

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: MOGC00556
Title of Project: Ansley Apartments
Owner: 39th Place Apartments, LLC
Address: 8300 College Blvd #350
Overland Park, KS 66210

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: Jackson Receiving Permit ID: MO0101087

for the construction of (described construction project):

Ansley Apartments-Construction of approximately 710 lf of 12-inch PVC SDR-26, 2,044 lf of 10-inch PVC SDR-26, and 211 lf of 8-inch PVC SDR-26 gravity sewer lines with approximately 10 manholes to serve 3 lots and a design average flow of 192,152 gpd.

Project is in the vicinity of the E 39th St. and Little Blue Pkwy. intersection in Independence, Jackson County and discharges to an existing system to be treated at LBVSD Atherton WWTF, MO-0101087. David Lilly, District Engineer, with Little Blue Valley Sewer District provided an acceptance letter dated August 6, 2019. The City of Independence will serve as the Continuing Authority for the sanitary sewer system. Lisa Phelps, Water Pollution Control Director, with the City of Independence provided an acceptance letter dated June 10, 2019.

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.

August 23, 2019

Issue Date

Handwritten signature of Edward B. Galbraith in blue ink.

Edward B. Galbraith, Director
Division of Environmental Quality

April 19, 2020

Expiration Date

Handwritten signature of Chris Wieberg in black ink.

Chris Wieberg, Director
Water Protection Program

APPLICABILITY

1. This permit authorizes the construction of gravity sewer extensions, force mains, and lift stations. Storage basins, considered part of the collection system, are also included. Earthen basins are not included under this General Sewer Extension Construction permit.
2. A Sewer Extension Construction Permit may be required by the department due to compliance and enforcement actions.
3. This permit does not apply to:
 - A. Earthen storage basins;
 - B. Projects located within an Approved Sewer Program. These include the City of Blue Springs, City of Columbia, City of Kansas City, City of Jefferson City, City of Joplin, City of Lebanon, City of Springfield, City of St. Peters, Duckett Creek Sewer District, and Metropolitan St. Louis Sewer District;
 - C. Projects funded by the Department of Natural Resources;
 - D. Projects that substantially deviate from the Design Guides in 10 CSR 20-8; and
 - E. Exempt projects unless requested by the applicant or required by enforcement.

PREREQUISITES:

1. The General Sewer Extension Construction Permit application, appropriate fee, and a schedule for construction with the date on which construction will begin and anticipated completion date.
2. The engineering report, as required, plans and specifications each signed and sealed by a professional engineer registered in the State of Missouri. A Summary of Design is an acceptable substitute for the engineering report required by this permit prerequisite.
3. The Design Certification form signed and sealed by a professional engineer registered in the State of Missouri certifying the design of the system was done in accordance with 10 CSR 20-6 and 10 CSR 20-8.
4. A statement from the continuing authority was received accepting the wastewater for treatment.
5. A statement from the continuing authority was received accepting the responsibility for operation, maintenance, and modernization of these facilities

PERMIT CONDITIONS:

1. Contact the department's appropriate regional office 48 hours prior to starting construction. Contact information can be found at <http://dnr.mo.gov/regions/regions.htm>.
2. This permit authorizes the activities and scope of work detailed in the plans and specifications submitted with the request.
3. The construction must be in accordance with the design certification stating the plans and specifications comply with 10 CSR 20-6 and 10 CSR 20-8.

PERMIT CONDITIONS: (continued)

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 regional office per 10 CSR 20-7.015(9)(E)2.
5. 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.”

 - A. 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.
 - B. Sewer mains shall be laid at least ten feet (10') 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 ten foot (10') 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.
 - C. Manholes shall be located with the top access at or above grade level.
 - D. Manholes should be located at least ten feet (10') horizontally from any existing or proposed water main.
 - E. 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:
 - 1) 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
 - 2) Either the water main or sewer line may be continuously encased or enclosed in a watertight carrier pipe which extends ten feet (10') 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.

PERMIT CONDITIONS: (continued)

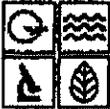
6. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of one acre or more to obtain a Missouri State Operating Permit to discharge stormwater. The permit requires Best Management Practices sufficient to control runoff and sedimentation to protect 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.

7. 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.

