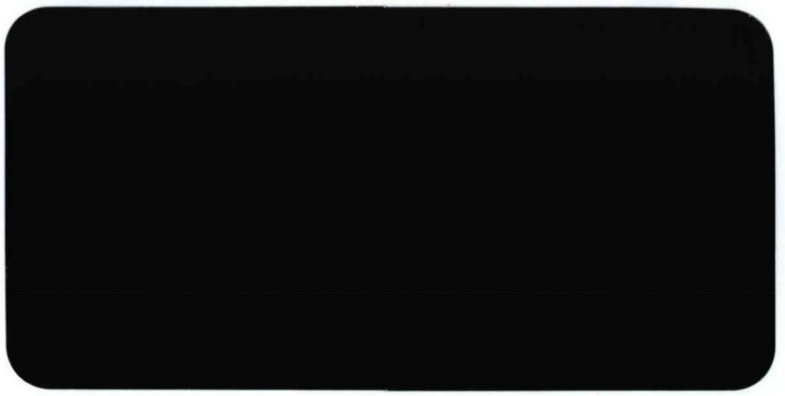

Accepted w/ Comment
SEE PAGE 2

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

DougMann 4-1-15

ALSO
11-LP-2014

WOOD/PATEL
MISSION: C

3-PP-2015
4/3/2015

# WASTEWATER BASIS OF DESIGN REPORT

# FOR

# SCOTTSDALE NATIONAL GOLF CLUB

Revised February 19, 2015
February 13, 2015
WP# 144147

*Prepared for:*

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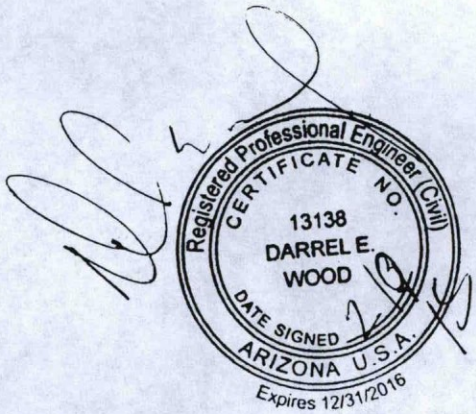


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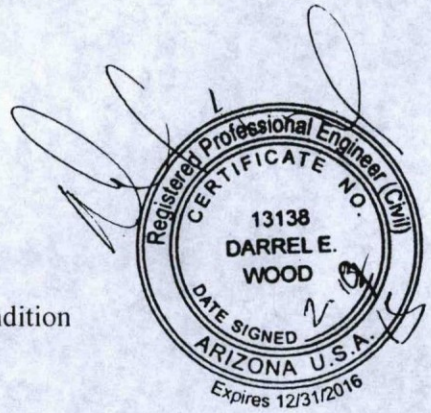


## EXHIBITS



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# 1.0 INTRODUCTION

## 1.1 General Background and Project Location

Scottsdale National Golf Club is a proposed 367.6-acre resort/golf course development in the City of Scottsdale, located between Rio Verde Drive (Dynamite Road) on the south and Dixileta Road on the north, west of 122nd Street, and east of 116th Street (refer to Exhibit 1– *Vicinity Map*). The property will be an extension of the previously-developed Scottsdale National Golf Club, and is located within Section 26 and 27, Township 5 North, Range 5 East, of the Gila and Salt River Meridian. In total with the existing golf course, the property will include 658.5 acres.

The Site is planned to include an 18-hole golf course, 9-hole golf course, clubhouse, comfort stations, maintenance building, cottages, and a private residence. This Wastewater Basis of Design (BOD) Report for the Site utilizes a site plan prepared concurrently by Wood, Patel & Associates, Inc. (Wood/Patel).

This Wastewater BOD Report has been prepared in accordance with Wood/Patel's understanding of the City of Scottsdale's technical requirements for wastewater collection systems, as applicable for the Site.

## 1.2 Scope of Wastewater Basis of Design Report

The purpose of this Wastewater BOD Report is to determine wastewater design flows, pipe sizes, and sewer line locations, as required to provide wastewater service to the proposed development. The required infrastructure identified includes wastewater collection system mains, outfall locations, and a future lift station designed by others. Future Sewer Lift Station #47 will be required for and constructed by Scottsdale National Golf Club and a Conceptual Design Report will be provided at a future time.

## 1.3 Full Build-Out Condition

The design criteria utilized to calculate wastewater design flows and determine required pipe sizes for the Site are based on projected full build-out conditions. The entitlements to the approved rezoning case are being retained and any future increases in density/use will need to be re-evaluated.

