S	
432	Saguaro	14	S	
433	Saguaro	72	S	6 arms
434	Saguaro	42	S	4 arms
435	Saguaro	102	S	10 arms
436	Saguaro	4	S	
437	Saguaro	4	S	
438	Saguaro	4	S	
439	Barrel	5	NS	Damaged
440	Foothills Palo Verde	24	S	
441	Foothills Palo Verde	7	NS	Leaning / On Slope
442	Foothills Palo Verde	4	S	
443	Foothills Palo Verde	4	S	
444	Saguaro	3	S	
445	Saguaro	3	S	
446	Barrel	4	S	
447	Barrel	4	S	
448	Ironwood	24	S	
449	Barrel	4	S	
450	Barrel	4	S	
451	Barrel	4	S	Multiple heads
452	Barrel	4	S	
453	Barrel	7	S	
454	Saguaro	3	S	
455	Barrel	3	S	
456	Ironwood	60	NS	Wide Base / Cambium Damage
457	Ironwood	18	NS	Mistletoe / Cambium Damage
458	Foothills Palo Verde	9	NS	Branch Dieback / Cambium Damage
459	Foothills Palo Verde	9	NS	Branch Dieback / Cambium Damage
460	Barrel	5	NS	Damaged
461	Saguaro	4	S	
462	Barrel	3	S	
463	Foothills Palo Verde	4	S	
464	Foothills Palo Verde	7	S	
465	Foothills Palo Verde	8	S	
466	Saguaro	13	S	
467	Saguaro	3	S	
468	Ironwood	36	NS	Exposed Roots / Mistletoe
469	Ironwood	30	NS	Exposed Roots / Cambium Damage
470	Foothills Palo Verde	16	S	
471	Saguaro	7	S	
472	Saguaro	7	S	2 heads
473	Foothills Palo Verde	4	S	
474	Blue Palo Verde	4	S	
475	Foothills Palo Verde	22	NS	Branch Dieback / Cambium Damage
476	Barrel	3	S	
477	Saguaro	10	S	
478	Saguaro	8	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
479	Foothills Palo Verde	20	NS	Branch Dieback / Cambium Damage
480	Blue Palo Verde	8	NS	Witches Broom
481	Blue Palo Verde	8	NS	Witches Broom
482	Blue Palo Verde	12	S	
483	Blue Palo Verde	10	NS	Branch Dieback
484	Blue Palo Verde	4	S	
485	Mesquite	14	S	
486	Mesquite	4	S	
487	Foothills Palo Verde	6	NS	Proximity to #488
488	Foothills Palo Verde	6	S	
489	Blue Palo Verde	10	S	

Summary	Trees	Cacti
Salvageable	170	128
Non-Salvageable	175	16
Remain-In-Place	0	0
Total	**345**	**144**

Legend
S = Salvageable
NS = Non-Salvageable
RIP = Remain-In-Place

PRELIMINARY WATER CAPACITY REPORT
NEC Pinnacle Peak Rd. & Miller Rd.
Scottsdale, AZ

Prepared For:

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EXPIRES 9/30/2017

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Project Number: 170566

Original Submittal Date: June 22, 2017 (Zoning)
Revised: August 18,2017

Case No.: 3-GP-2017; 11-ZN-2017 **Plan Check No.: TBD**

EXPIRES 9/30/2017

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1. EXECUTIVE SUMMARY

The subject project is the proposed redevelopment of the existing P.F. Chang's office complex located at the NEC of North Miller Road and East of Pinnacle Peak Road into a residential development. The parcels are currently zoned S-R ESL (Service Residential Environmentally Sensitive Lands) and will be developed with a maximum of fifty-five (55) residences fronting on a proposed internal 46' wide tract with 28' wide private cul-de-sacs with rezoning to R1-10.

Water service for the development is to be provided by the City of Scottsdale. Connections will be from an existing 16" DIP main that runs north and south in North Miller Road and an 8" water main in North 77th Street which then connects to the 12" water main south of the center line in East Pinnacle Peak Road.

There will be no off-site improvements required of public mains to serve the domestic service, irrigation, and fire protection to the proposed residential lots.

Certified fire hydrant flow testing was performed on May 22, 2017 at 7:00 AM by Arizona Flow Testing, LLC at locations as shown on the provided reports. The results are as follows:

	Raw Test Data	Data w/58 PSI Safety Factor
• Static Pressure	130.0 PSI	72.0 PSI
• Residual Pressure:	108.0 PSI	50.0 PSI
• Flow:	3,087 GPM	3,087 GPM
• GPM @ 20 PSI:	7,361 GPM	4,912 GPM

The actual flow test documentation is included in **Appendix I.**

2. INTRODUCTION

2.1 PLAN OBJECTIVE:

The purpose of this report is to provide discussions and calculations defining the water system concepts necessary to comply with the requirements outlined in the City of Scottsdale Design Standards & Policy Manual. Preparation of this report has been done in accordance with the requirements of the City's Design Standards & Policy Manual.

2.2 SITE LOCATION

The project property consists of four (4) parcels of land located at the NEC of North Miller Road and East Pinnacle Peak Road. The total project area contains approximately 855,802.3 SF (19.647 AC) gross; 749,876.2 SF (17.215 AC) net. It is further defined as follows:

- Parcel Description: The west half of Section 11, Township 4 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona
- Parcel ID numbers: APN: 212-04-001B, 212-04-001C, 212-04-001D and 212-04 001E.
- Parcel Address: 7676 E. Pinnacle Peak Road

The site is bounded by North Miller Road on the west, East Pinnacle Peak Road on the south, a portion of North 77th Street on the east near the SEC and the La Vista single family subdivision to the east and north.

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets

2.3 PROPOSED DEVELOPMENT

2.3.1 Existing Site Description:

Land ownership includes 17.22 +/- net acres over four (4) parcels of developed and undeveloped land designated as S-R ESL. There are existing designated and recorded N.A.O.S. areas along the south, west and north portions of the proposed project site area. The project is proposed to rezone the parcel to R1-10.

The site is both undeveloped natural desert and a developed office component roughly in the south 2/3 of the project site. Contour elevations range from approximately 1916 in the northeast corner to 1879 in the southwest corner, with a slope at approximately 2.5% from northeast to southwest.

FIRM Map Number 04013C1310L dated October 16, 2013 indicates this site is designated as Zone "AO", however there has been a Letter of Map Revision (LOMR) 15-09-1857P with an effective date of June 10, 2016 which removed the project site from the Rawhide Wash Floodplain area and re-designated as **Zone "X",** having a 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile.

Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

EXISTING WATER (COS QS45-46)

- **Miller Road:** Two existing 16" and one 36" water mains run north and south in North Miller Road. One 16" (unknown type) is located approximately 3' east, one 36" (unknown type) is located approximately 10' east and one 16" C900 / DIP is located approximately 39' east of the North Miller Road center line respectively. The 16" water main located approximately 39' east of the center line serves the existing office complex.
- **E. Pinnacle Peak Road:** Two 12" water mains run east and west in East Pinnacle Peak Road. One 12" DIP (non-potable unknown type, connected to a well site) water main is located approximately 44' north and one 12" water main (potable type) is located approximately 42' south of the East Pinnacle Peak Road center line. No service taps to the site are indicated.
- **77th Street:** An 8" ACP potable water main is located near the easterly ROW line of 77th Street. The on-site water loop ties into this main.
- **On-site:** There is an 8" diameter water line, per city mapping records, in a 12' public water easement that bisects the project site from North Miller Road to North 77th

Street. If the entire line cannot be utilized based on size and location then the line will need to be abandoned and removed.

Refer to **Figure 3** for the COS Water Quarter Section Map (QS 45-46).

2.3.2 Proposed Site Development:

Proposed development consists of a maximum of fifty-five (55) residences fronting on a proposed internal 46' wide tract with 28' wide private cul-de-sac. Main access is provided near the center of the parcel off North Miller Road which connects to East Pinnacle Peak Road to the south.

An 8" main is proposed to tie into the existing 16" City of Scottsdale main in Miller Road and loop through the site and tie into the existing 8" main in 77th Street. Domestic and irrigation services to the units will be tapped off this new 8" water main.

Refer to **FIGURE 4** for the proposed site layout.

3. DESIGN CRITERIA

3.1 UTILITY DEVELOPER GUIDE CRITERIA

This project is designed using 55 du / 19.65 gross acres = 2.89 du/ac. Refer to **Table 1** below for applicable "Design Criteria for Water Systems" based on Figure 6.1-2 (2-2.9 du/ac) in accordance with the City of Scottsdale DS&PM.

Table 1 - COS Design Criteria by demand type

Land Use	Average Day Demand (gal/day/unit)	Max Day Peaking Factor	Peak Hour Peaking Factor
Residential (2-2.9 DU/ac)	470.4	2.0	3.5

The system pressures, velocities, head losses and fire flow are in accordance with the COS DS&PM as follows:

Type E

Minimum Pressures:

Final water modeling will demonstrate a minimum of 50 psi residual pressure is available at the highest delivery point within a structure based on data within the 2015 IPC Appendix "B" under maximum system demand AND a minimum 30 psi is available at all fire hydrants with 15 psi available at the highest delivery point within a structure.

Maximum Pressures:

Maximum Pressure =120 psi

The City of Scottsdale operates its system from wells and pumps that commonly have pressures exceeding 80 psi. Therefore, the city requires all metered services to have a pressure-regulating valve installed on the private service line per DS&PM 6-1.402.

Velocity & Head loss:

- *10 ft. head loss maximum per 1,000 linear feet of pipe for pipes less than 16 inches in diameter with a*
- ***Hazen-Williams** Coefficient = 130*

Fire Flows:

This site is under the jurisdiction of the City of Scottsdale Fire Department. Fire flows must be in accordance with the 2015 International Fire Code which, for one- and two-family dwellings, is determined as follows:

- Dwellings having a fire-flow calculation area that does not exceed 3,600 s.f. that have automatic sprinklers shall be 500 gpm for 1/2 hour.

4. DEMANDS

4.1 PROJECT USE DESCRIPTION

Proposed demands for this project are based on a Residential Demand per Dwelling Unit for a density 2-2.9 DU/ac. Refer to **Table 2** below for the proposed water demand calculations based on the design criteria established in *Section 3.1* above

Table 2: Water Demand Calculations

	Units	Avg. Day Flow (gpd/unit)	Max Day Peaking Factor	Peak Hour Peaking Factor	Avg. Day Demand (GPD)	Max. Day Demand (GPD)	Peak Hour (GPD)
Res. (2-2.9 DU/ac)	55	470.4	2	3.5	25,872	51,744	90,552
TOTAL PROPOSED BLDG UNITS	55						
		TOTAL DEMANDS (GPD):			25,872	51,744	90,552
		TOTAL DEMANDS (gpm):			18.0	35.9	62.9

4.2 ZONING

This site is in Zone 6 according to Figure 6.1-3 Pressure Zone Map in DS&PM.

4.3 PHASING OF DEMANDS

This residential project may be phased as dictated by unit demand. The infrastructure will be built in a single phase.

4.4 SUMMARY NARRATIVE OF DEMANDS

The demand scenario that governs the design was the peak hour demand.

5. EXISTING FACILITIES / CONDITIONS

5.1 PREVIOUS MASTER PLANS

No existing master plan or water report is available from COS for this site.

6. PROPOSED FACILITIES

6.1 DISTRIBUTION SYSTEM PIPING

6.1.1 Onsite:

The proposed water supply will consist of new 8" public water line and new fire hydrants. The proposed 8" water main will be DIP in accordance with COS requirements. Domestic service will be provided by 1" copper service connections to each lot, including meter and backflow prevention and PRV. Irrigation will be tapped from the domestic service after the BFP and require a separate/second BFP.

Irrigation for common areas will be provided by a separate system tapped from the 8" water main and maintained by the Home Owners Association.

6.1.2 Offsite Infrastructure:

No offsite infrastructure is anticipated.

7. WATER MODEL

7.1 DESCRIPTION OF MODEL

The final model of the proposed water system is designed to meet the criteria of COS Water, the Arizona Department of Environmental Quality ("ADEQ"), and Maricopa County Environmental Services Department ("MCESD").

Bentley WaterCAD® Version 8i is the computer modeling tool used in this study.

Network analysis input parameters included the following:

1. Pipe diameters (inches)
2. Pipe lengths (feet)
3. Pipes invert elevations (feet)
4. General Purpose Valve to model Water Meter and Double Check Valve Assembly
5. A reservoir and a pump to model the fire flow test performed
6. System demands (gpm)
7. Fire flows (gpm)
8. Model piping is ductile iron pipe using Hazen-Williams frictional losses (C = 130)

Output parameters included but were not limited to:

1. Pressure (psig)
2. Flow rates (gpm)
3. Velocities (fps)
4. Head loss (feet)

7.2 ASSUMPTIONS

Please refer to *Section 3.1* for the design criteria.

The general methodology used to design this public water infrastructure consists of modeling a network of water distribution mains to meet COS pressure, head loss, and water demand requirements during daily demands and fire events. The connection to the water system is modeled as a reservoir and pump. The pump will simulate the pressure drop and the available flow from the existing water system as depicted by the fire flow test. Refer to **Appendix I** for a copy of the fire flow test results.

7.3 SUMMARY OF RESULTS

A summary of the modeling results is presented below in **Table 3**. Detailed WaterCAD® results are presented in **Appendix II**.

Table 3 - WaterCAD® Analysis Results

Demand Scenario	Water Demand (GMP)	Pressure (PSIG)				Maximum Velocity (ft/s)	Pipe ID
		Min.	Node	Max.	Node		
Average Day	18.0	66	J-7	79	J-11	0.07	P-17
Maximum Day	35.9	66	J-7	79	J-11	0.14	P-9
Peak Hour	62.9	66	J-7	79	J-11	0.24	P-9
500 + Max. day	500 + Max. day	41	J-7	N/A	N/A	N/A	N/A

8. SUMMARY / CONCLUSIONS

8.1 CONFORMANCE TO DESIGN GOALS

- The proposed water main is designed in accordance with COS design standards and policies[1]. The following summary is based on the above analysis summary.
  - Minimum 50 psi residual @ highest delivery point required, 65 psi minimum provided.
  - Minimum 30 psi @ max+ fire flow required, 38 psi provided.
  - 10 fps maximum velocity is not exceeded.
  - The system supports the minimum 500 gpm fire flow requirements.
- The results shown in the modeling summary (refer to Section 7.3) indicate that the proposed water system meets the COS criteria for Daily water usage and fire flow events as described in Section 3.1.
- PRV's at each building are required per COS design criteria.

8.2 REQUIRED FACILITIES AND PHASING

- Proposed facility improvements for this project are limited to a new 8" water main, new fire hydrants, and 1" domestic service connections for each lot.
- This project will be constructed in a single phase.

- The final plans will show water and sewer vertical clearances compliant with City and State separation or protection provisions.

REFERENCES

1. *City of Scottsdale Design Standards & Policies Manual-Chapter 6, Water*

FIGURE 1
VICINITY MAP

FIGURE 2
AERIAL

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45-47

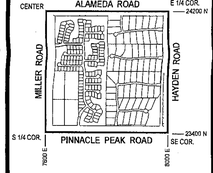
GENERAL NOTES:

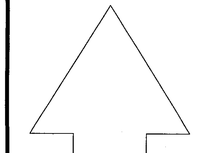
- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7792.
- THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER, 1991. BEARINGS ARE NAD 83 GRID AND DISTANCES ARE FLATTENED TO GROUND.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

LEGEND:

- Air Release Valve (ARV)
- Non-potable Air Release Valve (ARV)
- Blowoff
- Cap
- Cathodic Protection (CP)
- Fill Drain (FD)
- Fire Hydrant
- Non-GPS Point
- Pressure Reducing Valve (PRV)
- Pump (WT)
- Reducer
- Sample Station (SS)
- Water Manhole (WM)
- Non-Potable Manhole (NPM)
- Well (WELL)
- Valve
- Non-potable Valve (NPV)
- Vault (VAULT)
- Water Main
- Non-Potable Main (NP)
- Fire / Private Main
- Non-Scottsdale Main

VICINITY MAP





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

QUARTER SECTION MAP

45-46

SE 1/4 SEC. 11 T4N R4E

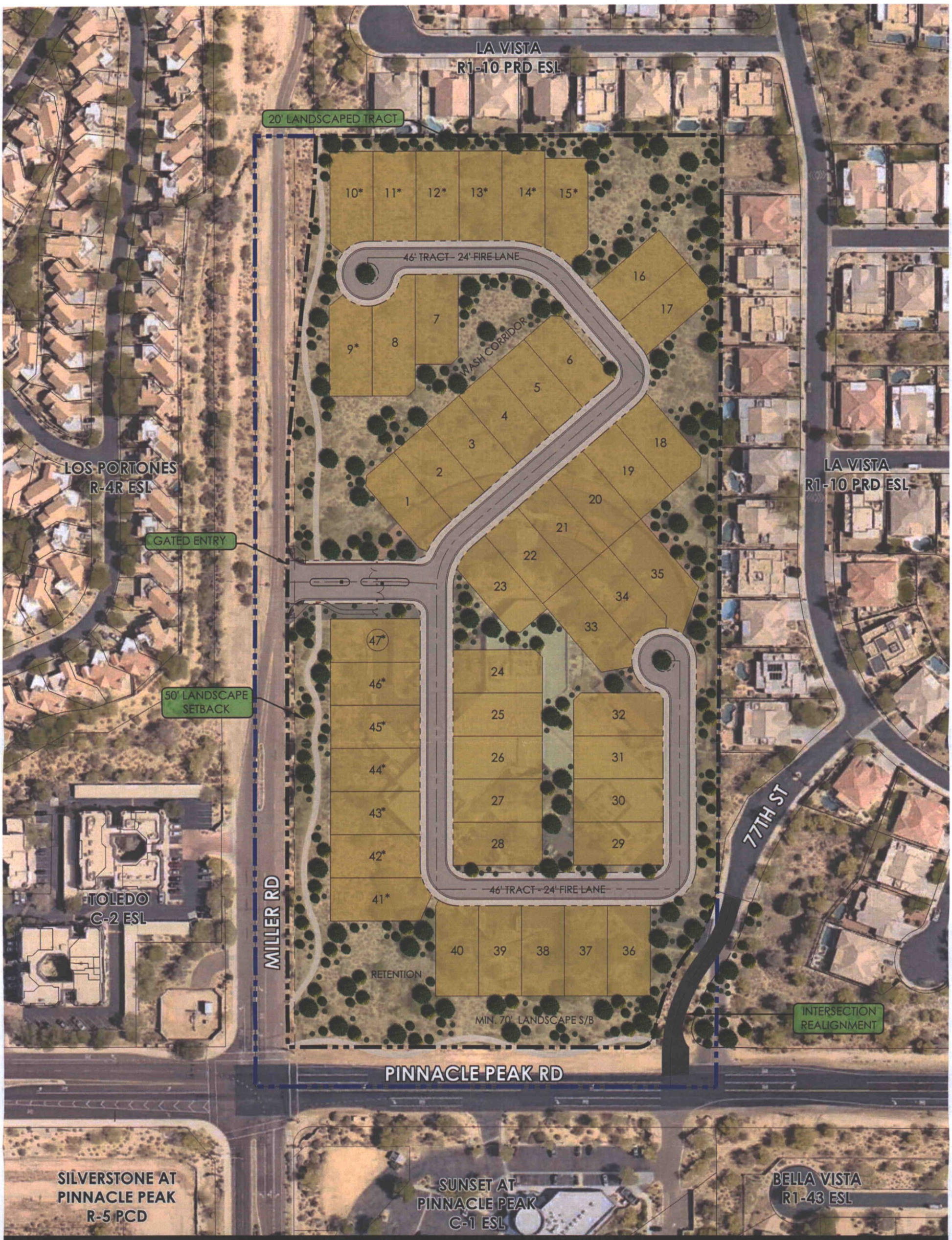
FIGURE 3

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
3629 North Drinkwater Boulevard
Scottsdale, Arizona 85251