8. If this project eliminates a wastewater treatment facility, then a full closure plan shall be submitted to the department's appropriate 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, Section I, of the Missouri State Operating Permit. Closure shall not commence until the submitted closure plan is approved by the department. Form J – Request for Termination of a State Operating Permit, shall be submitted to the department's appropriate Regional Office for termination of any existing Missouri State Operating Permit, once closure is completed in accordance with the approved closure plan.
9. Submit a Statement of Work Completed Form to the department following completion of construction. Submit an electronic copy of the as built plans if the project was not constructed in accordance with previously submitted plans and specifications.



MISSOURI DEPARTMENT OF NATURAL RESOURCES **RECEIVED**
 WATER PROTECTION PROGRAM
APPLICATION FOR CONSTRUCTION PERMIT - AUG 12 2019
SEWER EXTENSION

Water Protection Program

FOR DEPARTMENT USE ONLY	
APP NO. AP 33454	CP NO. MO6C00556
FEE RECEIVED \$300.00	CHECK NO. 7192
DATE RECEIVED 8-12-19	

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*?
 YES Date of Approval: _____ NO N/A
- 1.3 Is a copy of the appropriate plans* and specifications* included with this application? YES NO
- 1.4 Is a summary of design* included with this application? YES NO
- 1.5 Is the appropriate fee or JetPay confirmation included with this application? YES NO
 See Section 7.0

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

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

ANSLEY APARTMENTS

ADDRESS	CITY	STATE	ZIP CODE	COUNTY
E 39th St. & Little Blue Pkwy	INDEPENDENCE	MO	64057	JACKSON

2.2 Legal Description: 1/4, 1/4, SW 1/4, Sec. 21, T49N, R 31W

2.3 Project Components (check all that apply):

- Gravity sewers Pumping stations Force mains Alternative sewer system Other (Describe below.)

2.4 PROJECT DESCRIPTION

PUBLIC SANITARY MAIN EXTENSION

2.5 DESIGN INFORMATION

- A. Population or number of lots to be served by this extension: 3
- B. Estimated flow to be contributed by this extension: Design Average Flow: 12,152 gpd Design Peak Hourly Flow: 32,500 gph
- C. Industrial Wastes: Type: NA Flow: gpd
- D. Receiving Sewer: Size: 12 inches Capacity: 1027 gpm

3.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS	
39th Place Apartments LLC	913.663.2400	smahurin@agsmnas.com	
ADDRESS	CITY	STATE	ZIP CODE
8300 COLLEGE BLVD #350	OVERLAND PARK	KS	66210

4.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit <https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf>. A continuing authority's name must be listed exactly as it appears on the Missouri Secretary of State's (SoS's) webpage: <https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0>, unless the continuing authority is an individual(s), government, or otherwise not required to register with the SoS.

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS	
ADDRESS	CITY	STATE	ZIP CODE

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 EKKMAN / OLSSON		TELEPHONE NUMBER WITH AREA CODE 816.587.4320	E-MAIL ADDRESS derrickman@olsson.com
ADDRESS 1301 BURLINGTON # 100	CITY NORTH KANSAS CITY	STATE MO	ZIP CODE 64119
6.0 RECEIVING WASTEWATER TREATMENT FACILITY			
NAME LITTLE BLUE VALLEY SEWER DISTRICT		TELEPHONE NUMBER WITH AREA CODE 816.796.7660	E-MAIL ADDRESS lilly@bvusd.org
MISSOURI STATE OPERATING PERMIT # 0101087		REMAINING CAPACITY (GPD)	
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, if different than the continuing authority, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A			
7.0 Application Fee			
<input checked="" type="checkbox"/> Check Number 7792		<input type="checkbox"/> JetPay Confirmation Number	
8.0 PROJECT OWNER: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.			
PROJECT OWNER SIGNATURE			
PRINTED NAME Jennifer Asbury		DATE 8/5/19	
TITLE OR CORPORATE POSITION Development Manager		TELEPHONE NUMBER WITH AREA CODE 913/663-2400	E-MAIL ADDRESS jmahurin@agspanas.com
Mail completed copy to:		MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 178 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 with 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.

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. A permit fee in accordance with 10 CSR 20-6.011(2)(E) 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.

