



STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION



## GENERAL PERMIT for SEWER EXTENSION CONSTRUCTION

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

Construction Permit ID: MOGSE0463  
Title of Project: Christian County Government Plaza  
Owner: Christian County  
Address: 100 W. Church St. Room 100  
OZARK, MO 65721

The project will also include general site work appropriate to the scope and purpose of the project and will include all the necessary appurtenances to make a complete and usable collection system. The construction of this project will be in the vicinity of the county below and discharge to Receiving Permit ID below:

County: Christian                      Receiving Permit ID: MO0099163

for the construction of (described construction project):

Christian County Government Plaza Master Plan-Construction of approximately 1,890 lf of 8-inch PVC SDR-35 gravity sewer, 762 lf of 8-inch PVC SDR-21 gravity sewer with 13 manholes, 1,594 lf of 1.5-inch SCH 80 PVC for main, and one (1) duplex grinder pump station with a 500 gallon capacity and two (2) storage tanks with 2500 gallon capacity, to serve 300 PE and a design average flow of 4,000 gpd. Project discharges to an existing system to be treated at City of Ozark WWTF, MO-00099163. John W. McCart, Assistant Public Works Director with City of Ozark provided an acceptance letter dated December 8, 2022. Todd Wiesehan, Director, Christian County Resource Management Department provided a level 3 continuing authority letter dated March 1, 2023.

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.

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

March 02, 2023

Issue Date

A handwritten signature in black ink, appearing to read "John Hoke".

John Hoke, Chief, Water Pollution Control Branch  
Water Protection Program

January 02, 2025

Expiration Date

## General Sewer Extension Draft MOGC

### APPLICABILITY

1. This permit authorizes the construction of gravity sewer extensions, force mains, and lift stations. Non-earthen flow equalization storage basins at lift stations and inline storage, which flows back into the lift station or collection system, are also included.
2. The Missouri Department of Natural Resources may require a site-specific sewer extension construction permit due to compliance and enforcement actions in accordance with 10 CSR 20-6.010(13)(C).
3. This permit does not apply to:
  - A. Earthen storage basins;
  - B. Exempt projects in accordance with 10 CSR 20-6.010(1)(B), 10 CSR 20-6.010(5)(B), and RSMo 644.051 unless requested by the applicant or required by enforcement.

### PREREQUISITES:

1. The Sewer Extension Construction Permit application, appropriate fee, and documentation in accordance with 10 CSR 20-6.010(5)(G).
2. Submit the Sewer Extension Construction Permit application at least sixty (60) days in advance of the start of construction in accordance with 10 CSR 20-6.010(5)(F).
3. Submit an electronic copy of the construction permit application and documents to [DNR.WPPEngineerSection@dnr.mo.gov](mailto:DNR.WPPEngineerSection@dnr.mo.gov) in accordance with 10 CSR 20-6.010(5)(G)3.
4. The plans and specifications, each signed, sealed, and dated by a professional engineer registered in the State of Missouri in accordance with 10 CSR 20-8 and 10 CSR 20-6.010.
5. The Design Certification form, Engineering Report, or Summary of Design, signed, sealed, and dated by a professional engineer registered in the State of Missouri, certifying the design of the system is in accordance with 10 CSR 20-6 and 10 CSR 20-8.
6. A statement from the continuing authority, as defined in 10 CSR 20-6.010, accepting the wastewater for treatment and indicating the permitted treatment facility has the available capacity.
7. A statement from the continuing authority, as defined in 10 CSR 20-6.010, accepting responsibility for the operation and maintenance of these facilities.

### PERMIT CONDITIONS:

1. This permit authorizes the activities and scope of work detailed in the plans and specifications submitted with the request.
2. The construction must be in accordance with the final plans and specifications received by the Department. Revisions that affect capacity, flow, or system layout must be approved by the Department prior to construction.