## 2.0 DESIGN DOCUMENTATION

### 2.1 Design Criteria

For the purpose of this Wastewater BOD report, wastewater design flows and pipe-sizing criteria utilized are based on Wood/Patel's understanding of the following:

- Applicable wastewater system design criteria listed in the *City of Scottsdale Design Standards & Policies Manual* dated January 2010; and
- Title 18, Chapter 9 of the *Arizona Administrative Code;*

Refer to Table 1 – *Wastewater Collection System Design Criteria* for detailed information regarding design criteria.

### 2.2 Wastewater Design Flows

Wastewater design flows for the Scottsdale National Golf Course (SNGC) were estimated using design criteria listed in Section 2.1 – *Design Criteria.* The proposed comfort stations and potential residence will have individual septic systems. The proposed clubhouse and cottages will flow to future Lift Station #47, located at approximately 122nd Street and Rio Verde Drive. The proposed maintenance facility will gravity sewer to a proposed 8-inch gravity sewer in Rio Verde Drive which will be conveyed east to the future Lift Station #47. A payback agreement will be pursued with City of Scottsdale pertaining to the cost of proposed 8-inch gravity sewer main installation in Rio Verde Drive from 118th Street to proposed sewer Lift Station #47. The existing maintenance facility and existing clubhouse, presently on septic will be connected to the future Lift Station #47. Wastewater design flows generated by the offsite and onsite areas are summarized as follows:

| ANTICIPATED SNGC OFFSITE WASTEWATER FLOWS TO LIFT STATION | | | |
|---|---|---|---|
| **Type** | **Adjacent Node** | **Average Daily Flow (gpd)** | **Peak Flow (gpd)** |
| Existing SNGC Clubhouse | C1 | 8,250 | 37,125 |
| Existing SNGC Maintenance | C2 | 3,750 | 16,875 |
| **TOTAL** | | **12,000** | **54,000** |

| ANTICIPATED OTHER OFFSITE WASTEWATER FLOWS TO LIFT STATION | | | |
|---|---|---|---|
| **Type** | **Adjacent Node** | **Average Daily Flow (gpd)** | **Peak Flow (gpd)** |
| OFF7 (R1-190) | E4 | 4,356 | 17,424 |
| OFF8 (R1-130) | D1 | 3,267 | 13,068 |
| **TOTAL** | | **7,623** | **30,492** |

| ANTICIPATED SNGC ONSITE WASTEWATER FLOWS TO LIFT STATION | | | |
|---|---|---|---|
| **Type** | **Adjacent Nodes** | **Average Daily Flow (gpd)** | **Peak Flow (gpd)** |
| Proposed Clubhouse | A1 | 27,500 | 123,750 |
| Proposed Cottages | B1-C9 | 27,360 | 109,440 |
| Proposed Maintenance | E2 | 3,750 | 16,875 |
| Private Residence | B1 | 1,500 | 6,000 |
| **TOTAL** | | **60,110** | **256,065** |

| TOTAL SNGC WASTEWATER FLOWS TO LIFT STATION | | | |
|---|---|---|---|
| **Type** | **Adjacent Nodes** | **Average Daily Flow (gpd)** | **Peak Flow (gpd)** |
| SNGC Offsite | - | 12,000 | 54,000 |
| SNGC Onsite | - | 60,110 | 256,065 |
| **TOTAL** | | **72,110** | **310,065** |

| TOTAL WASTEWATER FLOWS TO LIFT STATION | | | |
|---|---|---|---|
| **Type** | **Adjacent Nodes** | **Average Daily Flow (gpd)** | **Peak Flow (gpd)** |
| SNGC (Offsite and Onsite) | - | 72,110 | 310,065 |
| Offsite | - | 7,623 | 30,492 |
| **TOTAL** | | **79,733** | **340,557** |

Detailed design flow calculations are provided in Table 2 – *Offsite Wastewater Flows*, Table 3 – *Onsite Wastewater Design Flows,* and Table 4 – *Wastewater Model, Full Build-Out Condition.* Refer to Table 5 – *Calculated Pipe Capacities, Full Build-Out Condition* for pipe capacities. For the layout of the proposed wastewater collection system, refer to Exhibit 2 – *Wastewater Exhibit - Full Build-Out.*

## 3.0 EXISTING CONDITIONS

### 3.1 Topographic Conditions

The proposed project lies in the northern planning section of the City of Scottsdale. The Site generally slopes from the northwest to the southeast, at approximately 2 percent. Elevations range from 2,800 feet above mean sea level (MSL) in the north, to 2,645 feet MSL in the southeast. A portion of the Site that is located east of 118th Street has previously been mass graded, while the remainder of the Site is covered with typical Sonoran Desert vegetation including mesquite trees, saguaro cactus, creosote, etc.

