FINAL Basis of Design Report

☐ APPROVED

☐ APPROVED AS NOTED

☑ REVISE AND RESUBMIT

CITY OF SCOTTSDALE

SCOTTSDALE WATER

9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY rsacks **DATE** 8/31/2020

08/31/2020

See May 18 BOD for comments.
No changes from that BOD.

March 17, 2020

Palmeraie

1.01.0268903

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Date Signed 3/17/2020
ARIZONA, U.S.A.

Cassandra Alejandro

Wastewater Design Report

7-ZN-2016#2
8/11/2020

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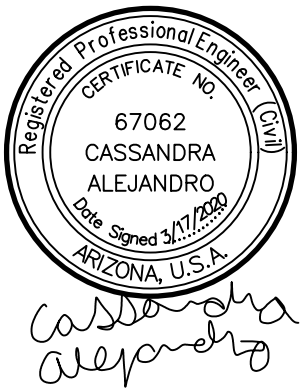

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1.0 INTRODUCTION

1.1 General Description

The Ritz-Carlton Resort property is located on 122.7 acres of undeveloped land in Paradise Valley and Scottsdale, Arizona. See The Wastewater Master Plan *The Ritz-Carlton Resort,* dated July 17th, 2017 by CVL for more information on The Ritz-Carlton Resort. Palmeraie is located in the northeast corner of Ritz Carlton Resort and is approximately 28 acres. Palmeraie will be developed for multi-family residential, commercial, and retail. The sewer system will outfall to the City of Scottsdale Sewer System and will be privately owned and operated by the Ritz-Carlton Resort. The system's design will adhere to the *City of Scottsdale Design Standards and Policies Manual, January 2010*.

1.2 Project Location

Palmeraie is located in the Town of Paradise Valley and the City of Scottsdale, Maricopa County, Arizona (see Figure 1) in the northeast quarter of Section 10, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian. The property is bounded by Indian Bend Road to the north, Palmeraie Drive to the south, Scottsdale Road to the east and Ritz Carlton Boulevard to the west. See Figure 2 for the location of Palmeraie within The Ritz Carlton.

1.3 Land Use

Palmeraie is approximately 28 acres. 14.8 acres of Palmeraie is located in the City of Scottsdale, 13.2 acres is located in Paradise Valley. A breakdown of the different land uses in the two municipalities is available in Table 1. There are multiple, multi-story buildings within Palmeraie. See Figure 3 for a site layout of Palmeraie, and the buildings referenced in this report.

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Table 1 – Proposed Land Use

Reference Number	Land Use	Units	No. of Units	Acreage[1]
Town of Paradise Valley				
2	Commercial/Mix-use	AC	--	0.98
3	Commercial/Mix-use	AC	--	2.05
6	Commercial/Mix-use	AC	--	4.38
7	Commercial/Mix-use	AC	--	3.62
Subtotal (Net)				**11.03**
City of Scottsdale				
1	Commercial/Mix-use	AC	--	1.88
4	Commercial/Mix-use	AC	--	3.24
5	Commercial/Mix-use	AC	--	1.95
8	Multi-Family	DU	41	2.32
	Commercial/Mix-use	AC	--	
9	Multi-Family	DU	51	3.29
	Commercial/Mix-use	AC	--	
10	Commercial/Mix-use	AC	--	2.11
Subtotal (Gross)				**14.79**
TOTAL (Gross)				**25.82**

[1]*Acreage based on lot size*

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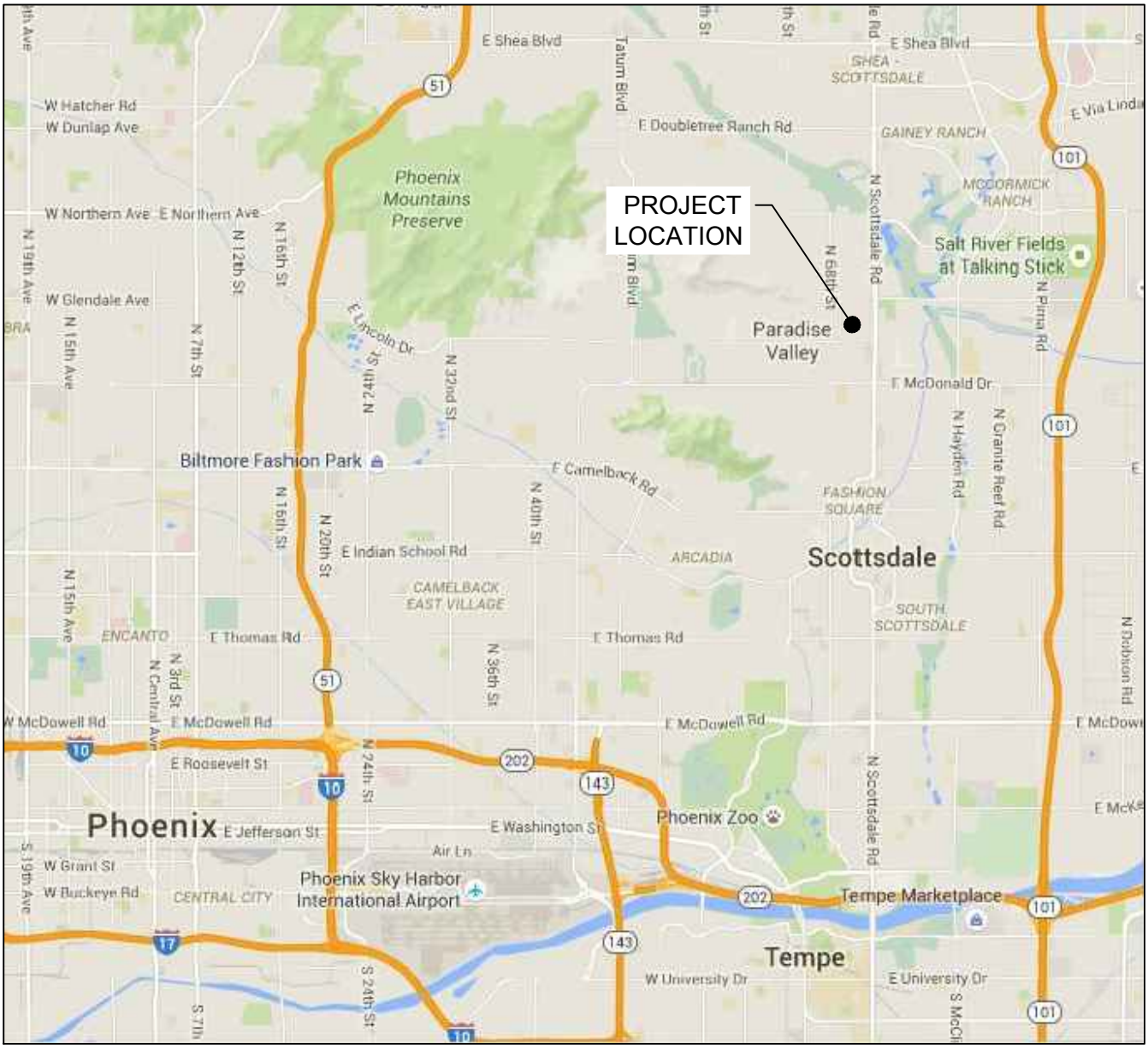

SCALE: NTS	PALMERAIE	CVL CONSULTANTS
FIGURE 1		
4550 North 12th Street Phoenix, Arizona 85014 Phone 602-264-6831 http://www.cvlci.com	VICINITY MAP	1.01.0268910

