

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

The Missouri Department of Natural Resources hereby issues a permit to:

Cactus Canyon Campground and Resort, LLC
P.O. Box 266
Ava, MO 65608

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

As the Department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.


A representative of the Department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the Department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

February 26, 2019
Effective Date

February 25, 2021
Expiration Date


Edward B. Galbraith, Director, Division of Environmental Quality


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

This project includes installation of two new conventional subsurface land application systems to serve ten new RV sites and a shower house for ten new primitive campsites with design flows of 600 gallons per day each. Each system will have one 1,500-gallon septic tank ahead of the subsurface dispersal field. Wastewater will flow by gravity to the application sites.

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment facility.

II. COST ANALYSIS FOR COMPLIANCE

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a “finding of affordability” on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The Department is not required to complete a cost analysis for compliance because the facility is not a combined or separate sanitary sewer system for a publically-owned treatment works.

III. CONSTRUCTION PERMIT CONDITIONS

The permittee is authorized to construct subject to the following conditions:

1. This construction permit does not authorize discharge.
2. All construction shall be in accordance with the plans and specifications submitted by Anderson Engineering, Inc. on November 30, 2018.
3. The Department must be contacted in writing prior to making any changes to the approved plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(8).

4. State and federal law does not permit bypassing of raw wastewater, therefore steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the Department's Southwest Regional Office per 10 CSR 20-7.015(9)(E)2.
5. The wastewater treatment facility shall be located at least fifty feet (50') from any dwelling or establishment.
6. Wastewater treatment facility shall not be located within one hundred feet (100') of any water well or water supply structure.
7. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of 1 acre or more to obtain a Missouri state operating permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the Department's ePermitting system available online at dnr.mo.gov/env/wpp/epermit/help.htm. See dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.
8. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the Department or permit waiver may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity will disturb any land below the ordinary high water mark of jurisdictional waters of the U.S. then a 404/401 will be required. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine permitting requirements. You may call the Department's Water Protection Program at 573-751-1300 for more information. See dnr.mo.gov/env/wpp/401/ for more information.
9. Upon completion of construction:
 - A. Cactus Canyon Campground and Resort LLC will become the continuing authority for operation, maintenance, and modernization of these facilities;
 - B. Submit an electronic copy of the as built's if the project was not constructed in accordance with previously submitted plans and specifications; and
 - C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D).

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The existing campground facility is expanding to add ten additional primitive campsites served by a shower house and ten additional RV sites. A new subsurface land application system is necessary to treat the wastewater from the expansion.

2. FACILITY DESCRIPTION

The existing facility serves a campground sitting on a fraction of a 180-acre tract of land. The campground includes a café, five cabins, 72 RV sites, a shower house, nine primitive dorms, and 30 primitive campsites. The existing facility is served by five decentralized septic systems.

The facility is proposing an expansion of ten additional tent sites to be served by a new shower house and ten additional RV sites. The shower house and the RV sites will each be served by separate 600 gallon per day conventional subsurface systems.

The Cactus Canyon Campground is located at Route 5 Box 722, Ava, in Douglas County, Missouri. The facility site has a total design average flow of 5,660 gpd.

3. COMPLIANCE PARAMETERS

The existing facility can meet the requirements in their existing operating permit, MO-0138568, issued March 1, 2017. There are no permitted effluent limitations for subsurface dispersal systems.

This facility may qualify for the MOG823 general operating permit for no-discharge, private, domestic wastewater treatment facilities with design flows of less than 50,000 gallons per day. The facility may want to check applicability when their permit comes up for renewal in February 2022.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Construction will cover the following items:

- **Septic Tank** – A septic tank provides passive primary treatment as the settleable solids in raw wastewater settle onto the bottom of the tank. Raw wastewater will flow by gravity to the two 1,500 gallon septic tanks; one serving the shower house and one serving the new RV sites. Each septic tank is 5 ft. 2 in. x 11 ft. 8 in. x 4 ft. 11 in. with a water level depth of 43.5 in. The septic tanks provide approximately 2.5 days of detention at design average flow. The wastewater will discharge by gravity through filtered outlets in each septic tank to the respective subsurface land application field. Settled solids in the septic tank shall be removed by a contract hauler.