3. State and Federal Law does not permit bypassing of raw wastewater; therefore, the applicant must take steps 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 regional office per 10 CSR 20-7.015(9)(E) or through the Online Bypass/SSO Reporting service on the Missouri Gateway for Environmental Management (MoGEM) portal found at <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem>.

See <https://dnr.mo.gov/document-search/missouri-gateway-environmental-management-mogem-frequently-asked-questions-pub2988/pub2988> for more information.

4. Protection of drinking water supplies must meet the requirements of 10 CSR 20-8.120(5).
  - A. There shall be no physical connections between a public or private potable water supply system and a sewer or appurtenance that would permit the passage of any wastewater or polluted water into the potable supply.
  - B. Lay sewers at least fifty feet (50') in a horizontal direction from any existing or proposed public water supply well or other water supply sources or structures.
5. Position manholes so that the top access is at or above grade level.
6. In addition to the requirements for a construction permit, see 10 CSR 20-6.200 for land disturbance requirements 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. Applicants shall obtain land disturbance permits through the Department's ePermitting system, available online at <https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting>.

See <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/stormwater/construction-land-disturbance> for more information.

7. Entities applying for funding under 10 CSR 20-4, "Grants and Loans" will need to comply with those requirements in addition to the requirements of 10 CSR 20-8.
8. The Department may require a United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) or a permit waiver for the activities described in this permit. If construction activity will disturb any land below the ordinary high water mark of Jurisdictional Waters of the U.S., then a 404/401 is required. Fulfillment of these requirements is necessary before the permit is considered valid. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine permitting requirements. You may call the Department's Operating Permits Section at 573-522-4502 for more information.

See <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality> for more information.

9. If this project eliminates a wastewater treatment facility under the jurisdiction of the Department, then the applicant shall submit a full closure plan with a Facility Closure Request Form, [Form – MO 780-2512](#), to the Department’s appropriate [regional office](#) for review and approval. 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. Closure shall not commence until the Department approves the submitted closure plan.
10. If this project is part of a project to resolve an enforcement action or is receiving funding from the Department, submit a [statement of work complete](#) following the completion of construction. If construction will incorporate minor changes from previously submitted plans and specifications (i.e., changes that do not affect the capacity, flow, or system layout), submit an electronic copy of the as-built plans and specifications in accordance with 10 CSR 20-8.110(11).
11. Applicants may submit, prior to the expiration date of this permit, a written request that additional time is needed in accordance with 10 CSR 20-6.010(5)(H)3.





MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM  
**APPLICATION FOR CONSTRUCTION PERMIT –  
 SEWER EXTENSION**

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

**NOTE ► PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM**

**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 Department of Natural Resources approved the proposed project's engineering report\* or a Sewer Extension Design Checklist\* included?  
 Sewer Extension Design Checklist. (N/A to department funded projects.)  Engineering Report Date of Approval: \_\_\_\_\_

1.3 Is a copy of the appropriate plans\* and specifications\* included with this application?  
 YES Denote which form is submitted:  Hard copy (1 minimum) and  Electronic copy (See instructions.)  NO

1.4 Is a summary of design\* included with this application?  YES  NO

1.5 Is the appropriate fee (\$300) included with this application?  YES  NO

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

**2.0 PROJECT INFORMATION**

2.1 NAME OF PROJECT  
 Christian County Government Plaza Master Plan

PHYSICAL ADDRESS 1106 W Jackson St.	CITY Ozark	STATE MO	ZIP CODE 65721	COUNTY Christian
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2.2 Legal Description: NE ¼, SW ¼, ¼, Sec. 21, T 27-N, R 21-W

2.3 UTM Coordinates Easting (X): 1424183.53 Northing (Y): 434879.43  
 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.4 Project Components (check all that apply):  
 Gravity sewers  Pumping stations  Force mains  Alternative sewer system  Other (Describe below.)

2.5 PROJECT DESCRIPTION  
 Christian County Campus Master Plan is a development project which includes seven buildings and associated parking for each building. The Project is located at 2701 W. Jackson Rd. at the northwest corner of Jackson Road and N 25th Street in Ozark, Missouri. The property is 39 acres in total.

