

**STATE OF MISSOURI**  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**CONSTRUCTION PERMIT**

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

City of Potosi  
121 E. High Street  
Potosi, MO 63664

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.

March 26, 2015  
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

March 25, 2017  
Expiration Date

John Madras, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

The Potosi WWTF #1 is a 0.683 MGD plant. Construction will include the influent pump station, new fine screen and wash compactor, new secondary clarifier #3, effluent pump station, and replacement of the RAS/WAS pumps. When the project goes out to bid, alternate bids will include the replacement of aerator replacement in the oxidation ditch, addition of aeration in Sludge Basins #1 and #2, and equipment replacement in Secondary Clarifiers #1 and #2, and construction of a ramp in the equalization basin to facilitate cleaning of the basin.

The 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. FINDING OF AFFORDABILITY**

The Finding of Affordability is not applicable.

### **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 Archer-Elgin on February 5, 2015.
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 Southeast Regional Office per 10 CSR 20-7.015(9)(E)2.
5. This construction permit is invalid for projects required to comply with the requirements contained in 10 CSR 20-4, "Grants and Loans"
6. Protection of drinking water supplies shall be in accordance with 10 CSR 20-8.120(10). "There shall be no physical connections between a public or private potable water supply system and a sewer, or appurtenance thereto which would permit the passage of any wastewater or polluted water into the potable supply. No water pipe shall pass through or come in contact with any part of a sewer manhole."

7. Sewers in relation to water works structures shall meet the requirements of 10 CSR 23-3.010 with respect to minimum distances from public water supply wells or other water supply sources and structures.
  - A. Sewer mains shall be laid at least 10 feet horizontally from any existing or proposed water main. The distances shall be measured edge-to-edge. In cases where it is not practical to maintain a 10 foot separation, the department may allow a deviation on a case-by-case basis, if supported by data from the design engineer. Such a deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on either side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer. If it is impossible to obtain proper horizontal and vertical separation as described above for sewers, the sewer must be constructed of slip-on or mechanical joint pipe or continuously encased and be pressure tested to 150 pounds per square inch to assure water tightness.
  - B. Manholes should be located at least 10 feet horizontally from any existing or proposed water main.
  - C. Manholes shall be located with the top access at or above grade level.
  - D. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. When it is impossible to obtain proper vertical separation as stipulated above, one of the following methods must be specified:
    - a. The sewer shall be designed and constructed equal to the water pipe and shall be pressure tested to assure water tightness prior to backfilling; or
    - b. Either the water main or sewer line may be continuously encased or enclosed in a watertight carrier pipe which extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the department for use in water main construction.
8. 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 [www.dnr.mo.gov/env/wpp/epermit/help.htm](http://www.dnr.mo.gov/env/wpp/epermit/help.htm). See [www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm) for more information.

9. 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 [www.dnr.mo.gov/env/wpp/401/](http://www.dnr.mo.gov/env/wpp/401/) for more information.
10. Upon completion of construction:
  - A. The City of Potosi will become the continuing authority for operation, maintenance, and modernization of these facilities;
  - B. Submit the enclosed form Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(D); and
  - C. Submit an electronic copy of the as built.

#### **IV. REVIEW SUMMARY**

##### **1. AMMONIA**

The Water Protection Program is providing this notice to inform permittees that EPA's published ammonia criteria for aquatic life protection is lower than the current Missouri criteria. The department has initiated stakeholder discussions on this topic and at this time, there is no firm target date for starting the rulemaking to adopt new standards. More information can be found at <http://dnr.mo.gov/pubs/pub2481.htm>.

The 2014 permit renewal discussed EPA's published ammonia criteria. Potosi WWTP #1 is an oxidation ditch, with an average summer ammonia concentration of 0.24 mg/L and a winter ammonia concentration of 0.79 mg/L, which is meeting the proposed criteria.

##### **2. CONSTRUCTION PURPOSE**

Construction will include the influent pump station, new fine screen and wash compactor, new secondary clarifier #3, effluent pump station, and replacement of the RAS/WAS pumps. The base bid includes these items as the existing secondary clarifiers are hydraulically overloaded, the RAS/WAS pumps are at the end of their design life. The UV system was built in 2010 (CP0000852); however during high water elevations backwater conditions occur, causing damage to the non-submersible electrical components of the system.