- Subsurface Soil Dispersal System – A soils evaluation was completed for the site by Richard Henderson and the soils were rated for 0.4 gpd/sf. Soil morphology review was conducted during the construction permit application review and on-site soils were determined to be acceptable for this system.
 - Approximately 587 lf of 4-inch SCH 40 PVC gravity sewer will be installed, with cleanouts at least every one hundred feet and at every change in direction that exceeds forty-five degrees, to transfer wastewater from the shower house and RV sites to the subsurface dispersal sites.
 - Conventional – Two application sites will be installed on land owned by the facility owner, with identical lateral sizing and spacing. Flow will be divided among laterals through one distribution box for each field. Each field will have six distribution laterals each 84 feet long. Trench widths will be three feet for each lateral and laterals will be on nine foot spacing. The land application sites are in the vicinity of County Rd 14-223 north of MO-14 in McMurtrey Township, Ava, Douglas County.

5. OPERATING PERMIT

Operating permit MO-0138568 will require a modification to reflect the construction activities. The modified Cactus Canyon Campground WWTF, MO-0138568 will not require a public notice as the only modification was the addition of the two new permitted features for the new land application sites. No new conditions or requirements were added. The modified operating permit is being issued concurrently with this construction permit.

Cailie Carlile, P.E.
Engineering Section
cailie.carlile@dnr.mo.gov



MISSOURI DEPARTMENT OF NATURAL RESOURCES **RECEIVED**
WATER PROTECTION PROGRAM
APPLICATION FOR CONSTRUCTION PERMIT
WASTEWATER FACILITY

NOV 30 2018

Water Protection Program

AP 31322
CP0002049

| FOR DEPARTMENT USE ONLY | |
|-------------------------|-----------|
| APP NO. | CP NO. |
| FEE RECEIVED | CHECK NO. |
| DATE RECEIVED | |

12-3-18

SB

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Facility form is for construction pertaining to domestic wastewater treatment facilities, agrichemical facilities, and components thereof. This form has been developed in a modular format and consists of Part A and B. **All applicants must complete Part A.** Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. **Please read the accompanying instructions before completing this form. Submittal of an incomplete application may result in the application being returned.**

PART A – BASIC INFORMATION

1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

- 1.1 Is this a Federal/State funded project? ☐ YES ☒ N/A Funding Agency: _____ Project #: _____
- 1.2 Is this an application for an agrichemical? ☐ YES (See instructions.) ☒ N/A
- 1.3 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
☐ YES Date of Approval: _____ ☒ N/A
- 1.4 Has the department approved the proposed project's facility plan*?
☐ YES Date of Approval: _____ ☐ NO ☒ N/A (If Not Applicable, complete No. 1.5.)
- 1.5 [Complete only if answered Not Applicable on No. 1.4] Is a copy of the engineering report* for wastewater treatment facilities with a design flow less than 22,500 gpd included with this application?
☒ YES ☐ NO
- 1.6 Is a copy of the appropriate plans* and specifications* included with this application?
☒ YES Denote which form is submitted: ☒ Hard copy ☐ Electronic copy (See instructions.) ☐ NO
- 1.7 Is a summary of design* included with this application? ☐ YES ☒ NO
- 1.8 Is a general operating permit applicable?
☐ YES Submit the appropriate operating permit application to the Regional Office at least 60 days prior to operation.
☒ NO Enclose the appropriate operating permit application and fee submittal. Denote which form: ☒ B ☐ B2
- 1.9 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☐ YES ☒ NO
- 1.10 Is the appropriate fee included with this application? ☒ YES ☐ NO (See instructions for appropriate fee.)