2.6 DESIGN INFORMATION

A. Population or number of lots to be served by this extension: 300 people

B. Estimated flow to be contributed by this extension: Design Average Flow: 4000 gpd Design Peak Hourly Flow: 685 gph

C. Industrial Wastes: Type: \_\_\_\_\_ Flow: \_\_\_\_\_ gpd

D. Receiving Sewer: Size: 8 inches Capacity: 377 gpm

**3.0 PROJECT OWNER**

NAME Christian County	TELEPHONE NUMBER WITH AREA CODE (417) 581-7242	EMAIL ADDRESS toddwiesehan@christiancountymogov	
ADDRESS 100 W Church St., RM 100	CITY Ozark	STATE MO	ZIP CODE 65721

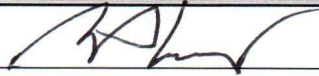
**4.0 CONTINUING AUTHORITY:** Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.

NAME Christian County Planning & Development	TELEPHONE NUMBER WITH AREA CODE (417) 581-7242	EMAIL ADDRESS toddwiesehan@christiancountymogov	
ADDRESS 1106 W Jackson St.	CITY Ozark	STATE MO	ZIP CODE 65721

4.1 A letter from the continuing authority or the Continuing Authority and Receiving Wastewater Treatment Facility Acceptance form, if different than the owner, is included with this application.  YES  NO  N/A

**5.0 ENGINEER**

ENGINEER NAME / COMPANY NAME David Lundstrom / Great River Engineering	TELEPHONE NUMBER WITH AREA CODE (417) 886-7171	EMAIL ADDRESS dlundstrom@greatriv.com	
ADDRESS 2826 S. Ingram Mill Road	CITY Springfield	STATE MO	ZIP CODE 65804

6.0 RECEIVING WASTEWATER TREATMENT FACILITY		
NAME Ozark Wastewater Treatment Plant	TELEPHONE NUMBER WITH AREA CODE (417) 581-6461	EMAIL ADDRESS
MISSOURI STATE OPERATING PERMIT # MO-0099163	DESIGN AVERAGE FLOW (GPD) 2.1 MGD	REMAINING CAPACITY (GPD) 0.9 MGD
6.1 Has the receiving treatment facility agreed to accept the additional wastewater flow? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
6.2 A letter from the receiving wastewater treatment facility or the Continuing Authority and Receiving Wastewater Treatment Facility Acceptance form, if different than the continuing authority, is included with this application. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		
<b>7.0 PROJECT OWNER:</b> 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.		
PROJECT OWNER SIGNATURE 		
PRINTED NAME Ralph Phillips	DATE 12/15/2022	
TITLE OR COPORATE POSITION Presiding Commissioner	TELEPHONE NUMBER WITH AREA CODE (417) 581-7242	EMAIL ADDRESS toddwiesehan@christiancountymo.gov
Mail completed copy to:	MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176	



**INSTRUCTIONS FOR COMPLETING  
APPLICATION FOR CONSTRUCTION PERMIT – SEWER EXTENSION**

All blanks must be filled in when the application is submitted to the Missouri Department of Natural Resources. This includes the **required signature**.

In accordance with Missouri State law RSMo 644.051.3.(2), sewer extension projects installing up to a total of 1,000 linear feet of gravity sewer or force main and/or less than two pump stations are exempt from obtaining a construction permit. Since these projects are exempt, a construction permit will not be issued for this activity and completion of this form is not required.

**Note:** Use the form Application for Construction Permit – Wastewater Treatment Facility, MO 780-2189, if **any** wastewater treatment component(s) are to be constructed. This form is available at [dnr.mo.gov/forms/780-2189-f.pdf](http://dnr.mo.gov/forms/780-2189-f.pdf).