### 3.2 Existing Offsite Wastewater Infrastructure

Relevant public wastewater collection systems near the Site include the following:

- An existing 8-inch gravity sewer located along Dynamite Boulevard/Rio Verde Drive, between 114th Street and Alma School Road.
- Water Campus Water Reclamation Plant located near the intersection of the AZ Loop 101 and Pima Road.

Additionally, a private wastewater system exists for the existing clubhouse. The system consists of an 8-inch gravity line and dual 2-inch force mains. The line extends from the existing clubhouse, along Via Dona Road, to the 122nd Street alignment. Currently, this private sewer utilizes an onsite septic system and is a dry sewer line; however, it is anticipated that with the construction of Lift Station #47, this line will be used to service the existing clubhouse and existing maintenance building.

According to the *2012 Water Reuse Masterplan Update*, wastewater generated on the Site will be treated at the Water Campus Water Reclamation Plant (WCWRP) located near Pima Road and AZ Loop 101. The WCWRP is the primary treatment facility for wastewater generated in the northern portions of the City of Scottsdale.

### 3.3 Existing Onsite Wastewater Infrastructure

A portion of the Site is mass graded, with native desert located along the western, northern, and southern boundaries of the Site. It is Wood/Patel's understanding there is no existing onsite wastewater infrastructure, except in accordance with The Reserve 51-Lot improvement plans, where the 8-inch gravity sewer lines from Lift Station #47 to 121st Street, then northerly to the western boundary of the existing Scottsdale National Golf Club, were installed. These lines are believed to be dry lines.

## 4.0 PROPOSED WASTEWATER COLLECTION SYSTEM

### 4.1 Sewer Pipe Sizing

Pipes for the Site were sized to accommodate peak wet-weather flow conditions at full build-out for the Site. Using the design criteria previously mentioned, the resulting sewer system consists of gravity-fed, 8-inch sewer pipes. Refer to Exhibit 2 – *Wastewater Exhibit - Full Build-out* for the proposed wastewater collection system configuration.

### 4.2 Sewer Layout

The sewer layout generally follows the natural topography of the Site, sloping in a southeasterly direction. The proposed wastewater collection system meets the minimum depth of cover requirements established by the City of Scottsdale (Ref. 1). The proposed wastewater collection system will outfall to the proposed Lift Station #47. From the lift station, wastewater is conveyed west along Dynamite Boulevard/Rio Verde Drive, through a proposed force main sewer currently under design, and outfalls east of 116$^{th}$ Street to a proposed 8-inch gravity sewer line currently under design, which then ties in to an existing 8-inch gravity sewer line between the intersection of Alma School Road and 114$^{th}$ Street, on Rio Verde Drive (approximately 140-ft east of N. 111$^{th}$ Place). Lift Station #47 will be designed by others in accordance with standards set forth by the City of Scottsdale and Title 18, Chapter 9 of the Arizona Administrative Code.

### 4.3 Basis of Design Reports for Individual Phases of Development

As development progresses within the Site, basis-of-design (BOD) reports may be necessary for site design to identify significant variations in land use, wastewater design flows, and the wastewater infrastructure needed to serve each site. Additionally, a wastewater BOD report will be required for the lift station design.

## 5.0 CONCLUSIONS

This Wastewater Basis of Design Report, as presented, meets City of Scottsdale standards and requirements, and serves as a guide for construction documents associated with the proposed wastewater collection system. The following items highlight critical conclusions:

1. Wastewater design flows and proposed wastewater collection system for full build-out was analyzed.

2. Average Day design flows for full build-out are 84,483 GPD, with 78,233 GPD flowing to the proposed lift station and 6,250 GPD flowing to individual septic systems.

3. Wood/Patel's model of the proposed wastewater collection system provides system conveyance and capacity in conformance to City of Scottsdale's standards and Title 18, Chapter 9 of the *Arizona Administrative Code*.

4. Onsite wastewater flows will outfall to the proposed Lift Station #47, and will be conveyed west, via force main first and proposed 8-inch sewer line second, to an existing 8-inch sewer line in Rio Verde Drive approximately 140-ft east of N. 111$^{th}$ Place.

5. It is Wood/Patel's understanding that the proposed wastewater collection system conforms to the City of Scottsdale's adopted *Integrated Master Wastewater Plan*, dated March 2008.

6. A payback agreement will be pursued with City of Scottsdale pertaining to the cost of proposed 8-inch gravity sewer main installation in Rio Verde Drive from 118$^{th}$ Street to proposed sewer Lift Station #47.

7. Future Sewer Lift Station #47 will be required for and constructed by Scottsdale National Golf Club and a Conceptual Design Report will be provided at a future time.