14-MAY-17

APPENDIX I

Flow Test Data



LEGEND

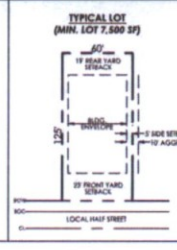
- GROSS SITE BOUNDARY *(19.7 ACRES)*
- NET SITE BOUNDARY *(17.0 ACRES)*
- * LOTS LIMITED TO 1-STORY

SITE PLAN IS PRELIMINARY & SUBJECT TO REVIEW & APPROVAL

SITE DATA

EXISITING ZONING:	S-R E.S.L
PROPOSED ZONING:	R1-10 E.S.L
TOTAL # LOTS:	47
GROSS DENSITY:	2.4 DU/AC
TYPICAL LOT SIZE:	60' x 125'
PARKING:	2 SPACES/UNIT
REFUSE:	INDIVIDUAL BIN

TYPICAL LOT



DEVELOPMENT STANDARDS

MIN. LOT AREA:	7,500 SQ. FT.
MIN. LOT WIDTH:	60'
FRONT YARD:	23'
SIDE YARD:	5' (10' AGGREGATE)
REAR YARD:	19'

INTERNAL STREET SECTION

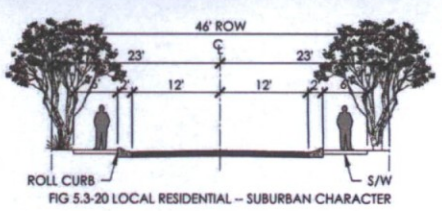


FIG 5.3-20 LOCAL RESIDENTIAL – SUBURBAN CHARACTER

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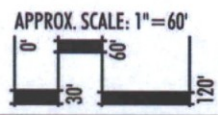
120 south ash avenue • tempe, arizona 85281 • 480.994.0994

PINNACLE PEAK & MILLER

CONCEPTUAL SITE PLAN

APPROX. SCALE: 1"=60'



NORTH

1731 DRAWN BY: PR 6/21/17

P:\2017\1731-PF CHANG'S HQ SCOTTSDALE\CAD\PLANNING\LVA-1731-CONCEPTUAL SITE PLAN.dwg Jun 21, 2017

APPENDIX I

Calculations

Worksheet for 8" sewer @ S=1% for 6000 gpd

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	8.00	in
Discharge	6000.00	gal/day

Results

Normal Depth	0.50	in
Flow Area	0.01	ft²
Wetted Perimeter	0.34	ft
Hydraulic Radius	0.32	in
Top Width	0.32	ft
Critical Depth	0.04	ft
Percent Full	6.3	%
Critical Slope	0.00849	ft/ft
Velocity	1.02	ft/s
Velocity Head	0.02	ft
Specific Energy	0.06	ft
Froude Number	1.07	
Maximum Discharge	1.30	ft³/s
Discharge Full	780975.01	gal/day
Slope Full	0.00000	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	6.26	%
Downstream Velocity	Infinity	ft/s

Worksheet for 8" sewer @ S=1% for 6000 gpd

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	in
Critical Depth	0.04	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00849	ft/ft

Worksheet for 8" sewer at S=1%, 65% full

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.20	in
Critical Depth	0.45	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00882	ft/ft

APPENDIX II

Preliminary Utility Plan

EMERGENCY VEHICLE ACCESS CONFORMANCE INFORMATION

- ON-SITE STREET TRACTS ARE DESIGNATED 24' FIRE LANES.
- FIRE LANE SURFACE TO SUPPORT 83,000 LB GVW
- UNOBSTRUCTED VERTICAL CLEARANCE MIN. 13'-6"
- KEY SWITCH/PRE-EMPTION SENSOR REQUIRED FOR ALL GATES
- GATE DETAIL CONSISTENT WITH DS&PM & FIRE 4283, 503.6.1
- ALL PRIVATE ACCESSWAYS TO MEET MINIMUM 40.5' OUTSIDE EDGE RADIUS
- PROJECT ENTRY MEETS C.O.S. DS&PM FIG. 2.1-3 & 2.1-802(2)
- CUL-DE-SAC MEETS C.O.S. DS&PM 2-1.802(5)

LEGEND

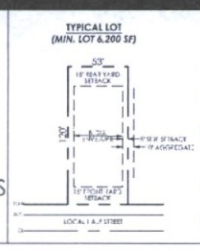
- GROSS SITE BOUNDARY *(19.7 ACRES)*
- NET SITE BOUNDARY *(17.0 ACRES)*
- * LOTS LIMITED TO 1-STORY

SITE PLAN IS PRELIMINARY & SUBJECT TO REVIEW & APPROVAL

SITE DATA

EXISITING ZONING:	S-R ESL
PROPOSED ZONING:	R1-10 PRD ESL
TOTAL # LOTS:	55
GROSS DENSITY:	2.8 DU/AC
TYPICAL LOT SIZE:	53' x 120'
RESIDENT PARKING:	2 GARAGE SPACES
GUEST PARKING:	2 DRIVEWAY SPACES
REFUSE:	INDIVIDUAL BIN

TYPICAL LOT



DEVELOPMENT STANDARDS

MIN. LOT AREA:	6,200 SQ. FT.
MIN. LOT WIDTH:	53'
FRONT YARD:	15' (MIN 18' TO FACE OF GARAGE)
SIDE YARD:	5' (10' AGGREGATE)
REAR YARD:	15'

INTERNAL STREET SECTION

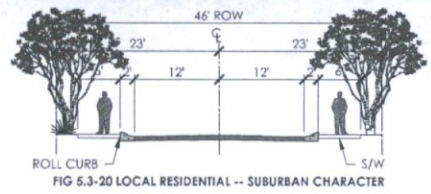


FIG 5.3-20 LOCAL RESIDENTIAL -- SUBURBAN CHARACTER

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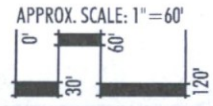
120 south ash avenue • tempe, arizona 85281 • 480.994.0994

PINNACLE PEAK & MILLER

CONCEPTUAL SITE PLAN

FIGURE 4

APPROX. SCALE: 1" = 60'



NORTH

1731 DRAWN BY: PR 8/14/17

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Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Not Provided
Project Address:	Miller and Pinnacle Peak, Scottsdale, Arizona 85255
Client Project No.:	Not Provided
Arizona Flow Testing Project No.:	17110
Flow Test Permit No.:	C53126
Date and time flow test conducted:	May 22, 2017 at 7:00 AM
Data is current and reliable until:	November 12, 2017
Conducted by:	Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by:	Larry Frandle –City of Scottsdale-Inspector (602-828-0847)

Raw Test Data

Static Pressure: **130.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **108.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **24.0 PSI (4 inch H.M.)**
55.0 PSI (2 ½ inch)
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One (4 inch)
(Measured in inches)

Coefficient of Diffuser: Big Boy Hose Monster

Flowing GPM: **3,087 GPM**
(Measured in gallons per minute)
1,842 GPM + 1,245 GPM = 3,087 GPM

GPM @ 20 PSI: **7,361 GPM**

Data with 58 PSI Safety Factor

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

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

Residual Pressure: **50.0 PSI**
(Measured in pounds per square inch)

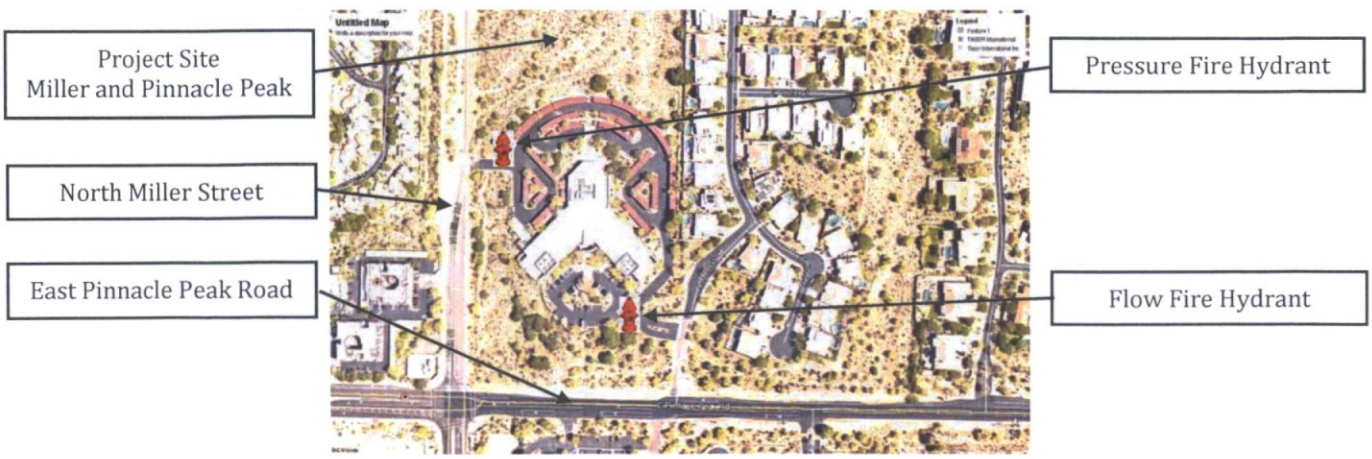
Distance between hydrants: Approx. 1150 Feet

Main size: Not Provided

Flowing GPM: **3,087 GPM**

GPM @ 20 PSI: **4,912 GPM**

Flow Test Location North



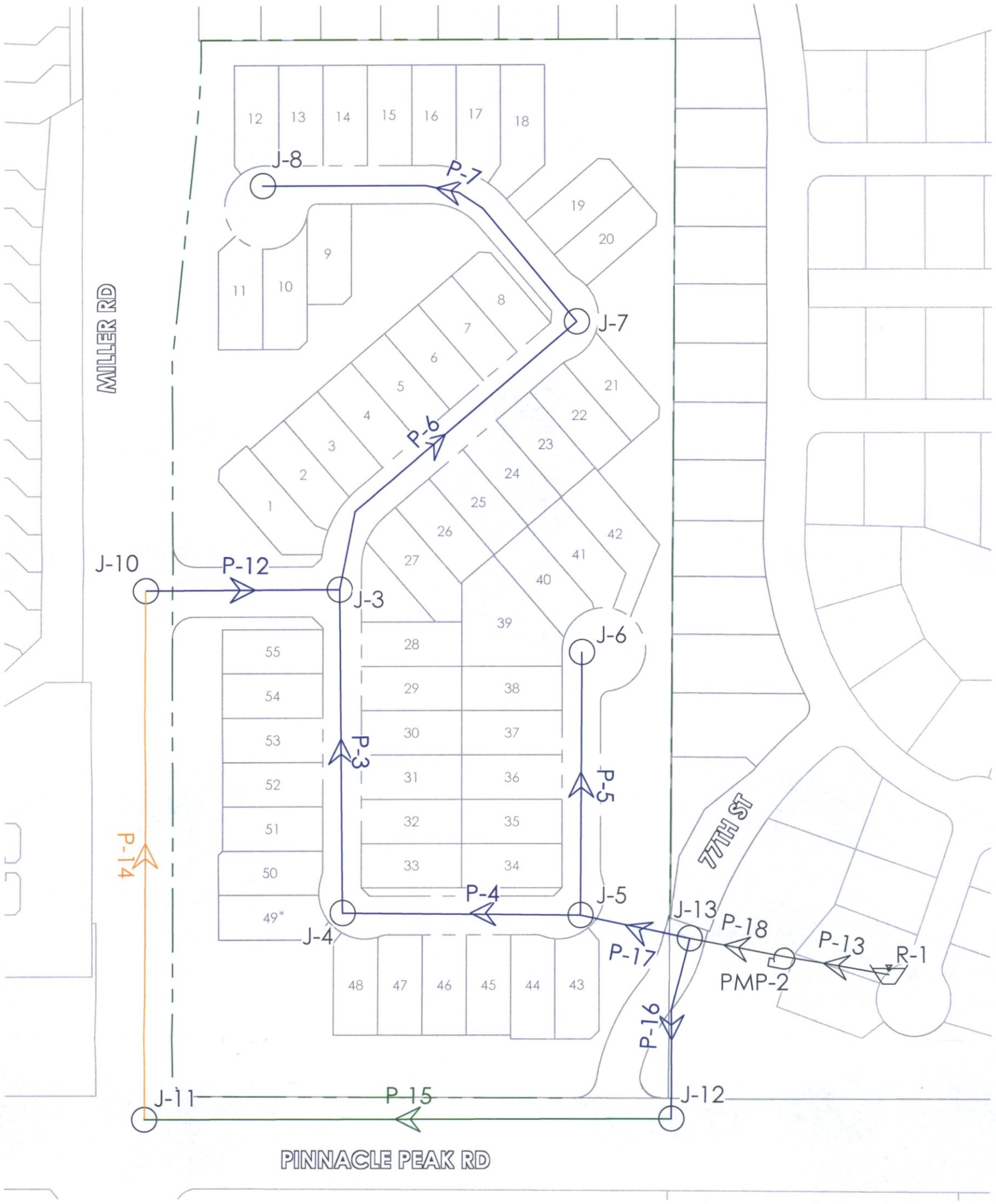
APPENDIX II

Water Model Results

PINNACLE PEAK AND MILLER ROAD
PIPE AND JUNCTION MAP

LEGEND

- 8" PIPE
- 12" PIPE
- 16" PIPE
- JUNCTION
- RESEVOIR
- PUMP (FLOW TEST LOCATION)



0 60 120 240

SCALE: 1"= 120'

SEG
SUSTAINABILITY ENGINEERING GROUP
8280 E GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226

Pump Definition Detailed Report: Fire Flow Test
Active Scenario: Peak Hour

Element Details			
ID	59	Notes	
Label	Fire Flow Test		

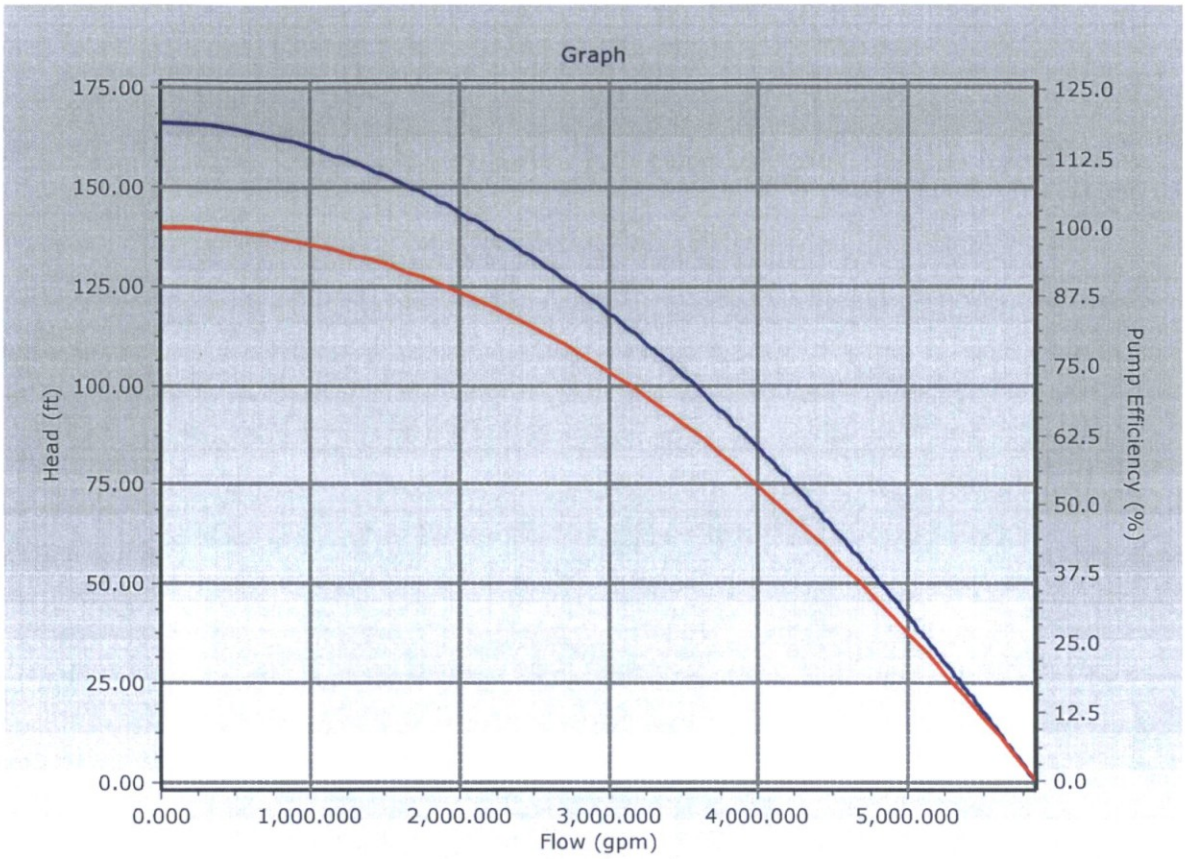
Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	115.50 ft
Shutoff Flow	0.000 gpm	Maximum Operating Flow	4,912.000 gpm
Shutoff Head	166.32 ft	Maximum Operating Head	46.20 ft
Design Flow	3,087.000 gpm		

Pump Efficiency Type			
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0.000 gpm		

Transient (Physical)			
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: Fire Flow Test

Active Scenario: Peak Hour



FlexTable: Junction Table

Active Scenario: Average Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,896.00	3.920	2,059.32	71
J-4	1,882.00	3.267	2,059.32	77
J-5	1,885.50	1.960	2,059.32	75
J-6	1,895.50	1.960	2,059.32	71
J-7	1,906.00	3.920	2,059.31	66
J-8	1,900.50	2.940	2,059.31	69
J-10	1,899.50	0.000	2,059.32	69
J-11	1,876.00	0.000	2,059.32	79
J-12	1,884.00	0.000	2,059.32	76
J-13	1,888.00	0.000	2,059.32	74

FlexTable: Pipe Table

Active Scenario: Average Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	387	J-3	J-4	8.0	130.0	-3.649	0.02	0.000
P-4	336	J-4	J-5	8.0	130.0	-6.916	0.04	0.000
P-5	313	J-5	J-6	8.0	130.0	1.960	0.01	0.000
P-6	444	J-3	J-7	8.0	130.0	6.860	0.04	0.000
P-7	446	J-7	J-8	8.0	130.0	2.940	0.02	0.000
P-12	232	J-3	J-10	8.0	130.0	-7.131	0.05	0.000
P-13	129	R-1	PMP-2	24.0	130.0	17.967	0.01	0.000
P-14	634	J-10	J-11	16.0	130.0	-7.131	0.01	0.000
P-15	632	J-11	J-12	12.0	130.0	-7.131	0.02	0.000
P-16	220	J-12	J-13	8.0	130.0	-7.131	0.05	0.000
P-17	85	J-13	J-5	8.0	130.0	10.836	0.07	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-17.967	0.01	0.000

FlexTable: Reservoir Table

Active Scenario: Average Day

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	17.967	1,893.00

FlexTable: Pump Table

Active Scenario: Average Day

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.32	17.967	166.32

FlexTable: Junction Table

Active Scenario: Max Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,896.00	7.840	2,059.30	71
J-4	1,882.00	6.533	2,059.30	77
J-5	1,885.50	3.920	2,059.31	75
J-6	1,895.50	3.920	2,059.31	71
J-7	1,906.00	7.840	2,059.30	66
J-8	1,900.50	5.888	2,059.30	69
J-10	1,899.50	0.000	2,059.30	69
J-11	1,876.00	0.000	2,059.30	79
J-12	1,884.00	0.000	2,059.31	76
J-13	1,888.00	0.000	2,059.31	74

FlexTable: Pipe Table

Active Scenario: Max Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	387	J-3	J-4	8.0	130.0	-7.303	0.05	0.000
P-4	336	J-4	J-5	8.0	130.0	-13.836	0.09	0.000
P-5	313	J-5	J-6	8.0	130.0	3.920	0.03	0.000
P-6	444	J-3	J-7	8.0	130.0	13.728	0.09	0.000
P-7	446	J-7	J-8	8.0	130.0	5.888	0.04	0.000
P-12	232	J-3	J-10	8.0	130.0	-14.265	0.09	0.000
P-13	129	R-1	PMP-2	24.0	130.0	35.941	0.03	0.000
P-14	634	J-10	J-11	16.0	130.0	-14.265	0.02	0.000
P-15	632	J-11	J-12	12.0	130.0	-14.265	0.04	0.000
P-16	220	J-12	J-13	8.0	130.0	-14.265	0.09	0.000
P-17	85	J-13	J-5	8.0	130.0	21.676	0.14	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-35.941	0.03	0.000