A land disturbance permit is required if construction will result in the disturbance of one or more acres of land. A land disturbance permit is available through the department's ePermitting system at [dnr.mo.gov/env/wpp/epermit/help.htm](http://dnr.mo.gov/env/wpp/epermit/help.htm). A permit fee in accordance with 10 CSR 20-6.011(2)(F)1. is required.

After receiving a complete application, the Department enters the application information into the Missouri Clean Water Information System. You may search for the status of a construction permit online at [dnr.mo.gov/mocwis\\_public/applicationInprocessSearch.do](http://dnr.mo.gov/mocwis_public/applicationInprocessSearch.do).

- 1.1 Check appropriate box. If the project is funded with federal or state monies, supply the funding agency name and project number.
- 1.2 Check appropriate box and provide the date of department approval.  
Per 10 CSR 20-8.110(3)(C), engineering reports must be approved by the department prior to the submittal of plans and specifications and a construction permit application. "Engineering reports must be completed for projects involving gravity sewers, pressure sewer systems, wastewater pumping stations, and force mains" in accordance with 10 CSR 20-8.110(4)(A)4. A completed Sewer Extension Design Checklist may be substituted for an engineering report for projects not funded through the department. The form is included following these instructions.  
Engineering reports do not have to be submitted for projects limited to only 8-inch gravity sewer extensions, unless required by the department. See 10 CSR 20-8.110(4)(A)4.A.  
The department has developed a fact sheet to aid in the development of an approvable engineering report. This document is available online at [dnr.mo.gov/pubs/pub2415.htm](http://dnr.mo.gov/pubs/pub2415.htm).
- 1.3 Check appropriate box. Provide a hard copy of the appropriate plans and specifications for department review when applying for a construction permit per 10 CSR 20-8.110(3)(C). A Missouri registered professional engineering seal, signature and date is required on each sheet of the plans and the cover of the technical specifications.  
The department will accept plans and specifications in electronic form on a CD in Adobe® PDF searchable format. If the plans are scanned, set the resolution to a minimum of 200 dpi at 17 by 22 inches.  
**Note:** Additional sets of plans and specifications may be required by the department for final approval and issuance of the construction permit. See 10 CSR 20-8.110(6)(A)1.
- 1.4 Check appropriate box. A summary of design shall accompany the plans and specifications when applying for a construction permit per 10 CSR 20-8.110(5). The department has developed a fact sheet to aid in the development of an acceptable summary of design. This document is available online at [dnr.mo.gov/pubs/pub2417.htm](http://dnr.mo.gov/pubs/pub2417.htm).
- 1.5 Check the appropriate box. Include fee with application.  
**\$300** per 10 CSR 20-6.011(2)(K)3, for a sewer extension 1,000 feet or more and/or two or more pump stations.  
**Note:** Incomplete permit applications or related engineering documents will be returned by the department if they are not completed in the time frame established by the department in a comment letter to the project owner. Permit fees for returned applications shall be forfeited. See 10 CSR 20-6.010(4)(E). Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited. See 10 CSR 20-6.011(5)(B).
- 2.1 Provide the project name and physical location by street name or address.
- 2.2 Provide the project legal description. The department's mapping system is available online at [dnr.mo.gov/internetmapviewer](http://dnr.mo.gov/internetmapviewer).