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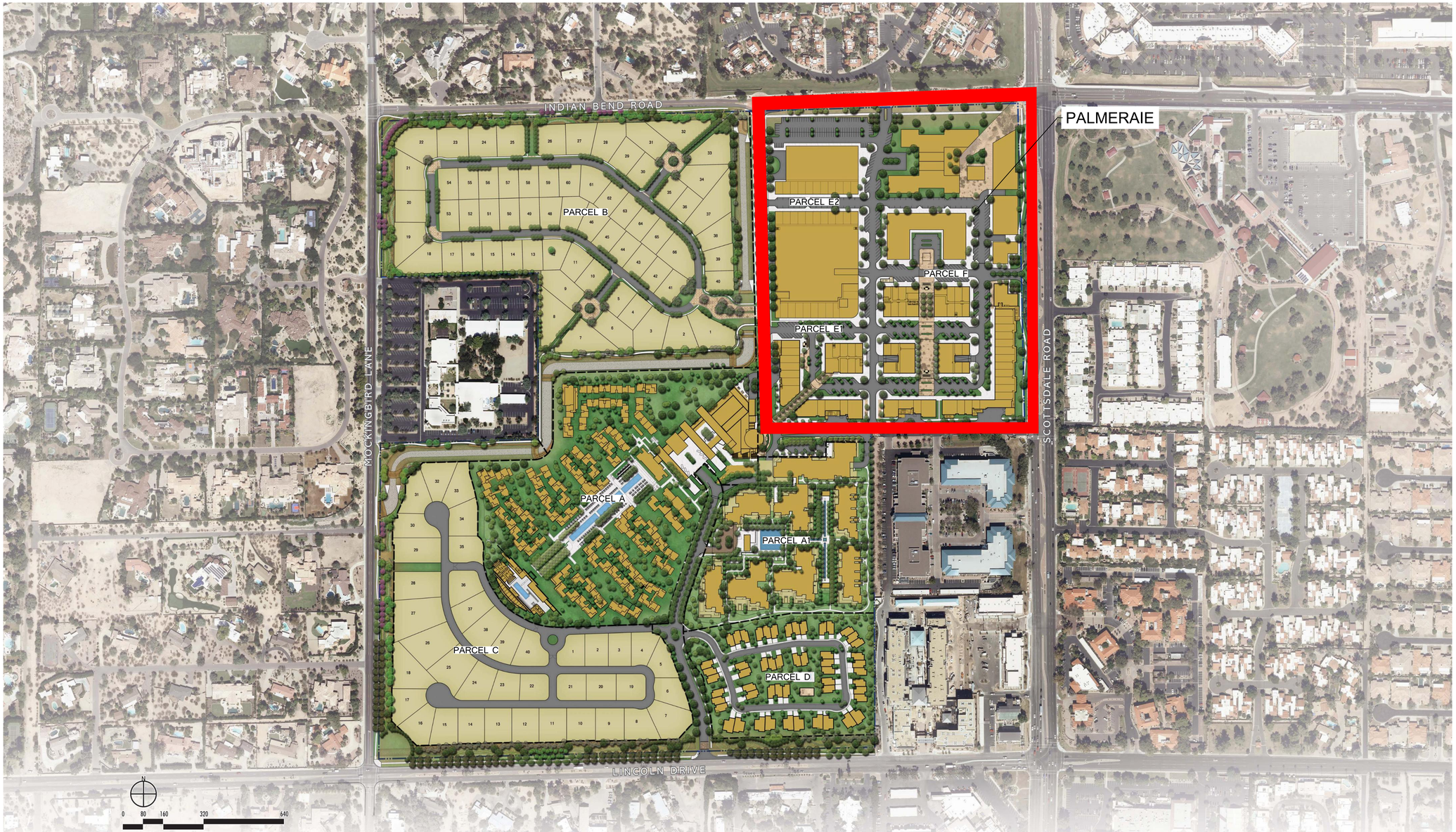
8/11/2020



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FIVE STAR DEVELOPMENT

The Ritz-Carlton Resort

December 19, 2016

THE RITZ-CARLTON®

MASTER PLAN

Land Use Plan with Aerial

AREA	DESCRIPTION
PARCEL A	RITZ–CARLTON RESORT HOTEL
PARCEL A–1	RITZ–CARLTON RESORT VILLAS
PARCEL B	RESORT RELATED LUXURY HOMES
PARCEL C	RITZ–CARLTON RESORT BRANDED HOMES
PARCEL D	RESORT RELATED ATTACHED RESIDENCES
PARCEL E	RESORT RELATED MIXED USE

N

*** LAND USE MAP IS PRELIMINARY. LOTTING IS SUBJECT TO CHANGE**

CVL CONSULTANTS
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PALMERAIE

SITE MAP

SCALE: NTS

FIGURE 2

4550 North 12th Street
Phoenix, Arizona 85014
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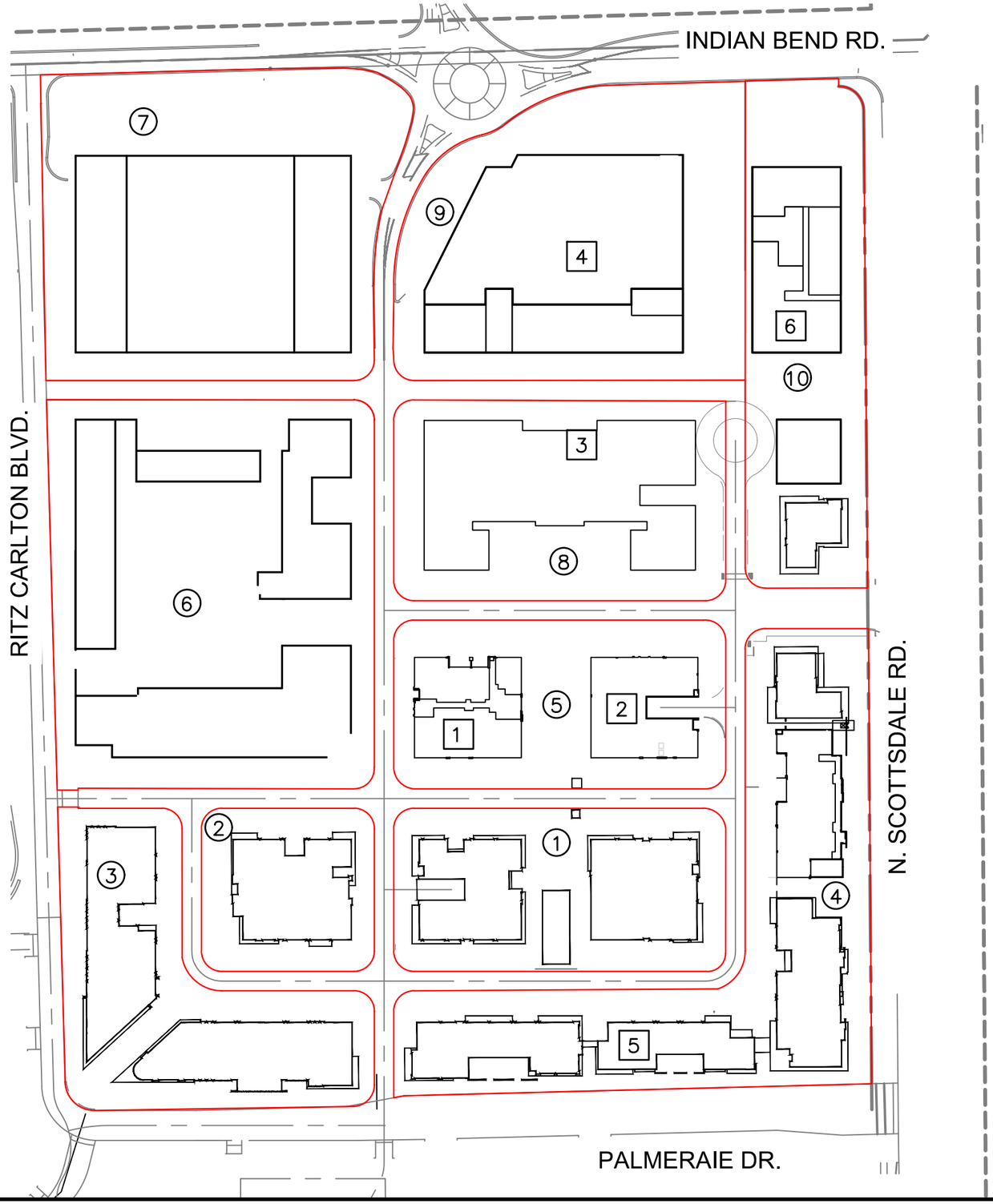
Printed By: JoeG Print Date: September 26, 2018 Filename: N:\01\02689001\Enviro\Reports\Figures\Site Map 06.20.17.dwg



LEGEND

(1)	LOT REFERENCE NUMBER
[1]	BUILDING REFERENCE NUMBER

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1.01.0268910

PALMERAIE

SITE LAYOUT

SCALE 1" = 150'

FIGURE 3

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
http://www.cvlci.com

N:\01\0268901\Enviro\Exhibits\Water Layout Palmeraie 01.23.23.dwg JoeG May 16, 2019

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1.4 Topographic Conditions

The Ritz-Carlton Resort property ranges in elevation from approximately 1324 feet above mean sea level (MSL) on the southwest corner of the property to approximately 1301 feet MSL on the northeast corner of the property. Overall, the property generally slopes to the east northeast toward Scottsdale Road.

1.5 Existing Sewer Service Capacity

The Town of Paradise Valley has two wastewater providers, the City of Phoenix and the City of Scottsdale. The Ritz-Carlton Resort lies within Basin "O" per the *Town of Paradise Valley Wastewater Master Plan (Arcadis, May 2015)* and will be served by the City of Scottsdale. Per an Intergovernmental Agreement (IGA), Paradise Valley has purchased 1,026,479 gpd of capacity in Scottsdale's collection system. Currently, the average daily flow that the Town discharges to the Scottsdale collection system is approximately 480,000 gpd. This is based on flow data obtained from metering stations that monitor flows from 13 basins plus calculated flows from six unmetered basins. The IGA bases discharge capacity on the peak discharge, which is the average of the two highest consecutive day discharges per year. The Town's wastewater master plan currently estimates the current overall peak discharge rate from the Town to the Scottsdale system is approximately 890,000 gpd. Flows from the Ritz-Carlton Resort and Palmeraie will be in addition to this amount.