- 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.
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. Engineering report exemptions are listed in 10 CSR 20-6.010(4)(B). Per 10 CSR 20-8.110(2), engineering reports must be approved by the department prior to the submittal of plans and specifications and a construction permit application. The department has developed a fact sheet to aid in the development of an approvable engineering report, [Engineering Report Guidance for Collection Systems](#), Fact Sheet--PUB2415.
 - 1.3 Check appropriate box. Provide a copy of the appropriate plans and specifications for department review when applying for a construction permit per 10 CSR 20-8.110 and 10 CSR 20-6.010. A Missouri registered professional engineering seal, signature and date is required on each sheet of the plans and the cover of the technical specifications. An electronic copy of the construction permit application and the information listed below in Portable Document Format (PDF) searchable format or department approved equivalent per 10 CSR 20-6.010(5)(G), along with one (1) paper copy for projects not seeking department funding or two (2) paper copies for projects seeking department funding under 10 CSR 20-4.
 - 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. The department has developed a fact sheet to aid in the development of an acceptable summary of design, [Summary of Design Guidance](#), Fact Sheet--PUB2417.
 - 1.5 Check the appropriate box. Include fee with application per 10 CSR 20-6.011(2) and Wastewater Treatment Facility Permit Fees -- PUB2564.
- Note: The department returns incomplete construction permit applications and related engineering documents and the application forfeits the fees. See 10 CSR 20-6.011(5)(A). The applicant forfeits the fees when the applicant withdraws construction applications. See 10 CSR 20-6.011(5)(B).2.1 Provide the project name and 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/gis/.
 - 2.3 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.
 - 2.4 Briefly describe the project by providing the 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.)
 - 2.5 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 Project Owner information. Include the legal name and address.

4.0 Continuing Authority – A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit

<http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf>. A continuing authority's name must be listed exactly as it appears on the Missouri Secretary of State's (SoS's) webpage:

<https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0>, unless the continuing authority is an individual(s), government, or otherwise not required to register with the SoS. If same as the Project Owner, write "Same as above".

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 Engineer contact information.

6.0 Complete Receiving Wastewater Treatment Facility information. Include the Missouri State Operating Permit number 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 Check the appropriate box and include check or confirmation number. Applicants can pay fees online by credit card or eCheck through a system called JetPay.

- Per Section 37.001, RSMo, a transaction fee will be included. The transaction fee is paid to the third party vendor JetPay, not the Department of Natural Resources.
- Be sure to select the correct fee type and corresponding URL to ensure your payment is applied appropriately. If you are unsure what type of fee to pay, please contact the Water Protection Program's Budget, Fees, and Grants Management Unit by phone at (573) 522-1485 for assistance.
- Upon successful completion of your payment, JetPay provides a payment confirmation. Submit this form with a copy of the payment confirmation if requesting a new permit or a permit modification. For permit renewals of active permits, the Department will invoice fees annually in a separate request.
- If you are unable to make your payment online, but want to pay with credit card, you may email your name, phone number, and invoice number, if applicable, to WPPFEES@dnr.mo.gov. The Budget, Fees, and Grants Management Unit will contact you to assist with the credit card payment. **Please do not include your credit card information in the email.**
- Applicants can find fee rates in 10 CSR 20-6.011 and Wastewater Treatment Facility Permit Fees -- PUB2564 (<https://dnr.mo.gov/pubs/pub2564.htm>).

WP 04 Construction Permits: <https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/>

8.0 The owner of the construction project must sign the application.

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.

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.

