PRELIMINARY WASTEWATER COLLECTION SYSTEM BASIS OF DESIGN REPORT FOR MARRIOTT FAIRFIELD INN & SUITES
Case No. 45-DR-2017

Revised March 5, 2018
October 18, 2017
WP #154365

PRELIMINARY Basis of Design Report

☑ ACCEPTED
☐ ACCEPTED AS NOTED
☐ REVISE AND RESUBMIT

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan DATE 6/15/2018

6/14/2018

Prepared For:
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Trailside View, LLC
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Prepared By:
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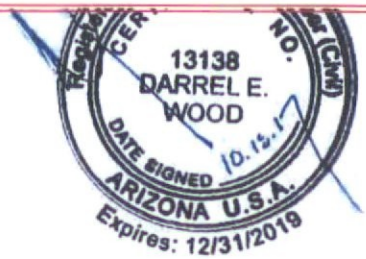

WOOD/PATEL
MISSION: CLIENT SERVICE®

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CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS • CONSTRUCTION MANAGERS

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Revised March 5, 2018
October 18, 2017

Water Resources Engineer
City of Scottsdale
9388 East San Salvador Drive
Scottsdale, AZ 85258

Phone: (480) 312- 5636
Fax: (480) 312-5615

Re: **Marriott Fairfield Inn & Suites**
Preliminary Wastewater Collection System Basis of Design Report
WP# 154365

To Whom It May Concern:

The proposed project, entitled Marriott Fairfield Inn & Suites, is a resort hotel development located on a 1.7-acre parcel of land in Scottsdale, Arizona. The development is proposed to be constructed north of Trailside View between Pima Road and 91st Street. More specifically, the project is located on Lot 5 of the "DC Ranch Crossing" final plat (Book 993, Pg. 40, MCR) in the Northwest 1/4 of Section 31, Township 4 North, Range 5 East. The proposed development will include 123 rooms, underground garage parking, off-street at-grade parking, hardscape areas, a pool, and landscaping. This Preliminary Wastewater Collection System Basis of Design Report has been prepared to support the project's Development Review Board (DRB) submittal to the City of Scottsdale.

Previously, a design for the proposed site under the report titled "DC Ranch Parcel 1.1" was approved by the City of Scottsdale in 2008. A copy of the report with the prepared design calculations is attached for reference. The wastewater infrastructure as proposed for the "DC Ranch Parcel 1.1" development was installed per City of Scottsdale approved as-built plans.

The design criteria used to estimate wastewater flows are based on Wood, Patel & Associates, Inc.'s (Wood/Patel's) understanding of the requirements listed in the *City of Scottsdale Design Standards and Policy Manual (2010 Update)*. Specifically, the design criteria utilized are as follows:

- Average Day Wastewater Flow: 380 gal/day/room
- Peaking Factor: 4.5
- Minimum Mean Full-Flow Velocity 2.5 ft/s
- Maximum Peak Flow d/D Ratio 0.65

Wastewater from the proposed building will be conveyed to an existing 6-inch sewer stub that runs into an existing 8-inch gravity sewer line (see attached *Sewer Exhibit*).

Per the approved report titled "DC Ranch Parcel 1.1" the existing wastewater line has the capacity to convey an average daily flow of 51,883 gallons per day. The average demand for the proposed Marriott Fairfield Inn & Suites of 46,740 gallons per day was determined to be less than the approved Parcel 1.1 report.

The proposed system design and capacity are summarized in the attached spreadsheets. The spreadsheets show the proposed sewer slopes, projected peak flow rates, and pipe flow capacities. Please refer to the attached vicinity map and sewer exhibit for additional information and clarification.

Thank you for your prompt review of the proposed wastewater collection system report for Marriott Fairfield Inn & Suites. Please contact me if you have any questions.

Sincerely,

Wood, Patel & Associates, Inc.