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

CACTUS CANYON CAMPGROUND & RESORT, LLC

2.2 PROJECT DESCRIPTION

Install two new cluster gravity absorption systems to serve a planned campground expansion for 10 RV sites and 10 primitive tent camp sites served by a communal shower house. There will be two separate systems, one for the RVs and one for the shower house.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Sludge will be stored in two septic tanks (one for each system) and will be pumped and hauled by a contract hauler.

2.4 DESIGN INFORMATION

- A. Current population: 0; Design population: 20 RV; 20 tent
- B. Actual Flow: _____ gpd; Design Average Flow: 600 gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: 2,630 gpd;
Design Wet Weather Event: _____

2.5 ADDITIONAL INFORMATION

- A. Is a topographic map attached? ☒ YES ☐ NO
- B. Is a process flow diagram attached? ☐ YES ☒ NO

2.6 ESTIMATED PROJECT CONSTRUCTION COST

\$ 55,120.00

3.0 WASTEWATER TREATMENT FACILITY

| | | | | | |
|---|--|---|-------------|--|-------------------|
| NAME CACTUS CANYON CAMPGROUND & RESORT, LLC | | TELEPHONE NUMBER WITH AREA CODE (417) 683-6616 | | EMAIL ADDRESS mail@cactuscanyoncampground.com | |
| ADDRESS (PHYSICAL) RR 5 | | CITY Ava | STATE MO | ZIP CODE 65608 | COUNTY Douglas |
| Wastewater Treatment Facility: Mo- (Outfall Of) | | | | | |
| 3.1 Legal Description: ¼, SE ¼, NE ¼, Sec. 33, T 26N, R 14W (Use additional pages if construction of more than one outfall is proposed.) | | | | | |
| 3.2 UTM Coordinates Easting (X): 1793211.2 ft Northing (Y): 13398071.8 ft For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83) | | | | | |
| 3.3 Name of receiving streams: PLANER BRANCH | | | | | |

4.0 PROJECT OWNER

| | | | | | |
|--|--|---|-------------|--|--|
| NAME CACTUS CANYON CAMPGROUND & RESORT, LLC | | TELEPHONE NUMBER WITH AREA CODE (417) 683-6616 | | EMAIL ADDRESS mail@cactuscanyoncampground.com | |
| ADDRESS P.O. Box 266; RR 5, Box 722 | | CITY Ava | STATE MO | ZIP CODE 65608 | |

5.0 CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.

| | | | | | |
|-----------------------|--|---------------------------------|-------|---------------|--|
| NAME SAME AS OWNER | | TELEPHONE NUMBER WITH AREA CODE | | EMAIL ADDRESS | |
| ADDRESS | | CITY | STATE | ZIP CODE | |

5.1 A letter from the continuing authority, if different than the owner, is included with this application. ☐ YES ☐ NO ☒ N/A

5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.

A. Is a copy of the certificate of convenience and necessity included with this application? ☐ YES ☐ NO N/A

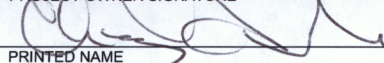
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.

A. Is a copy of the as-filed restrictions and covenants included with this application? ☐ YES ☐ NO N/AB. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? ☐ YES ☐ NO N/AC. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? ☐ YES ☐ NO N/AD. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? ☐ YES ☐ NO**6.0 ENGINEER**

| | | | | | |
|--|--|---|-------------|--|--|
| ENGINEER NAME / COMPANY NAME Brandon G. Keith, Anderson Engineering, Inc. | | TELEPHONE NUMBER WITH AREA CODE (417) 866-2741 | | EMAIL ADDRESS bkeith@andersonengineeringinc.com | |
| ADDRESS 2045 W. Woodland St. | | CITY Springfield | STATE MO | ZIP CODE 65807 | |

7.0 PROJECT OWNER: I hereby certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete, and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders, and decisions, subject to any legitimate appeal available to applicant under Missouri Clean Water Law. I also understand the issuance of the construction permit does not guarantee the proposed wastewater treatment will meet the required effluent limitations of the issued Missouri State Operating Permit for this facility.