## 6.0 6.0 REFERENCES


1. *Design Standards & Policies Manual*, City of Scottsdale, January 2010.
2. *Arizona Administrative Code, Title 18, Chapter 9,* Arizona Department of Environmental Quality, 2005.
3. *2008 Integrated Wastewater Master Plan,* City of Scottsdale, March 2008.

# TABLE 1

## WASTEWATER COLLECTION SYSTEM
## DESIGN CRITERIA

WOOD/PATEL

# TABLE 1 - WASTEWATER COLLECTION SYSTEM DESIGN CRITERIA

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

**Project:** Scottsdale National Golf Course
**Location:** Scottsdale, AZ
**Date:** November 12, 2014
**References:** 2010 City of Scottsdale Design Standards & Policies Manual

Proj. Number: 144147
Proj. Engineer: Ethan Boyle, P.E.

## UNIT DAILY RESIDENTIAL WASTEWATER FLOWS

| Description | Value | Units | Note(s) |
|---|---|---|---|
| **General** | | | |
| Minimum Full-Flow Velocity | 2.5 | ft/sec | 1 |
| Maximum Peak Flow Velocity | 10 | ft/sec | 1 |
| Minimum Cover on Sanitary Sewer Pipe | 4 | feet | 1 |
| Maximum Peak Flow Depth-to-Diameter Ratio (d/D) for Sewer Pipes 12 inches in Diameter or Less | 0.65 | - | 1 |
| Maximum Peak Flow Depth-to-Diameter Ratio (d/D) for Sewer Pipes Greater than 12 inches in Diameter | 0.7 | | 1 |
| Minimum Pipe Diameter | 8 | in | 1 |
| Manning's "n" value | 0.013 | - | 1 |
| Peaking Factor (Single Family Residential) | 4.0 | | 1 |
| Peaking Factor (Resort Hotel) | 4.5 | | 1 |
| | | | |
| **Residential** | | | |
| Average Day Wastewater Flow per Person (Pipes with 8 to 12 inch diameters) | 100 | GPD/person | 1 |
| Population Density | 2.5 | persons/du | 1 |
| Average Day Wastewater Flow per Dwelling Unit (Pipes with 8 to 12 inch diameters) | 250 | GPD/du | 1 |
| | | | |
| **Average Day Wastewater Design Flows, Non-Residential** | | | |
| Cottages | 380 | GPD/room | 1 |
| Comfort Stations | 950 | GPD/Comfort Station | 2 |
| Country Club Amenities (Resident Member) | 100 | GPD/Resident Member | 3 |
| Country Club Amenities (Nonresident Member) | 10 | GPD/Nonresident Member | 3 |
| Office (Used to model the existing Maintenance building) | 0.5 | GPD/SQ FT | 1 |

**Notes:**

*1. Per City of Scottsdale Design Standards & Policies Manual*

2. Previous Comfort Stations planned within the Scottsdale National Golf Course accounted for a wastewater demand design flow of 950 GPD. This wastewater demand was calculated from the following assumptions: 3 Toilets*(200 GPD/Toilet) + 2 Urinals*(100 GPD/Urinal) + 4 Sinks*(25 GPD/Sink) + 1 Ice Machine*(25 GPD/Ice Machine) + 1 Janitor Utility Sink*(25 GPD/Janitor Utility Sink)= 950 GPD.

3. Per Table 1- *Unit Design Flows from the Arizona Administrative Code, Title 18, Chapter 9*

# TABLE 2

# OFFSITE WASTEWATER FLOWS

WOOD/PATEL

## TABLE 2 -Offsite Wastewater Flows

**Project:** Scottsdale National Golf Course
**Location:** Scottsdale, Arizona

Proj. Number: 144147
Proj. Engineer: Ethan Boyle, P.E.

**PRELIMINARY LAND USE AND DWELLING UNIT BREAKDOWN**

| Type | Non-Residential Acres | Population Density (persons/DU or Acre, patrons/day) | | Commercial/ Industrial/ Retail S.F. | GPD/1000 SF | Land Use | Unit Daily Wastewater Demand (GPD/DU, AC, or S.F.) | | Avg Day (GPD) | Total Avg Day (GPD) |
|---|---|---|---|---|---|---|---|---|---|---|
| Existing SNGC Clubhouse/Maintenance | 0.60 | 150 | Patrons/Day | 26,284 | - | Clubhouse | [1]100 (Res.) 10 (Nonres.) | GPD/Person | 8,250 | 12,000 |
| | 0.17 | - | - | 7,500 | 3.8 | Maintenance Building | 0.5 | GPD/SQ FT | 3,750 | |
| OFF7 | - | 76 | Acres | - | - | R1-190 | 250 | GPD/DU | 4,356 | 7,623 |
| OFF8 | - | 39 | Acres | - | - | R1-130 | 250 | GPD/DU | 3,267 | |
| **Offsite Totals** | **0.77** | | | **33,784** | | | | | | **19,623** |

**Notes:**

**1. Assumed 50% members are Resident and 50% members are Nonresident.**

# TABLE 3

# ONSITE WASTEWATER DESIGN FLOWS

# TABLE 3 -Onsite Wastewater Design Flows

Project: Scottsdale National Golf Course
Location: Scottsdale, Arizona

Proj. Number: 144147
Proj. Engineer: Ethan Boyle, P.E.