Darrel E. Wood, P.E., R.L.S.
Principal

JE/ag
Y:\WP\Reports\Commercial\154365 Trailside Hotel Preliminary Wastewater Collection System BOD Report.docx

WASTEWATER DESIGN FLOWS AND PIPE CAPACITIES

WOOD/PATEL **WASTEWATER DESIGN FLOWS**

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

Project: Marriott Fairfield Inn & Suites
Location: Scottsdale, Arizona
Date: September 25, 2017
References: City of Scottsdale Design Standards and Policies Manual, Chapter 7 - Wastewater (January 2010)

Proj. Number: 154365
Proj. Engineer: Jasmine Eghbal, EIT

PROPOSED HOTEL

UPSTREAM NODE	DOWNSTREAM NODE	PROPOSED USE	APPLICABLE UNIT	NUMBER OF UNITS	ADF/ APPLICABLE UNIT (GPD)	SEWER NODE ADF (GPD)	TOTAL ADF (GPD)	PEAKING FACTOR	PEAK DRY-WEATHER FLOW (GPD)	PEAK DRY-WEATHER FLOW (GPM)
RESORT	SS Line	Resort Hotel$_1$	DU	123	380	46740	46,740	4.5	210,330	146
Totals							**46,740**		**210,330**	**146**

Notes:
1. Wastewater design flow rates and peaking factors established from the City of Scottsdale Design Standards and Policies Manual, Chapter 7 - Wastewater

WOOD/PATEL **PIPE CAPACITIES**

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

Project: Marriott Fairfield Inn & Suites
Location: Scottsdale, Arizona
Date: September 25, 2017
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Proj. Number: 154365
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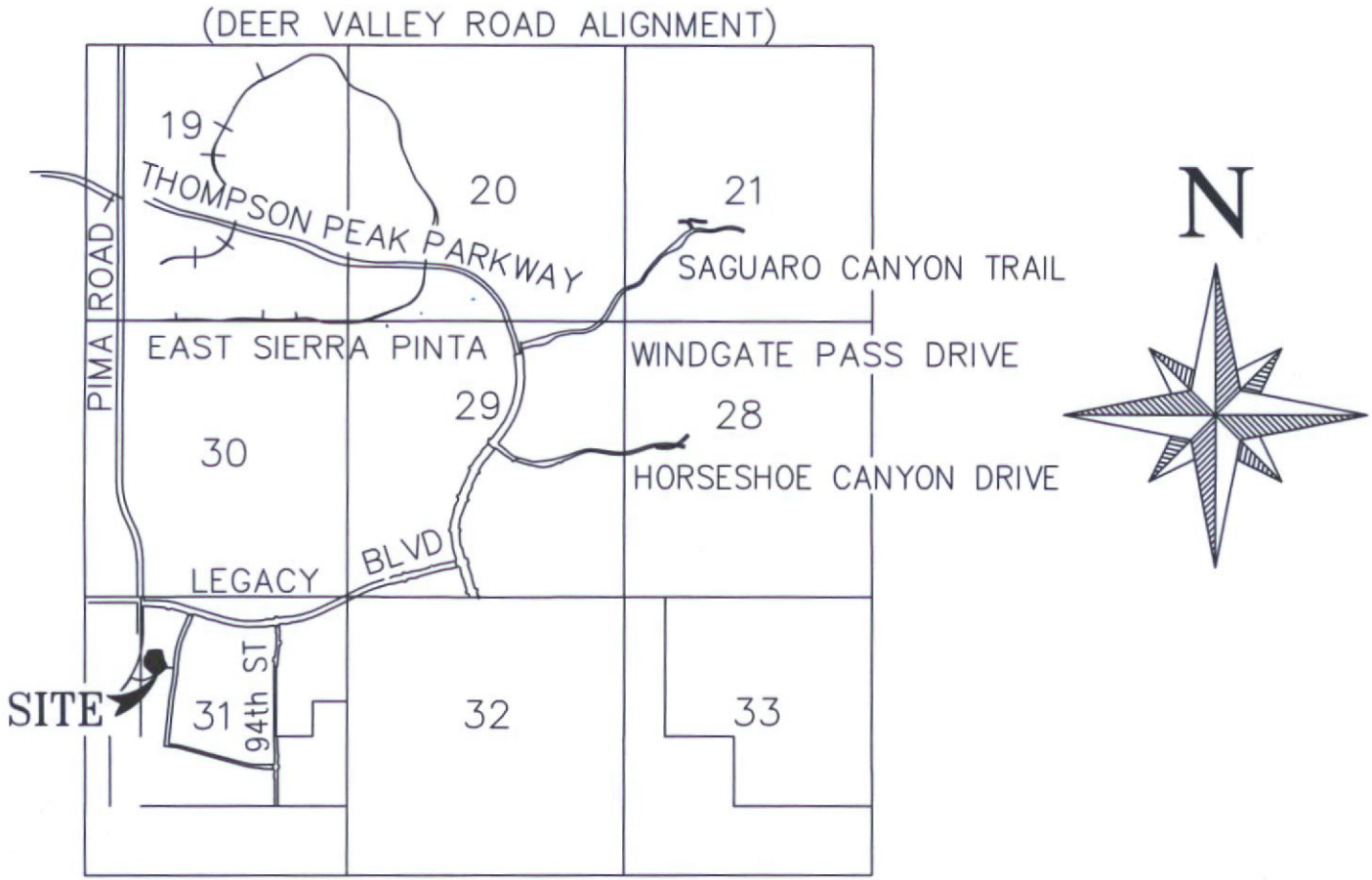
PROPOSED HOTEL