Currently, the IGA is being renegotiated. Per the new tentative agreement, continuous Paradise Valley flow monitoring will no longer be required, but will only be required every five years. Additionally, the new IGA is to stipulate that no additional capacity will need to be purchased from the City of Scottsdale for future Paradise Valley discharges to the system (including flows from the Ritz-Carlton).

2.0 WASTEWATER SYSTEM DESIGN CRITERIA

This wastewater report is based on criteria from the *City of Scottsdale Draft Water Reuse Master Plan, February 2013* and *Design Polices and Standards Manual, January 2010.* Design flow criteria are presented in Table 2 and hydraulic design criteria are presented in Table 3. Design flow criteria is based on criteria from the City of Scottsdale, which can be found in Appendix C

Table 2 – Design Flow Criteria

Description	Average Day Flow (gapd)	Peak Day Flow (gapd)	Peaking Factor[1]
Multi-Family	1,541	2,060	1.34
Office	953	1,574	1.65
Commercial	822	1,173	1.43
Pool Backwash[2]	N/A	See Appendix B	--

gapd = gallons per acre per day
[1]Peaking Factor is calculated.
[2]Backwash rates provided by Thomas Schrantz of Aqua Design International of Tucson, Arizona. See Appendix B.

Table 3 – Hydraulic Design Criteria

Description	Criteria
Minimum Sewer Diameter	8-inch
Minimum Full Pipe Velocity	2.5 fps
Minimum Slope	
8-inch Sewer	0.0053 ft/ft
12-inch Sewer	0.0030 ft/ft
Manning's "n"	0.013
Maximum Pipe Velocity	10 fps
d/D (≤ 12-inch) at Peak Flow	0.65
d/D (> 12-inch) at Peak Flow	0.70
Manhole Spacing (8 to 15-inch)	500 ft
Minimum Drop Across Manhole	0.1 ft
Change in Sewer Diameter	match crowns
Minimum Depth of Cover	4 ft

2.1 Design Calculations

Table 4 contains the wastewater flow generation calculations for flows for the Palmeraie.

Table 4 – Wastewater Flow Generation

Reference Number	Land Use	Unit	No. of Units	Unit Flow (gpd/unit)[1]	Average Flow (gpd)	PF[2]	Peak Flow (gpd)
Town of Paradise Valley							
2	Commercial/Mix-use	AC	0.98	822	805.56	1.43	1,151.95
3	Commercial/Mix-use	AC	2.05	822	1,685.10	1.43	2,409.69
6	Commercial/Mix-use	AC	4.38	822	3,600.36	1.43	5,148.51
7	Commercial/Mix-use	AC	3.62	822	2,975.64	1.43	4,255.17
Discharge to Scottsdale Road 12-inch Sewer					**9,067**	**--**	**12,965**
Paradise Valley Subtotal				**--**	**9,067**	**--**	**12,965**
Current Paradise Valley Peak Flow[3]				--	--	--	890,000
Total Combined Flow to Scottsdale System				--	--	--	902,965
Current Purchased Capacity in Scottsdale System[4]				--	--	--	1,026,479
Additional Capacity Below Current Purchased Capacity				**--**	**--**	**--**	**123,514**
City of Scottsdale							
1	Commercial/Mix-use	AC	1.88	822	1,545.36	1.43	2,209.86
4	Commercial/Mix-use	AC	3.24	822	2,663.28	1.43	3,808.49
5	Office	AC	1.95	953	1,858.35	1.65	3,066.28
	Commercial/Mix-use	AC	1.95	822	1,602.90	1.43	2,292.15
8	Multi-Family Residential	DU	41	171.67[1]	7,038.47	1.34	9,431.55
	Commercial/Mix-use	AC	2.32	822	1,907.04	1.43	2,727.07
9	Multi-Family Residential	AC	51	171.67[1]	8,755.17	1.34	11,731.93
	Commercial/Mix-use	AC	3.29	822	2,704.38	1.43	3,867.26
10	Office	AC	2.11	953	2,010.83	1.65	3,317.87
	Commercial/Mix-use	AC	2.11	822	1,734.42	1.43	2,480.22
Discharge to Scottsdale Road 12-inch Sewer				**--**	**31,820**	**--**	**44,933**
Scottsdale Subtotal				**--**	**31,820**	**--**	**44,933**
Combined							
Discharge to Scottsdale Road 12-inch Sewer				**--**	**40,887**	**--**	**57,898**
TOTAL				**--**	**40,887**	**--**	**57,898**

[1]*Unit Flow = Average Day Flow (gpad) x Acreage / (12 units per Acre)*
[2]*Peaking Factor = Peak Day Flow / Average Day Flow.*
[3]*See Town of Paradise Valley Wastewater Master Plan (Arcadis, May 2015).*
[4]*See Intergovernmental Agreement between Paradise Valley and City of Scottsdale.*

As shown, the peak flow calculations include peak flows calculated per the City of Scottsdale design criteria, but do not include wastewater from simultaneous pool, spa and water feature backwashing. Backwashing will occur during the off-peak hours of 3 am to 5 am and each filter will be backwashed individually per the Aquatic Filter Backwash Weekly Schedule provided in Appendix B. As was noted previously in Section 1.5, no additional capacity will need to be purchased in order to discharge to the Scottsdale collection system.

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2.2 Wastewater Collection System Description

The wastewater collection system is designed to take advantage of topographic conditions wherever possible. The sewer mains are sized according to the anticipated cumulative flows as the lines are routed to the trunk line tie-in locations. Pipe sizes and minimum and maximum slopes required are based on the criteria established in Tables 2 and 3.

3.0 EXISTING AND PROPOSED INFRASTRUCTURE

3.1 Existing Infrastructure

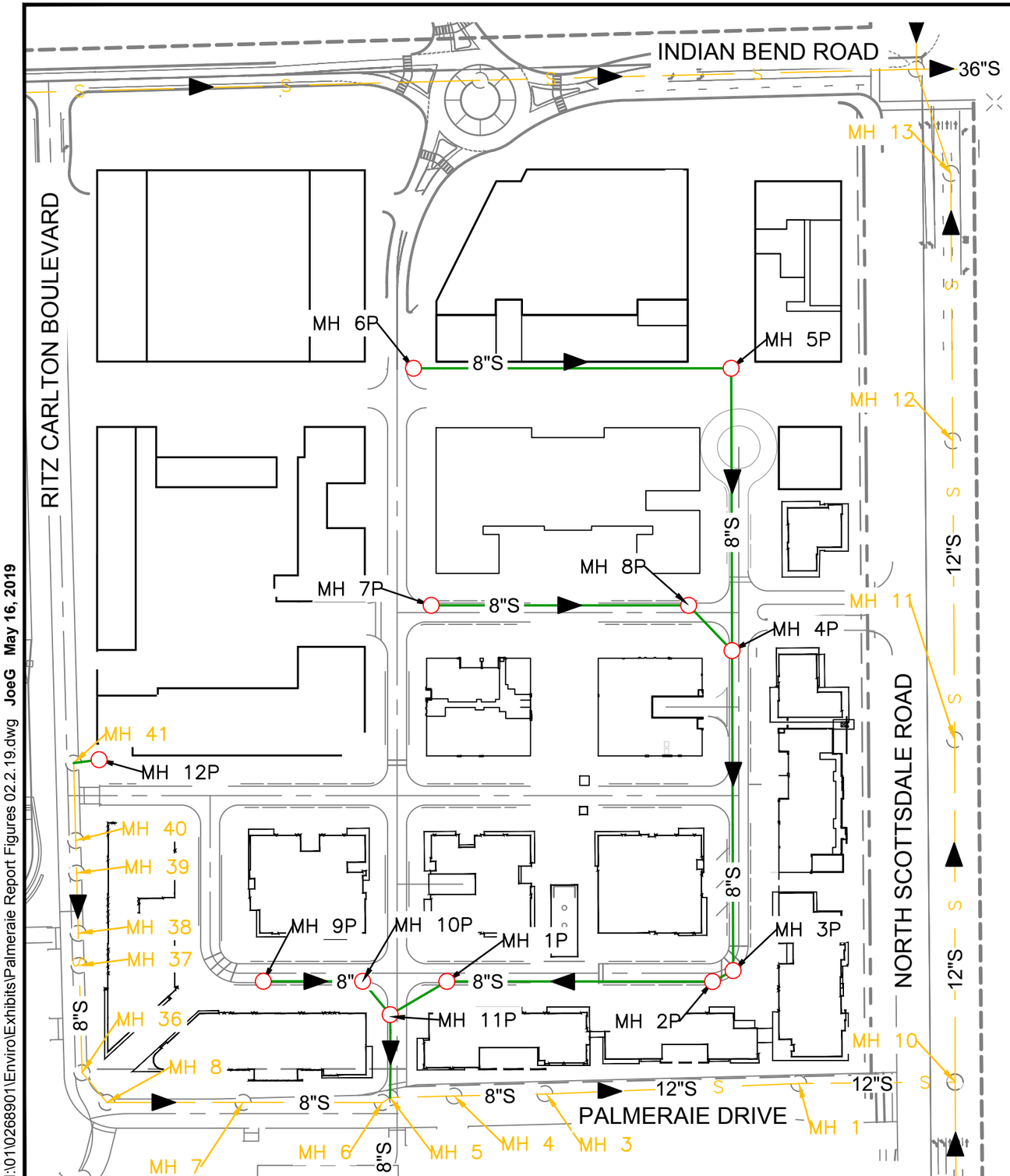
There is no existing infrastructure on site. Existing 8-inch gravity sewers are adjacent to the site in Mockingbird Lane, Indian Bend Road, Lincoln Drive and Scottsdale Road. A 12-inch gravity sewer also exists in Scottsdale Road. A metering station for Basin "O" (MS-O), which measures the flow from Paradise Valley to the Scottsdale system, exists on the 8-inch sewer in Indian Bend Road at the Paradise Valley/Scottsdale boundary. An existing 36-inch trunk sewer collects flow at the intersection of Indian Bend and Scottsdale Roads and carries it East to the Hayden Road interceptor sewer. (See Figure 3 for the locations of these facilities and the direction of flow.) Flow is ultimately treated at the 91st Avenue Regional Wastewater Treatment Plant in west Phoenix, which is owned and operated by the Sub-Regional Operating Group (SROG).