PROJECT OWNER SIGNATURE

PRINTED NAME
Chaz Franzke

DATE

11/15/18

| | | | | | |
|--------------------------------------|--|--|--|--|--|
| TITLE OR CORPORATE POSITION Owner | | TELEPHONE NUMBER WITH AREA CODE (417) 683-6616 9199 | | EMAIL ADDRESS mail@cactuscanyoncampground.com | |
|--------------------------------------|--|--|--|--|--|

Mail completed copy to:
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
P.O. BOX 176
JEFFERSON CITY, MO 65102-0176

END OF PART A.**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.**

PART B – LAND APPLICATION ONLY

(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

8.1 Type of wastewater to be irrigated: ☐ Domestic ☐ State/National Park ☒ Seasonal business
☐ Municipal ☐ Municipal with a pretreatment program or significant industrial users
☐ Other (explain)

8.2 Months when the business or enterprise will operate or generate wastewater:
☐ 12 months per year ☒ Part of the year (list months): April-October

8.3 This system is designed for:
☒ No-discharge ☒ Subsurface
☐ Partial irrigation when feasible and discharge rest of time
☐ Irrigation during recreational season, April – October, and discharge during November – March
☐ Other (explain)

9.0 STORAGE BASINS

9.1 Number of storage basins: _____ (Use additional pages if greater than two basins.)

9.2 Type of basins: ☐ Steel ☐ Concrete ☐ Fiberglass ☐ Earthen ☐ Earthen with membrane liner

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.

Basin #1: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____
Basin #2: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).
Basin #1: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #2: Maximum operating water level _____ ft Minimum operating water level _____ ft

9.5 Design depth of sludge in storage basins.
Basin #1: _____ ft Basin #2: _____ ft

9.6 Existing sludge depth, if the basins are currently in operation.
Basin #1: _____ ft Basin #2: _____ ft

9.7 Total design sludge storage: _____ dry tons and _____ cubic feet

10.0 LAND APPLICATION SYSTEM

10.1 Type of land application: ☐ Fixed Head Sprinklers ☐ Center Pivot ☐ Traveling Gun ☐ Drip Dispersal
☐ Subsurface Low Pressure Pipe ☒ Other (describe) _____ Subsurface_gravity_absorption_field

10.2 Number of irrigation sites _____ Total Acres _____ Maximum % field slopes _____
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
(Use additional pages if greater than three irrigation sites.)