UPSTREAM NODE	DOWNSTREAM NODE	PEAK DRY-WEATHER FLOW (GPD)	PEAK DRY-WEATHER FLOW (GPM)	PIPE DIA. (INCHES)	PIPE SLOPE (FT / FT)	PARTIAL FLOW VELOCITY (FPS)	FULL FLOW VELOCITY (FPS)	d/D RATIO	PIPE CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	PERCENT OF CAPACITY
RESORT	SS Line	210,330	146	6	0.0609	5.8	7.1	0.33	896,367	686,037	23%

VICINITY MAP



VICINITY MAP

N.T.S.

SEWER EXHIBIT

WOOD/PATEL
MISSION: CLIENT SERVICE ™
(602) 335-8500
WWW.WOODPATEL.COM
PHOENIX - MESA

Call at least two full working days before you begin excavation
ARIZONA811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County (602) 263-1100

DC RANCH CROSSING

MARRIOTT FAIRFIELD INN & SUITES
18211 N. PIMA ROAD, SCOTTSDALE, AZ
SEWER EXHIBIT

REV	DESCRIPTION	DATE

NOT
FOR CONSTRUCTION OR RECORDING

SCALE (HORIZONTAL)	1" = 20'
SCALE (VERTICAL)	N/A
DATE	05/21/2018
JOB NUMBER	154365
SHEET	1 OF 1

N:\2015\154365\Project Support\Reports\Sewer BOD\Updated Report 09-22-17\Exhibits\4365- 5522 Update Sewer BOD 2018-0521.dwg
(CHECKED BY: MB DESIGNED BY: CM DRAFTED BY: CM)

"DC RANCH PARCEL 1.1 WASTEWATER BASIS OF DESIGN" REPORT

WOOD/PATEL

LAND DEVELOPMENT • WATER RESOURCES • WATER/WASTEWATER • TRANSPORTATION/TRAFFIC • SURVEYING • CONSTRUCTION MANAGEMENT

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Timothy A. Huval, P.E.
Michael T. Young, P.E.
Peter Hemingway, P.E.
Jeffrey R. Minch, P.E.
Robert D. Gofonia, P.E., R.L.S.
Gerald R. Copeland, P.E., R.L.S.
Patrick W. Marum, P.E.