Sewer Infrastructure for the Ritz Carlton has been constructed through Palmeraie Drive and Ritz Carlton Boulevard. The Sewer infrastructure includes 8-Inch sanitary sewer mains and expands to 12-Inch as the main connects to the existing 12-Inch sanitary sewer in Scottsdale Road.

3.2 Proposed Infrastructure

The proposed on-site structures will be served by 8-inch gravity sewer mains. All proposed sewers within Palmeraie property will be privately owned and maintained. Palmeraie will tie in to the existing 8-inch sewer infrastructure in Ritz Carlton Boulevard and Palmeraie Drive. The proposed sewers and points of tie-in are shown on Figure 3.

As shown previously in Table 4, a peak flow of 57,898 gpd from Palmeraie will discharge to the existing 12-inch sewer in Scottsdale Road. Backwash from the pools, spas and water features will also discharge to the existing 12-inch sewer in Scottsdale Road, but only during the off-peak hours of 3 am to 5 am. Per the pending IGA that is currently being negotiated between the Town of Paradise Valley and City of Scottsdale, no new metering stations will be required and no additional capacity will need to be purchased from the City of Scottsdale. A total peak flow of 57,898 gpd from Palmeraie will flow to the existing 36-inch trunk main at the intersection of Indian Bend and Scottsdale Roads and subsequently to the 91st Avenue Regional Wastewater Treatment Plant. See The Wastewater Master Plan *The Ritz-Carlton Resort,* dated July 17th, 2017 by CVL for more information on The Ritz-Carlton Resort's Wastewater Demands.



LEGEND

— S —	EXISTING SANITARY SEWER MAIN
———	PROPOSED SANITARY SEWER MAIN
○	EXISTING MH
○	PROPOSED MH

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1.01.0268910

PALMERAIE

WASTEWATER SYSTEM LAYOUT

SCALE 1" = 150'

FIGURE 4

4550 North 12th Street
Phoenix, Arizona 85014
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8/11/2020

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4.0 SUMMARY

This wastewater system analysis presents the collection system design criteria and proposed wastewater infrastructure for the Palmeraie, located within the Ritz Carlton Resort. An on-site sewer analysis is available in Appendix A; manhole locations within Palmeraie are highlighted in the on-site sewer analysis. This wastewater system will be privately owned and operated by the Palmeraie HOA. The sewer infrastructure conforms to the City of Scottsdale's minimum standards and is consistent with the City's current *Design Standards and Policies Manual, January 2010* and *City of Scottsdale Draft Water Reuse Master Plan, February 2013*. The results of this analysis are summarized as follows:

- The proposed collection system is designed to meet the *City of Scottsdale Design Standards and Policies Manual, January 2010* and *City of Scottsdale Draft Water Reuse Master Plan, February 2013.* See Appendix C for waste flow criteria from the City of Scottsdale.

- The proposed collection system is comprised of 8-inch sewer lines. No lift stations are required. Operation and maintenance of all on-site sewers is by the Palmeraie HOA.

- Wastewater from Palmeraie will discharges to existing 8-inch gravity sewer mains in Ritz Carlton Boulevard and Palmeraie Drive. The wastewater will then travel to a 12-Inch sewer main in Scottsdale Road.

- The average daily flow for Palmeraie of the Ritz-Carlton Resort is estimated at 0.041 MGD, 0.009 MGD from the Paradise Valley portion and 0.0031 MGD from the Scottsdale portion.

- The peak flow for Palmeraie of the Ritz-Carlton Resort is estimated at 0.058 MGD, 0.013 MGD from the Paradise Valley portion and 0.058 MGD from the Scottsdale portion.

- Each pool, spa and water filter will be backwashed on a weekly basis during the off-peak hours of 3 am to 5 am and will discharge to the existing 12-inch Scottsdale Road sewer. Each filter will be backwashed individually in accordance with the Aquatic Filter Backwash Weekly Schedule provided in Appendix B.

APPENDIX A

SEWER CAPACITY ANALYSIS

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
BEGIN ON-SITE																					
100	99A	B	12	326.75	3,921	3,921	1.76	6,901	6,901												
						3,921			6,901	**1316.60**	495	8	0.0053	3.89	1313.38	1310.75	568,495	1%	2.5	0.86	0.08
99A	99	B	2	326.75	654	654	1.76	1,150	1,150												
					3,921	4,575		6,901	8,051												
						4,575			8,051	**1315.23**	84	8	0.0053	5.24	1310.65	1310.21	568,495	1%	2.5	0.90	0.08
99	96A	B	5	326.75	1,634	1,634	1.76	2,875	2,875												
					4,575	6,208		8,051	10,927												
						6,208			10,927	**1314.52**	201	8	0.0053	5.08	1310.11	1309.04	568,495	2%	2.5	0.99	0.10
98	97	B	4	326.75	1,307	1,307	1.76	2,300	2,300												
						1,307			2,300	**1314.73**	58	8	0.0053	5.14	1310.25	1309.94	568,495	0%	2.5	0.62	0.05
97	96A	B	0	326.75	0	0	1.76	0	0												
					1,307	1,307		2,300	2,300												
						1,307			2,300	**1313.71**	151	8	0.0053	4.53	1309.84	1309.04	568,495	0%	2.5	0.62	0.05
96A	96	B	5	326.75	1,634	1,634	1.76	2,875	2,875												
		97 to 96A			1,307	2,941		2,300	5,176												
		99 to 96A			6,208	9,149		10,927	16,102												
						9,149			16,102	**1313.47**	244	8	0.0053	5.19	1308.94	1307.65	568,495	3%	2.5	1.11	0.12
96	95A	B	2	326.75	654	654	1.76	1,150	1,150												
					9,149	9,803		16,102	17,252												
						9,803			17,252	**1312.39**	69	8	0.0053	5.51	1307.55	1307.19	568,495	3%	2.5	1.13	0.12
95A	95	B	1	326.75	327	327	1.76	575	575												
					9,803	10,129		17,252	17,827												
						10,129			17,827	**1312.11**	73	8	0.0053	5.69	1307.09	1306.70	568,495	3%	2.5	1.14	0.12
95	94	B	2	326.75	654	654	1.76	1,150	1,150												
					10,129	10,783		17,827	18,978												
						10,783			18,978	**1311.92**	176	8	0.0053	5.99	1306.60	1305.67	568,495	3%	2.5	1.17	0.12
94	93	B	1	326.75	327	327	1.76	575	575												
					10,783	11,110		18,978	19,553												
						11,110			19,553	**1311.75**	100	8	0.0053	6.85	1305.57	1305.04	568,495	3%	2.5	1.18	0.13
93	88	B	6	326.75	1,961	1,961	1.76	3,450	3,450												
					11,110	13,070		19,553	23,003												
						13,070			23,003	**1311.23**	228	8	0.0053	6.96	1304.94	1303.73	568,495	4%	2.5	1.24	0.14
101	102	B	1	326.75	327	327	1.76	575	575												
						327			575	**1317.00**	237	8	0.0053	7.46	1310.21	1308.95	568,495	0%	2.5	0.40	0.02