- 2.3 A Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates.
- 2.4 Check all of the applicable boxes.  
The Department considers anything other than a gravity sewer system to be an alternative sewer system. Examples of these systems are grinder pump pressure sewers, septic tank effluent pump, or STEP, sewers, septic tank effluent gravity, or STEG, sewers or small diameter gravity sewers.
- 2.5 Briefly describe the project by providing the applicable following information:
- A. Total number of manholes.
  - B. Size of sewers and the total linear feet of each size.
  - C. Number of lift stations and design average flow and peak hourly flow capacities of each lift station.
  - D. Size and length of force mains.
  - E. Alternative sewer size and length, plus the number of components (e.g. septic tanks, grinder pumps, etc.)
- 2.6 Provide the project design information and when required in the units specified.
- A. Provide the population or number of lots to be served by the proposed sewer extension.
  - B. Provide the estimated design flow information in accordance with 10 CSR 20-8.110(4)(C)4.A.  
**Design average flow** – The design average flow is the average of the daily volumes to be received for a continuous 12 month period expressed as a volume per unit time. However, the design average flow for facilities having critical seasonal high hydraulic loading periods (e.g., recreational areas, campuses and industrial facilities) shall be based on the daily average flow during the seasonal period.  
**Design peak hourly flow** – The design peak hourly flow is the largest volume of flow to be received during a one hour period expressed as a volume per unit time.
  - C. Provide the type and flow in gallons per day of industrial wastes received by the propose sewer extension.
  - D. Provide the receiving sewer size in inches and capacity in gallons per minute.
- 3.0 Complete the project owner information. Include the legal name and address.
- 4.0 Complete the continuing authority contact information. If same as the Project Owner, write “Same as above”. Include the permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system. See 10 CSR 20-6.010(3) for the regulatory requirement regarding continuing authority.
- 4.1 Check appropriate box. Include a letter signed by the continuing authority (if not same as the project owner) stating they will “accept, operate and maintain” the sewer extension. The continuing authority may also complete the Continuing Authority and Receiving Wastewater Treatment Facility Acceptance form in lieu of a letter. If the continuing authority will not accept and agree to operate and maintain the sewer extension, this application will be considered incomplete.
- 5.0 Complete the engineer contact information.
- 6.0 Complete the receiving wastewater treatment facility information. Include the Missouri State Operating Permit number, the design average flow and the available remaining capacity in gallons per day, or gpd.
- 6.1 Check appropriate box. The receiving wastewater treatment facility must be notified and agree to the proposed sewer extension and additional flow, prior to submitting a construction permit to the department. If the receiving wastewater treatment facility will not accept the wastewater, this application will be considered incomplete.
- 6.2 Check appropriate box. Include a letter from the receiving wastewater treatment facility (if not same as the continuing authority) acknowledging and accepting the additional flow from the proposed sewer extension.
- 7.0 All applications must be signed as follows in accordance with 10 CSR 20-6.010(2)(B) and the signatures must be **original**:
- A. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
  - B. For a partnership or sole proprietorship, by a general partner or the proprietor.
  - C. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

Mail the completed form and applicable fee to the department.

If there are any questions concerning this form, please contact the Department of Natural Resources, Water Protection Program at 800-361-4827 or 573-751-1300 or visit [dnr.mo.gov/env/wpp/permits/ww-construction-permitting.htm](http://dnr.mo.gov/env/wpp/permits/ww-construction-permitting.htm).

## SEWER EXTENSION DESIGN CERTIFICATION

Answer all questions yes, no, or N/A. Answer N/A only if the question is clearly not applicable to the design of the proposed sewer extension **OR** if a deviation was previously allowed by the department in the approval of Standard Specifications or Standard Detail Sheets.