Revised December 6, 2006
September 8, 2006

Mr. Douglas L. Mann
Water Resources Engineer
City of Scottsdale
Water Resources Department
9388 East San Salvador Drive
Scottsdale, AZ 85258

Phone: (480) 312-5636
Fax: (480) 312-5615

Re: **DC Ranch Parcel 1.1**
Sanitary Sewer Basis of Design
WP #062762

Dear Mr. Mann:

The proposed sewer system will provide sanitary sewer service to the proposed DC Ranch Parcel 1.1 development. The sewer system for DC Ranch Parcel 1.1 was analyzed in the *Planning Unit I and Second Amended Wastewater System Study for DC Ranch Units III, V, and VI.* The land uses, flows, and pipe locations have been updated to their current and proposed condition. The flows for the site are included in the attached spreadsheet named *Ultimate Condition Estimated Flow Calculations*.

The proposed sewer system for Parcel 1.1 consists of 8-inch diameter gravity sewer lines that will connect to the proposed 8-inch outfall line in the Trailside View alignment just east of Pima Road. Please refer to the attached Exhibit - *Parcel 1.1 Sewer Exhibit* for sewer line and manhole locations.

The proposed sewer system will provide gravity sewer service to all 11 proposed buildings within Parcel 1.1. The proposed system has adequate capacity to convey the estimated total 407,171 gallons per day (gpd) of peak wastewater flow generated by all 11 proposed buildings located in Parcel 1.1. The average-day flow from the development is estimated to be 101,793 gpd. Please refer to the attached *Ultimate Condition Estimated Flows Conditions* and *Ultimate Condition Estimated Pipe Capacities*. These flows are less than those called out in the *Planning Unit I and Second Amended Wastewater System Study for DC Ranch Units III, V, and VI,* so there should be capacity in the North Pima Trunkline in Pima Road.

The attached exhibit illustrates the existing and proposed sanitary sewer pipe locations and sizes, and buildings. All sanitary sewer lines have been designed in accordance with the City of Scottsdale design standards and the aforementioned wastewater system study.

Thank you for your prompt review of the sanitary sewer system provided for DC Ranch Parcel 1.1.

91-DR-2006
REV: 12/8/2006

If you have any questions, please feel free to contact us.

Sincerely,

WOOD, PATEL & ASSOCIATES, INC.

Timothy A. Huval, P.E.
Executive Vice President

TAH/kk

Enclosure(s)

Y:\WP\General Correspondence\062762 DC Ranch Parcel 1.1 Sewer BOD.doc

Ultimate Condition Estimated Pipe Capacities

Project: *DC Ranch Parcel 1.1*
Location: City of Scottsdale, Arizona
Date: December 6, 2006
References: DC Ranch Planning Unit I and Second Ammendment to Planning Units III, V, and VI - Wastewater Systems Study
City of Scottsdale, Design Standards and Policy Manual

Project Number: 062732
Project Engineer: Tim Huval, P.E.