10.3 Type of vegetation: ☐ Grass hay ☒ Pasture ☐ Timber ☐ Row crops
☐ Other (describe)

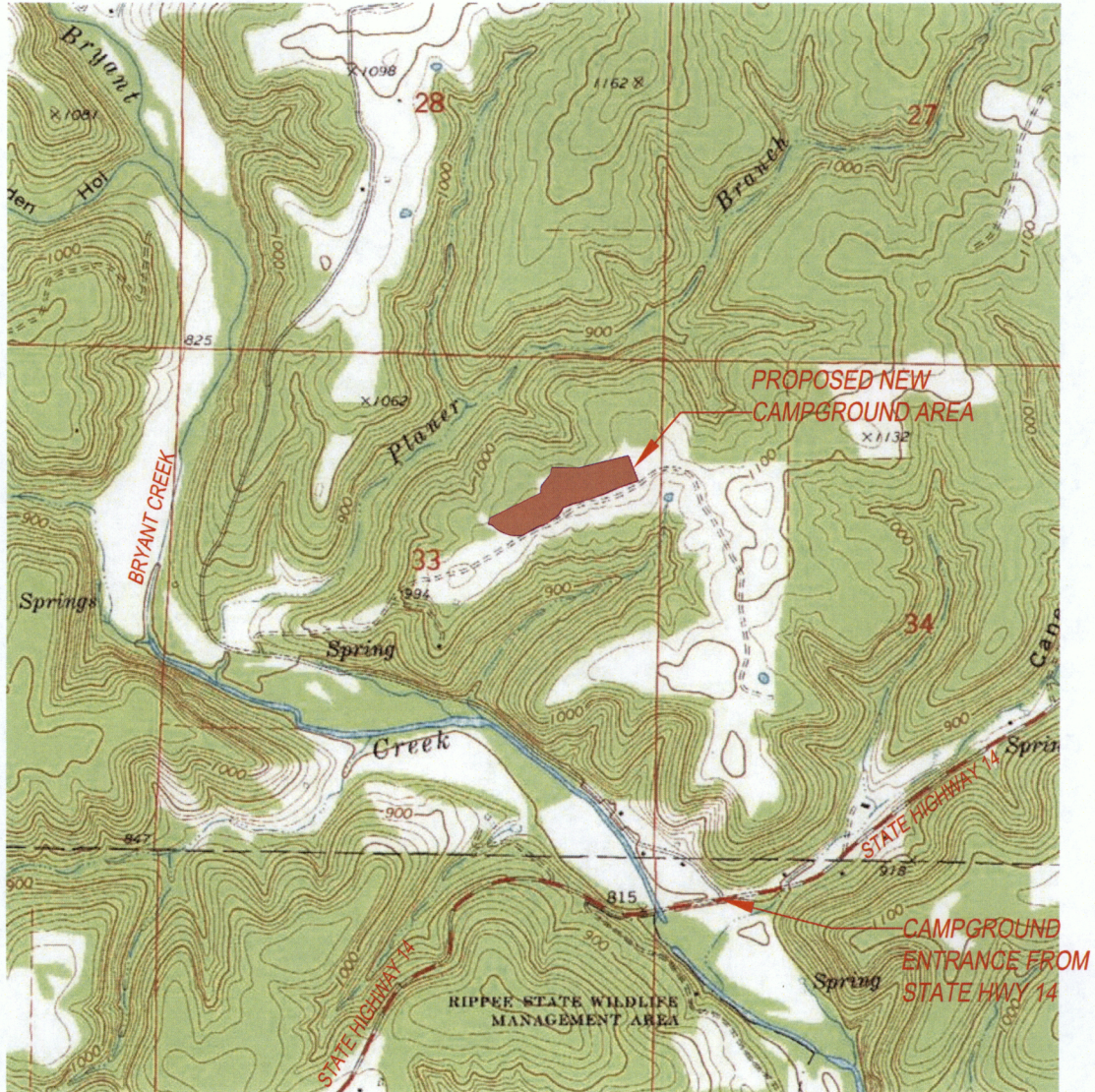
10.4 Wastewater flow (dry weather) gallons per day: Average annual _____
Seasonal _____ Off-season _____

10.5 Land application rate (design flow including 1-in-10 year storm water flows):
Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week
Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

10.6 Total irrigation per year (gallons): Design: _____ gal Actual: _____ gal

10.7 Actual months used for irrigation (check all that apply):
☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

10.8 Land application rate is based on:
☐ Hydraulic Loading ☐ Other (describe) _____
☐ Nutrient Management Plan (N and P) If N and P is selected, is the plan included? ☐ YES ☐ NO



BRUSHYKNOB, MO QUADRANGLE
 USGS 7.5 MINUTE SERIES
 DOUGLAS COUNTY, MO
 SE $\frac{1}{4}$, NE $\frac{1}{4}$, SEC. 33, T 26N, R 14W
 LAT. 36° 53' 54.74" N, LONG. 92° 28' 38.17" W



DRAWING NO.
 EXHIBIT 1

SHEET NUMBER
 1
 OF 1

CACTUS CANYON CAMPGROUND & RESORT, LLC

NEW SUBSURFACE DISPOSAL SYSTEM LOCATION MAP

CACTUS CANYON CAMPGROUND, RR 5
 AVA, DOUGLAS COUNTY, MO 65608

DRAWING INFO.

| | |
|-------------|----------|
| DRAWN BY: | BGK |
| DATE: | 07-03-17 |
| JOB NUMBER: | 10079-17 |

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