7.0 SEWER EXTENSION CHECKLIST – Part 1					
	REGULATION		YES	NO	N/A
1.	8.110(6)(C) 8.020(4)	Is there a detailed plan showing tributary area, boundaries, pertinent elevations, topography, existing and proposed facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	8.120(3)	Does the sewer receive only sewage and not combined sewage?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	8.120(4)(B) 8.020(9)(B)	Is the design flow based on 100 gpcd with a peaking factor of 4? Is the design flow based on the design peak hourly flow in accordance with 8.110(4)(C)4?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	8.120(5)(G) 8.020(9)(A)	Does the sewer pipe comply with ASTM standards for sewer pipe?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	8.120(5)(I)4 8.020(9)(A)	Are the joints sealed to prevent infiltration > 100 gal/inch of pipe dia/mile/day for receiving WWTF with a design flow > 22,500 gpd, and >200 gal/inch of pipe dia/mile/day for receiving WWTF with a design flow ≤ 22,500 gpd?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	8.120(5)(D)4 8.120(6)(A) 8.020(9)(C)	Are manholes located at all changes in grade, size or alignment, at all intersections, and at distances of not greater than 400 feet for sewers 15 inches and less, or 500 feet for sewers 18 – 30 inches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	8.120(5)(A) 8.020(9)(B)	Is the gravity sewer no less than 8" in diameter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	8.020(9)(B)	Are sewers for <b>schools, resorts and similar establishments, and subdivisions located in rural areas</b> , is the sewer pipe at least 6 inches in diameter, laid at a slope of 0.60 feet/100 feet with appropriate bedding specifications and at least 30" of cover?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	8.120(5) 8.020(9)(B)2	Is all sewer pipe constructed with a slope to obtain mean velocities of not less than 2 feet per second?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	8.120(5)(B) 8.020(9)(B)1	Is the pipe covered with at least 36" of soil if receiving WWTF has a design flow of >22,500 gpd or 30" for a design flow of ≤ 22,500 gpd?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	8.120(5)(D)6	If the sewer is on a 20% or greater slope, is it anchored securely and in accordance with requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	8.120(5)(G)3 8.020(9)(A)2	Is the pipe material adapted to local conditions, and designed to prevent damage from superimposed loads?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	8.120(5)(H)	Is the pipe installation, embedment, and backfill designed to prevent damage to the pipe and its joints?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	8.120(5)(H)5	Is flexible pipe designed to pass a deflection test run 30 days after backfill using a minimum mandrel or ball size of 95% of pipe ID?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	8.120(5)(H)	Are methods employed to provide adequate control of siltation and erosion during construction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	8.120(6)(C) 8.020(9)(C)	Are manholes at least 48 inches in diameter with a clear opening of 22 inches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	8.120(6)(A)4 8.020(9)(C)	Where cleanouts are used at the end of a lateral instead of a manhole, they are a minimum diameter of 8 inches, and the lateral length is not greater than 150 feet?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	8.120(6)(D) 8.020(9)(C)	Are the manholes designed and/or specified to have flow channels in the bottom that conforms in shape and slope of the sewer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	8.120(6)(F) 8.020(9)(C)	Are the manholes precast or poured in place concrete with watertight connections and conform to the "Frame and Cover" requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	8.120(6)(G)	Do the specifications include a requirement for inspection and testing for manholes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	8.120(6)(E)1	Are sewers 24 inches or less laid straight between manholes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	8.120(6)(F)1	When a smaller sewer joins a larger one, is the 0.8 depth point of both sewers at the same elevation in the manhole?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	8.120(7)	Do the inverted siphons have two barrels with at least a pipe size of 6 inches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	8.120(8) 8.020(9)(A)5	Is the top of all sewers entering or crossing streams at least 3 feet below the natural stream bottom, perpendicular to the stream, and constructed of cast- or ductile-iron pipe?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25.	8.120 (9) 8.020(9)(A)5	Are all aerial crossings ductile iron pipe with mechanical joints, supported at all pipe joints and designed to withstand freezing and a 50-year flood?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26.	8.120(10)(C) 8.020(9)(A)	Are sewers and manholes located at least 10 feet horizontally and 18 inches vertically from any existing or proposed water line?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27.	8.120(10) 8.020(9)(A)4	Is the sewer free from physical connections to a potable water supply system and no water pipes come in contact with a sewer manhole?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.	8.020(9)(B)	If your system is for a subdivision in a metropolitan area, or in a rural area adjacent to a regional system where incorporation into a region is feasible, is the sewer pipe at least 8 inches in diameter, laid at a slope of 0.40 feet/100 feet with appropriate bedding specifications and at least 30" of cover?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Part 1</b>		<b>I answered YES to questions 1 – 28. <input checked="" type="checkbox"/> YES</b>			
