

**Rosehaven Estates and RV Resort Wastewater
Treatment (Septic) System (WWTS)
Aquifer Protection Permit #P-512420
Place ID 150895, LTF 65897**

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an Aquifer Protection Permit for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to A.A.C. R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). The purpose of BADCT is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., local subsurface geology) to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer, or to keep pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

| | |
|-----------------------------|---|
| Name of Permittee: | TRICON/COB Cherokee L.P |
| Mailing Address: | 17 West 220 22nd St, Suite 220 Oakbrook Terrace, Illinois 60181 |
| Facility Name and Location: | Rosehaven Estates and RV Resort Wastewater Treatment System 10540 E. Apache Trail Apache Junction, Arizona Maricopa County |

Regulatory Status

An application for this Individual APP was received on July 5, 2017.

Facility Description

The Rosehaven Estates and RV Resort Septic Systems originally operated under a General Permit issued through Maricopa County for the 94 separate on-site septic systems located at the RV Resort. The Cobblestone Property Management is authorized to operate the Rosehaven Estates and RV Resort Wastewater Treatment (Septic) System (WWTS), with a treatment capacity of 0.036 million gallons per day (mgd). The Wastewater system consists of 94 separate on-site Wastewater Treatment (septic) Systems (34,500 gallons per day (gpd)) through which the effluent is discharged to the adjacent seepage pits for sub-surface disposal and a new E-Z Advanced Treatment System (1,500 gpd).

The existing 94 on-site septic systems serves the 274 mobile home spaces, 101 RV spaces, the dining hall, the craft room, the laundry rooms and the card room. The new E-Z Advanced Treatment System will serve the new amenity center.

The Existing Treatment System:

The existing treatment system was constructed in 1968 and includes 94 septic tanks coupled with seepage pit for sub-surface disposal. All of the septic tanks are sized from 1,000 gallons to 4,500 gallons and the seepage pits range in size from three (3) to six (6) feet in diameter to a depth of approximately 50 feet.

E-Z Advanced Treatment System:

E-Z Advanced Treatment System will serve the new amenity center which will include a business center with offices, a reception area, a kitchen, restrooms with showers, a fitness room and a game room. The treatment system is a re-circulating synthetic fixed media filter system, which includes two septic tanks in a series (a 1,000 gallon tank and a 2,000 gallon tank), a 2,500 gallon equalization tank, and three (3) treatment pods with media. The flow from treatment pods will be gravity fed through the distribution box where the flow will be split between two seepage pits. Each seepage pit will be constructed five (5) feet in diameter with overall depth of 48 feet.

| Facilities | Latitude | Longitude |
|-------------------|-----------------|------------------|
| WWTS | 33° 25' 1.67" N | 111° 36'10.86" W |

| Septic tank # | Location of the septic tanks and seepage pit | Latitude | Longitude |
|----------------------|---|-----------------|------------------|
| 1 | A | 33°24'56.16"N | 111°36'12.74"W |
| 2 | 1 | 33°24'57.62"N | 111°36'12.29"W |
| 3 | 3 | 33°24'58.69"N | 111°36'12.78"W |
| 4 | 8 | 33°25'00.64"N | 111°36'12.79"W |
| 5 | 11 | 33°25'01.98"N | 111°36'12.82"W |
| 6 | 13 | 33°25'02.77"N | 111°36'12.81"W |
| 7 | 15 | 33°25'03.58"N | 111°36'12.82"W |
| 8 | 19 | 33°25'05.21"N | 111°36'12.71"W |
| 9 | 22 | 33°25'06.99"N | 111°36'11.69"W |
| 10 | 23 | 33°24'58.15"N | 111°36'10.57"W |
| 11 | 28 | 33°25'00.23"N | 111°36'10.74"W |
| 12 | 32 | 33°25'01.90"N | 111°36'10.74"W |
| 13 | 36 | 33°25'03.50"N | 111°36'10.64"W |
| 14 | 45 | 33°24'59.87"N | 111°36'10.37"W |
| 15 | 50 | 33°25'01.92"N | 111°36'10.42"W |
| 16 | 54 | 33°25'3.56"N | 111°36'10.50"W |
| 17 | 60 | 33°25'07.09"N | 111°36'09.25"W |
| 18 | 62 | 33°24'58.10"N | 111°36'08.47"W |