## PRELIMINARY LAND USE AND DWELLING UNIT BREAKDOWN

| Type | No. of Dus/Casitas/ Comfort Stations | Residential Acres | Non-Residential Acres | Population Density (persons/DU or Acre, patrons/day, person/DU) | | Commercial/ Industrial/ Retail S.F. | GPD/1000 SF | Land Use | Unit Daily Water Demand (GPD/DU, AC, or S.F.) | | Avg Day (GPD) | Total Avg Day (GPD) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Comfort Stations [1] | 5 | - | 0.14 | - | | - | - | Comfort Station | 950 | GPD/Comfort Station | 4,750 | 4,750 |
| Future Clubhouse | - | - | 2.87 | 500 | Patrons/Day | 34,200 | - | Clubhouse | [3]100 (Res.) 10 (Nonres.) | GPD/Person | 27,500 | 27,500 |
| Future Maintenance Building [1] | - | - | 0.17 | - | - | 7,500 | 3.8 | Maintenance Building | 0.5 | GPD/SQ FT | 3,750 | 3,750 |
| Cottages | 72 | 6.4 | - | - | - | 277,344 | - | Resort with Ammenities | 380 | GPD/Room | 27,360 | 27,360 |
| Future North Residence [2] | 1 | - | - | - | - | - | - | Residential | 1,500 | GPD/DU | 1,500 | 1,500 |

| | | | | | |
|---|---|---|---|---|---|
| **Onsite Wastewater Flow to Septic Systems** | | **0.14** | | | **6,250** |
| **Onsite Wastewater Flow to Lift Station** | **6.4** | **3.04** | **319,044** | | **58,610** |
| **Total Onsite Wastewater Flow to Rio Verde Gravity Sewer** | **--** | **0.17** | **7,500** | | **3,750** |
| **Total Onsite Wastewater Flow** | **6.4** | **3.18** | **319,044** | | **64,860** |

Notes: 1) Each comfort station and the maintenance building will have an individual septic system, therefore the wastewater flow will not be accounted for within the gravity sewer design portion of this report.

2) The estimated wastewater flow will be dependant on the final design of the future residence. This residence will also have an individual septic system, therefore the wastewater flow will not be accounted for within the gravity sewer design portion of this report.

3) Assumed 50% members will be Resident and 50% members will be Nonresident.

# TABLE 4

## WASTEWATER MODEL –
## FULL BUILD-OUT CONDITION

Project: Scottsdale National Golf Club
Location: Scottsdale, AZ
References: Arizona Administrative Code, Title 18, Chapter 9
City of Scottsdale 2009 Design Standards & Policies Manual, Chapter 7 Wastewater

Proj. Number: 144147
Proj. Engineer: Ethan Boyle, P.E.