<b>8.0 PUMP STATION CHECKLIST – Part 2</b>					
	REGULATION		YES	NO	N/A
29.	8.130(3)(A) 8.020(10)(A)	Is the pump station designed to withstand the 100-year flood, and to remain fully operational and accessible during the 25-year flood?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
30.	8.130(3)(B) 8.020(10)(A)	Is the dry well completely separate from the wet well and is a suitable and safe means of access provided to each?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
31.	8.130(4)(C) 8.020(10)(A)	If the design flow is 1 mgd or less, are there at least 2 pumps or pneumatic ejectors of the same capacity, each capable of handling flows in excess of the expected maximum flow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
32.	8.130(4)(C)	If the design flow is greater than 1 mgd, are there at least 3 pumps capable of handling maximum sewage flow when 1 unit is out-of-service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33.	8.130(4)(C) 8.020(10)(B)	Are the pumps capable of passing spheres of at least 3 inches in diameter, and connected with at least 4 inch piping?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
34.	8.130(4)(C)	Are the pumps able to operate at varying delivery rates to permit discharging sewage at its rate of delivery?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
35.	8.130(4)(E) 8.020(10)(B)	Are there suitable shutoff and check valves on the discharge line of each pump and shutoff valves on suction line of each wet/dry well pump?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
36.	8.130(4)(E) 8.020(10)(B)	Are check valves between the pump and the shutoff valve, on horizontal portion of the discharge pipe, and outside wet well?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
37.	8.130(4)(F) 8.020(10)(B)	Is the wet well floor sloped a minimum of 1:1 to the bottom?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
38.	8.130(4)(G) 8.020(10)(B)	Is there separate mechanical ventilation for wet and dry well pump pits below the ground surface?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
39.	8.130(4)(H)	Flow Measurement? <b>If yes</b> , how and where is it measured.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
40.	8.130(4)(I)	Does all potable water at station comply with 8.140 (8) B?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
41.	8.130(7) 8.020(10)(B)	Is there an alarm for power failure, pump failure, lag pump, high level, and unauthorized entry?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
42.	8.130(8) 8.020(10)	Overflow prevented or minimized? <b>If yes</b> , indicate method used.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
43.	8.020(10)(B)	Is there 24 hour retention of peak flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
44.	8.130(11)(A) 8.020(9)(D)	Is the force main velocity of $\geq 2$ ft/s maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
45.	8.130(11)(B) 8.020(9)(D)	Are air relief valves located at high points in the force main to prevent air locking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
46.	8.130(11)(C) 8.020(9)(D)	Is the force main connection to the manhole less than 2 feet above invert?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
47.	8.130(11)(D) 8.020(9)(D)	Are the force main and fittings designed to withstand normal pressure and surges?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
48.	8.130(11)(E)	Are all aerial crossings supported at all pipe joints and designed to withstand freezing and a 50-year flood?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
49.	8.130(11)(E)	Are all force mains entering or crossing streams constructed of cast- or ductile-iron pipe, cross perpendicular and $\geq 3$ feet below the natural stream bottom?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
50.	8.130(11)(F)	Is friction loss calculated in the force main design based on the Hazen and Williams formula?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
51.	8.130(11)(G)	Is the force main located at least 10 feet horizontally and 18 inches vertically from any existing or proposed water line?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
52.	8.130(11)(H)	Is the force main properly identified to avoid confusion with water mains?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
53.	8.130	Instructions and Equipment. Sewage pumping stations and their operators should have a complete set of operational instructions, including emergency procedures, maintenance schedules, special tools and spare parts as may be necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Part 2</b>		<b>I answered yes to questions 29 – 53. (N/A if no Pump Stations) <input type="checkbox"/> YES <input checked="" type="checkbox"/> N/A</b>			