| | | | |
|----|-----|---------------|----------------|
| 19 | 66 | 33°25'00.01"N | 111°36'08.36"W |
| 20 | 71 | 33°25'02.11"N | 111°36'08.40"W |
| 21 | 75 | 33°25'03.71N | 111°36'08.43"W |
| 22 | 83 | 33°24'58.39"N | 111°36'08.26"W |
| 23 | 88 | 33°25'00.51"N | 111°36'08.24"W |
| 24 | 92 | 33°25'01.90"N | 111°36'08.23"W |
| 25 | 96 | 33°25'03.53"N | 111°36'08.19"W |
| 26 | 114 | 33°24'59.48"N | 111°36'06.30"W |
| 27 | 118 | 33°25'01.02"N | 111°36'06.25"W |
| 28 | 122 | 33°25'02.63"N | 111°36'06.23"W |
| 29 | 126 | 33°25'04.27"N | 111°36'06.25"W |
| 30 | 130 | 33°25'07.10"N | 111°36'06.88"W |
| 31 | 136 | 33°25'04.16"N | 111°36'06.08"W |
| 32 | 140 | 33°25'02.48"N | 111°36'06.11"W |
| 33 | 144 | 33°25'00.89"N | 111°36'06.08"W |
| 34 | 148 | 33°24'59.15"N | 111°36'06.15"W |
| 35 | 149 | 33°24'59.16"N | 111°36'04.20"W |
| 36 | 154 | 33°25'01.07"N | 111°36'04.22"W |
| 37 | 158 | 33°25'02.70"N | 111°36'04.15"W |
| 38 | 162 | 33°25'04.22"N | 111°36'04.22"W |
| 39 | 167 | 33°25'07.07"N | 111°36'05.04"W |
| 40 | 174 | 33°25'04.16"N | 111°36'04.10"W |
| 41 | 178 | 33°25'02.54"N | 111°36'04.04"W |
| 42 | 182 | 33°25'00.92"N | 111°36'04.07"W |
| 43 | 187 | 33°25'58.82"N | 111°36'04.10"W |
| 44 | 188 | 33°25'58.46"N | 111°36'02.59"W |
| 45 | 191 | 33°25'59.54"N | 111°36'02.59"W |
| 46 | 195 | 33°25'00.67"N | 111°36'02.58"W |
| 47 | 198 | 33°25'01.63"N | 111°36'02.60"W |
| 48 | 202 | 33°25'02.93"N | 111°36'02.57"W |
| 49 | 206 | 33°25'04.09"N | 111°36'02.60"W |
| 50 | 209 | 33°25'05.05"N | 111°36'02.59"W |
| 51 | 212 | 33°25'06.01"N | 111°36'02.60"W |
| 52 | 221 | 33°24'57.29"N | 111°36'08.83"W |

| | | | |
|----|---------|---------------|----------------|
| 53 | 223 | 33°24'57.32"N | 111°36'07.95"W |
| 54 | 225 | 33°24'57.24"N | 111°36'07.19"W |
| 55 | 227 | 33°24'57.27"N | 111°36'06.47"W |
| 56 | 229 | 33°24'57.24"N | 111°36'05.61"W |
| 57 | 230 | 33°24'55.84"N | 111°36'09.67"W |
| 58 | 234 | 33°24'55.85"N | 111°36'08.47"W |
| 59 | 237 | 33°24'55.85"N | 111°36'07.43"W |
| 60 | 240 | 33°24'55.84"N | 111°36'05.86"W |
| 61 | 301 | 33°24'58.08"N | 111°36'15.06"W |
| 62 | 305 | 33°24'59.45"N | 111°36'15.08"W |
| 63 | 308 | 33°25'00.74"N | 111°36'15.07"W |
| 64 | 312 | 33°25'02.41"N | 111°36'15.03"W |
| 65 | 316 | 33°25'04.04"N | 111°36'15.08"W |
| 66 | 320 | 33°25'05.66"N | 111°36'15.01"W |
| 67 | 326 | 33°25'05.03"N | 111°36'12.97"W |
| 68 | 329 | 33°25'03.87"N | 111°36'12.99"W |
| 69 | 335 | 33°25'01.46"N | 111°36'12.97"W |
| 70 | 342 | 33°24'58.23"N | 111°36'12.96"W |
| 71 | 344 | 33°24'57.48"N | 111°36'12.95"W |
| 72 | 401-403 | 33°24'57.50"N | 111°36'04.79"W |
| 73 | 404-412 | 33°24'57.45"N | 111°36'03.82"W |
| 74 | 413-415 | 33°24'57.10"N | 111°36'04.09"W |
| 75 | 416-418 | 33°24'56.11"N | 111°36'04.08"W |
| 76 | 419-422 | 33°24'56.96"N | 111°36'03.45"W |
| 77 | 422-428 | 33°24'56.55"N | 111°36'04.10"W |
| 78 | 501 | 33°24'55.85"N | 111°36'15.30"W |
| 79 | 504 | 33°24'56.71"N | 111°36'15.30"W |
| 80 | 508 | 33°24'57.77"N | 111°36'15.36"W |
| 81 | 512 | 33°24'59.47"W | 111°36'15.30"W |
| 82 | 516 | 33°25'01.28"N | 111°36'15.30"W |
| 83 | 520 | 33°25'02.68"N | 111°36'15.36"W |
| 84 | 524 | 33°25'04.08"N | 111°36'15.30"W |
| 85 | 528 | 33°25'05.47"N | 111°36'15.26"W |
| 86 | 541 | 33°25'01.54"N | 111°36'16.66"W |