| FROM NODE | TO NODE | SEWER AREA(S) SERVED | AREA SERVED (ACRES) | PARCEL ADF (GPD) | SEWER NODE ADF (GPD) | TOTAL ADF (GPD) | PEAKING FACTOR | PEAK WET WEATHER FLOW (GPD) |
|---|---|---|---|---|---|---|---|---|
| **OFFSITE WASTEWATER FLOWS** | | | | | | | | |
| C1 | C2 | Ex. Clubhouse/ Maintenance | - | 12,000 | 12,000 | 12,000 | 4.5 | 54,000 |
| C2 | C3 | 2" DUAL FORCE MAIN | | | | 12,000 | 4.5 | 54,000 |
| C3 | C4 | - | | - | - | 12,000 | 4.5 | 54,000 |
| E4 | E5 | OFF7 | - | 4,356 | 4,356 | 8,106 | 4.0 | 34,299 |
| D1 | A4 | OFF8 | - | 3,267 | 3,267 | 3,267 | 4.0 | 13,068 |
| **Total Offsite Flows** | | | **-** | **19,623** | **19,623** | | | **84,492** |
| **FULL BUILD OUT ONSITE WASTEWATER FLOWS** | | | | | | | | |
| A1 | A2 | Clubhouse | - | 27,500 | 27,500 | 27,500 | 4.5 | 123,750 |
| B1 | B2 | 12 Cottages | - | 4,560 | 4,560 | 4,560 | 4.0 | 18,240 |
| B2 | B3 | 20 Cottages | - | 7,600 | 7,600 | 12,160 | 4.0 | 48,640 |
| B3 | B4 | 4 Cottages | - | 1,520 | 1,520 | 13,680 | 4.0 | 54,720 |
| B4 | B5 | 16 Cottages | - | 6,080 | 6,080 | 19,760 | 4.0 | 79,040 |
| B5 | C9 | 20 Cottages | - | 7,600 | 7,600 | 27,360 | 4.0 | 109,440 |
| C9 | C8 | - | - | - | - | 27,360 | - | 109,440 |
| C8 | C4 | - | - | - | - | 27,360 | - | 109,440 |
| C4 | C5 | - | -- | - | - | 39,360 | - | 163,440 |
| C5 | C6 | - | -- | - | - | 39,360 | - | 163,440 |
| C6 | C7 | - | -- | - | - | 39,360 | - | 163,440 |
| C7 | A2 | - | -- | - | - | 39,360 | - | 163,440 |
| A2 | A3 | - | -- | - | - | 66,860 | - | 287,190 |
| A3 | A4 | - | -- | - | - | 66,860 | - | 287,190 |
| E1 | E2 | - | - | - | - | 0 | - | 0 |
| E2 | E3 | Maintenance Building | - | 3,750 | 3,750 | 3,750 | 4.5 | 16,875 |
| E3 | E4 | - | - | - | - | 3,750 | - | 16,875 |
| E4 | E5 | - | - | - | - | 8,106 | - | 34,299 |
| E5 | E6 | - | - | - | - | 8,106 | - | 34,299 |
| E6 | A4 | - | - | - | - | 8,106 | - | 34,299 |
| **Total Onsite Flow to Future Lift Station** | | | | **58,610** | | **58,610** | | **250,065** |
| **Total Offsite Flow to Future Lift Station** | | | | **19,623** | | **19,623** | | **84,492** |
| **Total Onsite and Offsite Flow to Rio Verde Gravity Sewer (Conveyed east to Lift Station)** | | | | **11,373** | | **11,373** | | **47,367** |
| **Total Onsite and Offsite Flow to Future Lift Station** | | | | **78,233** | | **78,233** | | **334,557** |

# TABLE 5

# CALCULATED PIPE CAPACITIES – FULL BUILD-OUT CONDITION

WOOD/PATEL

# TABLE 5 - CALCULATED PIPE CAPACITIES, FULL BUILD OUT CONDITION

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

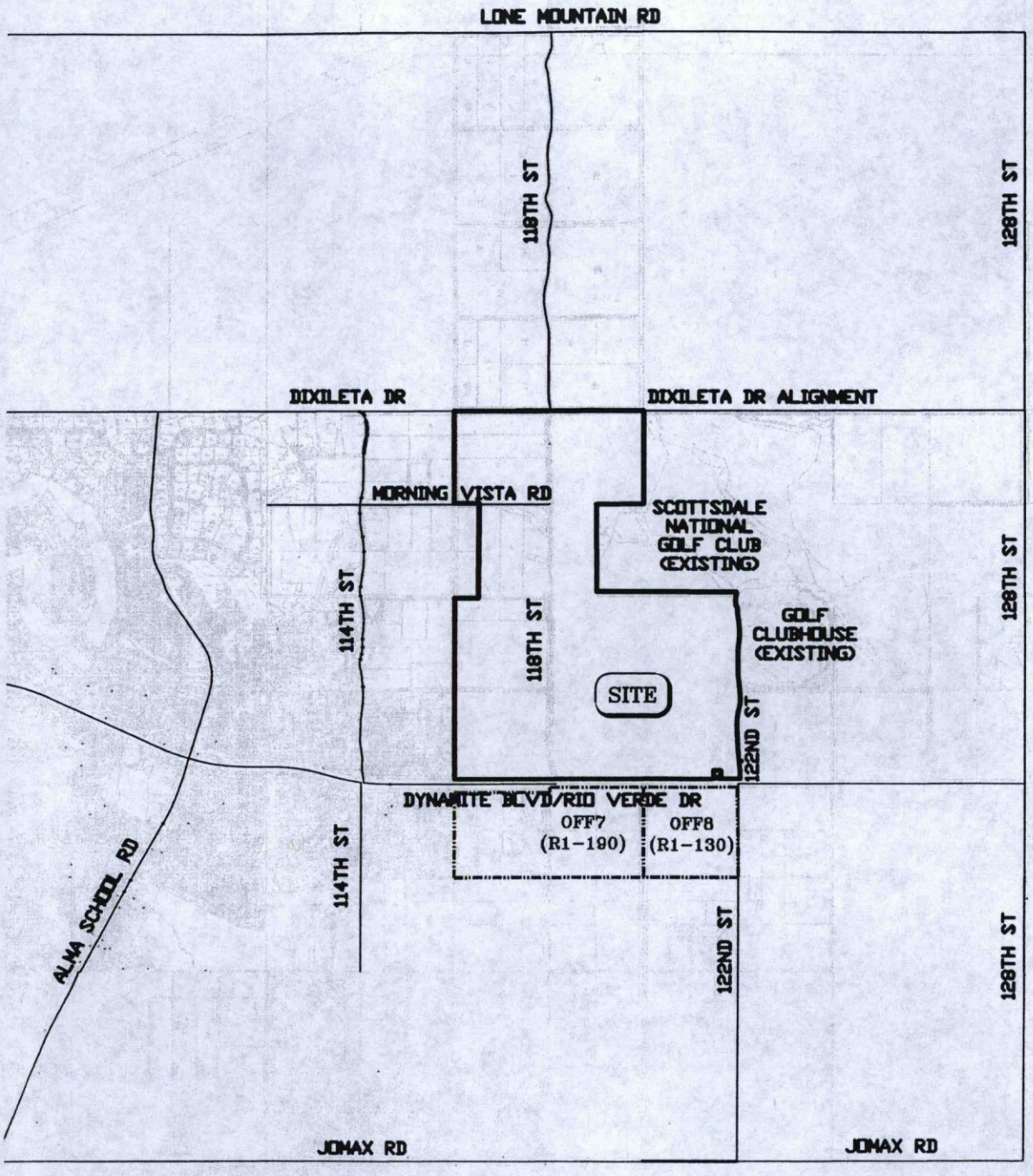
Project: Scottsdale National Golf Club
Location: Scottsdale, Arizona
References: Title 18, Chapter 9 of the Arizona Administrative Code
City of Scottsdale 2009 Design Standards & Policies Manual, Chapter 7 *Wastewater*