When the project goes out to bid, alternate bids will include the replacement of aerator replacement in the oxidation ditch, addition of aeration in Sludge Basins #1 and #2, and equipment replacement in Secondary Clarifiers #1 and #2, and construction of a ramp in the equalization basin to facilitate cleaning of the basin.

### 3. FACILITY DESCRIPTION

The existing facility is a 0.683 MGD plant with influent pump station, grit chamber, oxidation ditch, two secondary clarifiers, three sludge holding tanks, UV disinfection, and land application of sludge. The facility discharges to Mine a Breton Creek. The operating permit was renewed February 2014. Below is a summary of the facility's average monthly discharge monitoring reports from January 1, 2010 to March 15, 2015.

With this construction permit, another clarifier will be built, the influent pump station will be redone, and effluent pump station will be built. Based on the results of the bidding, aeration equipment in the oxidation ditch may be replaced, along with Sludge Basins #1 and #2 receiving aeration, and the flow equalization basin capacity will be reduced with the installation of a ramp for cleaning.

Parameter	Units	Average Monthly Limit	Average DMR
Flow	MGD	*	0.408
Biochemical Oxygen Demand <sub>5</sub>	mg/L	30	5.22
Total Suspended Solids	mg/L	30	4.79
Ammonia as N-summer	mg/L	1.6	0.24
Ammonia as N-winter	mg/L	2.6	0.79
Oil and Grease	mg/L	10	5.1

\*monitoring only

### 4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Construction will cover the following items:

- **Influent Pump Station:** Triplex influent pump station with ten inch forcemain. The pump station will have two submersible non-clog centrifugal VFD firm pumps and one standby pump with with the ability to pump the peak flow of 2.5 MGD (868 gpm per pump) at 20.2 feet of total dynamic head. Prior to the influent pump station, an electric grinder to protect the influent pumps. The grinder shall produce a particle size of 3/8 inch x 1/2 inch x 1 1/4 inch, which is larger than the 1/4 inch opening in the fine screens.
- **Fine Screening:** A fine screen and washer compactor is to be installed downstream of the influent pump station. The equipment will consist of an in-channel screen with continuous self-cleaning screens. The screen opening will be 1/4 inch and will have the capacity to treat the peak flow of 2.5 MGD. The wash compactor will wash and press the screenings prior to disposal.
- **Secondary Clarifiers:** There are two existing secondary clarifiers, this construction permit allows for the construction of a third secondary clarifier to reduce loading on the existing clarifiers, as they are hydraulically overloaded. The addition of the third clarifier reduces the hydraulic loading rate in each clarifier to 918 gpd/ft<sup>2</sup>, which is less than the design criteria of 1,200 gpd/ft<sup>2</sup>, 10 CSR 20-8.160(4)(B)3. The solids loading rate through the three clarifiers would be 18 lbs/day/ft<sup>2</sup>, which is less than the settling design criteria of 50 lbs/day/ft<sup>2</sup>. The weir loading rate would be 8,503 gpd/ft<sup>2</sup>, which meets the design guide of 10,000 gpd/ft<sup>2</sup>, 10 CSR 20-8.160(4)(D)3. The new clarifier will have a 34 ft diameter with 12 ft sidewater depth and match the existing clarifier's onsite. A new splitter box will be constructed for even flow through the three clarifiers.