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
102	92	B	1	326.75	327	327	1.76	575	575												
					327	654		575	1,150												
						654			1,150	**1318.39**	32	8	0.0053	9.67	1309.39	1309.22	568,495	0%	2.5	0.50	0.03
92	91	B	1	326.75	327	327	1.76	575	575												
					654	980		1,150	1,725												
						980			1,725	**1318.30**	32	8	0.0053	9.85	1309.12	1308.95	568,495	0%	2.5	0.56	0.04
91	90	B	1	326.75	327	327	1.76	575	575												
					980	1,307		1,725	2,300												
						1,307			2,300	**1316.00**	32	8	0.0053	7.82	1308.85	1308.68	568,495	0%	2.5	0.62	0.05
90	89A	B	7	326.75	2,287	2,287	1.76	4,026	4,026												
					1,307	3,594		2,300	6,326												
						3,594			6,326	**1315.50**	376	8	0.0053	7.59	1308.58	1306.59	568,495	1%	2.5	0.84	0.07
89A	89	B	5	326.75	1,634	1,634	1.76	2,875	2,875												
					3,594	5,228		6,326	9,201												
						5,228			9,201	**1313.50**	217	8	0.0053	7.68	1306.49	1305.34	568,495	2%	2.5	0.94	0.09
89	88A	B	1	326.75	327	327	1.76	575	575												
					5,228	5,555		9,201	9,776												
						5,555			9,776	**1313.44**	70	8	0.0053	8.87	1305.24	1304.87	568,495	2%	2.5	0.96	0.09
88A	88	B	5	326.75	1,634	1,634	1.76	2,875	2,875												
					5,555	7,189		9,776	12,652												
						7,189			12,652	**1312.18**	196	8	0.0053	8.08	1304.77	1303.73	568,495	2%	2.5	1.03	0.10
88	87	B	0	326.75	0	0	1.76	0	0												
		88A to 88			7,189	7,189		12,652	12,652												
		93 to 88			13,070	20,259		23,003	35,655												
						20,259			35,655	**1310.27**	188	8	0.0053	7.31	1303.63	1302.63	568,495	6%	2.5	1.41	0.17
87	86	B	2	326.75	654	654	1.76	1,150	1,150												
					20,259	20,912		35,655	36,805												
						20,912			36,805	**1308.67**	55	8	0.0053	6.81	1302.53	1302.24	568,495	6%	2.5	1.42	0.17
96	85	B	2	326.75	654	654	1.76	1,150	1,150												
					20,912	21,566		36,805	37,955												
						21,566			37,955	**1308.50**	295	8	0.0053	7.03	1302.14	1300.58	568,495	7%	2.5	1.43	0.17
85	EX MH 5	B	0	326.75	0	0	1.76	0	0												
					21,566	21,566		37,955	37,955												
						21,566			37,955	**1307.95**	20	8	0.0053	8.14	1300.48	**1300.37**	568,495	7%	2.5	1.43	0.17
END ON-SITE/BEGIN OFF-SITE (8-INCH INDIA																					
EX MH 5	EX MH 6		0	0	0	0	0	0	0												
					21,566	21,566		37,955	37,955												
						21,566			37,955	**1306.64**	400	8	0.0044	7.96	**1299.35**	1297.61	515,031	7%	2.3	1.34	0.18
EX MH 6	EX MH 7		0	0	0	0	0	0	0												

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
					21,566	21,566		37,955	37,955												
						21,566			37,955	**1304.46**	148	8	0.0068	7.52	1297.61	1296.60	645,087	6%	2.9	1.57	0.16
EX MH 7	EX MH 8		0	0	0	0	0	0	0												
					21,566	21,566		37,955	37,955												
						21,566			37,955	**1303.47**	248	8	0.0079	7.54	1296.60	1294.65	692,437	5%	3.1	1.65	0.16
EX MH 8	EX MH 9		0	0	0	0	0	0	0												
					21,566	21,566		37,955	37,955												
						21,566			37,955	**1301.85**	400	8	0.0066	7.87	1294.65	1292.01	634,396	6%	2.8	1.55	0.17
END OFF-SITE (8-INCH INDIAN BEND SEWER)																					
BEGIN ON-SITE																					
45	44	A	40	175.66	7,026	7,026	2.05	14,404	14,404												
						7,026			14,404	**1325.40**	80	8	0.0053	1306.88	19.19	18.77	568,495	3%	2.5	1.07	0.11
44	43	A	10	175.66	1,757	1,757	2.05	3,601	3,601												
					7,026	8,783		14,404	18,005												
						8,783			18,005	**1325.25**	78	8	0.0053	1307.25	18.67	18.25	568,495	3%	2.5	1.15	0.12
43	42	A	10	175.66	1,757	1,757	2.05	3,601	3,601												
					8,783	10,540		18,005	21,606												
						10,540			21,606	**1325.64**	45	8	0.0053	1308.15	18.15	17.92	568,495	4%	2.5	1.21	0.13
42	31	A	20	175.66	3,513	3,513	2.05	7,202	7,202												
					10,540	14,053		21,606	28,808												
						14,053			28,808	**1325.42**	55	8	0.0053	1308.27	17.82	17.52	568,495	5%	2.5	1.32	0.15
31	30	A	10	175.66	1,757	1,757	2.05	3,601	3,601												
					14,053	15,809		28,808	32,409												
						15,809			32,409	**1318.80**	68	8	0.0053	1302.04	17.42	17.06	568,495	6%	2.5	1.37	0.16
30A	30	A	0	175.66	0	0	2.05	0	0												
						0			0	**1318.70**	60	8	0.0053	1301.99	17.38	17.06	568,495	0%	2.5	0.00	0.00
30	29	A	20	175.66	3,513	3,513	2.05	7,202	7,202												
		31 to 30			15,809	19,323		32,409	39,611												
		30A to 30			0	19,323		0	39,611												
						19,323			39,611	**1318.30**	44	8	0.0053	1302.00	16.96	16.73	568,495	7%	2.5	1.45	0.18
29	28	A	0	175.66	0	0	2.05	0	0												
					19,323	19,323		39,611	39,611												
						19,323			39,611	**1318.50**	166	8	0.0053	1302.54	16.63	15.75	568,495	7%	2.5	1.45	0.18
28A	28	A	0	175.66	0	0	2.05	0	0												
						0			0	**1312.20**	40	8	0.0053	1296.90	15.96	15.75	568,495	0%	2.5	0.00	0.00

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
28	27	A	0	175.66	0	0	2.05	0	0												
		29 to 28			19,323	19,323		39,611	39,611												
		28A to 28			0	19,323		0	39,611												
						19,323			39,611	**1313.00**	37	8	0.0053	1298.02	15.65	15.45	568,495	7%	2.5	1.45	0.18
27	26	A	0	175.66	0	0	2.05	0	0												
					19,323	19,323		39,611	39,611												
						19,323			39,611	**1312.90**	113	8	0.0053	1298.21	15.35	14.76	568,495	7%	2.5	1.45	0.18
26	20	A	0	175.66	0	0	2.05	0	0												
					19,323	19,323		39,611	39,611												
						19,323			39,611	**1313.25**	326	8	0.0053	1299.26	14.66	12.93	568,495	7%	2.5	1.45	0.18
CO	64	C	0	369.11	0	0	1.76	0	0												
						0			0	**1319.48**	69	8	0.0053	1298.12	22.03	21.67	568,495	0%	2.5	0.00	0.00
64	63	C	2	369.11	738	738	1.76	1,299	1,299												
					0	738		0	1,299												
						738			1,299	**1319.25**	110	8	0.0053	1297.67	22.25	21.67	568,495	0%	2.5	0.52	0.04
63	62	C	2	369.11	738	738	1.76	1,299	1,299												
					738	1,476		1,299	2,599												
						1,476			2,599	**1318.80**	110	8	0.0053	1297.90	21.57	20.98	568,495	0%	2.5	0.64	0.05
62	55	C	1	369.11	369	369	1.76	650	650												
					1,476	1,846		2,599	3,248												
						1,846			3,248	**1318.36**	134	8	0.0053	1298.14	20.88	20.17	568,495	1%	2.5	0.68	0.05
60	59	C	7	369.11	2,584	2,584	1.76	4,547	4,547												
						2,584			4,547	**1320.75**	450	8	0.0053	1301.34	20.07	17.69	568,495	1%	2.5	0.76	0.06
61	59	C	4	369.11	1,476	1,476	1.76	2,599	2,599												
						1,476			2,599	**1314.96**	323	8	0.0053	1298.04	17.59	15.88	568,495	0%	2.5	0.64	0.05
59	55	C	0	369.11	0	0	1.76	0	0												
		61 to 59			1,476	1,476		2,599	2,599												
		60 to 59			2,584	4,060		4,547	7,146												
						4,060			7,146	**1316.90**	135	8	0.0053	1300.98	16.59	15.88	568,495	1%	2.5	0.87	0.08
58	57	C	2	369.11	738	738	1.76	1,299	1,299												
						738			1,299	**1314.80**	97	8	0.0053	1299.69	15.78	15.26	568,495	0%	2.5	0.52	0.04
57	56	C	1	369.11	369	369	1.76	650	650												
					738	1,107		1,299	1,949												
						1,107			1,949	**1315.28**	29	8	0.0053	1300.79	15.16	15.01	568,495	0%	2.5	0.59	0.04
56	55	C	6	369.11	2,215	2,215	1.76	3,898	3,898												
					1,107	3,322		1,949	5,847												
						3,322			5,847	**1315.46**	365	8	0.0053	1299.18	16.94	15.01	568,495	1%	2.5	0.82	0.07