9.0 SEWER EXTENSION CHECKLIST					
	REGULATION		YES	NO	N/A
1.	8.110(9)(B)	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.	8.110(3)(A)(B)	Is the design flow based on actual flow data for an existing system? Is the design flow based on the design peak hourly flow for a new collection system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	8.120(2)	Does the sewer receive only sewage and not combined sewage?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	8.120(3)(C)	Are the joints sealed to prevent infiltration or exfiltration > 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 any section between manholes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	8.120(4)(A)	Are manholes located at all changes in grade, size or alignment, at all intersections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	8.120(3) (A)1	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"/>
7.	8.120(3)(A)2	Is the pipe covered with at least 36" of soil or sufficiently insulated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	8.120(3)(A)	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"/>
9.	8.120(3)(B)	Is pipe being tested to ensure it does not exceed a deflection of 5% of the inside diameter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	8.120(4)(C)	Are manholes at least 48 inches in diameter with a clear opening of 22 inches on sewer line larger than 8"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	8.120(4)(C)	Where cleanouts are used at the end of a lateral instead of a manhole, they are a minimum diameter of 8 inches or larger and equal to the diameter for pipes < 8"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	8.120(4)(E)	Are the manholes watertight, constructed, installed in accordance with the manufacturer's recommendations and procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	8.120(4)(F)	Do the specifications include a requirement for inspection and testing for manholes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	8.120(5)(B)	Are sewers and manholes located at least 50 feet horizontally from any existing or proposed water supply well, sources, structures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	8.120(5)(A)	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"/>
10.0 PRESSURE SEWERS, GRINDER PUMP, STEP AND STEG SEWER CHECKLIST					
	REGULATION		YES	NO	N/A
16	8.125(5)(A)	Does the cleaning velocity of ≥ 2 ft/s happen more than once per day when the minimum diameter sewer main pipe is at least 1.5"?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17	8.125(5)B	Are appurtenances compatible with the piping system?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18	8.125(5)(C)	Is the minimum diameter service line pipe at least 1.25"?			<input checked="" type="checkbox"/>
19	8.125(5)(D)1A	Are no multiple equivalent dwelling units (EDUs) or commercial facilities served by simplex grinder pump stations?			<input checked="" type="checkbox"/>
20	8.125(5)(D)1B	Are multiple unit pump stations owned, operated, maintained by an approved continuing authority.			<input checked="" type="checkbox"/>
21	8.125(5)(D)3	Is there at least 70 gallons of storage in the grinder pump unit ?			<input checked="" type="checkbox"/>
22.	8.125(5)(D)4	is shutoff valve accessible from the ground? Is there a check valve? Is there an anti-siphon valve where siphoning could occur ?			<input checked="" type="checkbox"/>
23	8.125(5)(D)7 8.130(3)(B)2	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"/>

24	8.125(6)(D) 8.180(2)	Does at least 1 septic tank (1,000 gallons or more) provide to each EDU?			✓
25	8.125(6)(F)	Are duplex pumps provided for the design flow of 1,500 gallons or more STEP sewer?			✓
26	8.125(7)(A) 8.125(7)(C)	Is the minimum diameter sewer main pipe and service line of STEG sewer at least 4"?			✓
27	8.125(5)(D)8 8.125(8)	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?			✓

11.0 PUMP STATION CHECKLIST

	REGULATION		YES	NO	N/A
28.	8.130(2)(A) 8.140(2)(B)	Is the pump station designed to withstand the 100-year flood?			✓
29.	8.130(3)(A)	Is the dry well completely separate from the wet well and is a suitable and safe means of access provided to each?			✓
30.	8.130(3)(B)	If the design flow is 1,500 gpd or more, are there at least 2 pumps or pneumatic ejectors?			✓
31	8.130(3)(D)	Are valves outside wet well unless integral to a pump or its housing?			✓
32.	8.130(3)(F) 8.140 (8)(J)	Is interconnection between wet and dry well ventilation system?			✓
33	8.130(3)(G)	Does all potable water at station comply with 8.140 (7) D?			✓
34	8.130(6)	Is an alarm system provided an uninterrupted power?			✓
35.	8.130(7) (A)	is there 2 hrs retention of the peak hourly flow for a design flow > 100,000 gpd or 4 hrs retention of the peak hourly flow for a design flow < 100,000 gpd?			✓
36	8.130(7)(B)	Is there independent utility substations?			✓
37	8.130(8)(A)	Is the force main velocity of ≥ 2 ft/s maintained?			✓
38.	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.			✓