FlexTable: Reservoir Table

Active Scenario: Max Day

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	35.941	1,893.00

FlexTable: Pump Table

Active Scenario: Max Day

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.31	35.941	166.31

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Max Day plus Fire Flow

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (System)	Design Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Design Velocity
J-3	500.000	2,881.643	507.840	2,889.483	30	41	J-7	10.00	P-12
J-4	500.000	2,477.982	506.533	2,484.515	30	55	J-7	10.00	P-17
J-5	500.000	1,913.295	503.920	1,917.215	30	64	J-7	10.00	P-17
J-6	500.000	1,562.796	503.920	1,566.716	30	58	J-7	10.00	P-5
J-7	500.000	1,552.988	507.840	1,560.828	30	49	J-8	10.00	P-6
J-8	500.000	1,552.988	505.888	1,558.876	30	43	J-7	10.00	P-6
J-10	500.000	2,411.292	500.000	2,411.292	30	49	J-7	10.00	P-16
J-11	500.000	2,370.778	500.000	2,370.778	30	60	J-7	10.00	P-16
J-12	500.000	2,205.603	500.000	2,205.603	30	60	J-7	10.00	P-16
J-13	500.000	3,500.000	500.000	3,500.000	30	46	J-7	2.51	P-18

FlexTable: Junction Table

Active Scenario: Max Day plus Fire Flow

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,896.00	6.530	2,059.31	71
J-4	1,882.00	4.570	2,059.31	75
J-5	1,885.50	3.260	2,059.31	73
J-6	1,895.50	4.570	2,059.31	70
J-7	1,906.00	5.880	2,059.31	67
J-8	1,900.50	5.880	2,059.30	68
J-10	1,899.50	0.000	2,059.31	72
J-11	1,876.00	0.000	2,059.31	78
J-12	1,884.00	0.000	2,059.31	75
J-13	1,888.00	0.000	2,059.31	72

FlexTable: Pipe Table

Active Scenario: Max Day plus Fire Flow

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	387	J-3	J-4	8.0	130.0	-6.073	0.04	0.000
P-4	336	J-4	J-5	8.0	130.0	-10.643	0.07	0.000
P-5	313	J-5	J-6	8.0	130.0	4.570	0.03	0.000
P-6	444	J-3	J-7	8.0	130.0	11.760	0.08	0.000
P-7	446	J-7	J-8	8.0	130.0	5.880	0.04	0.000
P-12	232	J-3	J-10	8.0	130.0	-12.217	0.08	0.000
P-13	129	R-1	PMP-2	24.0	130.0	30.690	0.02	0.000
P-14	634	J-10	J-11	16.0	130.0	-12.217	0.02	0.000
P-15	632	J-11	J-12	12.0	130.0	-12.217	0.03	0.000
P-16	220	J-12	J-13	8.0	130.0	-12.217	0.08	0.000
P-17	85	J-13	J-5	8.0	130.0	18.473	0.12	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-30.690	0.02	0.000

FlexTable: Reservoir Table

Active Scenario: Max Day plus Fire Flow

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	30.690	1,893.00

FlexTable: Pump Table

Active Scenario: Max Day plus Fire Flow

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.31	30.690	166.31

FlexTable: Junction Table

Active Scenario: Peak Hour

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,896.00	13.720	2,059.27	71
J-4	1,882.00	11.433	2,059.27	77
J-5	1,885.50	6.860	2,059.28	75
J-6	1,895.50	6.860	2,059.28	71
J-7	1,906.00	13.720	2,059.26	66
J-8	1,900.50	10.292	2,059.26	69
J-10	1,899.50	0.000	2,059.28	69
J-11	1,876.00	0.000	2,059.28	79
J-12	1,884.00	0.000	2,059.28	76
J-13	1,888.00	0.000	2,059.28	74

FlexTable: Pipe Table

Active Scenario: Peak Hour

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	387	J-3	J-4	8.0	130.0	-12.775	0.08	0.000
P-4	336	J-4	J-5	8.0	130.0	-24.208	0.15	0.000
P-5	313	J-5	J-6	8.0	130.0	6.860	0.04	0.000
P-6	444	J-3	J-7	8.0	130.0	24.012	0.15	0.000
P-7	446	J-7	J-8	8.0	130.0	10.292	0.07	0.000
P-12	232	J-3	J-10	8.0	130.0	-24.957	0.16	0.000
P-13	129	R-1	PMP-2	24.0	130.0	62.885	0.04	0.000
P-14	634	J-10	J-11	16.0	130.0	-24.957	0.04	0.000
P-15	632	J-11	J-12	12.0	130.0	-24.957	0.07	0.000
P-16	220	J-12	J-13	8.0	130.0	-24.957	0.16	0.000
P-17	85	J-13	J-5	8.0	130.0	37.928	0.24	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-62.885	0.04	0.000

FlexTable: Reservoir Table

Active Scenario: Peak Hour

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	62.885	1,893.00

FlexTable: Pump Table

Active Scenario: Peak Hour

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.28	62.885	166.28

APPENDIX III

Preliminary Utility Plan

P.F. CHANG'S RESIDENTIAL DEVELOPMENT

PINNACLE PEAK RD. AND MILLER RD.

PRELIMINARY UTILITY PLAN

BASIS OF BEARING

THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 4 EAST, USING A BEARING OF NORTH 89 DEGREES 51 MINUTES 11 SECONDS WEST, AS SHOWN ON AN UNRECORDED ALTA/ACSM LAND TITLE SURVEY PREPARED BY GILBERTSON & ASSOCIATES DATED AUGUST 13, 2004.

OWNER

PFCCB PINNACLE PEAK LLC
7676 E. PINNACLE PEAK RD.
SCOTTSDALE, AZ 85255
ATTN: ZACH SHIRK

CIVIL ENGINEER

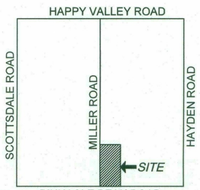
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR., SUITE 101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH

APPLICANT/DEVELOPER

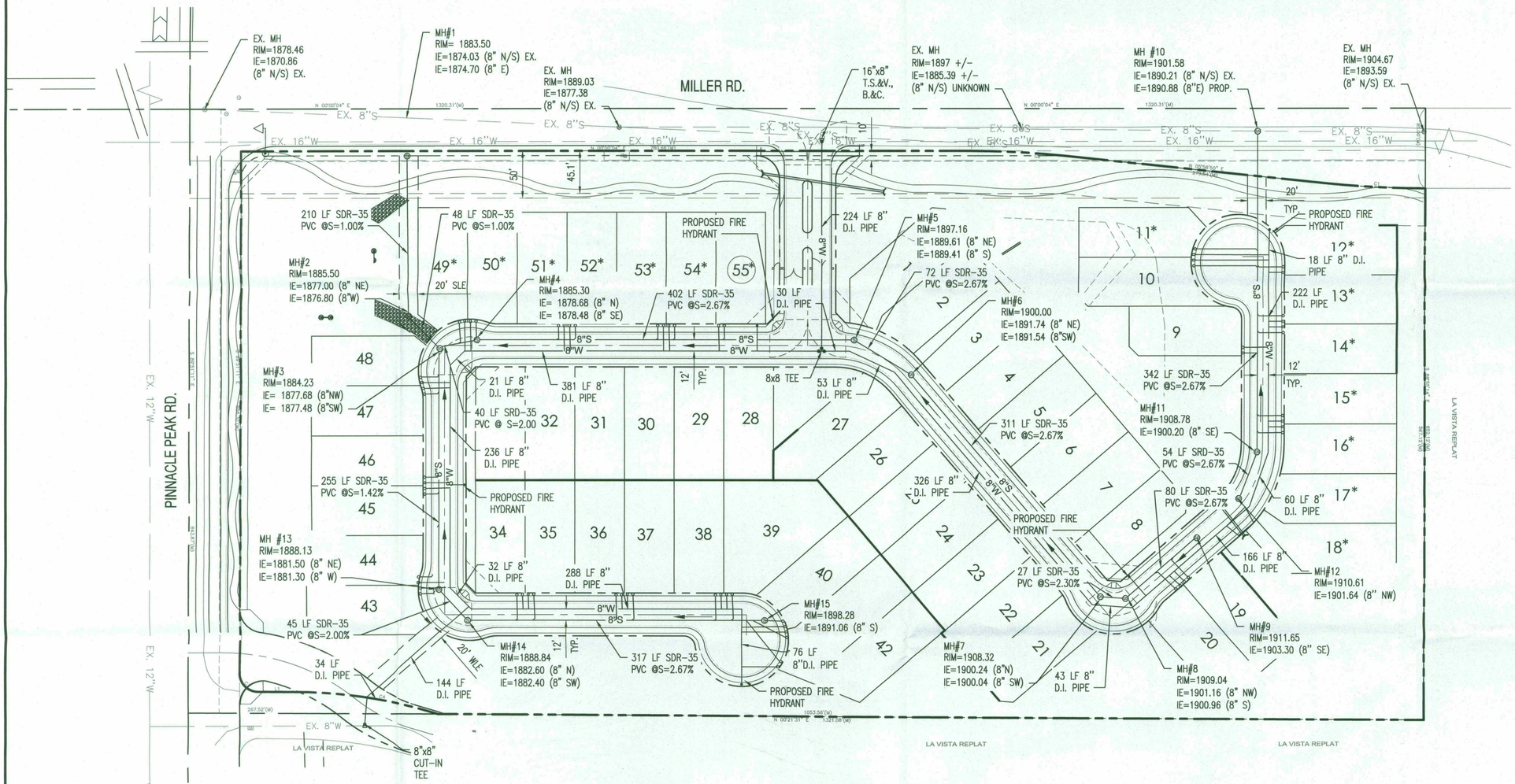
SNELL & WILMER
400 E. VAN BUREN ST. #1900
PHOENIX, AZ 85004
PHONE: 602-328-6269
ATTN: NICK WOOD, ESQ

PLANNER

LVA URBAN DESIGN STUDIO, LLC
PHONE: 480-994-0994
ATTN: MARK REDDIE



VICINITY MAP
N.T.S.



SCALE: 1" = 60'

UTILITY NOTES:

1. UTILITY CROSSINGS WILL BE DESIGNED FOR PROTECTION IN ACCORDANCE WITH MAG AND C.O.S. DESIGN CRITERIA.

PROPOSED LEGEND

——— PROPERTY LINE
——— LOT LINE
— 8"W — WATER LINE
— 8"S — SEWER LINE
● FIRE HYDRANT
◎ SEWER MANHOLE
☐ 1" WATER METER

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

NOTE TO CONTRACTOR:
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE INTENDED TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING FEDERAL A.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL APPLICABLE CODES AND TO INFORM THE OWNERS/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

52743
MARK A.
MALONEY
Date Signed 8-16-17
EXPIRES 9/30/2017

SUSTAINABILITY ENGINEERING GROUP
SEG
8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226

PROJECT
P.F. CHANG'S RESIDENTIAL DEVELOPMENT

LOCATION
7676 E PINNACLE PEAK RD.
SCOTTSDALE, AZ 85244

DRAWN ——— SANTIAGO
DESIGNED ——— MALONEY
CHECKED ——— COUNSELL
PROJ. MGR. ——— MALONEY

DATE: 08/18/2017
ISSUED FOR: ZONING

REVISION NO.:		DATE:
1		
2		
3		
4		

JOB NO.: 170566

SHEET TITLE: PRELIMINARY UTILITY PLAN

SHEET NO.: C4.00

PRELIMINARY SEWER CAPACITY REPORT
NEC Pinnacle Peak Rd. & Miller Rd.
Scottsdale, AZ

Prepared For:

P.F. CHANG'S

7676 E. Pinnacle Peak Road
Scottsdale, AZ 85255
P: 480.888.3000

Accepted FOR ZN CASE

City of Scottsdale
Water Resources Administration
9379 E. San Salvador
Scottsdale, AZ 85258

ADDRESS MINOR COMMENTS (ATTACHED) & SUBMIT IN PP CASE. LDillon 7-18-17

Prepared by:

EXPIRES 9/30/2017

Sustainability Engineering Group
8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 170566

Original Submittal Date: June 22, 2017 (Zoning)

Case No.: 362-PA-2017 **Plan Check No.: TBD**

CITY OF SCOTTSDALE

PROJECT TRACKING SHEET

STAFF CONTACTS						
CURRENT PLANNING	DESIGN CONSULTANT	ENGINEERING Land Survey	FIRE	LONG RANGE PLANNING	STORM WATER	TRANSPORTATION
	Steve V.	DGue/dwayne	R. King	T. Reynolds		

PROJECT NAME: 7676 E PINNACLE PEAK
Coordinator: Jesus Murillo Case#: 11-ZN-2017

ALL COMMENTS *MUST* INCLUDE THE ORDINANCE, POLICY, OR DSPM SECTION NUMBERS; PLEASE INITIAL AND DATE AT THE END OF EACH OF YOUR COMMENTS.

Tracking sheet boiler comments that are not applicable shall be struck out to indicate the reviewer has considered those particular comments; please do not delete comments from the Tracking Sheet in case if they become relevant in the resubmittal.

WATER & SEWER COMMENTS:

SUBSTANTIVE REVIEW:

1ST REVIEW COMPLETED BY LDILLON ON 07/18/17. READY TO BE DETERMINED? NO ☐ YES ☒

ADDRESS MINOR COMMENTS AND RESUBMIT FINAL BODS DURING PP CASE

2ND REVIEW COMPLETED BY ????? ON ??/??/??. READY TO BE DETERMINED? NO ☐ YES ☐

3RD REVIEW COMPLETED BY ????? ON ??/??/??. READY TO BE DETERMINED? NO ☐ YES ☐

ALL COMMENTS *MUST* INCLUDE THE ORDINANCE, POLICY, OR DSPM SECTION NUMBERS; PLEASE INITIAL AND DATE AT THE END OF EACH OF YOUR COMMENTS.

Ordinance Issues:

1. None

Policy and Design Related Issues:

2. None

Technical Corrections to be resolved prior the next application or final plans submittal:

3. Prelim water BOD, LDillon7/18/17:
   a. Section 2.3.1,page 2: under Pinnacle Peak Road should read "unknown 44' north" and "potable 42' south". Note that the unknown line is a well line.
   b. Section 2.3.1page 2: under Onsite note that this line is shown as 8" in our map system.
   c. Section 3.1, section on Minimum pressure. These are two separate scenarios. Please model as such and update calculations.
      i. Requirement is to have 50psi at highest finished floor with actual projected flow at worst case hydraulic node. The flow to be used in this scenario should be based on IPC 2015 Appendix B demand table, apply max day flows to other nodes.
      ii. Model fire flow at worst case hydrant and ensure 30psi at hydrant tee with max day flows applied to all nodes and 15 psi min pressure to highest finished floor (or min required for sprinkler system).

d. Utility Plan: several sewer/waterline crossing are indicated. Note that these must be handled per MAG and City design criteria.
e. Utility plan: indicate distances between water and sewer lines where running parallel.
    i. Calculation Table "Fire Flow Node Flex Table: Fire Flow Report, Active Scenario:Max Day plus Fire Flow" includes various data columsn that are not clear. Description of what is being presented here is required.

4. Prelim wastewater BOD, LDillon7/18/17:
    a. Section 4.2 should state 47 lots.
    b. Section 5.5: Is 6,000 gpm the flow from half of the lots? Total average day flow is 11,750 per previous page. 6,000 gpm is also presented in Appendix I. where was the 1% drawn from. The utility plan shows various slopes, some exceeding 3.5%.
        i. Calcs are not presented clearly, present velocity and depth for average and peak flows and then for hypothetical "full" pipe flow capacity i.e. d/D=0.65. Shows calcs for most relevant slopes/flows.
    c. Utility Plan: several sewer/waterline crossings are indicated. Note that these must be handled per MAG and City design criteria. Note in final BOD.
    d. Utility plan: indicate distances in final BOD between water and sewer lines where running in parallel. Conform to necessary separation/protection.

TRANSPORTATION COMMENTS:

SUBSTANTIVE REVIEW:

1ST REVIEW COMPLETED BY PHIL K ON 7/17/17. READY TO BE DETERMINED? NO ☒ YES ☐

2ND REVIEW COMPLETED BY ????? ON ??/??/??. READY TO BE DETERMINED? NO ☐ YES ☐

3RD REVIEW COMPLETED BY ????? ON ??/??/??. READY TO BE DETERMINED? NO ☐ YES ☐

Tracking sheet comments are not to be pasted in to the stipulations. The comment need to be rewritten into the stipulation format in accordance with the direction provided in the stipulation.

TRANSPORTATION STAFF COMMENTS:

5. The Transportation Department does not support the rezoning to residential due to the placement of residential homes in close proximity to two major streets, Miller Road and Pinnacle Peak Road, which are both planned to be four lane streets, and the major intersection of the two streets. Neither street is built out adjacent to the site, and the City is creating a situation where we will be allowing residents to purchase homes in this area who will then likely oppose future roadway construction. The site location should be conducive to S-R zoning, or a mixture of zoning that would keep non-residential on the corner.

Ordinance Issues:

6. Dedicate a minimum 50 feet of right-of-way along the Miller Road site frontage. There is currently insufficient right-of-way for signage and utilities. DSPM Sec. 5-3.100; Scottsdale Revised Code Sec. 47-10.
7. Complete the Pinnacle Peak Road minor arterial half street along the site frontage. Match the existing cross section to the west of Miller Road. The cross section shall include an 8 foot wide sidewalk. The improvements shall include appropriate transition to the existing pavement section to the east. DSPM Sec. 5-3.100; Scottsdale Revised Code Sec. 47-21 and 47-22.

EXPIRES 9/30/2017

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1. INTRODUCTION

1.1 SUMMARY OF PROPOSED DEVELOPMENT:

Proposed development consists of a maximum of forty-seven (47) residences fronting on a proposed internal 46' wide tract with 28' wide private roadways / cul-de-sacs. Main access is provided off North Miller Road which connects to East Pinnacle Peak Road to the south. Emergency access drives are proposed near the northwest corner from Miller Road and near the southeast corner onto 77th Street.

The purpose of this sewer capacity design report is to provide preliminary analysis of the impact that this development will have on the City's sewer system.

1.2 LEGAL DESCRIPTION:

The project property consists of four (4) parcels of land located at the NEC of North Miller Road and East Pinnacle Peak Road. The total project area contains approximately 855,802.3 SF (19.647 AC) gross; 749,876.2 SF (17.215 AC) net. It is further defined as follows:

- Parcel Description: The west half of Section 11, Township 4 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona
- Parcel ID numbers: APN: 212-04-001B, 212-04-001C, 212-04-001D and 212-04 001E.
- Parcel Address: 7676 E. Pinnacle Peak Road

The site is bounded by North Miller Road on the west, East Pinnacle Peak Road on the south, a portion of North 77th Street on the east near the SEC and the La Vista single family subdivision to the east and north.

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets

1.3 EXISTING AND PROPOSED SITE ZONING AND LAND USES:

The project parcel is zoned S-R ESL (Service Residential Environmentally Sensitive Lands and falls under Zoning District Commercial and Industrial) per the City of Scottsdale Zoning Map 31 and is currently developed with a 50,728 SF office building, parking canopies and asphalt parking. There are existing designated and recorded N.A.O.S. areas along the south, west and north portions of the proposed project site area.

1.4 REFERENCES:

The project site is shown in the City's General Plan Conceptual Land Use Map as Rural Neighborhoods.

2. DESIGN DOCUMENTATION

2.1 DESIGN COMPLIANCE:

The analysis of the proposed and existing sewer system is done in compliance with Chapter 7 – Wastewater of the City of Scottsdale 2010 update of the Design Standards & Policies Manual (DS&PM). Design flow calculations for the on-site system will be based on the recommendations in Section 7-1.403 of the DS&PM.