Proj. Number: 144147
Proj. Engineer: Ethan Boyle, P.E.

| FROM NODE | TO NODE | NOTES | PIPE DIA. (INCHES) | MODELED PIPE SLOPE (FT / FT) | PIPE CAPACITY | | PEAK FLOW RESULTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | GPD | GPM | PEAK WET WEATHER FLOW (GPD) | PEAK WET WEATHER FLOW (GPM) | d/D (WET WEATHER) | FLOW VELOCITY (FT/S) AT d/D=0.65 | SURPLUS CAPACITY (WET WEATHER) (GPD) | PERCENT OF CAPACITY (WET WEATHER) |
| **Offsite Pipe Sizes** | | | | | | | | | | | | |
| C1 | C2 | Existing | 8 | 0.0188 | 1,082,936 | 752 | 54,000 | 38 | 0.15 | 5.3 | 1,028,936 | 5.0% |
| C2 | C3 | Existing | 2" DUAL FORCE MAIN | | | | | | | | | |
| C3 | C4 | Existing | 8 | 0.0324 | 1,398,793 | 971 | 54,000 | 38 | 0.13 | 6.8 | 1,344,793 | 3.9% |
| E4 | E5 | Proposed | 8 | 0.0331 | 1,421,354 | 987 | 34,299 | 24 | 0.11 | 6.9 | 1,387,055 | 2.4% |
| D1 | A4 | Existing | 8 | 0.0110 | 812,202 | 564 | 13,068 | 9 | 0.09 | 4.0 | 799,134 | 1.6% |
| **Full Build Out Onsite Pipe Sizes** | | | | | | | | | | | | |
| A1 | A2 | Proposed | 8 | 0.0084 | 721,958 | 501 | 123,750 | 86 | 0.28 | 3.5 | 598,208 | 17.1% |
| B1 | B2 | Proposed | 8 | 0.0251 | 1,240,865 | 862 | 18,240 | 13 | 0.09 | 6.0 | 1,222,625 | 1.5% |
| B2 | B3 | Proposed | 8 | 0.0166 | 1,015,253 | 705 | 48,640 | 34 | 0.15 | 4.9 | 966,613 | 4.8% |
| B3 | B4 | Proposed | 8 | 0.0750 | 2,143,312 | 1488 | 54,720 | 38 | 0.11 | 10.4 | 2,088,592 | 2.6% |
| B4 | B5 | Proposed | 8 | 0.0070 | 654,274 | 454 | 79,040 | 55 | 0.24 | 3.2 | 575,234 | 12.1% |
| B5 | C9 | Proposed | 8 | 0.0075 | 676,835 | 470 | 109,440 | 76 | 0.27 | 3.3 | 567,395 | 16.2% |
| C9 | C8 | Existing | 8 | 0.0048 | 541,468 | 376 | 109,440 | 76 | 0.30 | 2.6 | 432,028 | 20.2% |
| C8 | C4 | Existing | 8 | 0.0094 | 767,080 | 533 | 109,440 | 76 | 0.26 | 3.7 | 657,640 | 14.3% |
| C4 | C5 | Existing | 8 | 0.0488 | 1,737,211 | 1206 | 163,440 | 114 | 0.21 | 8.5 | 1,573,771 | 9.4% |
| C5 | C6 | Existing | 8 | 0.0063 | 631,713 | 439 | 163,440 | 114 | 0.35 | 3.1 | 468,273 | 25.9% |
| C6 | C7 | Existing | 8 | 0.0086 | 721,958 | 501 | 163,440 | 114 | 0.32 | 3.5 | 558,518 | 22.6% |
| C7 | A2 | Existing | 8 | 0.0069 | 654,274 | 454 | 163,440 | 114 | 0.34 | 3.2 | 490,834 | 25.0% |
| A2 | A3 | Existing | 8 | 0.0091 | 744,519 | 517 | 287,190 | 199 | 0.43 | 3.6 | 457,329 | 38.6% |
| A3 | A4 | Existing | 8 | 0.0091 | 744,519 | 517 | 287,190 | 199 | 0.43 | 3.6 | 457,329 | 38.6% |
| E1 | E2 | Proposed | 8 | 0.0269 | 1,285,987 | 893 | 0 | 0 | #DIV/0! | 6.3 | 1,285,987 | 0.0% |
| E2 | E3 | Proposed | 8 | 0.0176 | 1,037,814 | 721 | 16,875 | 12 | 0.09 | 5.0 | 1,020,939 | 1.6% |
| E3 | E4 | Proposed | 8 | 0.0183 | 1,060,375 | 736 | 16,875 | 12 | 0.09 | 5.0 | 1,043,500 | 1.6% |
| E4 | E5 | Proposed | 8 | 0.0331 | 1,421,354 | 987 | 34,299 | 24 | 0.11 | 5.2 | 1,387,055 | 2.4% |
| E5 | E6 | Proposed | 8 | 0.0062 | 609,152 | 423 | 34,299 | 24 | 0.16 | 6.9 | 574,853 | 5.6% |
| E6 | A4 | Proposed | 8 | 0.0304 | 1,353,671 | 940 | 34,299 | 24 | 0.11 | 3.0 | 1,319,372 | 2.5% |