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
55	54	C	1	369.11	369	369	1.76	650	650												
		62 to 55			1,846	2,215		3,248	3,898												
		56 to 55			3,322	5,537		5,847	9,745												
		59 to 55			4,060	9,597		7,146	16,890												
						9,597			16,890	**1317.80**	76	8	0.0053	1303.56	14.91	14.50	568,495	3%	2.5	1.13	0.12
54	53	C	0	369.11	0	0	1.76	0	0												
					9,597	9,597		16,890	16,890												
						9,597			16,890	**1318.11**	43	8	0.0053	1304.37	14.40	14.18	568,495	3%	2.5	1.13	0.12
53	21	C	0	369.11	0	0	1.76	0	0												
					9,597	9,597		16,890	16,890												
						9,597			16,890	**1318.50**	47	8	0.0053	1305.09	14.08	13.83	568,495	3%	2.5	1.13	0.12
67	65	C	2	369.11	738	738	1.76	1,299	1,299												
						738			1,299	**1320.14**	132	8	0.0053	1300.78	20.03	19.33	568,495	0%	2.5	0.52	0.04
66	65	C	6	369.11	2,215	2,215	1.76	3,898	3,898												
						2,215			3,898	**1319.78**	230	8	0.0053	1301.12	19.33	18.11	568,495	1%	2.5	0.72	0.06
65	25	C	1	369.11	369	369	1.76	650	650												
		67 to 65			738	1,107		1,299	1,949												
		66 to 65			2,215	3,322		3,898	5,847												
						3,322			5,847	**1320.30**	136	8	0.0053	1302.86	18.11	17.39	565,807	1%	2.5	0.82	0.07
25	24	C	1	369.11	369	369	1.76	650	650												
					3,322	3,691		5,847	6,496												
						3,691			6,496	**1319.10**	87	8	0.0053	1302.47	17.29	16.83	568,495	1%	2.5	0.84	0.08
24	23	C	1	369.11	369	369	1.76	650	650												
					3,691	4,060		6,496	7,146												
						4,060			7,146	**1318.80**	78	8	0.0053	1302.74	16.73	16.32	570,636	1%	2.5	0.87	0.08
23	22	C	1	369.11	369	369	1.76	650	650												
					4,060	4,429		7,146	7,796												
						4,429			7,796	**1318.20**	91	8	0.0053	1302.65	16.22	15.73	568,495	1%	2.5	0.89	0.08
22	21	C	2	369.11	738	738	1.76	1,299	1,299												
					4,429	5,168		7,796	9,095												
						5,168			9,095	**1317.50**	128	8	0.0141	1302.53	15.63	13.83	927,253	1%	4.1	1.31	0.07
21	20	C	0	369.11	0	0	1.76	0	0												
		22 to 21			5,168	5,168		9,095	9,095												
		53 to 21			9,597	14,764		16,890	25,985												
						14,764			25,985	**1316.60**	151	8	0.0053	1303.54	13.73	12.93	568,495	5%	2.5	1.28	0.15

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
20	19		0	0	0	0	0	0	0												
		21 to 20			14,764	14,764		25,985	25,985												
		26 to 20			19,323	34,087		39,611	65,597												
						34,087			65,597	**1315.60**	79	8	0.0053	1303.44	12.83	12.41	568,495	12%	2.5	1.68	0.23
19	18	C		369.11	0	0	1.76	0	0												
					34,087	34,087		65,597	65,597												
						34,087			65,597	**1315.10**	183	8	0.0053	1303.46	12.31	11.34	568,495	12%	2.5	1.68	0.23
18	16	A		175.66	0	0	2.05	0	0												
					34,087	34,087		65,597	65,597												
						34,087			65,597	**1313.20**	87	8	0.0053	1302.63	11.24	10.78	568,495	12%	2.5	1.68	0.23
34	33	A	30	175.66	5,270	5,270	2.05	10,803	10,803												
						5,270			10,803	**1326.30**	128	8	0.0600	1301.79	25.17	17.48	1,912,777	1%	8.5	2.29	0.05
33	32	A	30	175.66	5,270	5,270	2.05	10,803	10,803												
					5,270	10,540		10,803	21,606												
						10,540			21,606	**1322.60**	83	8	0.0600	1305.88	17.38	12.41	1,912,777	1%	8.5	2.83	0.07
32	17	A	0	175.66	0	0	2.05	0	0												
					10,540	10,540		21,606	21,606												
						10,540			21,606	**1319.00**	68	8	0.0600	1300.80	18.87	14.76	1,913,414	1%	8.5	2.83	0.07
17	16	A	30	175.66	5,270	5,270	2.05	10,803	10,803												
					10,540	15,809		21,606	32,409												
						15,809			32,409	**1316.20**	64	8	0.0125	1305.29	11.58	10.78	873,059	4%	3.9	1.85	0.13
16	15			0	0	0	0	0	0												
		17 to 16			15,809	15,809		32,409	32,409												
		18 to 16			34,087	49,896		65,597	98,006												
						49,896			98,006	**1312.20**	73	8	0.0053	1302.19	10.68	10.29	565,807	17%	2.5	1.88	0.28
15	14	A1	30	229.2	6,876	6,876	2.05	14,096	14,096												
					49,896	56,772		98,006	112,102												
						56,772			112,102	**1312.10**	99	8	0.0053	1302.57	10.19	9.67	568,495	20%	2.5	1.96	0.30
14	13A			0	0	0	0	0	0												
					56,772	56,772		112,102	112,102												
						56,772			112,102	**1312.40**	100	8	0.0330	1303.50	9.57	6.27	1,418,338	8%	6.3	3.76	0.19
13A	13			0	0	0	0	0	0												
					56,772	56,772		112,102	112,102												
						56,772			112,102	**1310.80**	230	12	0.0040	1305.86	5.94	5.02	1,456,114	8%	2.9	1.70	0.19
13	12A			0	0	0	0	0	0												
					56,772	56,772		112,102	112,102												
						56,772			112,102	**1309.20**	34	12	0.0040	1305.28	4.92	4.79	1,456,114	8%	2.9	1.70	0.19
12A	12			0	0	0	0	0	0												

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
					56,772	56,772		112,102	112,102												
						56,772			112,102	**1308.90**	163	12	0.0040	1305.21	4.69	4.03	1,456,114	8%	2.9	1.70	0.19
53	52	D	10	218.72	2,187	2,187	1.34	2,931	2,931												
						2,187			2,931	**1312.30**	231	8	0.0100	1296.76	16.21	13.90	780,888	0%	3.5	0.83	0.04
52	51	D	7	218.72	1,531	1,531	1.34	2,052	2,052												
					2,187	3,718		2,931	4,982												
						3,718			4,982	**1312.30**	84	8	0.0100	1299.07	13.90	13.06	780,888	1%	3.5	0.97	0.06
51	50	D	12	218.72	2,625	2,625	1.34	3,517	3,517												
					3,718	6,343		4,982	8,499												
						6,343			8,499	**1312.50**	391	8	0.0100	1300.21	12.96	9.05	780,888	1%	3.5	1.14	0.07
50	49	D	1	218.72	219	219	1.34	293	293												
					6,343	6,562		8,499	8,793												
						6,562			8,793	**1310.70**	34	8	0.0150	1302.42	8.95	8.44	956,388	1%	4.2	1.33	0.07
49	46	D	12	218.72	2,625	2,625	1.34	3,517	3,517												
					6,562	9,186		8,793	12,310												
						9,186			12,310	**1313.60**	227	8	0.0150	1305.83	8.44	5.03	956,388	1%	4.2	1.47	0.08
48	47	D	13	218.72	2,843	2,843	1.34	3,810	3,810												
						2,843			3,810	**1311.90**	273	8	0.0300	1296.84	15.73	7.54	1,352,537	0%	6.0	1.31	0.04
47	46	D	7	218.72	1,531	1,531	1.34	2,052	2,052												
					2,843	4,374		3,810	5,862												
						4,374			5,862	**1310.60**	175	8	0.0300	1303.83	7.44	2.19	1,352,537	0%	6.0	1.50	0.05
46	12	D	0	218.72	0	0	1.34	0	0												
		47 to 46			4,374	4,374		5,862	5,862												
		49 to 46			9,186	13,561		12,310	18,171												
						13,561			18,171	**1309.80**	126	8	0.0053	1304.20	4.93	4.26	568,495	3%	2.5	1.15	0.12
12	11		0	0	0	0	0	0	0												
		46 to 12			13,561	13,561		18,171	18,171												
		12A to 12			56,772	70,333		112,102	130,273												
						70,333			130,273	**1308.00**	67	12	0.0040	1305.07	3.93	3.67	1,456,114	9%	2.9	1.78	0.20
11	10			0	0	0	0	0	0												
					70,333	70,333		130,273	130,273												
						70,333			130,273	**1308.50**	44	12	0.0040	1305.93	3.57	3.39	1,456,114	9%	2.9	1.78	0.20
10	9	A1	32	229.2	7,334	7,334	2.05	15,036	15,036												
					70,333	77,667		130,273	145,309												
						77,667			145,309	**1308.10**	275	12	0.0040	1305.81	3.29	2.19	1,456,114	10%	2.9	1.84	0.21