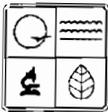
- **RAS/WAS Pump Station:** The existing RAS/WAS pumps are reaching the end of their design life. With this construction, the RAS flow will be removed from the influent pump station and conveyed directly to the oxidation ditch. Two RAS pumps and one WAS pump will be added, with interconnectivity to allow for redundancy. The two RAS pumps will be capable of pumping 1.02 MGD at 16.3 feet of total dynamic head and the WAS pump will be capable of pumping to the Sludge Basins #1 and #2 at 470 gpm at 16.7 feet total dynamic head. The daily wasting time will be 41 minutes at 0.5% solids and 10 minutes at 2% solids.
- **Disinfection system:** The existing floor drains will be reconfigured to allow continuous discharge during peak flood events.
- **Effluent Pump Station:** Triplex effluent pump station which will pump 2.5 MGD (868 gpm per pump) at 13.2 feet total dynamic head through 2 submersible non-clog VFD firm pumps and one standby pump. All three pumps running simultaneously will be capable of pumping 4.6 MGD, which is in excess of the 4.5 MGD peak effluent flow plus the equalization basin overflow. The pumps will be the same as the influent pumps for maintenance and interchangeability. The pump station will operate to protect the existing UV disinfection system by isolating the plant from the receiving stream during flood conditions. During normal water conditions, flows from the disinfection system will flow by gravity to discharge; however when high water flows are present, the float will activate the sluice gate to allow the pump station to isolate treatment plant.

Depending on the results of the bids, Potosi may also do the following alternative projects, too.

- **Oxidation Ditch:** For the oxidation ditch, two horizontal axis alternatives were evaluated and discussed to replace the existing horizontal-axis aeration rotors. The two alternatives evaluated and specified are disc type and blade type. Both types of aeration, would provide the minimum velocity of 1 ft/s, have a target dissolved oxygen concentration of 2.0 mg/L, and operate with a design mixed liquor suspended solids (MLSS) concentration of 3500 mg/L. The design of the aeration equipment is to meet the 2013 EPA published ammonia criteria of 0.6 mg/L. Other improvements include the rehab of the effluent weir and installation of new manually controlled electric weir actuator.
- **Sludge Basins:** The existing sludge basins have a combined storage volume of 181,765 gallons or 35 days of undigested solids at 2% concentration. With this construction permit, floating aerators will be installed in Sludge Basins #1 and #2, providing a 9.6 lbs O<sub>2</sub>/hr. Sludge basin #3 already has floating aerators.
- **Flow Equalization Basin:** The storage volume of the existing flow equalization basin will be reduced from 694,496 gallons to 655,698 gallons with the installation of a ramp to facilitate cleaning.
- **Secondary Clarifiers:** The equipment in Clarifiers #1 and #2 are nearing the end of their design life and would be replaced.

##### **5. Operating Permit Modification**

No operating permit modification is required. The facility description may need updated upon permit renewal to reflect the influent pump station, effluent pump station, and the addition of the third clarifier.



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

CP 000114  
 APPROVED AP 20786 C 14431

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED \$110.00	CHECK NO. 18628
DATE RECEIVED 7/6/15	

**APPLICATION OVERVIEW**

The Application for Construction Permit – Wastewater Treatment Facility 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 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?  
 YES Date of Approval: \_\_\_\_\_
  - 1.3 Has the department approved the proposed project's facility plan\*?  
 YES Date of Approval: \_\_\_\_\_  NO  N/A (If Not Applicable, complete No. 1.4.)
  - 1.4 [Complete only if answered Not Applicable on No. 1.3.] 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
  - 1.5 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
  - 1.6 Is a summary of design\* included with this application?  YES  NO
  - 1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?  
 YES Date of submittal: 04/02/2013  
 Enclosed is the appropriate operating permit application submittal. Denote which form:  A  B  B2  
 N/A Please explain: \_\_\_\_\_
  - 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency?  YES  NO
  - 1.9 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

WWTF No. 1 Improvements, City of Potosi, MO

2.2 PROJECT DESCRIPTION

Base bid improvements to the existing wastewater treatment facility include the replacement of the existing screw pump station with a submersible triplex pump station, addition of a fine screen, addition of a secondary clarifier, addition of a submersible triplex effluent pump station, and replacement of existing two RAS pumps and one WAS pump. Alternate bid improvements include the replacement of the two existing oxidation ditch basin aerators, addition of sludge aeration and mixing to two existing storage basins, rehabilitation of two existing secondary clarifiers and addition of an access ramp to the existing equalization basin.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

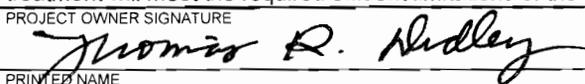
Sludge is stored in concrete basins at the wastewater treatment plant site and land applied.