| | | | |
|----|--------------|---------------|----------------|
| 87 | 544 | 33°25'00.64"N | 111°36'16.65"W |
| 88 | 545 | 33°24'57.48"N | 111°36'16.67"W |
| 89 | 548 | 33°24'56.71"N | 111°36'16.68"W |
| 90 | 551 | 33°25'56.04"N | 111°36'16.67"W |
| 91 | Pool Hall | 33°25'02.27"N | 111°36'16.67"W |
| 92 | Rec Hall (N) | 33°24'58.58"N | 111°36'05.63"W |
| 93 | Rec Hall (S) | 33°24'58.19"N | 111°36'05.75"W |

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

The Existing Septic Treatment System is designed to meet the treatment performance criteria for existing facilities as specified in Arizona Administrative Code R18-9-B205. The facility has proposed to replace the 30-inch diameter access risers and covers for 60 septic tanks over the period of five years to provide better access to pump the tanks with a total of \$36,000 in funds to complete BADCT improvement.

The E-Z Advanced Treatment System is designed to meet total nitrogen of 15 mg/l. The facility has proposed the alternative BADCT per Arizona Administrative Code R18-9-B204 (D). The groundwater depth is approximately 650 ft. below ground surface. The hydrogeologic study 'Analysis of Potential Nitrogen Impacts to Groundwater Resulting from Septic System Use', prepared by Hydro Geo Chem, Inc. was conducted for the Lost Dutchman Mobile Home Community (MHC)/Blue Star RV Resort and Sun Valley MHC properties (Dutchman), which is located approximately 2,000 feet to the east of Rosehaven Estate. The findings of the study indicates that the maximum impact will be less than 10 mg/l within the upper 25 feet of groundwater. ADEQ has accepted this study and site specific conditions as alternative BADCT.

III. HYDROGEOLOGIC SETTING

The facility is located within the basin and range physiographic province. The topography is characterized by a series of north-northwest trending mountain ranges with deep groundwater basins filled with alluvium from the surrounding mountains.

The site is within the Phoenix Active Management Area (AMA) Groundwater Basin and is underlain by four generally recognized geologic units: the Upper Alluvial Unit (UAU), the Middle Alluvial Unit (MAU), the Lower Alluvial Unit (LAU), and the Hydrologic Bedrock Unit (HBU).

Groundwater is approximately 650 feet below ground surface or more in the LAU in the area of the site. Local groundwater flow is to the southwest direction with a gradient of 0.0092, as calculated using the most recent (2013 to 2015) water level data from one on-site well (55-613969) and two nearby wells (55-616590 and 55-529939).

POLLUTANT MANAGEMENT AREA (PMA) / DISCHARGE IMPACT AREA (DIA)

The point of compliance (POC) is defined by ARS §49-244 as the point at which compliance with aquifer water quality standards (AWQS) shall be determined. The POC location is selected to protect off-site uses of groundwater, to verify BADCT performance, and to allow early detection of potential impact from the facility's discharges. The POC's location is chosen based on an analysis of the pollutant management area (PMA), the discharge impact area (DIA), and the use and location of local groundwater wells. The application states that one theoretical POC has been designated and are identified on *SGC Figure 1: Site Map*.

The permittee is not proposing to install POC groundwater monitoring well(s) at this time because the conclusions reached in Hydro Geo Chem, Inc.'s report, "*Analysis of Potential Nitrogen Impacts to Groundwater Resulting from Septic System Use*" provides reasonable data, assumptions, methods, and analyses, and demonstrates that the facility will not cause an exceedance of AWQS for nitrate.