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
9	9A	A1	32	229.2	7,334	7,334	2.05	15,036	15,036												
					77,667	85,002		145,309	160,344												
						85,002			160,344	**1307.10**	296	12	0.0040	1306.01	2.09	0.91	1,454,292	11%	2.9	1.89	0.22
9A	6			0	0	0	0	0	0												
					85,002	85,002		160,344	160,344												
						85,002			160,344	**1307.10**	152	12	0.0040	1307.29	0.81	0.20	1,456,114	11%	2.9	1.89	0.22
12P	41	E1	2.19	822	1,800	1,800	1.43	2,574	2,574												
						1,800			2,574												
						1,800			2,574	**1309.11**	72	8	0.0053	9.64	1300.14	1299.76	568,495	0%	2.5	0.64	0.05
41	40	E1	0	822	0	0	1.43	0	0												
					1,800	1,800		2,574	2,574												
						1,800			2,574	**1308.65**	57	8	0.0054	9.93	1299.39	1299.08	573,833	0%	2.5	0.64	0.05
40	39	E1	0	822	0	0	1.43	0	0												
					1,800	1,800		2,574	2,574												
						1,800			2,574	**1308.80**	41	8	0.0053	10.48	1298.99	1298.73	568,495	0%	2.5	0.64	0.05
39	38	E1	0	822	0	0	1.43	0	0												
					1,800	1,800		2,574	2,574												
						1,800			2,574	**1309.00**	76	8	0.0053	10.99	1298.68	1298.20	568,495	0%	2.5	0.64	0.05
38A	38	A		175.66	0	0	2.05	0	0												
						0			0	**1320.00**	98	8	0.0054	22.19	1298.48	1297.95	573,833	0%	2.5	0.00	0.00
38	37	E1	0	822	0	0	1.43	0	0												
		39 to 38			1,800	1,800		2,574	2,574												
		38A to 38			0	1,800		0	2,574												
						1,800			2,574	**1309.10**	43	8	0.0053	11.64	1298.13	1297.44	568,495	0%	2.5	0.64	0.05
37	36	E1	0	822	0	0	1.43	0	0												
					1,800	1,800		2,574	2,574												
						1,800			2,574	**1308.90**	135	8	0.0053	11.72	1297.85	1297.10	568,495	0%	2.5	0.64	0.05
36	8		0	0	0	0	0	0	0												
					1,800	1,800		2,574	2,574												
						1,800			2,574	**1310.40**	48	8	0.0053	14.18	1296.89	1269.59	568,495	0%	2.5	0.64	0.05
35A	35	A1		229.2	0	0	2.05	0	0												
						0			0	**1319.30**	85	8	0.0374	13.92	1306.05	1302.87	1,509,357	0%	6.7	0.00	0.00
35	8	A1		229.2	0	0	2.05	0	0												
					0	0		0	0												
						0			0	**1313.90**	101	8	0.0600	11.87	1302.69	1296.64	1,911,979	0%	8.5	0.00	0.00
8	7	E1	0	822	0	0	1.43	0	0												
		36 to 8			1,800	1,800		2,574	2,574												
		35 to 8			0	1,800		0	2,574												

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
						1,800			2,574	**1309.41**	173	8	0.0053	13.64	1296.44	1295.53	565,807	0%	2.5	0.64	0.05
7	6	E1	0	822	0	0	1.43	0	0												
					1,800	1,800		2,574	2,574												

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
						1,800			2,574	**1308.09**	176	8	0.0344	13.34	1295.42	1289.36	1,447,278	0%	6.4	1.22	0.03
6	5	E1	0	822	0	0	1.43	0	0												
		7 to 6			1,800	1,800		2,574	2,574												
		9A to 6			85,002	86,802		160,344	162,918												
						86,802			162,918	**1307.14**	11	12	0.0191	19.11	1289.03	1288.82	3,181,867	5%	6.3	3.30	0.15
6P	5P	E	51	171.67	8,755	8,755	1.34	11,732	11,732												
		E1	7.455	822	6,128	14,883	1.43	8,763	20,495												
						14,883			20,495	**1303.95**	380	8	0.0053	3.48	1301.14	1299.13	568,495	4%	2.5	1.19	0.13
5P	4P	E2	2.11	953	2,011	16,894	1.65	3,318	23,813												
		E1	3.755	822	3,087	19,981	1.43	4,414	28,227												
						19,981			28,227												
						19,981			28,227	**1302.88**	359	8	0.0053	4.52	1299.03	1297.12	568,495	5%	2.5	1.31	0.15
7P	8P	E2	1.95	953	1,858	1,858	1.65	3,066	3,066												
		E1	1.95	822	1,603	3,461	1.43	2,292	5,358												
						3,461			5,358	**1305.47**	327	8	0.0053	9.11	1297.02	1295.29	568,495	3%	2.5	1.14	0.12
8P	4P	E	41	171.67	7,038	7,038	1.34	9,432	9,432												
		E1	2.32	822	1,907	8,946	1.43	2,727	12,159												
					3,461	12,407		5,358	17,517	**1305.29**	80	8	0.0072	10.76	1295.19	1294.62	662,605	0%	2.9	0.00	0.00
						12,407			17,517												
4P	3P	E	0	171.67	0	0	1.34	0	0												
		E1	0	822	0	0	1.43	0	0												
		8P to 4P			12,407	12,407		17,517	17,517												
		5P to 4P			19,981	32,387		28,227	45,744												
						32,387			45,744	**1305.66**	406	8	0.0053	11.81	1294.52	1292.36	568,495	8%	2.5	1.52	0.19
3P	2P	E1	1.62	822	1,332	1,332	1.43	1,904	1,904												
					32,387	33,719		45,744	47,648												
						33,719			47,648	**1299.36**	30	8	0.0053	7.76	1292.26	1292.11	568,495	8%	2.5	1.53	0.20
2P	1P	E1	3.5	822	2,877	2,877	1.43	4,114	4,114												
					33,719	36,596		47,648	51,762												
						36,596			51,762	**1300.05**	337	8	0.0053	8.71	1292.01	1290.22	568,495	9%	2.5	1.57	0.20
9P	10P	E1	3.03	822	2,491	2,491	1.43	3,562	3,562												
						2,491			3,562	**1305.41**	126	8	0.0053	15.33	1290.74	1290.07	568,495	1%	2.5	0.70	0.06
10P	11P	E1	0	822	0	0	1.43	0	0												
					2,491	2,491		3,562	3,562												
						2,491			3,562	**1304.04**	57	8	0.0053	14.73	1289.97	1289.67	568,495	1%	2.5	0.70	0.06

TABLE A-1
ON-SITE SEWER ANALYSIS
DISCHARGE TO EXISTING INDIAN BEND RD 8" SEWER AND SCOTTSDALE RD 12" SEWER
THE RITZ CARLTON RESORT

Upstream MH	Downstream MH	ID	# of Units	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
1P	11P	E1	0	822	0	0	1.43	0	0												
					36,596	36,596		51,762	51,762												
						36,596			51,762	**1303.24**	84	8	0.0053	13.79	1290.12	1289.67	568,495	9%	2.5	1.57	0.20
11P	5	E1	0	822	0	0	1.43	0	0												
		1P to 11P			36,596	36,596		51,762	51,762												
		10P to 11P			2,491	39,087		3,562	55,324												
						39,087			55,324												
						39,087			55,324	**1304.06**	106	8	0.0053	15.15	1289.57	1289.01	568,495	9%	2.5	1.57	0.20
5	4	E	0	2060	0	0	2.07	0	0												
		1P to 5			39,087	39,087		55,324	55,324												
		6 to 5			86,802	125,889		162,918	218,242												
						125,889			218,242	**1306.80**	82	12	0.0045	19.21	1288.59	1288.22	1,544,442	14%	3.0	2.16	0.25
4	3	E	0	2060	0	0	2.07	0	0												
					125,889	125,889		218,242	218,242												
						125,889			218,242	**1305.60**	115	12	0.0037	18.39	1288.21	1287.79	1,400,445	16%	2.8	2.01	0.27
3	1	E	0	2060	0	0	2.07	0	0												
					125,889	125,889		218,242	218,242												
						125,889			218,242	**1303.09**	322	12	0.0040	16.41	1287.68	1286.38	1,463,376	15%	2.9	2.07	0.26
1	EX MH 10	E	0	2060	0	0	2.07	0	0												
					125,889	125,889		218,242	218,242												
						125,889			218,242	**1303.90**	198	12	0.0341	18.65	1286.25	**1279.50**	4,251,503	5%	8.4	4.41	0.15
END ON-SITE/BEGIN OFF-SITE (12-INCH SCOTTSDALE ROAD SEWER)																					
EX MH 10	EX MH 11		0	0	0	0	0	0	0												
				1 to MH10	125,889	125,889		218,242	218,242												
					160,715	286,603	2.00	321,429	539,671												
						286,603			539,671	**1303.16**	431	12	0.0031	25.66	1278.50	**1277.16**	1,281,876	42%	2.5	2.42	0.45
EX MH 11	EX MH 12		0	0	0	0	0	0	0												
					286,603	286,603		539,671	539,671												
					26,786	313,389	2.00	53,571	593,242												
						313,389			593,242	**1300.96**	380	12	0.0022	24.83	1277.13	**1276.28**	1,087,221	55%	2.1	2.19	0.53
EX MH 12	EX MH 13		0	0	0	0	0	0	0												
					313,389	313,389		593,242	593,242												
						313,389			593,242	**1299.93**	340	12	0.0021	24.70	1276.23	**1275.51**	1,062,564	56%	2.1	2.16	0.53
EX MH 13	EX MH 9		0	0	0	0	0	0	0												
					313,389	313,389		593,242	593,242												
						313,389			593,242	**1299.18**	140	12	0.0283	24.51	1275.68	**1271.72**	3,869,675	15%	7.6	5.53	0.26
					313,389	313,389		593,242	593,242												
						313,389			593,242	**1299.18**	140	12	0.0283	24.51	1275.68	**1271.72**	3,869,675	15%	7.6	5.53	0.26