9.0 SUCTION LIFT PUMP CHECKLIST – Part 3																					
	REGULATION		YES	NO	N/A																
54.	8.130(5)	Are the suction lift pumps of the self priming or vacuum priming type?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																
55.	8.130(5)(A)	Are the self-priming pumps capable of rapid priming and re-priming at the “lead pump on” elevation automatically under design operating conditions? The combined total of dynamic suction lift at the “pump off” elevation and required net positive suction head at design operating conditions shall not exceed twenty-two feet (22') (6.7m).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																
56.	8.130(6)(C)	Is the control panel located outside the wet well, protected by a conduit seal, and have a junction box between the controls and the wet well that allows disconnection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																
57.	8.130(6)(D)	Are the valves located in a separate pit that can be drained?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																
<b>Part 3</b>		<b>I answered yes to questions 54 – 57. (N/A if no Suction Lift Pumps) <input type="checkbox"/> YES <input checked="" type="checkbox"/> N/A</b>																			
9.0 GRINDER PUMP CHECKLIST – Part 4																					
	REGULATION		YES	NO	N/A																
58.	8.130(9)(A) 8.020(9)(B)	Are the grinder units capable of reducing any material to a size that the materials will pass through the pump unit and force main without plugging or clogging?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
59.	8.130(9)(B) 8.020(9)(B)	Is there at least 50 gallons of storage in the grinder pump unit or enough storage to accommodate normal peak flows for periods of eight to twelve (8–12) hours?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
60.	8.130(9)(C) 8.020(10)(B)	Are there audiovisual alarms capable of alerting the resident and operating personnel in the area for units serving a single home? This may be used in lieu of the alarm system specified in 8.130 (7).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																
61.	8.130(9)(D) 8.020(10)(B)	Are gate valves provided on the service line near the common forcemain?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																
62.	8.130(9)(E) 8.020(10)(C)	Is the force main cleansing velocity of at least 2 feet per second maintained at the design average flow?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
63.	8.130(9)(F)	Is there a suitable method of cleaning the force main whenever the velocity in the force main may be less than two feet (2') per second (0.61m/s) before ultimate development is reached?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																
64.	8.130(9)(G)	Are units serviceable and replaceable under wet conditions without electrical hazard to repair personnel and electrical equipment suitable for hazardous locations (National Electrical Code, Class I, Group D, Division 1 location).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
65.	8.130(9)(H) 8.020(9)(D)	Is there 1 standby unit for each 50 units or fraction thereof for WWTF >22,500 gpd provided? For WWTF ≤ 22,500 gpd, is there a 24 hour repair time either by replacement or repair with spare pump units stocked as follows: <table border="0" style="margin-left: 20px;"> <tr> <td style="text-align: right;"><u>Installations</u></td> <td style="text-align: left;"><u>Spare Units</u></td> </tr> <tr> <td style="text-align: right;">1 - 10</td> <td>1</td> </tr> <tr> <td style="text-align: right;">10 - 20</td> <td>2</td> </tr> <tr> <td style="text-align: right;">20 - 40</td> <td>3</td> </tr> <tr> <td style="text-align: right;">40 - 60</td> <td>4</td> </tr> <tr> <td style="text-align: right;">60 - 100</td> <td>5</td> </tr> <tr> <td style="text-align: right;">100 - 200</td> <td>6</td> </tr> <tr> <td style="text-align: right;">over 200</td> <td>3% of installations?</td> </tr> </table>	<u>Installations</u>	<u>Spare Units</u>	1 - 10	1	10 - 20	2	20 - 40	3	40 - 60	4	60 - 100	5	100 - 200	6	over 200	3% of installations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Installations</u>	<u>Spare Units</u>																				
1 - 10	1																				
10 - 20	2																				
20 - 40	3																				
40 - 60	4																				
60 - 100	5																				
100 - 200	6																				
over 200	3% of installations?																				
66.	8.130(9)(I) 8.020(9)(D)	Are provisions in place to avoid interruption of service due to mechanical or power failure by providing standby power, storage capacity or interconnection with another disposal system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
<b>Part 4</b>		<b>I answered yes to questions 58 – 66. (N/A if no Grinder Pumps) <input checked="" type="checkbox"/> YES <input type="checkbox"/> N/A</b>																			