The pollutant management area (PMA) is defined by ARS §49-244, as the limit projected in the horizontal plane of the area on which pollutants are or will be placed. The PMA includes horizontal space taken up by any liner, dike or other barrier designed to contain pollutants in the facility. If the facility contains more than one discharging activity, the PMA is described by an imaginary line circumscribing all of the discharging activities. The PMA for this facility as shown on *SGC Figure 1: Site Map*, and indicates one PMA that circumscribes the property boundary.

The discharge impact area (DIA) is defined by ARS §49-201.13. The DIA means the potential areal extent of pollutant migration, as projected on the land surface as the result of a discharge from a facility. The figure submitted as *SGC Figure 2: Discharge Impact Area Map*, indicates the extent of the area. The aerial extent begins at the northwest and southeast corners of the PMA and extends in the southwest direction approximately 6,380 ft from the southwest corner of the PMA with a maximum width of approximately 2,000 ft.

The DIA was determined using the following Darcy's Law equation:

$$V = Ki$$

Where velocity (v) in ft/day is equal to hydraulic conductivity (K) in ft/day times hydraulic gradient (i) in ft/ft.

$$V = (47.5 \text{ ft/day})(0.0092 \text{ ft/ft})$$

$$V = 0.437 \text{ ft/day}$$

Using the fluid velocity rate of 0.437 ft/day, the downgradient limit of potential contaminant flow was calculated to be 6,380 feet after 40 years.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

The facility is located within the Middle Gila Watershed. The site is approximately 2.5 miles west of bulldog wash, and approximately 0.80 miles east of a Central Arizona Project Canal. According to the FCDMC website, the site is outside the 100-year flood zone. The closest mapped 100-year flood zones are over 1.5 and 2.0 miles to the north of the site.

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations do not violate Aquifer Water Quality Standards at the point of compliance, effluent is required to meet the Discharge Limits in Section 4.2, Tables I and IA.

The permittee shall monitor the effluent on a routine basis according to Section 4.2, Table I for flow only and a representative sample of the effluent shall be collected at the distribution box from the E-Z Advanced Treatment System for flow and Total Nitrogen according to Section 4.2, Table IA.

Point of Compliance (POC)

The POC for this facility is located as follows:

| POC # | POC Location | Screened Interval (ft bgs) | Latitude | Longitude | ADWR # |
|--------------|---|-----------------------------------|------------------|-------------------|---------------|
| 1 | Near the southwestern edge of the facility on the boundary of the PMA (Conceptual Well) | N/A | 33° 24' 55.75" N | 111° 36' 13.15" W | N/A |

Routine groundwater monitoring is not required at this time. The Director may amend this permit to require installation of a monitor well and initiation of groundwater monitoring at the POC or to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

VI. COMPLIANCE SCHEDULE

A compliance schedule is included in Section 3.0 of the permit. The compliance schedule includes requirements for the submittal of the Engineer’s Certificate of Completion for the new E-Z Advance Treatment System (item 3.1), replacing the access risers and covers for 60 septic tanks (item 3.2) and the updated Financial Assurance (items 3.3 and 3.4).

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The Cobblestone Property Management has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B).

The E-Z Advanced Treatment System for Amenity Center is designed as per the design report prepared and stamped, dated, and signed (sealed) by Kathryn Mills, P.E. (Professional Engineer) Mills Engineering LLC dated July 5, 2017, and subsequent sealed submittals that served as additions to the design report

ADEQ requires that appropriate documents be sealed by an Arizona registered geologist or professional engineer. This requirement is a part of an ongoing demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203 (B)(1) and (3) and (C)(5). The permittee shall maintain financial capability throughout the life of the facility. The estimated dollar amount demonstrated for financial capability is \$294,084.00.

Zoning Requirements

The WWTS has been properly zoned for the permitted use and the permittee has complied with all zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(B)(3).

VIII. ADMINISTRATIVE INFORMATION

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit.

Public Comment Period (A.A.C. R18-9-109(A))

The Department shall accept written comments from the public before a significant permit amendment is made. The written public comment period begins on the publication date of the public notice and extends for 30 calendar days. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – Groundwater Protection Value Stream – APP Unit 1
Attn: Monica Phillips
1110 West Washington Street, Mail Code 5600D-3
Phoenix, Arizona 85007
Phone: (602) 771-2253