3. EXISTING CONDITIONS

3.1 EXISTING ZONING & LAND USE:

Land ownership includes 17.22 +/- net acres over four (4) parcels of developed (office) and undeveloped land designated as S-R ESL. There are existing designated and recorded N.A.O.S. areas along the south, west and north portions of the proposed project site area. The project is proposed to rezone the parcel to R1-10.

3.2 EXISTING TOPOGRAPHY, VEGETATION AND LANDFORM FEATURES:

The site is both undeveloped natural desert and a developed office component roughly in the middle of the project site. Contour elevations range from approximately 1916 in the northeast corner to 1879 in the southwest corner, with an average slope at approximately 2.5% from northeast to southwest.

FIRM Map Number 04013C1310L dated October 16, 2013 indicates this site is designated as Zone "AO", however there has been a Letter of Map Revision (LOMR) 15-09-1857P with an effective date of June 10, 2016 which removed the project site from the Rawhide Wash Floodplain area and re-designated as "X", having a 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile.

Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

3.3 EXISTING UTILITIES:

Sanitary Sewer: QS 45-46 City of Scottsdale

- **North Miller Road**: A City of Scottsdale public 8" PVC sewer main is shown in North Miller Road for the full length of the sites boundary with an existing manhole at the intersection of North Miller Road and East Pinnacle Peak Road, one existing manhole at the NWC of the project site and 2 additional existing manholes spaced approximately evenly between those. The invert elevation for the existing manhole at the intersection North Miller Road and East Pinnacle Peak Road is 1868.92 and a rim at 1878.35. The sewer main is located east of the center line on North Miller Road with the exception of the manhole at the intersection of North Miller Road and East Pinnacle Peak Road where the manhole is located west of the center line.
- **E. Pinnacle Peak Road:** A City of Scottsdale public 8" PVC sewer main is shown in East Pinnacle Peak Road for the full length of the sites boundary with two existing manholes

in the intersection of North Miller Road and East Pinnacle Peak Road. A manhole located near the center of the parcel has an unspecified diameter sewer stub out to the project site. The invert of the stub out to the north is indicated as 1971.85 but it is assumed that the invert is more likely 1871.85 since the rim is indicated as 1883.70. A third manhole is located at the SEC of the project site. The sewer main is located approximately 24' south of the East Pinnacle Peak Road center line.

- **77th Street:** No sewer mains are indicated in 77th Street.

Refer to **FIGURE 3** for the City quarter section map **(QS 45-46)**

4. PROPOSED CONDITIONS

4.1 SITE PLAN:

Proposed development consists of a maximum of forty-seven (47) residences fronting on a proposed internal 46' wide tract with 28' wide private cul-de-sac. Main access is provided near the center of the parcel off North Miller Road which connects to East Pinnacle Peak Road to the south. Emergency access drives are proposed near the northwest corner from Miller Road and near the southeast corner onto the re-alignment of 77th Street, as proposed with this development.

Refer to **FIGURE 4** for proposed site layout.

4.2 PROPOSED SEWER SYSTEM:

It is proposed to construct a new 8" PVC sewer main in the new roadway to service the 48 47 lots. This service will then tie into the existing 8" PVC main in Miller Road approximately 200' north of Pinnacle Peak Road with a new manhole. Refer to Sheet C4.00 in **Appendix II** for the Preliminary Utility Plan.

4.3 MAINTENANCE RESPONSIBILITIES:

The on-site sewer line for the proposed development will be public and located within right-of-way or easements to the City of Scottsdale. Therefore, the on-site and off-site sanitary sewer will be maintained by the City.

5. SANITARY SYSTEM COMPUTATIONS

5.1. SEWER FLOW DEMANDS:

DS&PM, Chapter 7 Section 7-1.403 – Wastewater specifies that for residential uses, sanitary sewer lines 8 to 12 inches in diameter will be designed using 100 gallons per person per day and a peaking factor of 4. Residential densities are to assume 2.5 persons per dwelling unit.

Therefore, the average design flow is:
47 du x 100 gpcpd x 2.5 people/du = **11,750 gpd (Average Proposed)**

5.2. VARIANCE FROM STATED DESIGN FLOWS:

Stated design flows for the on-site system will be used as recommended.

5.3. DEMAND FACTORS:

DS&PM requires a peak factor of 4.0 for residential usages. Therefore, from Section 5.1:
11,750 gpd x 4 = 47,000 gpd (Peak)

5.4. SEWER SYSTEM ANALYSIS (Existing On-Site):

As a comparison, the existing site has a 50,728 SF office building. The calculated average design flow is 50,728 SF x 0.4 per SF = **20,291 gpd (Average Existing)**.

DS&PM requires a peak factor of 3.0 for office use. Therefore, from Section 5.1, the existing peak demand is **20,291 gpd x 3 = 60,873 gpd (Peak).**

The proposed sanitary sewer demands that will contribute to the intersection of North Miller Road and East Pinnacle Peak Road are approximately a 21% reduction from the existing contribution to the same point of the existing public sewer system. This will allow additional capacity in the main downstream from this point by providing a reduction of approximately, 8,541 gpd (Average) and 13,873 gpd (Peak) to the sewer demand.

11,750 on pg. 3
8.16 gpm
check 1.26 fps
d/D = 0.09

5.5. SEWER CAPACITY CALCULATIONS

The site layout approximately splits the units to two sewer laterals. Therefore, to provide a minimum 1 fps under average flow conditions (6,000 gpd), an 8" diameter sanitary sewer pipe at S=1.0% (n=0.013) is proposed. This provides a velocity of 1.02 fps at a depth of 0.50" and has a flow capacity at 65% full of approximately 590,736 gpd, providing adequate capacity for the on-site system. Refer to Appendix I for Flowmaster calculations.

1.26 fps @ 0.72" depth
@ 33 gpm
1.92 fps & 1.36"

6. SUMMARY

6.1 SUMMARY OF PROPOSED IMPROVEMENTS:

- The proposed wastewater improvement was designed based on the current City of Scottsdale's design standards and policies.
- The existing sanitary main being tied into is capable of supporting the projected average flow for the development.
- The proposed development provides a reduction in sewer capacity demand compared to the existing development.

6.2 PROJECT SCHEDULE:

As a residential development, the infrastructure is proposed to be constructed in a single phase to accommodate dwelling unit growth. The dwelling units may be phased based on consumer demand.

7 SUPPORTING MAPS

7.1 PRELIMINARY UTILITY PLAN

Refer to Preliminary Utility Plan (C4.00)

8 REFERENCES

1. *COS QS Sewer Plan number 45-46*
2. *City of Scottsdale Design Standards & Policies Manual, 2010 (Chapter 7 – Wastewater)*

FIGURE 1
VICINITY MAP

FIGURE 2
AERIAL

46-46

45-45

45-47

44-46

SUBJECT PARCEL

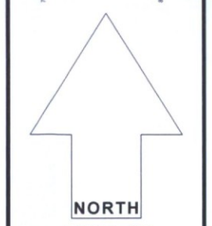
GENERAL NOTES:

- 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:

- Cleanout
- Lift Station
- Manhole
- Non-GPS Point
- Plug
- Sewer Service Point
- Sewer Tap Point
- Sewer Valve
- Treatment Plant
- Sewer Main - Gravity
- Sewer Main - Force
- Sewer Main - Private

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"

SEWER

QUARTER SECTION MAP

45-46

SE 1/4 SEC. 11 T4N R4E

FIGURE 3

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
3629 North Drinkwater Boulevard
Scottsdale, Arizona 85251

14-MAY-17

LA VISTA
R1-10 PRD ESL

20' LANDSCAPED TRACT

LOS PORTONES
R-4R ESL

LA VISTA
R1-10 PRD ESL

GATED ENTRY

50' LANDSCAPE SETBACK

TOLEDO
C-2 ESL

MILLER RD

77TH ST

INTERSECTION REALIGNMENT

RETENTION

MIN. 70' LANDSCAPE S/B

46' TRACT - 24' FIRE LANE

WASH CORRIDOR

PINNACLE PEAK RD

SILVERSTONE AT
PINNACLE PEAK
R-5 PCD

SUNSET AT
PINNACLE PEAK
C-1 ESL

BELLA VISTA
R1-43 ESL

LEGEND

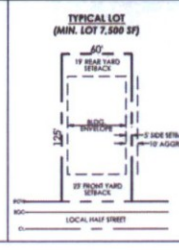
- GROSS SITE BOUNDARY *(19.7 ACRES)*
- NET SITE BOUNDARY *(17.0 ACRES)*
- * LOTS LIMITED TO 1-STORY

SITE PLAN IS PRELIMINARY & SUBJECT TO REVIEW & APPROVAL

SITE DATA

EXISITING ZONING:	S-R E.S.L
PROPOSED ZONING:	R1-10 E.S.L
TOTAL # LOTS:	47
GROSS DENSITY:	2.4 DU/AC
TYPICAL LOT SIZE:	60' x 125'
PARKING:	2 SPACES/UNIT
REFUSE:	INDIVIDUAL BIN

TYPICAL LOT



DEVELOPMENT STANDARDS

MIN. LOT AREA:	7,500 SQ. FT.
MIN. LOT WIDTH:	60'
FRONT YARD:	23'
SIDE YARD:	5' (10' AGGREGATE)
REAR YARD:	19'

INTERNAL STREET SECTION

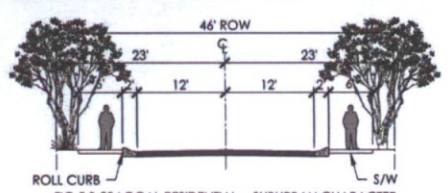


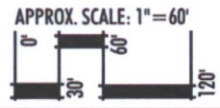
FIG 5.3-20 LOCAL RESIDENTIAL – SUBURBAN CHARACTER

LVA urban design studio
land planning • development entitlements • landscape architecture
120 south ash avenue • tempe, arizona 85281 • 480.994.0994

PINNACLE PEAK & MILLER

CONCEPTUAL SITE PLAN

APPROX. SCALE: 1" = 60'



NORTH

1731 DRAWN BY: PR 6/21/17

P:\2017\1731-PF CHANG'S HQ SCOTTSDALE\CAD\PLANNING\LVA-1731-CONCEPTUAL SITE PLAN.dwg Jun 21, 2017

APPENDIX I

Calculations

Worksheet for 8" sewer @ S=1% for 6000 gpd

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	8.00	in
Discharge	6000.00	gal/day

Results

Normal Depth	0.50	in
Flow Area	0.01	ft²
Wetted Perimeter	0.34	ft
Hydraulic Radius	0.32	in
Top Width	0.32	ft
Critical Depth	0.04	ft
Percent Full	6.3	%
Critical Slope	0.00849	ft/ft
Velocity	1.02	ft/s
Velocity Head	0.02	ft
Specific Energy	0.06	ft
Froude Number	1.07	
Maximum Discharge	1.30	ft³/s
Discharge Full	780975.01	gal/day
Slope Full	0.00000	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	6.26	%
Downstream Velocity	Infinity	ft/s

Worksheet for 8" sewer @ S=1% for 6000 gpd

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	in
Critical Depth	0.04	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00849	ft/ft

Worksheet for 8" sewer at S=1%, 65% full

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	5.20	in
Diameter	8.00	in

Results

Discharge	590736.08	gal/day
Flow Area	0.24	ft²
Wetted Perimeter	1.25	ft
Hydraulic Radius	2.31	in
Top Width	0.64	ft
Critical Depth	0.45	ft
Percent Full	65.0	%
Critical Slope	0.00882	ft/ft
Velocity	3.81	ft/s
Velocity Head	0.23	ft
Specific Energy	0.66	ft
Froude Number	1.09	
Maximum Discharge	1.30	ft³/s
Discharge Full	780975.01	gal/day
Slope Full	0.00572	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	65.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for 8" sewer at S=1%, 65% full

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.20	in
Critical Depth	0.45	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00882	ft/ft

APPENDIX II

Preliminary Utility Plan

P.F. CHANG'S RESIDENTIAL DEVELOPMENT

PINNACLE PEAK RD. AND MILLER RD.

PRELIMINARY UTILITY PLAN

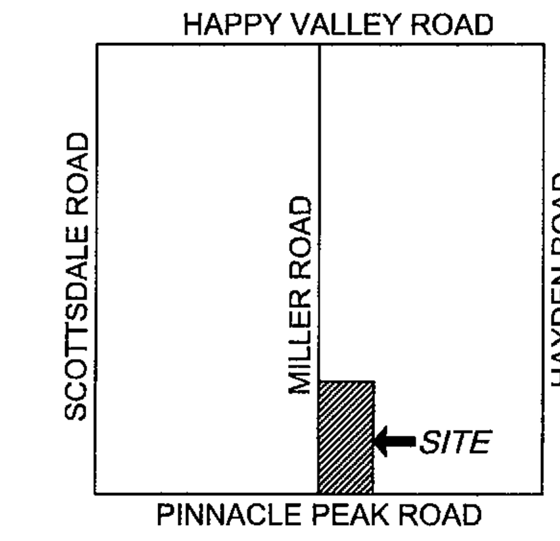
BASIS OF BEARING
THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 4 EAST, USING A BEARING OF NORTH 89 DEGREES 51 MINUTES 11 SECONDS WEST, AS SHOWN ON AN UNRECORDED ALTA/ACSM LAND TITLE SURVEY PREPARED BY GILBERTSON & ASSOCIATES DATED AUGUST 13, 2004.

OWNER
PFCCB PINNACLE PEAK LLC
7676 E. PINNACLE PEAK RD.
SCOTTSDALE, AZ 85255
ATTN:ZACH SHIRK

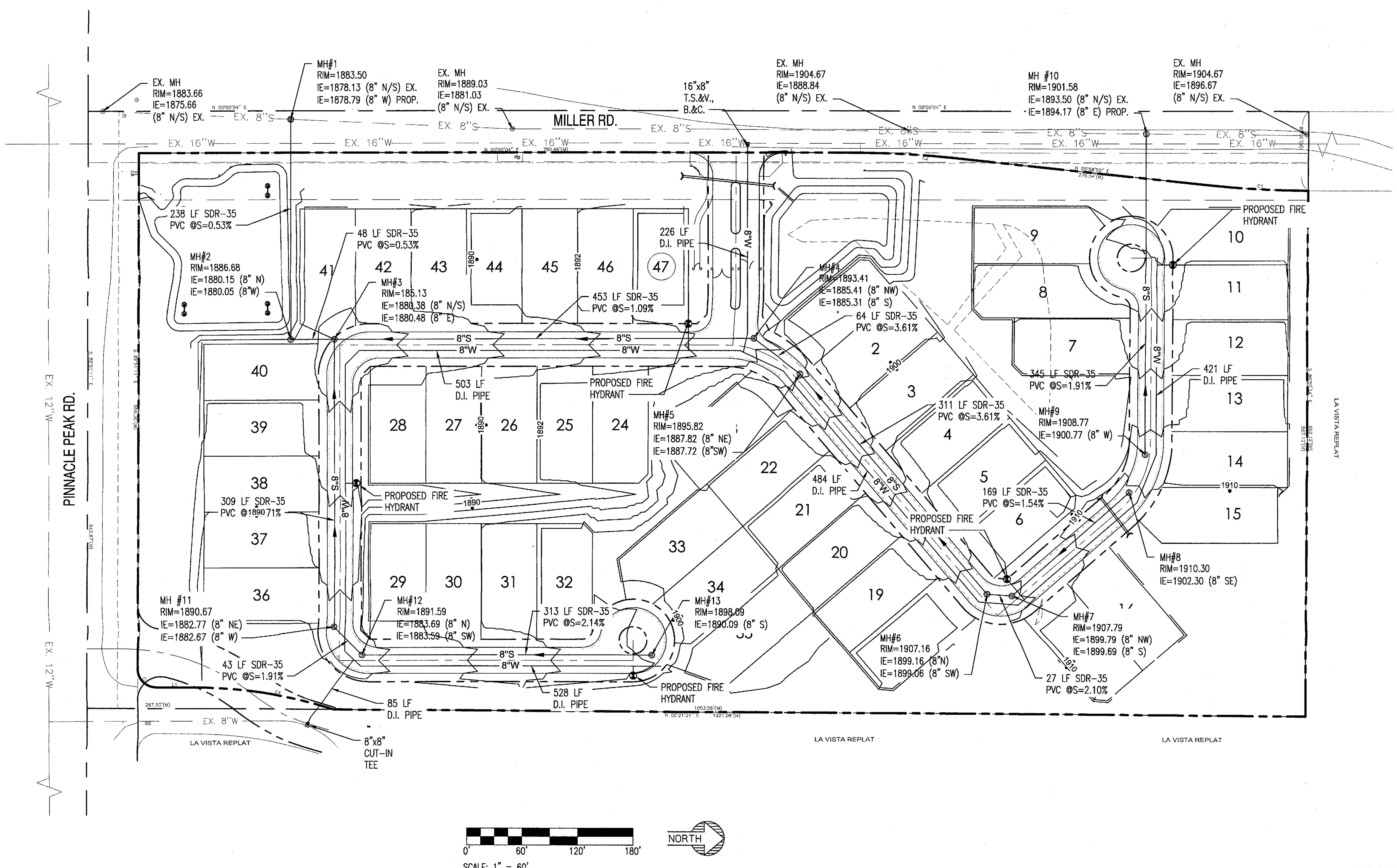
CIVIL ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR., SUITE 101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH

APPLICANT/DEVELOPER
SNELL & WILMER
400 E. VAN BUREN ST. #1900
PHOENIX, AZ 85004
PHONE: 602-328-6269
ATTN: NICK WOOD, ESQ

PLANNER
LVA URBAN DESIGN STUDIO, LLC
PHONE: 480-994-0994
ATTN: MARK REDDIE



VICINITY MAP
N.T.S.



PROPOSED LEGEND

— — —	PROPERTY LINE
—8"W—	WATER LINE
—8"S—	SEWER LINE
●	FIRE HYDRANT
○	SEWER MANHOLE

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 263-1100

NOTE TO CONTRACTOR: THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE INTENDED TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING FEDERAL A.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL APPLICABLE CODES AND TO INFORM THE OWNERS/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

52743 MARK A. MALONEY ARIZONA U.S.A.
EXPIRES 9/30/2017

SEG SUSTAINABILITY ENGINEERING GROUP
8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226

PROJECT
P.F. CHANG'S RESIDENTIAL DEVELOPMENT

LOCATION
7676 E PINNACLE PEAK RD.
SCOTTSDALE, AZ 85244

DRAWN	TALU
DESIGNED	MALONEY
CHECKED	COUNSELL
PROJ. MGR.	MALONEY
DATE:	06/21/2017
ISSUED FOR:	ZONING
REVISION NO.:	DATE:
JOB NO.:	170566
SHEET TITLE:	PRELIMINARY UTILITY PLAN
SHEET NO.:	C4.00

PRELIMINARY WATER CAPACITY REPORT
NEC Pinnacle Peak Rd. & Miller Rd.
Scottsdale, AZ

Prepared For:

7676 E. Pinnacle Peak Road
Scottsdale, AZ 85255
P: 480.888.3000

Accepted FOR ZN CASE

City of Scottsdale
Water Resources Administration
9379 E. San Salvador
Scottsdale, AZ 85258

Address MINOR COMMENTS (attached) & SUBMIT IN PP CASE LEDILON 7-18-17

Prepared by:

EXPIRES 9/30/2017

Sustainability Engineering Group
8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 170566

Original Submittal Date: June 22, 2017 (Zoning)

Case No.: 362-PA-2017 **Plan Check No.: TBD**

CITY OF SCOTTSDALE

PROJECT TRACKING SHEET

STAFF CONTACTS						
CURRENT PLANNING	DESIGN CONSULTANT	ENGINEERING Land Survey	FIRE	LONG RANGE PLANNING	STORM WATER	TRANSPORTATION
	Steve V.	DGue/dwayne	R. King	T. Reynolds		

PROJECT NAME: 7676 E PINNACLE PEAK
Coordinator: Jesus Murillo Case#: 11-ZN-2017

ALL COMMENTS *MUST* INCLUDE THE ORDINANCE, POLICY, OR DSPM SECTION NUMBERS; PLEASE INITIAL AND DATE AT THE END OF EACH OF YOUR COMMENTS.