12.0 SUCTION LIFT PUMP AND SUBMERSIBLE PUMP STATION CHECKLIST

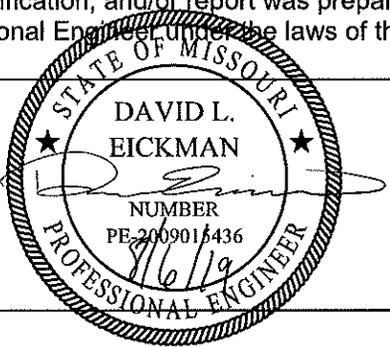
	REGULATION		YES	NO	N/A
39.	8.130(4)	Are the suction lift pumps of the self priming or vacuum priming type?			✓
40.	8.130(4)(A)	The combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions shall not exceed twenty-two feet (22').			✓
41	8.130(4)(B)	Is there dual vacuum pumps capable of removing air from the suction lift pump.			✓
42	8.130(5)(A)	Are submersible pumps readily removable and replaceable without personel entering, or disconnecting any pipe in the wet well?			✓

12.0 CERTIFICATION STATEMENT

I hereby certify that the design plans and specifications for this project, to the best of my knowledge, conform to the requirements listed above. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

I hereby certify that this plan, specification, and/or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Missouri.

Missouri Professional Engineer's Seal:



Name: David Eickman
Street Address: 1301 Burlington Street, Ste. 100
City: North Kansas City State: Missouri Zip Code: 64116

Phone Number: 816.361.1177

Email: deickman@olsson.com

Project Name: Spanos - Ansley Apartments
 Project Number: 017-2086
 Description: Sanitary Sewer Analysis - Line Capacity Date Printed: 07.01.2019

A7 to A6

Total Acres 5.38 ac
 Total Lots Unknown
 Peak Hourly Flow Commercial 5.38 ac 0.02 cfs/ac
 Calculated Total 0.108 cfs

B1 to A6

Total Acres 22.67 ac
 Total Lots Unknown
 Peak Hourly Flow Multi-Family 22.67 ac 0.03 cfs/ac
 Calculated Total 0.680 cfs

A6 to A5

Total Acres 28.05 ac
 Total Lots Unknown
 Peak Hourly Flow Commercial 5.38 ac 0.02 cfs/ac
 Multi-Family 22.67 ac 0.03 cfs/ac
 Weighted 28.05 ac 0.028 cfs/ac
 Calculated Total 0.785 cfs

A1 to Ex MH

Total Acres 45.48 ac
 Total Lots Unknown
 Peak Hourly Flow Commercial 5.38 ac 0.02 cfs/ac
 Multi-Family 22.67 ac 0.03 cfs/ac
 Commercial 17.43 ac 0.02 cfs/ac
 Weighted 45.48 ac 0.025 cfs/ac
 Calculated Total 1.137 cfs

PIPE AREA CAPACITY CALCULATION TABLE														
SANITARY AREAS				DESIGN FLOWS				PIPE FLOW CALCULATIONS						
Upstream	Downstream	Watershed Acreage	Land Use	cfs/Acre	Infiltration/Inflow Allowance	cfs/Acre	Total cfs/Acre	Max Design Q (cfs)	Pipe Size (inches)	Length (feet)	% Slope	Q Capacity (cfs)	Manning's n	Design V (fps)
B1	A6	22.67	Multi-Family	0.0300	System	0.0015	0.0315	0.7141	10.00	115.89	0.44	1.46	0.011	2.94
A7	A6	5.38	Commercial	0.0200	System	0.0015	0.0215	0.1157	8.00	210.93	0.75	1.05	0.011	2.24
A6	A5	28.05	Multi-Family	0.0280	System	0.0015	0.0295	0.8275	10.00	72.77	0.44	1.46	0.011	2.91
A1	EX MH	45.48	Multi-Family	0.0250	System	0.0015	0.0265	1.2052	12.00	310.20	0.36	2.14	0.011	2.92

CAPACITY / FLOW SUMMARY TABLE							
Upstream Manhole	Minimum Slope %	Pipe Size In	Capacity (cfs)	Calculated Total Q (cfs)	Max Design Q (cfs)	Calculated Capacity Used (%)	Max Design Capacity Used (%)
A7	0.75	8.00	1.05	0.11	0.12	10%	11%
A6	0.44	10.00	1.46	0.79	0.83	64%	67%
EX MH	0.36	12.00	2.14	1	1.21	63%	66%
B1	0.44	10.00	1.46	1	0.71	47%	49%
Max Design Capacity < or = 78% of Pipe Capacity				CHECK OK			

Design info from City of Independence Public Works Manual Chapter 20, SEC 20.09.002