APPENDIX B

AQUATIC FILTER BACKWASH WEEKLY SCHEDULE

RITZ CARLTON: AQUATIC FILTER BACKWASH WEEKLY SCHEDULE

FILTER TO BE BACKWASHED (MAXIMUM BACKWASH RATE : 300 GPM/ 400,000 GPD)	B/W RATE (GPM)	B/W Duration (Minutes)	TOTAL GALLONS DISCHARGED	MONDAY (3am - 5am)	TUESDAY (3am - 5am)	WEDNESDAY (3am - 5am)	THURSDAY (3am - 5am)	FRIDAY (3am - 5am)
NOTE: EACH FILTER TO BE BACKWASHED INDIVIDUALLY				Total Planned Backwash: 6090 Gallons	Total Planned Backwash: 3880 Gallons	Total Planned Backwash: 5040 Gallons	Total Planned Backwash: 3990 Gallons	Total Planned Backwash: 2875 Gallons
Equipment Room Data: Main Resort Pools & Spas Parcel "A" Filters								
Adult Pool (Filter 1)	294	5	1470	3:00				
Adult Pool (Filter 2)	294	5	1470	3:15				
Activity Pool #1 (Filter 1)	105	5	525	3:30				
Activity Pool #1 (Filter 2)	105	5	525	3:45				
Activity Pool #2 (Filter 1)	105	5	525	4:00				
Activity Pool #2 (Filter 2)	105	5	525	4:15				
Lounge Pool (Filter 1)	105	5	525	4:30				
Lounge Pool (Filter 2)	105	5	525	4:45				
Kids Pool (Filter 1)	105	5	525		3:00			
Kids Pool (Filter 2)	105	5	525		3:15			
Spa #1 (Filter 1)	105	5	525		3:30			
Spa #1 (Filter 2)	105	5	525		3:45			
Spa #2 (Filter 1)	105	5	525		4:00			
Spa #2 (Filter 2)	105	5	525		4:15			
Villa Pool #1	73	5	365		4:30			
Villa Pool #2	73	5	365		4:45			
Equipment Room Data: Spa Parcel "A" Filters								
Mens Therapy	105	5	525			3:00		
Mens Therapy	105	5	525			3:15		
Womens Therapy	105	5	525			3:30		
Womens Therapy	105	5	525			3:45		
Coed Pool	294	5	1470			4:00		
Coed Pool	294	5	1470			4:15		
Equipment Room Data: Main Condo Pool & Spa Parcel "A1" Filters								
Main Pool (Filter 1)	294	5	1470				3:00	
Main Pool (Filter 2)	294	5	1470				3:15	
Main Spa (Filter 1)	105	5	525				3:30	
Main Spa (Filter 2)	105	5	525				3:45	
Equipment Room Data: Water Features Parcel "A1" Filters								
Water Feature #1	73	5	365					3:00
Water Feature #2	73	5	365					3:15
Water Feature #3	73	5	365					3:30
Water Feature #4	73	5	365					3:45
Water Feature #5	73	5	365					4:00
Equipment Room Data: Palmeraie Retail Parcel "E1" Filters								
Splash Pad	105	5	525					4:30
Koi Pond	105	5	525					4:45

APPENDIX C

Scottsdale Wastewater Unit Loads

Table 2-4 Scottsdale Wastewater Unit Loads

WASTEWATER UNIT LOADS PER LAND USE CATEGORY									
2008 Categories			2011 Categories						
Land Use Type	Sub-Category	Previous Zoning Category	Land Use Type	Zoning Category	Unit Load Estimate gpad	Weighted Average gpad	Average gpad	High gpad	Low gpad
Single Family Residential	1/5 - 1/3 du/ac	R1-190, R1-130	Rural Neighborhoods	R1-190	92	162	144	268	92
				R1-130	92				
	1/3 - 1/2 du/ac	R1-43, R1-70		R1-70	134				
				R1-43	134				
	1/2 - 1 du/ac	R1-35		R1-35	268				
	1 - 2 du/ac	R1-10, R1-18	Suburban Neighborhoods	R1-18	488	557	689	1,215	488
				R1-10	488				
	2 - 4 du/ac	R1-7, R1-5		R1-7	627				
				R1-5	627				
Patio Home and Townhouse Residential	4 - 6 du/ac	R2		R-2	1,215				
Townhouse Residential	6 - 8 du/ac	R-3, M-H	Urban Neighborhoods	M-H	1,328	1,754	1,541	2,060	1,328
				R-3	1,328				
Multi-Family Residential	8 - 12 du/ac	R-4, S-R, RCO-2		R-4	1,448				
	12 - 23 du/ac	R-5, RHD		R-5	2,060				

Table 2-4 Scottsdale Wastewater Unit Loads (Cont'd.)

WASTEWATER UNIT LOADS PER LAND USE CATEGORY									
2008 Categories			2011 Categories						
Land Use Type	Sub-Category	Previous Zoning Category	Land Use Type	Zoning Category	Unit Load Estimate gpad	Weighted Average gpad	Average gpad	High gpad	Low gpad
Mixed Use	Mixed Use	PRC, PNC, PCP, PCD, PCC, P.Co.C, P-1, P-2	Mixed-Use Neighborhoods	PNC	1,447	1,447	1,447	1,447	1,447
				PRC	1,447				
				P.Co.C.	1,447				
			Mixed-Use High Rise	Mixed-Use High Rise	3,000	3,000	3,000	3,000	3,000
Destination Resort	10 - 25 rm/ac		Resorts/Tourism		861	3,982	1,941	3,985	861
Hotel / Resort	3 - 10 rm/ac	RH, RH-2			977				
	10 - 43 rm/ac	R-4R, M		R-4R	3985				
Churches	Churches		Cultural/ Institutional or Public		277	378	307	382	192
Community Service Facilities	Community Service Facilities	C-S, S-C, SC		S-C	192				
Institutional Facilities	Institutional Facilities	CC, C-O		C-O	378				
Schools	Schools				382				
Industrial	Major Industrial	I-1	Employment	I-1	752	926	953	1,574	561
	Minor Industrial	I-G		I-G	561				
Office	Major Office	O-S		C-2	1,001				
	Minor Office			C-1	878				
Utilities	Utilities			C-4	1,574				

Table 2-4 Scottsdale Wastewater Unit Loads (Cont'd.)

WASTEWATER UNIT LOADS PER LAND USE CATEGORY									
2008 Categories			2011 Categories						
Land Use Type	Sub-Category	Previous Zoning Category	Land Use Type	Zoning Category	Unit Load Estimate gpad	Weighted Average gpad	Average gpad	High gpad	Low gpad
Retail	Community	C-1, OR	Commercial	S-R	656	553	822	1,173	502
	General	C-2, C-2/P-3, C-2/P-4, S-S		S-S	1,173				
	Neighborhood	OC		C-3	502				
	Regional	RCO		C-S	680				
	Specialty/Tourism	RS		RS	1,100				
Improved Open Spaces	Golf Courses	Water	Developed Open Space	O-S	0	-	-	-	-
				P-2	0				
				P-1	0				
	Private Open and Recreation Areas	HC		O-S	0				
	Public Parks, etc.	W-P		O-S	0				
			Roads	O-S	0				
			Natural Open Space	O-S	0				

Note:
gpad = gallons/acre/day, du/ac = dwelling units per acre, rm/ac = rooms per acre