Tracking sheet boiler comments that are not applicable shall be struck out to indicate the reviewer has considered those particular comments; please do not delete comments from the Tracking Sheet in case if they become relevant in the resubmittal.

WATER & SEWER COMMENTS:

SUBSTANTIVE REVIEW:

1ST REVIEW COMPLETED BY LDILLON ON 07/18/17. READY TO BE DETERMINED? NO ☐ YES ☒

ADDRESS MINOR COMMENTS AND RESUBMIT FINAL BODS DURING PP CASE

2ND REVIEW COMPLETED BY ????? ON ??/??/??. READY TO BE DETERMINED? NO ☐ YES ☐

3RD REVIEW COMPLETED BY ????? ON ??/??/??. READY TO BE DETERMINED? NO ☐ YES ☐

ALL COMMENTS *MUST* INCLUDE THE ORDINANCE, POLICY, OR DSPM SECTION NUMBERS; PLEASE INITIAL AND DATE AT THE END OF EACH OF YOUR COMMENTS.

Ordinance Issues:

1. None

Policy and Design Related Issues:

2. None

Technical Corrections to be resolved prior the next application or final plans submittal:

3. Prelim water BOD, LDillon7/18/17:
   a. Section 2.3.1,page 2: under Pinnacle Peak Road should read "unknown 44' north" and "potable 42' south". Note that the unknown line is a well line.
   b. Section 2.3.1page 2: under Onsite note that this line is shown as 8" in our map system.
   c. Section 3.1, section on Minimum pressure. These are two separate scenarios. Please model as such and update calculations.
      i. Requirement is to have 50psi at highest finished floor with actual projected flow at worst case hydraulic node. The flow to be used in this scenario should be based on IPC 2015 Appendix B demand table, apply max day flows to other nodes.
      ii. Model fire flow at worst case hydrant and ensure 30psi at hydrant tee with max day flows applied to all nodes and 15 psi min pressure to highest finished floor (or min required for sprinkler system).

d. Utility Plan: several sewer/waterline crossing are indicated. Note that these must be handled per MAG and City design criteria.
e. Utility plan: indicate distances between water and sewer lines where running parallel.
    i. Calculation Table "Fire Flow Node Flex Table: Fire Flow Report, Active Scenario:Max Day plus Fire Flow" includes various data columsn that are not clear. Description of what is being presented here is required.

4. Prelim wastewater BOD, LDillon7/18/17:
    a. Section 4.2 should state 47 lots.
    b. Section 5.5: Is 6,000 gpm the flow from half of the lots? Total average day flow is 11,750 per previous page. 6,000 gpm is also presented in Appendix I. where was the 1% drawn from. The utility plan shows various slopes, some exceeding 3.5%.
        i. Calcs are not presented clearly, present velocity and depth for average and peak flows and then for hypothetical "full" pipe flow capacity i.e. d/D=0.65. Shows calcs for most relevant slopes/flows.
    c. Utility Plan: several sewer/waterline crossings are indicated. Note that these must be handled per MAG and City design criteria. Note in final BOD.
    d. Utility plan: indicate distances in final BOD between water and sewer lines where running in parallel. Conform to necessary separation/protection.

TRANSPORTATION COMMENTS:

SUBSTANTIVE REVIEW:

1ST REVIEW COMPLETED BY PHIL K ON 7/17/17.	READY TO BE DETERMINED? NO ☒ YES ☐
2ND REVIEW COMPLETED BY ????? ON ??/??/??.	READY TO BE DETERMINED? NO ☐ YES ☐
3RD REVIEW COMPLETED BY ????? ON ??/??/??.	READY TO BE DETERMINED? NO ☐ YES ☐

Tracking sheet comments are not to be pasted in to the stipulations. The comment need to be rewritten into the stipulation format in accordance with the direction provided in the stipulation.

TRANSPORTATION STAFF COMMENTS:

5. The Transportation Department does not support the rezoning to residential due to the placement of residential homes in close proximity to two major streets, Miller Road and Pinnacle Peak Road, which are both planned to be four lane streets, and the major intersection of the two streets. Neither street is built out adjacent to the site, and the City is creating a situation where we will be allowing residents to purchase homes in this area who will then likely oppose future roadway construction. The site location should be conducive to S-R zoning, or a mixture of zoning that would keep non-residential on the corner.

Ordinance Issues:

6. Dedicate a minimum 50 feet of right-of-way along the Miller Road site frontage. There is currently insufficient right-of-way for signage and utilities. DSPM Sec. 5-3.100; Scottsdale Revised Code Sec. 47-10.
7. Complete the Pinnacle Peak Road minor arterial half street along the site frontage. Match the existing cross section to the west of Miller Road. The cross section shall include an 8 foot wide sidewalk. The improvements shall include appropriate transition to the existing pavement section to the east. DSPM Sec. 5-3.100; Scottsdale Revised Code Sec. 47-21 and 47-22.

EXPIRES 9/30/2017

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1. EXECUTIVE SUMMARY

The subject project is the proposed redevelopment of the existing P.F. Chang's office complex located at the NEC of North Miller Road and East of Pinnacle Peak Road into a residential development. The parcels are currently zoned S-R ESL (Service Residential Environmentally Sensitive Lands) and will be developed with a maximum of forty-seven (47) residences fronting on a proposed internal 46' wide tract with 28' wide private cul-de-sacs with rezoning to R1-10.

Water service for the development is to be provided by the City of Scottsdale. Connections will be from an existing 16" DIP main that runs north and south in North Miller Road and an 8" water main in North 77th Street which then connects to the 12" water main south of the center line in East Pinnacle Peak Road.

There would be no off-site improvements required of public mains to serve the domestic service, irrigation, and fire protection to the proposed residential lots.

Certified fire hydrant flow testing was performed on May 22, 2017 at 7:00 AM by Arizona Flow Testing, LLC at locations as shown on the provided reports. The results are as follows:

	Raw Test Data	Data w/58 PSI Safety Factor
• Static Pressure	130.0 PSI	72.0 PSI
• Residual Pressure:	108.0 PSI	50.0 PSI
• Flow:	3,087 GPM	3,087 GPM
• GPM @ 20 PSI:	7,361 GPM	4,912 GPM

The actual flow test documentation is included in **Appendix I.**

2. INTRODUCTION

2.1 PLAN OBJECTIVE:

The purpose of this report is to provide discussions and calculations defining the water system concepts necessary to comply with the requirements outlined in the City of Scottsdale Design Standards & Policy Manual. Preparation of this report has been done in accordance with the requirements of the City's Design Standards & Policy Manual.

2.2 SITE LOCATION

The project property consists of four (4) parcels of land located at the NEC of North Miller Road and East Pinnacle Peak Road. The total project area contains approximately 855,802.3 SF (19.647 AC) gross; 749,876.2 SF (17.215 AC) net. It is further defined as follows:

- Parcel Description: The west half of Section 11, Township 4 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona
- Parcel ID numbers: APN: 212-04-001B, 212-04-001C, 212-04-001D and 212-04 001E.
- Parcel Address: 7676 E. Pinnacle Peak Road

The site is bounded by North Miller Road on the west, East Pinnacle Peak Road on the south, a portion of North 77th Street on the east near the SEC and the La Vista single family subdivision to the east and north.

Refer to **FIGURE 1** - **Vicinity Map** for the project's location with respect to major cross streets

2.3 PROPOSED DEVELOPMENT

2.3.1 Existing Site Description:

Land ownership includes 17.22 +/- net acres over four (4) parcels of developed and undeveloped land designated as S-R ESL. There are existing designated and recorded N.A.O.S. areas along the south, west and north portions of the proposed project site area. The project is proposed to rezone the parcel to R1-10.

The site is both undeveloped natural desert and a developed office component roughly in the middle of the project site. Contour elevations range from approximately 1916 in the northeast corner to 1879 in the southwest corner, with a slope at approximately 2.5% from northeast to southwest.

FIRM Map Number 04013C1310L dated October 16, 2013 indicates this site is designated as Zone "AO", however there has been a Letter of Map Revision (LOMR) 15-09-1857P with an effective date of June 10, 2016 which removed the project site from the Rawhide Wash Floodplain area and re-designated as **Zone "X",** having a 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile.

Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

EXISTING WATER (COS QS45-46)

- **Miller Road**: Two existing 16" and one 36" water mains run north and south in North Miller Road. One 16" unknown type is located approximately 3' east, one 36" unknown type is located approximately 10' east and one 16" C900 / DIP is located approximately 39' east of the North Miller Road center line respectively. The 16" water main located approximately 39' east of the center line serves the existing office complex.
- **Pinnacle Peak Road**: Two 12" water mains run east and west in East Pinnacle Peak Road. One 12" DIP water main is located approximately 44' north and one 12" water main type unknown is located approximately 42' south of the East Pinnacle Peak Road center line. No service taps to the site are indicated.
- **77th Street**: An 8" ACP water main is located near the easterly ROW line of 77th Street. The on-site water loop ties into this main.
- **On-site**: There is an unspecified diameter water line in a 12' public water easement that bisects the project site from North Miller Road to North 77th Street. If the entire line cannot be utilized based on size and location then the line will need to be abandoned and removed.

Refer to **Figure 3** for the COS Water Quarter Section Map (QS 45-46).

2.3.2 Proposed Site Development:

Proposed development consists of a maximum of forty-seven (47) residences fronting on a proposed internal 46' wide tract with 28' wide private cul-de-sac. Main access is provided near the center of the parcel off North Miller Road which connects to East Pinnacle Peak Road to the south. Emergency access drives are proposed near the northwest corner from Miller Road and near the southeast corner onto the re-alignment of 77th Street, as proposed with this development.

An 8" main is proposed to tie into the existing 16" City of Scottsdale main in Miller Road and loop through the site and tie into the existing 8" main in 77th Street. Domestic and irrigation services to the units will be tapped off this new 8" water main.

Refer to **FIGURE 4** for the proposed site layout.

3. DESIGN CRITERIA

3.1 UTILITY DEVELOPER GUIDE CRITERIA

This project is designed using 47 du / 17.22 net acres = 2.79 du/ac. Refer to **Table 1** below for applicable "Design Criteria for Water Systems" based on Figure 6.1-2 (2-2.9 du/ac) in accordance with the City of Scottsdale DS&PM.

Table 1 - COS Design Criteria by demand type

Land Use	Average Day Demand (gal/day/unit)	Max Day Peaking Factor	Peak Hour Peaking Factor
Residential (2-2.9 DU/ac)	470.4	2.0	3.5

The system pressures, velocities, head losses and fire flow are in accordance with the COS DS&PM as follows:

Minimum Pressures:

50 psi residual pressure at the highest delivery point and 30 psi @ max day +fire flow

Maximum Pressures:

Maximum Pressure =120 psi

In accordance with the Uniform Plumbing Code, any structure experiencing pressures greater than 80 psi shall have an individual pressure reducing valve (PRV) on the customer side of the meter. The City of Scottsdale operates its system from wells and pumps that commonly have pressures exceeding 80 psi. Therefore, the city requires all metered services to have a pressure-regulating valve installed on the private service line per DS&PM 6-1.402.

Velocity & Head loss:

- *10 ft. head loss maximum per 1,000 linear feet of pipe for pipes less than 16 inches in diameter.*

***Hazen-Williams** Coefficient* *130*

Fire Flows:

This site is under the jurisdiction of the City of Scottsdale Fire Department. Fire flows must be in accordance with the 2015 International Fire Code which, for one- and two-family dwellings, is determined as follows:

- Dwellings having a fire-flow calculation area that does not exceed 3,600 s.f. that have automatic sprinklers shall be 500 gpm for 1/2 hour.

4. DEMANDS

4.1 PROJECT USE DESCRIPTION

Proposed demands for this project are based on a Residential Demand per Dwelling Unit for a density 2-2.9 DU/ac. Refer to **Table 2** below for the proposed water demand calculations based on the design criteria established in *Section 3.1* above

Table 2: Water Demand Calculations

	Units	Avg. Day Flow (gpd/unit)	Max Day Peaking Factor	Peak Hour Peaking Factor	Avg. Day Demand (GPD)	Max. Day Demand (GPD)	Peak Hour (GPD)
Res. (2-2.9 DU/ac)	47	470.4	2	3.5	22,108.8	44,217.6	77,380.8
TOTAL PROPOSED BLDG UNITS	47						
		TOTAL DEMANDS (GPD):			22,108.8	44,217.6	77,380.8
		TOTAL DEMANDS (gpm):			15.35	30.71	53.74

1.14 gpm/node?

4.2 ZONING

This site is in Zone 6 according to Figure 6.1-3 Pressure Zone Map in DS&PM.

4.3 PHASING OF DEMANDS

This residential project may be phased as dictated by unit demand. The infrastructure will be built in a single phase.

4.4 SUMMARY NARRATIVE OF DEMANDS

The demand scenario that governs the design was the peak hour demand.

5. EXISTING FACILITIES / CONDITIONS

5.1 PREVIOUS MASTER PLANS

No existing master plan or water report is available from COS for this site.

6. PROPOSED FACILITIES

6.1 DISTRIBUTION SYSTEM PIPING

6.1.1 Onsite:

The proposed water supply will consist of new 8" public water line and new fire hydrants. The proposed 8" water main will be DIP in accordance with COS requirements. Domestic service will be provided by 1" copper service connections to each lot, including meter and backflow prevention and PRV. Irrigation will be tapped from the domestic service after the BFP and require a separate/second BFP.

Irrigation for common areas will be provided by a separate system tapped from the 8" water main and maintained by the Home Owners Association.

6.1.2 Offsite Infrastructure:

No offsite infrastructure is anticipated.

7. WATER MODEL

7.1 DESCRIPTION OF MODEL

The final model of the proposed water system is designed to meet the criteria of COS Water, the Arizona Department of Environmental Quality ("ADEQ"), and Maricopa County Environmental Services Department ("MCESD").

Bentley WaterCAD® Version 8i is the computer modeling tool used in this study.

Network analysis input parameters included the following:

1. Pipe diameters (inches)
2. Pipe lengths (feet)
3. Pipes invert elevations (feet)
4. General Purpose Valve to model Water Meter and Double Check Valve Assembly
5. A reservoir and a pump to model the fire flow test performed
6. System demands (gpm)
7. Fire flows (gpm)
8. Model piping is ductile iron pipe using Hazen-Williams frictional losses (C = 130)

Output parameters included but were not limited to:

1. Pressure (psig)
2. Flow rates (gpm)
3. Velocities (fps)
4. Head loss (feet)

7.2 ASSUMPTIONS

Please refer to *Section 3.1* for the design criteria.

The general methodology used to design this public water infrastructure consists of modeling a network of water distribution mains to meet COS pressure, head loss, and water demand requirements during daily demands and fire events. The connection to the water system is modeled as a reservoir and pump. The pump will simulate the pressure drop and the available flow from the existing water system as depicted by the fire flow test. Refer to **Appendix I** for a copy of the fire flow test results.

7.3 SUMMARY OF RESULTS

A summary of the modeling results is presented below in **Table 3**. Detailed WaterCAD® results are presented in **Appendix II**.

Table 3 - WaterCAD® Analysis Results

Demand Scenario	Water Demand (GMP)	Pressure (PSIG)				Maximum Velocity (ft/s)	Pipe ID
		Min.	Node	Max.	Node		
Average Day	15.4	67	J-7	78	J-11	0.06	P-17
Maximum Day	30.7	67	J-7	78	J-11	0.12	P-17
Peak Hour	53.7	67	J-7	78	J-11	0.21	P-17
PEAK. + Fire Flow	500 + Max. day	42	J-3	N/A	N/A	10.0	N/A

8. SUMMARY / CONCLUSIONS

8.1 CONFORMANCE TO DESIGN GOALS

- The proposed water main is designed in accordance with COS design standards and policies[1]. The following summary is based on the above analysis summary.
  - Minimum 50 psi residual @ highest delivery point required, 67 psi minimum provided.
  - Minimum 30 psi @ max+ fire flow required, 42 psi provided.
  - 10 fps maximum velocity is not exceeded.
  - The system supports the minimum 500 gpm fire flow requirements.
- The results shown in the modeling summary (refer to Section 7.3) indicate that the proposed water system meets the COS criteria for Daily water usage and fire flow events as described in Section 3.1.
- PRV's at each building are required per COS design criteria.

8.2 REQUIRED FACILITIES AND PHASING

- Proposed facility improvements for this project are limited to a new 8" water main, new fire hydrants, and 1" domestic service connections for each lot.
- This project will be constructed in a single phase.

REFERENCES

1. *City of Scottsdale Design Standards & Policies Manual-Chapter 6, Water*

FIGURE 1
VICINITY MAP

FIGURE 2
AERIAL

46-46

45-45

45-47

PROJECT LOCATION

GENERAL NOTES:

- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7782.
- 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:

- Air Release Valve
- Non-potable Air Release Valve
- Blowoff
- Cap
- Cathodic Protection
- Fill Drain
- Fire Hydrant
- Non-GPS Point
- Pressure Reducing Valve
- Pump
- Reducer
- Sample Station
- Water Manhole
- Non-Potable Manhole
- Well
- Valve
- Non-potable Valve
- Vault
- Water Main
- Non-Potable Main
- Fire / Private Main
- Non-Scottsdale Main

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

QUARTER SECTION MAP

45-46

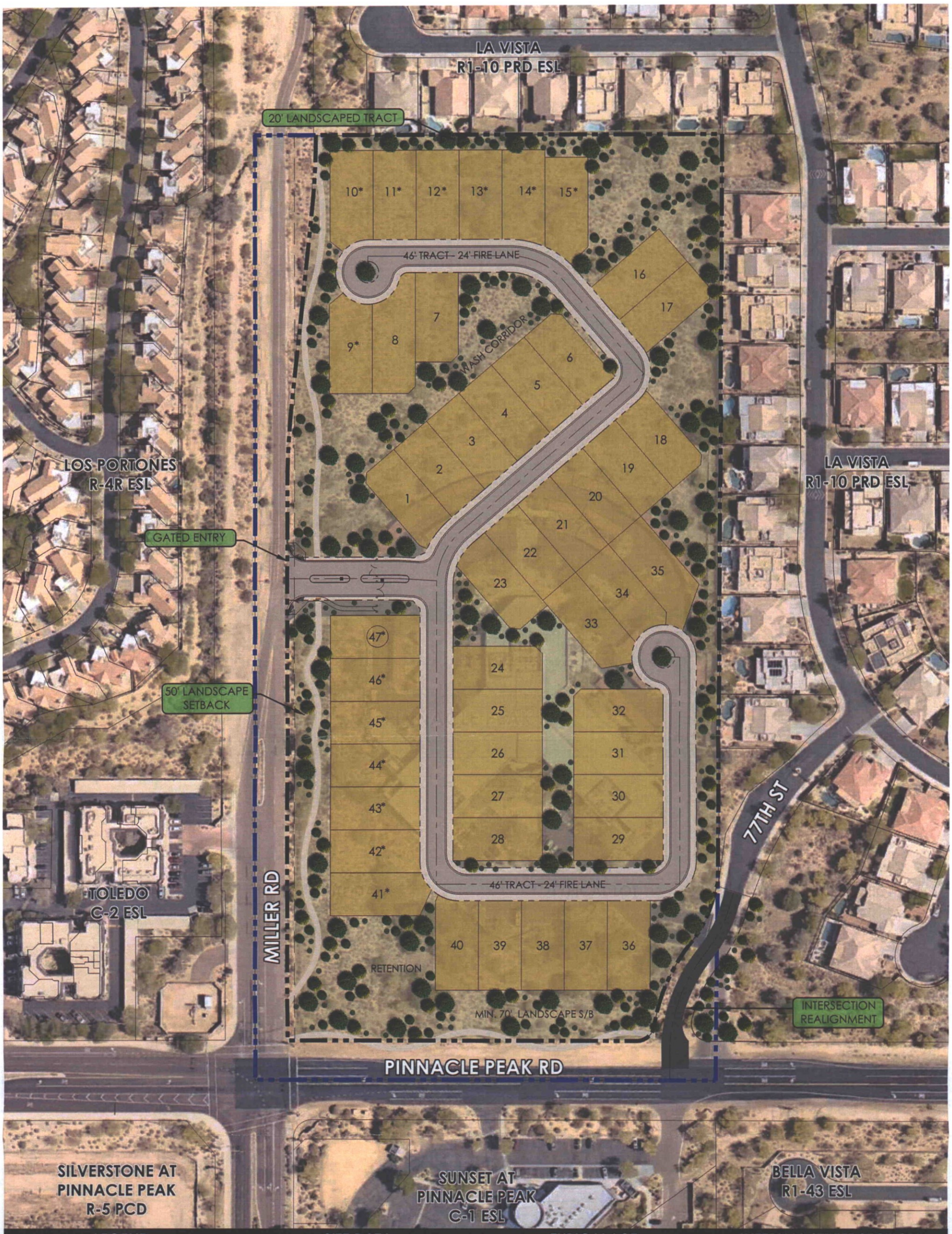
SE 1/4 SEC. 11 T4N R4E

FIGURE 3

14-MAY-17

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS

3629 North Drinkwater Boulevard
Scottsdale, Arizona 85251



LEGEND

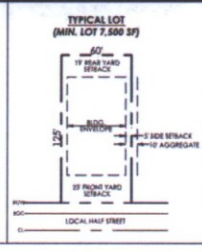
- GROSS SITE BOUNDARY *(19.7 ACRES)*
- NET SITE BOUNDARY *(17.0 ACRES)*
- * LOTS LIMITED TO 1-STORY