FROM NODE	TO NODE	PIPE SEGMENT	PIPE SIZE (IN)	PEAK FLOW (GPD)	MINIMUM PIPE SLOPE (FT/FT)	DESIGN PIPE SLOPE (FT / FT)	FULL FLOW VELOCITY, V_o (FPS)	PARTIAL FLOW VELOCITY, V_1 (FPS)	COMPARE FLOW (GPD)	PIPE CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	d / D Ratio
PARCEL 1.1												
N2.5.1.6	N2.5.1.5	P2.5.1.6	8	19,227	0.0052	0.0052	2.5	1.16	19,227	564,339	545,113	0.13
N2.5.1.5	N2.5.1.4	P2.5.1.5	8	39,573	0.0052	0.0052	2.5	1.44	39,572	564,339	524,767	0.18
N2.5.1.4	N2.5.1.3	P2.5.1.4	8	39,573	0.0052	0.0052	2.5	1.44	39,572	564,339	524,767	0.18
N2.5.1.3	N2.5.1.2	P2.5.1.3	8	52,353	0.0052	0.0052	2.5	1.56	52,345	564,339	511,987	0.21
N2.5.1.2	N2.5.1.1	P2.5.1.2	8	52,353	0.0052	0.0052	2.5	1.56	52,345	564,339	511,987	0.21
N2.5.1.1	N2.5	P2.5.1.1	8	70,929	0.0052	0.0052	2.5	1.71	70,928	564,339	493,410	0.24
N2.5.2.2	N2.5.2.1	P2.5.2.2	8	82,579	0.0052	0.0052	2.5	1.79	82,570	564,339	481,761	0.26
N2.5.2.1	N2.5	P2.5.2.1	8	82,579	0.0052	0.0052	2.5	1.79	82,570	564,339	481,761	0.26
N2.5	N2.4	P2.5	8	128,709	0.0052	0.0052	2.5	2.03	128,691	564,339	435,631	0.32

Reference

Project: *DC Ranch Parcel 1.1*
Location: City of Scottsdale, Arizona
Date: September 1, 2006
References: DC Ranch Planning Unit I and Second Ammendment to Planning Units III, V, and VI - Wastewater Systems Study
City of Scottsdale, Design Standards and Policy Manual

Project Number: 062732
Project Engineer: Tim Huval, P.E.

Land Use	Average Day Flow		Type	Pipe Size (IN)	Min Slope (FT/FT)	Manhole Spacing	Peaking Factor
RESIDENTIAL	250	GPD / DU	Residential	8	0.0052	500	4
				10	0.0037	500	4
				12	0.0030	500	4
COMMERCIAL	0.71	GPD / SF	Non-Residential	15	0.0022	500	HARMONS
				18	0.0017	600	HARMONS
				21	0.00140	600	HARMONS
				24	0.00120	600	HARMONS
				27			HARMONS
				30			HARMONS
				33			HARMONS
				36			HARMONS
				42			HARMONS

Minimum Pipe Velocity	2.5	FPS
Maximum Pipe Velocity	10.0	FPS

June 5, 2018

Randy Grant
Planning & Development Services Director and
Meredith Tessier
Senior Planner
Planning & Development Services
7447 E. Indian School Road
Scottsdale, AZ 85281

Re: Floodplain Administrator Approval
Zoning Ordinance Building Height Datum Reset
Marriott Fairfield Inn & Suites Hotel
45-DR-2017

Dear Meredith,

This letter is a request for resetting the reference datum for the building height due to the project being located in a FEMA floodplain. Currently the proposed Marriott Fairfield Inn & Suites Hotel lies within a Federal Emergency Management Agency (FEMA) Special Flood Hazard Area (SFHA) Zone AO (Depth 1 foot). In order to mitigate the FEMA SFHA AO flood hazard it is necessary to elevate the hotel's minimum lowest floor to the specified Regulatory Flood Elevation (RFE). The RFE is equal to two (2) feet above the Highest Adjacent Natural Grade (HAG). As can be seen on the attached approved Marriott Fairfield Inn & Suites Hotel *Grading & Drainage Plan* (Sheets 2 of 2), the HAG is located at the northwest corner of the proposed hotel structure and has been identified as elevation 1624.1 feet, DC Ranch Datum. As a result, the RFE, and therefore the hotel's minimum lowest floor elevation, necessary to mitigate the flood hazard, is equal to 1626.1 feet, DC Ranch Datum. As a result, the new datum from which the height is measured is 1626.1 feet, DC Ranch Datum.

Thank you for your time and attention to this request.

Best Regards,

C. Ashley Couch

C. Ashley Couch, P.E., CFM
Drainage & Flood Control Program Manager
Floodplain Administrator
City of Scottsdale, Arizona
Phone: (480) 312-4317