2.4 DESIGN INFORMATION

- A. Current population: 4,030 ; Design population: 6,836
- B. Actual Flow: 403,000 gpd; Design Average Flow: 683,000 gpd;  
 Actual Peak Daily Flow: 2,500,000 gpd; Design Maximum Daily Flow: 2,500,000 gpd; Design Wet Weather Event: 2,966,000

2.5 ADDITIONAL INFORMATION

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

3.0 WASTEWATER TREATMENT FACILITY				
NAME Potosi WWTF #1		TELEPHONE NUMBER WITH AREA CODE (573) 438-2440		E-MAIL ADDRESS bhamby@potosicityhall.org
ADDRESS (PHYSICAL) Highway F	CITY Potosi	STATE MO	ZIP CODE 63664	COUNTY Washington
Wastewater Treatment Facility: Mo- 0099431 (Outfall 1 Of 1 )				
3.1 Legal Description: _____ ¼, _____ ¼, _____ ¼, Sec. _____, T 37N, R 2E (Use additional pages if construction of more than one outfall is proposed.)			Land Grant 430 Washington County, MO	
3.2 UTM Coordinates Easting (X): 693401 Northing (Y): 4203667 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: <u>Mine</u> at Brenton Creek				
4.0 PROJECT OWNER				
NAME City of Potosi		TELEPHONE NUMBER WITH AREA CODE (573) 438-2767		E-MAIL ADDRESS trdudley@potosicityhall.org
ADDRESS 121 East High Street	CITY Potosi	STATE MO	ZIP CODE 63664	
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 City of Potosi		TELEPHONE NUMBER WITH AREA CODE (573) 438-2767		E-MAIL ADDRESS trdudley@potosicityhall.org
ADDRESS 121 East High Street	CITY Potosi	STATE MO	ZIP CODE 63664	
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> 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? <input type="checkbox"/> YES <input type="checkbox"/> NO				
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? <input type="checkbox"/> YES <input type="checkbox"/> NO				
B. 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? <input type="checkbox"/> YES <input type="checkbox"/> NO				
C. 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? <input type="checkbox"/> YES <input type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Alissha Feeler / Archer-Elgin Engineering & Surveying		TELEPHONE NUMBER WITH AREA CODE (573) 364-6362		E-MAIL ADDRESS afeeler@cmarcher.com
ADDRESS 310 E. 6th Street	CITY Rolla	STATE MO	ZIP CODE 65401	
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 T. R. Dudley			DATE 01.28.2015	
TITLE OR CORPORATE POSITION Mayor		TELEPHONE NUMBER WITH AREA CODE (573) 438-2767		E-MAIL ADDRESS trdudley@potosicityhall.org
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176				
<b>END OF PART A.</b>				
<b>REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.</b>				

**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): \_\_\_\_\_

8.3 This system is designed for:  
 No-discharge.  
 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 three 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 \_\_\_\_\_  
Basin #3: 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  
Basin #3: 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 Basin #3: \_\_\_\_\_ ft

9.6 Existing sludge depth, if the basins are currently in operation.

Basin #1: \_\_\_\_\_ ft Basin #2: \_\_\_\_\_ ft Basin #3: \_\_\_\_\_ ft

9.7 Total design sludge storage: \_\_\_\_\_ dry tons and \_\_\_\_\_ cubic feet

**10.0 LAND APPLICATION SYSTEM**

10.1 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.)

10.2 Type of vegetation:  Grass hay  Pasture  Timber  Row crops  
 Other (describe) \_\_\_\_\_

10.3 Wastewater flow (dry weather) gallons per day: Average annual \_\_\_\_\_ Seasonal \_\_\_\_\_ Off-season \_\_\_\_\_

10.4 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

10.5 Total irrigation per year (gallons): Design: \_\_\_\_\_ gal Actual: \_\_\_\_\_ gal

10.6 Actual months used for irrigation (check all that apply):

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

10.7 Land application rate is based on:

Hydraulic Loading  Other (describe) \_\_\_\_\_  
 Nutrient Management Plan (N&P) If N&P is selected, is the plan included?  YES  NO