SITE PLAN IS PRELIMINARY & SUBJECT TO REVIEW & APPROVAL

SITE DATA

EXISITING ZONING:	S-R E.S.L
PROPOSED ZONING:	R1-10 E.S.L
TOTAL # LOTS:	47
GROSS DENSITY:	2.4 DU/AC
TYPICAL LOT SIZE:	60' x 125'
PARKING:	2 SPACES/UNIT
REFUSE:	INDIVIDUAL BIN

TYPICAL LOT



DEVELOPMENT STANDARDS

MIN. LOT AREA:	7,500 SQ. FT.
MIN. LOT WIDTH:	60'
FRONT YARD:	23'
SIDE YARD:	5' (10' AGGREGATE)
REAR YARD:	19'

INTERNAL STREET SECTION

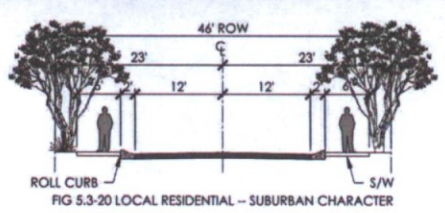


FIG 5.3-20 LOCAL RESIDENTIAL – SUBURBAN CHARACTER

LVA urban design studio
land planning • development entitlements • landscape architecture
120 south ash avenue • tempe, arizona 85281 • 480.994.0994

PINNACLE PEAK & MILLER

CONCEPTUAL SITE PLAN

APPROX. SCALE: 1"=60' NORTH

1731 DRAWN BY: PR 6/21/17

P:\2017\1731-PF CHANG'S HQ SCOTTSDALE\CAD\PLANNING\LVA-1731-CONCEPTUAL SITE PLAN.dwg Jun 21, 2017

APPENDIX I

Flow Test Data

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Not Provided
Project Address:	Miller and Pinnacle Peak, Scottsdale, Arizona 85255
Client Project No.:	Not Provided
Arizona Flow Testing Project No.:	17110
Flow Test Permit No.:	C53126
Date and time flow test conducted:	May 22, 2017 at 7:00 AM
Data is current and reliable until:	November 12, 2017
Conducted by:	Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by:	Larry Frandle –City of Scottsdale-Inspector (602-828-0847)

Raw Test Data

Static Pressure: **130.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **108.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **24.0 PSI (4 inch H.M.)**
55.0 PSI (2 ½ inch)
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One (4 inch)
(Measured in inches)

Coefficient of Diffuser: Big Boy Hose Monster

Flowing GPM: **3,087 GPM**
(Measured in gallons per minute)
1,842 GPM + 1,245 GPM = 3,087 GPM

GPM @ 20 PSI: **7,361 GPM**

Data with 58 PSI Safety Factor

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

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

Residual Pressure: **50.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx. 1150 Feet

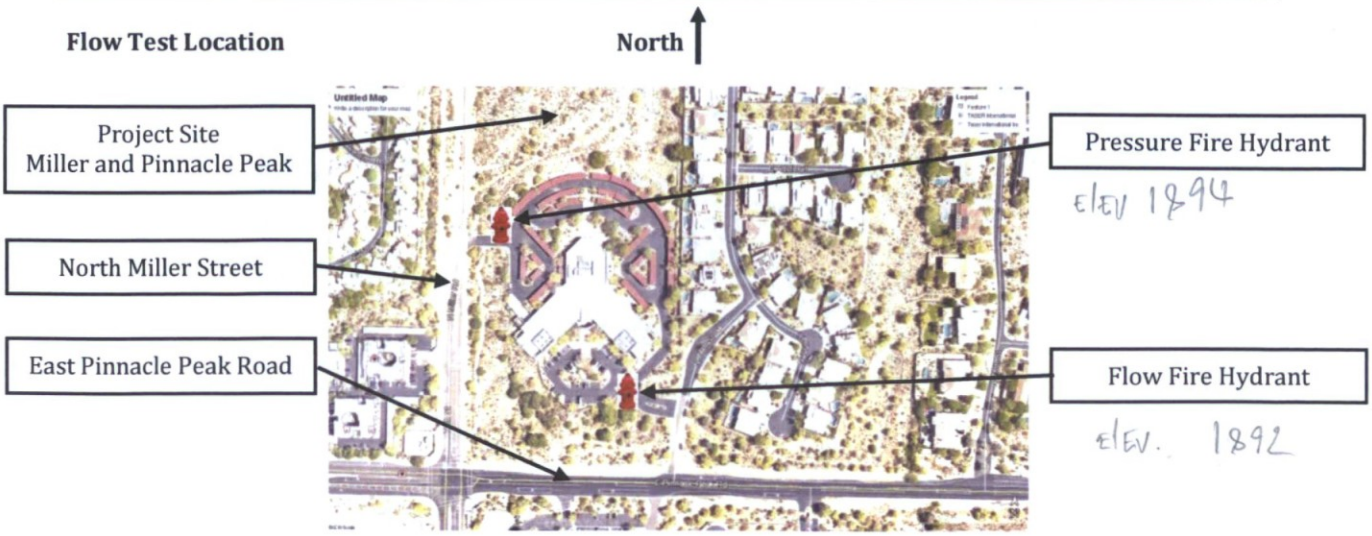
Main size: Not Provided

Flowing GPM: **3,087 GPM**

GPM @ 20 PSI: **4,912 GPM**

Flow Test Location

North



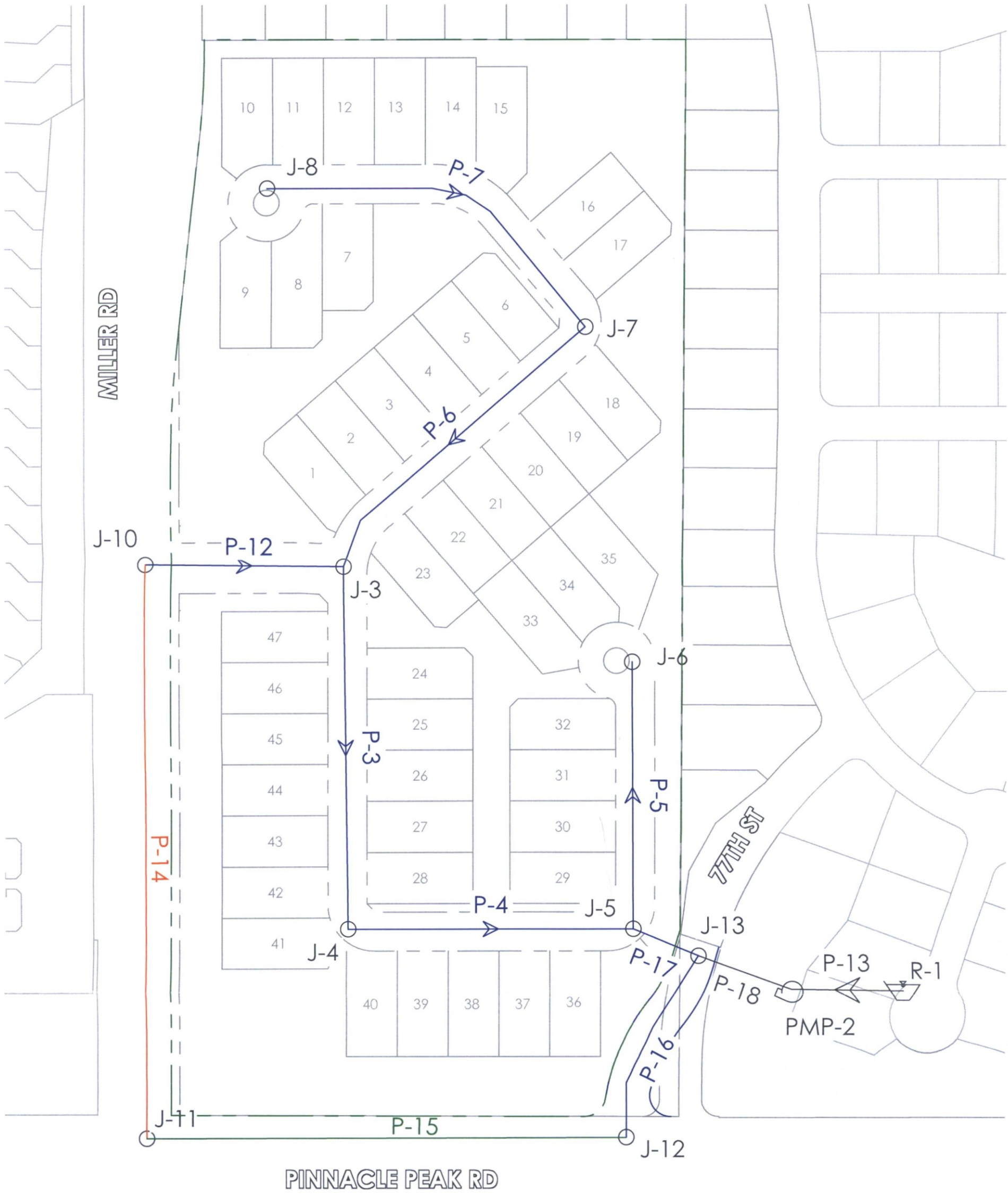
APPENDIX II

Water Model Results

PINNACLE PEAK AND MILLER ROAD
PIPE AND JUNCTION MAP

LEGEND

- 8" PIPE
- 12" PIPE
- 16" PIPE
- JUNCTION
- RESEVOIR
- PUMP (FLOW TEST LOCATION)



0 60 120 240

SCALE: 1"= 120'

SEG
SUSTAINABILITY ENGINEERING GROUP
8280 E GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226

Pump Definition Detailed Report: Fire Flow Test

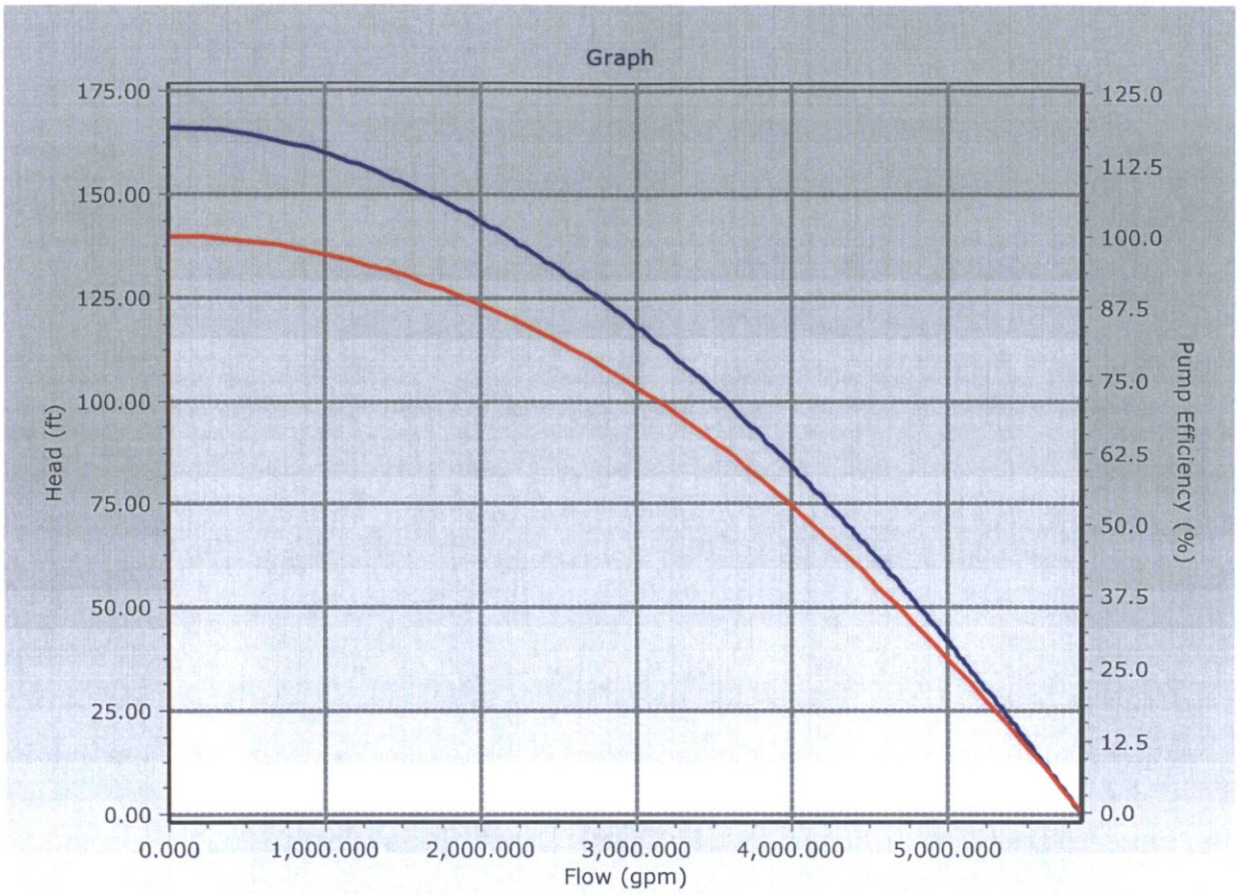
Element Details			
ID	59	Notes	
Label	Fire Flow Test		

Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	115.50 ft
Shutoff Flow	0.000 gpm	Maximum Operating Flow	4,912.000 gpm
Shutoff Head	166.32 ft	Maximum Operating Head	46.20 ft
Design Flow	3,087.000 gpm		

Pump Efficiency Type			
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0.000 gpm		

Transient (Physical)			
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: Fire Flow Test



FlexTable: Junction Table
Active Scenario: Average Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,895.00	3.270	2,059.32	71
J-4	1,886.00	2.290	2,059.32	75
J-5	1,891.50	1.633	2,059.32	73
J-6	1,897.50	2.290	2,059.32	70
J-7	1,903.50	2.940	2,059.32	67
J-8	1,902.00	2.940	2,059.32	68
J-10	1,892.50	0.000	2,059.32	72
J-11	1,879.00	0.000	2,059.32	78
J-12	1,887.00	0.000	2,059.32	75
J-13	1,893.00	0.000	2,059.32	72

FlexTable: Pipe Table

Active Scenario: Average Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	426	J-3	J-4	8.0	130.0	-3.036	0.02	0.000
P-4	336	J-4	J-5	8.0	130.0	-5.326	0.03	0.000
P-5	313	J-5	J-6	8.0	130.0	2.290	0.01	0.000
P-6	407	J-3	J-7	8.0	130.0	5.880	0.04	0.000
P-7	446	J-7	J-8	8.0	130.0	2.940	0.02	0.000
P-12	230	J-3	J-10	8.0	130.0	-6.114	0.04	0.000
P-13	129	R-1	PMP-2	24.0	130.0	15.363	0.01	0.000
P-14	666	J-10	J-11	16.0	130.0	-6.114	0.01	0.000
P-15	632	J-11	J-12	12.0	130.0	-6.114	0.02	0.000
P-16	220	J-12	J-13	8.0	130.0	-6.114	0.04	0.000
P-17	85	J-13	J-5	8.0	130.0	9.249	0.06	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-15.363	0.01	0.000

853ft ✓
MAX 1,200

FlexTable: Reservoir Table

Active Scenario: Average Day

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	15.363	1,893.00

FlexTable: Pump Table

Active Scenario: Average Day

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.32	15.363	166.32

FlexTable: Junction Table
Active Scenario: Max Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,895.00	6.530	2,059.31	71
J-4	1,886.00	4.570	2,059.31	75
J-5	1,891.50	3.260	2,059.31	73
J-6	1,897.50	4.570	2,059.31	70
J-7	1,903.50	5.880	2,059.31	67
J-8	1,902.00	5.880	2,059.30	68
J-10	1,892.50	0.000	2,059.31	72
J-11	1,879.00	0.000	2,059.31	78
J-12	1,887.00	0.000	2,059.31	75
J-13	1,893.00	0.000	2,059.31	72

FlexTable: Pipe Table

Active Scenario: Max Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	426	J-3	J-4	8.0	130.0	-6.073	0.04	0.000
P-4	336	J-4	J-5	8.0	130.0	-10.643	0.07	0.000
P-5	313	J-5	J-6	8.0	130.0	4.570	0.03	0.000
P-6	407	J-3	J-7	8.0	130.0	11.760	0.08	0.000
P-7	446	J-7	J-8	8.0	130.0	5.880	0.04	0.000
P-12	230	J-3	J-10	8.0	130.0	-12.217	0.08	0.000
P-13	129	R-1	PMP-2	24.0	130.0	30.690	0.02	0.000
P-14	666	J-10	J-11	16.0	130.0	-12.217	0.02	0.000
P-15	632	J-11	J-12	12.0	130.0	-12.217	0.03	0.000
P-16	220	J-12	J-13	8.0	130.0	-12.217	0.08	0.000
P-17	85	J-13	J-5	8.0	130.0	18.473	0.12	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-30.690	0.02	0.000

FlexTable: Reservoir Table
Active Scenario: Max Day

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	30.690	1,893.00

FlexTable: Pump Table

Active Scenario: Max Day

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.31	30.690	166.31

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Max Day plus Fire Flow

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Velocity
J-3	500.000	2,798.143	506.530	2,804.673	30	42	39	J-7	39	J-7	10.00	P-12
J-4	500.000	2,529.901	504.570	2,534.471	30	52	47	J-7	47	J-7	10.00	P-17
J-5	500.000	1,903.547	503.260	1,906.807	30	62	57	J-7	57	J-7	10.00	P-17
J-6	500.000	1,562.146	504.570	1,566.716	30	57	60	J-7	60	J-7	10.00	P-5
J-7	500.000	1,554.956	505.880	1,560.836	30	50	51	J-8	51	J-8	10.00	P-6
J-8	500.000	1,554.956	505.880	1,560.836	30	43	50	J-7	50	J-7	10.00	P-6
J-10	500.000	2,376.935	500.000	2,376.935	30	52	49	J-7	49	J-7	10.00	P-16
J-11	500.000	2,337.059	500.000	2,337.059	30	59	50	J-7	50	J-7	10.00	P-16
J-12	500.000	2,181.138	500.000	2,181.138	30	59	53	J-7	53	J-7	10.00	P-16
J-13	500.000	3,500.000	500.000	3,500.000	30	44	39	J-7	39	J-7	2.50	P-18

FlexTable: Junction Table

Active Scenario: Max Day plus Fire Flow

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,895.00	6.530	2,059.31	71
J-4	1,886.00	4.570	2,059.31	75
J-5	1,891.50	3.260	2,059.31	73
J-6	1,897.50	4.570	2,059.31	70
J-7	1,903.50	5.880	2,059.31	67
J-8	1,902.00	5.880	2,059.30	68
J-10	1,892.50	0.000	2,059.31	72
J-11	1,879.00	0.000	2,059.31	78
J-12	1,887.00	0.000	2,059.31	75
J-13	1,893.00	0.000	2,059.31	72

