

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

The City of Hawk Point
121 W. Lincoln
Hawk Point, MO 63349

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

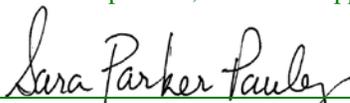
Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

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.

June 16, 2016
Effective Date


Sara Parker Pauley, Director, Department of Natural Resources

June 15, 2018
Expiration Date


John Madras, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The city proposed to convert the city's current two-cell lagoon discharging treatment system into a non-discharging facility by a land application. The city of Hawk Point will construct a lift station and storage tanks near the existing lagoon site; a lift station, a new storage pond and a land application system on newly acquired property and also about 8,000 LF of additional forcemains.

The existing two-cell lagoon would be properly closed and the majority of the sludge would be removed in accordance with the sludge management plan.

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 determine Cost Analysis for Compliance because the permit contains no new conditions or requirements that convey a new cost to the facility.

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 Shafer, Kline & Warren Inc. on December 21, 2015 and April 27, 2016.
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 St. Louis 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 one 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. See 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/ for more information.
10. A full closure plan of the current 2-cell lagoon shall be submitted to the department's St. Louis Regional Office for review and approval of any permitted wastewater treatment system being replaced. In accordance with 10 CSR 20-6.010(12), the closure plan must meet the requirements outlined in Standard Conditions Part III of the Missouri State Operating Permit MO0028053. Closure shall not commence until the submitted closure plan is approved by the department.
11. Upon completion of construction;
 - A. The city of Hawk Point 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 request the operating permit modification be issued;
 - C. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications;

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.pdf>.

The proposed wastewater treatment system is a no-discharge system that will not have ammonia limits.

2. CONSTRUCTION PURPOSE

The objective of the proposed wastewater improvements is to provide the city of Hawk Point with a wastewater system that addresses the immediate needs for increased treatment

capabilities that meet current and future permit requirements. Its current two-cell lagoon treatment system does not meet current design standards. Treatment of the current facility has proven to be inadequate because the lagoon effluent had frequently exceeded the permitted limits.

3. FACILITY DESCRIPTION

Current Facility:

Two cell lagoon/ sludge is retained in lagoon. The design population equivalent is 540 and the design flow is 54,000 GPD.

Future Facility:

Single cell storage lagoon/wastewater irrigation/sludge is retained in lagoon. The design population equivalent is 1,335 and the design flow is 108,000 GPD.

4. COMPLIANCE PARAMETERS

The proposed construction will ensure the facility compliance with effluent limits for Total Suspended Solids, Biochemical Oxygen Demand, Ammonia and future regulations.

5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

The collection system improvements of this project includes the construction and installation of approximately 7697 linear feet of 6-inch through 8-inch PVC SDR-21 force mains with cleanouts and air release valves and three duplex submersible lift stations (Pump Station #1 & Pump Station #3 & Pump Station #4). The Pump Station #1 (the Main Street Pump Station) is equipped with two pumps, each capable of operating at 200 gallons per minute (gpm) at 61 feet of total dynamic head (TDH). More than two hours of emergency storage at the Pump Station #1 is provided by one 40-ft section of 48-inch pipe (3727 gal) laid horizontally at 0.20% slope. The Pump Station #3 is equipped with two pumps, each capable of operating at 110 gpm at 65 feet of total dynamic head (TDH). More than two hours of emergency storage at the Pump Station #3 is provided by four 40-ft section of 24-inch pipe (3760 gal) laid horizontally at 0.20% slope. Pump Station #4 located at the existing lagoon is equipped with two pumps, each capable of operating at 400 gpm at 92 feet of total dynamic head (TDH). Two hours of emergency storage at the Pump Station #4 is provided by two 8-ft section of 48-inch pipe (15,040 gal) laid horizontally at 0.50% slope. All pump stations will be equipped with variable frequency drives, portable pump hook-ups, a generator connection port, a new trash basket structure or a new bar screen structure and an alarm system that will dial the operator's cell phone.

The new basin of 180 days storage will be constructed on the southwest side of the town. The lagoon's dimensions are 12.5 feet of total depth, 10.5 feet of maximum operating depth, 697 feet of bottom length, and 397 feet of bottom width. The slopes of outer berm and inner berm are three to one. The storage volume of the lagoon between lower operating levels to

upper operating level is 19,421,300 gallons which is 180 days storage at the design flow. The storage volume of the lagoon between lower operating levels to emergency spillway (20 feet x 1 feet concrete structure) is 22,900,000 gallons which is 212 days storage at the design flow. Reworked and compacted material from the site will have permeability coefficient of 8.2×10^{-9} cm/s. A design thickness of 12 inches is going to be used for the seal material of the new basin.

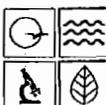
A center pivot irrigation system will be installed at an approximately 70 acres while maintaining setback distances of 50 feet to property boundaries and 100 feet to the nearest creek. The water from the storage basin will be pumped to and through the center pivot by a single 40 HP vertical turbine pump. The vertical turbine pump is capable of operating at 900 gpm at 127 feet of total dynamic head (TDH). A variable frequency drive will be included in this pump station to keep a constant flow rate to the center pivot as it rotate across the field. The effluent of the lagoon will be carried through 780 feet of 10 inches PVC forcemain. The pivot's rotation will be approximately 270 degrees in a maximum of eight hours. The irrigation system consists of one approximately 1,070 feet radius center pivot. The irrigation area of approximately 70 acres will be a hay field at the southwest of town. The slope of the field varies from flat up to 6% in some areas under the center pivot. The irrigation system is designed application rate of 0.2 inches per day, 1.0 inch per week and 20 inches per year.