# EXHIBIT 1

# VICINITY MAP




---------- Property Boundary

# SCOTTSDALE NATIONAL GOLF CLUB

PLATE 1
VICINITY MAP

WOOD/PATEL
2051 W. Northern Ave.
Phoenix, AZ 85021
(602) 335-8500
www.woodpatel.com

JOB NO. 144147

# EXHIBIT 2

# WASTEWATER EXHIBIT – FULL BUILD-OUT

# LEGEND

- FORCE MAIN
- 8" EXISTING SEWER
- 8" PLANNED SEWER
- PRIVATE FORCE MAIN OPTION

DIXILETA DRIVE

FUTURE RESIDENCE

PRIVATE FORCE MAIN OPTION

RE-PURPOSED CLUBHOUSE

All private

EXISTING SEPTIC, FUTURE LIFT STATION REQUIRED

COTTAGES

CLUBHOUSE

MAINTENANCE BUILDING

Proposed Public Lift Station

construct stub to 122nd St

PROPOSED PUBLIC FORCE MAIN

PROPOSED 8" GRAVITY SEWER LINE

WEST END OF FORCE MAIN

PROPOSED CONNECTION POINT TO EXISTING GRAVITY PUBLIC SEWER

EXISTING 8" GRAVITY SEWER LINE

PROPOSED 8" GRAVITY SEWER LINE

Biofilter site

OFF7 (R1-190)

OFF8 (R1-130)

ALMA SCHOOL RD.

116TH ST.

114TH ST.

111TH PL.

118TH ST.

120TH ST.

122ND ST.

DYNAMITE BLVD./RIO VERDE DR.

B1 B2 B3 B4 B5 C1 C2 C3 C4 C5 C6 C7 C8 C9 A1 A2 A3 A4 A6 A7 D1 D2 E1 E2 E3 E4 E5 E6

N

700 0 350 700

Horz. 1 in. = 700 ft.

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

NOT FOR CONSTRUCTION OR RECORDING

SCOTTSDALE NATIONAL GOLF CLUB

PLATE 2-WASTEWATER EXHIBIT
FULL BUILDOUT

| DATE | SCALE | SHEET |
|---|---|---|
| 02-06-15 | 1" =700' | 1 OF 1 |
| JOB NO. 144147 | DESIGN DWM / DRAWN SCM | CHECK DWM |

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