FlexTable: Pipe Table

Active Scenario: Max Day plus Fire Flow

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	426	J-3	J-4	8.0	130.0	-6.073	0.04	0.000
P-4	336	J-4	J-5	8.0	130.0	-10.643	0.07	0.000
P-5	313	J-5	J-6	8.0	130.0	4.570	0.03	0.000
P-6	407	J-3	J-7	8.0	130.0	11.760	0.08	0.000
P-7	446	J-7	J-8	8.0	130.0	5.880	0.04	0.000
P-12	230	J-3	J-10	8.0	130.0	-12.217	0.08	0.000
P-13	129	R-1	PMP-2	24.0	130.0	30.690	0.02	0.000
P-14	666	J-10	J-11	16.0	130.0	-12.217	0.02	0.000
P-15	632	J-11	J-12	12.0	130.0	-12.217	0.03	0.000
P-16	220	J-12	J-13	8.0	130.0	-12.217	0.08	0.000
P-17	85	J-13	J-5	8.0	130.0	18.473	0.12	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-30.690	0.02	0.000

FlexTable: Reservoir Table

Active Scenario: Max Day plus Fire Flow

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	30.690	1,893.00

FlexTable: Pump Table

Active Scenario: Max Day plus Fire Flow

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.31	30.690	166.31

FlexTable: Junction Table
Active Scenario: Peak Hour

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,895.00	11.430	2,059.28	71
J-4	1,886.00	8.000	2,059.29	75
J-5	1,891.50	5.717	2,059.29	73
J-6	1,897.50	8.000	2,059.29	70
J-7	1,903.50	10.290	2,059.28	67
J-8	1,902.00	10.290	2,059.28	68
J-10	1,892.50	0.000	2,059.29	72
J-11	1,879.00	0.000	2,059.29	78
J-12	1,887.00	0.000	2,059.29	75
J-13	1,893.00	0.000	2,059.29	72

FlexTable: Pipe Table

Active Scenario: Peak Hour

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-3	426	J-3	J-4	8.0	130.0	-10.626	0.07	0.000
P-4	336	J-4	J-5	8.0	130.0	-18.626	0.12	0.000
P-5	313	J-5	J-6	8.0	130.0	8.000	0.05	0.000
P-6	407	J-3	J-7	8.0	130.0	20.580	0.13	0.000
P-7	446	J-7	J-8	8.0	130.0	10.290	0.07	0.000
P-12	230	J-3	J-10	8.0	130.0	-21.384	0.14	0.000
P-13	129	R-1	PMP-2	24.0	130.0	53.727	0.04	0.000
P-14	666	J-10	J-11	16.0	130.0	-21.384	0.03	0.000
P-15	632	J-11	J-12	12.0	130.0	-21.384	0.06	0.000
P-16	220	J-12	J-13	8.0	130.0	-21.384	0.14	0.000
P-17	85	J-13	J-5	8.0	130.0	32.343	0.21	0.000
P-18	113	J-13	PMP-2	24.0	130.0	-53.727	0.04	0.000

FlexTable: Reservoir Table
Active Scenario: Peak Hour

Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,893.00	<None>	53.727	1,893.00

FlexTable: Pump Table

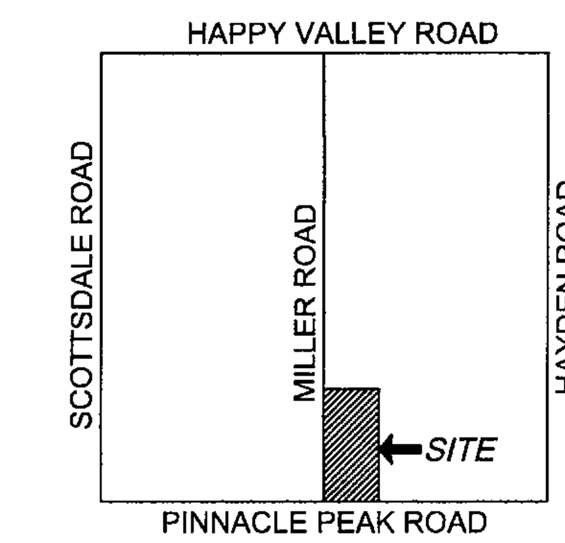
Active Scenario: Peak Hour

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-2	1,893.00	Fire Flow Test	On	1,893.00	2,059.29	53.727	166.29

APPENDIX III

Preliminary Utility Plan

P.F. CHANG'S RESIDENTIAL DEVELOPMENT
PINNACLE PEAK RD. AND MILLER RD.
PRELIMINARY UTILITY PLAN



VICINITY MAP
N.T.S.

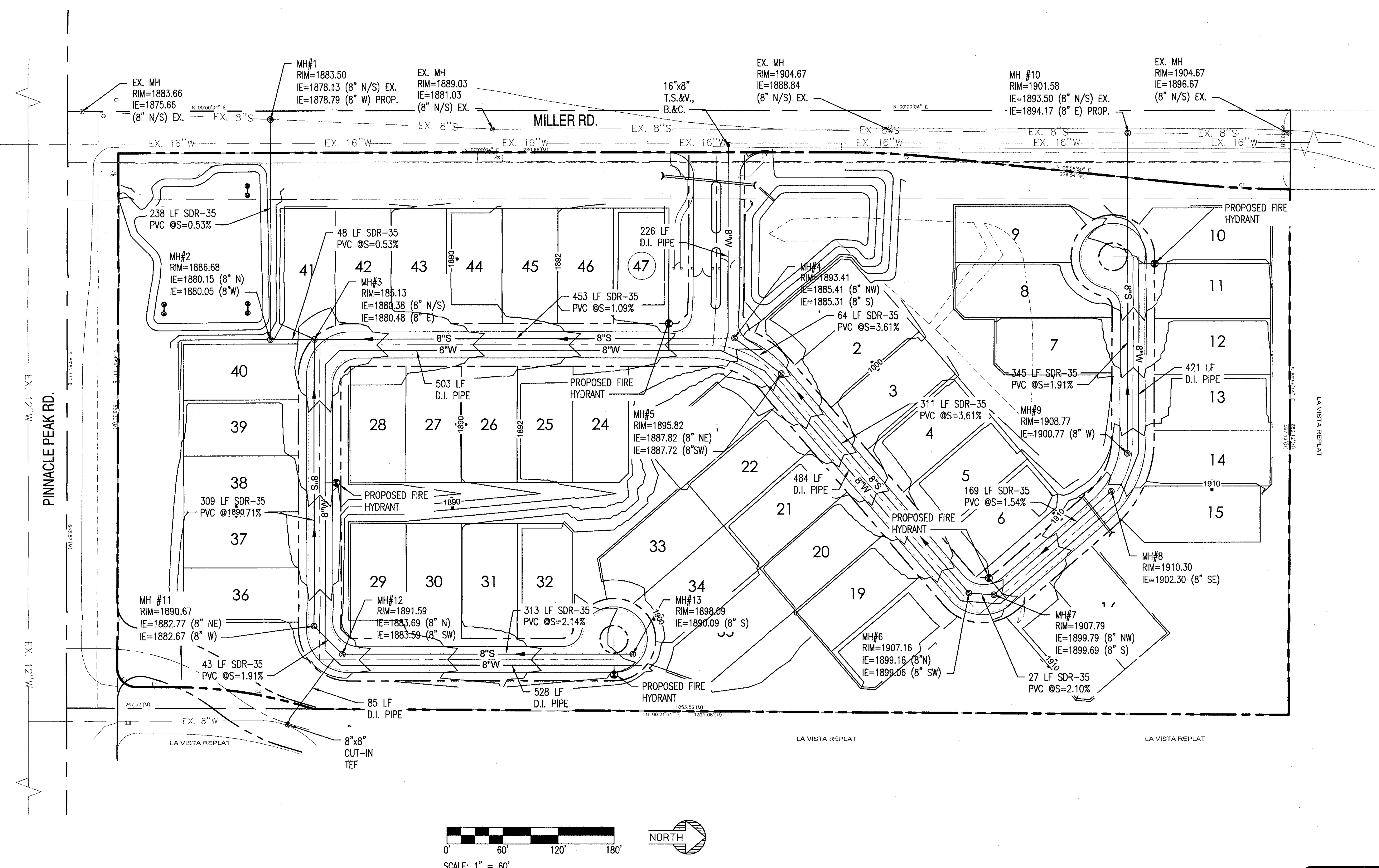
OWNER
PFCCB PINNACLE PEAK LLC
7676 E. PINNACLE PEAK RD.
SCOTTSDALE, AZ 85255
ATTN:ZACH SHIRK

APPLICANT/DEVELOPER
SNELL & WILMER
400 E. VAN BUREN ST. #1900
PHOENIX, AZ 85004
PHONE: 602-328-6269
ATTN: NICK WOOD, ESQ

CIVIL ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR., SUITE 101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH

PLANNER
LVA URBAN DESIGN STUDIO, LLC
PHONE: 480-994-0994
ATTN: MARK REDDIE

BASIS OF BEARING
THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 4 EAST, USING A BEARING OF NORTH 89 DEGREES 51 MINUTES 11 SECONDS WEST, AS SHOWN ON AN UNRECORDED ALTA/ACSM LAND TITLE SURVEY PREPARED BY GILBERTSON & ASSOCIATES DATED AUGUST 13, 2004.



PROPOSED LEGEND

—— — ——	PROPERTY LINE
—8"W—	WATER LINE
—8"S—	SEWER LINE
⊕	FIRE HYDRANT
●	SEWER MANHOLE

NOTE TO CONTRACTOR: THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE INTENDED TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING FEDERAL A.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

52743
MARK A. MALONEY
Date Signed 6-21-17
ARIZONA U.S.A.
EXPIRES 9/30/2017

SEG
SUSTAINABILITY ENGINEERING GROUP
8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226

PROJECT: P.F. CHANG'S RESIDENTIAL DEVELOPMENT
LOCATION: 7676 E PINNACLE PEAK RD. SCOTTSDALE, AZ 85244

DRAWN	TALU
DESIGNED	MALONEY
CHECKED	COUNSELL
PROJ. MGR.	MALONEY
DATE:	06/21/2017
ISSUED FOR:	ZONING
REVISION NO.:	DATE:
JOB NO.:	170566
SHEET TITLE:	PRELIMINARY UTILITY PLAN
SHEET NO.:	C4.00

PRELIMINARY SEWER CAPACITY REPORT

NEC Pinnacle Peak Rd. & Miller Rd.

Scottsdale, AZ

Prepared For:

P.F. CHANG'S CHINA BISTRO

7676 E. Pinnacle Peak Road
Scottsdale, AZ 85255
P: 480.888.3000

Accepted for ZN case
City of Scottsdale
Water Resources Administration
9379 E. San Salvador
Scottsdale, AZ 85258
LDillon 9-7-17

Prepared by:

Registered Professional Engineer (Civil)
CERTIFICATE NO.
52743
MARK A.
MALONEY
Date Signed 8-18-17
ARIZONA U.S.A.

EXPIRES 9/30/2017

Sustainability Engineering Group
8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 170566

Original Submittal Date: June 22, 2017 (Zoning)
Revised: August 18, 2017

Case No.: 3-GP-2017; 11-ZN-2017 **Plan Check No.: TBD**

TABLE OF CONTENTS:

1. INTRODUCTION

1.1 SUMMARY OF PROPOSED DEVELOPMENT:

Proposed development consists of a maximum of fifty-five (55) residences fronting on a proposed internal 46' wide tract with 28' wide private roadways / cul-de-sacs. Main access is provided off North Miller Road which connects to East Pinnacle Peak Road to the south.

The purpose of this sewer capacity design report is to provide preliminary analysis of the impact that this development will have on the City's sewer system.

1.2 LEGAL DESCRIPTION:

The project property consists of four (4) parcels of land located at the NEC of North Miller Road and East Pinnacle Peak Road. The total project area contains approximately 855,802.3 SF (19.647 AC) gross; 749,876.2 SF (17.215 AC) net. It is further defined as follows:

- Parcel Description: The west half of Section 11, Township 4 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona
- Parcel ID numbers: APN: 212-04-001B, 212-04-001C, 212-04-001D and 212-04 001E.
- Parcel Address: 7676 E. Pinnacle Peak Road

The site is bounded by North Miller Road on the west, East Pinnacle Peak Road on the south, a portion of North 77th Street on the east near the SEC and the La Vista single family subdivision to the east and north.

Refer to **FIGURE 1** - **Vicinity Map** for the project's location with respect to major cross streets

1.3 EXISTING AND PROPOSED SITE ZONING AND LAND USES:

The project parcel is zoned S-R ESL (Service Residential Environmentally Sensitive Lands and falls under Zoning District Commercial and Industrial) per the City of Scottsdale Zoning Map 31 and is currently developed with a 50,728 SF office building, parking canopies and asphalt parking. There are existing designated and recorded N.A.O.S. areas along the south, west and north portions of the proposed project site area.

1.4 REFERENCES:

The project site is shown in the City's General Plan Conceptual Land Use Map as Rural Neighborhoods.

2. DESIGN DOCUMENTATION

2.1 DESIGN COMPLIANCE:

The analysis of the proposed and existing sewer system is done in compliance with Chapter 7 – Wastewater of the City of Scottsdale 2010 update of the Design Standards & Policies Manual

(DS&PM). Design flow calculations for the on-site system will be based on the recommendations in Section 7-1.403 of the DS&PM.

3. EXISTING CONDITIONS

3.1 EXISTING ZONING & LAND USE:

Land ownership includes 17.22 +/- net acres over four (4) parcels of developed (office) and undeveloped land designated as S-R ESL. There are existing designated and recorded N.A.O.S. areas along the south, west and north portions of the proposed project site area. The project is proposed to rezone the parcel to R1-10.

3.2 EXISTING TOPOGRAPHY, VEGETATION AND LANDFORM FEATURES:

The site is both undeveloped natural desert and a developed office component roughly in the middle of the project site. Contour elevations range from approximately 1916 in the northeast corner to 1879 in the southwest corner, with an average slope at approximately 2.5% from northeast to southwest.

FIRM Map Number 04013C1310L dated October 16, 2013 indicates this site is designated as Zone "AO", however there has been a Letter of Map Revision (LOMR) 15-09-1857P with an effective date of June 10, 2016 which removed the project site from the Rawhide Wash Floodplain area and re-designated as "X", having a 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile.

Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

3.3 EXISTING UTILITIES:

Sanitary Sewer: QS 45-46 City of Scottsdale

- **North Miller Road**: A City of Scottsdale public 8" PVC sewer main is shown in North Miller Road for the full length of the sites boundary with an existing manhole at the intersection of North Miller Road and East Pinnacle Peak Road, one existing manhole at the NWC of the project site and 2 additional existing manholes spaced approximately evenly between those. The invert elevation for the existing manhole at the intersection North Miller Road and East Pinnacle Peak Road is 1868.92 and a rim at 1878.35. The sewer main is located east of the center line on North Miller Road with the exception of the manhole at the intersection of North Miller Road and East Pinnacle Peak Road where the manhole is located west of the center line.
- **E. Pinnacle Peak Road:** A City of Scottsdale public 8" PVC sewer main is shown in East Pinnacle Peak Road for the full length of the sites boundary with two existing manholes in the intersection of North Miller Road and East Pinnacle Peak Road. A manhole located near the center of the parcel has an unspecified diameter sewer stub out to the project site. The invert of the stub out to the north is indicated as 1971.85 but it is assumed that the invert is more likely 1871.85 since the rim is indicated as 1883.70. A

third manhole is located at the SEC of the project site. The sewer main is located approximately 24' south of the East Pinnacle Peak Road center line.

- **77th Street:** No sewer mains are indicated in 77th Street.

Refer to **FIGURE 3** for the City quarter section map **(QS 45-46)**

4. PROPOSED CONDITIONS

4.1 SITE PLAN:

Proposed development consists of a maximum of fifty-five (55) residences fronting on a proposed internal 46' wide tract with 28' wide private cul-de-sac. Main access is provided near the center of the parcel off North Miller Road which connects to East Pinnacle Peak Road to the south. Refer to **FIGURE 4** for proposed site layout.

4.2 PROPOSED SEWER SYSTEM:

It is proposed to construct a new 8" PVC sewer main in the new roadway to service the 55 lots. This service will then tie into the existing 8" PVC main in Miller Road approximately 200' north of Pinnacle Peak Road with a new manhole. Refer to Sheet C4.00 in **Appendix II** for the Preliminary Utility Plan.

4.3 MAINTENANCE RESPONSIBILITIES:

The on-site sewer line for the proposed development will be public and located within right-of-way or easements to the City of Scottsdale. Therefore, the on-site and off-site sanitary sewer will be maintained by the City.

5. SANITARY SYSTEM COMPUTATIONS

5.1. SEWER FLOW DEMANDS:

DS&PM, Chapter 7 Section 7-1.403 – Wastewater specifies that for residential uses, sanitary sewer lines 8 to 12 inches in diameter will be designed using 100 gallons per person per day and a peaking factor of 4. Residential densities are to assume 2.5 persons per dwelling unit.

Therefore, the average design flow is:
55 du x 100 gpcpd x 2.5 people/du = **13,750 gpd (Average Day Proposed)**

5.2. VARIANCE FROM STATED DESIGN FLOWS:

Stated design flows for the on-site system will be used as recommended.

5.3. DEMAND FACTORS:

DS&PM requires a peak factor of 4.0 for residential usages. Therefore, from Section 5.1:
13,750 gpd x 4 = 55,000 gpd (Peak)

5.4. SEWER SYSTEM ANALYSIS (Existing On-Site):

As a comparison, the existing site has a 50,728 SF office building. The calculated average design flow is 50,728 SF x 0.4 per SF = **20,291 gpd (Average Existing)**.

DS&PM requires a peak factor of 3.0 for office use. Therefore, from Section 5.1, the existing peak demand is **20,291 gpd x 3 = 60,873 gpd (Peak).**

The proposed sanitary sewer demands that will contribute to the intersection of North Miller Road and East Pinnacle Peak Road are approximately a 9.6% reduction from the existing peak contribution to the same point of the existing public sewer system. This will allow additional capacity in the main downstream from this point by providing a reduction of approximately, 6,541 gpd (average day) and 5,873 gpd (peak day) from the sewer demand.

5.5. SEWER CAPACITY CALCULATIONS

The site layout splits the units into two sewer laterals. Ten (10) lots will discharge to the north lateral connection at Miller Road and 45 lots will discharge to the southern lateral connection at Miller Road. A minimum velocity of 1 fps under average flow conditions is required.

NORTH LATERAL:

For the north lateral the calculated flow is 10 du x 100 gpcpd x 2.5 people/du = **2,500 gpd ADD or 7,500 gpd PDD.**

- An 8" diameter sanitary sewer pipe at S=2.67% (n=0.013) is proposed. This provides a velocity of 1.12 fps at a depth of 0.26" ADD, a velocity of 1.54 fps at a depth of 0.44" PDD, and "full" flow capacity (d/D = 0.65) of approximately 965,270 gpd at a velocity of 6.22 fps, providing adequate capacity for the on-site system. Refer to Appendix I for Flowmaster calculations.

For the south lateral the calculated flow is 45 du x 100 gpcpd x 2.5 people/du = **11,250 gpd ADD or 33,750 gpd PDD.**

- An 8" diameter sanitary sewer pipe at S=2.67% (n=0.013) is proposed for the upstream reach of the system, see above for calculation summary. An 8" diameter pipe at S=1.00% (n=0.013) is proposed for the downstream reach. This provides a velocity of 1.25 fps at a depth of 0.67" ADD, a velocity of 1.73 fps at a depth of 1.13" PDD, and "full" flow capacity (d/D = 0.65) of approximately 590,736 gpd at a velocity of 3.81 fps, providing adequate capacity for the on-site system. Refer to Appendix I for Flowmaster calculations.