6. OPERATING PERMIT MODIFICATION

Operating permit MO-0028053 will require a modification to reflect the construction activities. Upon construction completion and receiving a statement of work completed form, the department will issue the draft operating permit that was public noticed on May 13, 2016.

Lei Hou, PE
Engineering Section
lei.hou@dnr.mo.gov

110-0028053 C10001814
 RECEIVED
 DEC 21 2015
 AP 22495
 15-03



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM
APPLICATION FOR CONSTRUCTION PERMIT -
WASTEWATER FACILITY
 Water Protection Program

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED \$1000.00	CHECK NO. 702
DATE RECEIVED 12/21/15	

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: USDA Project #: _____
 - 1.2 Is this an application for an agrichemical? YES (See instructions.) N/A NO
 - 1.3 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
 YES Date of Approval: _____ NO
 - 1.4 Has the department approved the proposed project's facility plan*?
 YES Date of Approval: 4/4/2013 NO N/A (If Not Applicable, complete No. 1.4.)
 - 1.5 [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 NA
 - 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
 Hawk Point Wastewater System Improvements

2.2 PROJECT DESCRIPTION
 The construction of (2) new lift stations, modification of another lift station with over 8000 L.F. of additional forcemains ranging in size from 2" to 8". The construction of a new single cell lagoon with a land application pump, new center pivot at the new land application site on 71 acres. The abandonment and closure of the existing 2 cell lagoon system.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
 See sludge management plan - Appendix B regarding old sludge. New sludge to be stored in new lagoon.

2.4 DESIGN INFORMATION
 A. Current population: 700; Design population: 1335
 B. Actual Flow: 59,000gpd; Design Average Flow: 98,790gpd;
 Actual Peak Daily Flow: 108,000gpd; Design Maximum Daily Flow: 1,022,400gpd; Design Wet Weather Event: 1 in 10 R-E

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
 \$ 1.6 million

3.0 WASTEWATER TREATMENT FACILITY				
NAME Hawk Point Wastewater Treatment Facility		TELEPHONE NUMBER WITH AREA CODE (636) 338-4377		EMAIL ADDRESS hawkpointmayor@centurytel.net
ADDRESS (PHYSICAL) Prairie Road		CITY Hawk Point	STATE MO	ZIP CODE 63349
COUNTY Lincoln				
Wastewater Treatment Facility: Mo- 0028053 (Outfall 1 Of 1)				
3.1 Legal Description: ¼, NW ¼, SW ¼, Sec. 33 , T 49W , R 2W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 660521.21 Northing (Y): 4314852.35 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: unnamed tributary to Turkey Creek				
4.0 PROJECT OWNER				
NAME City of Hawk Point		TELEPHONE NUMBER WITH AREA CODE (636) 338-4377		EMAIL ADDRESS hawkpointmayor@centurytel.net
ADDRESS 121 W. Lincoln, P.O. Box 302		CITY Hawk Point	STATE MO	ZIP CODE 63349
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 Hawk Point		TELEPHONE NUMBER WITH AREA CODE (636) 338-4377		EMAIL ADDRESS hawkpointmayor@centurytel.net
ADDRESS 121 W. Lincoln, P.O. Box 302		CITY Hawk Point	STATE MO	ZIP CODE 63349
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 Dennis E. Stith		TELEPHONE NUMBER WITH AREA CODE (660) 385-6441		EMAIL ADDRESS dennis.stith@skw-inc.com
ADDRESS 107 Butler Street, P.O. Box 366		CITY Macon	STATE MO	ZIP CODE 63552
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 Robert Henebry			DATE 12-10-2015	
TITLE OR CORPORATE POSITION Mayor		TELEPHONE NUMBER WITH AREA CODE (636) 338-4377		EMAIL ADDRESS hawkpointmayor@centurytel.net
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):

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: 1 (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 772 Width 472 Depth 12.5 Freeboard 1 Depth 12.5 Safety 1 % Slope 33
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 1 ft Minimum operating water level 9.5 ft
Basin #2: Maximum operating water level _____ ft Minimum operating water level _____ ft

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

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

9.7 Total design sludge storage: 2650 dry tons and 567,000 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) _____

10.2 Number of irrigation sites 1 Total Acres 71 Maximum % field slopes 6
Location: _____ ¼, _____ ¼, _____ ¼, 33 Sec. 49N T 2W R Lincol County 71 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 98,790 Seasonal NA Off-season NA

10.5 Land application rate (design flow including 1-in-10 year storm water flows):
Design: 24 inches/year 0.2 inches/hour 0.2 inches/day 1 inches/week
Actual: 24 inches/year 0.2 inches/hour 0.2 inches/day 1 inches/week

10.6 Total irrigation per year (gallons): Design: 40mill gal Actual: 22mill 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&P) If N&P is selected, is the plan included? YES NO