6. SUMMARY

6.1 SUMMARY OF PROPOSED IMPROVEMENTS:

- The proposed wastewater improvement was designed based on the current City of Scottsdale's design standards and policies.
- The existing sanitary main being tied into is capable of supporting the projected average flow for the development.
- The proposed development provides a reduction in sewer capacity demand compared to the existing development.
- The final plans will show water and sewer vertical clearances compliant with City and State separation or protection provisions.

6.2 PROJECT SCHEDULE:

As a residential development, the infrastructure is proposed to be constructed in a single phase to accommodate dwelling unit growth. The dwelling units may be phased based on consumer demand.

7 SUPPORTING MAPS

7.1 PRELIMINARY UTILITY PLAN

Refer to Preliminary Utility Plan (C4.00)

8 REFERENCES

1. *COS QS Sewer Plan number 45-46*
2. *City of Scottsdale Design Standards & Policies Manual, 2010 (Chapter 7 – Wastewater)*

FIGURE 1
VICINITY MAP

FIGURE 2
AERIAL

45-45

45-47

44-46

GENERAL NOTES:

- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7782.
- 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:

- Cleanout
- Lift Station (LS)
- Manhole
- Non-GPS Point
- Plug
- Sewer Service Point
- Sewer Tap Point
- Sewer Valve
- Treatment Plant
- Sewer Main - Gravity
- Sewer Main - Force (Force)
- Sewer Main - Private

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"

SEWER

QUARTER SECTION MAP

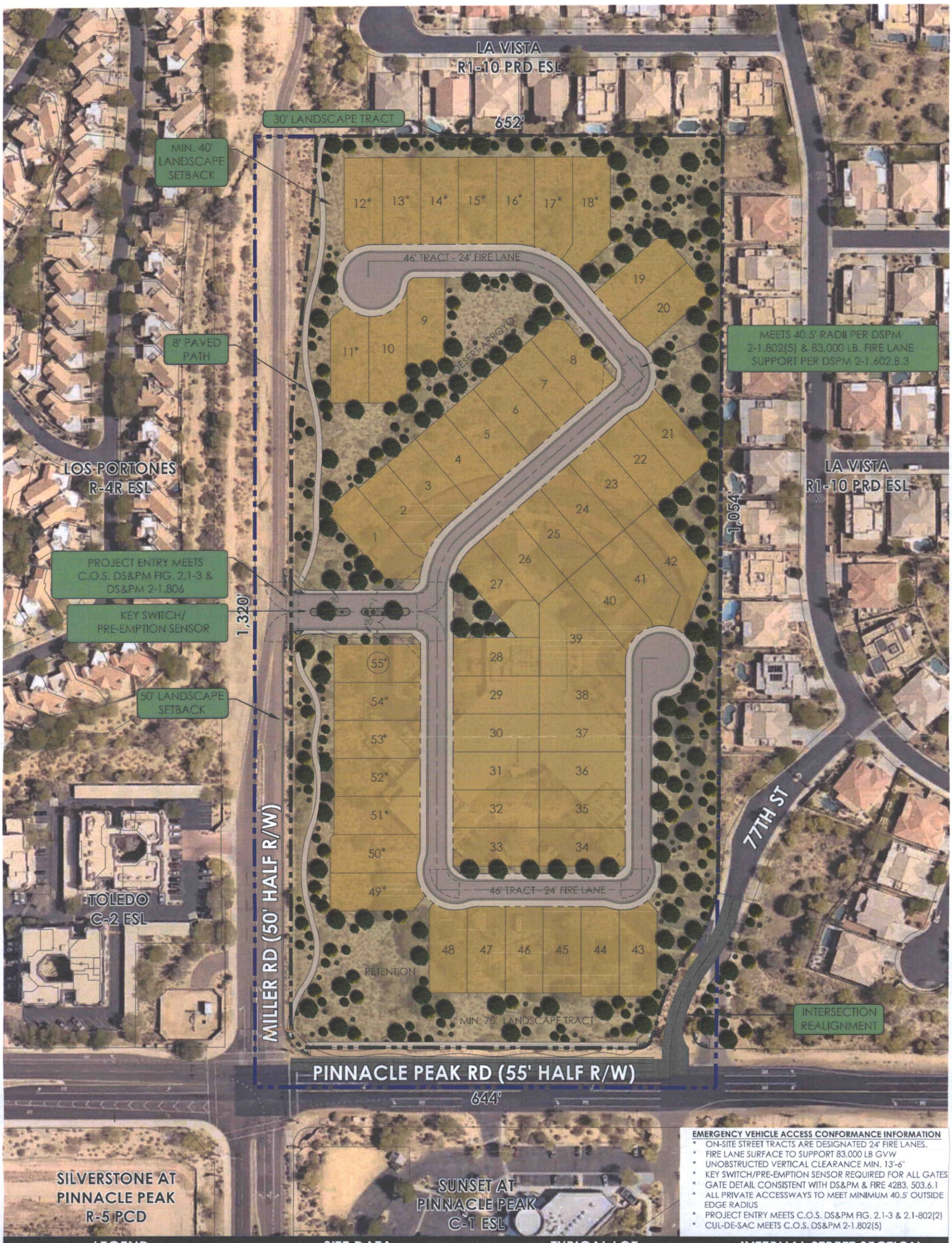
45-46

SE 1/4 SEC. 11 T4N R4E

FIGURE 3

CITY OF SCOTTSDALE
SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
3629 North Drinkwater Boulevard
Scottsdale, Arizona 85251

14-MAY-17



EMERGENCY VEHICLE ACCESS CONFORMANCE INFORMATION

- ON-SITE STREET TRACTS ARE DESIGNATED 24' FIRE LANES.
- FIRE LANE SURFACE TO SUPPORT 83,000 LB GVW
- UNOBSTRUCTED VERTICAL CLEARANCE MIN. 13'-6"
- KEY SWITCH/PRE-EMPTION SENSOR REQUIRED FOR ALL GATES
- GATE DETAIL CONSISTENT WITH DS&PM & FIRE 4283, 503.6.1
- ALL PRIVATE ACCESSWAYS TO MEET MINIMUM 40.5' OUTSIDE EDGE RADIUS
- PROJECT ENTRY MEETS C.O.S. DS&PM FIG. 2.1-3 & 2.1-802(2)
- CUL-DE-SAC MEETS C.O.S. DS&PM 2-1.802(5)

LEGEND

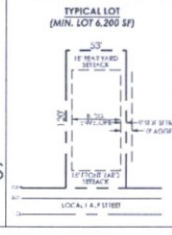
- GROSS SITE BOUNDARY *(19.7 ACRES)*
- NET SITE BOUNDARY *(17.0 ACRES)*
- * LOTS LIMITED TO 1-STORY

SITE PLAN IS PRELIMINARY & SUBJECT TO REVIEW & APPROVAL

SITE DATA

EXISITING ZONING:	S-R ESL
PROPOSED ZONING:	R1-10 PRD ESL
TOTAL # LOTS:	55
GROSS DENSITY:	2.8 DU/AC
TYPICAL LOT SIZE:	53' x 120'
RESIDENT PARKING:	2 GARAGE SPACES
GUEST PARKING:	2 DRIVEWAY SPACES
REFUSE:	INDIVIDUAL BIN

TYPICAL LOT



DEVELOPMENT STANDARDS

MIN. LOT AREA:	6,200 SQ. FT.
MIN. LOT WIDTH:	53'
FRONT YARD:	15' (MIN 18' TO FACE OF GARAGE)
SIDE YARD:	5' (10' AGGREGATE)
REAR YARD:	15'

INTERNAL STREET SECTION

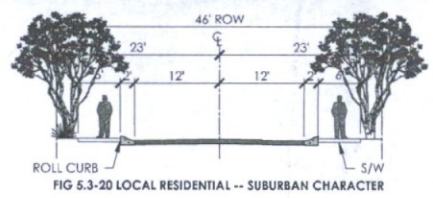


FIG 5.3-20 LOCAL RESIDENTIAL -- SUBURBAN CHARACTER

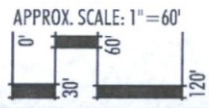
LVA urban design studio
land planning • development entitlements • landscape architecture
120 south ash avenue • tempe, arizona 85281 • 480.994.0994

PINNACLE PEAK & MILLER

CONCEPTUAL SITE PLAN

FIGURE 4

APPROX. SCALE: 1" = 60'



NORTH

1731 DRAWN BY: PR 8/14/17

APPENDIX I

Calculations

8" Sanitary at S=2.67% - 2500 gpd ADD

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02670	ft/ft
Diameter	8.00	in
Discharge	2500.00	gal/day

Results

Normal Depth	0.26	in
Flow Area	0.00	ft²
Wetted Perimeter	0.24	ft
Hydraulic Radius	0.17	in
Top Width	0.24	ft
Critical Depth	0.03	ft
Percent Full	3.3	%
Critical Slope	0.00994	ft/ft
Velocity	1.12	ft/s
Velocity Head	0.02	ft
Specific Energy	0.04	ft
Froude Number	1.64	
Maximum Discharge	2.12	ft³/s
Discharge Full	1.97	ft³/s
Slope Full	0.00000	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	3.26	%
Downstream Velocity	Infinity	ft/s

8" Sanitary at S=2.67% - 2500 gpd ADD

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.26	in
Critical Depth	0.03	ft
Channel Slope	0.02670	ft/ft
Critical Slope	0.00994	ft/ft

8" Sanitary at S=2.67% - 7500 gpd PDD

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02670	ft/ft
Diameter	8.00	in
Discharge	7500.00	gal/day

Results

Normal Depth	0.44	in
Flow Area	0.01	ft²
Wetted Perimeter	0.32	ft
Hydraulic Radius	0.29	in
Top Width	0.30	ft
Critical Depth	0.05	ft
Percent Full	5.5	%
Critical Slope	0.00829	ft/ft
Velocity	1.54	ft/s
Velocity Head	0.04	ft
Specific Energy	0.07	ft
Froude Number	1.73	
Maximum Discharge	2.12	ft³/s
Discharge Full	1.97	ft³/s
Slope Full	0.00000	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	5.51	%
Downstream Velocity	Infinity	ft/s

8" Sanitary at S=2.67% - 7500 gpd PDD

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.44	in
Critical Depth	0.05	ft
Channel Slope	0.02670	ft/ft
Critical Slope	0.00829	ft/ft

8" Sanitary at S=2.67% - Full Flow (65%)

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02670	ft/ft
Normal Depth	5.20	in
Diameter	8.00	in

Results

Discharge	965270.71	gal/day
Flow Area	0.24	ft^2
Wetted Perimeter	1.25	ft
Hydraulic Radius	2.31	in
Top Width	0.64	ft
Critical Depth	0.57	ft
Percent Full	65.0	%
Critical Slope	0.01421	ft/ft
Velocity	6.22	ft/s
Velocity Head	0.60	ft
Specific Energy	1.03	ft
Froude Number	1.78	
Maximum Discharge	2.12	ft^3/s
Discharge Full	1.97	ft^3/s
Slope Full	0.01528	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	65.00	%
Downstream Velocity	Infinity	ft/s

8" Sanitary at S=2.67% - Full Flow (65%)

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.20	in
Critical Depth	0.57	ft
Channel Slope	0.02670	ft/ft
Critical Slope	0.01421	ft/ft

8" Sanitary at S=1.00% - 11,250 gpd ADD

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	8.00	in
Discharge	11250.00	gal/day

Results

Normal Depth	0.67	in
Flow Area	0.01	ft²
Wetted Perimeter	0.39	ft
Hydraulic Radius	0.43	in
Top Width	0.37	ft
Critical Depth	0.06	ft
Percent Full	8.4	%
Critical Slope	0.00770	ft/ft
Velocity	1.25	ft/s
Velocity Head	0.02	ft
Specific Energy	0.08	ft
Froude Number	1.13	
Maximum Discharge	1.30	ft³/s
Discharge Full	1.21	ft³/s
Slope Full	0.00000	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	8.37	%
Downstream Velocity	Infinity	ft/s

8" Sanitary at S=1.00% - 11,250 gpd ADD

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.67	in
Critical Depth	0.06	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00770	ft/ft

8" Sanitary at S=1.00% - 33,750 gpd PDD

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	8.00	in
Discharge	33750.00	gal/day

Results

Normal Depth	1.13	in
Flow Area	0.03	ft^2
Wetted Perimeter	0.51	ft
Hydraulic Radius	0.70	in
Top Width	0.46	ft
Critical Depth	0.10	ft
Percent Full	14.2	%
Critical Slope	0.00682	ft/ft
Velocity	1.73	ft/s
Velocity Head	0.05	ft
Specific Energy	0.14	ft
Froude Number	1.20	
Maximum Discharge	1.30	ft^3/s
Discharge Full	1.21	ft^3/s
Slope Full	0.00002	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	14.16	%
Downstream Velocity	Infinity	ft/s

8" Sanitary at S=1.00% - 33,750 gpd PDD

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.13	in
Critical Depth	0.10	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00682	ft/ft

8" Sanitary at S=1.00% - Full Flow (65%)

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	5.20	in
Diameter	8.00	in

Results

Discharge	590736.08	gal/day
Flow Area	0.24	ft²
Wetted Perimeter	1.25	ft
Hydraulic Radius	2.31	in
Top Width	0.64	ft
Critical Depth	0.45	ft
Percent Full	65.0	%
Critical Slope	0.00882	ft/ft
Velocity	3.81	ft/s
Velocity Head	0.23	ft
Specific Energy	0.66	ft
Froude Number	1.09	
Maximum Discharge	1.30	ft³/s
Discharge Full	1.21	ft³/s
Slope Full	0.00572	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	65.00	%
Downstream Velocity	Infinity	ft/s

8" Sanitary at S=1.00% - Full Flow (65%)

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.20	in
Critical Depth	0.45	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00882	ft/ft

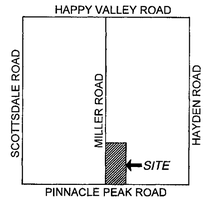
APPENDIX II

Preliminary Utility Plan

P.F. CHANG'S RESIDENTIAL DEVELOPMENT

PINNACLE PEAK RD. AND MILLER RD.

PRELIMINARY UTILITY PLAN



VICINITY MAP
N.T.S.

BASIS OF BEARING

THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 4 EAST, USING A BEARING OF NORTH 89 DEGREES 51 MINUTES 11 SECONDS WEST, AS SHOWN ON AN UNRECORDED ALTA/ACSM LAND TITLE SURVEY PREPARED BY GILBERTSON & ASSOCIATES DATED AUGUST 13, 2004.

OWNER

PFCCB PINNACLE PEAK LLC
7676 E. PINNACLE PEAK RD.
SCOTTSDALE, AZ 85255
ATTN: ZACH SHIRK

CIVIL ENGINEER

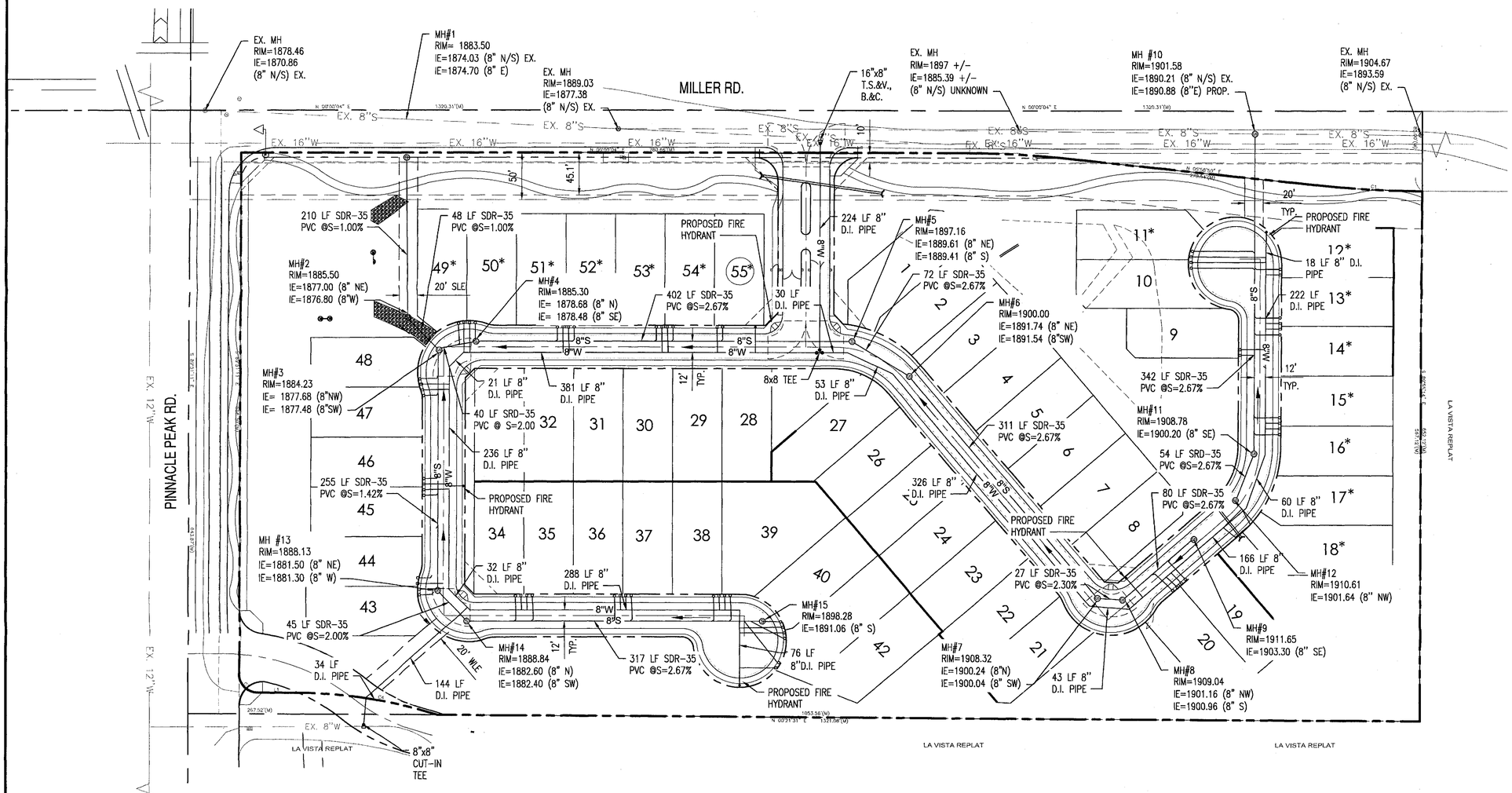
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR., SUITE 101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH

APPLICANT/DEVELOPER

SNELL & WILMER
400 E. VAN BUREN ST. #1900
PHOENIX, AZ 85004
PHONE: 602-328-6269
ATTN: NICK WOOD, ESQ

PLANNER

LVA URBAN DESIGN STUDIO, LLC
PHONE: 480-994-0994
ATTN: MARK REDDIE



0' 60' 120' 180'

SCALE: 1" = 60'

NORTH

UTILITY NOTES:

1. UTILITY CROSSINGS WILL BE DESIGNED FOR PROTECTION IN ACCORDANCE WITH MAG AND C.O.S. DESIGN CRITERIA.

PROPOSED LEGEND

- PROPERTY LINE
- LOT LINE
- 8"W WATER LINE
- 8"S SEWER LINE
- FIRE HYDRANT
- SEWER MANHOLE
- 1" WATER METER

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County (602) 263-1100

NOTE TO CONTRACTOR:
THE SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE CONSTRUCTION AND ATTACHED TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING FEDERAL A.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BUILD THIS PROJECT TO ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

52743
MARK A. MALONEY
Date Signed 3-16-17
ARIZONA U.S.A.
EXPIRES 9/30/2017

SUSTAINABILITY ENGINEERING GROUP
SEG
8280 E GELDING DR #101 SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL 480.588.7226

PROJECT: P.F. CHANG'S RESIDENTIAL DEVELOPMENT
LOCATION: 7676 E PINNACLE PEAK RD. SCOTTSDALE, AZ 85244

DRAWN	SANTIAGO
DESIGNED	MALONEY
CHECKED	COUNSELL
PROJ. MGR.	MALONEY

DATE: 08/18/2017
ISSUED FOR: ZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 170566

SHEET TITLE: PRELIMINARY UTILITY PLAN

SHEET NO.: C4.00